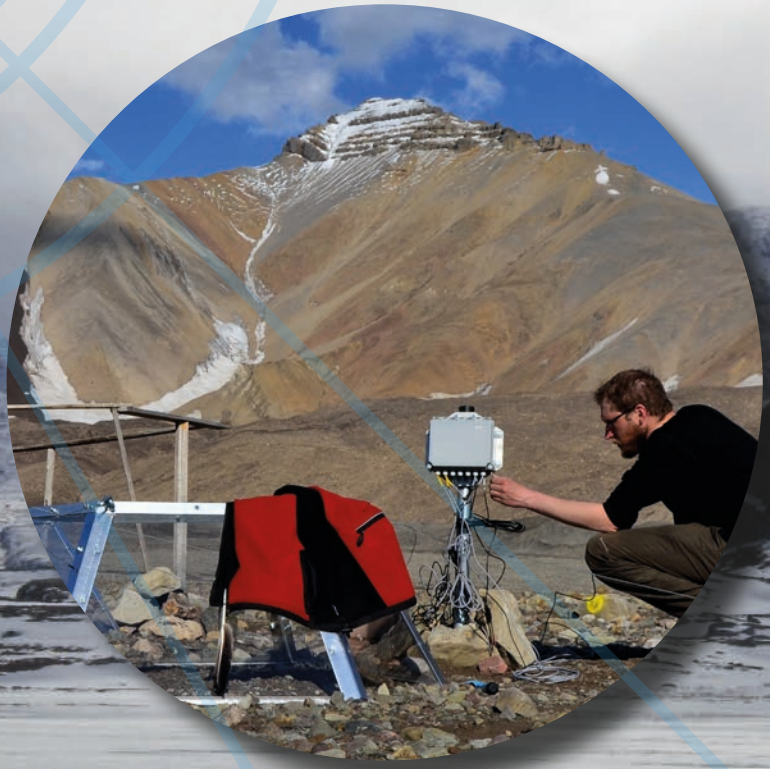


INTERACT

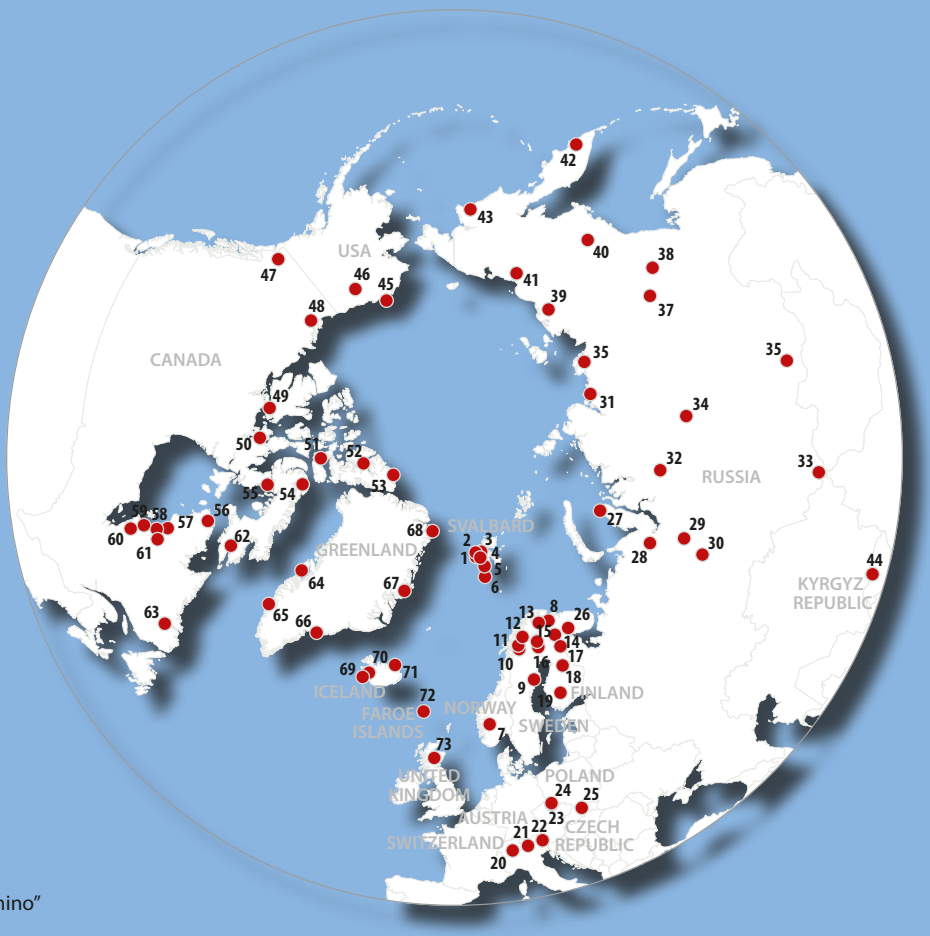
International Network for Terrestrial Research and Monitoring in the Arctic

Station Catalogue

2015

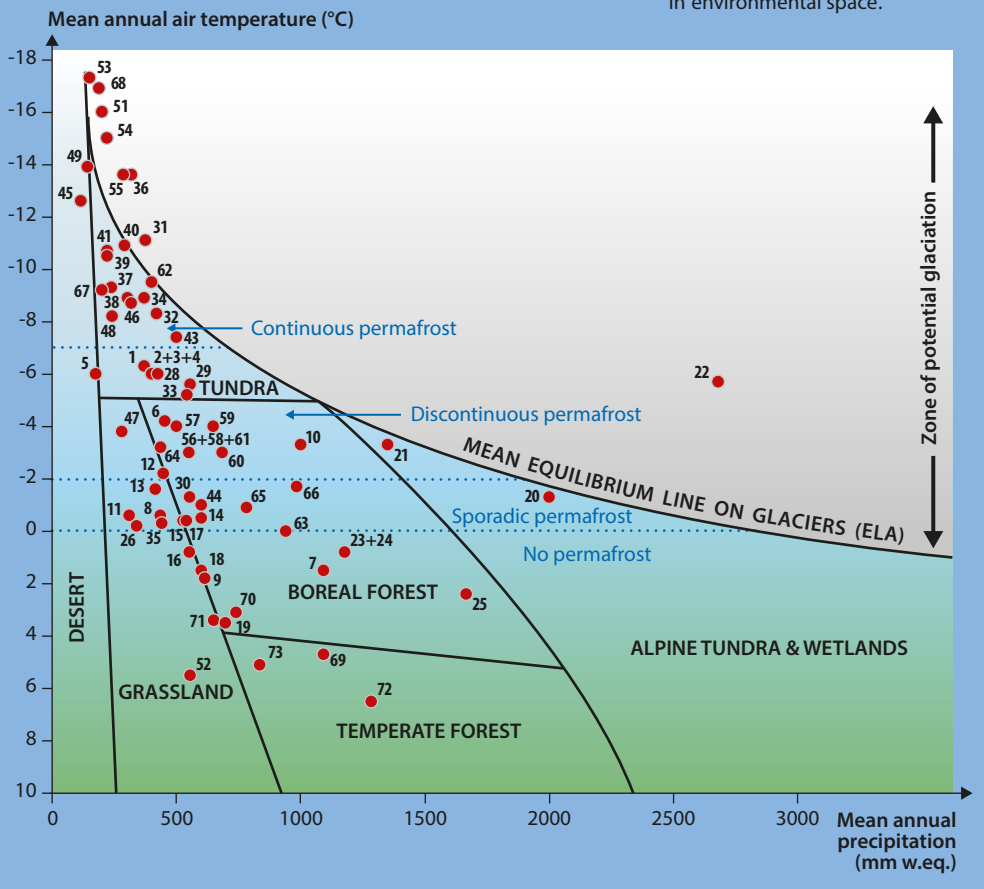
INTERACT Stations

1 Sverdrup Research Station
2 Netherlands' Arctic Station
3 UK Arctic Research Station
4 CNR Arctic Station "Dirigibile Italia"
5 Czech Arctic Research Station of Josef Svoboda
6 Polish Polar Station Hornsund
7 Finse Alpine Research Centre
8 Bioforsk Svanhovd Research Station
9 Svartberget Research Station
10 Tarfala Research Station
11 Abisko Scientific Research Station
12 Kilpisjärvi Biological Station
13 Kevo Subarctic Research Station
14 Värriö Subarctic Research Station
15 Pallas-Sodankylä Stations
16 Kolari Research Unit
17 Oulanka Research Station
18 Kainuu Fisheries Research Station
19 Hyytiälä Forest Research Station (SMEAR II)
20 Alpine Research and Education Station Furka
21 Station Hintereis
22 Sonnblick Observatory
23 Krkonoše Mountains National Park
24 Karkonosze National Park
25 M&M Kłapa Research Station
26 Khibiny Educational and Scientific Station
27 Beliy Island Research Station
28 Labytnangi Ecological Research Station
29 Numto Park Station
30 Mukhrino Field Station
31 Willem Barents Biological Station
32 Igarka Geocryology Laboratory
33 Aktru Research Station
34 Evenkian Field Station
35 International Ecological Educational Center "Istomino"
36 Research Station Samoylov Island
37 Spasskaya Pad Scientific Forest Station
38 Elgeeii Scientific Forest station
39 Chokurdakh Scientific Tundra Station
40 Orotuk Field Station
41 North-East Science Station
42 Avachinsky Volcano Field Station
43 Meinypil'gyno Community Based Biological Station
44 Adygine Research Station
45 Barrow Arctic Research Center/ Barrow Environmental Observatory
46 Toolik Field Station
47 Kluane Lake Research Station
48 Western Arctic Research Centre
49 Canadian High Arctic Research Station
50 M'Clintock Channel Polar Research Cabins
51 Flashline Mars Arctic Research Station
52 Polar Environment Atmospheric Research Laboratory
53 CEN Ward Hunt Island Research Station
54 CEN Bylot Island Field Station
55 Igloolik Research Center
56 CEN Salluit Research Station
57 CEN Boniface River Field Station
58 CEN Umiujaq Research Station
59 CEN Whapmagoostui-Kuujjuarapik Research Station
60 CEN Radisson Ecological Research Station
61 CEN Clearwater Lake Research Station
62 Nunavut Research Institute
63 Labrador Institute Research Station
64 Arctic Station
65 Greenland Institute of Natural Resources
66 Sermilik Research Station
67 Zackenberg Research Station
68 Villum Research Station
69 Sudurnes Science and Learning Center
70 Litla-Skard
71 RIF Field Station
72 Faroe Islands Nature Investigation
73 ECN Cairngorms



Map
Location of INTERACT stations.

Diagram
Location of INTERACT stations in 'environmental space'.



AARHUS
UNIVERSITY
DCE – DANISH CENTRE FOR ENVIRONMENT AND ENERGY

INTERACT
Station Catalogue • 2015

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Kirsten Elger
Thomas Opel
Elmer Topp-Jørgensen
Jannik Hansen
Zhanna Tairova
Morten Rasch

INTERACT Station Catalogue – 2015

Edited by:
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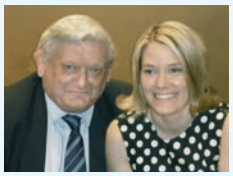
www.eu-interact.org

INTERACT is a network of terrestrial field bases in arctic and mountain areas of the Northern Hemisphere. The network is funded for 2011-15 by EU's Seventh Framework Programme as an 'Integrating Activity' under the theme 'Research Infrastructures for Polar Research'.

The network has been endorsed by the International Arctic Science Committee (IASC), the Arctic Monitoring and Assessment Programme (AMAP), the Circumpolar Biodiversity Monitoring Program (CBMP), the Sustaining Arctic Observing Networks (SAON), the International Study of Arctic Change (ISAC) and the World Wildlife Foundation (WWF).

The printing of this catalogue has been made possible by means provided by INTERACT, The International Arctic Science Committee, The European Commission, Aarhus University (Denmark) and Alfred Wegener Institute for Polar and Marine Research (Germany).

PREFACE



By
Professor Terry V. Callaghan
Doctor Margareta Johansson

INTERACT Coordinator and Executive Secretary

The Arctic is a vast area with beautiful unspoiled landscapes and a stunning but fragile biodiversity. The Arctic is home to Indigenous Peoples who have been and to a great extent still are depending on resources from the natural environment. In the past decade, the Arctic has gained widespread attention from scientists, the public and politicians because of the rapid changes occurring there. The Arctic's climate is changing faster than climate elsewhere while at the same time many other changes are taking place. These include globalization, exploitation of renewable and non-renewable resources and dramatically increased access. All of these changes provide opportunities as well as challenges to the residents of the Arctic. However, the Arctic is not isolated: the changes occurring in the Arctic have effects on the rest of the world. Retreating glaciers and shrinking ice caps increase global sea level rise that threatens many coastal areas and the people that live there, and carbon-based greenhouse gases released from thawing permafrost could potentially amplify global warming. However, new transport routes could lead to better access for exploiting new resources.

To maximize the opportunities at the same time as responding to challenges requires a well-developed observational record of environmental change together with process understanding that will allow us to predict future changes. Unfortunately, however, the arctic lands are vast and the human population is small. It is therefore a challenge to document and predict the changes.

In 2001, a small group of nine research stations in the European Arctic came together to share experiences and to develop a more efficient framework for observation and research. This SCANNET network was financed by the European Commission's 5th Framework Programme. Since then, SCANNET has grown, and in 2010 the network consisted of 32 research stations. Together with some research institutions outside the Arctic, the research stations proposed a new collaborative project to the European Commission's 7th Framework Programme. This was the start of INTERACT.

INTERACT started in 2010 as a circumarctic network of 32 terrestrial field bases in arctic and northern alpine areas of Europe, Asia and North America. However, by 2015, it had grown to 73 research stations. Its main objective is to build capacity for identifying, understanding, predicting and responding to diverse environmental changes throughout the wide environmental and land-use envelopes of the Arctic. Together, the INTERACT stations host many thousands of scientists from around the world working in multiple disciplines, and INTERACT collaborates with many research consortia and international research and monitoring networks. Already in its first years of operation, INTERACT made many advances. One particular achievement was to bring together for the first time descriptions of the major terrestrial research stations of the north and their activities in a Station Catalogue. This Station Catalogue was an important one stop resource for information useful to scientists, policy makers and others. However, the impressive doubling of INTERACT has made it necessary to up-date the original Catalogue which proved to be a great success. We are proud to commend this up-dated INTERACT product to a wide user community, and we have no doubts that a greatly increased use of activities will follow with significant and important innovations. It is a pleasure to thank all those who were involved in the production of the catalogue; from Working Group leaders to task leaders and ultimately representatives of all the stations that contributed. We hope that you will find this catalogue to be user-friendly, and we are happy to confirm that "friendliness" is a trademark of INTERACT: You are most welcome to explore the research stations in the catalogue and in reality. Welcome to the Arctic!

On behalf of INTERACT
Professor Terry V. Callaghan, Coordinator of INTERACT
Doctor Margareta Johansson, Executive Secretary of INTERACT, Lund, Sweden.

PREFACE

By
Doctor Morten Rasch

Chair of INTERACT Station Managers' Forum

In 1996, I was employed by the former Danish Polar Center as manager of a physical geography monitoring programme at a newly established research station in Northeast Greenland, called Zackenberg Research Station. At that time, the station was only a few tents in the middle of nowhere, and the funding for the station was short-term and very limited.

One of those days, a biologist who was involved in the work at Zackenberg, Thomas Bjørneboe Berg, came back from an international workshop in a newly established network, called SCANTRAN. The idea behind SCANTRAN was to establish a network of research sites along a north-south gradient in Northern Europe to make coordinated studies of Climate Change effects on northerly ecosystems. Thomas told the rest of us that Zackenberg was chosen to be one of the sites in this network. It was a victory to our small group. We felt it as an important recognition of our initiative, and suddenly we considered ourselves as part of an international research initiative. Through SCANTRAN we established contact with international experts in our field of research, among them Professor Terry V. Callaghan, the chair of INTERACT and former Director of the Abisko Scientific Research Station, and these experts helped us with their expertise to further develop Zackenberg Research Station and the long-term research and monitoring programmes there, and they facilitated contact to and cooperation with important stakeholders and international organisations. This was, in my perception, one of the major reasons for our survival as a research station and the continuation of the long-term research and monitoring programme.

The SCANTRAN initiative led to the establishment of the network SCANNET. After the funding terminated, SCANNET was maintained as a small network of research stations and friends, with a secretariat funded and hosted by the Abisko Scientific Research Station. During that period SCANNET developed to a circum-arctic network with 32 European, North American and Russian stations participating. In 2010, the SCANNET driven initiative, INTERACT, was funded by EU with 33 participating stations. After the establishment of INTERACT, the network has grown further, and today it includes a total of 73 research stations from the Arctic to alpine regions of the Northern Hemisphere.

The story about the inclusion of Zackenberg Research Station in the SCANTRAN network is the story about how international cooperation and networking in a friendly atmosphere can help to improve smaller national initiatives and thereby increase the quality of science infrastructures, the long-term measurements of the state and development of the environment carried out at the research infrastructures, and eventually the services provided to the scientific community and stakeholders. It is still the ambition of INTERACT to build capacity and services for conducting science in northerly and alpine ecosystems, and this catalogue should be seen as an attempt to do so. We wish you good luck with the planning of your next field work and we hope that you will consider this catalogue a helpful tool in doing so.

On behalf of the INTERACT Station Managers' Forum
Doctor Morten Rasch, Chair of INTERACT Station Managers' Forum and Scientific Leader of Zackenberg Research Station, Roskilde, Denmark

CONTENT

INTERACT STATIONS

Numbers assigned to the stations are continuously updated as the network exspands and may therefore not follow the numbering in other INTERACT publications.

INTERACT STATIONS

INTRODUCTION

Kirsten Elger[1], Thomas Opel[2], Elmer Topp-Jørgensen[3], Jannik Hansen[3], Zhanna Tairova[3], Morten Rasch[4]

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ABOUT INTERACT

INTERACT is a network of terrestrial field bases in arctic and mountain areas of the Northern Hemisphere. The network provides an efficient platform for coordinated research, monitoring and logistics by sharing experiences and coordinating activities and by making the network infrastructures available to specialised scientific networks and organisations as well as to research and monitoring programmes and projects.

A key aim of the network is to build capacity for terrestrial ecosystem research and monitoring to improve our ability to identify, understand, predict and respond to the impacts of diverse environmental changes throughout the environmental and land-use conditions represented at INTERACT sites. INTERACT seeks to improve the logistic and scientific services offered to the science community by providing a platform for activities that will increase our understanding of the processes and our knowledge of the status and trends of biota and physical characteristics.

INTERACT provides a one-stop-shop of information for scientists who are looking for one or more sites for their activities in the vast northern areas. INTERACT stations already host and operate numerous top level research and monitoring initiatives, and we welcome proposals for new initiatives from any scientific discipline related to terrestrial environments.

INTERACT comprises 73 terrestrial field stations (Station Table p. 10-13). Among these, 33 'INTERACT Stations' were included in the network already from the beginning of the project. In addition, 40 stations are currently included in the network as 'stations with observer status'. The participation of these Observer Stations is based on self-financing and their number is growing.

INTERACT is funded by the EU's 7th Framework Programme for the period 2011-2015. In addition to the focus on international cooperation and coordination, INTERACT also has a 'Joint Research Activities' component focusing on development of: (i) virtual instrumentation, (ii) improved instrumentation for measurements of feedback mechanisms from terrestrial ecosystems to climate change, and (iii) improved methods for data management. Furthermore, INTERACT has an EU-Funded 'Transnational Access' component that offers funding to users groups for access to 20 of the INTERACT stations in Europe and Russia. INTERACT also offers Transnational Access to two stations in North America through national funding.

THE INTERACT STATION CATALOGUE

What you have in front of you here is the Station Catalogue of INTERACT Terrestrial Research Infrastructures in arctic and mountain areas of the Northern Hemisphere. The catalogue is the vehicle for providing a one-stop shop for scientists and stakeholders looking for suitable terrestrial field bases for their activities.

The INTERACT Station Catalogue was developed within the INTERACT Station Managers' Forum, a group of station managers representing 73 arctic and mountain research stations. The Station Mangers' Forum provides a platform for exchange of information between stations in the network and between managers and other partners of INTERACT. This group of people decided on the information to be included in the INTERACT Station Catalogue (Box page 9), and they determined how the catalogue should be structured. Afterwards, each station manager has provided the information (incl. pictures) relevant for their specific site to the catalogue.

The INTERACT Station Catalogue demonstrates the unique characteristics of each station as well as the large diversity of stations in the entire network. We hope that the standardised data of station characteristics provides a helpful opportunity for researchers, institutions, organisations and other stakeholders to identify stations that suit their specific needs in terms of environmental conditions, facilities or services offered.

The INTERACT network includes stations in Scandinavia, Svalbard, Russia, the United States of America (Alaska), Canada, Greenland, Iceland, the Faroe Islands, the United Kingdom (Scotland), and in several mountain areas of Central Europe and Kyrgyz Republic (see Map). The stations are situated in different climatic zones, and as such they cover significant latitudinal and altitudinal gradients, as well as thresholds. They therefore provide access to a great variety of environmental and geophysical conditions (see Station Table and Diagram).

The INTERACT stations include sites extending from extremely cold and dry high arctic sites to relatively warm and wet subarctic sites. Many stations are located where thresholds occur in the environmental space, e.g. infrastructures located near the zero-degree mean annual temperature isotherm can expect severe changes in the cryosphere with increasing temperatures (see Diagram). The main scientific disciplines practiced at the stations include climatology, geo-sciences, biology, ecology, cryology, and to some extent also anthropology.

The INTERACT stations range from simple city-based housing facilities with research instrumentation in the field, through small and remote cabins, to larger field-based research infrastructures housing up to more than 100 visitors at a time. Facilities and services offered at the stations vary considerably from station to station and are described for each station in this catalogue.

The accessibility to the different stations in the network also varies greatly. Some stations can be reached by public transportation from a nearby town or airport. In contrast, the charter of a boat, an airplane, or a helicopter is required to reach others, or you have to endure a long and healthy hike.

STRUCTURE OF THE CATALOGUE

This catalogue is intended to be a useful tool for selecting the most appropriate station/ stations for planning and designing proposed research or monitoring activities. Stations are grouped according country, and the numbering starts at longitude 0, moving north to south through Europe and then eastwards country by country. This will ease indentification of station locations when knowing the number of the station. Each station is presented by a chapter of four pages including text and facts about the station as well as representative photos of the station and its surroundings.

The map, diagram and table (inside of cover and p. 10-13) provide an overview of location and key climate and environmental conditions for all INTERACT stations. We hope that this will be a useful guide that will help you to identify potential suitable stations – to be explored in more detail by consulting relevant station descriptions.

If you need further information about specific sites or stations, you are always welcome to contact the individual stations directly or to visit our website **www.eu.interact.org.**

Information presented for all stations included in this catalogue

Text descriptions including

- Station name and owner
- Location
- Biodiversity and natural environment
- History and facilities
- General research and databases
- Human dimension
- Access

Fact box information including

- Administrative issues
- Location
- Climate
- Characteristics of the study area
- Facilities and services
- Access
- Main science disciplines represented at the station

Let's INTERACT !

INTERACT encourages new stations to join our network to share experiences and to develop cooperation within a strong coordinated platform for science in cold terrestrial environments. If your station wants to join the network, please consult our website **www.eu-interact.org** for further information and contact details.

No*	Station name	Location	Owner Country	Latitude	Longitude	Altitude of study area (m a.s.l.)	
INTERACT Stations						Min.	Max.
1	Sverdrup Research Station	Svalbard	Norway	78°55′ N	11°56′ E	0	556
2	Netherlands' Arctic Station	Svalbard	Netherlands	78°55′ N	11°56′ E	0	556
3	UK Arctic Research Station	Svalbard	United Kingdom	78°55′ N	11°55′ E	0	556
4	CNR Arctic Station "Dirigibile Italia"	Svalbard	Italy	78°55′ N	11°56′ E	0	556
5	Czech Arctic Research Station of Josef Svoboda	Svalbard	Czech Republic	78°40′ N	16°23′ E	0	935
6	Polish Polar Station Hornsund	Svalbard	Poland	77°00′ N	15°33′ E	0	750
7	Finse Alpine Research Center	Norway	Norway	60°36′ N	07°30′ E	1000	1876
8	Bioforsk Svanhovd Research Station	Norway	Norway	69°27′ N	30°03′ E	0	250
9	Svartberget Research Station	Sweden	Sweden	64°14′ N	19°45′ E	160	320
10	Tarfala Research Station	Sweden	Sweden	67°55′ N	18°35′ E	–	2097
11	Abisko Scientific Reseach Station	Sweden	Sweden	68°21′ N	18°49′ E	345	1700
12	Kilpisjärvi Biological Station	Finland	Finland	69°03′ N	20°50′ E	470	1320
13	Kevo Subarctic Research Station	Finland	Finland	69°45′ N	27°01′ E	75	500
14	Värriö Subarctic Research Station	Finland	Finland	67°44′ N	29°36′ E	320	620
15	Pallas-Sodankylä Stations	Finland	Finland	67°22′ N	26°39′ E	170	800
16	Kolari Research Unit	Finland	Finland	67°21′ N	23°49′ E	200	800
17	Oulanka Research Station	Finland	Finland	66°22′ N	29°19′ E	155	500
18	Kainuu Fisheries Research Station	Finland	Finland	64°24′ N	27°30′ E	110	385
19	Hyytiälä Forest Research Station (SMEAR II)	Finland	Finland	61°51′ N	24°17′ E	150	200
20	Alpine Research and Education Station Furka	Switzerland	Switzerland	46°34′ N	08°25′ E	1500	3400
21	Station Hintereis	Austria	Austria	46°47′ N	10°45′ E	1900	3739
22	Sonnblick Observatory	Austria	Austria	47°03′ N	12°57′ E	1600	3254
23	Krkonoše Mountains National Park	Czech Republic	Czech Republic	50°44′ N	15°44′ E	920	1602
24	Karkonosze National Park	Poland	Poland	50°44′ N	15°44′ E	920	1602
25	M&M Kłapa Research Station	Poland	Poland	49°14′ N	20°00′ E	800	2301
26	Khibiny Educational and Scientific Station	Russia	Russia	67°38′ N	33°43′ E	150	1200
27	Beliy Island Research Station	Russia	Russia	73°03′ N	69°57′ E	0	12
28	Labytnangi Ecological Research Station	Russia	Russia	66°39′ N	66°24′ E	0	1000
29	Numto Park Station	Russia	Russia	63°42′ N	70°54′ E	–	–
30	Mukhrino Field Station	Russia	Russia	60°54′ N	68°42′ E	25	120
31	Willem Barentsz Biological Station	Russia	Russia	73°21′ N	80°32′ E	0	160
32	Igarka Geocryology Laboratory	Russia	Russia	67°27′ N	86°32′ E	2	1100
33	Aktru Research Station	Russia	Russia	50°06′ N	87°40′ E	1500	4075
34	Evenkian Field Station	Russia	Russia	64°17′ N	100°11′ E	130	1100
35	International Ecological Educational Center "Istomino"	Russia	Russia	52°08′ N	106°17′ E	457	468
36	Research Station Samoylov Island	Russia	Russia/Germany	72°22′ N	126°29′ E	0	50
37	Spasskaya Pad Scientific Forest Station	Russia	Russia	62°14′ N	129°37′ E	–	–
38	Elgeeii Scientific Forest Station	Russia	Russia	60°01′ N	133°49′ E	110	240
39	Chokurdakh Scientific Tundra Station	Russia	Russia	70°49′ N	147°29′ E	–	30
40	Orotuk Field Station	Russia	Russia	62°03′ N	148°39′ E	470	2200
41	North-East Science Station	Russia	Russia	68°73′ N	161°38′ E	0	1040
42	Avachinsky Volcano Field Station	Russia	Russia	53°15′ N	158°44′ E	130	3456
43	Meinypil'gyno Community Based Biological Station	Russia	Russia	62°32′ N	177°03′ E	0	1350
44	Adygine Research Station	Kyrgyz Republic	Kyrgyz Republic	42°30′ N	74°35′ E	3200	4200

Station Table. * Numbers refer to numbers on the Cover Map.

Climate zone					Mean temp (°C)			Precipitation (mm/year)	Permafrost				Features in study area											Max. visitors at a time	Distance to nearest town/settlement (km)
High Arctic	Low Arctic	Subarctic	Montane/Alpine	Boreal	Annual	February (January)	July		Continuous	Discontinuous	Sporadic	Palsa mires	Ice cap or glacier	Permanent snowpatches	Mountain	Valley	Lake/River	Shoreline	Tree line	Desert	Tundra	Peatlands/Weetlands	Forest	Human activity		
●					-6.3	-14.6	4.9	370	●				●	●	●	●	●	●		●	●	●		●	150	115
●					-6.0	-14.6	4.9	400	●				●	●	●	●	●	●		●	●	●		●	7	115
●					-6.0	-14.6	4.9	400	●				●	●	●	●	●	●		●	●	●		●	20	100
●					-6.3	-14.6	4.9	385	●				●	●	●	●	●	●		●	●	●		●	–	115
●					-6.0	-12.0	7.5	175	●				●	●	●	●	●	●		●	●	●		●	20	60
●					-4.2	-10.7	4.4	453	●				●	●	●	●		●			●				20	180
			●		1.5	-6.9	10.5	1092			●		●	●	●	●	●				●	●		●	54	2
		●			-0.6	-13.0	14.0	435				●			●	●	●	●	●			●	●	●	80	40
				●	1.8	-8.9	14.6	614							●	●	●					●	●	●	20	6
		●			-3.3	-10.9	7.4	1000		●			●	●	●	●	●		●		●			●	30	27
		●			-0.6	-11.0	11.0	310		●		●		●	●	●	●	●	●		●	●	●	●	90	1
		●			-2.2	-13.0	11.0	447			●	●		●	●	●	●	●	●			●	●	●	60	40
		●			-1.6	-13.7	12.9	415			●	●			●	●	●	●	●		●	●	●		70	20
		●			-0.5	-8.2	12.1	600							●	●	●	●	●		●	●	●	●	50	100
		●		●	-0.4	-12.7	14.5	527								●	●		●			●	●	●	25	7
		●		●	0.8	-18.4	15.4	552							●	●	●		●		●	●	●	●	10	4
		●		●	-0.4	-14.0	14.9	540							●	●	●	●	●		●	●	●	●	94	55
				●	1.5	-17.0	15.0	625									●	●				●	●	●	14	16
				●	3.5	-7.7	16.0	697									●	●				●	●	●	150	10
			●		-1.3	-8.7	6.4	2000		●			●	●	●	●			●		●				100	12
			●		-3.3	-12.2	5.2	1350		●			●	●	●	●	●		●			●	●	●	8	15
			●		-5.7	-11.2	1.8	2680		●			●	●	●	●									10	20
		●	●		0.8	-4.0	13.0	1177							●	●	●		●		●	●	●	●	–	5
		●	●		0.8	-4.0	13.0	1177							●	●	●		●		●	●	●	●	–	5
			●		2.4	-5.8	10.7	1666			●			●	●	●	●		●						4	5
	●				-0.2	-11.5	12.6	340			●			●	●	●	●		●	●	●	●	●	●	80	3
	●				–	-24.0	5.0	220	●								●	●				●		●	12	500
		●			-6.0	-22.4	14.4	425	●					●	●	●	●		●		●				25	0
		●			-5.6	–	15.0	555		●		●		●		●	●					●	●	●	6	4
		●		●	-1.3	–	17.1	553								●	●					●	●	●	20	28
●					-11.1	-25.4	4.9	375	●					●		●	●	●			●	●		●	10	18
		●			-8.3	-24.8	15.4	420		●		●				●	●				●	●	●	●	20	0
			●		-5.2	-18.5	9.5	542	●				●	●	●	●			●		●				20	45
				●	-8.9	-31.5	16.6	370	●						●	●	●		●		●	●	●	●	20	0
		●			-0.3	-18.3	17.1	441			●						●	●	●			●	●	●	65	0
	●				-13.6	-33.2	9.3	319									●	●				●			25	120
		●		●	-9.3	-40.0	19.0	238							●		●	●					●		15	18
				●	-8.9	-33.9	18.5	303	●							●	●	●				●	●	●	20	60
	●				-10.5	(-34.6)	9.5	221	●						●	●	●	●	●						14	28
		●		●	-10.9	-35.0	15.9	291	●					●	●	●	●		●		●	●	●	●	4	10
	●				-10.7	-30.7	13.1	221	●					●	●	●	●	●	●	●	●	●	●	●	40	5
		●			–	(-16.0)	12.0	1200						●	●	●	●		●		●		●		24	20
	●				-7.4	-20.5	10.3	500			●			●	●	●	●	●			●	●		●	14	0
		●			-1.0	-15.0	9.0	600	●				●	●	●	●	●							●	16	8

No*	Station name	Location	Owner Country	Latitude	Longitude	Altitude of study area (m a.s.l.)	
INTERACT Stations						Min.	Max.
45	Barrow Arctic Research Center/ Barrow Environmental Observatory	USA	USA	71°18′N	156°35′W	0	10
46	Toolik Field Station	USA	USA	68°37′N	149°35′W	–	–
47	Kluane Lake Research Station	Canada	Canada	61°01′N	138°24′W	790	5959
48	Western Arctic Research Centre	Canada	Canada	68°21′N	133°43′W	0	1700
49	Canadian High Arctic Research Station	Canada	Canada	69°07′N	105°03′W	0	225
50	M'Clintock Channel Polar Research Cabins	Canada	Canada	68°37′N	95°52′W	0	–
51	Flashline Mars Arctic Research Station	Canada	USA	75°25′N	89°49′W	–	–
52	Polar Environmental Atmospheric Research Laboratory	Canada	Canada	80°03′N	86°24′W	0	610
53	CEN Ward Hunt Island Research Station	Canada	Canada	83°06′N	74°10′W	0	400
54	CEN Bylot Island Field Station	Canada	Canada	73°08′N	80°00′W	0	1300
55	Igloolik Research Center	Canada	Canada	69°22′N	81°48′W	0	20
56	CEN Salluit Research Station	Canada	Canada	62°12′N	75°38′W	0	460
57	CEN Boniface River Field Station	Canada	Canada	57°45′N	76°10′W	90	300
58	CEN Umiujaq Research Station	Canada	Canada	56°33′N	76°32′W	0	400
59	CEN Whapmagoostui-Kuujjuarapik Research Station	Canada	Canada	55°17′N	77°45′W	0	140
60	CEN Radisson Ecological Research Station	Canada	Canada	53°47′N	77°37′W	0	160
61	CEN Clearwater Lake Research Station	Canada	Canada	56°20′N	74°27′W	215	400
62	Nunavut Research Institute	Canada	Canada	63°45′N	68°31′W	0	2200
63	Labrador Institute Research Station	Canada	Canada	53°31′N	60°08′W	0	1600
64	Arctic Station	Greenland	Denmark	69°15′N	53°34′W	0	800
65	Greenland Institute of Natural Resources (GINR)	Greenland	Greenland	64°11′N	51°41′W	0	1600
66	Sermilik Research Station	Greenland	Denmark	65°40′N	38°10′W	0	937
67	Zackenberg Research Station	Greenland	Greenland	74°28′N	20°34′W	0	1492
68	Villum Research Station	Greenland	Greenland	81°36′N	16°39′W	0	100
69	Sudurnes Science and Lerning Center	Iceland	Iceland	64°02′N	22°42′W	0	400
70	Litla-Skard	Iceland	Iceland	64°43′N	21°37′W	115	229
71	RIF Field Station	Iceland	Iceland	66°27′N	15°57′W	0	284
72	Faroe Islands Nature Investigation (FINI)	Faroe Islands	Faroe Islands	62°04′N	06°58′W	0	882
73	ECN Cairngorms	United Kingdom	United Kingdom	57°07′N	03°49′W	350	1100

Station Table. * Numbers refer to numbers on the Cover Map.

	Climate zone					Mean temp (°C)			Precipitation (mm/year)	Permafrost				Features in study area											Max. visitors at a time	Distance to nearest town/settlement (km)
	High Arctic	Low Arctic	Subarctic	Montane/Alpine	Boreal	Annual	February (January)	July		Continuous	Discontinuous	Sporadic	Palsa mires	Ice cap or glacier	Permanent snowpatches	Mountain	Valley	Lake/River	Shoreline	Tree line	Desert	Tundra	Peatlands/Weetlands	Forest	Human activity		
	●					-12.6	-27.7	4.1	115	●								●	●		●	●	●		●	75	5
		●				-8.7	-20.7	10.8	318	●			●			●	●	●				●	●			150	210
			●	●	●	-3.8	-18.0	13.0	280		●			●	●	●	●	●	●	●		●		●		30	65
			●			-8.2	-25.5	14.1	241	●			●			●	●	●	●	●		●	●	●	●	75	0
		●				-13.9	-32.5	8.9	142	●								●	●		●	●	●		●	–	0
	●					-5.7	-15.6	0.9	191	●									●						●	–	–
	●					-16.0	–	–	200			●			●						●					7	145
	●					-18.8	-37.4	6.1	635	●						●	●		●		●					40	500
	●					-17.3	-33.0	-1.0	150	●				●	●	●	●	●	●		●		●			9	800
	●					-15.0	-35.0	6.1	220	●			●	●	●	●	●	●	●		●	●	●			18	85
	●					-13.6	-31.2	7.0	286	●									●							12	0
		●				-3.0	-23.1	9.6	550	●						●	●	●	●			●	●		●	9	0
			●			-4.0	-24.0	12.5	500		●		●				●	●	●	●		●	●	●		9	130
			●			-3.0	-22.4	12.2	550		●		●				●	●	●	●		●	●	●	●	9	0
			●		●	-4.0	-22.4	12.7	648		●		●				●	●	●	●		●	●	●	●	28	0
			●		●	-3.0	-21.6	13.7	684			●	●				●	●	●				●	●	●	28	0
			●			-3.0	-22.4	11.8	550		●		●			●	●	●	●	●		●	●			11	135
		●				-9.5	-28.0	3.6	404	●				●	●	●	●	●	●			●	●		●	30	0
					●	0.0	-15.7	15.1	940			●	●		●	●	●	●	●	●		●	●	●	●	–	0
	●	●				-3.2	-11.6	7.6	436	●	●		●	●	●	●	●	●	●		●	●	●		●	26	1
		●				-0.9	-7.8	6.9	782			●		●		●	●	●	●			●	●		●	25	0
		●				-1.7	(-7.5)	6.4	984		●			●		●	●	●	●			●				6	20
	●					-9.2	-19.4	6.1	200	●				●	●	●	●	●	●			●	●			21	450
	●					-16.9	-30.9	3.4	188	●				●				●	●		●	●	●			24	800
			●			4.7	0.7	10.6	1092							●		●	●				●		●	12	0
		●				3.1	-1.8	10.8	740							●	●	●		●	●	●	●	●		6	25
			●			3.4	-0.7	9.1	650							●		●	●				●		●	8	0
			●			6.5	3.6	10.3	1284							●	●		●							20	15
				●		5.1	0.0	10.5	835							●	●	●		●		●	●	●		80	10

INTER

ACT

STATIONS

SVERDRUP

STATION NAME AND OWNER

The Sverdrup Research Station is owned and managed by the Norwegian Polar Institute.

LOCATION

The Sverdrup Research Station is located in the research village Ny-Ålesund on the northern side of Brøgger Peninsula at the southern shore of Kongsfjorden, Svalbard. The infrastructure in Ny-Ålesund is run by the Kings Bay Company. The town hosts many national research stations, and the Sverdrup Research Station is the main Norwegian station in Ny-Ålesund. The nearest civilian settlement is Longyearbyen, 100 km south of Ny-Ålesund.

BIODIVERSITY AND NATURAL ENVIRONMENT

Ny-Ålesund is surrounded by arctic tundra and river plains, while the mountains in the inner part of the Brøgger Peninsula have many small glaciers. Large glacier tongues flow into Kongsfjorden on the eastern and northern side of the fjord. Most of the birds living in Svalbard are breeding on small islands or on bird cliffs in Kongsfjorden. Reindeer and foxes are common visitors in Ny-Ålesund. Seals are often seen close to the settlement, and sometimes also walrus and beluga occur.

HISTORY AND FACILITIES

Ny-Ålesund was a mining town until the 1960s. After the mining was stopped, Ny-Ålesund started to develop into a research town, beginning with the Norwegian Polar Institute establishment of a permanent research station in 1968. Today, 10 nations have stations in Ny-Ålesund, and scientists from many more nations visit Ny-Ålesund to conduct research. The Sverdrup Research Station hosts Norwegian projects and research groups from nations without their own station in Ny-Ålesund. The station provides logistical support (snowmobiles, boats, and equipment), workshops, office facilities, and field storage, while labora-

1

tory space is available through the Kings Bay Marine Laboratory. One of the main activities of the Norwegian Polar Institute is to run the Zeppelin Observatory (which is on top of the Zeppelin Mountain (475 m a.s.l.) and accessible by cable car) for long-term atmospheric monitoring. Up to 25 people can be accommodated at Sverdrup Station in the summer peak season.

GENERAL RESEARCH AND DATABASES

Ny-Ålesund and its area is ideal for research and monitoring of contemporary environmental changes related to Climate Change issues, long range transport of pollutants, UV-radiation and related biological effects, physiology, eco-toxicology, arctic marine and terrestrial ecosystems, as well as other research disciplines. To release the full potential of the various activities from the 10 research stations in Ny-Ålesund, the stations have implemented four flagship programmes focusing on marine, terrestrial, atmospheric, and glaciological research.

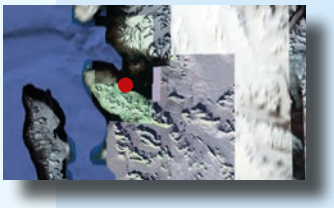
HUMAN DIMENSION

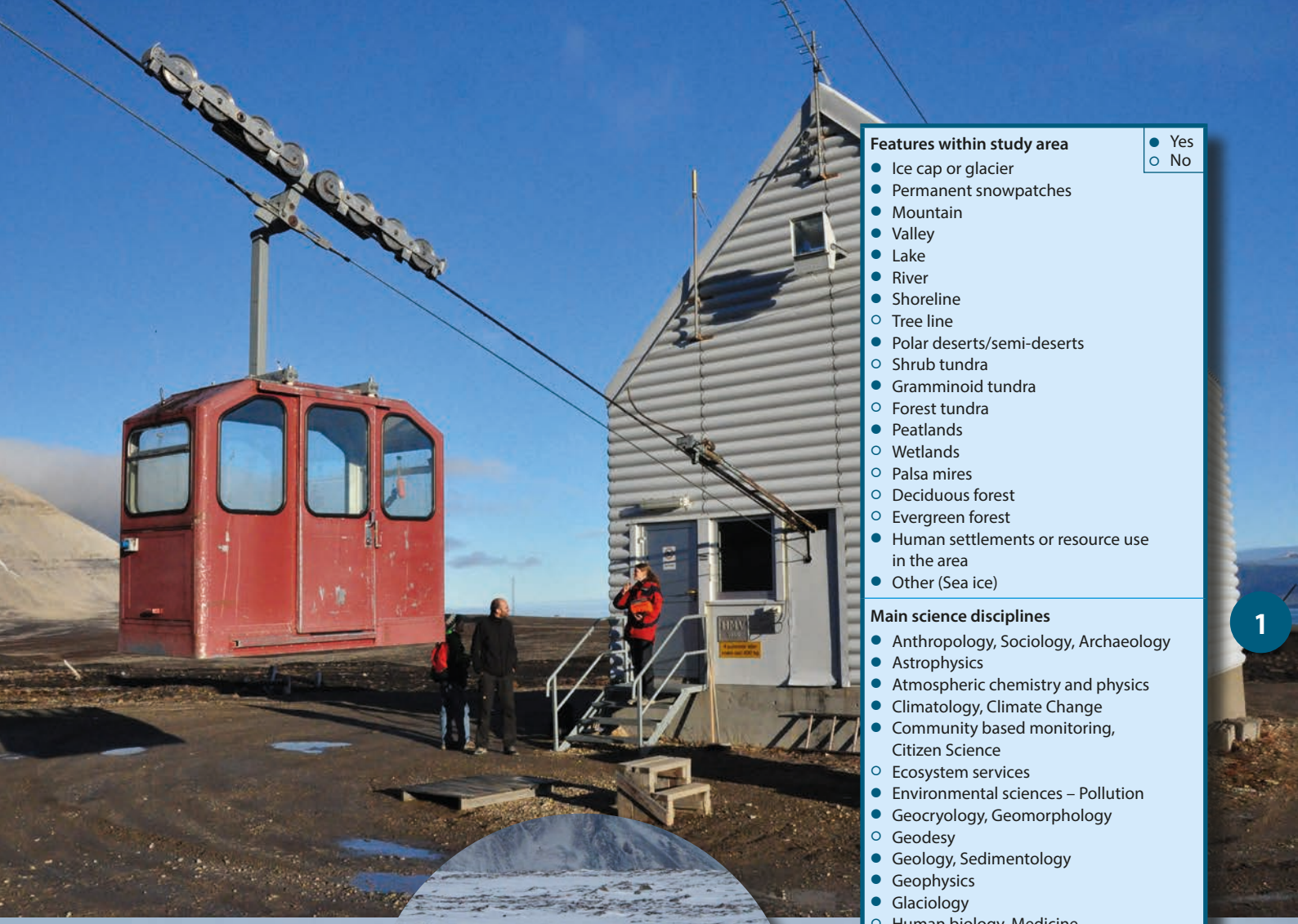
The research village Ny-Ålesund is in general only accessible for researchers. During the peak season (July-August), 150-180 persons stay in Ny-Ålesund, but the number drops drastically to 40-60 people in spring and autumn. Only the permanent staff (30-40 people) is present during the winter months. Today, Ny-Ålesund includes Svalbard's largest collection of automatically protected cultural monuments and is one of the archipelago's highly prioritised cultural environments

ACCESS

Longyearbyen can be reached by commercial aircrafts. From there an air shuttle service twice a week connects Longyearbyen with Ny-Ålesund. The flight takes c. 25 minutes with 14-17 persons per flight. A limited number of researchers arrive by ship, but there is no regular ship transport to Ny-Ålesund, except one monthly freight ship during the summer.

Category	Sub-Category	Sverdrup Research Station
Website		http://sverdrup.npolar.no
Country		Norway (Svalbard/Norway)
Opening year		1968
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes stationmanager@npolar.no
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Norwegian Polar Institute Government Norwegian Polar Institute stationmanager@npolar.no www.npolar.no
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	78°55' N, 11°56' E 5 m a.s.l. 0 m a.s.l. 556 m a.s.l. Longyearbyen/Ny-Ålesund (2116/42 inhabitants) 100 km to Longyearbyen/located in Ny-Ålesund Maps (1:30 000 , 1:100 000, 1:250 000), air photos, satellite images
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous Means 1961-1990 -6.3 °C -14.6 °C 4.9 °C – 24 m/s E 370 mm (1975-89) Rain, snow April/May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	585 m^2 Access to Kings Bay laboratory – Access to Kings Bay 5/4 150 (total capacity of Ny-Ålesund, shared between all stations) Yes Yes 220 V EU type All day hours
Scientific equipment	Specific device Scientific services offered	Instruments for atmospheric, radiation, and hydrologic measurements, and others Monitoring long term measurements, support for visitors
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic Yes – (nurse sometimes in summer) 115 km to Longyearbyen (1 hour) First aid kit, glacier rescue, satellite phone, VHF –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	Kings Bay operated Gravel Yes Port, landing wharf, pier, ponton (operated by Kings Bay)
Vehicles at station	Sea transportation Land transportation	– –
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	95% by plane Many freight and sailing ships, no regular person transport (May-September) 2-4 per week (year-round)





Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Sea ice)	●	

Main science disciplines

- Anthropology, Sociology, Archaeology ●
- Astrophysics ●
- Atmospheric chemistry and physics ●
- Climatology, Climate Change ●
- Community based monitoring, Citizen Science ●
- Ecosystem services ○
- Environmental sciences – Pollution ●
- Geocryology, Geomorphology ●
- Geodesy ○
- Geology, Sedimentology ●
- Geophysics ●
- Glaciology ●
- Human biology, Medicine ○
- Hydrology ●
- Isotopic chemistry ●
- Limnology ●
- Land-use change, Mapping, GIS ●
- Marine biology ●
- Microbiology ●
- Oceanography, Fishery ●
- Paleoecology ●
- Paleolimnology ●
- Soil Science ●
- Terrestrial biology – Biodiversity ●
- Terrestrial biology – Ecosystem function ●

Workshop facilities

- Metal workshop ●
- Wood workshop ●
- Plexiglas workshop ○
- Staff available to assist with constructions ●

Communication

- Telephone ●
- Satellite phone ●
- VHF ●
- E-mail ●
- Internet ●
- Computer ●
- Printer ●
- Scanner ●
- Fax ○

NETHERLANDS' ARCTIC STATION

STATION NAME AND OWNER

The Netherlands' Arctic Station is owned and run by the Arctic Centre of the University of Groningen.

LOCATION

The Netherlands' Arctic Station is situated in Kongsfjorden on the island of Spitsbergen and is part of an international research community in the former mining town of Ny-Ålesund, Svalbard. In this town, more than 10 nations have their own station while using shared facilities for meals and recreation. The whole local community is focussed on science and maintenance of infrastructure. Several stations have independent terrestrial research programmes and the Netherlands' Arctic Station is the smallest of all.

BIODIVERSITY AND NATURAL ENVIRONMENT

Kongsfjorden is a beautiful high arctic environment with several glaciers terminating in the fjord. The raised beach terraces are sparsely vegetated with dense moss cover around small tundra lakes and below bird cliffs. Locally there are clear traces of former human activity by trappers and from coal mining. At present, the whole area is well-protected and a special permission is needed to enter the islands during the bird breeding season. In 1978, reindeer was re-introduced and since 1982 barnacle geese have established a colony and are regularly feeding between the houses. Both herbivores have a clear impact on the vegetation.

HISTORY AND FACILITIES

From 1916 to 1968, the village of Ny-Ålesund was a coal mining settlement. This village has now developed into a unique mix of stations, laboratories, and research infrastructure. There is a small international community of 25 to 180 people – all temporal residents. Tourists are discouraged to stay overnight. In 1990, the University of Groningen initiated a project on barnacle geese and later joined the shared facilities with the establishment of Netherlands' Arctic Station. The station consists of two small buildings for lodging with electricity but no plumbing. Shared facilities in town offer unique high-standard science and logistic support. There is a developing cooperation with the local German/French base AWIPEV.

GENERAL RESEARCH AND DATABASES

Research focusses on the role of barnacle geese in the arctic

ecosystem. Nutrient cycles, plant productivity, and vegetation patterns are studied to understand plant-herbivore interactions. Behaviour, timing, and breeding success of individually ringed geese are observed over their lifetime, and the effect of predators is studied as a dynamic interaction. Population trends of plants, herbivores, and predators are monitored in a warming environment. Long term experiments include grazing exclosures and greenhouses on paired vegetation plots. There are also projects focussing on the history of human exploitation and the effect of tourism on cultural heritage.

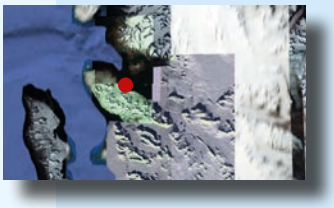
HUMAN DIMENSION

The local community in Ny-Ålesund is a mixture of nationalities from the various stations. The area is owned by a company called Kings Bay, taking care of the logistics for the entire village. Ny-Ålesund has no permanent residents and all activity is linked to science. The closest town is the Norwegian village of Longyearbyen, which is the main hub of Svalbard. In Longyearbyen, permanent residents are few (c. 2100). There are no indigenous people and most inhabitants originate from the Norwegian mainland and live on Svalbard only because of their temporal job assignment. Tourism, local administration, science, and coal mining are the most important sources of income.

ACCESS

Throughout the year, Kings Bay organises two flights per week with a small plane (14 passengers) between Longyearbyen and Ny-Ålesund. In summer, there are about 30000 tourists landing by boat for just a few hours. There is only a limited amount of roads near the village. Local transportation is possible by car, bicycle, snowmobile, or foot. Small boats are used for transportation inside the fjord.

Category	Sub-Category	Netherlands' Arctic Station
Website		www.arcticstation.nl
Country		Svalbard/The Netherlands
Opening year		1995
Operational period		Mid June-mid August
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes m.j.j.e.loonen@rug.nl
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	University of Groningen, Arctic Centre Private University of Groningen, Arctic Centre m.j.j.e.loonen@rug.nl www.rug.nl/arcticcentre
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	78°55' N, 11°56' E 10 m a.s.l. 0 m a.s.l. 556 m a.s.l. Longyearbyen (2116 inhabitants) 115 km 1:100 000
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous – -6 °C -14.6 °C 4.9 °C 4 m/s 21.6 m/s NW 400 mm Snow, rain Lakes: May/June; Sea: May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	114 m^2 16 m^2 16 m^2 6 rooms (8 beds) 1/0 7 – – 220 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Very basic, blood sampling –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic – – 115 km Weapon, VHF radio, survival kit –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	800 × 50 m Gravel Yes Port, landing wharf, pier, pontoon
Vehicles at station	Sea transportation Land transportation	Aluminium small boats Bicycle
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Plane Freight once per summer month, tourist cruiseships daily (May to November) 2 per week all year (year-round)



Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Bird cliffs and small islands)	●	

Main science disciplines	Yes	No
Anthropology, Sociology, Archaeology	●	
Astrophysics		○
Atmospheric chemistry and physics		○
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services	●	
Environmental sciences – Pollution	●	
Geocryology, Geomorphology		○
Geodesy		○
Geology, Sedimentology		○
Geophysics		○
Glaciology		○
Human biology, Medicine		○
Hydrology		○
Isotopic chemistry		○
Limnology	●	
Land-use change, Mapping, GIS	●	
Marine biology	●	
Microbiology	●	
Oceanography, Fishery		○
Paleoecology		○
Paleolimnology		○
Soil Science	●	
Terrestrial biology – Biodiversity	●	
Terrestrial biology – Ecosystem function	●	

Workshop facilities	Yes	No
Metal workshop		○
Wood workshop		○
Plexiglas workshop		○
Staff available to assist with constructions		○

Communication	Yes	No
Telephone		○
Satellite phone		○
VHF	●	
E-mail	●	
Internet	●	
Computer	●	
Printer	●	
Scanner	●	
Fax		○

UK ARCTIC RESEARCH STATION

STATION NAME AND OWNER

The Natural Environment Research Council (NERC), UK, has funded the UK Arctic Research Station which is managed by the British Antarctic Survey.

LOCATION

Ny-Ålesund, 78°55′ N, 11°56′ E is situated on the southern shore of Kongsfjord on the west coast of Spitsbergen, the largest island in the Svalbard archipelago.

BIODIVERSITY AND NATURAL ENVIRONMENT

Due to the influence of the North Atlantic Current, the climate on the west coast of Spitsbergen is milder than any other locations at that latitude. The southern side of Kongsfjord, on which Ny-Ålesund is situated, has 50 km^2 of tundra and alluvial plain. Glaciers and sea confine a plant protection area at the head of the fjord. Numerous glaciers of various types occur in the area. Most bird species found in Svalbard are represented in the area with barnacle geese, eiders, auks, terns, and kittiwakes nesting in large numbers. Land mammals include reindeer, fox, and the occasional polar bear. The local fjord is home to ringed, bearded and common seals, walrus, and beluga.

HISTORY AND FACILITIES

The UK has maintained a research station at Ny-Ålesund continuously since 1972. The NERC Arctic Research Station opened in1991. The station comprises 440 m^2 of laboratory, workshop, and storage space plus single bedrooms. Additional accommodation can be provided by Kings Bay Company. The station provides laboratory, field equipment, telephone, computer facilities (fast web link), VHF radios, satellite telephones, firearms, and boats. Rental of snowmobiles for specific projects can be arranged.

GENERAL RESEARCH AND DATABASES

The location is particularly suitable for ecological research, glacial/ periglacial geomorphology, hydrology, and atmospheric chemistry.

HUMAN DIMENSION

In 1991, Ny-Ålesund and the surrounding environment were designated as an area solely for scientific research. There are now 14 research stations owned by 10 nations. The Kings Bay Company provides a service infrastructure including air and

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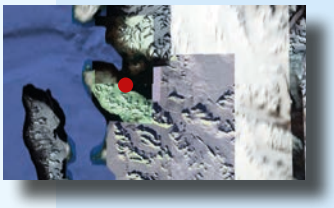
sea link, power, water, buildings, and a dining facility. During the summer months, June to September, the population in Ny Ålesund reaches 150 persons. During the winter months it decreases to c. 25 persons.

ACCESS

There are regular flights between Ny-Ålesund and Longyearbyen (30 minute flight) serviced by a 14 seat Dornier aircraft. Longyearbyen is served by scheduled flights from Norway. The northern shore and islands are easily accessible by boat.

Category	Sub-Category	UK Arctic Research Station
Website		www.arctic.ac.uk
Country		Svalbard/UK
Opening year		1991
Operational period		March-September
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes nc@bas.ac.uk
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Natural Environment Research Council Government British Antarctic Survey nc@bas.ac.uk www.arctic.ac.uk
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	78°55′ N, 11°56′ E Shoreline 0 m a.s.l. 500 m a.s.l. Longyearbyen (2116 inhabitants) 115 km 1:100 000
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous – -6 °C -14.6 °C 4.9 °C – Gale force E 400 mm Snow, rain Lakes: May/June; Sea: May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	442 m^2 77 m^2 100 m^2 4 laboratories, computer room, office, living room, store rooms wash and drying rooms, garage, workshop, 7 beds plus extra provided by Kings Bay AS 1 station manager plus Kings Bay staff 20 Yes Yes Generator power 220 V outlet 24 hours per day
Scientific equipment	Specific device Scientific services offered	Drying ovens, freezers, fridges, centrifuge, fume cupboard, microscopes, balances etc –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard – 1 100 km (2 hours) Weapons, VHF radio, map, compass, first-aid kit Spare clothing, food
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	800 × 60 m Gravel Yes Port, landing wharf, pier, pontoon, sledges
Vehicles at station	Sea transportation Land transportation	Polarcirkel 560 Workboat Bicycle and hand carts, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Plane Freight only 1 per summer month (May to November) 2 per week (year-round)



NATURAL ENVIRONMENT RESEARCH COUNCIL

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
● Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Islands)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop (only at KB)
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

STATION NAME AND OWNER

CNR Arctic Station "Dirigibile Italia" is the Italian scientific station in Svalbard. It is funded and managed by the National Research Council of Italy (CNR).

LOCATION

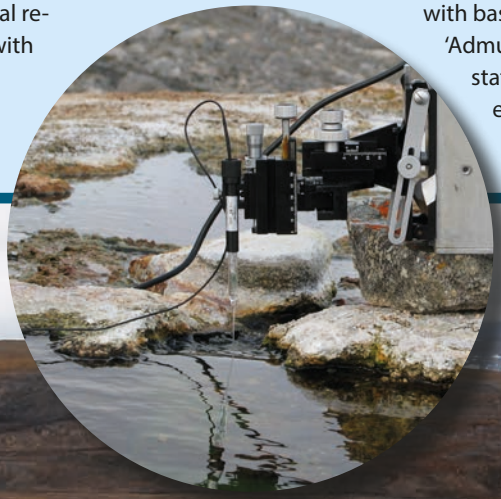
The station is located in Ny-Ålesund, on the shores of Kongsfjorden, on the west coast of Spitzbergen, the largest island of the Svalbard archipelago. Ny-Ålesund was a mining village until 1963. During the 1990's it transformed into a multidisciplinary science settlement, and today stations from 10 different nations host researchers from up to 20 different countries. The area around the village is geographically diverse, including the fjord with several islands, a plateau, alluvial plains, mountains with large glaciers and extensive moraine systems, glacial rivers, coastal lagoons, and a small lake. The area further includes ornithological reserves and a nature reserve with regulated access.

BIODIVERSITY AND NATURAL ENVIRONMENT

Ny-Ålesund enjoys the mildest climate at this latitude due to a distant branch of the Gulf Stream bordering the west coast of Spitzbergen. The fauna is dominated by a large variety of birds, including arctic terns, auks, kittiwakes, gulls, barnacle geese, northern fulmars, Svalbard ptarmigans, and Arctic skuas. Mammals include Svalbard reindeer, arctic foxes, and a sporadic presence of polar bears, also seals and less frequently whales, are spotted in the fjord. The permafrost is continuous and 75-450 m thick, and the active layer thickness ranges between 0.3 and 3.8 m. The whole area lies within the Dryas octopetala zone of the high-arctic fell-field vegetation.

HISTORY AND FACILITIES

The Station was established in 1997. It provides accommodation for seven persons in single and double rooms. Also, laboratories with basic equipment are available at the station. A 32 m high 'Admundsen-Nobile Climate Change Tower' belongs to the station, and is equipped with instruments investigating energy budget and flux exchanges at the atmosphere-land interface. In addition, the 'Gruvebadet Laboratory'



CNR ARCTIC STATION "DIRIGIBILE ITALIA"

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for sampling aerial pollutants and particles is part of the station's facilities. The station has a membership in the Ny-Ålesund Marine Laboratory consortium, an experimental laboratory for research in marine ecology, physiology, and biochemistry.

GENERAL RESEARCH AND DATABASES

Research programmes currently developed at the station deals with microbial ecology and evolution; biogeochemistry and energy fluxes; vegetation and permafrost studies; oceanography, marine biomarkers; atmosphere, aerosols, gases and clouds; remote sensing of the environment; sun-earth relations and space weather; human biology and medicine.

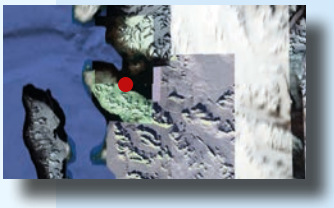
HUMAN DIMENSION

11 permanent stations are established in Ny-Ålesund by 10 different countries and the entire settlement is owned and operated by the Norwegian State owned company King's Bay AS. Researchers from many countries regularly come to Ny-Ålesund to work. King's Bay AS provides and manages all necessary infrastructures and services in the community including meals, maintenance of buildings and roads, post office, local shop, airport, and harbour. Research is coordinated by the Ny-Ålesund Science Managers Committee (NySMAC) and the Svalbard Science Forum (SSF).

ACCESS

Regular flights between Ny-Ålesund and Longyearbyen take place four times per week in summer and twice per week in winter. There is an international airport in Longyearbyen with scheduled connections to mainland Norway. Ny-Ålesund can be reached also by boat. Sailing in the fjord is possible for people at the station through agreements with the Sverdrup Station of the Norwegian Polar Institute and with King's Bay AS. In winter and spring snowmobiles are available for field trips. In summer, hiking is the only mean of transport in the field outside the village.

Category	Sub-Category	CNR Arctic Station "Dirigibile Italia"
Website		www.polarnet.cnr.it/content/view/162/58/lang,en
Country		Svalbard/Italy
Opening year		1997
Operational period		March-October
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes info.arctic@cnr.it
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	National Research Council Government Department of Earth System Science and Environmental Technologies (CNR-DTA) info.arctic@cnr.it www.dta.cnr.it
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	78°55′ N, 11°56′ E 10 m a.s.l. 0 m a.s.l. 556 m a.s.l. Longyearbyen (2116 inhabitants) 100 km Map (1:100 000), aerial image
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous Since 1974 -6.3 °C -14.6 °C 4.9 °C – Gale force E 385 mm Rain, snow For the last five years, open water all year round
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	330 m^2 160 m^2 10 m^2 5 laboratories, small workshop, office, living room, storage room, 6 rooms (7 beds) 1/0 6 plus additional places provided by King's Bay AS Yes Yes 230 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Fume hood, drying oven, laminar flow cabinet, ultrapure water, ultrasonic bath, shaker, heater/stirrer, balance, freezer, refrigerator –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard at King's Bay AS Available at King's Bay AS 1 available at King's Bay AS 115 km (2 hours) Weapon, signalling pistol, VHF radio and satellite telephone, map, compass, first aid kit Food, spare clothing, GPS, binoculars
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	800 × 60 m operated by King's Bay AS Gravel Yes Port, landing wharf, pier, pontoon operated by King's Bay AS
Vehicles at station	Sea transportation Land transportation	Zodiak and Polarcircle operated by Norwegian Polar Institute; Teisten and Polarcircle operated by King's Bay AS Bicycles, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Plane, ship Freight: 1 per month from April to December 4 per week in summer; 2 per week in winter



National Research Council of Italy

Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Ice-wedge polygons)	●	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop (only at KB)
- ● Wood workshop (only at KB)
- ○ Plexiglas workshop
- ● Staff available to assist with constructions (only at KB)

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

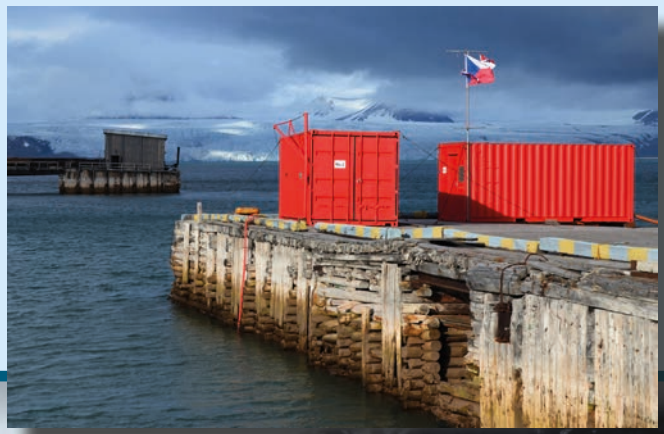
CZECH ARCTIC RESEARCH STATION

STATION NAME AND OWNER

The Czech Arctic Research Station of Josef Svoboda is owned by the University of South Bohemia in the Czech Republic.

LOCATION

The Czech research facilities in Svalbard consist of a research base in Longyearbyen called "Payer's house" and a field camp in the central part of Svalbard in Billefjorden (called Nostoc houses). Field activities are mainly taking place in Petuniabukta in the northernmost part of Billefjorden.



BIODIVERSITY AND NATURAL ENVIRONMENT

The Czech Arctic Research Station of Josef Svoboda is situated in the High Arctic. The mean annual temperature is -6 °C, and the mean annual precipitation is 150-200 mm. Petuniabukta, where the field camp is located, is in the central part of the Svalbard archipelago, which is more continental and drier than the western part. There is a steep elevation gradient in the area (the highest mountains reach 1000 m a.s.l.). Various habitats can be accessed within walking distance in the study area, i.e. sandy beaches, waterlogged tundra, seepages, dry tundra, bird cliffs, lakes, snow-melt and glacial streams, glaciers, etc. Rich wildlife, incl. gulls, kittiwakes, terns, barnacle geese, eiders, reindeer, arctic foxes, and polar bears are present as well.

HISTORY AND FACILITIES

The station in Longyaerbyen was established in 2013. Accommodation is available for up to 16 people, and the station further includes laboratories for standard laboratory work. During the summer season, a field camp located ca. 6 km north of the settlement, Pyramiden, is used. The huts can accommodate up to 12 persons and are equipped with a small laboratory, kitchen,

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and shared bedrooms. Communication is ensured with VHF radios and satellite phones. Three zodiacs are used for transportation in the Billefjorden area. From 2015 a 15 m motor-sailer (for up to 10 persons, four overnight) will be available.

GENERAL RESEARCH AND DATABASES

Research mainly focuses on biodiversity and ecosystem dynamics. Relatively long research records on plant ecology, phycology, parasitology, and bioclimatology exist. Today, studies on geomorphology and hydrology are developing in the area. Regular meteorological measurements were established in 2007.

HUMAN DIMENSION

The station is located in Longyearbyen with a predominantly Norwegian population of c. 2100 inhabitants. Historically, the population was employed in fishery, hunting, and whaling, later in the coal mining industry. Today, tourism is becoming the main business. The field camp is near the old mining town of Pyramiden, an area with strong Russian influence.

ACCESS

There are regular commercial flights to Longyearbyen (3 hours from Oslo). To reach the field camp, local cruising companies organise tourist trips to Pyramiden approximately 5 km from the field camp. It usually takes 5-6 hours to reach Pyramiden from Longyearbyen. There is also the possibility of renting a boat in Longyearbyen from a private company. Reaching the station in a rubber boat requires good weather conditions and calm sea. Distance from Logyearbyen is c. 60 km by boat.

Category	Sub-Category	Czech Arctic Research Station of Josef Svoboda
Website		http://polar.prf.jcu.cz/station.htm
Country		Svalbard/Czech Republic
Opening year		2007
Operational period		July-September
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes (depends on the field of studies, see: www.sysselmannen.no/enkel.aspx?m=63084)
	Contact (permit issues)	czechpolar@gmail.com, http://www.sysselmannen.no/hoved.aspx?m=44365
Facility owner and manager	Name of the facility owner	University of South Bohemia, Czech Republic
	Owner status	Government
	Institution responsible for managing the station	Center for Polar ecology, Faculty of Science, University of South Bohemia, Ceske Budejovice, Czech Republic
	Contact (access to station)	czechpolar@gmail.com
	Website (institution)	http://polar.prf.jcu.cz
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	78°40′ N, 16°23′ E
	Altitude of station	2 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	935 m a.s.l.
	Nearest town/settlement	Pyramiden (6 inhabitants), Longyearbyen (2116 inhabitants)
	Distance to nearest town/settlement	0.5 km (Pyramiden), 60 km (Longyearbyen)
	Map	Map (1:50 000), satellite image, Google Earth with low resolution
Climate	Climate zone	High Arctic
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	-6 °C
	Mean temperature in February	-12 °C
	Mean temperature in July	7.5 °C
	Mean annual wind speed	4 m/s
	Max. wind speed	24 m/s
	Dominant wind direction	S
	Total annual precipitation	150-200 mm
	Precipitation type	Snow, rain
	Ice break up	Lake: June; Sea: June
Station facilities	Area under roof	20 m^2 + 60 m^2 (hut)
	Scientific laboratories	20 m^2 (hut)
	Logistic	10 m^2 + 10 m^2 (hut)
	Number of rooms (beds)	Container: 1 room (6 beds); hut: kitchen, lab, bedrooms (12 beds)
	Number of staff on station (peak/off season)	8/0
	Max. number of visitors at a time	20
	Showers	–
	Laundry facilities	–
	Power supply (type)	1.5 kW Fossil fuel generator (400V/ 230V)
	Power supply	On demand
Scientific equipment	Specific device	Climate stations, GPS, basic laboratory equipment, different surveying equipment, diving equipment, coring device, OTC, etc.
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	1
	Distance to hospital (estimated time)	60 km (2-3 hours, according to the weather conditions by helicopter, rubber boat)
	Compulsory safety equipment	Weapon, VHF
	Recommended safety equipment	Flare gun, first aid kit
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	Port, landing wharf
Vehicles at station	Sea transportation	Zodiac
	Land transportation	–
Transport and freight	Transport to station	Cargo is transported to Svalbard in advance via cargoship (from Gdynia or Tromsø), other transport by plane to Longyearbyen and then by a cruise ship to the station
	Number of ship visits per year (period)	No regular intervals (only during summer season)
	Number of flight visits per year (period)	–

Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra	●	
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other		○

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	○
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	○
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	●
Geophysics	○
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	○
Limnology	●
Land-use change, Mapping, GIS	○
Marine biology	●
Microbiology	●
Oceanography, Fishery	○
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	●
Satellite phone	●
VHF	●
E-mail	○
Internet	○
Computer	●
Printer	○
Scanner	○
Fax	○

CENTRE FOR POLAR ECOLOGY
CZECH REPUBLIC

HORNSUND

STATION NAME AND OWNER

The Polish Polar Station, Hornsund belongs to the Institute of Geophysics of the Polish Academy of Sciences.

LOCATION

The station is situated on the northern shore of the Hornsund Fjord in the centre of the South Spitsbergen National Park (8504 km^2), Svalbard Archipelago. Longyearbyen – the capital of Svalbard with harbor and airport is located approximately 180 km northward.

BIODIVERSITY AND NATURAL ENVIRONMENT

Pristine environment surrounds the station, where glaciers, mountains, valleys, lakes, and rivers are not affected by humans. In 2002, the Polish station, together with the Hornsund Fjord, was recognized as one of six the European Marine Biodiversity Flagship Sites (www.iopan.gda.pl/projects/biodaff).

Tundra with many species of lichens, mosses, flowers, and shrubs occupy the raised marine terraces and the lower parts of the mountain slopes. Reindeers, Arctic foxes, and polar bears together with many bird species are living around the station.

HISTORY AND FACILITIES

The Polish Polar Station was established in 1957, as a winter base during the 3rd International Geophysical Year 1957/1958. In the 1970s, it was used by Polish research expeditions during summers only. The station was renovated in 1978 and has been in operation year-round since then. Today, the station is a modern research platform with access to well-equipped laboratories, satellite communication, and internet. Accommodation, washing, and cooking facilities for 20 visitors (in addition to the permanent staff of 10 persons) are in the same building. There is also a well equipped workshop, a boat house, and storage for instruments and field equipment. The station lounge has a multimedia projector, white screen, and a 60" HD LCD TV and is used for scientific seminars and conferences for up to 20-30 participants.

GENERAL RESEARCH AND DATABASES

The research at the Polish Polar Station focuses on meteorology, glaciology, monitoring of geophysical fields (i.e. seismology, geomagnetism, atmospherical electricity), permafrost, and geomorphic processes. The main study objectives are related to the evolution of the high arctic environment with respect to Climate

Change. Projects include the research on mass and energy balance of glaciers, fluctuations and changes of their hydrothermal state, and dynamics of tidewater glaciers and their interaction with the ocean. Changes in marine and terrestrial ecosystems are systematically studied, including a strong ornithological component.

Existing databases include meteorological and glaciological records (www.glacio-topoclim.org), geophysical data (collected in several world data centres), as well as marine and terrestrial biological parameters. There is a bibliography of publications arising from research at the station.

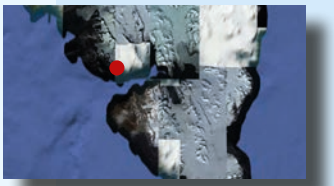
HUMAN DIMENSION

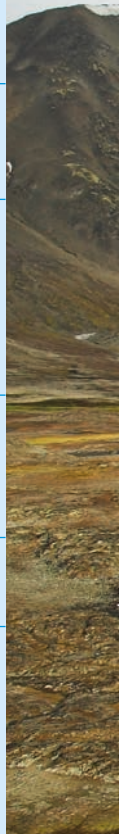
The closest town Longyearbyen is administrative center and the largest settlement of Svalbard with more than 2100 inhabitants. There are harbours and airport with regular flight connections with Tromsø and Oslo. In the town are also hotels, restaurants, shops, galleries, hospital, school, and the University Center of Svalbard (UNIS) with c. 350 students and 40 persons in the staff. Longyearbyen is also the seat of the Norwegian Governor of Svalbard with police station and helicopter rescue station as well.

ACCESS

There are no roads between any settlement and the Polish Polar Station. During the summer season, the station can be reached by ships or yachts. Flights by helicopter may be used all year-round. The trip by ship from Longyearbyen to Hornsund takes 12-24 hours and by helicopter c. 1 hour. In winter and spring, Hornsund can be reached by snowmobiles, if two fjords between Longyearbyen and the station have stable and thick enough sea ice cover.

Category	Sub-Category	Polish Polar Station, Hornsund
Website		www.hornsund.com, www.hornsund.igf.edu.pl
Country		Svalbard/Poland
Opening year		1957
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes (permission for work given by the Governor of Svalbard)
	Contact (permit issues)	firmapost@sysselmannen.no
Facility owner and manager	Name of the facility owner	Institute of Geophysics, Polish Academy of Sciences
	Owner status	Government
	Institution responsible for managing the station	Department of Polar Research, Institute of Geophysics, Polish Academy of Sciences
	Contact (access to station)	polar@igf.edu.pl, hornsund@igf.edu.pl
	Website (institution)	www.igf.edu.pl
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	77°00′ N, 15°33′ E
	Altitude of station	9 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	750 m a.s.l.
	Nearest town/settlement	Longyearbyen (2116 inhabitants)
	Distance to nearest settlement	180 km
	Map	Map (1:25 000), orthophotomaps (1:10 000), aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	High Arctic
	Permafrost	Continuous
	Years measured	1979-2010
	Mean annual temperature	-4.2 °C
	Mean temperature in February	-10.7 °C
	Mean temperature in July	4.4 °C
	Mean annual wind speed	5-6 m/s
	Max. wind speed	35 m/s (max. wind gust = 49 m/s)
	Dominant wind direction	E
	Total annual precipitation	452.6 mm
	Precipitation type	Snow, rain
	Ice break up	Lake: June/July; Rivers: May/June; Sea: April/May
Station facilities	Area under roof	1550 m^2
	Scientific laboratories	120 m^2
	Logistic	500 m^2
	Number of rooms (beds)	19 (accomodation: 36 beds), 9 Laboratories, 2 Common/Seminar rooms, 1 Medical suite, 1 Kitchen, 1 Fitnessroom
	Number of staff on station (peak / off season)	16/10
	Max. number of visitors at a time	20
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Diesel generator 400/230 V 50Hz european two/three pin plug
	Power supply	24 hours per day
Scientific equipment	Specific device	Standard chemical laboratory equipment, Liquid Ion chromatography, Differential GPS, Geodetic surveying equipment, Automatic Weather Station
	Scientific services offered	Technical support, chemical analyses
Medical facilities	Medical facilities	Basic
	Medical suite	Basic
	No. of staff with basic medical training or doctor	Yes
	Distance to hospital (estimated time)	2-3 hours (1 hour helicopter flight)
	Compulsory safety equipment	180 km (3 hours to Longyearbyen hospital)
	Recommended safety equipment	Signal pistol, first aid kit, Avalanche Beacon, Spot - Satellite Personal Tracker
Landing facilities	Airstrip (Length × Width)	– (flat place on tundra, far away from buildings and antennas)
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	Landing wharf, pontoon (ships can anchor c. 500 m from the coast-line; transport only possible with boats and amphibious vehicles)
Vehicles at station	Sea transportation	Rubber boats (RIB, Bombard, Zodiac), plastik and aluminium motor boats, amphibious vehicles
	Land transportation	Snowmobiles (during winter and spring and on glaciers)
Transport and freight	Transport to station	Ship, helicopter, snowmobiles
	Number of ship visits per year (period)	1-2 (supply vessels) + 3-5 other ships (June-October)
	Number of flight visits per year (period)	Not regular intervals (year-round)





Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake		○
River		○
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands		○
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Proximity of Hansbreen glacier and non glaciated experimental drainage basin)	●	

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	●
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	●
Geology, Sedimentology	●
Geophysics	●
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	○
Limnology	○
Land-use change, Mapping, GIS	●
Marine biology	●
Microbiology	●
Oceanography, Fishery	●
Paleoecology	○
Paleolimnology	○
Soil Science	●
Terrestrial biology – Biodiversity	○
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	●
Staff available to assist with constructions	●

Communication	
Telephone	○
Satellite phone	●
VHF	●
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	○

FINSE

STATION NAME AND OWNER

Finse Alpine Research Centre is owned by the Faculty of Mathematics and Natural Sciences of the University of Oslo, Norway. Even though the University of Oslo is the official owner, state funding for building the station was provided on the condition that the Universities of Bergen and Oslo have equal rights to the use of the station for research and education. The station is managed by the Department of Biology, University of Oslo.

LOCATION

The Alpine Research Center is located 1.5 km east of the Finse railway station on the northwestern corner of the Hardangervidda mountain plateau in south central Norway (60°36′ N, 7°30′ E). The closest town is Geilo, about 50 km to the east. Finse lies in the low alpine zone at 1200 meters a.s.l. and about 250 meters above the tree line. The snow-free period is normally between mid-July and October. The station is located just outside Hallingskarvet National Park to the north and east and Skaupsjøen-Hardangerjøkulen landscape protection area to the south and west. The Hardangerjøkulen glacier is 4 km south of the station.

BIODIVERSITY AND NATURAL ENVIRONMENT

The area has continuous vascular vegetation up to about 1300 m a.s.l. – mainly oligotrophic mountain heaths. There are rich breeding-grounds for many species of shorebirds, rock ptarmigan, rough legged buzzard, gyrfalcon, and many passerines. The small-rodent community consists of Norwegian lemmings, root/tundra voles, field voles, bank voles, and grey-sided voles. Other mammals include common shrew, Eurasian pygmy shrew, stoat, hare, and reindeer. Arctic fox has been released in a reintroduction program since 2010. There are numerous clearwater lakes with trout and Arctic char.

HISTORY AND FACILITIES

The station has been in operation since 1972 and consists of a research unit that contains 14 beds, kitchen, labs, and sauna, in addition to a course and conference unit with 44 beds, kitchen, dining hall, lecture room, and sauna. For further information about the facilities see http://www.finse.uio.no/about/research-unit/.

GENERAL RESEARCH AND DATABASES

The station has a long history of research in biology, limnology, and geosciences. The station is mainly used for research projects run by Norwegian universities, including Master and PhD projects, but also attracts international visitors. An automatic climatological station has been in operation since 1969 which now also includes UV radiation sensors. The station has historic time-series data on small mammals, and mass balance data is available from the Hardanger Jøkulen glacier. See descriptions of current research projects at www.finse.uio.no/research/projects.

HUMAN DIMENSION

The area is much used for recreation including skiing, kite skiing, hiking, cycling, fishing, and hunting. There is a hotel and a hiker's lodge at Finse, and there are many private cabins in the area.

ACCESS

There are no public roads to the station, but the station is accessible year-round by train (4.5 hours from Oslo and 2.5 hours from Bergen). The research station is located about 1.5 km east of the railway station and transport to the station is available by van or snowmobile except for the snowmelt period which normally includes most of May and June.

Category	Sub-Category	Finse Alpine Research Centre
Website		www.finse.uio.no
Country		Norway
Opening year		1965
Operational period		June-September (year-round)
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes torbjorn.ergon@bio.uio.no/e.a.leslie@bio.uio.no
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	University of Oslo Government Departement of Biosciences torbjorn.ergon@bio.uio.no/e.a.leslie@bio.uio.no www.uio.no
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	60°36′ N, 07°30′ E 1215 m a.s.l. 1000 m a.s.l. 1876 m a.s.l. Finse (5 inhabitants) 2 km 1:50 000
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Low-Alpine Sporadic Since 1993 1.45 °C -6.9 °C 10.5 °C 7.8 m/s 30 m/s W 1092 mm Snow, rain Lake: July-September
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	700 m^2 70 m^2 7 m^2 54 (54 beds), 7 laboratories, 1 livingroom, 1 canteen 2/0 54 Yes – 240 V (two-pin plug) 24 hours per day
Scientific equipment	Specific device Scientific services offered	– –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic – – 2 hours, depending on train time table (1 hour with helicopter) Mobil phone or VHF radio First aid kit, map and compass
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– (It is not allowed to land in the national parks) – – –
Vehicles at station	Sea transportation Land transportation	– Snowmobile/van depends on wheather
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Hiking, railway, snowmobile depends on wheather – –

UiO : University of Oslo

Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Small rodent cycles)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

BIOFORSK SVANHOVD

STATION NAME AND OWNER

The Bioforsk Svanhovd Research Station belongs to the Norwegian Institute for Agricultural and Environmental Research (Bioforsk).

LOCATION

Bioforsk Svanhovd is located in the Pasvik area in NE Norway (69°27' N, 30°03' E), approximately 40 km south of the fjords of the Barents Sea, 400 km north of the Arctic Circle, and in close vicinity to Russia and Finland. Bioforsk Svanhovd is situated in Svanvik, a small village in the Pasvik Valley. It is located at the western shore of the Pasvik River that originates from the huge Lake Inari in Finland and flows northwards into the Barents Sea and defines the border between Norway and Russia.

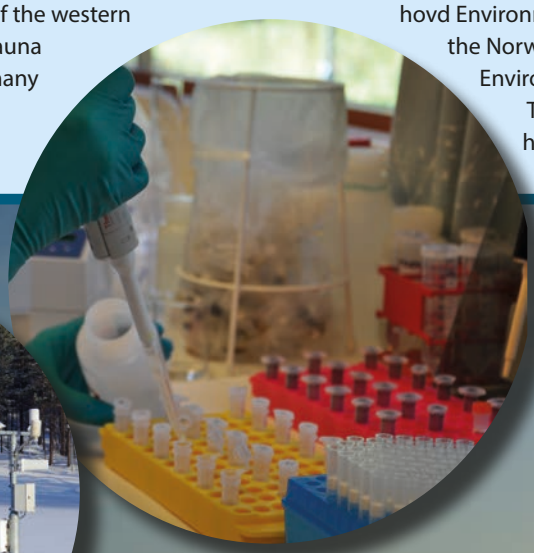
BIODIVERSITY AND NATURAL ENVIRONMENT

The surroundings in the Pasvik Valley are part of the western distribution limit of the Russian taiga and the fauna and flora has a strong eastern influence, with many species not found in other areas of Europe, e.g. interesting aquatic flora. The area includes old-growth pine forest, wetlands, lakes, rivers, mountain birch forest, tundra, seashore, and fjords. Most groups of organisms in the area are poorly studied with many still unknown species in certain taxa. The area is also found to be the northernmost distribution of several species and the Pasvik River has a very high biological diversity compared to other rivers in Norway. The area is exposed to several invading species.

HISTORY AND FACILITIES

Svanhovd was established in 1934 as a governmental demonstration farm to provide expertise and aid to the settlers of the Pasvik Valley. In the early 1990s, a change of activity towards environmental research was motivated in particular due to large emissions from the metal smelters in the Russian city Nikel (9 km away from Svanhovd). 2001, a visitor centre for the Øvre Pasvik National Park was established and, in 2006, Svanhovd Environmental Centre became a part of the Norwegian Institute for Agricultural and Environmental Research.

The laboratory at Bioforsk Svanhovd has facilities for microbiological,



chemical-physical, and DNA-analysis. It is accredited for DNA analyses of brown bears. Bioforsk Svanhovd has a conference centre with accommodation for 50 persons (in single and double rooms, with private bathrooms). Guests are free to use Svanhovds fireplace, TV lounge, sauna, and laundry room. The conference centre offers an auditorium for 80 persons, and smaller meeting rooms for 5 to 30 persons. Additional accommodation can be arranged in Svanvik (walking distance) and at hotels in Kirkenes (45 minutes by car).

GENERAL RESEARCH AND DATABASES

The region offers 'round-the-corner ecological laboratories' for several important research areas: Pristine nature in subarctic ecosystems, changes in land use (farming and abandoned land), climatic and environmental gradients, etc. Bioforsk Svanhovd works with issues related to natural resources, protected areas, biological diversity, and environmental research in the Barents Region. Some work on agricultural issues is also carried out. Each year, surveys within the national brown-bear monitoring programme in Norway, Finland, Sweden, and Russia is carried out.

HUMAN DIMENSION

The Pasvik Valley offers nature tourism, fishing, bird-watching, hunting, forestry, northern agriculture, reindeer husbandry, mining, and research. Kirkenes (c. 3400 inhabitants), that is located 40 km NW of Svanhovd, was established in late nineteenth century as a port town for the mining industry at Bjørnevatn a few km away and for forestry. The area has been inhabited by Sami people for several centuries.

ACCESS

Svanhovd is an excellent meeting point for researchers and visitors from all over the world, situated in NE Norway in close vicinity to Russia, Finland, and Sweden, and with the facilities offered by Svanhovd Conference Centre. The Botanical Garden at Svanhovd demonstrates the diversity of plants and trees in the Pasvik Valley. It is easy to come to Svanhovd, with daily flights from Oslo Gardermoen Airport to Kirkenes Airport (Høybuktmoen), with about 2 hours flight time (SAS and Norwegian), and then 45 minutes (40 km) by car to Svanhovd (Road 885). Taxi or rental cars are available at Kirkenes Airport.

Category	Sub-Category	Bioforsk Svanhovd Research Station
Website		www.bioforsk.no/svanhovd
Country		Norway
Opening year		1934
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	Lars-Ola.Nilsson@Bioforsk.no
Facility owner and manager	Name of the facility owner	Bioforsk – Norwegian Institute for Agricultural and Environmental Research
	Owner status	Government
	Institution responsible for managing the station	Bioforsk – Norwegian Institute for Agricultural and Environmental Research
	Contact (access to station)	Lars-Ola.Nilsson@Bioforsk.no
	Website (institution)	www.bioforsk.no
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	69°27′ N, 30°03′ E
	Altitude of station	35 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	250 m a.s.l.
	Nearest town/settlement	Kirkenes/Svanik (3400/800 inhabitants)
	Distance to nearest town/settlement	40/0 km
	Map	Maps (1:10 000, 1:50 000, 1:5000)
Climate	Climate zone	Subarctic
	Permafrost	Palsas
	Years measured	–
	Mean annual temperature	-0.6 °C
	Mean temperature in February	-13 °C
	Mean temperature in July	14 °C
	Mean annual wind speed	1.5 m/s
	Max. wind speed	14.5 m/s
	Dominant wind direction	WSW
	Total annual precipitation	435 mm
	Precipitation type	Snow, rain
	Ice break up	Rivers and lakes: April-June; Sea: ice free all year
Station facilities	Area under roof	–
	Scientific laboratories	Laboratories for DNA and chemical-physical analyses
	Logistic	–
	Number of rooms (beds)	50 room (50 beds, some extension possible)
	Number of staff on station (peak/off season)	30/30
	Max. number of visitors at a time	80
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	General electricity supply (220 V)
	Power supply	24 hours per day
Scientific equipment	Specific device	Microbiological, chemical-physical and DNA-analysis (brown bear), simple field labs, weather and radioactivity station
	Scientific services offered	Baseline climate and phenology data etc.
Medical facilities	Medical facilities	Standard (basic)
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	40 km (45 minutes by car)
	Compulsory safety equipment	First aid kit, defillibrator
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	1755 m (length) Kirkenes Airport
		–
	Airstrip surface	–
	Helipad	Port: Kirkenes (40 km away; with e.g. Hurtigruta)
	Ship landing facilities	
Vehicles at station	Sea transportation	–
	Land transportation	Car, taxi, bus
Transport and freight	Transport to station	Car, taxi, bus
	Number of ship visits per year (period)	Daily (Kirkenes, year-round)
	Number of flight visits per year (period)	Daily (Kirkenes, year-round)

● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ○ Permanent snowpatches
- ● Mountain
- ● Valley
- ● Lake
- ● River
- ● Shoreline
- ● Tree line
- ○ Polar deserts/semi-deserts
- ○ Shrub tundra
- ○ Gramminoid tundra
- ○ Forest tundra
- ● Peatlands
- ● Wetlands
- ● Palsa mires
- ● Deciduous forest
- ● Evergreen forest
- ● Human settlements or resource use in the area
- ● Other (Edge of taiga, mountain birch forests, alpine heaths, bogs, mires (incl. some palsa mires), drained land, river, creeks, lakes (incl. some alkaline), etc.)

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

SVARTBERGET RESEARCH STATION

STATION NAME AND OWNER

Svartberget Reseach Station belongs to the Faculty of Forest Sciences, Swedish University of Agricultural Sciences (SLU).

LOCATION

The research station is located in the northwestern part of Sweden in the province of Västerbotten. The station is surrounded by a 2500 ha research area including forests, mires, lakes, and waterways. Since 1923, the area has been used for research only. Mixed coniferous forest dominates the experimental site and the bedrock consists almost entirely of gneiss. The dominating type of soil is moraine of various thickness. SLU and the Faculty of Forest Sciences have the mandate from the Government of Sweden to take national responsibility for forestry related research. To do this, SLU has four field stations, including Svartberget, all being manned throughout the year. The research station at Svartberget is located near Vindeln, 60 km west of Umeå, close to the Vindel River, which is a protected national river, free of hydro-power dams.

BIODIVERSITY AND NATURAL ENVIRONMENT

The climate is characterized as cold temperate and humid with persistent snow cover during the winter season. Moose are frequently observed and brown bears live in the area. The region is a winter grazing area for domestic reindeer.

HISTORY AND FACILITIES

The research station was established in 1923. The current field station was built in 1979 and offers laboratory facilities, offices, internet, power tool workshops and equipment for instrument calibration. The laboratory is equipped with refrigerator, ovens, freezers and scales. The field station also holds a lecture room for up to 20 persons. High power electricity and fibre-optical cables for communication are distributed in the field to 15 different sites. Accommodation of different standard is available for visiting scientists in the small town of Vindeln, 6 km from the station. Meals can also be prepared by the vising scientists themselves in the station kitchen.

GENERAL RESEARCH AND DATABASES

The field research infrastructure hosts a number of closely integrated, long-term field research programs that individually offer state-of-the-art experimental platforms, empirical data, and field opportunities.

HUMAN DIMENSION

The town Vindeln, 6 km from the station, has approximately 2500 inhabitants and offers grocery stores, gas stations, a hardware shop, a drugstore, and a district health care centre. There are several small villages along the Vindel River (450 km). Forestry and manufacturing forest industry are the main employers in the region. Various outdoor activities like fishing, hunting, skiing, berry picking, mushroom collecting and other recreational activities play an important role in the daily life for the local inhabitants.

ACCESS

The research station is one hour's drive from the Umeå Airport and the two universities of Umeå: SLU and Umeå University. The research facilities are located 6 km north of the town Vindeln and can be reached by road throughout the year. Vindeln can be reached by bus or train, and the field station can at times provide transportation between Vindeln and the station.

Category	Sub-Category	Svartberget Research Station
Website		www.slu.se
Country		Sweden
Opening year		1923
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– Yes (permits for studies required for permanent installation) Charlotta.Erefur@slu.se
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Swedish University of Agricultural Sciences Government Unit for Field-based Forest Research Charlotta.Erefur@slu.se www.slu.se/vindeln
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	64°14′ N, 19°45′ E 230 m a.s.l. 160 m a.s.l. 320 m a.s.l. Vindeln (2500 inhabitants) 6 km Access to digital maps, such as road maps, overview maps, property maps, ortophotos, terrain maps, vegetation maps and height data through Lantmäteriet (Swedish Mapping Authorities). Also, regular topographic maps and aerial images. Additionally, Google Earth.
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Boreal – Since 1980 1.8°C (1981-2010) -8.9°C (1981-2010) 14.6°C (1981-2010) – – – 614 mm (1981-2010) Manual precipitation gauge April/May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	400 m^2 35 m^2 550 m^2 16 officies, 1 laboratory, 2 meeting rooms, 1 kitchen, 4 storage rooms 15 20 Yes – 220 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Yes (basic lab and field work equipment – contact the station for details) Technical and field-work support, sampling, etc. year-round by technicians, free access to data (local climate)
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic Vindeln: health care centre, Umeå: hospital – 60 km (1 hour by car) First aid kit, emergency transmitter, GPS First aid kit, satellite phone
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – –
Vehicles at station	Sea transportation Land transportation	– Car, snowmobiles, four-wheelers, sky-lift, mini forwarder
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Flight, train or bus (60 km) + car (6 km) – –

SLU SITES Swedish Infrastructure for Ecosystem Science

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline		○
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest	●	
Human settlements or resource use in the area	●	
Other		○

Main science disciplines	Yes	No
Anthropology, Sociology, Archaeology		○
Astrophysics		○
Atmospheric chemistry and physics		○
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services	●	
Environmental sciences – Pollution	●	
Geocryology, Geomorphology	●	
Geodesy		○
Geology, Sedimentology		○
Geophysics	●	
Glaciology		○
Human biology, Medicine		○
Hydrology	●	
Isotopic chemistry	●	
Limnology		○
Land-use change, Mapping, GIS		○
Marine biology		○
Microbiology		○
Oceanography, Fishery		○
Paleoecology		○
Paleolimnology		○
Soil Science	●	
Terrestrial biology – Biodiversity	●	
Terrestrial biology – Ecosystem function	●	

Workshop facilities	Yes	No
Metal workshop	●	
Wood workshop	●	
Plexiglas workshop		○
Staff available to assist with constructions	●	

Communication	Yes	No
Telephone	●	
Satellite phone		○
VHF	●	
E-mail	●	
Internet	●	
Computer	●	
Printer	●	
Scanner	●	
Fax	●	

TARFALA

NAME AND OWNER

Tarfala Research Station is run by the Department of Physical Geography, Stockholm University, Sweden.

LOCATION

Tarfala Research Station is located at 1130 m a.s.l. in the high-alpine Kebnekaise Mountains, northern Sweden. The catchment reaches from 700 to 2100 m a.s.l. and includes several small glaciers of which Storglaciären is extensively studied. The nearest settlement is the Sami village Nikkaluokta, 25 km southeast of the station. There is a mountain tourist station 7 km, and a tourist hut 1 km from Tarfala.

BIODIVERSITY AND NATURAL ENVIRONMENT

Tarfala Research Station is situated in a rapidly changing environment, which offers good opportunities for a variety of bio-geo-chemical studies. The Storglaciären is one of the best studied glaciers in the World. The long mass-balance record shows how the glacier responds to seasonal climate variability. The retreat of other local glaciers since the early 1900s is also well documented. Permafrost in the catchment is patchy in the lower parts of the valleys but is continuous at higher altitudes. The vegetation ranges from high-alpine flora to mountain birch forest at the tree-line. Wildlife in the area includes reindeer, moose, brown bear, wolverine, fox, hare, stoat, lemmings, and ptarmigan.

HISTORY AND FACILITIES

The measurements of mass balance on Storglaciären started in the spring of 1946. At that time the scientists used a simple tourist hut as base-camp. In the 1950s, a couple of buildings were built on the present location of the station. The facility could welcome the first students and international scientists in the early 1960s. Today, Tarfala Research Station is a modern facility offering research and education opportunities in a unique subarctic high-alpine setting.

Tarfala has c. 25 beds for guests. Rooms with two to four beds are located in houses with running water and dry toilets. Included in the per diem price is breakfast, packed lunch, and dinner. There are no shops in the vicinity. Tarfala Research Station has a modern lecture hall and a well equipped workshop. Internet access via GSM antenna is provided.

GENERAL RESEARCH AND DATABASES

Research at Tarfala Research Station focuses on the coupling between climate and glaciers, glacier dynamics, glacial hydrology, geomorphology, mountain meteorology, permafrost, vegetation development, and ecosystem changes, as well as biogeochemistry in ice, snow, water and soil. Tarfala Research Station has its own program for monitoring climate effects on the subarctic environment including glacier mass balance, mountain meteorology, glacial hydrology, snow-chemistry, permafrost, and ecosystem change. The data gives scientists unique and detailed information on the short- and long-term effects of Climate Change and is freely accessible.

HUMAN DIMENSION

The nearest village is Nikkaluokta, inhabited by c. 30, mainly Sami people.

ACCESS

Tarfala is located c. 7 km from the Kebnekaise tourist station from where hiking and skiing to the station is possible. Local transport can be arranged from the nearest village, Nikkaluokta (25 km) to Tarfala by snowmobile in winter and by helicopter in summer. Nikkaluokta is located 60 km west of Kiruna, which can be reached by plane or train from Stockholm.

Category	Sub-Category	Tarfala Research Station
Website		www.tarfala.su.se
Country		Sweden
Opening year		1946
Operational period		March-April, June-September
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	tarfala@natgeo.su.se
Facility owner and manager	Name of the facility owner	Stockholm University
	Owner status	Government
	Institution responsible for managing the station	Department of Physical Geography
	Contact (access to station)	tarfala@natgeo.su.se
	Website (institution)	www.ink.su.se
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	67°55′ N, 18°35′ E
	Altitude of station	1130 m a.s.l.
	Min. altitude within study area	–
	Max. altitude within study area	2097 m a.s.l.
	Nearest town/settlement	Nikkaluokta (30 inhabitants)
	Distance to nearest town/settlement	27 km
	Map	Maps: Tarfala valley (1:20 000) , Glacier maps (1:10 000) ; aerial image; satellite image; Google Earth
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	1965-2011
	Mean annual temperature	-3.3 °C
	Mean temperature in February	-10.9 °C
	Mean temperature in July	7.4 °C
	Mean annual wind speed	3 m/s
	Max. wind speed	81 m/s
	Dominant wind direction	N
	Total annual precipitation	1000 mm
	Precipitation type	Rain, snow
	Ice break up	15 July
Station facilities	Area under roof	500 m^2
	Scientific laboratories	40 m^2
	Logistic	100 m^2
	Number of rooms (beds)	16 bedrooms (36 beds); 1 wet lab, 1 electrical dry lab, 1 workshop, 1 lecture hall, 1 kitchen, 1 lounge, 1 suana
	Number of staff on station (peak/off season)	6/0
	Max. number of visitors at a time	30
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V two pin plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	AWS, dGPS, GPS, georadar, ice and snow sampling kits, basic laboratory equipment
	Scientific services offered	Technical support, free access to data (glacier mass balance, hydrology, permafrost, local climate)
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	1
	Distance to hospital (estimated time)	90 km (weather dependent: summer 2 hours, winter 2 to 3 hours)
	Compulsory safety equipment	VHF, GPS, glacier safety
	Recommended safety equipment	VHF, GPS, glacier safety
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes (natural helicopter landing)
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Snowmobile
Transport and freight	Transport to station	Helicopter, on foot (June-September), skiing (March-April)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

TARFALA RESEARCH STATION

Stockholm University

SITES
Swedish Infrastructure for Ecosystem Science

Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline		○
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands		○
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other		○

Main science disciplines		
Anthropology, Sociology, Archaeology		○
Astrophysics		○
Atmospheric chemistry and physics	●	
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services	●	
Environmental sciences – Pollution	●	
Geocryology, Geomorphology	●	
Geodesy	●	
Geology, Sedimentology	●	
Geophysics	●	
Glaciology	●	
Human biology, Medicine		○
Hydrology	●	
Isotopic chemistry	●	
Limnology	●	
Land-use change, Mapping, GIS	●	
Marine biology		○
Microbiology	●	
Oceanography, Fishery		○
Paleoecology	●	
Paleolimnology	●	
Soil Science	●	
Terrestrial biology – Biodiversity	●	
Terrestrial biology – Ecosystem function	●	

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	●
Staff available to assist with constructions	●

Communication	
Telephone	●
Satellite phone	●
VHF	●
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	●

ABISKO

STATION NAME AND OWNER

The Abisko Scientific Research Station is owned by the Swedish Polar Research Secretariat.

LOCATION

The station is located about 200 km north of the Arctic Circle and approximately 385 m a.s.l., on the south shore of the lake Torneträsk. It is situated in a 46-hectare nature reserve bordering the Abisko National Park, which covers 75 km^2. The station is located in birch forest and the nearby area offers a great variety in topography, geomorphology, geology, and climate, as well as flora and fauna. The highest mountain in the area reaches 1991 m a.s.l.

BIODIVERSITY AND NATURAL ENVIRONMENT

The average annual temperature is approximately 0°C. Annual precipitation for the lake varies greatly over an east west gradient with 1000 mm in the west to 400 mm in the east. Mean annual temperature and the length of the growing season have been increasing over the last decades. The vegetation is extremely varied, ranging from the simple communities that follow retreating glaciers to more complex mountain birch forest ecosystems. About 40% of the surroundings are above the treeline. The area is sparsely populated and land use is minimal being dominated by reindeer husbandry, hunting, fishing, tourism, and research.

HISTORY AND FACILITIES

The Abisko Scientific Research Station was established in 1913. The station can host almost 100 visitors. Accommodation is available in 28 double rooms, seven 4-bed-rooms and four family apartments. In addition, there are also laboratories, offices, workshops and lecture theatres. Meals are either prepared by the visiting scientists themselves in one of the self-catering kitchens available at the station or, during the tourist season, obtainable at tourist hotels and guest houses within 15 minutes walk. In the nearby village Abisko there is a well equipped grocery store.

GENERAL RESEARCH AND DATABASES

Research focuses on plant ecology, geomorphology, and meteorology. The main objectives of the ecological studies are the

dynamics of plant populations, identification of the controlling factors at species latitudinal and altitudinal limits, understanding of ecosystem structure and function, and prediction of impacts of global environmental change. The meteorological projects deal with recent Climate Change in the region and local variations in the microclimate. The geomorphology research focuses on the mass-wasting of mountains and sediment transport. Existing databases includes bibliography of publications arising from research at the station, climate records, biological, and physical parameters modelling.

HUMAN DIMENSION

The nearest settlement is the village Abisko which lies about 1 km from the station. The main occupations of the approximately 180 inhabitants are within tourism, transports, and trade. In Abisko there is also both a kindergarden and a school up to the ninth grade. There are a number of tourist hotels in the area, providing a base for both summer and winter tourism. The area is also inhabited by the Sami people who use the area for reindeer husbandry.

ACCESS

The Abisko Scientific Research Station is easily accessible by train, car, bus, and airplane. There are direct trains from the Swedish capital Stockholm to Abisko. The closest railway station is situated less than 1 km away. The resarch station is located just along the main road between Kiruna (Sweden) and Narvik (Norway). Both in Kiruna (100 km away) and Narvik (75 km away) there are airports with several daily flight connections to Oslo and Stockholm. During the tourist season there are bus connections from Kiruna airport to Abisko.

Category	Sub-Category	Abisko Scientific Research Station
Website		www.polar.se/abisko
Country		Sweden
Opening year		1913
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes (permits for studies only required for more permanent installations, like met stations, OTC's etc)
	Contact (permit issues)	magnus.augner@polar.se or ans@ans.polar.se
Facility owner and manager	Name of the facility owner	Swedish Polar Research Secretariat
	Owner status	Government
	Institution responsible for managing the station	Swedish Polar Research Secretariat
	Contact (access to station)	magnus.augner@polar.se or ans@ans.polar.se
	Website (institution)	www.polar.se
Other institutions	Name	Swedish Polar Research Secretariat
	Country	Sweden
Location	Geographical coordinates	68°21′N, 18°49′E
	Altitude of station	385 m a.s.l.
	Min. altitude within study area	345 m a.s.l.
	Max. altitude within study area	1700 m a.s.l.
	Nearest town/settlement	Abisko (180 inhabitants)
	Distance to nearest town/settlement	1 km
	Map	Vegetation maps (1:100 000), Geomorphological maps (1:250 000), Mountain maps (1:50 000)
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	–
	Mean annual temperature	-0.6 °C
	Mean temperature in February	-11 °C
	Mean temperature in July	11 °C
	Mean annual wind speed	3.9 m/s
	Max. wind speed	51.5 m/s
	Dominant wind direction	W
	Total annual precipitation	310 mm
	Precipitation type	Snow, hail, rain
	Ice break up	Lake Torneträsk: May/June
Station facilities	Area under roof	5000 m^2
	Scientific laboratories	600 m^2
	Logistic	500 m^2
	Number of rooms (beds)	44 (102)
	Number of staff on station (peak/off season)	9/7
	Max. number of visitors at a time	90
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Yes (basic lab and field work equipment - contact the station for details)
	Scientific services offered	Technical and field-work support, sampling, etc. year-round by technicians
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	100 km (1 hour by car)
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes (helipad 2 km distance, run by private helicopter)
	Ship landing facilities	Port, however only local 70 km wide lake Torneträsk
Vehicles at station	Sea transportation	–
	Land transportation	Car, snowmobile
Transport and freight	Transport to station	Flight (100 km), bus (1 km), railway (1 km), car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

KILPISJÄRVI

STATION NAME AND OWNER

The Kilpisjärvi Biological Station belongs to the University of Helsinki (Faculty of Biological and Environmental Sciences).

LOCATION

The station is situated in the community of Enontekiö in the northwestern part of Finnish Lapland (69°03′ N, 20°50′ E) on the shore of Lake Kilpisjärvi at 475 m a.s.l. close to Sweden and Norway.

BIODIVERSITY AND NATURAL ENVIRONMENT

The landscape around the station is dominated by "Fjells" (mountains or high plateaus above the tree line) extending into the Scandinavian mountain range, e.g. Fjell Saana (1029 m a.s.l.) and Pikku-Malla (738 m a.s.l.). The research station lies c.100 km north of continuous coniferous forest and belongs to the sub-alpine birch forest zone, with mountain birch being the dominant plant species. The area is dominated by a wide range of ecosystems from mountain birch forest at low altitude (480-600 m) to alpine tundra (above 600 m). The majority of the area is a mosaic of treeless alpine heath and ponds.

Due to the calcareous bedrock, the Kilpisjärvi area is a hotspot for many calcophilic and endangered mountain plant species. As a consequence, the lepidofauna in this area is exceptionally diverse (more than 340 species are recorded). The Kilpisjärvi region is also famous for rich avifauna of northern and mountainous species, like the bluethroat *(Luscinia svecica)*, the ring ouzel *(Turdus torquatus)*, and the dotterel *(Charadrius morinellus)*. The Norwegian lemming *(Lemmus lemmus)* is the most characteristic mammal species.

HISTORY AND FACILITIES

The station with its four buildings was officially opened in 1964. In the main building, there are two lecture halls (with space for either 30 or 60 people, one of which also serves as dining room), computer room, library, kitchen, and laboratory facilities. Laboratories have a supply of electricity, gas, compressed air, and running water, and are equipped with refrigerator, ovens, freezers, spectrophotometer, micro- and macro-scales, microscopes, centrifuge, pH- and conductivity meters, thermometers, etc. Also a wide variety of field equipment is available, together with boats and snowmobiles. Ars Bioarctica bioart laboratory is affiliated to the station (http://bioartsociety.fi/ars-bioarctica). The library contains a collection of zoological, botanical, geographi-

cal, and statistical handbooks. Telephone, fax, copy machines, and computers with access to internet are provided. WLAN is accessible in the station area. The accommodation capacity is about 50 persons, and meals are served daily at the station. There is a permanent staff of eight persons.

GENERAL RESEARCH AND DATABASES

Widely respected long-term follow-up studies form the core of the scientific activities at the station. The longest observation series (>50 years) are on fluctuations of small rodent densities. Population dynamics of passerines have been monitored since 1957. Long-term research projects also include the periodicity in quality and quantity of vegetation in the mountain region. Effects of environmental changes have been monitored for instance in the International Tundra Experiment (ITEX). The specific long-term studies are backed by more extensive studies on climate, vegetation, soils, rodents, birds, predators, etc. Limnology is a rising branch of research. Lately research activities have extended from animal and botanical ecology to hydrobiological and paleolimnological research. Projects such as MOLAR, CHILL, LAPBIAT, and SCANNET have been carried out in Kilpisjärvi in addition to regular studies on geography and geophysics. The Kilpisjärvi Biological Station is the Finnish representative in the ITEX-project. Since 2007 the station has been part of the Finnish Northern LTSER program, in which data from long-term follow-up studies will be organised and digitized in an EU-funded LTER-project.

A bibliography of publications arising from research at the station is available. There is an also an extensive collection of climate records and biological data on plants and animals available from the station. The station publishes its own newsletter "Kilpisjärvi Notes".

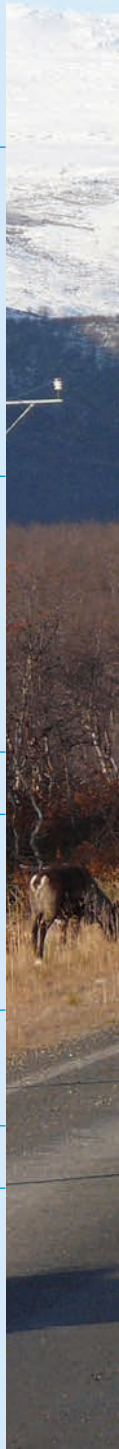
HUMAN DIMENSION

Reindeer husbandry, tourism, and research dominate in the area. Recent construction and development plans in the village may pose a threat for the future of some of the long-term studies.

ACCESS

The station is easily accessible by air or bus (via Rovaniemi). Within a two hours car journey there are two airports, Enontekiö in Finland and Tromsø in Norway. Also Kiruna airport in Sweden is relatively close to the station.

Category	Sub-Category	Kilpisjärvi Biological Station
Website		www.helsinki.fi/kilpis
Country		Finland
Opening year		1964
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	– (Permits working in the Malla nature reserve or other protected areas required. Permits are authorized by Metsähallitus, see: www.metsa.fi/sivustot/metsa/en/NaturalHeritage/SpeciesandHabitats/PermitsforResearchandPhotography/Sivut/ResearchorPhotographyPermitInformation.aspx)
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	University of Helsinki
	Owner status	Government
	Institution responsible for managing the station	Kilpisjärvi Biological Station
	Contact (access to station)	bio-kilpis@helsinki.fi
	Website (institution)	www.helsinki.fi/kilpis
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	69°03′ N, 20°50′ E
	Altitude of station	480 m a.s.l.
	Min. altitude within study area	470 m a.s.l.
	Max. altitude within study area	1320 m a.s.l.
	Nearest town/settlement	Skibotn, Norway (750 inhabitants)
	Distance to nearest town/settlement	40 km
	Map	Google Earth, topographic maps, aerial images, vegetation maps, etc.
Climate	Climate zone	Subarctic
	Permafrost	Sporadic
	Years measured	1951-2011
	Mean annual temperature	-2.23 °C
	Mean temperature in February	-13 °C
	Mean temperature in July	11 °C
	Mean annual wind speed	2.52 m/s
	Max. wind speed	40 m/s
	Dominant wind direction	NW
	Total annual precipitation	447 mm
	Precipitation type	Snow, rain
	Ice break up	Mid-June
Station facilities	Area under roof	1760 m^2
	Scientific laboratories	150 m^2
	Logistic	200 m^2
	Number of rooms (beds)	26 rooms (57 beds)
	Number of staff on station (peak/off season)	15/10
	Max. number of visitors at a time	60
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	230 V, additional generator
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	160 km (Tromsø, Norway), 200 km (Muonio, Finland) (2 hours by car, helicopter assistance under extreme conditions)
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Cars, snowmobile
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ● Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

KILPISJÄRVI BIOLOGICAL STATION
FINNISH LAPLAND

UNIVERSITY OF HELSINKI
FACULTY OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES

KEVO

STATION NAME AND OWNER

The Kevo Subarctic Research Station is managed by the Kevo Subarctic Research Institute which is based at the University of Turku.

LOCATION

Kevo Subarctic Research Station is located in Utsjoki at the northernmost tip of Finland only about hundred kilometres from the coast of the Arctic Ocean (69°45′ N, 27°01′ E) right next to Kevo Strict Nature Reserve (712 km^2). It lies about 60 km north of the continuous pine forest line and belongs to the subarctic Mountain Birch Forest Zone close to both the local pine tree line and the birch tree line at the forest-tundra ecotone.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is close to a wide range of ecosystems from pine stands at low altitudes to mountain birch forests and low alpine tundra as well as mires (also palsas), lakes, and rivers. Several large-scale outbreaks of birch feeding moth larvae are characteristic for the birch forests. The latest outbreak in 2005-2009 destroyed about 400 km^2 of the treeline birch forests in Utsjoki. Grazing by semi-domesticated reindeer is another important factor that shapes the ecosystems. The area is part of the basin of the river Teno/Tana which is one of the top salmon rivers in Europe.

HISTORY AND FACILITIES

The station was founded in 1958.
The station, including a weather station of Finnish Meteorological Institute, consists of several buildings. It has the capacity to accommodate about 40 guests in winter and up to 70 in summertime. It is open year-round, but full-board meals will be offered only during the main field season (from May to September), except for larger groups. The station provides laboratories, a workshop, a lecture hall, and accommodation buildings. During recent years the station has had about 100 Finnish and 70 foreign visiting scientists each year.

GENERAL RESEARCH AND DATABASES

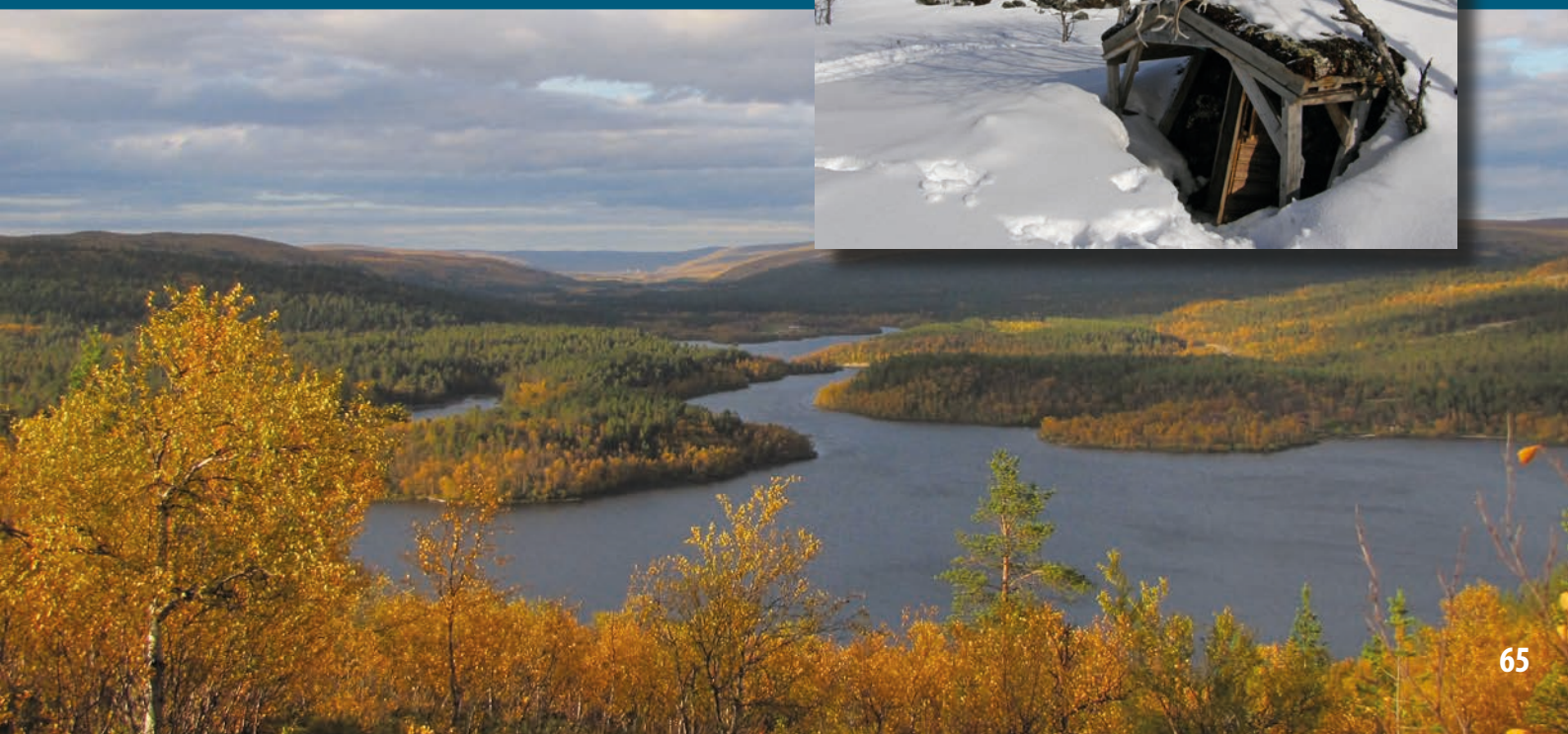
Kevo Subarctic Research Station has got a long tradition in manipulative experiments addressing cause-effect relationships of anthropogenic environmental changes. In ecological science it is known for the research on plant herbivore interactions and in geographical science for research on palsa mires. There are long-term field experiments studying the effects of aerial pollutants and the impacts of reindeer grazing. The station has got arboretums with different origins of arctic treeline species. There is monitoring data available on population dynamics of moths, rodents, birds, plant phenology, pollen deposits, and meteorological data. The station also holds up to 50-year old biogeographical mapping data of the surrounding area.

HUMAN DIMENSION

Utsjoki is the only municipality in Finland with Sámi majority for whom the traditional reindeer herding and fishing are still important livelihoods, even though it is in general a normal modern community with modern services. In Utsjoki village (18 km north of Kevo) there are grocery shops, a post office, a library, a swimming hall, accommodation providers, pubs, a bank, and a health centre. Anthropological, sociological, and archaeological studies on the local community have been managed by the research station.

ACCESS

The station is located close to a main road and can be reached by car. Access to the station is across Lake Kevojärvi (250 m, in summer by boat and in winter over the ice) or via a small road (5 km). The closest airport in Finland is in Ivalo with a bus connection from Ivalo to Kevo (c. 150 km). There are also airports in Norway at about the same distance (Lakselv, Vadsø, Kirkenes). Alternatively, a train connection exists from southern Finland to Rovaniemi followed by a bus trip via Ivalo to Kevo (450 km).



Category	Sub-Category	Kevo Subarctic Research Station
Website		www.utu.fi/en/units/cerut/kevo
Country		Finland
Opening year		1958
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes (Permits for working inside Kevo Strict Nature Reserve www.outdoors.fi/destinations/otherprotectedareas/kevo/Pages/Default.aspx)
	Contact (permit issues)	kevo@utu.fi
Facility owner and manager	Name of the facility owner	University of Turku
	Owner status	Government
	Institution responsible for managing the station	Kevo Subarctic Research Institute, University of Turku
	Contact (access to station)	kevo@utu.fi
	Website (institution)	www.kevo.utu.fi
Other institutions	Name	Finnish Metorological Institute, Finnish Geodetic Institute, Seismological Institute
	Country	Finland
Location	Geographical coordinates	69°45′ N, 27°01′ E
	Altitude of station	80 m a.s.l.
	Min. altitude within study area	75 m a.s.l.
	Max. altitude within study area	500 m a.s.l.
	Nearest town/settlement	Utsjoki (600 inhabitants)
	Distance to nearest town/settlement	20 km
	Map	Maps (1:20 000, 1:50 000), aerial images, satellite images, vegetation map, map of quatenary deposits, hiking maps
Climate	Climate zone	Subarctic (tree line)
	Permafrost	Sporadic
	Years measured	–
	Mean annual temperature	-1.6 °C
	Mean temperature in February	-13.7 °C
	Mean temperature in July	12.9 °C
	Mean annual wind speed	11.8 m/s (mean monthly maximum wind speed)
	Max. wind speed	26 m/s (in a valley)
	Dominant wind direction	W
	Total annual precipitation	415 mm
	Precipitation type	Rain, snow
	Ice break up	Lake: May/June
Station facilities	Area under roof	3000 m^2
	Scientific laboratories	750 m^2
	Logistic	–
	Number of rooms (beds)	15 buildings with different rooms from apartments to laboratories and sauna
	Number of staff on station (peak/off season)	20/7
	Max. number of visitors at a time	40 in winter, 70 in summer
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Regular commercial (+ a generator for reserve power)
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	Yes
	No. of staff with basic medical training or doctor	0/0
	Distance to hospital (estimated time)	Health centre 20 km, hospital 440 km
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	– (lake: yes)
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	Ponton, sledges
Vehicles at station	Sea transportation	Outboard motor boats
	Land transportation	Minibus, van, ATV, snowmobiles
Transport and freight	Transport to station	Bus, car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

KEVO
SUBARCTIC RESEARCH INSTITUTE

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

VÄRRIÖ

STATION NAME AND OWNER

Värriö Subarctic Research Station is managed by University of Helsinki, Department of Physics.

LOCATION

The area is a subarctic pine forest with several mountains and ridges reaching 500–600 m a.s.l. The station is located in the Värriö Strict Nature Reserve, and thus access without permission is forbidden. Small lakes, wetlands, and rivers are located around the station, which lies on the south facing slope of a small hill. Nearest population centres and industry are 100 km away.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is located in a nature reserve, and thus the natural state of the environment in the region is protected. The alpine tree line (*Pinus sylvestris*, *Betula pubescens* subsp. *czerepanovii*, and *Betula nana*) lies at about 470 m a.s.l. Below it, old-growth pine forests with some open mires and spruce swamps are the main vegetation types. Open dry tundra heath lies above the tree line. The climate is sub-continental with an annual mean air temperature of -0.5°C and an annual precipitation of 600 mm.

There are several rare northern and eastern species nesting in the nature reserve, e.g. dotterel *(Charadrius morinellus)* and red-flanked bluetail *(Tarsiger cyanurus)*.

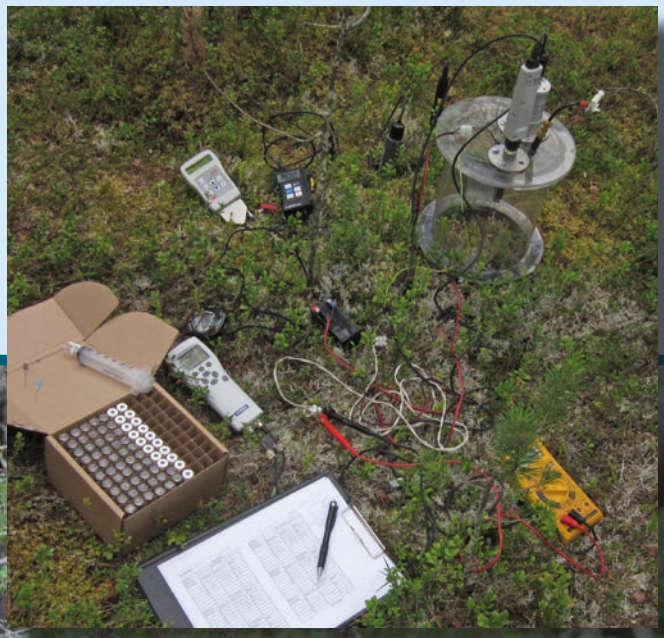
HISTORY AND FACILITIES

The station was established in 1967 when the first 50 m^2 log cabin was built in the middle of the wilderness. Later on, the station has been extended, and currently it can accommodate c. 20 researchers indoors and more outdoors in tents. There are small but efficient working facilities for indoor research work including e.g. wireless network, workstations, and reference library. The station is connected to the main electricity network but has also a generator for exceptional cases. The station staff on duty every day, year around. The nearest commercial facilities, such as grocery store and healthcare centre, are located 100 km away in the village of Savukoski.

GENERAL RESEARCH AND DATABASES

The research focuses on interactions between the subarctic ecosystems and the atmosphere. The core is at the SMEAR I (Station for Measuring Ecosystem Atmosphere Relations) station at

the Kotovaara hill (800 m from the station). Since early 1990's, continuous measurements on tree gas exchange (photosynthesis, transpiration), soil respiration, tree growth, weather, gas, and aerosol concentrations and fluxes, and pollutant transport have been performed. The measurements are online and maintained throughout the year. The data are stored in an open database. In addition, several long (over 40 years) observation series on e.g. snow conditions, nesting birds, and phenology, as well as shorter term campaigns, on e.g. forest fire regimes and tree regeneration, exist in the station data repositories.



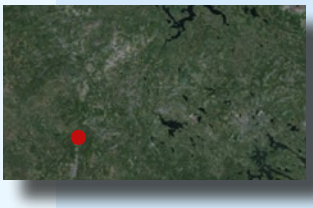
HUMAN DIMENSION

The nearest local village is Savukoski, c. 100 km to the southwest. The forests are used intensively for forestry and reindeer husbandry. The nearby Urho Kekkonen National Park and other protected areas as well as fish-rich rivers fascinate large numbers of tourists. Recently, plans have been proposed for opening a large open pit phosphorus mine and a concentration plant in the close vicinity of Värriö Strict Nature Reserve.

ACCESS

The station is accessed by foot (during summer) or by ski (during winter), assistance with snowmobile or a quad bike is available for instruments and larger luggage. The walking distance from the nearest unpaved road to the station is about 7 km. The distance to the nearest airport (Rovaniemi) is c. 300 km, while the nearest railway station (Kemijärvi) is c. 190 km away. From Kemijärvi there are regular bus and post taxi connections on weekdays.

Category	Sub-Category	Värriö Subarctic Research Station
Website		www.atm.helsinki.fi/varrio/fi
Country		Finland
Opening year		1967
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	Jaana.back@helsinki.fi
Facility owner and manager	Name of the facility owner	University of Helsinki
	Owner status	Government
	Institution responsible for managing the station	Department of Physics, Department of Forest Sciences
	Contact (access to station)	Jaana.back@helsinki.fi
	Website (institution)	www.atm.helsinki.fi/varrio/fi
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	67°44′ N, 29°36′ E
	Altitude of station	388 m a.s.l.
	Min. altitude within study area	c. 320 m a.s.l.
	Max. altitude within study area	c. 620 m a.s.l.
	Nearests town/ settlement	Savukoski (1000 inhabitants)
	Distance to nearest settlement	100 km
	Map	All kinds available
Climate	Climate zone	Subarctic
	Permafrost	–
	Years measured	Since 1971
	Mean annual temperature	-0.5 °C
	Mean temperature in February	-8.2 °C
	Mean temperature in July	12.1 °C
	Mean annual wind speed	8.5 m/s
	Max. wind speed	9.6 m/s
	Dominant wind direction	SW
	Total annual precipitation	600 mm
	Precipitation type	Rain, snow
	Ice break up	Lake: early June
Station facilities	Area under roof	297 m^2
	Scientific laboratories	15 m^2
	Logistic	60 m^2
	Number of rooms (beds)	The station accomodates 20-50 persons (20 beds indoors, tents in the vicinity), small laboratory, meeting room/library, kitchen, living room
	Number of staff on station (peak / off season)	7/5
	Max. number of visitors at a time	50
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V, European plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	Very basic lab equipment, field equipment
	Scientific services offered	Technical support, support for field work, open access to all data
Medical facilities	Medical facilities	In Savukoski (health centre), Kemijärvi (hospital)
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	150 km
	Compulsory safety equipment	GPS
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	One 4WD car
Transport and freight	Transport to station	On foot (7 km from nearest unpaved road), public transport available on weekdays (bus&taxi)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



University of Helsinki

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Strict Nature Reserve; reindeer husbandry allowed)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

PALLAS-SODANKYLÄ

STATION NAME AND OWNER

The Pallas-Sodankylä Research Station consist of a clean air research station in Pallas and the Arctic Research Centre in Sodankylä. The distance between the two sites is 125 km. Both of these units are hosted and owned by the Finnish Meteorological Institute.

LOCATION

Pallas is located in western Lapland (67°58′ N, 24°07′ E) in Pallas fell. The station is part of a national park with limited access to the public. The Sodankylä facility (67°22′ N, 26°39′ E) is located in central Lapland within the boreal forest region. The station is not part of any national park, but the area (c. 2 km^2) is dedicated to atmospheric and geological research, and therefore has limited public access. The area is surrounded by forest and swamps owned by the Finnish government.

BIODIVERSITY AND NATURAL ENVIRONMENT

The area around Pallas Station is boreal forest. Willow grouse, rabbit, and reindeer are the most typical animals. Sodankylä Station is located at a river bank in the middle of a boreal forest. Black grouse, rabbit, and reindeer are the most typical animals.

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HISTORY AND FACILITIES

The Finnish Global Atmosphere Watch (GAW) station Pallas-Sodankylä has been operating since 1994. The Sodankylä Station was established in 1949, but continuous homogenized synoptic weather records have been made since 1908. The facility now consists of multiple buildings (1500 m^2 in total).

GENERAL RESEARCH AND DATABASES

There are five measuring stations in the Pallas area, i.e. an automatic weather station (AWS) in Laukukero (68°04′ N, 24°02′ E, 765 m a.s.l.) and four stations measuring air composition. The Sodankylä facility hosts programs exploring upper-air chemistry and physics, atmospheric column measurements, snow/soil hydrology, biosphere-atmosphere interaction, and satellite calibration-validation studies.

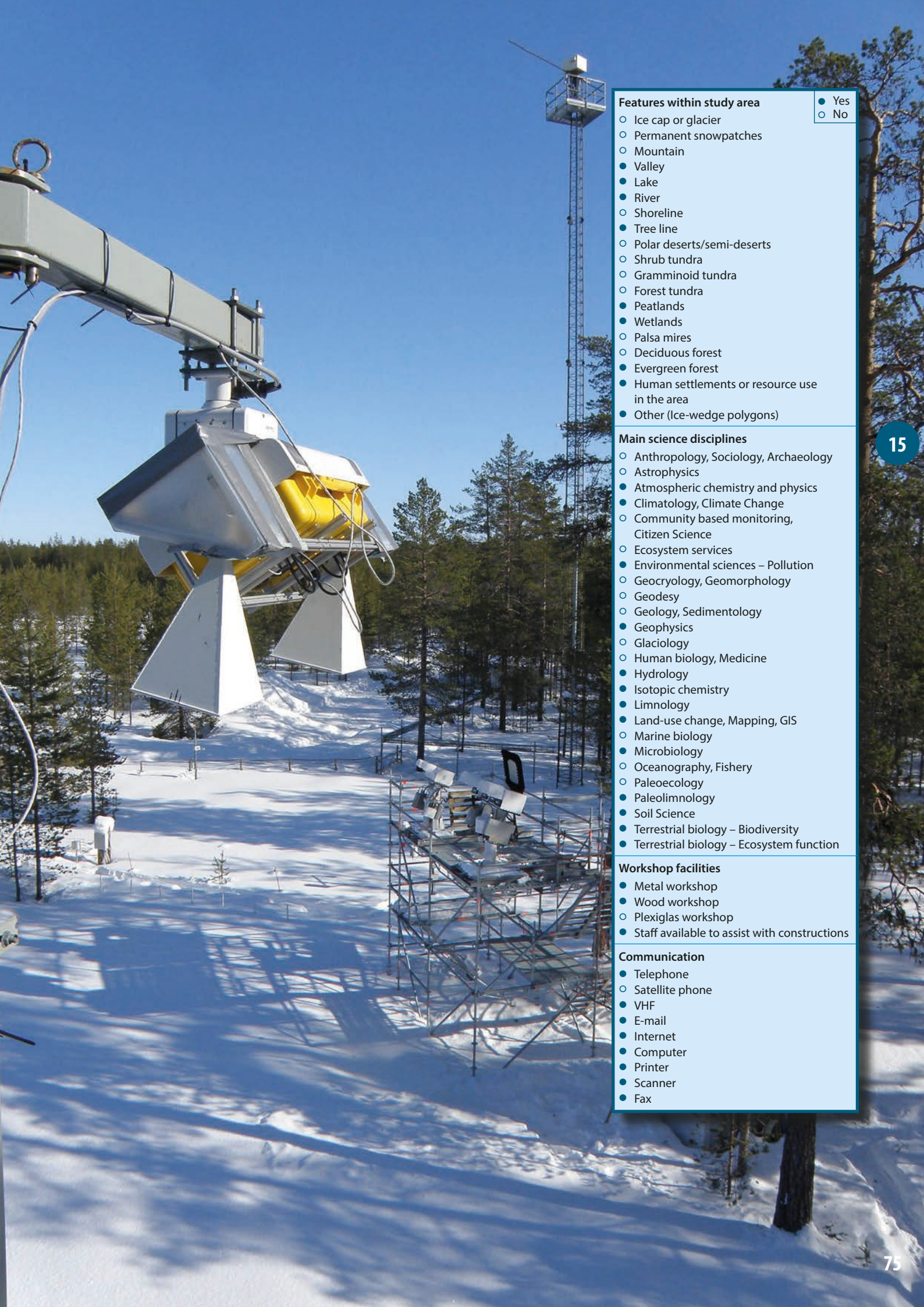
HUMAN DIMENSION

Nearest village is Sodankylä (7 km). Sodankylä has c. 6000 inhabitants (8,500 in the municipality). Main employers are the military, mining industry, smaller industry, agriculture, reindeer farmers, and research institutes.

ACCESS

Seven km from the research station is the bus station in Sodankylä. The distance to the nearest airport and railway station in Rovaniemi is 130 km. A helicopter station is located 4 km from the station. Travel time from the airport is typically less than 2 hours by car/bus.

Category	Sub-Category	Pallas-Sodankylä Research Station
Website		http://fmiarc.fmi.fi
Country		Finland
Opening year		1949
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– –
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Finnish Meteorological Institute Government Finnish Meteorological Institute riitta.aikio@fmi.fi www.fmi.fi
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	Pallas: 67°58′ N, 24°07′ E; Sodankylä: 67°22′ N, 26°39′ E Sodankylä station at 179 m a.s.l., Sammaltunturi station at 565 m a.s.l. About 250 m a.s.l. near Pallas, 170 m a.s.l. near Sodankylä About 800 m a.s.l. near Pallas, about 500 m a.s.l. near Sodankylä Sodankylä (6000 inhabitants) 7 km from station to Sodankylä Aerial image, satellite image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic (Northern-Boreal) – Since 1981 - 0.4 °C (Sodankylä) -12.7 °C (Sodankylä) 14.5 °C (Sodankylä) 2.7 °C (Sodankylä) – S (Sodankylä) 527 mm (Sodankylä) Rain, snow Late May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	c. 1500 m^2 c. 250 m^2 c. 500 m^2 14 rooms (25 beds) 35/27 20-25 Yes Yes European 24 hours per day
Scientific equipment	Specific device Scientific services offered	Advanced solar measurements, including FTS Technical support
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Available in the village Yes Hospital at 7 km distance 7 km from station at Sodankylä VHF radio First aid kits, defibrillator, foam extinguishers
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	Airport at Rovaniemi (130 km from station) Asphalt Yes (Sodankylä, 7 km station) –
Vehicles at station	Sea transportation Land transportation	– Car
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Car, bus, on foot – –



● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ○ Permanent snowpatches
- ○ Mountain
- ● Valley
- ● Lake
- ● River
- ○ Shoreline
- ● Tree line
- ○ Polar deserts/semi-deserts
- ○ Shrub tundra
- ○ Gramminoid tundra
- ○ Forest tundra
- ● Peatlands
- ● Wetlands
- ○ Palsa mires
- ○ Deciduous forest
- ● Evergreen forest
- ● Human settlements or resource use in the area
- ● Other (Ice-wedge polygons)

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

KOLARI

STATION NAME AND OWNER

The Kolari Research Unit belongs to the Natural Resources Institute Finland.

LOCATION

The Kolari Reseach Unit is located in northwest Finland at 67° N, close to the Swedish border. The surrounding area consists of northern boreal taiga forests and swamps, as well as mountains up to 700 m a.s.l. Kolari village is approximately 4 km, and the Muonio River is approximately 300 meters away from the station. The Pallas-Ylläs National Park is located 30 km from station. With almost half a million annual visitors, it is Finland's best known national park.

BIODIVERSITY AND NATURAL ENVIRONMENT

Geographically, the Kolari area is located between Northern Finland, Forest Lapland and Fell Lapland, making it a very varied and interesting habitat. Kolari is situated at the western limit of the Russian taiga. The area is characterised as a mixture zone of eastern and western species of flora and fauna and includes old pine forest, wetlands, lakes, and rivers. Bears, moose, and reindeer are found in the area, the latter both as wild game and domesticated. Snow covers the landscape from November to May.

HISTORY AND FACILITIES

The Kolari Research Unit was established in 1964 for the study of peat lands. Today we focus on sustainable use of northern timberline forests and integration of different nature-based livelihoods also with respect to rapidly growing mining activities in this area. The station has 15 offices, high speed internet, and guestrooms for visitors. Kolari village offers various services, and a broad range of outdoor activities is possible in the nearby Ylläs National Park.

GENERAL RESEARCH AND DATABASES

The research at Kolari focuses on the integration of different nature-based livelihoods at the timberline (tourism, reindeer herding, and forestry), ecologically sustainable forestry, nature protection, and plant ecology. The main objectives of the ecological projects are to study the dynamics of natural forests and disturbance dynamics of forest fires. Existing databases include a bibliography of publications arising from research at the station,

as well as long term ecological data concerning timberline regeneration, rodents, seed yield, and phenology.

HUMAN DIMENSION

The nearest community is Kolari village (five km away) with approximately 1500 inhabitants. A bit larger is the Swedish Pajala (c. 6200 inhabitants) which is located 30 km from the Kolari Research Unit. Most of the local people are of Finnish origin with long and strong ties to the area and also to the Sami people. The border to the Finnish Sami region is 100 km to the north but it is only two km away from the Swedish Sami region. Tourism and public services are nowadays the main economic factors, but reindeer herding still plays an important role in the area as well as other land uses like forestry and agriculture. Fishing, hunting, and recreational use of the nature are all essential parts of the local culture and provide great opportunities for various outdoor activities.

ACCESS

You can reach Kolari Research Unit easily by car, train or airplane. We are located along Highway 21 from Tornio to Kilpisjärvi. The railway station is less than one km away. Nearest airport is Kittilä Airport 75 km from the station.

Category	Sub-Category	Kolari Research Unit
Website		www.luke.fi/en
Country		Finland
Opening year		1964
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes mirja.vuopio@luke.fi
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Natural Resources Institute Finland Government Natural Resources Institute Finland mikko.jokinen@luke.fi www.luke.fi
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	67°21′N, 23°49′E 221 m a.s.l. 200 m a.s.l. 800 m a.s.l. Kolari (1500 inhabitants) 4 km Several maps, aerial images, satellite images, open access to digital maps of Finland
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic (Northern-Boreal) – Since 2010 0.8 °C -18.4 °C 15.4 °C 2 m/s 10.1 m/s S 491.5 mm (2010), 612.7 mm (2011) Rain, snow, hail May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	550 m^2 36 m^2 120 m^2 3 guest rooms (6 beds) (only for longer stays (at least 1 month)) 6/6 5-10 Yes Yes 230 V, 50 hz AC power. DIN standard 24 hours per day
Scientific equipment	Specific device Scientific services offered	Light table, 2 heat closets, 5 exsiccator, 4 microscopes, 4 scales, ultrasonic washer, fume chamber –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic – 10 5 km (10 minutes, 2 hours to central hospital) – –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – –
Vehicles at station	Sea transportation Land transportation	– Car, ATV, snowmobile
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Car, railway, boat, plane (airport 75 km away) – –

Luke
NATURAL RESOURCES INSTITUTE FINLAND

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline		○
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra		○
Forest tundra	●	
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest	●	
Evergreen forest	●	
Human settlements or resource use in the area	●	
Other		○

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax

OULANKA

STATION NAME AND OWNER

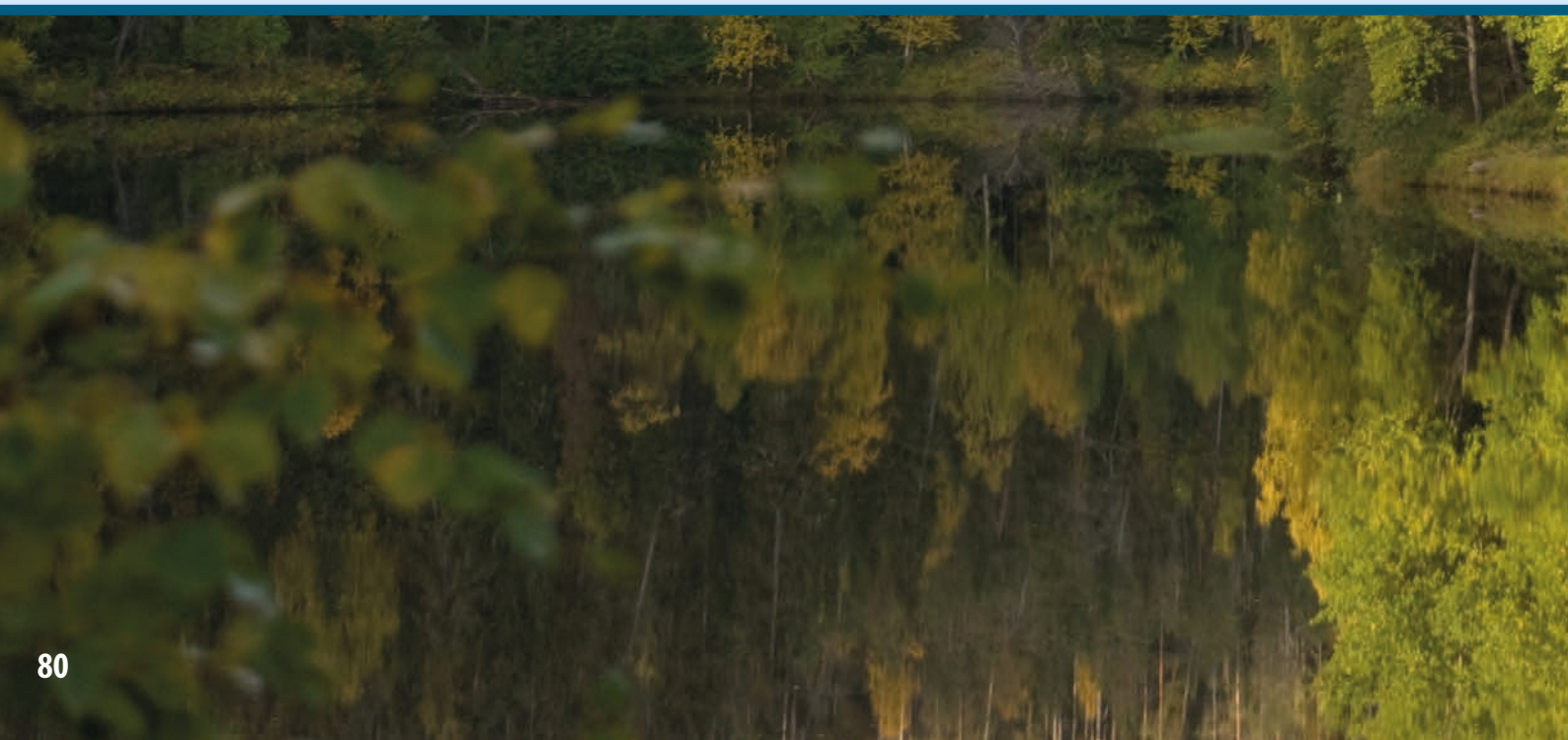
Oulanka Research Station was founded in 1966. It belongs to the Thule Institute, and is a regional unit of the University of Oulu in Kuusamo, Finland.

LOCATION

Oulanka Research Station is situated in the river valley of Oulanka within the Oulanka National Park (66°22′ N, 29°19′ E, 167 m a.s.l.). The station is located c. 25 km south of the Arctic Circle, 13 km west of the Russian border, about 280 km northeast of Oulu, and 55 km north of Kuusamo.

HISTORY AND FACILITIES

Oulanka Research Station operates and offers access to visitors throughout the year. The station is a primary location for field courses at Oulu University (especially biology and geography) with 5-8 different courses and roughly 1500 person-days per year. The station lies in the heart of the Oulanka National Park at an optimal distance to various field research locations. Being a multi-disciplinary research station, Oulanka is open to almost all kinds of research activities. The station has 82 beds, two well-



equipped laboratories, an auditorium, classrooms, workshops, and high-speed internet.

BIODIVERSITY AND NATURAL ENVIRONMENT

Oulanka National Park is a northern biodiversity hot-spot, thanks to the calcium-rich bedrock, varying topography, and large environmental gradients within a small area. Moreover, it has historically been at the cross-roads for movement of northern, southern and eastern species. Unlike most of Finland, the local rivers drain towards the northeast, i.e. to the White Sea.

GENERAL RESEARCH AND DATABASES

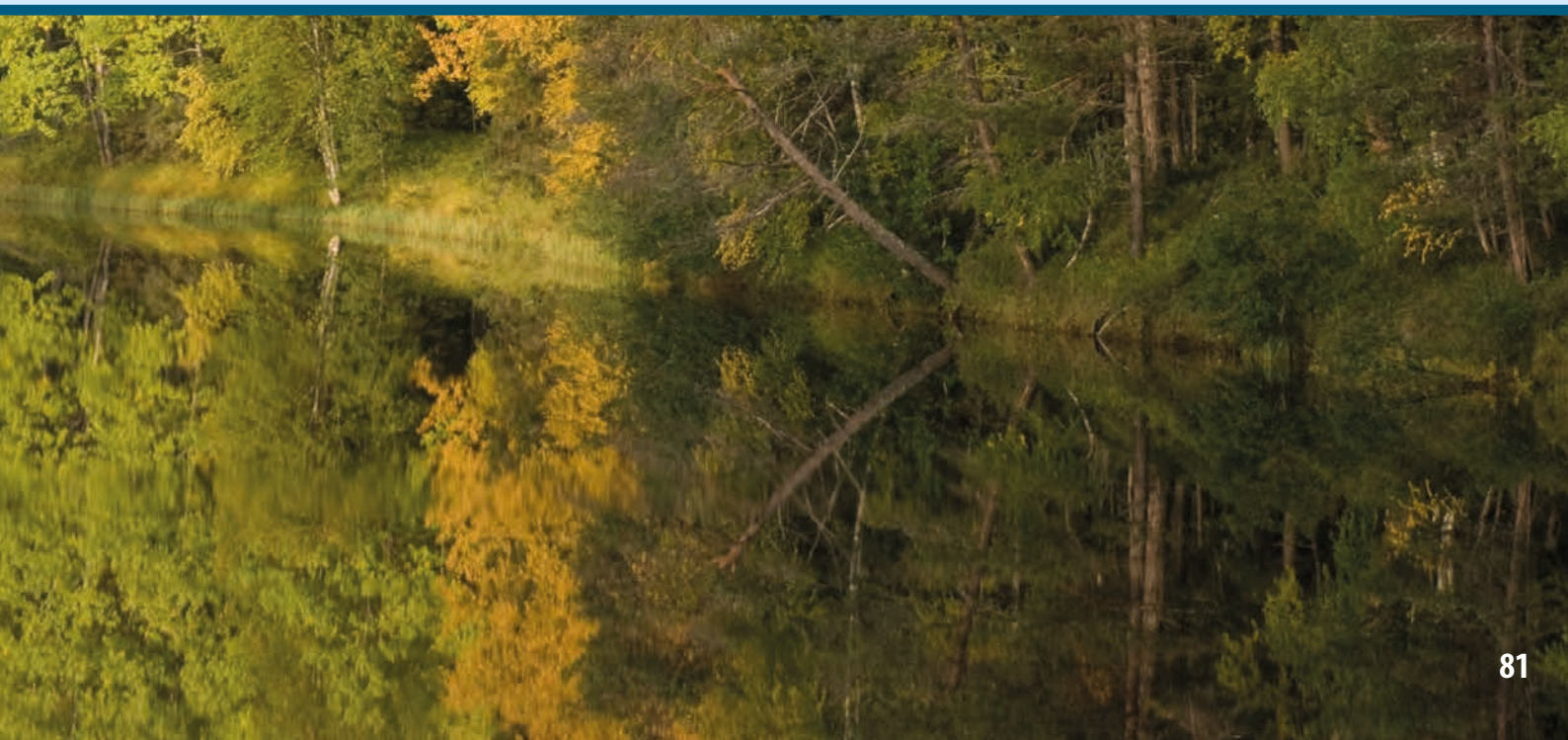
The study area includes the towns of Kuusamo, Posio, Taivalkoski, and Salla and covers an area of roughly 100 × 200 km. Most of the research activity is concentrated in and around the Oulanka National Park. Historically research has been focused on animal and plant ecology as well as geography. Recently sociological aspects have been included as well. Oulanka has a broad range of long-term data series available for researchers. These include both biological and physical/chemical datasets, and many of them have been collected since 1966. The datasets cover time-series on meteorology, water chemistry of streams and lakes, phenology, ice cover, snow cover, active layer depth, air pollution, as well as different plant and animal species, etc. Oulanka also offers a recently acquired, extremely comprehensive (70 × 90 km) set of high-resolution aerial photographs covering three different areas, i.e. the early 1950's, the early 1980's, and c. 2005.

HUMAN DIMENSION

The nearest village with stores and services is 13 km away, while the ski centre of Ruka is 30 km away. Outside the villages and towns, the area is sparsely populated, but tourism is an important activity with associated impacts on nature. In addition to tourism, forestry, and mining are the other major human impacts in the area.

ACCESS

Oulanka Research Station can be reached by car, by bus, or by plane to Kuusamo (55 km from the station) year-round.



Category	Sub-Category	Oulanka Research Station
Website		www.oulu.fi/oulankaresearchstation
Country		Finland
Opening year		1966
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes (study permit required for some activities/species)
	Contact (permit issues)	oulanka@oulu.fi
Facility owner and manager	Name of the facility owner	University of Oulu
	Owner status	Government
	Institution responsible for managing the station	Thule institute
	Contact (access to station)	oulanka@oulu.fi
	Website (institution)	www.oulu.fi/thuleinstitute
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	66°22′ N, 29°19′ E
	Altitude of station	165 m a.s.l.
	Min. altitude within study area	155 m a.s.l.
	Max. altitude within study area	500 m a.s.l.
	Nearest town/settlement	Kuusamo (16 300 inhabitants)
	Distance to nearest town/settlement	55 km
	Map	Aerial images, satellite images, plus paper and digital maps (1:10 000)
Climate	Climate zone	Subarctic (Boreal zone)
	Permafrost	–
	Years measured	1966-2011
	Mean annual temperature	-0.4 °C
	Mean temperature in February	-14 °C
	Mean temperature in July	14.9 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	540 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes and rivers: May
Station facilities	Area under roof	1495 m^2
	Scientific laboratories	95 m^2
	Logistic	117 m^2
	Number of rooms (beds)	18 accommodation (82 beds), 6 kitchens, 1 dining-room, 2 lecture rooms, sauna, 2 laboratories, 4 adminstration (3 offices, computer room), laundry
	Number of staff on station (peak/off season)	10-14/5
	Max. number of visitors at a time	94
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	230 V 50 Hz grid (Eurasian two/three-pin plug)
	Power supply	24 hours per day
Scientific equipment	Specific device	Advanced weather station, differential GPS, basic laboratory equipment, different surveying equipment, state-of-the-art micro-scope systems (stereo, light, plankton, polarizing, phase contrast, fluorescence, Z-stacking, real-time video, imaging system), highly equipped analysis lab, EMEP-station (FMI owned)
	Scientific services offered	Tech support, some field support, access to time-series biological and phys.chem data, analysis lab access/assistance
Medical facilities	Medical facilities	Basic
	Medical suite	–
	No. of staff with basic medical training or doctor	3
	Distance to hospital (estimated time)	55 km (1 hour by car)
	Compulsory safety equipment	Mobile phone
	Recommended safety equipment	First aid kit, satellite communication device
Landing facilities	Airstrip (Length × Width)	Airstrip is in Kuusamo town, not station's own
	Airstrip surface	Tarmac
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	Motor boat, canoe
	Land transportation	Van, snowmobile, bicycles
Transport and freight	Transport to station	Car (plane to Kuusamo town possible and cheap)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Oulangan tutkimusasema
Oulun yliopisto

Oulanka Research Station
University of Oulu

Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	○
Mountain	●
Valley	●
Lake	●
River	●
Shoreline	●
Tree line	●
Polar deserts/semi-deserts	○
Shrub tundra	●
Gramminoid tundra	●
Forest tundra	●
Peatlands	●
Wetlands	●
Palsa mires	○
Deciduous forest	●
Evergreen forest	●
Human settlements or resource use in the area	●
Other (Rivers, streams, springs, forest, bogs, mires)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	●
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	●
Geophysics	○
Glaciology	○
Human biology, Medicine	●
Hydrology	●
Isotopic chemistry	○
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	●
Oceanography, Fishery	○
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	●
Staff available to assist with constructions	●

Communication	
Telephone	●
Satellite phone	○
VHF	●
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	○

KAINUU

NAME AND OWNER

Kainuu Fisheries Research Station belongs to the Natural Resources Institute Finland.

LOCATION

The Kainuu Fisheries Research Station is located c. 320 km south of the Arctic Circle, 135 km east of Oulu, 55 km west of Kajaani and c. 120 km west from the Russian border. The station lies in the commune of Paltamo, Finland (64°24′ N, 27°30′ E) and is situated on the bank of the River Varisjoki which flows into the Lake Oulujärvi.

BIODIVERSITY AND NATURAL ENVIRONMENT

The natural landscape of Kainuu is exceptionally diverse consisting of fells, forests, water areas, and wetlands. Lake Oulujärvi (surface area 928 km^2) is Finland's fourth largest lake. The island of Manamansalo is situated in the centre of the lake and is a national recreational area. The nature of the area attracts various fauna including predators like lynx, bears, and wolfs. Fish species present in the area are (in alphabetical order) bleak, bream, brown trout, bullhead, burbot, crucian carp, dace, eel, ide, minnow, nine-spined stickleback, northern pike, perch, pike-perch, roach, ruff, salmon, smelt, stone loach, vendace, and whitefish. Continental and oceanic climate meet in Kainuu, which usually means dry, warm summers and cold, snowy winters. Ice cover season lasts from early November until mid-May.

HISTORY AND FACILITIES

The history of the Kainuu Research Station started when the aquaculture activities was initiated in 1935. The main parts of the present station were built in 1994. Since 2002 the station was equipped to focus on experimental fish and aquatic ecology research. The station operates and is open for visitors throughout the year. The station has 14 beds, a laboratory, an auditorium, workshops, and internet access.

GENERAL RESEARCH AND DATABASES

The station provides excellent opportunities to carry out ecological, environmental or management related research in laboratory and on a semi-natural scale. The research facilities include both indoor and outdoor set-ups of streams, indoor pools, outdoor pools, and combined stream-pool systems with video arrays and

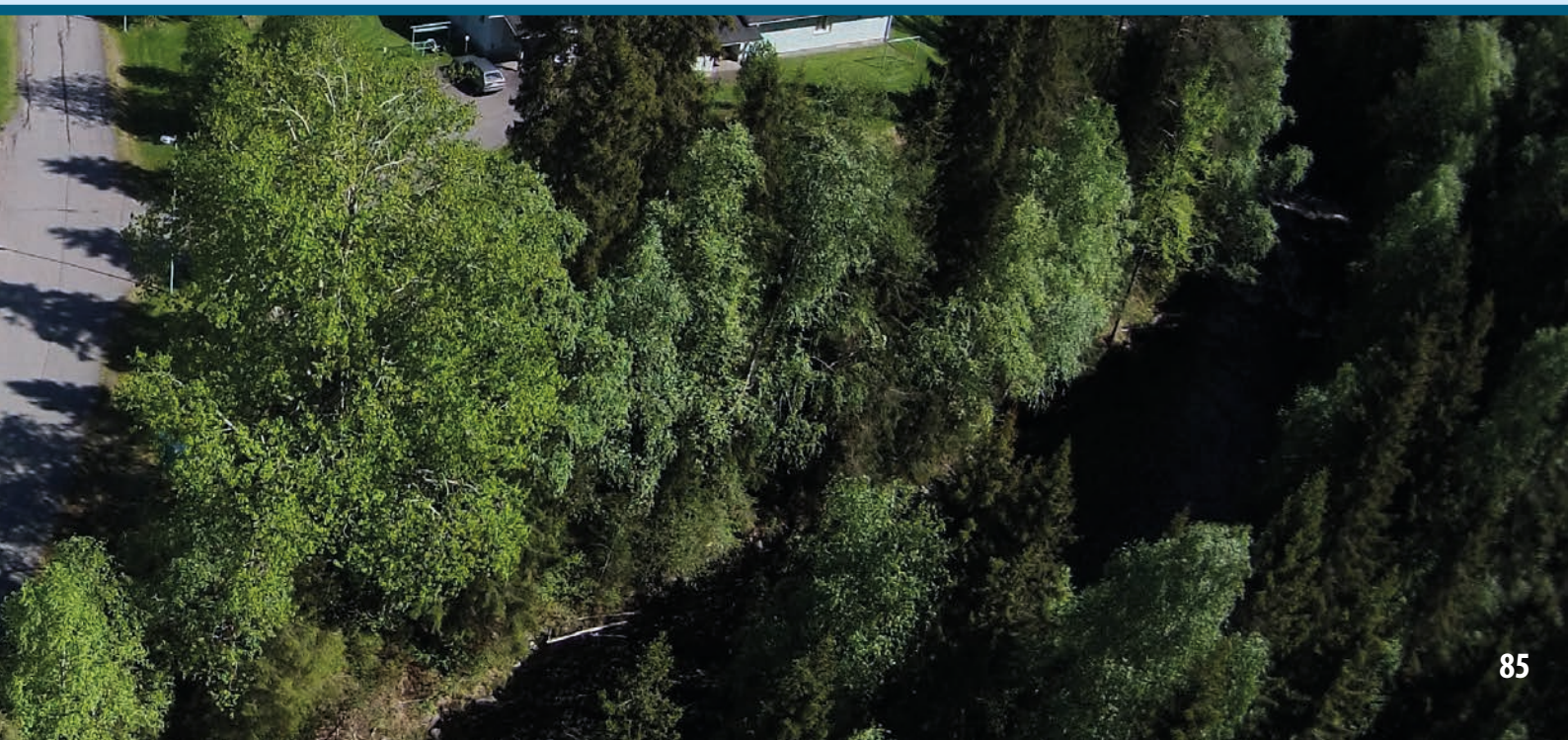
PIT-telemetry devices for observing and monitoring purposes. Water (max 750 l/s) for the streams and pools is taken from Lake Kivesjärvi (surface area 27 km^2, mean water pH 6.7, oxygen 9.2 mg/l, total P 17.0 µg/l, and conductivity 3.5 mS/m).

HUMAN DIMENSION

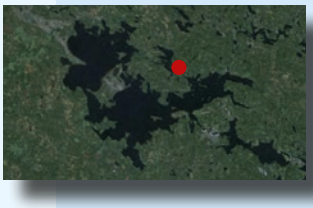
The municipality of Paltamo, consists of different villages. The closest village with stores and services is called Paltamo and lies 16 km from the research station. There are about 3500 inhabitants in Paltamo and c. 80000 in the whole Kainuu area. The main livelihoods are information and communication technologies together with electronics and businesses focusing on natural resources and tourism.

ACCESS

The Kainuu Research Station can be reached by car, bus, or train to Paltamo (16 km), or by plane to Kajaani (62 km) or Oulu (139 km) year-round.



Category	Sub-Category	Kainuu Fisheries Research Station
Website		www.kfrs.fi
Country		Finland
Opening year		1935
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Senate Properties
	Owner status	Goverment
	Institution responsible for managing the station	Natural Resources Institute Finland
	Contact (access to station)	pekka.hyvarinen@rktl.fi, pekkak.korhonen@rktl.fi
	Website (institution)	www.luke.fi
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	64°24′ N, 27°30′ E
	Altitude of station	135 m a.s.l.
	Min. altitude within study area	110 m a.s.l.
	Max. altitude within study area	385 m a.s.l.
	Nearests town/ settlement	Paltamo: 3500 habitants; Kajaani: 38 000 inhabitants
	Distance to nearest settlement	Paltamo: 16 km; Kajaani: 55 km
	Map	Several options through online webGIS and similar solutions
Climate	Climate zone	Middle boreal
	Permafrost	–
	Years measured	–
	Mean annual temperature	1.5 °C
	Mean temperature in February	-17.0 °C
	Mean temperature in July	15 °C
	Mean annual wind speed	6.2 m/s
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	625 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: May
Station facilities	Area under roof	3143 m^2
		Indoors 1128 m^2 including stream and pond areas, and outdoors c. 7 ha including semi-natural stream and pool areas
	Scientific laboratories	402 m^2
	Logistic	10 offices, 1 lab, 3 meeting rooms, 7 rooms/apartments (14 beds), 1 canteen, 10 storage rooms
	Number of rooms (beds)	9
	Number of staff on station (peak / off season)	14
	Max. number of visitors at a time	14, but up to 30 in accomodation 12 km away
	Showers	Yes (+ 3 sauna)
	Laundry facilities	Yes
	Power supply (type)	230 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Basic laboratory equipment
	Scientific services offered	Technical support available
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	16 km, Paltamo Hospital; 55 km, Kajaani Hospital
	Compulsory safety equipment	–
	Recommended safety equipment	First aid kit
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	Asphalt
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	Truck, van, 5 motor boats, snowmobile, 2 quad bikes
	Land transportation	Car
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



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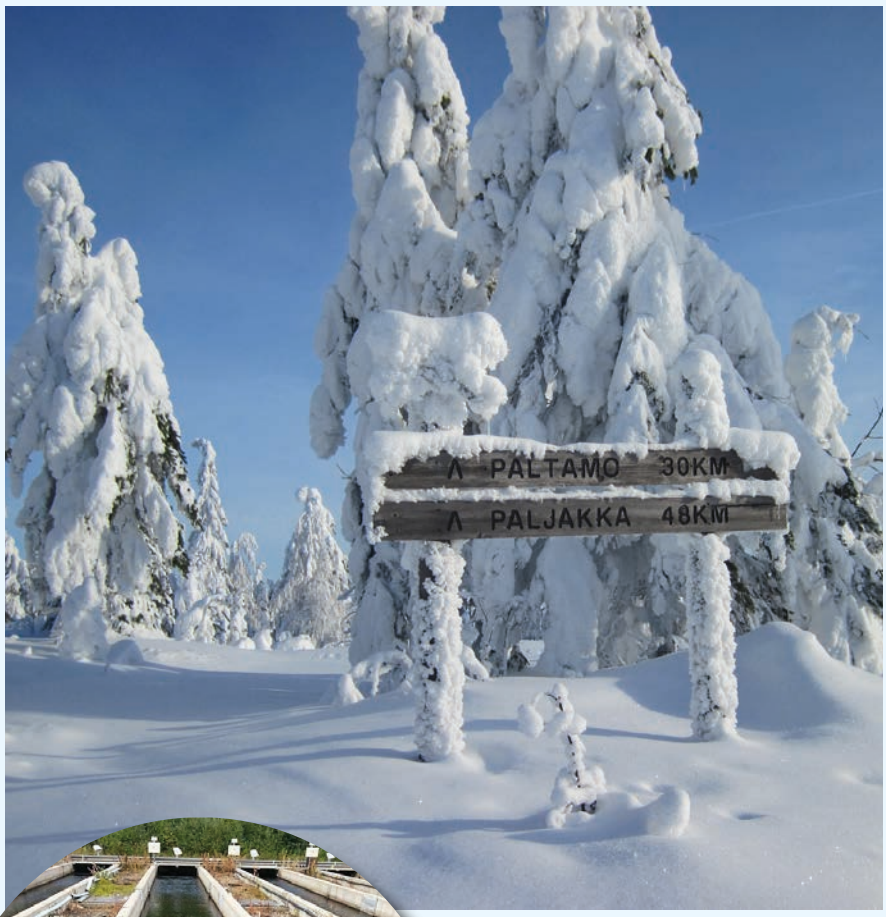
NATURAL RESOURCES INSTITUTE FINLAND



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
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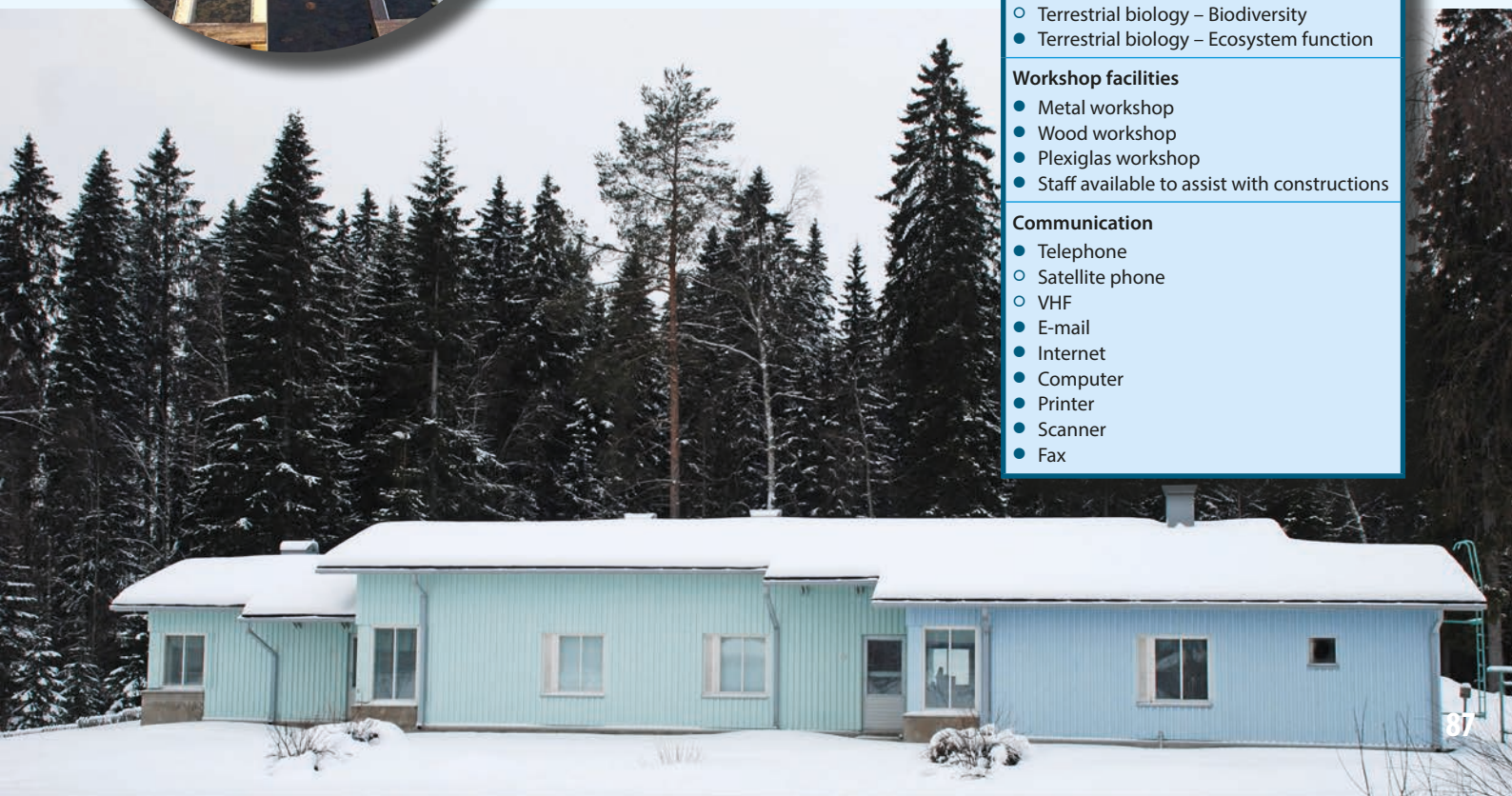
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax



HYYTIÄLÄ

STATION NAME AND OWNER

The Hyytiälä Forest Research Station is managed by University of Helsinki, Department of Forest Sciences and the SMEAR II station (Station for Measuring Ecosystem Atmosphere Relations) by Department of Physics.

LOCATION

The area is a boreal mixed-coniferous forest with several small lakes and wetlands. The overall altitude is about 180 m a.s.l. Most forests in the vicinity are state owned and managed with normal forestry practices in cooperation with the station. Several protected mire ecosystems are located in Siikaneva, 10 km southwest of the station. Nearest population centre and industry, is located in Juupajoki, 10 km away. The nearest larger city, Tampere (c. 200 000 inhabitants), is located about 60 km from the research station.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is located in a rather homogenous Scots pine stand on a flat terrain, 220 km northwest of Helsinki. The managed stand was established in 1962 by sowing, after the area had first been treated with prescribed burning and light soil preparation. The annual long term average temperature in the area is 2.9 °C, January is the coldest month (-8.9 °C) and July the warmest (15.3 °C). The annual precipitation during 1959-2006 averaged 697 mm. Sightings of moose are frequent, but also wolves and bears have recently been encountered in the region.

HISTORY AND FACILITIES

The research station was established in 1910 as a practice area for forestry students. In 1995, the SMEAR II station (situated at the Hyytiälä Forest Research Station) started continuous measurements of ecosystem-atmosphere interactions. In summer, the station can accommodate 175 persons, and in winter, c. 100 persons. The basic facilities include laboratory space and equipment, computers, wireless network, different means of transport, and a library with publications focused on forest sciences. The station has staff on duty every day year around, and the kitchen serves daily meals to both visitors and staff. The nearest grocery store and health centre are located in Juupajoki village, c. 10 km away.

GENERAL RESEARCH AND DATABASES

Multi-disciplinary research on forests, peat lands and atmosphere is the core of research at SMEAR II. A central topic is the role of forests and peat lands in relation to Climate Change. Additionally, close to 250 long-term experimental sites representing different tree species compositions, developmental classes, site conditions, and management histories are located nearby. The SMEAR-station participates in many research networks and infrastructures, including the European Integrated Carbon Observation System (ICOS), the European Long-Term Ecosystem Research Network (LTER) and EXPEER/AnaEE on experimental ecosystem research. All data are stored in an open, searchable database.

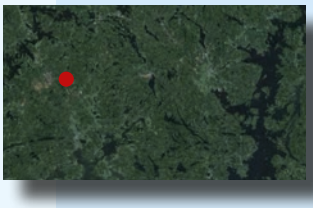
HUMAN DIMENSION

The surroundings are sparsely populated forest and agricultural regions. The nearest local village is Juupajoki, about 10 km away, with c. 2000 inhabitants. The forests in the nearest region are in intensive forestry use. Juupajoki also has some medium-sized industry including two sawmills.

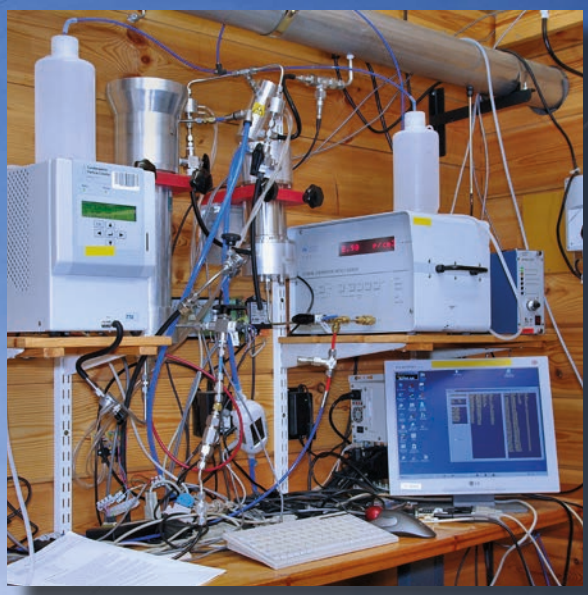
ACCESS

The station can be accessed via a small paved road. The closest towns are Juupajoki (10 km), Orivesi (22 km), and Ruovesi (25 km). Coaches travelling along the national highway, Route 66, have a stop at the turn-off to Hyytiälä (Hyytiälä th), 1.5 km from the research station. There are daily coach connections to Hyytiälä directly from both Helsinki and Tampere. The nearest airport is in Tampere, about an hour's drive from the station. The closest railway stations are in Juupajoki (10 km) and Orivesi (25 km).

Category	Sub-Category	Hyytiälä Forest Research Station (SMEAR II)
Website		www.atm.helsinki.fi/SMEAR/index.php/smear-ii
Country		Finland
Opening year		1995
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	Jaana.back@helsinki.fi
Facility owner and manager	Name of the facility owner	University of Helsinki
	Owner status	Government
	Institution responsible for managing the station	Department of Physics, Department of Forest Sciences
	Contact (access to station)	janne.levula@helsinki.fi
	Website (institution)	www.atm.helsinki.fi/SMEAR
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	61°51′N, 24°17′E
	Altitude of station	180 m a.s.l
	Min. altitude within study area	c. 150 m a.s.l.
	Max. altitude within study area	c. 200 m a.s.l.
	Nearests town/ settlement	Juupajoki (2000 inhabitants), Orivesi (9000 inhabitants)
	Distance to nearest settlement	10 km
	Map	All kinds available
Climate	Climate zone	Boreal
	Permafrost	–
	Years measured	1959-2014
	Mean annual temperature	3.5 °C
	Mean temperature in February	-7.7 °C
	Mean temperature in July	16 °C
	Mean annual wind speed	2.8 m/s
	Max. wind speed	14 m/s
	Dominant wind direction	SSW
	Total annual precipitation	697 mm
	Precipitation type	Rain, snow
	Ice break up	Lake: early May
Station facilities	Area under roof	5773 m^2
	Scientific laboratories	274 m^2
	Logistic	1014 m^2
	Number of rooms (beds)	Sleeping rooms (175 beds), 5 apartments, 3 laboratories, several large storage rooms
	Number of staff on station (peak / off season)	25/20
	Max. number of visitors at a time	c. 150
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V, European plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	Advanced laboratory equipment
	Scientific services offered	Technical support, lab assistance, open access to all data
Medical facilities	Medical facilities	Juupajoki (health centre), Orivesi (hospital)
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	22 km
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Several cars
Transport and freight	Transport to station	Car, coach (1.5 km), train (10 km)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



University of Helsinki



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
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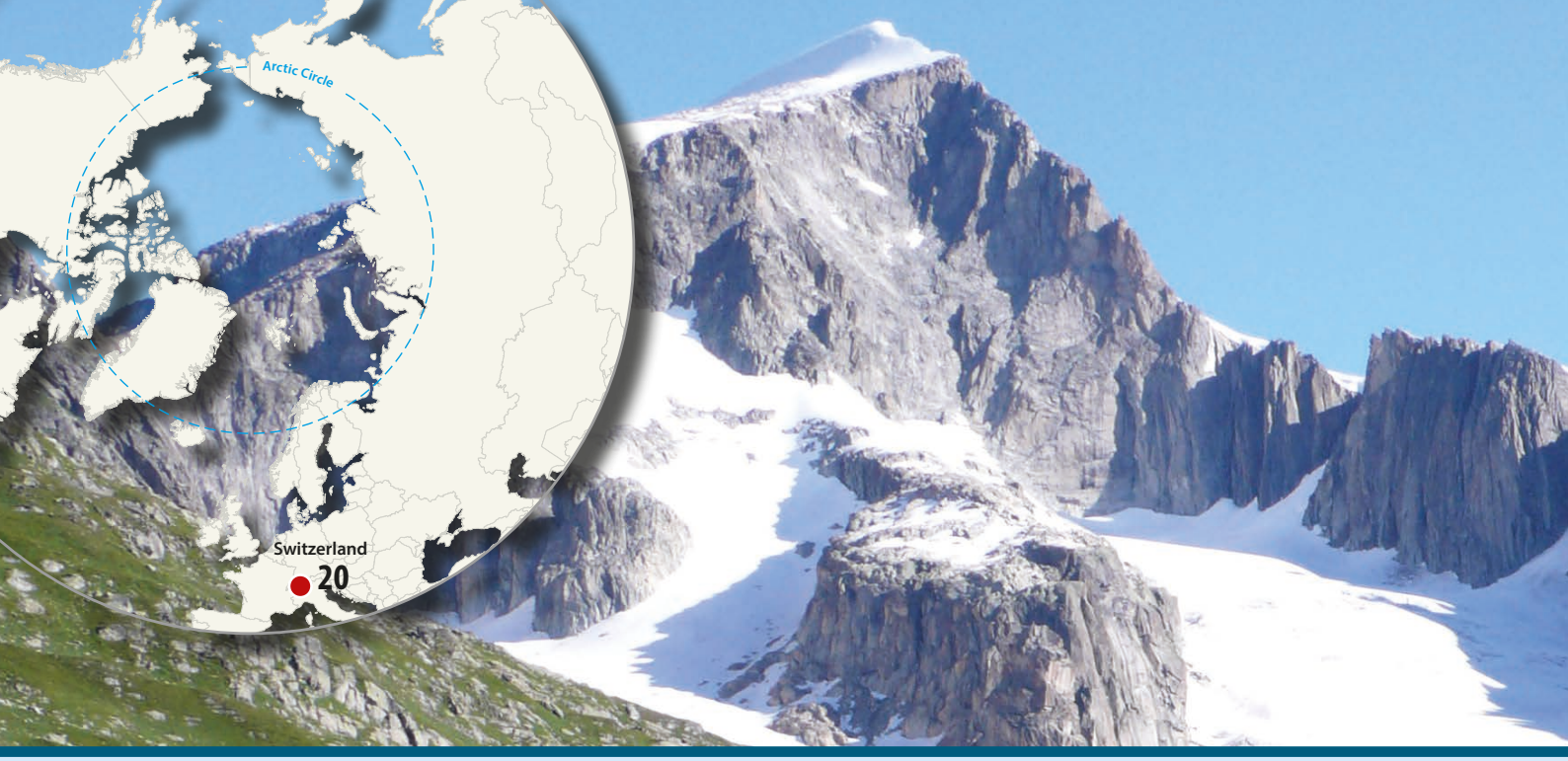


STATION NAME AND OWNER

The 'Alpine Research and Education Station Furka' (ALPFOR) is managed by the non-profit association ALPFOR, which is related to the University of Basel.

LOCATION

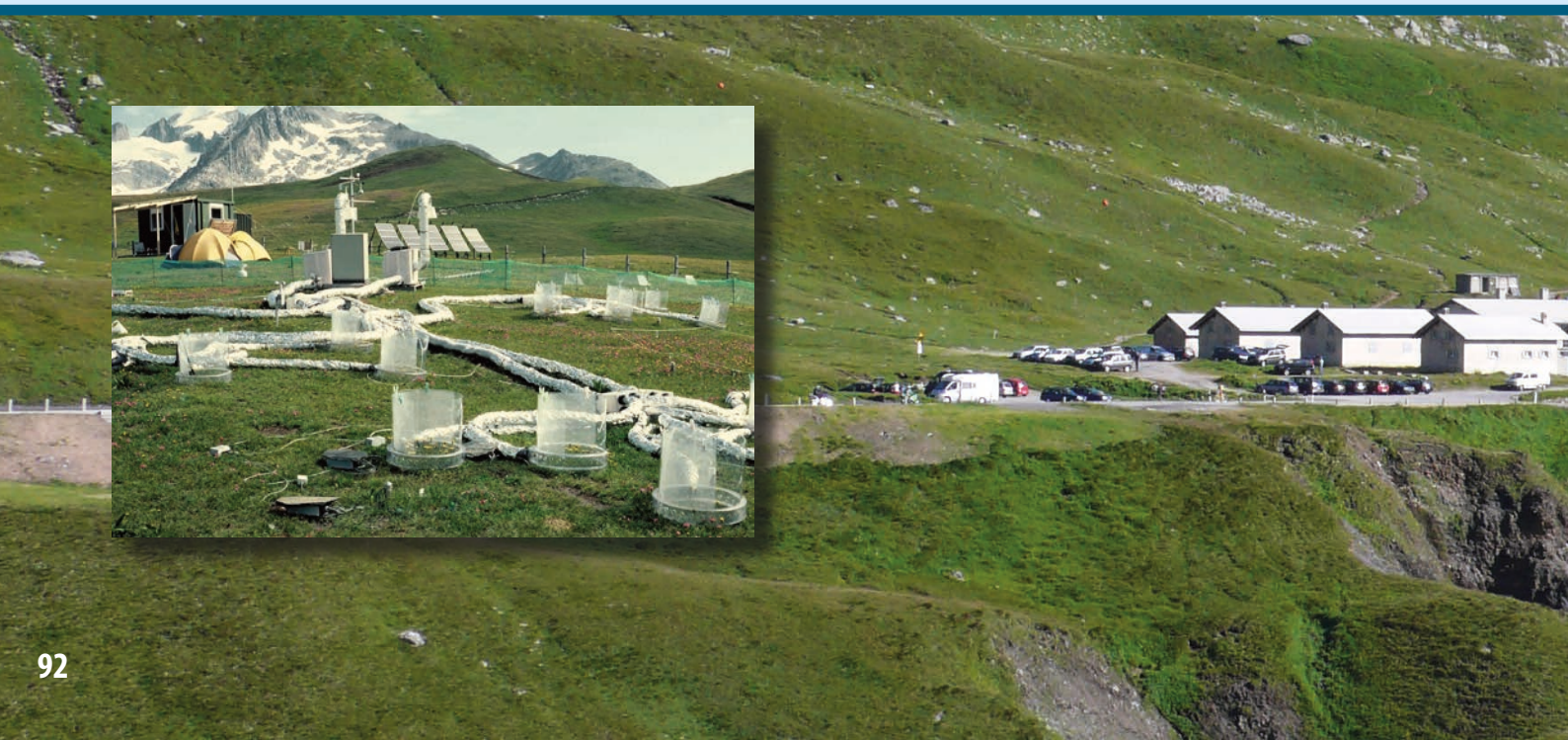
ALPFOR is situated close to the summit of the Furka Pass at an elevation of 2435 m a.s.l. in the Swiss Central Alps, canton Uri (46°34' N, 8°25' E). The nearest larger community is Andermatt at the Gotthard Pass Road to Italy with approximately 1300 inhabitants. Land owner is the Korporation Ursern (a regional authority).

BIODIVERSITY AND NATURAL ENVIRONMENT

ALPFOR is placed in a small zone of mesozoic calcareous layers ('Ursernzone') within the granitic, gneissic, and phyllitic (mica schist) core of the central Alps. The pass itself and the summits around, with elevations above 3500 m a.s.l., form the watershed of three major European river systems (Rhone, Rhine, and Po). All glaciers around the Furka Pass are at a rapid retreat, accompanied by permafrost thawing, rock glacier melting, and the release of new terrain from ice. Floristically, the Furka Pass is one of the richest parts of the Alps, i.e. within 1 km around the ALPFOR station, the alpine flora comprises close to 300 species of flowering plants, which is more than half of the total Swiss alpine flora. This biological richness is explained by the local geology and the topographic diversity. By area, the two largest habitats are alpine grassland dominated by *Carex curvula* and open fell field/rock vegetation. There are wet and very dry microhabitats (cotton grass - *Eriophorum sp*, and succulents – *Sempervivum sp*).

HISTORY AND FACILITIES

ALPFOR adopted three buildings from the former military station in 2008-2011. House Carex (a former health station) is mainly used by permanent staff. It offers beds for 12 people in two storeys. House Rumex (also two-storey) has a small lecture room for 25 people, a 'Flora galery' and a little tea-kitchen in the basement, and a 10-bed dormitory in the upper floor. House Ibex (former canteen and accommodation for officers) is a three-storey building with a large kitchen, a dining hall/lecture room for up to 100 people, and eight rooms with 2-4 beds. Several working rooms and modern sanitary facilities are offered in all three houses. ALPFOR can host up to 30 visitors at a time.



ALPFOR

GENERAL RESEARCH AND DATABASES

The Furka Pass is an ideal region for alpine research. Since 1991, diverse studies have strongly shaped our understanding of the alpine ecosystem, which contributed to 'Alpine Plant Life' (Ch. Körner, Springer Publishers, 2003). Major research projects at ALPFOR deal with the influence of elevated CO_2 concentration on growth, productivity, and water relations of alpine grassland and glacier forefield vegetation; the impact of nitrogen deposition, climatic warming, and sheep trampling on alpine grassland; microclimatology of alpine vegetation; population biology and reproductive ecology of alpine plants; molecular genetics of alpine plant populations (gene-ecology); hydrological consequences of land use change. For an overview on these research projects see: http://pages.unibas.ch/botschoen/alpfor/research.shtml.

We offer alpine ecology summer courses to undergraduate and graduate students. Our students prepare for the summer school through a web-based teaching tool (English and Spanish version) that is freely offered to all users (www.alpandino.org).

HUMAN DIMENSION

The major human influence in this area is pastoralism, which have existed here for more than a thousand years and is currently in rapid decline at lower elevations (with massive Alnus shrub encroachment). Higher elevations are facing uncontrolled increases in the number of sheep, leading to an intensification of grazing on the remaining, easily accessible parcels. The Alnus problem is the most immediate threat, because it leads to soil acidification, nitrogen eutrophication, plant diversity decline and it prevents natural reforestation by indigenous species (pristine forest was cleared already in the 11th century).

ACCESS

The Furka Pass Road is open from May to October. The station is open from the 1st of June to the 30th September. There is a post-bus service from Andermatt and Oberwald twice a day from each side of the pass. Andermatt and Oberwald have train stations less than 15 km away from the Furka pass. The link to the main Swiss rail system is at Göschenen. A trip from Basel or Zurich takes approximately three hours.

Category	Sub-Category	ALPFOR Alpine Research and Education Station Furka
Website		http://pages.unibas.ch/botschoen/alpfor
Country		Switzerland
Opening year		2009
Operational period		June-September
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes sekretariat-botschoen@unibas.ch
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	ALPFOR Government ALPFOR sekretariat-botschoen@unibas.ch http://pages.unibas.ch/botschoen
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	46°34′ N, 8°25′ E 2435 m a.s.l. 1500 m a.s.l. 3400 m a.s.l. Andermatt (1300 inhabitants) 12 km 1:25 000
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High alpine above treeline, lower latitude Mountain permafrost – -1.3 °C -8.7 °C 6.4 °C 3-8 m/s 20-35 m/s W 2000 mm Rain, snow Lake: end of June
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	350 m^2 80 m^2 80 m^2 12 (45 beds) 10/0 100 daytime, 30 overnight Yes Yes 220 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	– –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	– – – 12 km (1 hour) – –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – –
Vehicles at station	Sea transportation Land transportation	– Car
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Car – –

● Yes
○ No

Features within study area

- ● Ice cap or glacier
- ● Permanent snowpatches
- ● Mountain
- ● Valley
- ○ Lake
- ○ River
- ○ Shoreline
- ● Tree line
- ○ Polar deserts/semi-deserts
- ○ Shrub tundra
- ○ Gramminoid tundra
- ○ Forest tundra
- ○ Peatlands
- ○ Wetlands
- ○ Palsa mires
- ○ Deciduous forest
- ○ Evergreen forest
- ○ Human settlements or resource use in the area
- ○ Other

Main science disciplines

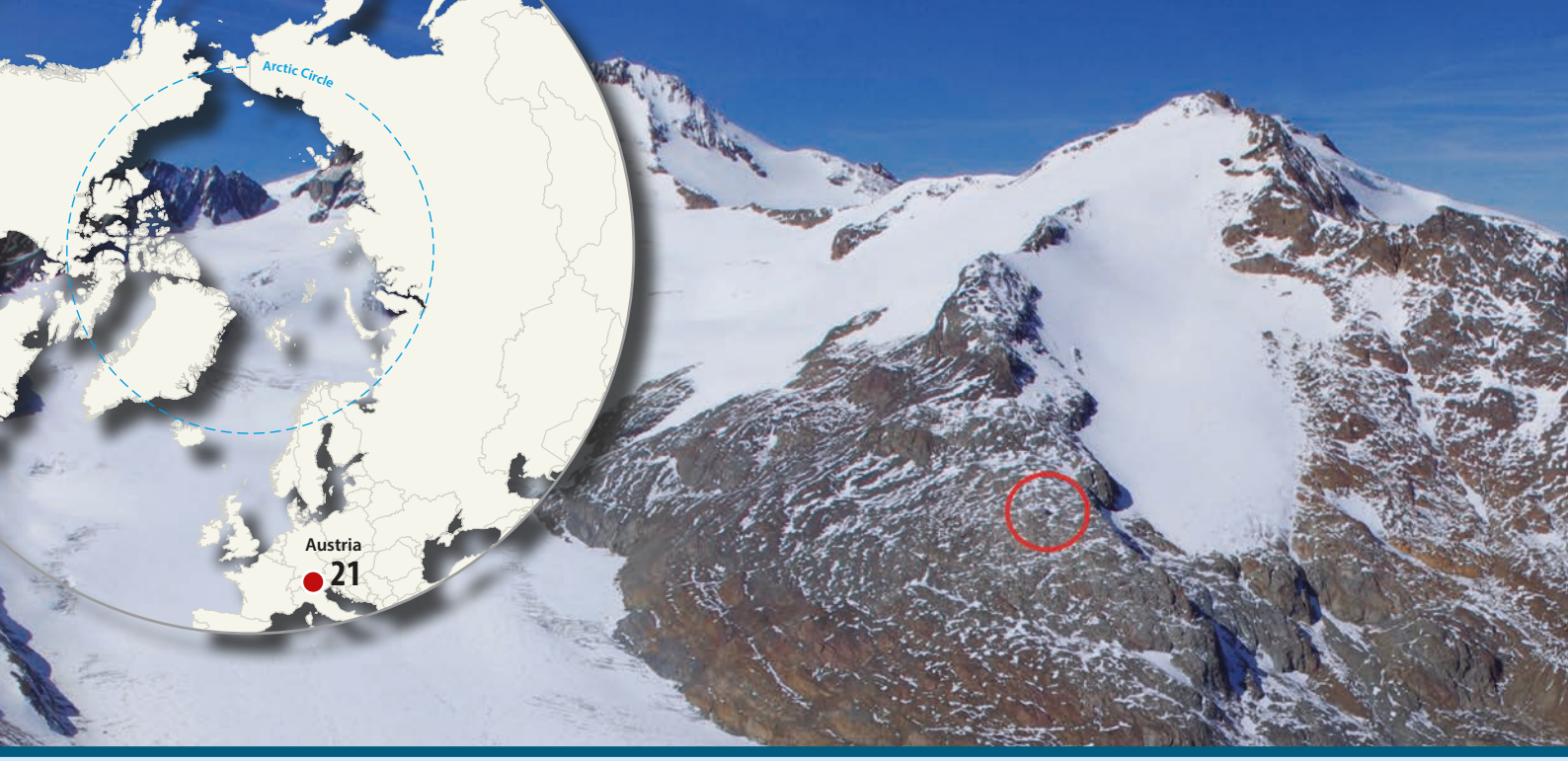
- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax



STATION NAME AND OWNER

Station Hintereis (SH) is situated near Hintereisferner (HEF) in the catchment of Rofen Valley. The Institute of Meteorology and Geophysics, University of Innsbruck (IMGI) runs the station which is built on land owned by the Austrian Governmental Forestry Administration.

LOCATION

The SH is situated 200 m from the 1970s mean equilibrium line of HEF, an approximately 7 km^2 valley glacier. HEF is one of several glaciers in the high alpine catchment of Rofenache (Rofen river), Ötztal Alps, Austria, on the border to Italy.

BIODIVERSITY AND NATURAL ENVIRONMENT

SH is totally surrounded by alpine glaciers covering peaks as high as almost 3800 m a.s.l. The immediate surroundings of the HEF are characterized by freshly exposed rocks and debris resulting from ongoing glacial retreat. Huge Little Ice Age moraines dominate the surroundings of the glacier tongue. Due to its high elevation and somehow difficult access, SH is not suitable for studying the lower parts of the Rofen Valley. Main focus is on glaciology and atmospheric studies.

HISTORY AND FACILITIES

HEF is mentioned in 1601 for the first time and then in 1678, 1774, 1770, 1816 in the context of pro-glacial lake formation and related glacial lake outburst floods. Glacier extent observations began in 1847, and the earliest maps are from 1870, 1888, and 1893, followed by a long series of maps. Research was intensified since the International Geophysical Year and during the International Hydrologica Decade/Program of UNESCI/IHP. HEF has been the key research site for glaciological studies at IMGI ever since. In 1966, SH was built to logistically support the ongoing scientific activities. It accommodates up to eight persons in bunk beds. There is no electricity but gas for cooking, heating, and light.

GENERAL RESEARCH AND DATABASES

HEF has one of the longest time series on glacier mass balance for any glaciers on Earth, based on series of geodetic maps starting in the 19th century. Since 2001 1-2 airborne LIDAR surveys are

HINTEREIS

carried out per year for determining ice volume changes. Length changes have been measured annually since 1847, and a mass balance time series dates back to 1953. Complementary studies of ice-atmopshere interactions, ice dynamics, and glacier hydrology has accumulated rich data sets.

HUMAN DIMENSION

The nearest settlements are Vent in Austria, 15 km from SH (150 permanent inhabitants, alpine farming and tourism) and Kurzras/ Maso Corto and Schnals/Senales in Italy (approximately 10 permanent inhabitants, year-round glacier ski tourism).

ACCESS

SH is accessed from Innsbruck Airport either by car (2 hours) or train/bus (4 hours) to Vent. From there, it is a 5-6 hours walk to the station. (The Hochjoch Hospiz mountain hut is half way). Helicopter transport is also possible but expensive.

Category	Sub-Category	Station Hintereis
Website		http://imgi.uibk.ac.at/research/ice-and-climate/projects/hef
Country		Austria
Opening year		1966
Operational period		Episodic
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Institut of Meteorology and Geophysics, University of Innsbruck
	Owner status	University
	Institution responsible for managing the station	Institut of Meteorology and Geophysics
	Contact (access to station)	rainer.prinz@uibk.ac.at, georg.kaser@uibk.ac.at
	Website (institution)	http://imgi.uibk.ac.at
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	46°47′ N, 10°45′ E
	Altitude of station	3026 m a.s.l. (ROF, HEF)
	Min. altitude within study area	1900 m a.s.l. (ROF, Vent village, runoff gauge, weather station)
	Max. altitude within study area	3739 m a.s.l. (ROF, HEF: Weisskugel)
	Nearests town/ settlement	Vent (Austria), Kurzras (Italy - glacier ski resort)
	Distance to nearest settlement	15 km from Vent with a farmhouse (Rofenhof) and a mountain hut (Hochjochhospiz: www.alpenverein.at/huetten/index.php?huette_nr=0566) inbetween. 3 km from highest skilift of glacier ski resort (technically demanding). Note: all accesses are by walking and traversing a glacier!
	Map	Many maps and DTMs of all kinds since 1870; navigation: map of Austrian Alpine Club no. 30/2 'Weißkugel' (1:25 000)
Climate	Climate zone	Alpine
	Permafrost	Discontinuous
	Years measured	Many data sets from earlier periods (since 1847), temperature and wind data below since 2011
	Mean annual temperature	-3.3 °C
	Mean temperature in February	-12.2 °C
	Mean temperature in July	5.2 °C
	Mean annual wind speed	4.0 m/s (hourly mean)
	Max. wind speed	24.1 m/s (hourly mean)
	Dominant wind direction	SW
	Total annual precipitation	1350 mm (years 2005-2013)
	Precipitation type	Snow, rain
	Ice break up	–
Station facilities	Area under roof	33.75 m^2
	Scientific laboratories	–
	Logistic	33.75 m^2
	Number of rooms (beds)	2 storage rooms, 1 kitchen/living room (bunk beds for 8 persons)
	Number of staff on station (peak / off season)	None, but a person would accompany visitors
	Max. number of visitors at a time	8
	Showers	–
	Laundry facilities	–
	Power supply (type)	Gas for cooking, heating, illuminating; no electricity (automatic weather station runs on solar pannel)
	Power supply	–
Scientific equipment	Specific device	–
	Scientific services offered	Free access to glaciologoical and climate data
Medical facilities	Medical facilities	–
	Medical suite	Nearest hospitals are Zams, Innsbruck (Austria) and Meran (Italy)
	No. of staff with basic medical training or doctor	0
	Distance to hospital (estimated time)	Each within 20 min helicopter distance
	Compulsory safety equipment	Cell phone; glacier safety or mountaineering equipment to cross the glacier (summer); avalanche rescue equipment (winter)
	Recommended safety equipment	Fist aid kit
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes: rock/snow
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	On foot or helicopter
	Number of ship visits per year (period)	0
	Number of flight visits per year (period)	1 - 2 helicopter operations per year

Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake (small ponds)	
● River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra (Alpine shrub)	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands (small places)	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (periglacial, high mountain meadows)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
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- ○ Fax

SONNBLICK

STATION NAME AND OWNER

The Sonnblick Observatory is owned by Sonnblick Verein and managed by the Zentralanstalt für Meteorologie und Geodynamik in cooperation with the Sonnblick Verein.

LOCATION

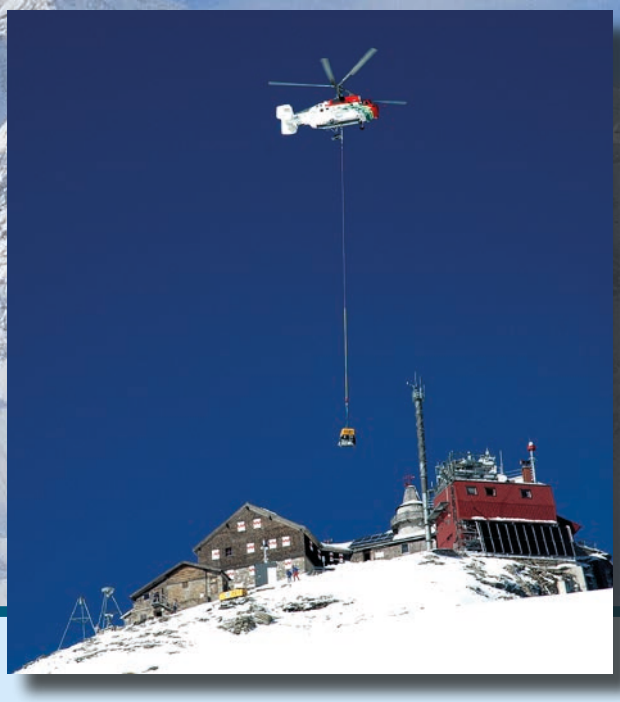
Sonnblick Observatory is located in the Austrian Central Alps at an elevation of 3100 m a.s.l. It is situated at the alpine main divide, which is a clear climatological border. It also lies in the "Nationalpark Hohe Tauern" which covers 1856 km^2 of the Austrian Alps at the border between the provinces of Salzburg, Carinthia, and Tyrol. Nearest villages are Heiligenblut to the South (10 km away) and Rauris to the North (20 km away). One important reason for the establishment of the Sonnblick Observatory in 1886 was the available infrastructure from gold mining activities.

BIODIVERSITY AND NATURAL ENVIRONMENT

The natural environment is high-alpine with year-round snow-cover, glaciers, and permafrost. Sonnblick region covers mountain ecosystems.

HISTORY AND FACILITIES

Sonnblick Observatory was built in 1886 at the summit of Sonnblick Mountain, motivated from the need for information on meteorology in higher altitudes of the atmosphere. Very soon other scientific disciplines became interested in the extreme location of the observatory, e.g. Nobel-prize winner V.F. Hess for his measurements of cosmic rays. In 1986, the observatory was rebuilt to a modern observatory with cable car access, electricity, and a large research platform. From that time onwards investigations on atmospheric chemistry became a new research field at Sonnblick. Today, Sonnblick is a station of interdisciplinary research covering the atmosphere, the cryosphere, the biosphere, the lithosphere, and the hydrosphere.



GENERAL RESEARCH AND DATABASES

Research of Sonnblick is currently formulated in the research programme ENVISON. It covers three main topics (the atmosphere, the cryosphere, and the biosphere) in an extensive monitoring programme and with many research projects. Sonnblick is outstanding with respect to its long-term climate observations and studies on glacier changes. Thus, the impact of Climate Change on the cryosphere is a major research topic at Sonnblick. Since 1886, Sonnblick was also involved in many international projects on atmospheric chemistry and atmospheric physics. The research is described on www.sonnblick.net. Sonnblick Observatory cooperates with several Austrian and international universities/research institutions. Within the frame of the GAW-DACH cooperation, Sonnblick has a special partnership with the observatories Jungfraujoch (in Switzerland), Zugspitze and Hohenpeissenberg (both Germany) for common research on atmospheric processes and Climate Change (GAW: Global Atmosphere Watch in Germany, Austria, and Switzerland: D-A-CH).

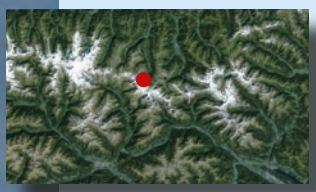
HUMAN DIMENSION

The nearest settlements are Rauris (c. 30 inhabitants) in the North and Heiligenblut, at the foot of Austria's highest peak Großglockner (3798 m), in the South. Both villages are well known tourist centres for mountain-related summer and winter activities (all kind of skiing, hiking, climbing, cycling, etc.). The Valley of Rauris is the largest community of the Salzburg province, and has more than 420 000 bed-nights related to tourism per year. Heiligenblut has 1090 inhabitants (January 2011) and is the end point of the Großglocker Hochalpenstraße (high alpine road).

ACCESS

Access to Sonnblick Observatory is possible throughout the year either by cable car from the North (20 minutes trip from Rauris valley) or by hiking from Rauris valley from the north or from Heiligenblut from the south (about 5 hours hike from both sides). As Sonnblick is situated within the "Nationalpark Hohe Tauern" the use of helicopters is restricted. However, scientific activities usually will get permission for required helicopter flights. Because of its remote location in the Alps potential mountain hazards have to be considered during field work. Sonnblick Observatory is built together with an alpine hut "Zittelhaus" which offers additional accommodation and space.

Category	Sub-Category	Sonnblick Observatory
Website		www.sonnblick.net
Country		Austria
Opening year		1886
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	bernhard.niedermoser@zamg.ac.at
Facility owner and manager	Name of the facility owner	Sonnblick Verein
	Owner status	Private
	Institution responsible for managing the station	Zentralanstalt für Meteorologie und Geodynamik
	Contact (access to station)	bernhard.niedermoser@zamg.ac.at
	Website (institution)	www.zamg.ac.at
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	47°03′ N, 12°57′ E
	Altitude of station	3105 m a.s.l.
	Min. altitude within study area	1600 m a.s.l.
	Max. altitude within study area	3254 m a.s.l.
	Nearest town/settlement	Rauris (3050 inhabitants)
	Distance to nearest town/settlement	20 km
	Map	Maps (1:50 000, 1:25 000), height models 1m - 25m, aerial images. Data on permafrost and glacier measurements.
Climate	Climate zone	Alpine
	Permafrost	Discontinuous
	Years measured	125
	Mean annual temperature	-5.7 °C
	Mean temperature in February	-11.2 °C
	Mean temperature in July	1.8 °C
	Mean annual wind speed	5.6 m/s
	Max. wind speed	67 m/s
	Dominant wind direction	SW
	Total annual precipitation	2680 mm
	Precipitation type	Snow, rain
	Ice break up	–
Station facilities	Area under roof	200 m^2
	Scientific laboratories	20 m^2
	Logistic	80 m^2
	Number of rooms (beds)	4 rooms (8 beds) plus 80 beds in the hut of Alpenverein
	Number of staff on station (peak/off season)	2/2
	Max. number of visitors at a time	10
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Power supply from cable 230 V 50Hz
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	WLAN
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	2
	Distance to hospital (estimated time)	40 km (15 min with helicopter)
	Compulsory safety equipment	For outdoor: mountaineering at glacier
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	Cable car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



ZAMG
Zentralanstalt für Meteorologie und Geodynamik

Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
○ Lake	
○ River	
○ Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
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- ● Paleoecology
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- ● Soil Science
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- ○ Satellite phone
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- ● Printer
- ● Scanner
- ● Fax

STATION NAME AND OWNER

Krkonoše (CZ)/Karkonosze (PL) Mountains National Parks are state properties of the Czech Republic and Poland. The parks are a trans-boundary UNESCO Man and Biosphere Reserve. Two Observer Stations, a Czech station called Krkonoše and a Polish station called Karkonosze, are situated in the park. Because of their location within the same mountains, this catalogue gives a combined description of the two stations.

LOCATION

The area is known for its high biodiversity in four altitudinal vegetation belts, from sub-montane to alpine. The Krkonoše/Karkonosze Mountains National Parks (NPs) are situated on both sides of the Czech/Poland state border and form the highest part of the Hercynian mountain system in Central Europe. The stations are situated in the tundra which covers the subalpine/alpine belt of both NPs. The mountain belt is densely occupied by mountain chalets. Nearest towns are Karpacz (PL, 8 km to the north) and Vrchlabi (CZ, 10 km to the south).

BIODIVERSITY AND NATURAL ENVIRONMENT

The tundra – above the *Picea abies* tree line – has the unique character of a relic island of the subarctic-alpine tundra (thanks to its isolation from Scandinavia, the Alps and the Carpathians since the end of Pleistocene). Three zones are distinguishable within it: 1. "stony-lichen tundra" with a mosaic of lichens, bryophytes, low grasses, and bushes on alpine peaks, 2. "grassy tundra" with grasses, subarctic mires, and shrubs of *Pinus mugo* (vicariance of *Betula nana* and *B. czerepanovii*) in the lower plateaus, and 3. "flower rich tundra" with tall herbs and grasses in the lee of the glacial corries. The area exhibits many plants and animal species with arctic-alpine distribution.

HISTORY AND FACILITIES

The Polish Karkonosze Park Narodwy was established in January 1959 and the Czech Krkonoše National Park in 1963. However, scientific research in this area started already in 1786. At present, 400 different scientific projects are carried out each year on both sides of the border. We can offer local accommodation, high speed internet connection and several well equipped stores in the neighbourhood.

KRKONOŠE/ KARKONOSZE

23/24

GENERAL RESEARCH AND DATABASES

The research focuses on fauna, flora, lichens, bryophytes, algae, GIS, geology, geomorphology (waterfalls), environmental chemistry, climatology (avalanches), forest management, pedology, recreation, speleology, sociology (socioeconomic), former ore mining, agriculture, archaeology (history), etc. In addition, a lot of different databases containing data from animate (biotic) and inanimate (abiotic) nature are available.

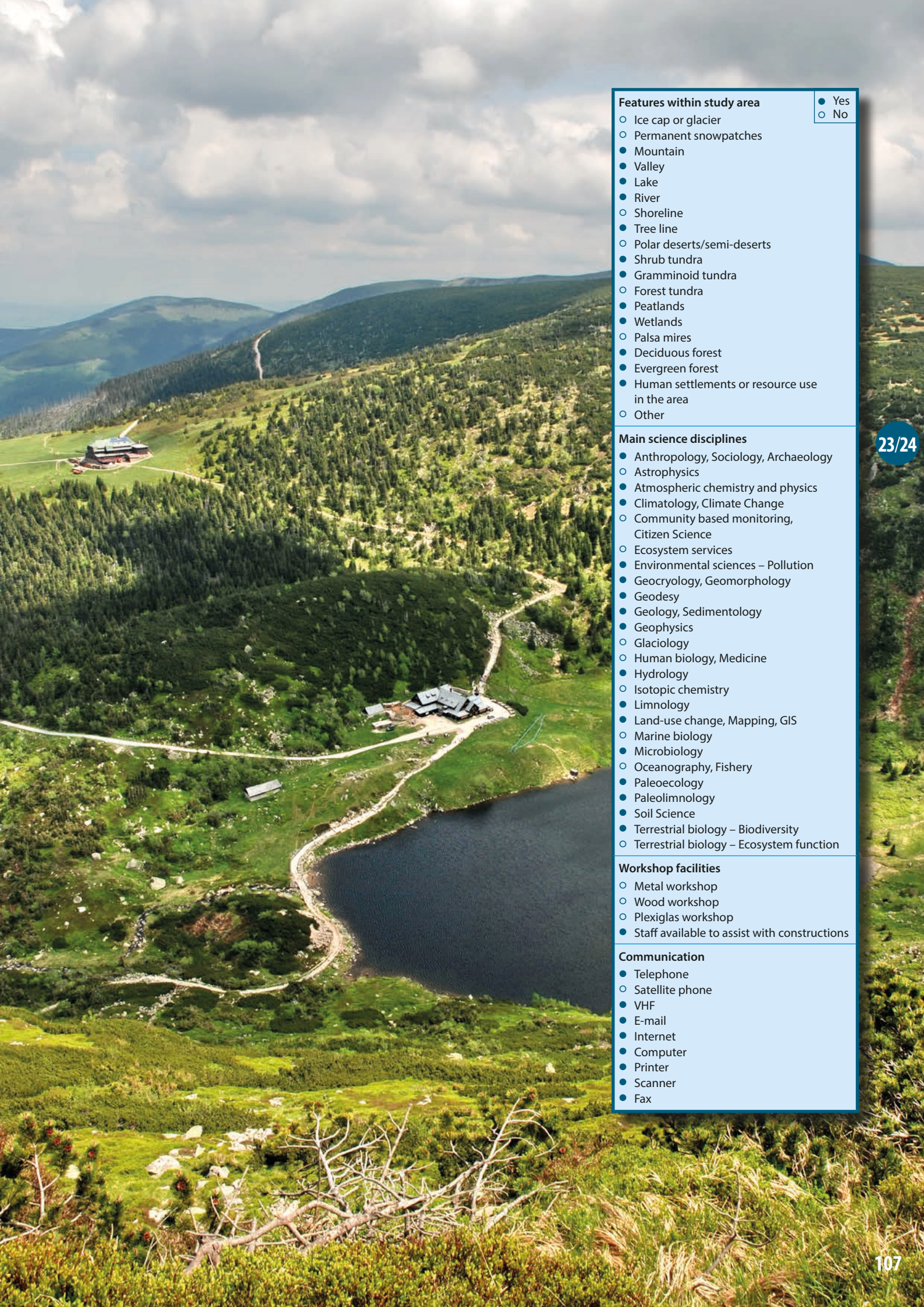
HUMAN DIMENSION

The Krkonoše/Karkonosze Mountains has been inhabited for a long time. Besides nature protection and research, the area is also used for forestry, agriculture, tourism, and sports. The Krkonoše/Karkonosze Mountains is a popular tourist destination for hikers and skiers with about 5-6 million visitors per year on the Czech and 2.5-3 million on the Polish side (2002).

ACCESS

Krkonoše/Karkonosze Mountains can be reached by car, bus, and train. It will take around two hours by car from Prague airport to Vrchlabí and another 30 min from Vrchlabí to the tundra zone. Access from Poland is via Karpacz.

Category	Sub-Category	Krkonoše (CZ)/Karkonosze (PL) National Parks
Website		www.krnap.cz, www.kpnmab.pl
Country		Czech Republic, Poland
Opening year		1963/1959
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes (only for car entrance) Yes jmaterna@krnap.cz, roksana@kpnmap.pl
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	State property (Czech Republic/Poland) Government Krkonoše (CZ)/Karkonosze (PL) National Park Administration jandrle@krnap.cz, krysztof.krakowski.kpnmab.pl www.krnap.cz, www.kpnmab.pl
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	50°44′ N, 15°44′ E 1400 m a.s.l. 920 m a.s.l. 1602 m a.s.l. Vrchlabí/Karpacz (12 000/5000 inhabitants) 10 km Topographic maps, aerial orthophotomaps, geological maps, geomorphological maps, soil maps, vegetation maps, forestry maps, digital elevation maps, and many more tematical maps. CZ: http://gis.krnap.cz/map/, PL: http://geoportal.kpnmab.pl/imap/
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Alpine – 130 years (data from the highest peak of Krkonoše/Karkonosze 1602 m a.s.l.). The conditions can differ from those on tundra plateau 0.8 °C -4 °C 13 °C 12.7 m/s 67 m/s (10 minutes measurement) SW 1177 mm Rain, snow, fog, hails Lakes: April/May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	– 15 m^2 – 10-30 – – Yes – 230 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	– –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Well-equipped Yes – 15-20 km (10-30 min.) – First aid kit, avalanche seeker
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – Yes –
Vehicles at station	Sea transportation Land transportation	– Car, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Car, railway – –

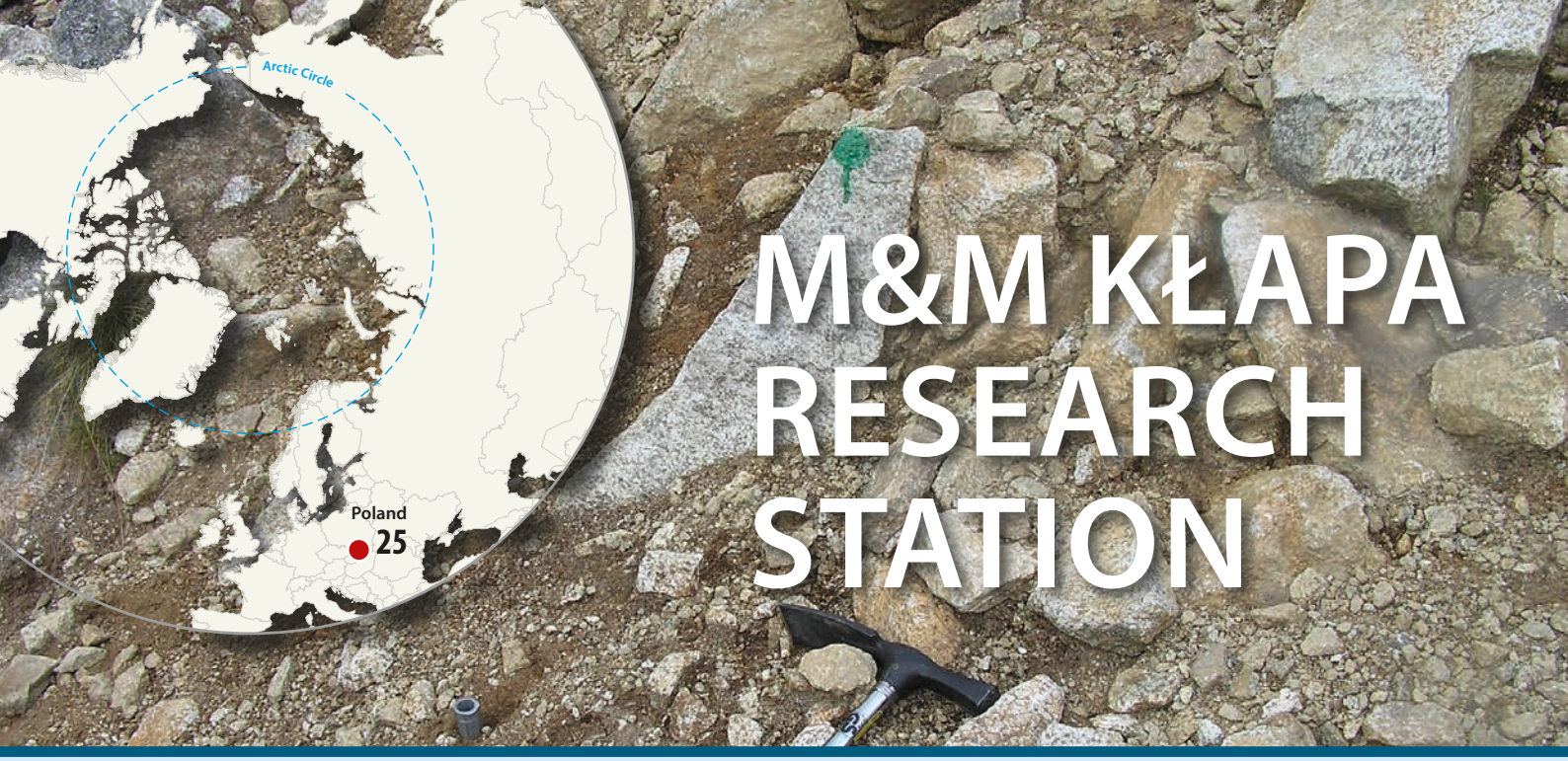


Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines
● Anthropology, Sociology, Archaeology
○ Astrophysics
● Atmospheric chemistry and physics
● Climatology, Climate Change
○ Community based monitoring, Citizen Science
○ Ecosystem services
● Environmental sciences – Pollution
● Geocryology, Geomorphology
● Geodesy
● Geology, Sedimentology
● Geophysics
○ Glaciology
○ Human biology, Medicine
● Hydrology
○ Isotopic chemistry
● Limnology
● Land-use change, Mapping, GIS
○ Marine biology
● Microbiology
○ Oceanography, Fishery
● Paleoecology
● Paleolimnology
● Soil Science
● Terrestrial biology – Biodiversity
○ Terrestrial biology – Ecosystem function

Workshop facilities
○ Metal workshop
○ Wood workshop
○ Plexiglas workshop
● Staff available to assist with constructions

Communication
● Telephone
○ Satellite phone
● VHF
● E-mail
● Internet
● Computer
● Printer
● Scanner
● Fax



M&M KŁAPA RESEARCH STATION

STATION NAME AND OWNER

M&M Kłapa Research Station is run by the Institute of Geography and Spatial Organization, Polish Academy of Sciences, Department of Geoenvironmental Research.

LOCATION

The station is located in the in Tatra National Park (Tatra Mountains), in the Hala Gąsienicowa area (49°15′ N, 20°00′ E). The station is located 1520 m a.s.l. at the upper timberline and the lower limit of the periglacial zone. The highest summit in the area reaches 2301 m a.s.l.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is situated in a high-mountain environment with an alpine landscape. The mean annual temperature is 2.4 °C, and the mean annual precipitation is 1666 mm (varying from 1043 mm to 2626 mm). The vegetation varies from coniferous forest in the forest zone, trough *Pinus mugo* shrubs in the sub-alpine zone, alpine meadows in the alpine zone, and bare rocks in sub-nival zone.

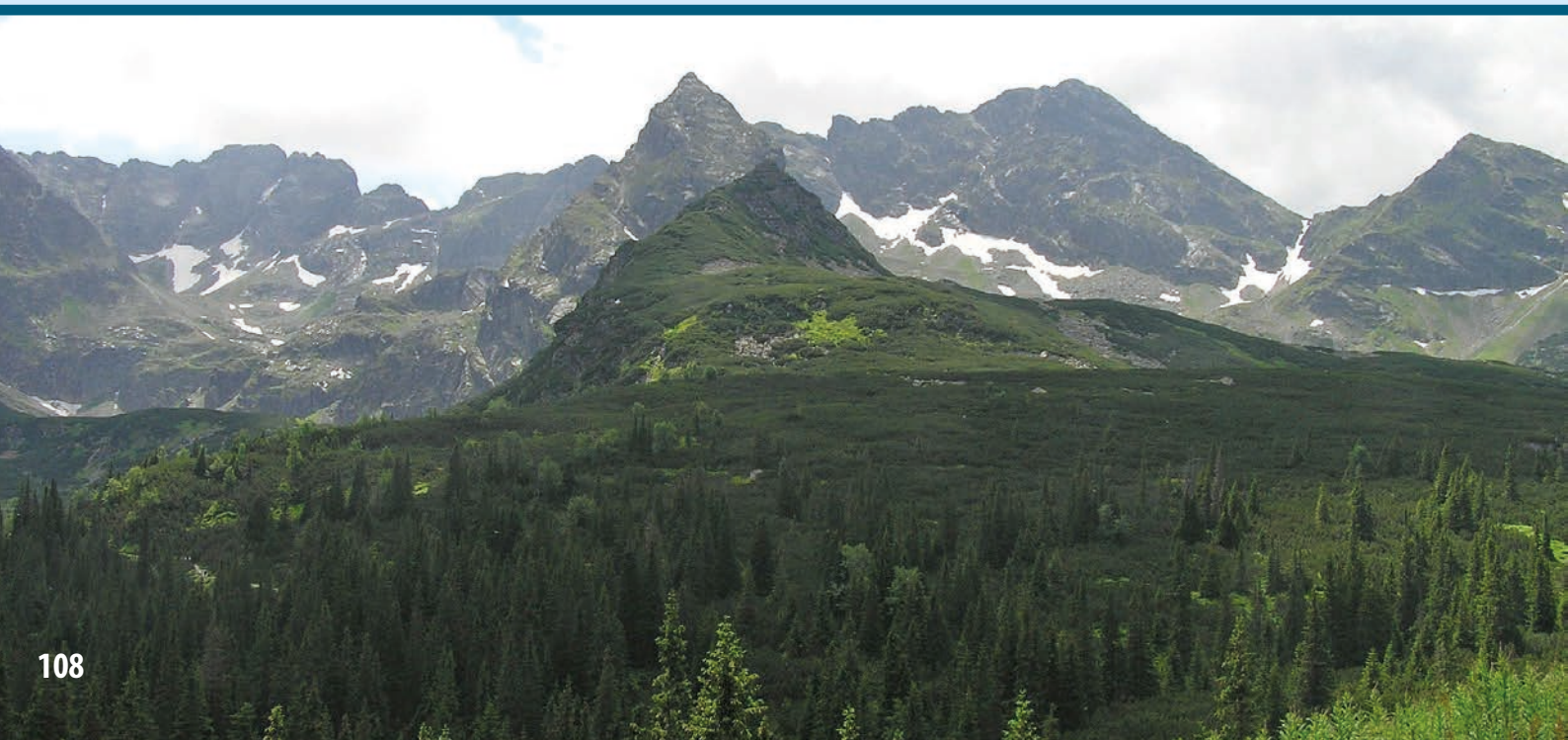
HISTORY AND FACILITIES

Research started in December 1913, when the first meteorological measurements were made. The more complex environmental research was initiated by the Association of Polish Geographers in 1948. In the beginning, the station mainly carried out basic climatic and nival measurements. In 1953, the station became part of the Institute of Geography and Spatial Organization, Polish Academy of Sciences. Since then, the focus of research has also been on geomorphology, climatology, and biogeography.

The station is a wooden house. The building has central heating, running water, electric power, and internet. The station has three rooms, i.e. a kitchen, a pantry, a bathroom, and different storage rooms.

GENERAL RESEARCH AND DATABASES

The station constitutes a convenient base for geomorphological, climatic and geo-botanic investigations due to its highly favourable location. Geomorphological studies focus on landscape development. At present, the studies concentrate on monitoring of landscape change due to Climate Change. Climatic studies focus on micro-climatic and topo-climatic issues. Studies on vegeta-



tion deal with mapping at various scales and with dynamics of changes in vegetation. Meteorological observations are carried out by the Institute of Meteorology and Water Management, and long-term data are available.

HUMAN DIMENSION

The station is open to national and international scientist. It can accommodate 4-6 scientists at a time. The nearest inhabited place, i.e. the mountain resort Zakopane, is within 2-3 hours walking distance from the station. The nearest town, Zakopane, has a population of c. 30 000 inhabitants.

ACCESS

The station is situated c. 100 km away from the Kraków-Balice Airport and c. 5 km away from the railway and bus stations in Zakopane. Access to the station is by foot. However, transport of heavy equipment is possible by car. Travel time from the Kraków–Balice airport is around half day.

Category	Sub-Category	M&M Kłapa Research Station
Website		www.igipz.pan.pl/hala-gasienicowa-zbg.html
Country		Poland
Opening year		1948
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Institute of Geography and Spatial Organization, Polish Academy of Sciences, Department of Geoenvironmental Research
	Owner status	Polish Academy of Sciences, Government
	Institution responsible for managing the station	Institute of Geography and Spatial Organization, Polish Academy of Sciences, Department of Geoenvironmental Research
	Contact (access to station)	raczk@zg.pan.krakow.pl
	Website (institution)	http://www.igipz.pan.pl
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	49°14′ N, 20°00′ E
	Altitude of station	1520 m a.s.l.
	Min. altitude within study area	800 m a.s.l.
	Max. altitude within study area	2301 m a.s.l.
	Nearests town/ settlement	Zakopane (30 000 inhabitants)
	Distance to nearest settlement	5 km from station to Zakopane
	Map	Topograpgical maps (1:10 000), orthophotomaps, aerial image, satellite image, Google Earth, DTM
Climate	Climate zone	Temperate zone/Montane
	Permafrost	Sporadic
	Years measured	Since 1913
	Mean annual temperature	2.4 °C
	Mean temperature in February	-5.8 °C
	Mean temperature in July	10.7 °C
	Mean annual wind speed	1.5-2.5 m/s
	Max. wind speed	88 m/s
	Dominant wind direction	SW
	Total annual precipitation	1666
	Precipitation type	Rain, snow
	Ice break up	Lakes: May/June
Station facilities	Area under roof	c. 300 m^2
	Scientific laboratories	c. 10 m^2
	Logistic	c. 150 m^2
	Number of rooms (beds)	3 rooms, 5 beds
	Number of staff on station (peak / off season)	1
	Max. number of visitors at a time	4
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	European
	Power supply	24 hours per day
Scientific equipment	Specific device	Portably equpiment
	Scientific services offered	Technical and scientific support
Medical facilities	Medical facilities	Available in the village
	Medical suite	Yes
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	5 km from station at Zakopane and Tatra Mountain Rescue Helicopter Service
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	Airport at Kraków-Balice (130 km)
	Airstrip surface	–
	Helipad	Helicopter of Tatra Mountain Rescue
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	Cable-car and on foot
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

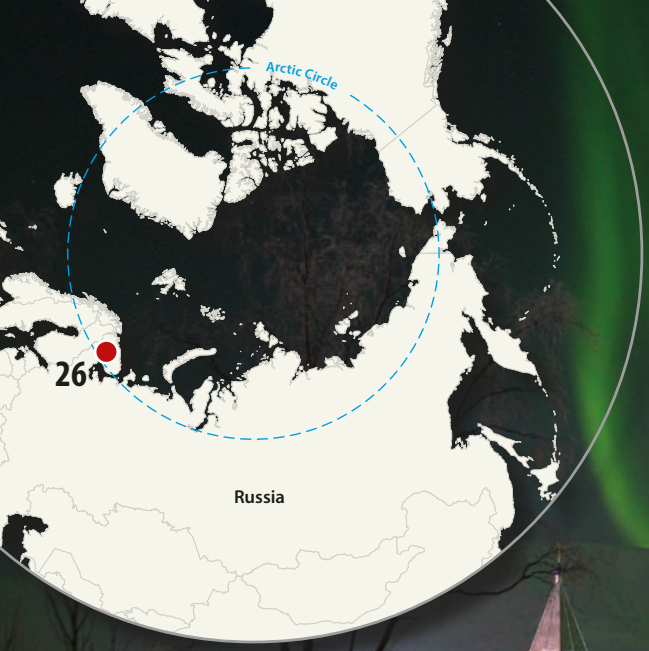
Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	●
Mountain	●
Valley	●
Lake	●
River	○
Shoreline	○
Tree line	●
Polar deserts/semi-deserts	○
Shrub tundra	○
Gramminoid tundra	○
Forest tundra	○
Peatlands	○
Wetlands	○
Palsa mires	○
Deciduous forest	○
Evergreen forest	○
Human settlements or resource use in the area	○
Other (geoecological altitudinal belts, from forest to bare rock belt, alpine meadows)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	○
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	●
Environmental sciences – Pollution	○
Geocryology, Geomorphology	●
Geodesy	●
Geology, Sedimentology	○
Geophysics	●
Glaciology	○
Human biology, Medicine	○
Hydrology	○
Isotopic chemistry	○
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	○
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	○
Terrestrial biology – Biodiversity	○
Terrestrial biology – Ecosystem function	○

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	●

Communication	
Telephone	●
Satellite phone	○
VHF	○
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	●

KHIBINY



STATION NAME AND OWNER

The Khibiny Educational and Scientific Station is owned and managed by the Faculty of Geography, M.V. Lomonosov Moscow State University, Moscow, Russia.

LOCATION

The station is situated in the heart of the Khibiny Mountains on the Kola Peninsula (northwest Russia, 67°38′ N, 33°43′ E). The nearest cities are Kirovsk (2 km) and Apatity (23 km).

BIODIVERSITY AND NATURAL ENVIRONMENT

The Khibiny Mountains are located in the central part of the Kola Peninsula which is located within two vegetation zones – tundra and taiga. The vertical zonation is characterised by a shift from forest-tundra low in the terrain to tundra vegetation at higher altitudes. The Khibiny Mountains are covered mostly by trees, dwarf shrubs, lichen-shrub, and lichen dominated tundra formations. The Kola Peninsula is the oldest part of the East European Craton with c. 2.5 billion year old Precambrian metamorphic rocks (e.g. greenstone belts, banded iron formations) and associated ore deposits (mainly apatite and iron). The deepest borehole on earth (12 261 m, 1970-1987) was drilled in Sapoljarny (in the NW of the Kola Peninsula close to the Norwegian border, c. 230 km NNE of Khibiny).

HISTORY AND FACILITIES

The Khibiny Educational and Scientific Station was founded in 1948 by Prof. G.K. Tushinskiy and is a year-round operating field station for scientists and students. The scientific staff on the station includes four research scientists. During the International

Geophysical Year 1957-1958, the station organised many observations and expeditions; and during the International Polar Year 2007-2008 it was involved in numerous international projects.

The station facilities include a student accommodation building with dormitories, lecture room, laboratory, and dining room, as well as a staff accommodation building with a few flats available for visiting researchers. A minibus and a 4 WD truck with drivers are available on request. Every year the station hosts summer field courses and winter scientific expeditions for students as well as researchers with specific field projects (in total more than 200 visitors per year).

GENERAL RESEARCH AND DATABASES

The Khibiny Educational and Scientific Station cooperates with the Centre of Avalanche Protection of JSC "Apatit" (a town-planning company) and the Laboratory of Snow Avalanches and Mudflows of the Moscow State University. The scientific work carried out at the station is fully cooperative and researchers work in collaboration with various units of the Faculty of Geography (Moscow State University) and other research organisations in Russia. Post-graduate students and scientists carry out research on glaciology, soil science, bio-geography, landscape science, meteorology, and geomorphology.

The main research fields are: GIS-mapping ("Khibiny Mountain GIS"), avalanche research (compilation of an avalanche database, avalanche mapping, estimation of activity, hazards and risks of avalanches, GIS), snow cover observations and modelling (GIS and SnowPack Software), meteorological and small glacier observations, and investigation of nival processes in the Khibiny Mountains.

HUMAN DIMENSION

The nearest cities are Kirovsk (2 km away, with 32 000 inhabitants) and Apatity (23 km away, with 60 000 inhabitants). 85 km from the station lies Lovozero, a settlement of the local Sami communities (c. 3000 inhabitants).

ACCESS

The Khibiny Educational and Scientific Station can be reached by car, bus or train. The nearest international airport is Murmansk, c. 120 km north of Khibiny, the nearest domestic one is in Apatity (23 km away).

Category	Sub-Category	Khibiny Educational and Scientific Station
Website		www.eng.geogr.msu.ru/practics/stations/khibiny
Country		Russia
Opening year		1948
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes khibiny_msu@mail.ru
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	The Faculty of Geography M.V. Lomonosov Moscow State University Government The Faculty of Geography M.V. Lomonosov Moscow State University khibiny_msu@mail.ru www.eng.geogr.msu.ru
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	67°38′ N, 33°43′ E 362 m a.s.l. 150 m a.s.l. 1200 m a.s.l. Kirovsk (30 000 inhabitants) 3 km Map (1:250 000), satellite image, Google Earth with low resolution
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Low Arctic Sporadic 1976-2011 -0.2 °C -11.5 °C 12.6 °C 5 m/s 27 m/s NNW 340 mm Rain, snow, hail Lake: May/June
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	2000 m^2 200 m^2 500 m^2 20 (for accomodation, 70 beds), 1 canteen, 3 laboratories/ auditoriums, 1 library, 8 kitchens 10/5-6 80 Yes Yes Electricity 220 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Basic laboratory equipment, advanced weather station, etc. Free technical support, free access to datasets
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard (basic) – – 2 km (20 min) – –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – –
Vehicles at station	Sea transportation Land transportation	– 4×4 Truck, minibus
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Bus, train, plane (50 km), car – –

Features within study area	Yes	No
Ice cap or glacier		●
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline		●
Tree line	●	
Polar deserts/semi-deserts	●	
Shrub tundra	●	
Gramminoid tundra		●
Forest tundra	●	
Peatlands		●
Wetlands	●	
Palsa mires		●
Deciduous forest	●	
Evergreen forest	●	
Human settlements or resource use in the area	●	
Other		●

Main science disciplines	
Anthropology, Sociology, Archaeology	●
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	●
Ecosystem services	○
Environmental sciences – Pollution	○
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	○
Geophysics	○
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	○
Limnology	○
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	○
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	●
Terrestrial biology – Biodiversity	○
Terrestrial biology – Ecosystem function	○

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	○
Staff available to assist with constructions	●

Communication	
Telephone	●
Satellite phone	○
VHF	○
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	●

BELIY ISLAND

STATION NAME AND OWNER

Beliy Island Research Station is owned and managed by the Government of the Yamal-Nenets autonomous district, Russia.

LOCATION

The Station is situated on the Beliy Island in the Yamal-Nenets autonomous district (73°03′ N, 69°57′ E). Beliy Island is a relatively large island in the Kara Sea. It is separated from the Yamal Peninsula by the Malygina Strait, an 8 to 10 km wide sound which is frozen most of the year. The Island is c. 1900 km^2, all being situated below 12 m a.s.l.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is situated in the continuous permafrost zone. The surface of the Beliy Island is covered by tundra, but some dwarf shrubs also grow on the island. There are many lakes on the island. The north and east coasts are low and sandy, while the west and the south coasts feature coastal cliffs of up to 6 m in height. Grasses, mosses, and arctic cotton are abundant in summer. Polar bears, Arctic foxes, moose, and seals are the main inhabitants of the island, but also wild reindeers and lemmings occur. Birds are also very numerous and various geese, ducks, waders, buntings, and others are breeding here.

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HISTORY AND FACILITIES

Beliy Island Research Station was established in July 2014, with the support of the Government of the Yamal-Nenets autonomous district.

GENERAL RESEARCH AND DATABASE

Proposed activities of the station includes: Standard meteorological observations, regular air sampling, incl. analyses of CO_2 and CH_4 concentrations, snow sampling for identification of chemical composition of precipitation, monitoring of pollution, studies of climatic influence on arctic people's health, experimental work examining the interaction between geological substrate and atmosphere, hydrological studies, and ice studies.

HUMAN DIMENSION

The Yamal-Nenets autonomous district is one of the largest constituents of Russia, a stable and dynamically developing region. The administrative centre is Salekhard. The Yamal-Nenets autonomous district is located in the Arctic zone of the West Siberian Plain, in the centre of Russia's Far North. It has an area of 769 250 km^2. The population in the district is 537 000. 112 different ethnic groups and nationalities live in the district, and more than 15 000 people live a nomadic way of life.

ACCESS

Beliy Island Research Station can be reached by helicopter from Salekhard via Sabetta (flight takes 5 hours). In winter, it is possible to get there by trucks and snowmobiles.

Category	Sub-Category	Beliy Island Research Station
Website		www.arctic-rf.ru (in Russian)
Country		Russia
Opening year		2014
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	vp256@mail.ru
Facility owner and manager	Name of the facility owner	Government of the Yamal-Nenets autonomous district
	Owner status	Government
	Institution responsible for managing the station	Russian Centre of Arctic Development
	Contact (access to station)	vp256@mail.ru
	Website (institution)	www.arctic-rf.ru (in Russian)
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	73°03′ N, 69°57′ E
	Altitude of station	4 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	12 m a.s.l.
	Nearests town/ settlement	Seyakha settlement (3150 inhabitants)
	Distance to nearest settlement	500 km
	Map	Google Earth with low resolution
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	–
	Mean temperature in February	- 24 °C
	Mean temperature in July	5 °C
	Mean annual wind speed	12.7 m/s
	Max. wind speed	29.7 m/s
	Dominant wind direction	NW, N, W
	Total annual precipitation	220 mm
	Precipitation type	Rain, snow
	Ice break up	Kara Sea: August
Station facilities	Area under roof	140 m^2
	Scientific laboratories	28 m^2
	Logistic	40 m^2
	Number of rooms (beds)	2 rooms, 1 laboratory, 1 kitchen, 2 storage rooms
	Number of staff on station (peak / off season)	3/2
	Max. number of visitors at a time	12
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	500 km
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	Boat
	Land transportation	Snowmobile
Transport and freight	Transport to station	Helicopter, boat (in summer)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax

LABYTNANGI

STATION NAME AND OWNER

The Labytnangi Ecological Research Station is owned and managed by the Institute of Plant and Animal Ecology of the Ural Branch of the Russian Academy of Sciences.

LOCATION

The station is located in the town Labytnangi (66°39′ N, 66°24′ E), Tyumen region, Russia. It belongs to the Yamal-Nenets Autonomous District. The nearest larger town is Salekhard (less than 20 km to the Southeast). Labytnangi is situated on the bank of the Ob River – one of the largest rivers in the world.

BIODIVERSITY AND NATURAL ENVIRONMENT

Labytnangi (c. 25 000 inhabitants) is situated in the forest-tundra zone of the Yamal Peninsula. The taiga zone begins more than ten kilometers up the Ob River, and the shrubby tundra zone begins ten kilometers to the north. The Yamal Peninsula is a bio-geographical interesting area supporting the most eastern populations of many European animal species, and the most westerly populations of many Siberian species. Both taiga and tundra animals species are present in the area. The Polar Ural Mountains are just 50 km west of Labytnangi.

HISTORY AND FACILITIES

The station was established in 1954, driven by two main aims, i.e. (i) to conduct ecological investigations on a year-round basis, and (ii) to create a logistics base for the core activities of the Institute of Plant and Animal Ecology. The 32 000 m^2 of station area consists of offices and lab buildings, a garage, and storage for expedition equipment. Telephone, fax, copy machines, and computer with access to the internet are also available. The station can host 20-25 people at a time and a wide variety of field equipment is available for rent.

GENERAL RESEARCH AND DATABASES

Long-term studies on small rodents have been carried out for more than 50 years in different vegetation zones of the Yamal Peninsula. Population dynamics of birds have been monitored since 1970. These long-term studies are backed-up by more extensive studies on vegetation, rodents, and other mammals

such as predators (Arctic fox), birds, etc. Labytnangi Ecological Research Station cooperates with a number of international partners. Since 2007, the station has been part of the Norwegian-Russian IPY project "Arctic predators". Another project on "Satellite tracking of Northern Eurasian Peregrines" is undertaken in collaboration with International Wildlife Consultants Ltd. (UK).

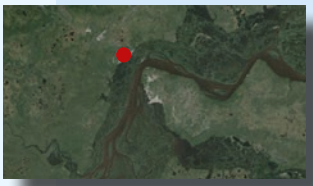
HUMAN DIMENSION

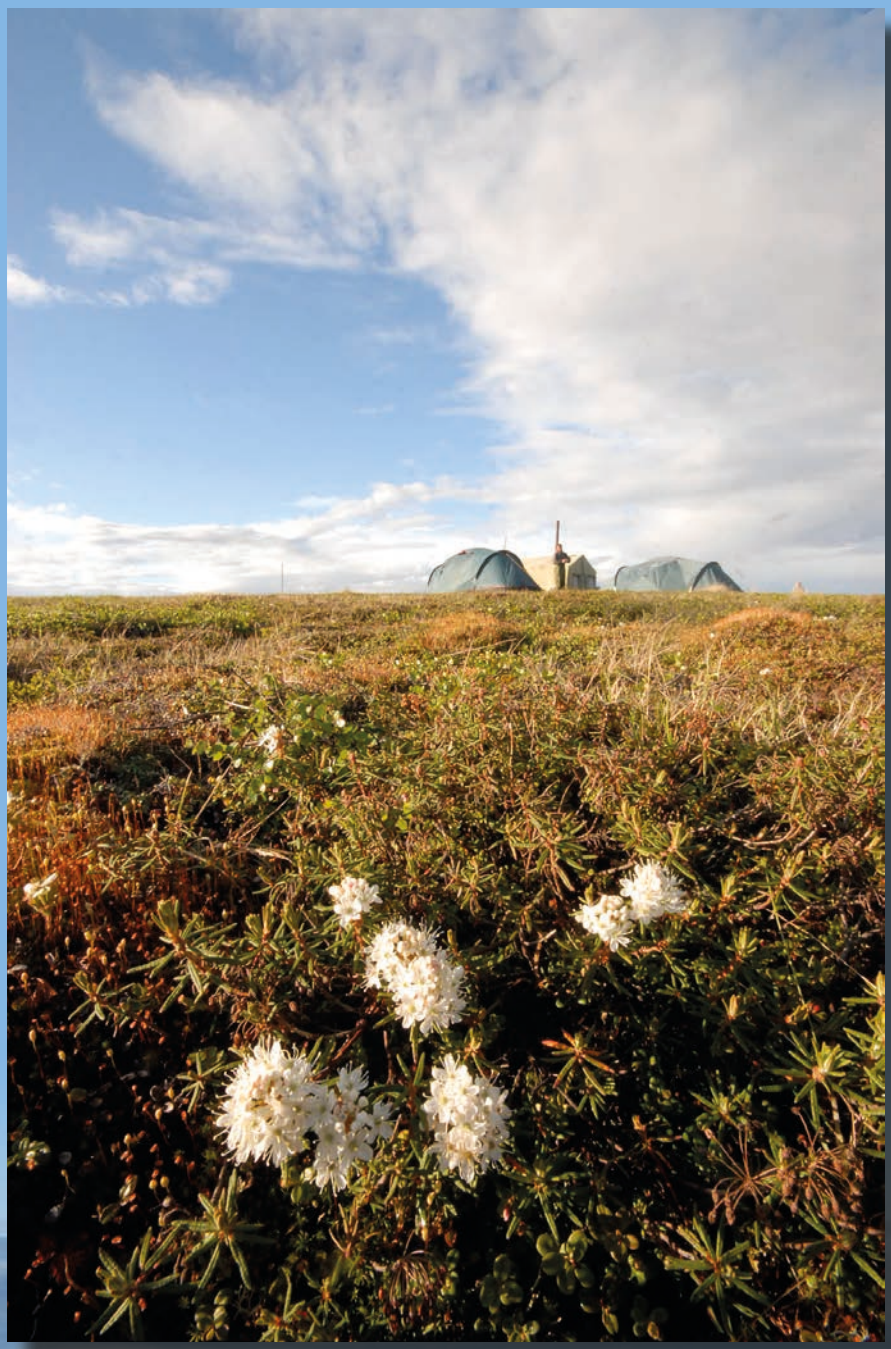
The Yamal-Nenets Autonomous District is one of the largest regions in Russia. It occupies a vast territory of over 750 000 km^2, and is primarily known for its large deposits of hydrocarbon raw materials. The population of indigenous people (Nenets) is about 37 000. Yamal is one of the few places in the world where the traditional way of life is well preserved and about 13 000 of the inhabitants still live a traditional nomadic life. Yamal's domestic reindeer population exceeds 650 000, the largest regional domestic reindeer population in the world.

ACCESS

There is a railway station in Labytnangi with daily trains to Moscow (48 hours trip). The airport is situated in Salekhard, just on the other bank of the Ob River, with daily flights to Moscow (3 hours trip) and Tyumen (1.5 hours). Regular helicopter flights to small villages are also available. For visiting Labytnangi or Salekhard, you must obtain a special permit for entering the border zone of Russia.

Category	Sub-Category	Labytnangi Ecological Research Station
Website		–
Country		Russia
Opening year		1954
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	–
	Contact (permit issues)	sokhol@yandex.ru
Facility owner and manager	Name of the facility owner	Institute of Plant and Animal Ecology Ural Branch, Russian Academy of Sciences
	Owner status	Government
	Institution responsible for managing the station	Institute of Plant and Animal Ecology Ural Branch, Russian Academy of Sciences
	Contact (access to station)	sokhol@yandex.ru
	Website (institution)	www.ipae.uran.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	66°39′ N, 66°24′ E
	Altitude of station	20 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	1000 m a.s.l.
	Nearest town/settlement	Labytnangi (25 000 inhabitants)
	Distance to nearest town/settlement	0 km
	Map	Topographic maps of almost the entire Yamal, scale: 2 km in 1 cm. Also, digital maps (same scale) for Ozi Explorer and in .png version.
Climate	Climate zone	Subarctic
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	-6 °C
	Mean temperature in February	-22.4 °C
	Mean temperature in July	14.4 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	NNW
	Total annual precipitation	425 mm
	Precipitation type	Snow, rain
	Ice break up	River Ob: May
Station facilities	Area under roof	700 m^2
	Scientific laboratories	200 m^2
	Logistic	500 m^2
	Number of rooms (beds)	7 for accomodation (20 beds), 7 laboratories, 3 kitchens
	Number of staff on station (peak/off season)	5/5
	Max. number of visitors at a time	20-25
	Showers	–
	Laundry facilities	Yes
	Power supply (type)	220 V
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	Technical support, transportation support
Medical facilities	Medical facilities	Well equipped
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	3 km (5 minutes)
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	Airport 20 km from the station
	Airstrip surface	–
	Helipad	5 km from the station
	Ship landing facilities	–
Vehicles at station	Sea transportation	Ship 30 m length, 10 passengers capacity, motor boats
	Land transportation	Lorry, track, car, ATV, snowmobile
Transport and freight	Transport to station	Plain, railroad, ship
	Number of ship visits per year (period)	Weekly (June-September)
	Number of flight visits per year (period)	Daily (year-round)





Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
○ River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
● Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

NUMTO PARK

STATION NAME AND OWNER

The Numto Park Station belongs to the UNESCO Chair on Environmental Dynamics and Climate Change at the Yugra State University, Khanty-Mansiysk, Russia.

LOCATION

The Numto Park Station is located in Western Siberia (south of Yamal Peninsula), c. 300 km south of the mouth of the Ob River in the regional park "Numto" (63°42′ N, 70°54′ E).

HISTORY AND FACILITIES

The Numto Park Station is a newly built station at the location of the old meteorological station of Roshydromet. The station was officially opened in 2011 and welcomes guests from 2012 on. It has basic field accommodation and welcomes foreign and national guests for research cooperation and educational purposes. The station includes an automatic meteorological station.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is located at the southern margin of the forest tundra zone. The area includes frozen and unfrozen peatlands, and mires (discontinuous permafrost). Typically, the landscape consists of raised flat palsas, fens, raised bogs, and numerous lakes which are partly the result of thermokarst. The higher parts, i.e. flat palsas, are underlain by permafrost. Between the palsas unfrozen fens and raised bogs ("ryam") are present. Also some of the thermokarst lakes have been drained by thawing of permafrost and have changed into fen like vegetation.

Numto Regional Park is famous for the high number of birds, both breeding and migrating species. It is a major stop-over area for migrating birds.

GENERAL RESEARCH AND DATABASES

The Numto Park Station is a site under development. Staff from Yugra State University (including specialists in vegetation science, climatology, and land classification) is involved in setting up and developing the station. One major research topic will be the effects of climate warming and permafrost thawing on the frozen and unfrozen peatland ecosystems. Breeding and migrating birds as well as other fauna are being monitored by rangers of the Numto Regional Park. The Numto Regional Park has historical meteorological and faunal data.

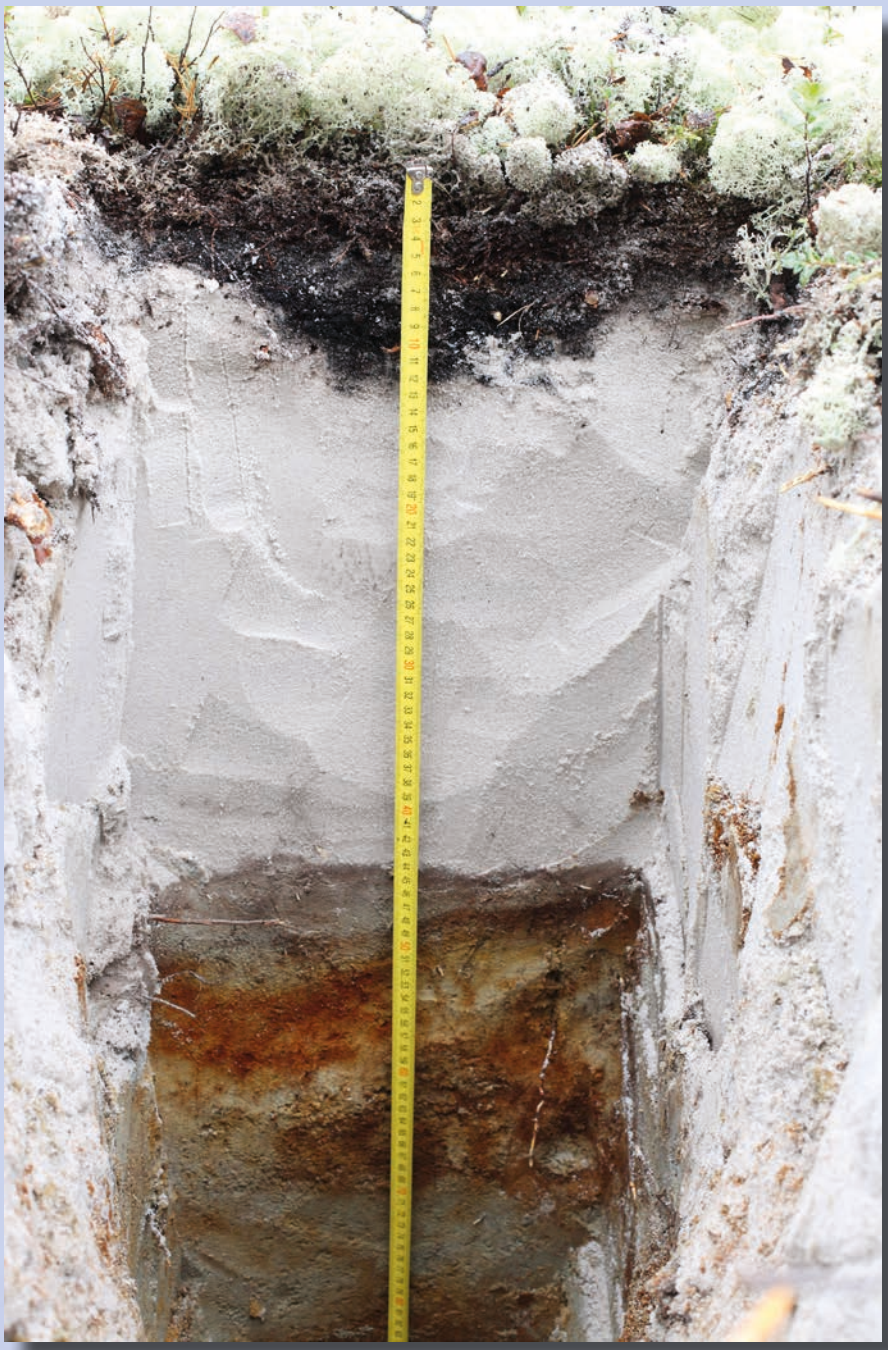
HUMAN DIMENSION

Small groups of indigenous people live in Numto Village and in the Numto Regional Park where they fish and hunt. Few families herd reindeers in isolated areas.

ACCESS

Numto Park Station is located near the small Numto Village, which can be reached by helicopter and 4WD car (snowmobile in winter). The nearest airports is in Surgut (200 km by normal and 100 km by dirt road). In winter, the station is easier to reach by winter roads. From the international airport Khanty-Mansiysk, the distance by helicopter is 260 km, by road 350-450 km (depending on the road). There is no summer road connection between the station and the nearby Numto Village.

Category	Sub-Category	Numto Park Station
Website		www.ugrasu.ru/UNESCO_Chair
Country		Russia
Opening year		2012
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	e_lapshina@ugrasu.ru
Facility owner and manager	Name of the facility owner	Yugra State University
	Owner status	Government
	Institution responsible for managing the station	UNESCO Chair on Environmental Dynamics and Climate Change
	Contact (access to station)	e_lapshina@ugrasu.ru
	Website (institution)	www.ugrasu.ru/UNESCO_Chair_en
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	63°42′ N, 70°54′ E
	Altitude of station	–
	Min. altitude within study area	–
	Max. altitude within study area	–
	Nearest town/settlement	Numto (60 inhabitants)
	Distance to nearest town/settlement	4 km
	Map	Satellite images (resolution 30, 12 m), maps (1:50 000 and smaller)
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	–
	Mean annual temperature	-5.6 °C
	Mean temperature in February	–
	Mean temperature in July	15 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	N, NW, W, SW
	Total annual precipitation	555 mm
	Precipitation type	Rain, hails, snow (40% of the total)
	Ice break up	Lakes: c. at the beginning of June
Station facilities	Area under roof	48 m^2
	Scientific laboratories	–
	Logistic	–
	Number of rooms (beds)	1 room
	Number of staff on station (peak/off season)	1/1
	Max. number of visitors at a time	6
	Showers	–
	Laundry facilities	–
	Power supply (type)	Aggregate 230 V
	Power supply	On demand
Scientific equipment	Specific device	None, station in development
	Scientific services offered	–
Medical facilities	Medical facilities	Basic
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	450 km
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Helipad in nearby village
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	ATV, snowmobile
Transport and freight	Transport to station	Car and on foot or car and snowmobile (depending on the season)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
○ Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Forest Tundra)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ● VHF
- ○ E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

MUKHRINO

STATION NAME AND OWNER

Mukhrino Field Station is owned and run by the UNESCO Chair on Environmental Dynamics and Climate Change at the Yugra State University, Khanty-Mansiysk, Russia.

LOCATION

The Mukhrino Field Station is located at the east bank of the Irtysh River near the confluence with the Ob River in the central taiga area of Western Siberia (60°54′ N, 68°42′ E), 26 km west of the town of Khanty-Mansiysk (90 000 inhabitants).

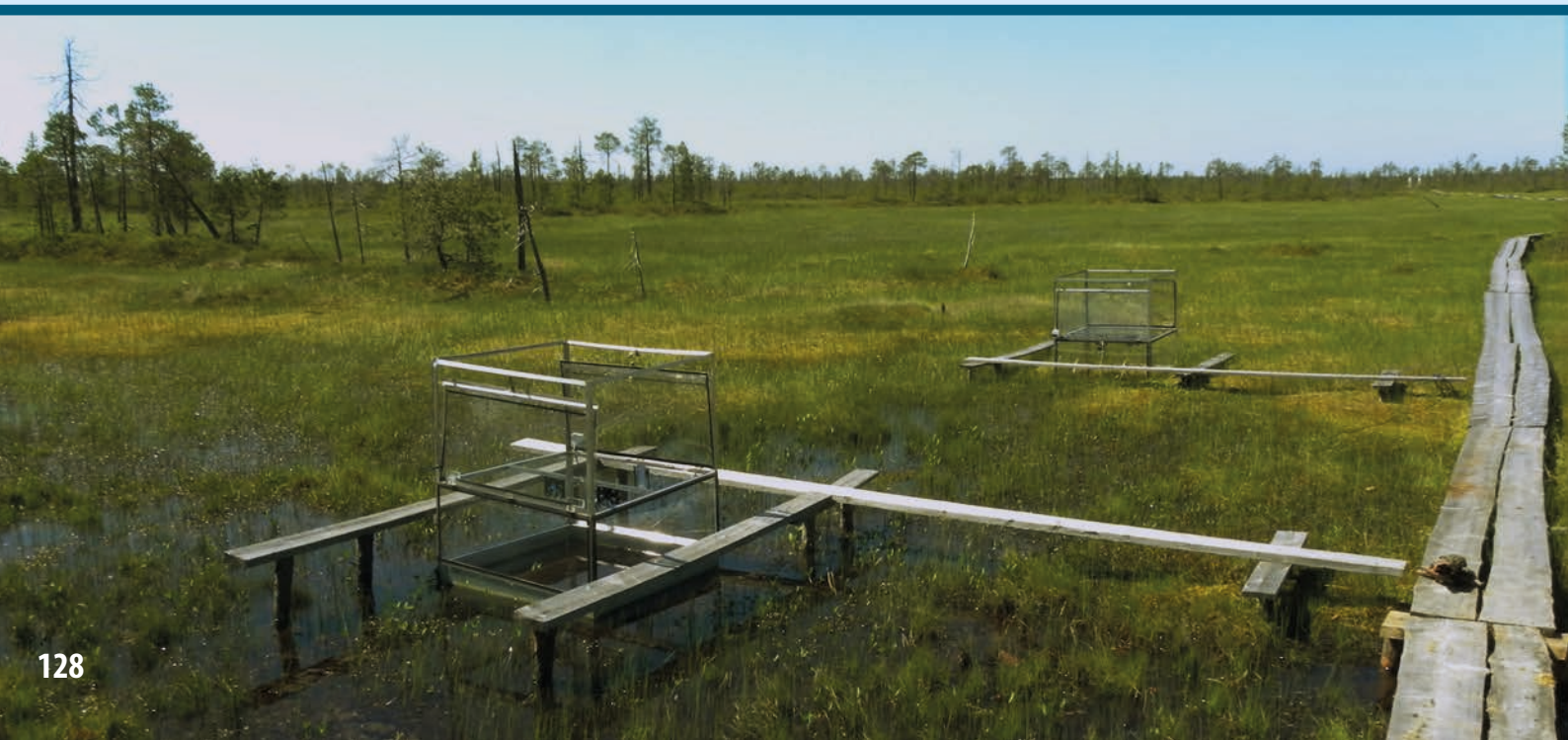
BIODIVERSITY AND NATURAL ENVIRONMENT

Due to the severe continental climate, the environmental conditions in the region are comparable with the subarctic zone of Northern Europe. The research site is representative for the Western Siberian pristine carbon accumulating peatland ecosystem ("plain mires"). The mires cover c. 60 % of the land surface and can be regarded as important sources/sinks of greenhouse gases and aerosols.

The main mire type of the site is raised bogs of the type "Pine-dwarf shrubs-bogs" ("ryam") characterised by pine trees, *Ledum palustre* and dwarf shrubs, with areas of *Sphagnum fuscum*. Interspersed are mires of the type "poor fens" (partly drained in the summer) dominated by *Carex lasiocarpa* and other graminoids, and *Sphagnum balticum*. Also ridge-hollow complexes, consisting of bog ridges and poor fen hollows are present. The (avi-) fauna includes many species typical for the peatland and extensive river floodplains near the station and of the relatively dry mixed forests between the peatlands and the floodplains.

HISTORY AND FACILITIES

The Mukhrino Field Station was opened in 2009. It is a two-storey wooden building with study/laboratory rooms, beds for 14 persons, a simple dining room with kitchen, and a Russian sauna. The experimental field is equipped with 1 km long walking boards, which cross the main mire ecosystem types and facilitate researcher's access to perform experiments and measurements in and above the mires, without disturbing the ecosystems. In the centre of the field site, an equipment shelter has been built. Distributed across the field site are clusters of thermologgers, water level recorders, and nine semi-automatic chambers (1 m^2) and an Eddy Covarians measuring station for measuring greenhouse gas fluxes.



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GENERAL RESEARCH AND DATABASES

The Mukhrino Field Station was primarily established for studies of the biodiversity (fauna, vegetation, mycology) and hydrology of the mire ecosystems, of the carbon storage in the peat layers, and for measurements of greenhouse gas fluxes to and from the pristine peatland complex, located next to the field station. The station is also used for analyses of Climate Change effects in peatland ecosystems and carbon balance, and the spatial comparison of key areas in S-N transects (57-67° N) as an analogue for Climate Change over time. The station houses specialists in vegetation science, remote sensing, mycology, hydrology, and greenhouse gas emission measurements. The Mukhrino Field Station welcomes foreign and national guests for collaboration, research, and educational purposes.

HUMAN DIMENSION

Near the Mukhrino Field Station, a limited number of local people, mostly from Khanty-Mansiysk town, can be met while fishing in the rivers and lakes. Hunting is mainly a winter activity using snowmobiles. The wider area is part of oil/gas concession area, but no activities are expected near the station for this decade.

ACCESS

The Mukhrino Field Station is accessible from Khanty-Mansiysk by road (first 20 km) and then either by boat (in spring and early summer only), by foot (7 km, in late summer), or by snowmobile (in winter and spring). Khanty-Mansiysk has an international airport with daily connections to Moscow.

Category	Sub-Category	Mukhrino Field Station
Website		www.ugrasu.ru/UNESCO_Chair
Country		Russia
Opening year		2009
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– Yes e_lapshina@ugrasu.ru
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Yugra State University Government UNESCO Chair on Environmental Dynamics and Climate Change e_lapshina@ugrasu.ru www.ugrasu.ru/UNESCO_Chair_en_muhrino
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	60°54′ N, 68°42′ E 60 m a.s.l. 25 m a.s.l. 120 m a.s.l. Khanty-Mansiysk (90 000 inhabitants) 28 km Satellite images (resolution 30, 12 and 2 m), maps (1:25 000 and smaller)
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic/Boreal Palsas – -1.3 °C – 17.1 °C – – NW, W, SW 553 mm Rain, hails, snow (40% of the total) Lakes and rivers: c. mid May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	240 m^2 80 m^2 200 m^2 A two-floor wooden building with study/laboratory rooms, simple equipped dining room and kitchen, beds for 14 persons, and a (Russian) sauna 1-3 (year-round) 20 – – 230 V Eurasian two/three-pin plug and 12 V (solar, wind power) 24 hours per day
Scientific equipment	Specific device Scientific services offered	– –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic – – 28 km – –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – Port, landing wharf, pontoon
Vehicles at station	Sea transportation Land transportation	Ship (30 m), 2 boats (4 m) Car/pick-up, ATV, 3 snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Ship/boat/car/on foot/snowmobile (depending on the season) June-September –

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Middle taiga (Boreal))	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ○ Scanner
- ○ Fax

WILLEM BARENTSZ

STATION NAME AND OWNER

Willem Barentsz Biological Station is presently owned by the Administration of Taimyr Reserves, Norilsk, Russia (governmental organization of the Russian Federation).

LOCATION

Willem Barentsz Biological Station is located in the western part of the Taimyr Peninsula, northeast of Meduza Bay (the northern end of the mouth of the Yenisey River), 18 km south of Dikson (73°21′ N, 80°32′ E) and lies next to a protected area managed by the Administration of Taimyr Reserves.

BIODIVERSITY AND NATURAL ENVIRONMENT

The area lies in the arctic tundra belt and is characterized by a rolling relief with rocky outcrops raising above the tundra surface. River banks and beaches are dominated by exposed gravel/sand deposits. The altitude of the area is 0 - 40 m a.s.l. The terrain is snow-covered from September to June, small rivers run in depressions between the hills, but are usually dried up by the end of summer. There are no lakes, but some depressions are occupied by polygonal bogs. Permafrost is continuous. Vegetation is dominated by arctic tundra lichens, mosses, sedges, grasses, dwarf willows, and birches. More than 10 shorebird species, six waterfowl species (including the red-breasted goose), and about 10 passerine species nest in the area. Avian and terrestrial predators are represented by the snowy owl, rough-legged buzzard, peregrine falcon, three species of skuas, and arctic fox, lemmings being their basic prey. A few records of muskox and polar bear are known.

HISTORY AND FACILITIES

The idea of the establishment of Willem Barentsz Biological Station for the memory of the famous Arctic explorer was suggested and initiated by Prof. Evgeny Syroechkovskiy during work of the Arctic Expedition of the Russian Academy of Sciences (RAS) in Taimyr. The building was erected in 1995 with financial support from the Dutch Ministry of Agriculture, Nature Management, and Fisheries. Monitoring and research work was initiated in1994 by RAS and since then carried out mainly as cooperation between various Russian and European researchers. The station consists of a large building with bedrooms, a storage room, a kitchen, a toilet, and a few small sheds, which can house up to 15 people. A diesel driven

generator and solar power is used for energy supply, and portable diesel or kerosene stoves for heating and cooking.

GENERAL RESEARCH AND DATABASES

The station provides unique opportunities for complex monitoring studies aimed at assessment of the long-term dynamics of local numbers of arctic-breeding birds and their nesting success, studies of prey-predator interactions and many other aspects of population biology. Since 1998, a standardised monitoring program for breeding bird, lemming, and predator abundance, as well as nesting success in water birds has been conducted at permanent 4 km^2 and 12 km^2 sample plots near the station. The long-term studies carried out at the station encompass many aspects of breeding biology of birds, such as arrival and departure dates, breeding phenology, incubation schedules, variation of body condition during incubation, energy requirements and expenditure of chicks and adults, and nesting success. A number of biotic and abiotic factors, including arthropod abundance are also monitored and the vegetation of the areas mapped. Information on the peculiarities and conditions of breeding seasons, and the abundance of birds, lemmings, and predators can be found in the Arctic Bird Database maintained in the framework of the International Breeding Conditions Survey on Arctic Birds (www.arcticbirds.net).

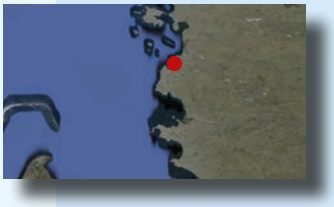
HUMAN DIMENSION

Dikson, an urban-type settlement in Taimyrskiy Dolgano-Nenetskiy District of Krasnoyarsk Kray is the nearest human settlement. The district (218 959 km^2) is one of the least densely populated areas of Russia (0.003 persons per 1 km^2) and one of the most isolated settlements in the world (2507 km from Krasnoyarsk and 506 km from Dudinka). Dikson still exercises economical functions of federal importance as it houses a state border post, a hydrographic base, and a weather station. There are no indigenous people in Dikson and human impact on environment is minimal.

ACCESS

The station is accessible from Dikson year-around by vezdekhod (caterpillar vehicle), other all-terrain vehicles, or boat when ice melts in July. There are regular flights from Norilsk to Dikson (526 km) and from Norilsk to 15 Russian cities, including Moscow and Saint-Petersburg.

Category	Sub-Category	Willem Barentsz Biological Station
Website		http://zapovedsever.ru (owner institution's website in Russian)
Country		Russia
Opening year		1995
Operational period		May-August (winter operation possible but never tried)
Permitting issues categories	Permits required for access to the station	Border-guard permit by Russian federal military authorities and permit by the "Administration of Taimyr Reserves" (both can be arranged by "Administration of Taimyr Reserves" – at least three months prior to field work)
	Permits required for studies	Permit to work in the reserve is issued by "Administration of Taimyr Reserves". Specific permits may be required depending on type of studies to be carried out in accordance with Russian State legislation
	Contact (permit issues)	Administration of Taimyr Reserves: zapoved.taimyra@mail.ru
Facility owner and manager	Name of the facility owner	Administration of Taimyr Reserves
	Owner status	Government
	Institution responsible for managing the station	Administration of Taimyr Reserves
	Contact (access to station)	Dr. Mikhail Soloviev (coordination of monitoring programs): mikhail-soloviev@yandex.ru
	Website (institution)	zapovedsever.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	73°21' N, 80°32' E
	Altitude of station	10 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	160 m a.s.l.
	Nearests town/ settlement	Dikson (600 inhabitans)
	Distance to nearest settlement	18 km
	Map	Topographic maps (1:100 000), satellite images
Climate	Climate zone	High Arctic
	Permafrost	Continuous
	Years measured	Since 1932 (in Dikson)
	Mean annual temperature	-11.1 °C
	Mean temperature in February	-25.4 °C
	Mean temperature in July	4.9 °C
	Mean annual wind speed	6.4 m/s
	Max. wind speed	–
	Dominant wind direction	S
	Total annual precipitation	375 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: June; Sea: June
Station facilities	Area under roof	Large building and a few small sheds – total about 200 m^2
	Scientific laboratories	No equiped laboratories
	Logistic	–
	Number of rooms (beds)	6
	Number of staff on station (peak / off season)	Varies
	Max. number of visitors at a time	Up to 10 people
	Showers	–
	Laundry facilities	–
	Power supply (type)	220 V
	Power supply	Petrol generator run when needed
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	Hospital in Dikson
	Medical suite	–
	No. of staff with basic medical training or doctor	Dikson Hospital with staff
	Distance to hospital (estimated time)	18 km
	Compulsory safety equipment	–
	Recommended safety equipment	First aid kit, mobile phone/satellite phone, polar bear deterrent, weapon (in some cases)
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Big-foot vechicle TREKOL and snowmobiles based in Dikson
Transport and freight	Transport to station	ATV or boat from Dikson
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ● Permanent snowpatches
- ○ Mountain
- ● Valley
- ○ Lake
- ● River
- ● Shoreline
- ○ Tree line
- ○ Polar deserts/semi-deserts
- ● Shrub tundra
- ● Gramminoid tundra
- ○ Forest tundra
- ● Peatlands
- ○ Wetlands
- ○ Palsa mires
- ○ Deciduous forest
- ○ Evergreen forest
- ● Human settlements or resource use in the area
- ○ Other

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ● Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ○ Printer
- ○ Scanner
- ○ Fax

IGARKA

STATION NAME AND OWNER

The Igarka Geocryology Laboratory is a scientific affiliation of the Melnikov Permafrost Institute in Yakutsk (Siberian Branch of the Russian Academy of Sciences).

LOCATION

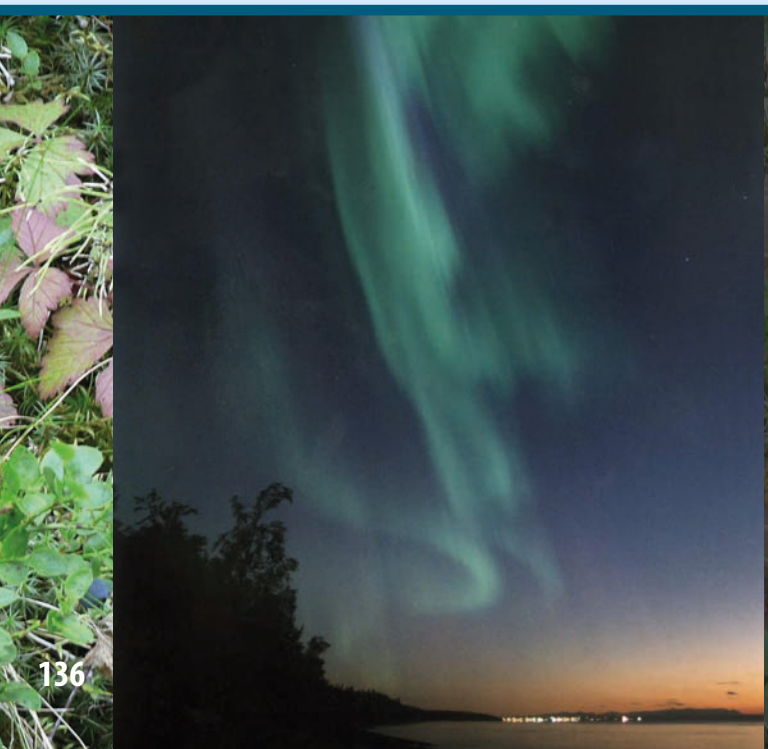
The Igarka Geocryology Laboratory is situated in Igarka (67°27′ N, 86°32′ E), on the right bank of the largest Russian river Yenisei, 120 km north of the Arctic Circle. Igarka belongs to the Turukhansk District (Krasnoyarsk Region), and it has 4892 inhabitants (2011).

BIODIVERSITY AND NATURAL ENVIRONMENT

Igarka is situated at the northwestern part of the Siberian platform, on the western edge of the Tunguska syneclise, one of the largest sedimentary basins of the world. The terrain is a glacio-lacustrine plain, about 70 m above the low level of Yenisei River. It is shaped by a variety of permafrost processes, with thermokarst lakes, glacial processes, and pingos. The climate in Igarka is moderate continental, with low winter temperatures and relatively warm summers. The air temperatures are below zero for about 225 days per year, with an average of 70 rainy and 130 snowy days. The area is dominated by the Yenisei River with a mean annual discharge of about 18 000 m^3/s and a peak flow of about 160 000 m^3/s. The hydrological network is well developed with typical Western Siberian tundra rivers (Yenisei River left bank) and Eastern Siberian taiga rivers (Yenisei River right bank). Due to permafrost degradation, i.e. ground ice thawing, thermokarst lakes are widely distributed. The Northern taiga with relatively dense taiga forests (dominated by larch, fir, birch, and Siberian pine) is the common vegetation type. In the shrub layer, willow and alder are widespread, together with marsh tea and blueberries. Tundra communities dominate the watershed divides, widely represented by peatbogs covered with carex, cloudberries, cotton grass, and bog moss. The hydroclimatic conditions lead to the formation of different permafrost-affected gley soils.

HISTORY AND FACILITIES

Since the establishment in 1930, researchers of the Igarka Geocryology Laboratory have conducted construction-engineering tests and regional permafrost studies. The research resulted in the development of new construction techniques in permafrost. In-



tensive studies regarding the physical and mechanical properties of frozen soils, permafrost processes, soil moisture migration in freeze-thaw cycles, and frost heave have been carried out. The use of novel engineering techniques in permafrost in the Soviet-era was strongly linked to the Igarka Research Station. Regional features were also extensively studied: Igarka was used as a "base camp" for field research in Western and Eastern Siberia, and northern and southern parts of the Krasnoyarsk Region. There is also the Museum of Permafrost (founded in 1965) with frozen tunnels more then 5 m below the surface.

GENERAL RESEARCH AND DATABASES

Nowadays the laboratory is continuing the research in regional and engineering geocryology. Current projects include long-term monitoring of ground ice from the Arctic Circle to Norilsk, a 100 × 100 m grid of the CALM project (Circumpolar Active Layer Monitoring), geothermal measurements in a network of boreholes, studies of permafrost processes, permafrost hydrology, water turbidity, and sediment-flux. Methods of construction on high-temperature, ice-rich permafrost and the development of new foundation types are the main engineering research aspects.

HUMAN DIMENSION

The Igarka Geocyrology Labaratory is situated in the town of Igarka. Until the early 1990s the Igarka Timber Factory was the key economic activity in the area, but after the prohibition of lumber floating down the river, the factory was closed, thus undermining the city's economy. Current economy is mainly determined by the river and sea ports, the modern airport, and the service departments of "Vankoroil", the Vankor Oil Field operator (the oil field is located about 130 km west of Igarka).

ACCESS

Igarka can be reached by air and water transport. Igarka Airport has a modern infrastructure and accepts all major aircraft and helicopter types. Flights are performed to Krasnoyarsk and Surgut. Water transport connects Igarka with Dudinka and Norilsk (including Alykel Airport) to the north, and Krasnoyarsk to the south, from early June to early October twice a week. Helicopter lease is available.

Category	Sub-Category	Igarka Geocryology Laboratory
Website		http://mpi.ysn.ru/index.php/news/39
Country		Russia
Opening year		1930
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	igl@igarka.net
Facility owner and manager	Name of the facility owner	Russian Academy of Sciences
	Owner status	Government
	Institution responsible for managing the station	P.I. Mel'nikov Permafrost Institute, Siberian Branch, Russian Academy of Sciences
	Contact (access to station)	nikita.tananaev@gmail.com
	Website (institution)	http://mpi.ysn.ru/index.php/category/9
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	67°27′ N, 86°32′ E
	Altitude of station	30 m a.s.l.
	Min. altitude within study area	2 m a.s.l.
	Max. altitude within study area	1100 m a.s.l.
	Nearest town/settlement	Igarka (4900 inhabitants)
	Distance to nearest town/settlement	0 km
	Map	State 1:100 000, Landsat 7 ETM+ satellite images Google Earth high-resolution
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	–
	Mean annual temperature	-8.3 °C
	Mean temperature in February	-24.8 °C
	Mean temperature in July	15.4 °C
	Mean annual wind speed	5 m/s (2 m above surface)
	Max. wind speed	–
	Dominant wind direction	NNW
	Total annual precipitation	420 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: June; Rivers: late May/early June
Station facilities	Area under roof	450 m^2 (main building) + 90 m^2 (apartment)
	Scientific laboratories	60 m^2
	Logistic	100 (storage) m^2
	Number of rooms (beds)	Main building: 15 (lab, storage and workshops); Apartment: 4 (3 for accomodation, 6 beds and canteen)
	Number of staff on station (peak/off season)	11/11
	Max. number of visitors at a time	15-20
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V 50 Hz AC
	Power supply	24 hours per day
Scientific equipment	Specific device	Soil physics laboratory, basic chem laboratory equipment, surveying and temp logging equipment
	Scientific services offered	Tech support, library, cold samples storage
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	1
	Distance to hospital (estimated time)	5 km
	Compulsory safety equipment	Flares
	Recommended safety equipment	VHF radio
Landing facilities	Airstrip (Length × Width)	Civil aviation airport 10 km from the station
	Airstrip surface	–
	Helipad	Yes
	Ship landing facilities	Port, pier, pontoon, sledges
Vehicles at station	Sea transportation	Motor boat, rubber boat
	Land transportation	Car, SUV
Transport and freight	Transport to station	Flight, ship
	Number of ship visits per year (period)	40-50 (June-October)
	Number of flight visits per year (period)	Daily (year-round)

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Thermokarst lakes, massive ground ice)	

Main science disciplines	
● Anthropology, Sociology, Archaeology	
○ Astrophysics	
○ Atmospheric chemistry and physics	
● Climatology, Climate Change	
● Community based monitoring, Citizen Science	
○ Ecosystem services	
● Environmental sciences – Pollution	
● Geocryology, Geomorphology	
● Geodesy	
● Geology, Sedimentology	
● Geophysics	
○ Glaciology	
● Human biology, Medicine	
● Hydrology	
● Isotopic chemistry	
● Limnology	
● Land-use change, Mapping, GIS	
○ Marine biology	
● Microbiology	
○ Oceanography, Fishery	
● Paleoecology	
● Paleolimnology	
● Soil Science	
○ Terrestrial biology – Biodiversity	
○ Terrestrial biology – Ecosystem function	

Workshop facilities
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● Wood workshop
● Plexiglas workshop
● Staff available to assist with constructions

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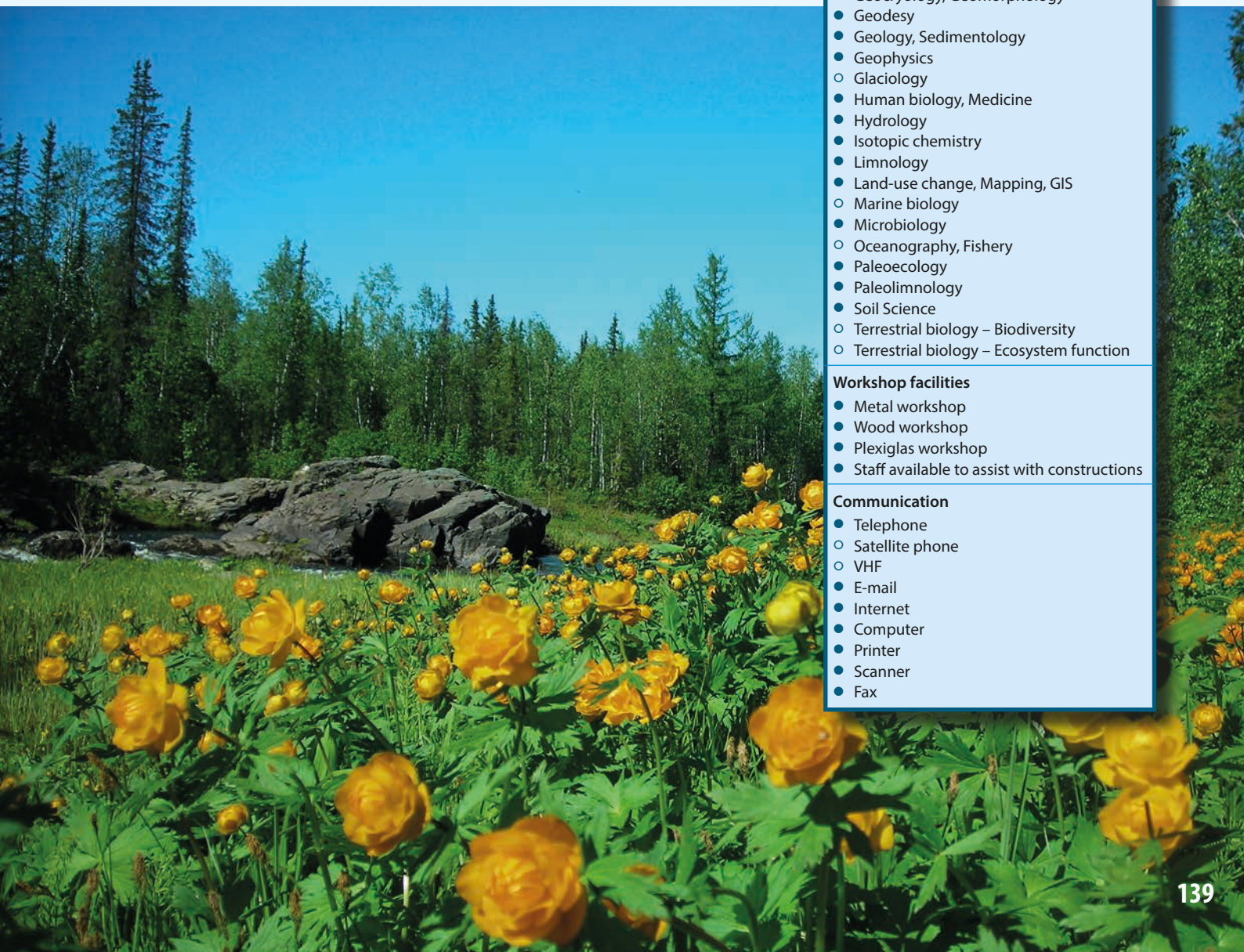
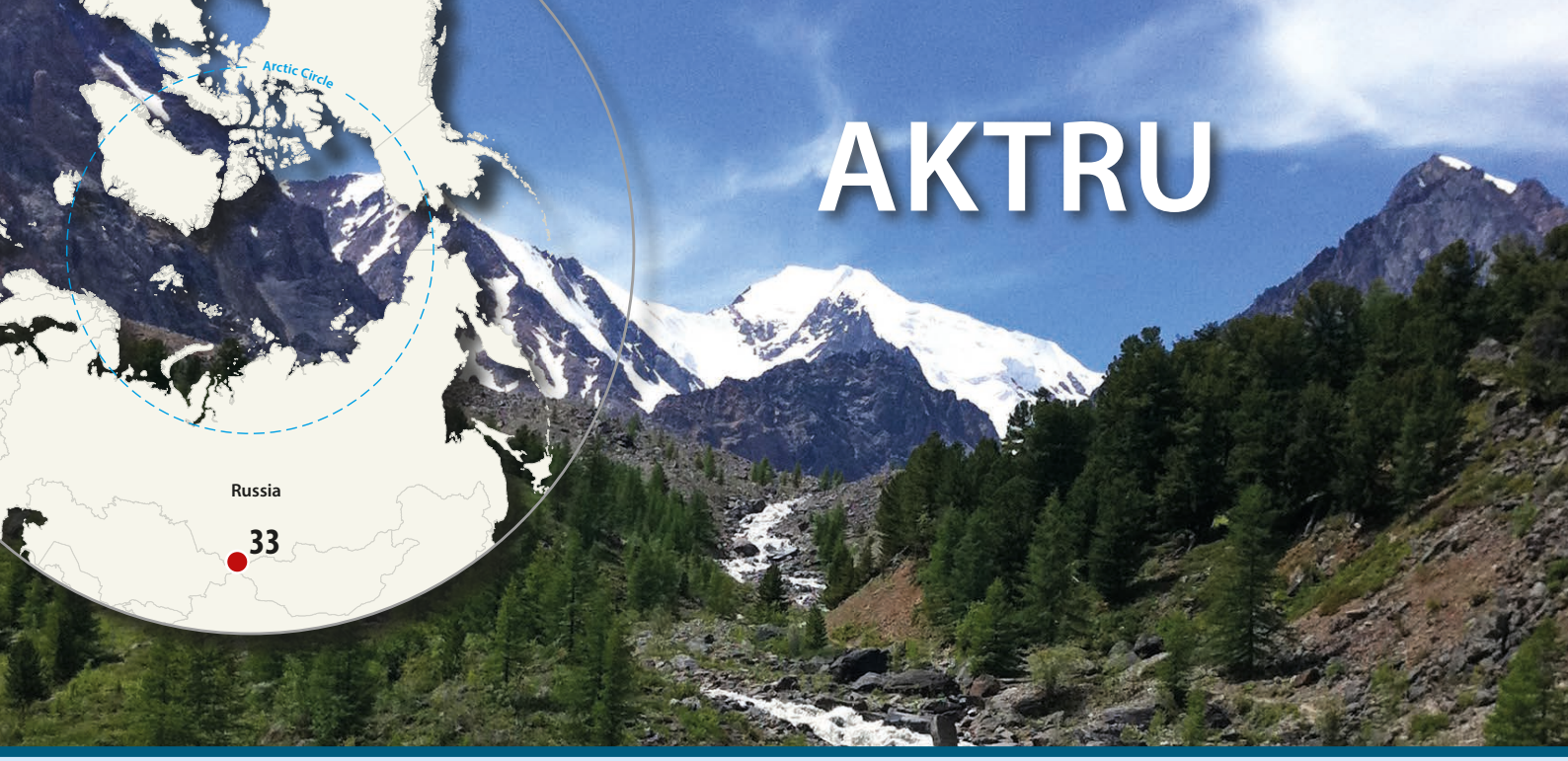




AKTRU

STATION NAME AND OWNER

The Aktru Research Station belongs to the National Research Tomsk State University, Russia.

LOCATION

The Aktru Research Station is located in the southeastern part of the Altai Republic close to the borders to Mongolia and China in the centre of the Eurasian Continent (50°06′ N, 87°40′ E). With an altitude of 2150 m a.s.l., the station is situated in the high alpine part of the Altai Mountains. The nearest settlement is Kuray village about 30 km southeast of the station. The nearest town is Gorno-Altaisk, about 250 km northwest of the station.

BIODIVERSITY

The Aktru Research Station is surrounded by a wide range of ecosystems changing with altitude: Kuray basin intermountain steppe, steppe belt on the mountain slopes, forest belt, high-mountain belt with alpine landscapes and glaciers, high-mountain tundra ("goltsy"), as well as cryophyte steppe landscapes. A typical high-mountain vegetation is the "Pseudo-tundra", formed in the periphery of glacial fields under Pleistocene continental climate conditions. Some rare animal species reside in Aktru valley, e.g. snow leopards, wolverines, lynx, musk deer, mountain goats, cranes, and lama ducks.

HISTORY AND FACILITIES

The Aktru Research Station was founded in 1956 by V.M. Tronov and has been in operation until today. From 1975 to 1995, a meteorological station was operated by the State Hydrometeorological Service. Since 2008 new buildings were constructed comprising a staff house, a dining room for 150 persons, a summer cafeteria for 30 persons, a diesel station, as well as showers and toilets. The older buildings, recently renovated includes a 'hospital', classrooms, three apartments (housing c. 60 people), a warehouse, a Banya (Russian sauna), and a tent camp for 200 persons.

GENERAL RESEARCH AND DATABASES

The research at Aktru Research Station focuses on glaciology, hydrology, meteorology, geomorphology, ecology, botany, zoology, and soil science. The main aims are to study climate-driven glaciers dynamics, hydrological regimes, cryogenic processes, landscape patterns, and biota.

Different international projects investigate mountain mires in terms of climate-driven changes of landscape patterns, biogeochemistry, and productivity. Kuray Basin, an inter-mountain depression, situated at the foot of the North-Chuya Range (10 km from Aktru Station) is a key site for studying the Altai megafloods.

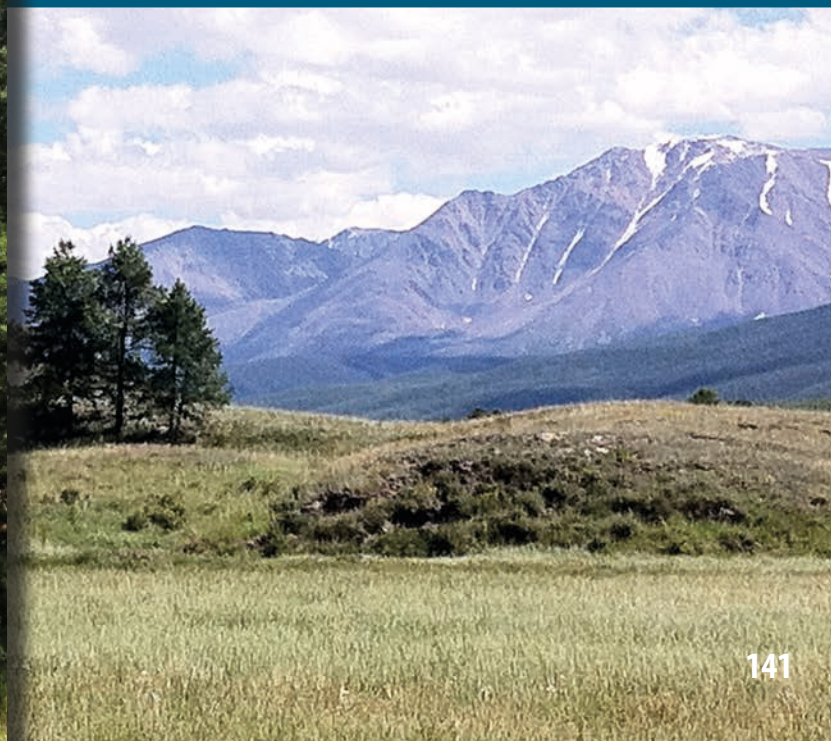
Existing databases contain records on climate, hydrology, and glacier dynamics, as well as on plants and vegetation-cover ecology.

HUMAN DIMENSION

The traditional Altai's and Kazakh's culture still plays a major role in the daily life of the region (nomadic animal husbandry, fishing, and hunting). Also ecological tourism, alpine tourism, and research are important for the local economy.

ACCESS

The Aktru Research Station can be reached from Kuray village (30 km of bad road, four-wheel drive vehicles are strongly recommended and can be rented in Kuray village). The nearest airports are Barnaul (650 km), Tolmachevo in Novosibirsk (880 km), and Bogashevo in Tomsk (1150 km). All these airports are connected to Moscow by daily flights.



Category	Sub-Category	Aktru Research Station
Website		–
Country		Russia
Opening year		1956
Operational period		May-October
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	kirp@mail.tsu.ru
Facility owner and manager	Name of the facility owner	National Research Tomsk State University
	Owner status	Government
	Institution responsible for managing the station	National Research Tomsk State University
	Contact (access to station)	kirp@mail.tsu.ru
	Website (institution)	www.tsu.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	50°06′ N, 87°40′ E
	Altitude of station	2150 m a.s.l.
	Min. altitude within study area	1500 m a.s.l.
	Max. altitude within study area	4075 m a.s.l.
	Nearest town/settlement	Kurai village (600 inhabitants)
	Distance to nearest town/settlement	45 km
	Map	Aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	Alpine
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	-5.2 °C
	Mean temperature in February	-18.5 °C
	Mean temperature in July	9.5 °C
	Mean annual wind speed	3 m/s
	Max. wind speed	25 m/s
	Dominant wind direction	SW
	Total annual precipitation	542 mm
	Precipitation type	Snow, rain
	Ice break up	May/June
Station facilities	Area under roof	3000 m^2
	Scientific laboratories	30 m^2
	Logistic	150 m^2
	Number of rooms (beds)	5 (25 beds)
	Number of staff on station (peak/off season)	5/1
	Max. number of visitors at a time	20
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Diesel generator (220V)
	Power supply	6-12 hours
Scientific equipment	Specific device	Meteostation, different surveying equipment
	Scientific services offered	Free access to extensive ecosystem baseline data, mountaineering
Medical facilities	Medical facilities	Standard (well equipped first aid kit)
	Medical suite	–
	No. of staff with basic medical training or doctor	1
	Distance to hospital (estimated time)	100 km (min 6 hours for evacuation)
	Compulsory safety equipment	Radio
	Recommended safety equipment	First aid kit
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Car
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

RESEARCH STATION AKTRU

Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
○ Lake	
○ River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Size of drainage basin: 42.9 km^2 including 16 km^2 of glacier area)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ○ Telephone
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- ○ VHF
- ○ E-mail
- ○ Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax

EVENKIAN

STATION NAME AND OWNER

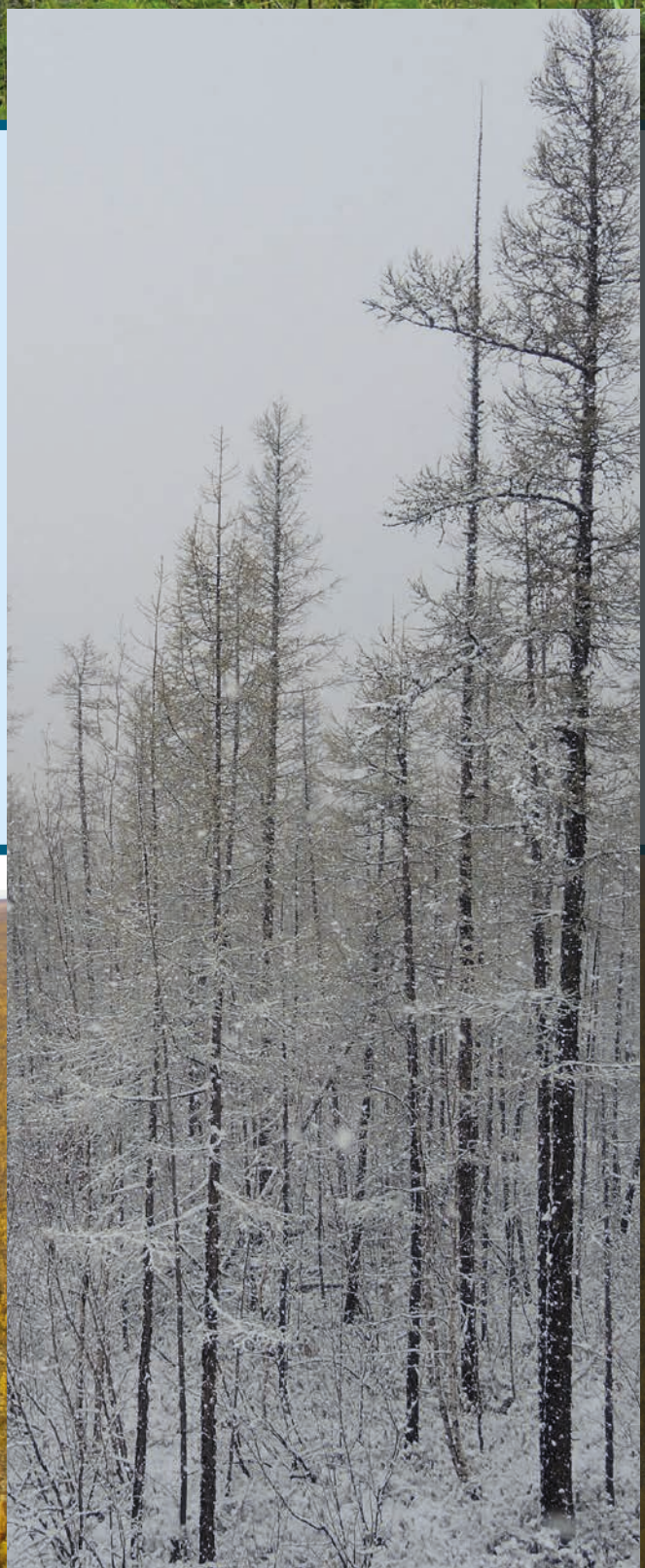
The Evenkian Field Station is owned and run by V.N. Sukachev Institute of Forest, Krasnoyarsk, Russia.

LOCATION

The Evenkian Field Station (64°17′ N, 100°11′ E; 145 m a.s.l.) is located near Tura settlement at the bank of the Kochechum River (in the central part of the Central Siberian Plateau). The research area is located within the continuous permafrost zone.

BIODIVERSITY AND NATURAL ENVIRONMENT

The area belongs to northern larch taiga. Tree species include *Larix gmelinii* (>95% of territory), *Picea obovata* (rare), *Pinus sibirica* (rare), and *Betula pubenscens*, while understory shrubs are *Duschekia fruticosa* (formerly *Alnus fruticosa*) and *Betula nana*. Spruce and Siberian pine occur on well-drained south-facing slopes and alluvial soils in stream valleys and on river banks. Birch appears after fires on hill tops. All tree stands are regenerating after ground fires that also influences composition, productivity and carbon stock of stands. Fire return interval is 20-200 years (c. 90 years mean). Ground vegetation: ericoid dwarf shrubs (mainly



Ledum palustre, *Vaccinium vitis-idaea*, and *Vaccinium uliginosum*), mosses (*Pleurozium schreberi*, *Hylocomium splendens*, and *Aulocomnium palustre* with patches of lichens (*Cladina* spp. and *Cetraria* spp.). Larch forests with domination of *Sphagnum fuscum* in moss layer occurs in landscape depressions. Reindeers and bears are the major large animals. There are numerous migrating birds.

HISTORY AND FACILITIES

The field station has operated since 1989. The station provides accommodation mainly during frost-free season (May-October) but may accept visitors during all other seasons. There are five houses at the station with 22 beds, kitchen, sauna, electricity, and water supply. "Summer" and "Spring/Autumn" laboratories for sample preparation are available and equipped with basic instruments, e.g. drying ovens, freezer, refrigerators, and scales. The Evenkian station offers opportunity for stationary research and field campaigns up to 200 km away from the station.

GENERAL RESEARCH AND DATABASES

The Evenkian Field Station has a number of experimental plots established in the forest in different landscape units. There are three automatic weather stations in the Tura area along with forested plots equipped with air and soil temperature and moisture sensors. The Evenkian Field Station hosts programmes exploring forest dynamics and productivity, hydrology, hydrochemistry, biosphere-atmosphere GHG exchange, and satellite calibration-validation studies. A tower is equipped with an eddy covariance system on a 17 m tall tower in a 110 year old larch forest.

Databases include stand inventories, meteorological observations, observations hydro-chemical compositions of streams/rivers retrospective satellite imagery of different resolution, etc.

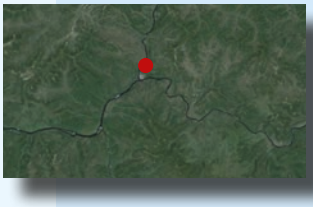
HUMAN DIMENSION

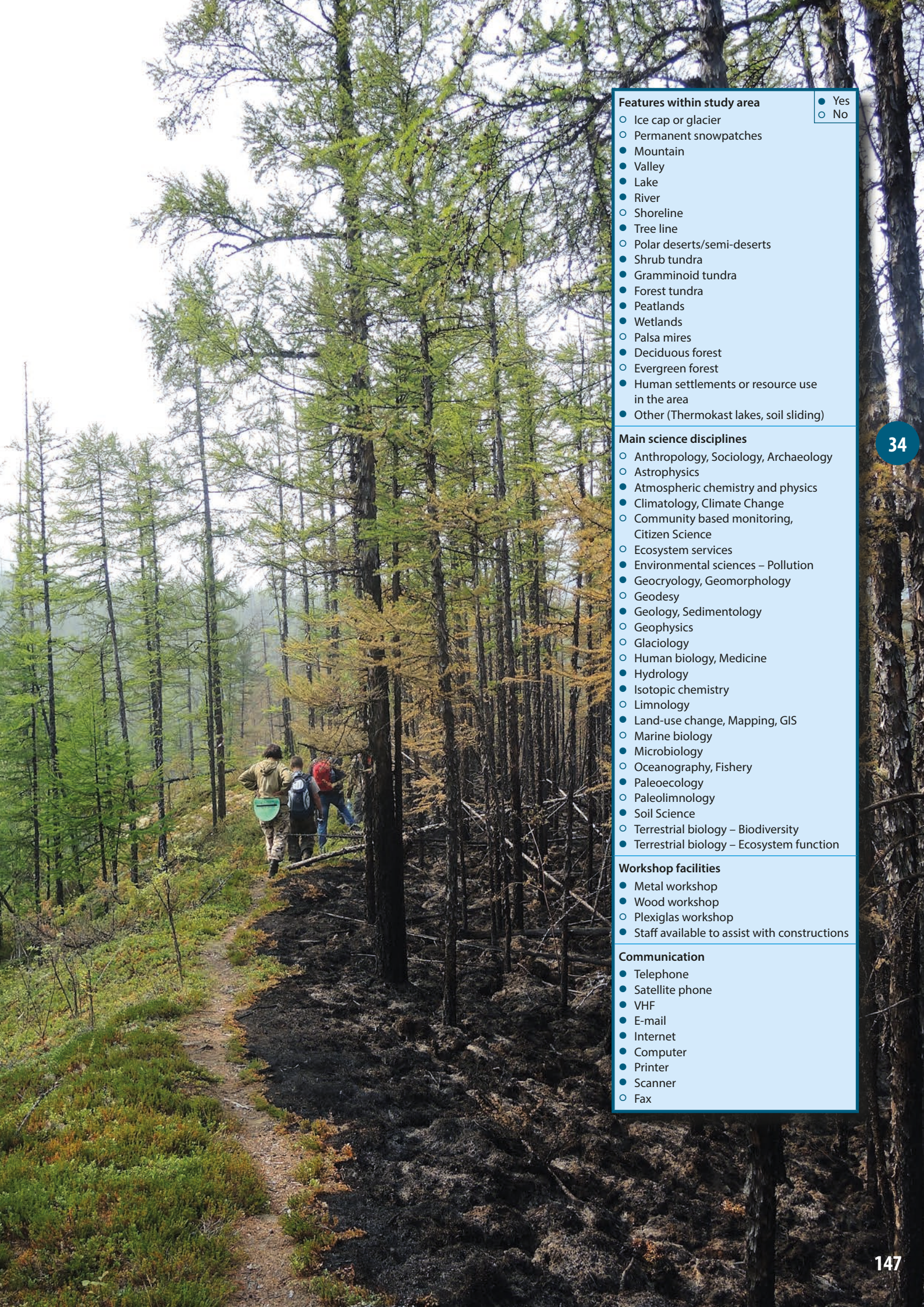
The nearest village, Tura, is only 0.2 km from the field station. Tura has c. 5000 inhabitants.

ACCESS

The station can be reached year-round. There are eight regular flights each week from Krasnoyarsk to Tura. Transport from/to airport is by car.

Category	Sub-Category	Evenkian Field Station
Website		http://forest.akadem.ru/State/EVE.html
Country		Russia
Opening year		1989
Operational period		Year-round (better 5-10)
Permitting issues categories	Permits required for access to the station	No (requires official invitations for visitors to Russia issued by Ministry of Interior (Immigration office). Application to be submitted by the VN Sukachev Institute SB RAS (Krasnoyarsk, Russia) at least a 1.5-2 months prior to planned visit.
	Permits required for studies	No (research projects with planned import of sensing/logging equipment to the territory requires official permission by the FSTEC (Federal Service for technical and Export control) to be submitted half a year prior to the start of activities)
	Contact (permit issues)	See above
Facility owner and manager	Name of the facility owner	V.N. Sukachev Institute of Forest SB RAS
	Owner status	Government
	Institution responsible for managing the station	V.N. Sukachev Institute of Forest SB RAS
	Contact (access to station)	prokushkin@ksc.krasn.ru
	Website (institution)	http://forest.akadem.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	64°17′ N, 100°11′ E
	Altitude of station	145 m a.s.l
	Min. altitude within study area	130 m a.s.l.
	Max. altitude within study area	1100 m a.s.l. (at 200 km distance (by motorboat or helicopter)
	Nearests town/ settlement	Tura
	Distance to nearest settlement	0
	Map	Maps (1:100 000), satellite image, Google Earth
Climate	Climate zone	Boreal (northern deciduos conifer forests)
	Permafrost	Continuous
	Years measured	Since 1929
	Mean annual temperature	-8.9 °C
	Mean temperature in February	-31.5 °C
	Mean temperature in July	16.6 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	370 mm
	Precipitation type	Rain, snow
	Ice break up	RIvers/lakes: May
Station facilities	Area under roof	120 m^2
	Scientific laboratories	40 m^2
	Logistic	50 m^2
	Number of rooms (beds)	5 buildings (20 beds), 2 laboratories, 1 office/meeting room, 1 canteen, 1 sauna
	Number of staff on station (peak / off season)	20/2
	Max. number of visitors at a time	20-25
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	220 V (Eurasian type)
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	Free technical support, transportation
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	Tura hospital
	Distance to hospital (estimated time)	1 km
	Compulsory safety equipment	VHF
	Recommended safety equipment	First aid kit, satellite phone, weapon (in some cases)
Landing facilities	Airstrip (Length × Width)	In Tura: Gorniy airport (14 km)
	Airstrip surface	Concrete blocks
	Helipad	In Tura
	Ship landing facilities	In Tura (river)
Vehicles at station	Sea transportation	No sea, but river transportation: 2 motorboats
	Land transportation	4 WD vehicle (UAZ)
Transport and freight	Transport to station	Plane, car
	Number of ship visits per year (period)	20 large freight ships (June), regular smal freight ships (June-September)
	Number of flight visits per year (period)	1-2 per day (none Saturday, Sunday) year-round





Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline		○
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra	●	
Forest tundra	●	
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest	●	
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Thermokast lakes, soil sliding)	●	

Main science disciplines	Yes	No
Anthropology, Sociology, Archaeology		○
Astrophysics		○
Atmospheric chemistry and physics	●	
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services		○
Environmental sciences – Pollution	●	
Geocryology, Geomorphology	●	
Geodesy		○
Geology, Sedimentology	●	
Geophysics		○
Glaciology		○
Human biology, Medicine		○
Hydrology	●	
Isotopic chemistry	●	
Limnology		○
Land-use change, Mapping, GIS	●	
Marine biology		○
Microbiology	●	
Oceanography, Fishery		○
Paleoecology	●	
Paleolimnology		○
Soil Science	●	
Terrestrial biology – Biodiversity		○
Terrestrial biology – Ecosystem function	●	

Workshop facilities	Yes	No
Metal workshop	●	
Wood workshop	●	
Plexiglas workshop		○
Staff available to assist with constructions	●	

Communication	Yes	No
Telephone	●	
Satellite phone	●	
VHF	●	
E-mail	●	
Internet	●	
Computer	●	
Printer	●	
Scanner	●	
Fax		○

"ISTOMINO"

STATION NAME AND OWNER

International Ecological Educational Center (IEEC) "Istomino", is owned and run by Baikal Institute of Nature Management of the Siberian Branch of the Russian Academy of Sciences, Republic of Buryatia, Ulan-Ude, Russia.

LOCATION

IEEC "Istomino" is located in the southwestern part of the delta of the Selenga River in the village Istomino. The nearest towns are Kabansk (30 km) and Ulan-Ude (150 km).

BIODIVERSITY AND NATURAL ENVIRONMENT

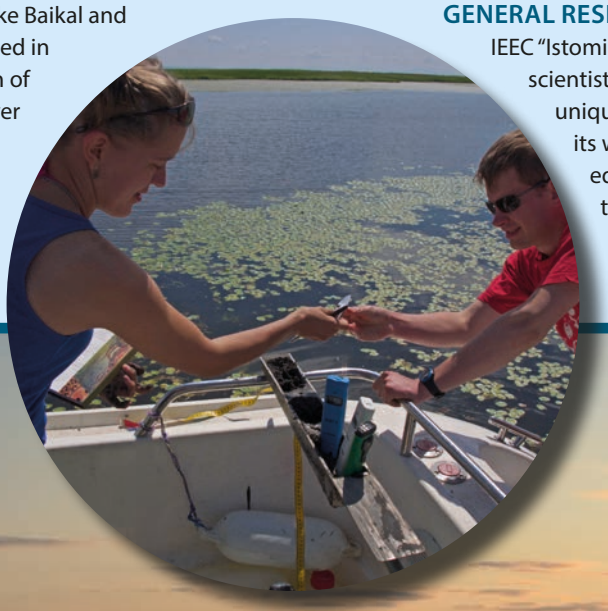
The centre is situated close to Lake Baikal and a unique freshwater delta, included in the list of the Ramsar Convention of wetland ecosystems. Selenga River Delta is the habitat of the Baikal fish fauna (sturgeon, cisco, whitefish, grayling, and carp) and many migratory bird species from North Eurasia.

HISTORY AND FACILITIES

IEEC "Istomino" was founded in 2001 in the village Istomino on the shore of Lake Baikal in the Selenga River Delta, and officially opened on 30 April. The station consists of a comfortable two-store brick building (615 m^2, seven double rooms and two rooms each with eight beds, a conference hall for 50 people equipped with modern communication facilities, offices, library, a dining room for 60 people, a hydro-chemical laboratory, an outdoor kitchen for 40 people, sauna and outdoor shower, a warm garage for 6 cars, storage facilities for equipment, an automatic meteorological station, three cars, three motor boats, and a greenhouse.

GENERAL RESEARCH AND DATABASES

IEEC "Istomino" combines Russian and foreign scientists efforts for conducting research on the unique ecological system of Lake Baikal and its watershed. Further, the station carries out education in ecology to the population of the Baikal region. The main activities at the station are:



scientific and logistical support to research focusing on the ecosystem of Lake Baikal and the Selenga River Delta, organisation of scientific meetings, specialized training of students and summer schools for children on ecology, economics, chemistry, physics, and mathematics, and development of ecological/sustainable tourism.

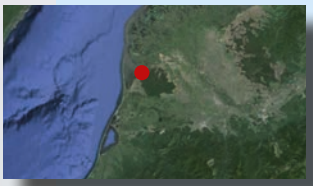
HUMAN DIMENSION

The station is located close to several small villages, where the population is engaged in fishing. The ethnic origin of the general population is Russian and Buryats.

ACCESS

IEEC "Istomino" is accessible from Ulan-Ude (150 km) and Irkutsk (350 km) by car/bus. International airports are located in Ulan-Ude and Irkutsk.

Category	Sub-Category	International Ecological Educational Center "Istomino"
Website		www.binm.ru, http://binm.ru/istomino/index.php
Country		Russia
Opening year		2001
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– – buralov@binm.bscnet.ru; aaa@binm.bscnet.ru
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Baikal Institute of Nature Management, Siberian Branch of the Russian Academy of Sciences Government Baikal Institute of Nature Management, Siberian Branch of the Russian Academy of Sciences aaa@binm.bscnet.ru, buralov@binm.bscnet.ru www.binm.ru
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	52°08′ N, 106°17′ E 468 m a.s.l. 457 m a.s.l. 468 m a.s.l. Istomino, Kabansk 0 km, 30 km Map (1:50000), aerial image, satellite image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic, Dwc (Koeppen) Sporadic 1881-1980 -0.3 °C -18.3 °C 17.1 °C 3.3 m/s 27.4 m/s NW 441 mm Rain, snow Lake Baikal: May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	1010 m^2 56 m^2 193 m^2 (garage, warehouse, laundry, sauna) Meeting rooms (50 pers), 1 laboratory, 16 apartments/rooms/yurts (67 beds), 1 canteen (60 pers), 1 summer kitchen 6/10 60-65 Yes (4 showers, 1 sauna) Yes 230 V (Europlug), fuel generators (20 KWt) 24 hours per day
Scientific equipment	Specific device Scientific services offered	Laboratory glassware, chemical reagents, autoclave, photoelectric colorimeter, ultrasonic meteorological station
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard, and feldsher's station in Istomino – – 30 km (in Karbansk, 30 min) – First aid kit
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	200 × 50 m (for ultralight trike) Ground No, but may land Pier (Lake Baikal)
Vehicles at station	Sea transportation Land transportation	2 cutters, 1 motor boat (18 persons) 3 offroad cars, bicycles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Bus Everyday by cutters and small boat (May-November) –



Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain		○
Valley		○
Lake	●	
River	●	
Shoreline	●	
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest	●	
Evergreen forest	●	
Human settlements or resource use in the area	●	
Other (Lake Baikal, Selenga River delta)	●	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax

BINM SB RAS

SAMOYLOV

STATION NAME AND OWNER

The Research Station Samoylov Island is owned and run by the Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch of the Russian Academy of Sciences. Access of international research teams to the station has been coordinated by the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (Germany).

LOCATION

The Research Station Samoylov Island is located at the southern coast of Samoylov Island in the southern part of the Lena River Delta, Northeast Siberia, close to the Laptev Sea (72°22′ N, 126°29′ E). The Lena River Delta is the largest delta system in the Arctic and Samoylov Island is part of the Lena Delta Reserve, the largest protected area in Russia. The nearest settlement is Tiksi, located about 115 km to the South-East, and home to c. 5000 inhabitants.

BIODIVERSITY AND NATURAL ENVIRONMENT

Samoylov Island is situated in the youngest part of the Lena Delta in the zone of continuous permafrost. It covers an area of about 5 km^2 and is dominated by wet polygonal tundra, characterised by low-centered ice-wedge polygons. The regional arctic-continental climate allows maximum thaw depths of about 0.5 m.

Hydrophytic sedges such as *Carex aquatilis, Carex chordorrhiza,* and *Carex rariflora*, as well as mosses (e.g. *Drepanocladus revolvens, Meesia triquetra,* and *Aulacomnium turgidum*) dominate the vegetation in the wet polygon centers and on their edges. Mesophytic dwarf shrubs such as *Dryas octopetala* and *Salix glauca,* forbs (*Astragalus frigidus*), and mosses (*Hylocomium splendens, Timmia austriaca*) dominate the polygon rims.

HISTORY AND FACILITIES

The old wooden station was originally built as a logistics base for the Lena Delta Reserve. After its extension in 2005, it became an official Russian-German research station (in 2006), owned and run by the Lena Delta Reserve (Russia) and the Alfred Wegener Institute. In 2013, a new large modern Russian station, owned and run by the Trofimuk Institute of Petroleum, was officially opened. It replaces the old wooden station, which is, however, still used during the busiest field seasons in summer for additional accommodation and working space. The new station can

accommodate up to 25 people year-round. The station building consists of three wings, which include the living areas, scientific laboratories equipped with numerous high-precision instruments, and workshop and storage facilities, respectively. The central part includes kitchen and dining room, conference hall, and recreation areas.

GENERAL RESEARCH AND DATABASES

The Lena Delta is a key area for studies of the dynamics and development of permafrost in the Siberian Arctic. The research focuses on the ecosystem-atmosphere interactions on various spatial and temporal scales in order to assess and predict climate environmental changes in the Lena River Delta region. The main objectives are to study the community, structure, and dynamics of microbial populations involved in the methane cycle as well as the processes controlling exchange of methane, carbon dioxide, and energy on diff erent scales. Other important long-term studies focus on climate and permafrost monitoring, paleoenvironmental reconstruction, river hydrology, geomorphology, permafrost dynamics, arctic coastal dynamics, and hydrobiology (e.g. zooplankton dynamics). For more information see Hubberten, H.-W. *et al.* 2003 (published 2006): Polarforschung 73, 111-116 and Boike, J. *et al.* 2013: Biogeosciences 10, 2105-2128. Data and results from Samoylov can be found in the PANGAEA database (www.pangaea.de).

HUMAN DIMENSION

The human infl uence on the Lena Delta is minimal due to its status as a nature reserve with three rangers living in the reserve throughout most of the year. However, there is some subsistence fishing in the summer, and occasionally river cruise ships pass by.

ACCESS

The Research Station Samoylov Island can be reached from Tiksi (connected by regular air service to Moscow and Yakutsk) by helicopter in about 45 minutes and by river boat in about 12 hours. Winter transport is also possible by truck or tank on the ice of the Lena River.

Category	Sub-Category	Research Station Samoylov Island
Website		www.awi.de/en/expedition/stations/samoylov
Country		Russia
Opening year		1998/2013 (new station)
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	Anne.Morgenstern@awi.de, waldemar.schneider@awi.de
Facility owner and manager	Name of the facility owner	Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch of Russian Academy of Sciences
	Owner status	Government
	Institution responsible for managing the station	Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch of Russian Academy of Sciences and Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (Germany)
	Contact (access to station)	Anne.Morgenstern@awi.de, GrigoryevMN@ipgg.sbras.ru
	Website (institution)	www.awi.de
Other institutions	Name	AWI, IPGG SB RAS, PIY SB RAS
	Country	Germany, Russia
Location	Geographical coordinates	72°22′ N, 126°29′ E
	Altitude of station	12 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	50 m a.s.l.
	Nearest town/settlement	Tiksi (5000 inhabitants)
	Distance to nearest town/settlement	120 km
	Map	Aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	Since 1998 (with gaps)
	Mean annual temperature	-13.6 °C
	Mean temperature in February	-33.2 °C
	Mean temperature in July	9.3 °C
	Mean annual wind speed	4.35 m/s
	Max. wind speed	17.7 m/s
	Dominant wind direction	NE
	Total annual precipitation	319 mm
	Precipitation type	Rain, snow
	Ice break up	Lena River backwater: May
Station facilities	Area under roof	Main building: 1214 m^2, power generating unit: 101 m^2, garage: 313 m^2
	Scientific laboratories	270 m^2
	Logistic	420 m^2 (storages, technical and other rooms), engineering infrastructure. Total area of station territory: 3.3 hectares
	Number of rooms (beds)	10 sleeping rooms (30 beds), 4 living rooms, 7 labs, 5 kitchens, 1 conference hall, 1 fitness room, 12 other rooms
	Number of staff on station (peak/off season)	8 (6)
	Max. number of visitors at a time	25
	Showers	8
	Laundry facilities	2 rooms
	Power supply (type)	1 256 KVA diesel generator Caterpillar (2 in reserve), 3 portable generators (4-8 KVA) and 400 W wind generator (under reconstruction)
	Power supply	24 hours diesel, 24 hours wind
Scientific equipment	Specific device	72 special scientific devices, field equipment, tools, machinery, etc.
	Scientific services offered	Laboratories
Medical facilities	Medical facilities	2 rooms (1 physician, 1 isolation ward)
	Medical suite	
	No. of staff with basic medical training or doctor	1 (occassionally none)
	Distance to hospital (estimated time)	120 km (1 hour by helicopter)
	Compulsory safety equipment	Life jackets for boat trips
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	None, but helicopter can land
	Ship landing facilities	–
Vehicles at station	Sea transportation	Sea going boat, outboard motorboat, 2 rubber boats, 5 boat engines
	Land transportation	Crawler transporter, truck-bus, skidder, quad with hanger, amphibian vehicle, snowmobile
Transport and freight	Transport to station	Flight and helicopter or boat in summer, crawler transporter and truck-bus by sea/river ice in winter
	Number of ship visits per year (period)	No regular schedule
	Number of flight visits per year (period)	Once every two weeks (May – October), once every month (November – September)

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Ice-rich permafrost, ice-wedge polygons, thermokarst lakes, river delta)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail (via satellite)
- ○ Internet
- ● Computer
- ● Printer
- ○ Scanner
- ○ Fax

SPASSKAYA PAD

STATION NAME AND OWNER

The Spasskaya Pad Scientific Forest Station is owned and run by the Institute for Biological Problems of Cryolithozone (Siberian Branch of the Russian Academy of Sciences – IBPC SB RAS).

LOCATION

The Spasskaya Pad Scientific Forest Station (62°14′ N, 129°37′ E; elevation approx. 220 m a.s.l.; study area 4.43 km^2) is located on a Pleistocene terrace at the western bank of the middle sections of the Lena River in Central Yakutia region of Republic of Sakha (Yakutia), Russia, approximately 20 km north of the city of Yakutsk and around 480 km south of Arctic Circle. This area is located in the zone of continuous permafrost (permafrost thickness over 150 m).

BIODIVERSITY AND NATURAL ENVIRONMENT

The main ecosystem around the station is boreal light taiga, but there are also pine and birch forests along with alases (specific Yakutian thermokarst formations), meadows, and mixed forests. Main forest types are red-bilberry larch *(Laricetum vacciniosum)*, cowberry pines *(Pinetum arctostaphylosum),* and herby birches *(Betuletum mixtoherbosum)*.

HISTORY AND FACILITIES

The Spasskaya Pad Scientific Forest Station was founded in 1952 by the Krasnoyarsk Forest Institute (SB RAS). In 1992, the station was transferred to IBPC SB RAS. It consists of several new or recently renovated buildings. The station is fully equipped with year-round accommodation facilities (10-12 beds, water supply, and kitchen), heating, electricity, portable electrical generators, radiotelephone, computer, printer, scanner, e-mail and internet access, etc. A laboratory is available, equipped with some basic tool-boxes and instruments, drying ovens, refrigerators, scales, etc. There is year-round available sauna and summer-time showers. Outdoor storehouses are available.

The station can accommodate up to 30 persons during the summer. There are two observational towers (32 m in larch forest and 24 m in pine forest) with a wide range of micrometeorological devices and eddy-covariance systems. Three 20 m high crown-access towers with full access to any tree level in larch forest are available for botanical, morphological, and eco-physiological studies.

GENERAL RESEARCH AND DATABASES

Inter-disciplinary research is conducted at the station with focus on understanding fundamental characteristics and processes of the atmosphere, the biosphere, the hydrosphere, and the cryolithosphere. Ecosystem dynamics and biodiversity are also studied to assess the impact of global environmental change. Research also includes short term monitoring of different aspects of human activity. The obtained data are available at the web-sites of GEWEX-GAME-Siberia, JST CREST, PIN-MATRA, TCOS-Siberia, and CarboEuroFlux projects.

HUMAN DIMENSION

The main human activities in the areas surrounding the Spasskaya Pad Scientific Forest Station comprise picking berries, collecting mushrooms, and breeding horses.

ACCESS

The Spasskaya Pad Scientific Forest Station is reached year-round by car within 1.5 hours from Yakutsk city. Yakutsk has an airport with daily flights to Moscow as well as a river port (Lena River).

Category	Sub-Category	Spasskaya Pad Scientific Forest Station
Website		–
Country		Russia
Opening year		1952
Operational period		May-October (November-April)
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	t.c.maximov@ibpc.ysn.ru, tcmax@mail.ru
Facility owner and manager	Name of the facility owner	Insitute for Biological Problems of Crylithozone, Siberian Branch of the Russian Academy of Sciences (IBPC SB RAS)
	Owner status	Government
	Institution responsible for managing the station	IBPC SB RAS
	Contact (access to station)	t.c.maximov@ibpc.ysn.ru, tcmax@mail.ru
	Website (institution)	–
Other institutions	Name	Nagoya University, Hokkaido University, JAMSTEC, Tokyo University; Vrije Universiteit Amsterdam
	Country	Japan; The Netherlands
Location	Geographical coordinates	62°14′ N, 129°37′ E
	Altitude of station	220 m a.s.l.
	Min. altitude within study area	–
	Max. altitude within study area	–
	Nearest town/settlement	Tulagino (8000 inhabitants)
	Distance to nearest town/settlement	18 km
	Map	Aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	Subarctic/Boreal
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	-9.3 °C
	Mean temperature in February	-40 ° C (January)
	Mean temperature in July	19 °C
	Mean annual wind speed	1.8 m/s
	Max. wind speed	–
	Dominant wind direction	WNW
	Total annual precipitation	238 mm
	Precipitation type	Rain, snow
	Ice break up	Lake: June; River: May-June
Station facilities	Area under roof	300 m^2
	Scientific laboratories	30 m^2
	Logistic	3 m^2 (storage)
	Number of rooms (beds)	12 for accomodation (30 beds), 2 laboratories, 1 living room, 1 kitchen
	Number of staff on station (peak/off season)	6/2
	Max. number of visitors at a time	15
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Electricity 380 and 220 V, 7 kVA diesel generator, 2.5 kVA fossil fuel generator
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	1 hour by car
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Car
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River		○
Shoreline		○
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands		○
Wetlands		○
Palsa mires		○
Deciduous forest	●	
Evergreen forest	●	
Human settlements or resource use in the area		○
Other		○

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ○ Scanner
- ○ Fax

ELGEEII

STATION NAME AND OWNER

Elgeeii Scientific Forest Station is owned by the Institute for Biological Problems of Cryolithozone, Siberian branch of Russian Academy of Sciences, Russia.

LOCATION

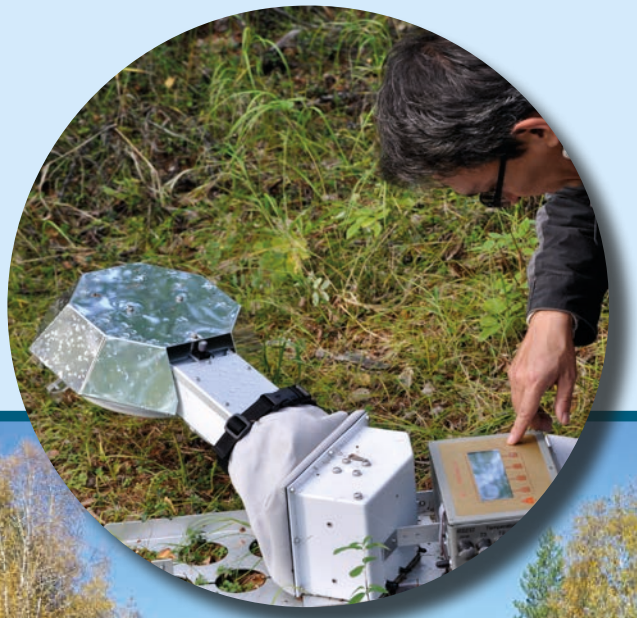
The Elgeeii Scientific Forest Station (60°01′ N, 133°49′ E; elevation c. 202 m a.s.l.; study area 1.5 ha) is located on an ancient terrace on the central part of the Aldan River's left bank in the southeastern region (Ust-Mayskiy Ulus) of the Republic of Sakha (Yakutia), Russia. It is in the continuous permafrost region (thickness over 120 m), approximately 65 km south of the Ust-Maya settlement and 730 km south of the Arctic Circle.

BIODIVERSITY AND NATURAL ENVIRONMENT

The main ecosystem near the station is boreal light taiga, with pine and birch forests together with permafrost lakes, meadows, and mixed forests. The main forest types are red-bilberry larch forests, crowberry pine forests, and herby birch forests. The main larger animals are red fox, wolf, brown bear, moose, red deer, and reindeer.

HISTORY AND FACILITIES

The Elgeeii Scientific Forest Station was founded in 2009 by the Institute for Biological Problems of Cryolithozone (Siberian Branch of Russian Academy of Sciences) together with RIHN, a Japanese scientific project. The station has two buildings accommodating c. 20 people. Outdoor storage house and workshop is available, equipped with some basic instruments. The station operates a 34 meters high observational tower in a larch forest with a large range of micrometeorological devices, equipment and eddy-covariance system. Solar power supply (12/24 VDC, ~500W) and diesel generator (220 VAC, 4.5 KW) are available.



GENERAL RESEARCH AND DATABASES

The main aim of the station is to increase the understanding of interaction between the atmosphere, the biosphere, the hydrosphere, and the cryolithosphere with a main focus on global environmental change.

HUMAN DIMENSION

The nearest settlements are Petropavlovsk and Ust-Maya (c. 60-65 km to the North) with various shops and facilities. There is a well-equipped hospital. The main livelihoods are hunting and lumbering.

ACCESS

Elgeeii Scientific Forest Station is reached by a combination of airplane to Ust-Maya airport (c. 1 hour flight from Yakutsk city), then motor boat (c. 1.5 hours), and finally car (15 min drive) or foot (1 hour walk).

Category	Sub-Category	Elgeeii Scientific Forest Station
Website		http://ibpc.ysn.ru/?page_id=231
Country		Russia
Opening year		2009
Operational period		April-October (November-March – only automatic micrometeorolical system is running)
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	gcoe-russia@mail.ru (Alexandra ALEXEEVA)
Facility owner and manager	Name of the facility owner	Institute for biological problems of cryolithozone, Siberian branch of Russian Academy of Sciences
	Owner status	Government (Federal State Budgetary Scientific Institution)
	Institution responsible for managing the station	Institute for biological problems of cryolithozone, Siberian branch of Russian Academy of Sciences
	Contact (access to station)	tcmax@mail.ru, lanteco@mail.ru
	Website (institution)	http://ibpc.ysn.ru
Other institutions	Name	Nagoya University
	Country	Japan
Location	Geographical coordinates	60°01′ N, 133°49′ E
	Altitude of station	202 m a.s.l.
	Min. altitude within study area	110 m a.s.l.
	Max. altitude within study area	240 m a.s.l.
	Nearests town/ settlement	Ust-Maya (2738 Inhabitants)
	Distance to nearest settlement	60 km
	Map	Google Earth, aerial image, satellite image
Climate	Climate zone	Boreal
	Permafrost	Continuous
	Years measured	Since 2009
	Mean annual temperature	-8.9 °C
	Mean temperature in February	-33.9 °C
	Mean temperature in July	18.5 °C
	Mean annual wind speed	2 m/s
	Max. wind speed	15 m/s
	Dominant wind direction	NW
	Total annual precipitation	303 mm
	Precipitation type	Rain, snow
	Ice break up	Aldan River: May
Station facilities	Area under roof	110 m^2
	Scientific laboratories	–
	Logistic	1 storage room
	Number of rooms (beds)	2 rooms (15 beds)
	Number of staff on station (peak / off season)	15 / 1
	Max. number of visitors at a time	20
	Showers	Yes
	Laundry facilities	–
	Power supply (type)	Diesel generator: 230 V (Eurasian type plugs)
	Power supply	24 hours per day
Scientific equipment	Specific device	34-m height observation tower, eddy-covariance equipment, micro-meteorological equipment, photosynthetic study devices, soil CO_2/ CH_4 flux study devices
	Scientific services offered	Basic technical support
Medical facilities	Medical facilities	Basic
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	60 km
	Compulsory safety equipment	Satellite phone
	Recommended safety equipment	First aid kit, weapon (in some cases)
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Helicopter may land, but no helipad
	Ship landing facilities	Motor boat may land, but no wharf
Vehicles at station	Sea transportation	–
	Land transportation	Car
Transport and freight	Transport to station	Plane, car, motor boat
	Number of ship visits per year (period)	2-3 times per week by small motor boat (June-September)
	Number of flight visits per year (period)	3 times per week (April-November)

Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	○
Mountain	○
Valley	●
Lake	●
River	●
Shoreline	●
Tree line	○
Polar deserts/semi-deserts	○
Shrub tundra	○
Gramminoid tundra	○
Forest tundra	○
Peatlands	○
Wetlands	●
Palsa mires	○
Deciduous forest	●
Evergreen forest	●
Human settlements or resource use in the area	●
Other (Thermokast lakes and alases)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	●
Ecosystem services	●
Environmental sciences – Pollution	○
Geocryology, Geomorphology	●
Geodesy	●
Geology, Sedimentology	○
Geophysics	○
Glaciology	○
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	●
Limnology	○
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	●
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	○
Wood workshop	●
Plexiglas workshop	○
Staff available to assist with constructions	●

Communication	
Telephone	○
Satellite phone	●
VHF	○
E-mail	○
Internet	○
Computer	●
Printer	○
Scanner	○
Fax	○

CHOKURDAKH

STATION NAME AND OWNER

The Chokurdakh Scientific Tundra Station is owned by the Institute for Biological Problems of the Cryolithozone (Siberian Branch of the Russian Academy of Sciences).

LOCATION

The Chokurdakh Scientific Tundra Station (70°49′ N, 147°29′ E; elevation 11 m a.s.l.) is situated in the Kytalyk Wildlife Reserve, located on the north bank of the Elon′ (Berelekh) River in north-eastern Yakutia, Republic of Sakha (Yakutia), Russia, approximately 25 km north of the Chokurdakh settlement and around 480 km north of Arctic Circle.

BIODIVERSITY AND NATURAL ENVIRONMENT

The research area consists of three different morphological units, i.e. (i) the present, frequently flooded river floodplain, (ii) the river terrace with tundra vegetation, and (iii) higher (10-30 m) plateaus with well-drained soils. The ice-rich continuous permafrost reaches more than 300 m depths. The levees on the floodplains are overgrown with Salix brush. The backswamps consist of meadows with low grass *(Arctophila fulva)* and sedges *(Carex arctisiberica, C. glacialis)* grading into shallow lakes. In the tundra, the main vegetation types are dry heath with *Betula nana* on higher sites (polygon rims, palsas); moist tundra with *Eriophorum tussocks*; wet sites with Sphagnum and *Carex* sp., and wet sites with a species-poor vegetation of Carex and some *Eriophorum* sp. At several sites the Sphagnum vegetation overlies a very thin active layer of loose moss peat (<20 cm thickness).

HISTORY AND FACILITIES

The station was established in 2001 by the Siberian Branch of the Russian Academy of Sciences and the Vrije University of Amsterdam (Netherlands) with financial support from the government of Netherlands and with permission and help of the Ministry for Nature Protection of the Republic of Sakha (Yakutia).

For accommodation, there is one 4 × 8 m large living house with four beds, and firewood and kerosene heating. Additional tent accommodation for 4-6 persons is possible during summer time. Kitchen is available. In addition, a big house for 10-12 persons

and a sauna can be rented from the Kytalyk Wildlife Reserve. There are two 5 m high observational towers for meteorological and flux measurements. Basic instruments are available at the station. Electrical power supply is provided by solar power and wind generator (12 V DC) and portable electrical generators (220 V AC).

GENERAL RESEARCH AND DATABASES

The interdisciplinary research at the Chokurdakh Scientific Tundra station mainly focuss on studies of the environmental conditions and the role of permafrost ecosystems in Climate Change. This includes the interaction between the atmosphere, the biosphere, the hydrosphere, and the cryolithosphere with respect to biodiversity and global environmental change. Short-term monitoring data exists for different aspects of human activity. Data is available at the web-sites of PIN-MATRA and TCOS-Siberia projects.

HUMAN DIMENSION

The Chokurdakh Scientific Station is situated in the Kytalyk Wildlife Reserve of the World Wide Fund for Nature, which is dedicated to the preservation of the white crane *(Grus leucogeranus)*. Human activity is restricted to fishing and reindeer herding.

ACCESS

The Chokurdakh Scientific Tundra Station can be reached from Chokurdakh settlement which is 3.5 hours by airplane from Yakutsk. From June to September, the transport to the station is possible by boat (2 hours from Chokurdakh along Berelekh River). In winter-time (November-April), transport takes place by snowmobile/sledge (2 hours from Chokurdakh).

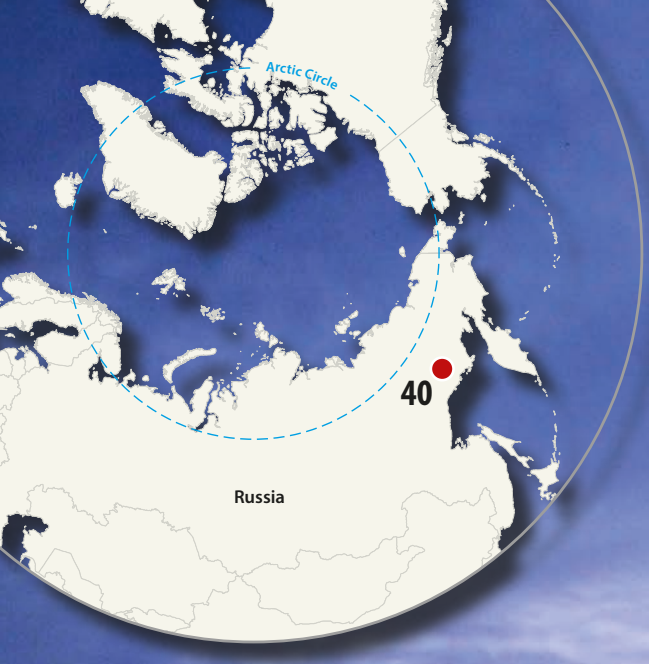
Category	Sub-Category	Chokurdakh Scientific Tundra Station
Website		-
Country		Russia
Opening year		2002
Operational period		May-September (March-April, October-November)
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	t.c.maximov@ibpc.ysn.ru, tcmax@mail.ru
Facility owner and manager	Name of the facility owner	Insitute for Biological Problems of Crylithozone, Siberian Branche of the Russian Academy of Sciences (IBPC SB RAS)
	Owner status	Government
	Institution responsible for managing the station	IBPC SB RAS
	Contact (access to station)	t.c.maximov@ibpc.ysn.ru, tcmax@mail.ru
	Website (institution)	–
Other institutions	Name	Vrije Universiteit Amsterdam
	Country	The Netherlands
Location	Geographical coordinates	70°49′ N, 147°29′ E
	Altitude of station	8 m a.s.l.
	Min. altitude within study area	–
	Max. altitude within study area	30 m a.s.l.
	Nearest town/settlement	Chokurdakh (2000 inhabitants)
	Distance to nearest town/settlement	28 km
	Map	Aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	Since 1965
	Mean annual temperature	-10.5 °C
	Mean temperature in February	-34.6 °C (January)
	Mean temperature in July	9.5 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	NNE
	Total annual precipitation	221 mm
	Precipitation type	Rain, snow
	Ice break up	Lake: June-July; River: June
Station facilities	Area under roof	100 m^2
	Scientific laboratories	30 m^2
	Logistic	1 m^2 (storage)
	Number of rooms (beds)	5 for accomodation (24 beds), 1 laboratory, 1 living room, 1 kitchen
	Number of staff on station (peak/off season)	4/1
	Max. number of visitors at a time	14
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	7 kVA diesel generator, 2.5 kVA fossil fuel generator, and two wind generators
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	2 hours by boat or snowmobile
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	Nearest airport in Chokurdakh
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	By plane to Chokurdakh, then 2 hours by boat (June-September) snowmobile or sledge (November-April)
	Number of ship visits per year (period)	2 (July)
	Number of flight visits per year (period)	–

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River		○
Shoreline	●	
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands		○
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Thermokarst lakes)	●	

Main science disciplines	Yes	No
Anthropology, Sociology, Archaeology		○
Astrophysics		○
Atmospheric chemistry and physics		○
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services		○
Environmental sciences – Pollution	●	
Geocryology, Geomorphology	●	
Geodesy		○
Geology, Sedimentology		○
Geophysics	●	
Glaciology	●	
Human biology, Medicine		○
Hydrology	●	
Isotopic chemistry		○
Limnology		○
Land-use change, Mapping, GIS	●	
Marine biology	●	
Microbiology		○
Oceanography, Fishery		○
Paleoecology		○
Paleolimnology		○
Soil Science	●	
Terrestrial biology – Biodiversity		○
Terrestrial biology – Ecosystem function	●	

Workshop facilities	Yes	No
Metal workshop		○
Wood workshop		○
Plexiglas workshop		○
Staff available to assist with constructions		○

Communication	Yes	No
Telephone		○
Satellite phone	●	
VHF		○
E-mail		○
Internet		○
Computer	●	
Printer	●	
Scanner		○
Fax		○



OROTUK

NAME AND OWNER

Orotuk Field Station is run by the Institute of Biological Problems of the North, Far Eastern Branch of Russian Academy of Sciences.

LOCATION

The station is in the Upper Kolyma district, western part of the Magadan Region, Russia (62°03′ N, 148°38′ E). The station is situated 10 km southwest of the Orotuk settlement (30 inhabitants).

BIODIVERSITY AND NATURAL ENVIRONMENT

The Kolyma River floodplain terraces form the typical landscape in the territory. The floodplain is covered by willow, poplar, and Chosenia forests. Numerous lakes, meadows, and swamps can be found on the terraces along the river. Relic steppe communities occur on southwest facing slopes and Pinus pumila thickets and sparse larch forests are the main plant communities of the region.

The southern part of the Czersky Mountain range is situated 10 km northwest of the station. The mountain tundra is dominated by various herbs, while dwarf shrubs and lichens cover slopes and depressions. The flora and fauna are typical for the northern part of the boreal zone. The vegetation belongs to the northern taiga and sparse Larix forest zone. The continental part of Northeast Asia belongs to the region of extra continental climate with very severe winters (down to -55-60 °C) and hot summer (up to 30-33 °C). The entire territory is in the continuous permafrost zone.

HISTORY AND FACILITIES

The station was established in 1992 and first served as a field station for the North-East Permafrost Laboratory, later for the Laboratory of Botany (since 1995). The station accommodates 7-8 people, has a dining room and outside toilets. The station has a building in the settlement of Orotuk, suitable for winter accommodation. In summer, two greenhouses are also in use.

GENERAL RESEARCH AND DATABASES

Meteorological observations have been recorded since 1992. The seasonal development of 33 species of trees, shrubs, and grasses are also studied. Phenological data is used for monitoring of Climate Change effects. Non-forest plant resources are studied in permanent sample plots. The flowering phenology and dynamics of yield are monitored for edible berries and mushrooms.

HUMAN DIMENSION

In the middle of 19th century Sakha people drove from the plains of Jakutia to the far northeast and settled near Kolyma River. Now, they live in small villages. Hunting, fishing, and picking wild berries and mushrooms are very important activities.

ACCESS

Orotuk is located 280 km northwest of the town Ust-Omchug (administrative centre of Tenkinsky District, Magadan region). In winter, the station can be reached by car, and in May-September only by boat. The average time by boat from the Duskanya Bay to Orotuk is about 2 hours.

Category	Sub-Category	Orotuk Field Station
Website		www.ibpn.ru/en/field-stations
Country		Russia
Opening year		1992
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	meks_mag@mail.ru
Facility owner and manager	Name of the facility owner	Institute of Biological Problems of the North, Far Eastern Branch of the Russian Academy of Sciences
	Owner status	Government
	Institution responsible for managing the station	Institute of Biological Problems of the North, Far Eastern Branch of the Russian Academy of Sciences
	Contact (access to station)	meks_mag@mail.ru
	Website (institution)	www.ibpn.ru/en
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	62°03′ N 148°39′ E
	Altitude of station	550 m a.s.l.
	Min. altitude within study area	470 m a.s.l.
	Max. altitude within study area	2200 m a.s.l.
	Nearests town/ settlement	Ust-Omchug (district centre, 1500 inhabitants)
	Distance to nearest settlement	280 km (Ust Omchug), smaller communities closer by (Omchak 80 km, Orotuk 10 km)
	Map	Google Earth (low resolution)
Climate	Climate zone	Subarctic/Boreal
	Permafrost	Continuous
	Years measured	Since 1992
	Mean annual temperature	-10.9 °C
	Mean temperature in February	-35.0 °C
	Mean temperature in July	15.9 °C
	Mean annual wind speed	4 m/s
	Max. wind speed	18 m/s
	Dominant wind direction	N
	Total annual precipitation	291 mm
	Precipitation type	Rain, snow
	Ice break up	Rivers: 10-20 May, Lakes in the mountains: 10-15 June
Station facilities	Area under roof	70 m^2
	Scientific laboratories	20 m^2
	Logistic	50 m^2
	Number of rooms (beds)	1 storage room, 2 rooms (4 beds), 1 canteen
	Number of staff on station (peak / off season)	2/2
	Max. number of visitors at a time	4
	Showers	–
	Laundry facilities	–
	Power supply (type)	Fossil fuel generator (220 V)
	Power supply	4 hours
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	Omchak, 80 km
	Compulsory safety equipment	Satellite phone
	Recommended safety equipment	First aid kit
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Snowmobile (in winter)
Transport and freight	Transport to station	Boat (in summer), snowmobile (in winter)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
○ Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Thermokast lakes, steppe communities)	

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Main science disciplines	
○ Anthropology, Sociology, Archaeology	
○ Astrophysics	
○ Atmospheric chemistry and physics	
● Climatology, Climate Change	
○ Community based monitoring, Citizen Science	
○ Ecosystem services	
○ Environmental sciences – Pollution	
○ Geocryology, Geomorphology	
○ Geodesy	
○ Geology, Sedimentology	
○ Geophysics	
○ Glaciology	
○ Human biology, Medicine	
○ Hydrology	
○ Isotopic chemistry	
○ Limnology	
● Land-use change, Mapping, GIS	
○ Marine biology	
○ Microbiology	
○ Oceanography, Fishery	
○ Paleoecology	
○ Paleolimnology	
● Soil Science	
● Terrestrial biology – Biodiversity	
● Terrestrial biology – Ecosystem function	

Workshop facilities	
○ Metal workshop	
● Wood workshop	
○ Plexiglas workshop	
● Staff available to assist with constructions	

Communication	
● Telephone	
● Satellite phone	
○ VHF	
● E-mail	
○ Internet	
● Computer	
● Printer	
○ Scanner	
○ Fax	

NORTH-EAST SCIENCE STATION

STATION NAME AND OWNER

North-East Science Station (NESS) is owned and run by Sergey Zimov and Nikita Zimov.

LOCATION

NESS is situated in the Kolyma River lowland. It is in the forest-tundra zone and 5 km from the town of Cherskii. The research station is affiliated with the Pleistocene Park (PLP) located on privately owned land.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is located in the continuous permafrost zone with vast territories underlain by yedoma (ice complex). Natural wild life includes bears, moose, and reindeer. In addition, muskoxen, Yakutian horses, and bison occur in the Pleistocene Park.

HISTORY AND FACILITIES

NESS was established in 1980 and has been privately owned since 1990. The total area of facilities under roof is c. 1500 m^2, with c. 250-300 m^2 laboratory facilities, c. 600 m^2 accommodation facilities for station personnel and visitors, c. 150 m^2 of conference hall/dining facilities, with the rest being storage and technical facilities. Some facilities allow accommodation and scientific research during winter. Currently, the maximum number of visitors accommodated on the station at any one time is 40-50 people. Visitors are accommodated on the all-inclusive basis.

This includes transportation from the airport, accommodation, meals, drinks, and local transportation within reasonable proximity from the station. A variety of shops are available in Cherskii town.

GENERAL RESEARCH AND DATABASES

Research: Climate change, permafrost science, atmospheric composition, biodiversity, and hydrology.

Data bases: Eddy covariance year round measurements on 3 sites starting 2001. Year round methane gradient measurements are recorded with a 40 m tall tower in the Pleistocene Park starting in 2007. Research conducted on the station since late 1980th was published in numerous international peer reviewed journals, including Science and Nature.

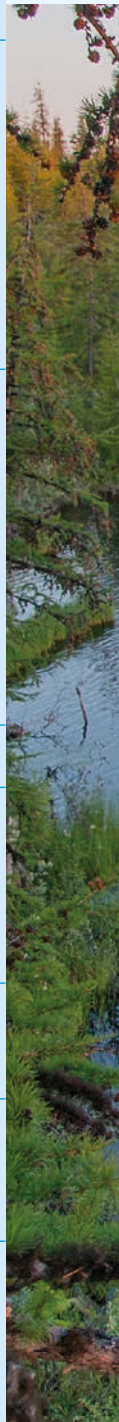
HUMAN DIMENSION

The town of Cherskii is located 5 km from the station (10 minute drive). The town population is 3000 people, with half of them being Russians, and the rest being Chukchies, Yukagires, and Yakutians. The town is the administrative centre of the district and has a sea port. Some percentage of the population is involved in fishing, hunting, and mammoth tusk collections.

ACCESS

NESS is located 10 minute drive from the Cherskii airport, which is serviced by 2-4 flights a week to the international airport of Yakutsk. The main route for international visitors is Moscow – Yakutsk (6.5 hour flight) with connection flight Yakutsk- Cherskii (4 hour flight).

Category	Sub-Category	North-East Science Station (NESS)
Website		www.pleistocenepark.ru
Country		Russia
Opening year		1980
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Russian boundary permission for foreigners (handled by NESS on demand)
	Permits required for studies	–
	Contact (permit issues)	Nikita Zimov (nzimov@mail.ru)
Facility owner and manager	Name of the facility owner	Sergey Zimov, Nikita Zimov
	Owner status	Private
	Institution responsible for managing the station	North-East Scientific Station
	Contact (access to station)	Nikita Zimov (nzimov@mail.ru)
	Website (institution)	www.pleistocenepark.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	NESS: 68°73′ N, 161°38′ E; Pleistocene Park (PLP): 68°5′ N, 161°5′ E
	Altitude of station	20 m a.s.l.
	Min. altitude within study area	0
	Max. altitude within study area	1040 m a.s.l.
	Nearests town/ settlement	Cherskii (3000 inhabitants)
	Distance to nearest settlement	5 km
	Map	Map (1:100 000), aerial image, satellite image, Google Earth
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	1980-2011
	Mean annual temperature	-10.7 °C
	Mean temperature in February	-30.7 °C
	Mean temperature in July	13.1 °C
	Mean annual wind speed	~2-3 m/s
	Max. wind speed	–
	Dominant wind direction	NE
	Total annual precipitation	221 mm
	Precipitation type	Snow, rain
	Ice break up	River: 27 May-10 June; Lakes: early June
Station facilities	Area under roof	NESS: 1500 m^2; PLP and other a NESS research sites: 200 m^2
	Scientific laboratories	NESS: 250 m^2; PLP: 0 m^2
	Logistic	NESS: 1250 m^2, PLP: 200 m^2
	Number of rooms (beds)	NESS: 9 laboratory rooms, 2 office rooms, 1 conference hall/diner, 10 storage rooms, 13 living rooms for visitors (total 40 beds); PLP and other NESS research sites: 6 living rooms (total 12 beds), 8 storage and technical rooms
	Number of staff on station (peak / off season)	NESS: 11/5; PLP and other research sites: 6/6
	Max. number of visitors at a time	NESS: 40; PLP and other research sites: 7
	Showers	NESS: yes; PLP: no
	Laundry facilities	Yes
	Power supply (type)	230V eurasian type plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	Advanced laboratory equipment
	Scientific services offered	Laboratory and technical support
Medical facilities	Medical facilities	In Cherskii well equipped
	Medical suite	Yes (in Cherskii)
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	NESS: 5 km (10 min); PLP and other research sites: (within 1 hour on boat, snowmobile or car)
	Compulsory safety equipment	Boat safety equipments
	Recommended safety equipment	Satellite phones, cell phones, first aid kits
Landing facilities	Airstrip (Length × Width)	Only in Cherskii ~1 km × 20m
	Airstrip surface	Gravel (snow in the winter)
	Helipad	Cherskii airport; Helicopter may land on all NESS research sites
	Ship landing facilities	Cherskii sea port
Vehicles at station	Sea transportation	One 13 meter sea class boat, one 8 meter sea class boat, six 4-5 meter motor boat, 3 rubber boats
	Land transportation	Five jeeps, one truck, one ATV, one 8-wheel drive ATV, three snowmobiles, one bulldozer, one 10 ton crawling transporter, one hovercraft, one 4 person hydroplane
Transport and freight	Transport to station	Plane, boat, snowmobile, car
	Number of ship visits per year (period)	20 per year (only for shipping goods)
	Number of flight visits per year (period)	2-4 per week



Features within study area	● Yes ○ No
○ Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
● Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
○ Peatlands	
● Wetlands	
○ Palsa mires	
● Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Thermokarst lakes, ice-wedge polygons)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

NORTH-EAST
SCIENCE STATION
P.O.Box 18, Cherskii, 678830
Republic Sakha (Yakutia)
Tel./Fax +7 (41157) 2-30-66
E-mail: sazimov55@mail.ru

AVACHINSKY VOLCANO

STATION NAME AND OWNER

Avachinsky Volcano Field Station belongs to 'Volcanoes of Kamchatka Nature Park' (UNESCO World Heritage site #765).

LOCATION

Avachinsky Volcano Field Station is located in the Russian Far East, on the southern part of the Kamchatka peninsula, near the main cities of the region, Petropavlovsk-Kamchatskiy and Yelizovo. The field station is situated at an altitude of about 950 m a.s.l. on a saddle between Koryaksky and Avachinsky volcanoes (53°15′ N, 158°44′ E). The station is located in the Nalychevo Nature Park. The main landscape feature near the station is the valley of the Sukhaya Elizovskaya River, which drains the slopes of the volcanoes in the region.

BIODIVERSITY AND NATURAL ENVIRONMENT

The surroundings of the field station are characterised by a large variety in landscape, flora, and fauna. The station itself is located in a shrub tundra zone, and the surroundings include altitudinal zonation from forest to glaciers. Both volcanoes near the station are occasionally active – Avachinsky's last eruption occurred in 2001, and now the crater is covered by a lava neck with a heavy fumarole activity underneath. Koryaksky volcano is dormant, but in 1956 and 2008 it erupted with ash plumes and a pyroclastic flow. The area features pyroclastic slopes, where outcrops carved by rivers expose stratified lapilli tuffs, deep gullies, and a few small fumaroles. The fauna and vegetation within the surroundings of the station is typical for the Kamchatka peninsula, and one of the main species around the station is the arctic ground squirrel. Occasionally, bears, sable, and lynx visit the area. Different kinds of salmonid fish spawn in the rivers of the Nalychevo valley.

HISTORY AND FACILITIES

Nalychevo Nature Park is part of the biggest protected area of the Kamchatka peninsula – the nature park "Volcanoes of Kamchatka". The nature park was established in 1995 and became part of the UNESCO World Heritage List in 1996. The station can accommodate 24 people, and has kitchen and living room. Tenting is allowed both at the station and within the study area.

FIELD STATION

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GENERAL RESEARCH AND DATABASES

The research at Avachinsky Volcano Field Station focuses on the botany, the ecology, and the zoology of the volcanic tundra zone. Recently, investigations of hydrology, hydrogeology, glaciology, meteorology, geomorphology, and soil science were initiated. Since no long-term hydrological data are available for the rivers draining the volcanoes, the main purpose of the recently initiated studies is field-based assessments of water and sediment discharges within the study river. The station maintains databases containing records on plants, biota, and vegetation-cover ecology. Databases on hydrology and climate are being developed.

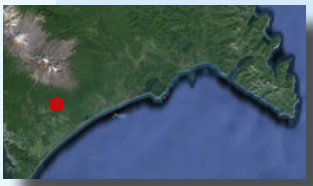
HUMAN DIMENSION

Avachinsky Volcano Research Station is the gate to the Nalychevo river valley, which is a protected area with different points of interest for all kinds of tourism. The status of the area as a national park protect it from industrial development and uncontrolled visits, but the abundance of fish in the rivers and proximity to the region's capital also attract poachers.

ACCESS

The research station can be reached by four-wheel drive vehicles from the nearby cities Petropavlovsk-Kamchatskiy and Elizovo (60 and 30 km away, respectively). In summer off-road buses service the station 2-3 times a week. The nearest airport with daily flights to Moscow and other international airports is Yelizovo (PKC), 29 km from the station.

Category	Sub-Category	Avachinsky Volcano Field Station
Website		http://vulcanikamchatki.ru/territoriya/klaster_nalychevskij
Country		Russia
Opening year		1995
Operational period		Year-round, although in winter period only occasional
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Volcanoes of Kamchatka Nature Park (KGBU Prirodnij Park "Vulcany Kamchatki")
	Owner status	Government
	Institution responsible for managing the station	Volcanoes of Kamchatka Nature Park (KGBU Prirodnij Park "Vulcany Kamchatki")
	Contact (access to station)	park@mail.kamchatka.ru
	Website (institution)	http://vulcanikamchatki.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	53°15′ N, 158°44′ E
	Altitude of station	950 m a.s.l.
	Min. altitude within study area	130 m a.s.l.
	Max. altitude within study area	3456 m a.s.l.
	Nearests town/ settlement	Yelizovo (38643 inhabitants)
	Distance to nearest settlement	20 km to suburbs, 28 to the city centre, 29 to the airport
	Map	Satellite images (resolution down to 10 m and rougher), maps down to (1:10 000 and smaller)
Climate	Climate zone	Subarctic
	Permafrost	–
	Years measured	–
	Mean annual temperature	–
	Mean temperature in February	-16 °C (January)
	Mean temperature in July	12 °C
	Mean annual wind speed	3.6 m/s
	Max. wind speed	–
	Dominant wind direction	S, NW
	Total annual precipitation	1200 mm
	Precipitation type	Snow, rain
	Ice break up	May-June
Station facilities	Area under roof	150 m^2
	Scientific laboratories	25 m^2
	Logistic	125 m^2
	Number of rooms (beds)	4 houses, 24 beds; 1 staff house
	Number of staff on station (peak / off season)	2 / 0
	Max. number of visitors at a time	24 (possible number of visitors depends on visiting tourists) plus tents
	Showers	No, but russian sauna in nearby camp
	Laundry facilities	–
	Power supply (type)	Aggregate 230 V + solar panels
	Power supply	On demand
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	30 km (estimated 2 hours by vehicle, 10 min by helicopter)
	Compulsory safety equipment	–
	Recommended safety equipment	First aid kit, satellite phone
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Helicopter may land, but no helipad
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	4×4 car/on foot/smowmobile (depending on season)
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ● Permanent snowpatches
- ● Mountain
- ● Valley
- ○ Lake
- ● River
- ○ Shoreline
- ● Tree line
- ○ Polar deserts/semi-deserts
- ● Shrub tundra
- ○ Gramminoid tundra
- ● Forest tundra
- ○ Peatlands
- ○ Wetlands
- ○ Palsa mires
- ● Deciduous forest
- ● Evergreen forest
- ○ Human settlements or resource use in the area
- ● Other (Lava formations, active volcano, lahar deposits, hot springs)

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ○ VHF
- ○ E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

MEINYPIL'GYNO

STATION NAME AND OWNER

Meinypil'gyno Community Based Biological Station is owned and run by the Russian bird conservation NGO – "BirdsRussia", with support from the Government of the Chukotka Autonomous Region.

LOCATION

Meinypil'gyno Biological Station is located at Meinypil'gyno settlement, South Chukotka (62°32' N, 177°03' E), 250 km south of Anadyr City at the Bering Sea coast. It is located on a 40 km long lagoon spit next to moraine hills (up to 100 m a.s.l.) and Koryak Mountains (up to c. 1000 m a.s.l.) surrounded by brackish water channels connecting salty Lake Pekulney and freshwater Lake Vaamochka to the sea.

BIODIVERSITY AND NATURAL ENVIRONMENT

The weather is wet, windy, and foggy in summer, with lots of snowstorms in winter. The area has a very high diversity of ecosystems wihtin reachable distance from the station. Coastal areas are occupied by high variety of different types of lowland tundra, including typical Chukotka tussocks, rather high-arctic looking moss-sedge-lichen tundra on moraine hills, and dry crowberry tundra on spits. Inland areas have a variety of alpine vegetation types as well as hypo-arctic landscapes including willow and alder bushes. Further inland Beringian type pine bush forest-tundra dominates. Wetlands include different types of lakes, bogs, fresh-water deltas, and brackish lagoons. Permafrost is sporadic in part of area. The biggest Koryak Mountains Glacier, now shrinking in size, is located in 40 km west of the station. There are numerous geological features in the area and the only known paleontological site for dinosaurs is only 30 km to the north.

The area supports a high diversity of bird species, including the critically endangered spoon-billed sandpiper and the largest sea bird colony of Southern Chukotka. Nearby lakes are important red salmon spawning areas attracting high numbers of brown bears. Wolfs, Wolverine, and Mountain Sheep are not uncommon. Coastal waters support populations of gray whales, seals, and occasionally beluga whales. A walrus haul-out site is located 40 km away.

BIOLOGICAL STATION

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HISTORY AND FACILITIES

The station is hiring living and office space from local villagers for the field work period and only owns permanent storage space for equipment and supplies. Up to 5 cottages each 50-100 m^2 are rented every summer. Work is organised by a station managers from the local community, and mechanics and cooks are also hired locally. Up to 15 visitors can work at the station at the same time.

GENERAL RESEARCH AND DATABASES

Biological observations mainly focusing on birds were started in 2001 led by BirdsRussia in cooperation with Moscow State University and various Research Institutions. The station engages in community-based monitoring work and collection of traditional knowledge in the village. Weather records are made by automatic station installed in 2011. Long-term salmon fish resource monitoring is run by team of biologists from ChukotTINRO based in Anadyr. Meinypil'gyno is the only remaining breeding area of the Spoon-billed Sandpiper, one of most charismatic waders and the flagship of conservation of migratory birds of the East-Asian – Australasian Flyway.

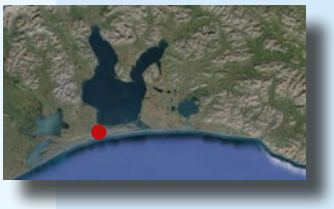
HUMAN DIMENSION

The Meinypil'gyno settlement has a mixed Chukchi-Russian population of about 500 inhabitants. It was established 90 years ago in the area formerly used as summer camps by Chukchi reindeer herders. In earlier times, the coastal area was populated by the Kerek ethnic group and an unexplored archaeological site (Kerek city) is located just 20 km from the station. Main traditional activity is fishing and reintroduction of reindeer husbandry is discussed. The station has strong ties to the local community though involvement in monitoring and outreach activities (e.g. school courses and exhibitions).

ACCESS

Station is accessible by regular helicopter flights twice a month and in summer nearly every week; 1.5 hour flight by Mi-8 from Anadyr. Irregular cargo ships arrive from Beringovsky from July and supplies of goods arrive by bigger ocean ships in autumn. In winter, the station may be accessible by road, depending on weather conditions. Transport at the station consists of big-foot vehicle "Kerzhak" (carry up to 2 tons), 3 quad-bikes, one inflatable rubber motor boat, and a bicycle.

Category	Sub-Category	Meinypil'gyno Community Based Biological Station
Website		www.birdsrussia.ru (information in English will be added soon)
Country		Russia
Opening year		2001
Operational period		May-October (winter operation is possible but never tried)
Permitting issues categories	Permits required for access to the station	Border-guard permit by Russian federal military authorities and Chukotka government permit (can be arranged by Birds Russia – at least three months prior to field work)
	Permits required for studies	Specific permits may apply depending on type of work following Russian State legislation
	Contact (permit issues)	Nikolay Yakushev: athene-noctua@yandex.ru
Facility owner and manager	Name of the facility owner	Birds Russia
	Owner status	Non-Government Organisation (NGO)
	Institution responsible for managing the station	Birds Russia
	Contact (access to station)	Dr. Nikolay Yakushev (station manager), athene-noctua@yandex.ru; Dr. Evgeny Syroechkovskiy (science coordinator), ees_jr@yahoo.co.uk
	Website (institution)	www.birdsrussia.ru
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	62°32' N, 177°03' E
	Altitude of station	11 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	1350 m a.s.l.
	Nearests town/ settlement	Meinypil'gyno (500 inhabitans), Beringovsky (1500 inhabitans), Anadyr (Chukotka capital)
	Distance to nearest settlement	0/125/250 km
	Map	Topographic maps (1:50 000; 1:100 000), satellite images
Climate	Climate zone	Low Arctic
	Permafrost	Sporadic
	Years measured	Since 2004 (irregular observations)
	Mean annual temperature	-7.4 °C
	Mean temperature in February	-20.5 °C
	Mean temperature in July	10.3 °C
	Mean annual wind speed	6.6 m/s
	Max. wind speed	50 m/s
	Dominant wind direction	N
	Total annual precipitation	500 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: June; Sea: open water all year round
Station facilities	Area under roof	400 m^2 (heated in summer), 100 m^2 (unheated year-round)
	Scientific laboratories	151 m^2
	Logistic	Up to 4 rented houses in local village. Up to 10 rooms with 10-16 beds in peak season. 50 m^2 of office space for processing field data
	Number of rooms (beds)	4 in summer/2 in winter
	Number of staff on station (peak / off season)	–
	Max. number of visitors at a time	14
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	230 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Incubators and aviaries for rearing threatened species of birds
	Scientific services offered	–
Medical facilities	Medical facilities	Meynypil'gyno: basic; Beringovsky: well equipped
	Medical suite	Yes (only in Beringovsky)
	No. of staff with basic medical training or doctor	Meynypil'gyno: doctor; Beringovsky Hospital with staff
	Distance to hospital (estimated time)	Meynypil'gyno: 0 km; Beringovsky: 150 km; Anadyr: 1.5 hours by helicopter
	Compulsory safety equipment	VHF radio (6 sets available at station)
	Recommended safety equipment	First aid kit, satellite phone, bear deterrent, weapon (in some cases)
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	In the village next to station
	Ship landing facilities	Landing wharf (small boats), cargo can be landed from larger boats
Vehicles at station	Sea transportation	Inflatable motor boat (in good weather only)
	Land transportation	Big-foot vehicle (carry up to 2000 kg), car, snowmobile, 3 ATVs, 2 inflatable rubber motor boats, bicycle
Transport and freight	Transport to station	Commercial helicopter (MI-8) flights from Anadyr. Some opportunities to get there by ship (June-August)
	Number of ship visits per year (period)	5-10 freight ships yearly (June-August)
	Number of flight visits per year (period)	Helicopter flights: 2-4 per month in summer, rest of year 1 per month



● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ● Permanent snowpatches
- ● Mountain
- ● Valley
- ● Lake
- ● River
- ● Shoreline
- ○ Tree line
- ○ Polar deserts/semi-deserts
- ● Shrub tundra
- ● Gramminoid tundra
- ○ Forest tundra
- ● Peatlands
- ● Wetlands
- ● Palsa mires
- ○ Deciduous forest
- ○ Evergreen forest
- ● Human settlements or resource use in the area
- ● Other (Thermokast lakes, extended dry coastal spits, patches of forest (50 km), forest tundra (50 km), Beringian forest tundra (30 km), mountain glacier (40 km))

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ○ Fax

ADYGINE

STATION NAME AND OWNER

Adygine Research Station belongs to Institute of Water Problem and Hydropower, Kyrgyz National Academy of Science in Kyrgyz Republic.

LOCATION

Adygine Research Station is situated in Northern Tchein-Shan on the northern slope of the Kyrgyz mountain range and in the

National Nature Park Ala-Aracha. The study area is a glacier-moraine complex lying at an altitude of 3400 – 4200 m a.s.l.

BIODIVERSITY AND NATURAL ENVIRONMENT

The climate near the station area is polar to sub-polar. The area consists of tundra with mosses, lichens, and unique flowers, even red listed species. The fauna consists of e.g. wild goats, yaks, and snow leopard (irbis).

HISTORY AND FACILITIES

The station was built in 2008. The building of the station has been designed as the letter 'A' and has the dimensions 6.5 × 7 m. The station can accommodate six-eight persons. All energy for running the station is mostly generated by a wind turbine unit and solar panels.

GENERAL RESEARCH AND DATABASES

Monitoring of lakes: Changes in lake size, shape, and water level are monitored. All changes in morphology of moraine dams are also monitored.

Meteorological observations: Two weather stations are installed in the study area. One is situated near the building at lake level and the other above the glacier at an elevation of 3830 m a.s.l.

Glaciological studies: Monitoring of glacier retreat and changes in its volume.

Hydrological studies: Hydrological research is an integral part of the monitoring of the development of lakes and their inflows and outflows.

Other investigations: In addition to studies carried out by station staff, the station is also open to Kyrgyz and foreign scientists as a platform for different types of research.

HUMAN DIMENSION

The station is located only 40 km from the capital of Kyrgyzstan, Bishkek city.

ACCESS

Bishkek airport can be reached by air in 40 minutes. From Bishkek, the research station can be reached by car through the main Ala-Archa valley (40 km). The last nine km to the station is by trail either on foot or on horseback.

Category	Sub-Category	Adygine Research Station
Website		www.adygine.com
Country		Kyrgyz Republic
Opening year		2008
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Institute of water problems and Hydropower
	Owner status	Government
	Institution responsible for managing the station	Institute of water problems and Hydropower
	Contact (access to station)	zagivit@mail.ru; erochin@list.ru
	Website (institution)	www.caresd.net/iwp
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	42°30′ N, 74°35′ E
	Altitude of station	3600 m a.s.l.
	Min. altitude within study area	3200 m a.s.l.
	Max. altitude within study area	4200 m a.s.l.
	Nearests town/ settlement	Bishkek city (1 000 000 inhabitants) and Kashka-Suu (1000 inhabitants)
	Distance to nearest settlement	40 km (Bishkek) and 8 km (Kashka-Suu)
	Map	Map (1:50 000), aerial image, satellite image, Google Earth
Climate	Climate zone	Subarctic
	Permafrost	Glacier, moraine with ice
	Years measured	Since 2008
	Mean annual temperature	-1 °C
	Mean temperature in February	-15 °C
	Mean temperature in July	9 °C
	Mean annual wind speed	5 m/s
	Max. wind speed	40 m/s
	Dominant wind direction	N
	Total annual precipitation	600 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: May/June
Station facilities	Area under roof	49 m^2
	Scientific laboratories	49 m^2
	Logistic	–
	Number of rooms (beds)	4 rooms (16 beds)
	Number of staff on station (peak / off season)	2
	Max. number of visitors at a time	16
	Showers	Yes
	Laundry facilities	–
	Power supply (type)	Solar panels, wind turbine
	Power supply	24 hours per day
Scientific equipment	Specific device	Two automatic meteostations, soil-temperature sensors, solar radiation sensor, sensor to measure level of lake
	Scientific services offered	Institute archive
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	10 km
	Compulsory safety equipment	Mobile phone
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	No, but landing is possible
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	Helicopter, horse back, or on foot
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

● Yes
○ No

Features within study area

- ● Ice cap or glacier
- ● Permanent snowpatches
- ● Mountain
- ● Valley
- ● Lake
- ● River
- ○ Shoreline
- ○ Tree line
- ○ Polar deserts/semi-deserts
- ○ Shrub tundra
- ○ Gramminoid tundra
- ○ Forest tundra
- ○ Peatlands
- ○ Wetlands
- ○ Palsa mires
- ○ Deciduous forest
- ○ Evergreen forest
- ● Human settlements or resource use in the area
- ● Other (Thermokast lakes, glaciers)

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ○ Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

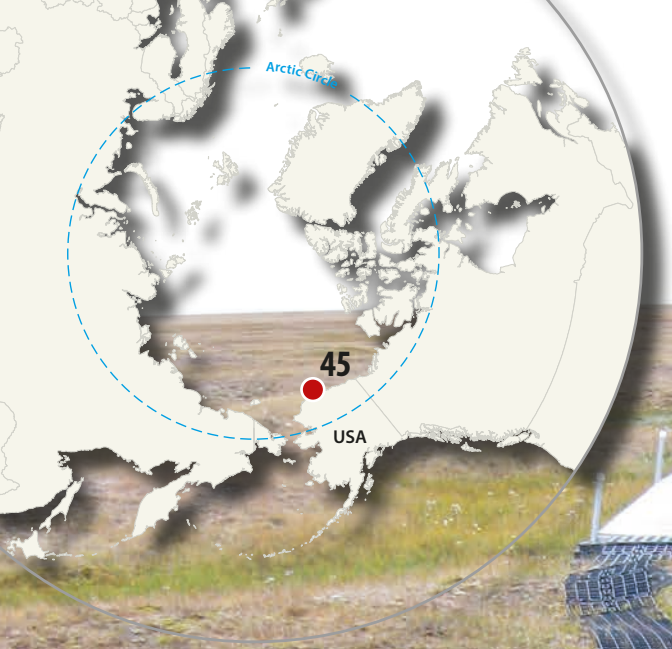
Workshop facilities

- ● Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ○ E-mail
- ○ Internet
- ● Computer
- ○ Printer
- ○ Scanner
- ○ Fax

BARROW



STATION NAME AND OWNER

The Barrow Arctic Research Center and Barrow Environmental Observatory are managed by UIC Science, a business unit of the Ukpeaġvik Iñupiat Corporation.

LOCATION

Barrow (c. 4000 inhabitants) is located at the northern tip of Alaska (USA) on the Arctic Coastal Plain north of the Brooks Range Mountains, at the junction of the Chukchi and Beaufort Seas. The adjacent Barrow Environmental Observatory comprises 30.21 km^2 of tundra, lakes, and wetlands reserved for scientific research including long-term environmental monitoring and habitat manipulation experiments.

BIODIVERSITY AND NATURAL ENVIRONMENT

Barrow is characterised by a polar maritime climate but is semi-arid (c. 150 mm annual precipitation). It lies north of the tree-line so the dominant vegetation types are grass, moss, and sedge. Virtually all land in the area is underlain by permafrost within a few meters of the surface. The landscape is characterised by thermokarst lakes and drained lake basins undergoing plant succession. Polar bears and Arctic foxes are found in the region. A large number of transient bird species migrate to the North Slope during the summer including snowy owl, tundra swan, snow bunting, and various species of geese and ducks, including the endangered Steller's and spectacled eiders. Caribou are frequently observed in the area. During the spring, bowhead whales migrate close to shore, and both gray and beluga whales are often sighted during the summer.

HISTORY AND FACILITIES

Barrow has a long research history starting with the establishment of an observation station during the First International Polar Year (1882-1883) – hosting near-continuous measurements since then. The Arctic Research Laboratory was established in 1947 and has supported a vast number of atmospheric, biological, oceanic, and terrestrial research activities. Present facilities include modern laboratories, storage, internet access, local accommodations, and cafeteria or self catering facilities. Vehicle support can also be arranged. Restaurants, supplies, and a grocery store are available in town. Several other programs funded through the US government maintain additional facilities in Barrow including the National Weather Service and Earth

System Research Laboratory (both part of the National Oceanic and Atmospheric Admin.), Atmospheric Radiation Measurement Climate Research Facility (Dept. of Energy), and the US Fish and Wildlife Service (Dept. of Interior). Additionally, the North Slope Borough Department of Wildlife Management is based in Barrow.

GENERAL RESEARCH AND DATABASES

Approximately 50 individual research projects are supported annually. Much of the work at Barrow involves atmospheric chemistry, ecosystem dynamics, plant/animal phenology studies, and Climate Change monitoring. Many sea ice studies are also based in the area. Limnological and large animal physiology projects are occasionally undertaken.

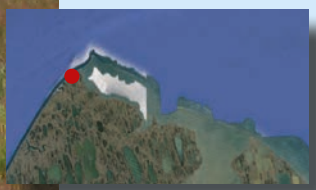
HUMAN DIMENSION

Barrow has been occupied by humans for at least 1200 years, and a strong Iñupiaq culture is still practiced today including subsistence hunting and whaling activities. English is the predominant language but many residents speak Iñupiaq. The village is the political, logistical, and administrative hub of the 245 000 km^2 North Slope Borough, and as a result most modern conveniences are available. Summer tourism is an important part of the economy, and nearby resource extraction is becoming more prevalent. Several mobile phone carriers provide reliable service. Off-road access to the tundra (i.e. for hiking) requires a local land use permit. There are several gymnasiums open to the public and Barrow High School provides opportunities for spectator sports. Ilisaġvik College provides continuing education and vocational training to students throughout the region.

ACCESS

There is no road access to Barrow, but the town is serviced by commercial airlines (Alaska Airlines, Era Alaska) with multiple daily flights, year-round. Both fixed-wing aircrafts and helicopters can be chartered for research activities from vendors based in Fairbanks (800 km away) or Anchorage (1200 km away) and staged from the Barrow Airport. Additionally, Northern Air Cargo provides commercial shipping services and the US Postal Service delivers mail and small packages daily. There is no port facility, but resupply barges and boat access are available during the summer. Research facilities are located approximately 5 km north of the village and can be reached via the local road system.

Category	Sub-Category	Barrow Arctic Research Center/ Barrow Environmental Observatory
Website		www.barrowbulletin.com
Country		USA
Opening year		1992
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	karl.newyear@uicscience.com
Facility owner and manager	Name of the facility owner	Ukpeaġvik Iñupiat Corporation
	Owner status	Private
	Institution responsible for managing the station	UIC Science
	Contact (access to station)	Nagruk.harcharek@uicscience.com
	Website (institution)	www.uicalaska.com
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	71°18′ N, 156°35′ W
	Altitude of station	5 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	10 m a.s.l.
	Nearest town/settlement	Barrow (4500 inhabitants)
	Distance to nearest town/settlement	5 km
	Map	–
Climate	Climate zone	High Arctic (coastal plain, maritime, desert)
	Permafrost	Continuous
	Years measured	Since 1947
	Mean annual temperature	-12.6 °C
	Mean temperature in February	-27.7 °C
	Mean temperature in July	4.1 °C
	Mean annual wind speed	6 m/s
	Max. wind speed	35 m/s
	Dominant wind direction	ENE
	Total annual precipitation	115 mm
	Precipitation type	Snow, rain
	Ice break up	Lakes: May; Sea: June
Station facilities	Area under roof	2500 m^2
	Scientific laboratories	300 m^2
	Logistic	1400 m^2 (offices, warehouse, staging)
	Number of rooms (beds)	1 dorm (40 beds), 3 huts (15 beds), 4 apartments (15 beds), 1 house (8 beds)
	Number of staff on station (peak/off season)	12/10
	Max. number of visitors at a time	75
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	120V 60Hz (US plugs)
	Power supply	24 hours per day
Scientific equipment	Specific device	Differential GPS, fume hoods, cold storage and work space, purified water, autoclave, dry ice, analytical balance, ice augers, generators, sleds
	Scientific services offered	Bear Guard, Lab Manager, community outreach, cargo pickup/storage, permitting, conference rooms
Medical facilities	Medical facilities	Well equipped
	Medical suite	Yes
	No. of staff with basic medical training or doctor	Samuel Simmonds Hospital with staff
	Distance to hospital (estimated time)	5 km (10 minutes) by road
	Compulsory safety equipment	VHF radio
	Recommended safety equipment	First aid kit
Landing facilities	Airstrip (Length × Width)	2164 × 46 m
	Airstrip surface	Asphalt
	Helipad	Yes
	Ship landing facilities	Barge landings on beach, small craft
Vehicles at station	Sea transportation	Small craft (Boston Whaler, zodiac)
	Land transportation	Truck, snowmobile (with sleds), ATV (with trailers)
Transport and freight	Transport to station	Commercial airlines
	Number of ship visits per year (period)	~3
	Number of flight visits per year (period)	2-3 per day (year-round)



Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain		○
Valley		○
Lake	●	
River		○
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra		○
Gramminoid tundra	●	
Forest tundra		○
Peatlands		○
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Thermokarst lakes, polygonal tundra, ice wedges, saltwater lagoons, migratory waterfowl, marine mammals)	●	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ● Glaciology (snow and sea ice)
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ○ Computer
- ● Printer
- ● Scanner
- ● Fax

TOOLIK

STATION NAME AND OWNER

The Toolik Field Station (TFS) is operated and managed by the Institute of Arctic Biology at the University of Alaska Fairbanks (UAF) with cooperative agreement support from the Division of Polar Programs, Directorate for Geosciences at the US National Science Foundation (NSF).

LOCATION

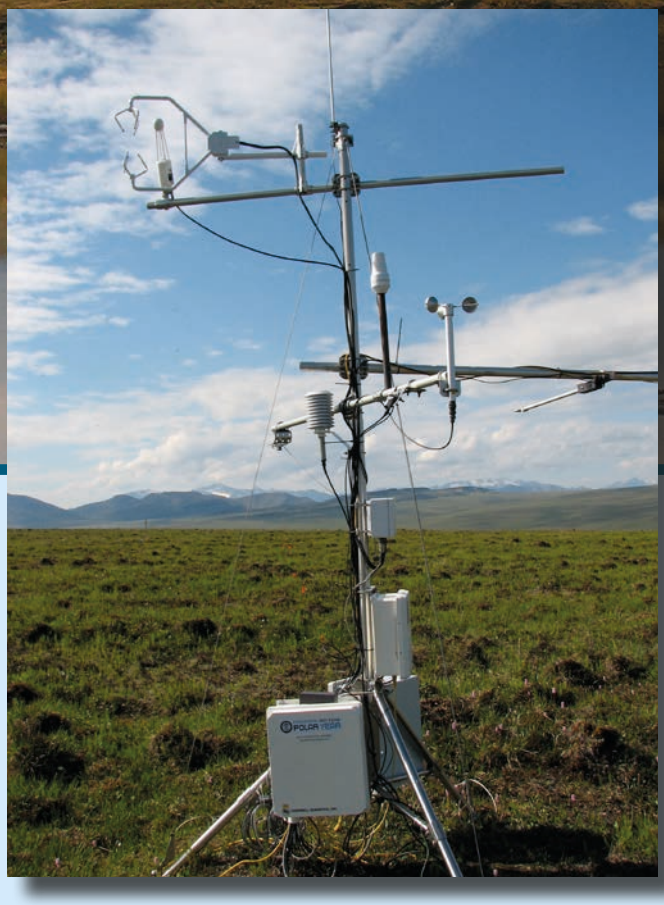
TFS is located 210 km south of Deadhorse and 600 km north of Fairbanks in arctic Alaska. The field station is situated north of Gates of the Arctic National Park, and its location allows scientists to access the Brooks Range, the arctic foothills and the arctic coastal plain.

BIODIVERSITY AND NATURAL ENVIRONMENT

TFS is situated in the arctic foothills province of the North Slope, which is characterised by rolling hills and broad valleys underlain by continuous permafrost. The area is dotted with lakes, and the vegetation is dominated by dwarf-shrub and tussock tundra. Caribou and Arctic ground squirrels are frequently observed at the field station, and moose, musk-oxen, and grizzly bears are encountered occasionally.

HISTORY AND FACILITIES

TFS was first established in 1975 to support an aquatic research program. The field station evolved from a 10-person tent camp into a premier arctic research laboratory and science support facility capable of supporting up to 150 researchers. The field station includes several laboratory trailers and tents, a lecture hall, various dormitory accommodation styles, a kitchen and dining hall, shower and laundry facilities, and a tool shop. TFS is open year-round and provides transportation to and from the station, basic science support, high-speed internet, GIS services, general-use laboratory and field equipment, herbarium, and baseline environmental and meteorological data.



GENERAL RESEARCH AND DATABASES

Research themes at TFS are wide-ranging and dynamic and currently include the structure and function of terrestrial and aquatic ecosystems of the arctic foothills and tundra, the effects of Climate Change in these regions, and the feedbacks to global Climate Change through gas and hydrological fluxes. TFS-based research has also led to significant discoveries on the adaptations of plants and animals to the Arctic and to population-level changes in phenologies and distributions. Existing databases hosted at TFS include climate records and baseline environmental monitoring. A substantial body of research data collected by the arctic LTER program are also available from their website.

HUMAN DIMENSION

TFS is located in the North Slope Borough of northern Alaska close to the Dalton High-way. Anaktuvuk is the closest native village, which is situated in the Brooks Range about 150 km west of TFS by air.

ACCESS

TFS is accessible by road from Deadhorse and Fairbanks. The field station provides transportation to and from these towns, and snowmobiles, boats, trucks, and bicycles are available for local transportation. A helicopter scheduled through the National Science Foundation is based at TFS.

Category	Sub-Category	Toolik Field Station
Website		http://toolik.alaska.edu
Country		USA
Opening year		1975
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes (permits only required on BLM land)
	Permits required for studies	Yes
	Contact (permit issues)	www.blm.gov
Facility owner and manager	Name of the facility owner	Institute of Arctic Biology
	Owner status	Government
	Institution responsible for managing the station	Institute of Arctic Biology, University of Alaska Fairbanks
	Contact (access to station)	maabels@alaska.edu
	Website (institution)	http://toolik.alaska.edu
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	68°37′ N, 149°35′ W
	Altitude of station	720 m a.s.l.
	Min. altitude within study area	–
	Max. altitude within study area	–
	Nearest town/settlement	Deadhorse (25-50 inhabitants)
	Distance to nearest town/settlement	210 km
	Map	Maps (1:2000 - 1:25 000), aerial images, satellite images, Google Earth shape files
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	Since 1988
	Mean annual temperature	-8.7 °C
	Mean temperature in February	-20.7 °C
	Mean temperature in July	10.8 °C
	Mean annual wind speed	3.1 m/s (at 5 m above terrain)
	Max. wind speed	23.6 m/s
	Dominant wind direction	S
	Total annual precipitation	318 mm
	Precipitation type	Snow, rain
	Ice break up	Lake: mid June
Station facilities	Area under roof	5546 m^2 (includes tents)
	Scientific laboratories	1452 m^2 (includes hard-sided plus tents)
	Logistic	4095 m^2
	Number of rooms (beds)	212 total (88 sleeping rooms, 174 beds, 9 lab buildings, 5 lab tents, 25 storages, 1 dining hall, 1 community centre, 1 classroom, 1 garage)
	Number of staff on station (peak/off season)	19/3
	Max. number of visitors at a time	150
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Fossil fuel generator distribution at 480 V, stepped down to 208 V/110 V, 60 Hz, North American two/three pin plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	Meteorological station; GPS; herbarium; general-use equipment (deionized water, microscope, drying oven, muffle furnace, autoclave, freeze dryer, centrifuge, balances, -80° C freezer, leaf area meter, incubation facility, water column profiler, spectral analyzer, etc.)
	Scientific services offered	Basic mechanical, electrical and carpentry support; GIS and mapping; online baseline environmental and climate data; limited fieldwork assistance; small animal holding
Medical facilities	Medical facilities	Standard (well equipped first aid kit)
	Medical suite	–
	No. of staff with basic medical training or doctor	EMT on site (summer) and 3-4 staff members with Wilderness First Response training
	Distance to hospital (estimated time)	220 km (3 hours to medical facility in Prudhoe Bay)
	Compulsory safety equipment	–
	Recommended safety equipment	First aid kit, bear spray, satellite phone
Landing facilities	Airstrip (Length × Width)	1595 × 46 m, Galbraith Lake approx. 33 km from station
	Airstrip surface	Gravel
	Helipad	Yes
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Bicycles, car/pick-up, snowmobiles
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

KLUANE LAKE

STATION NAME AND OWNER

The Kluane Lake Research Station (KLRS) is owned and managed by the Arctic Institute of North America (AINA).

LOCATION

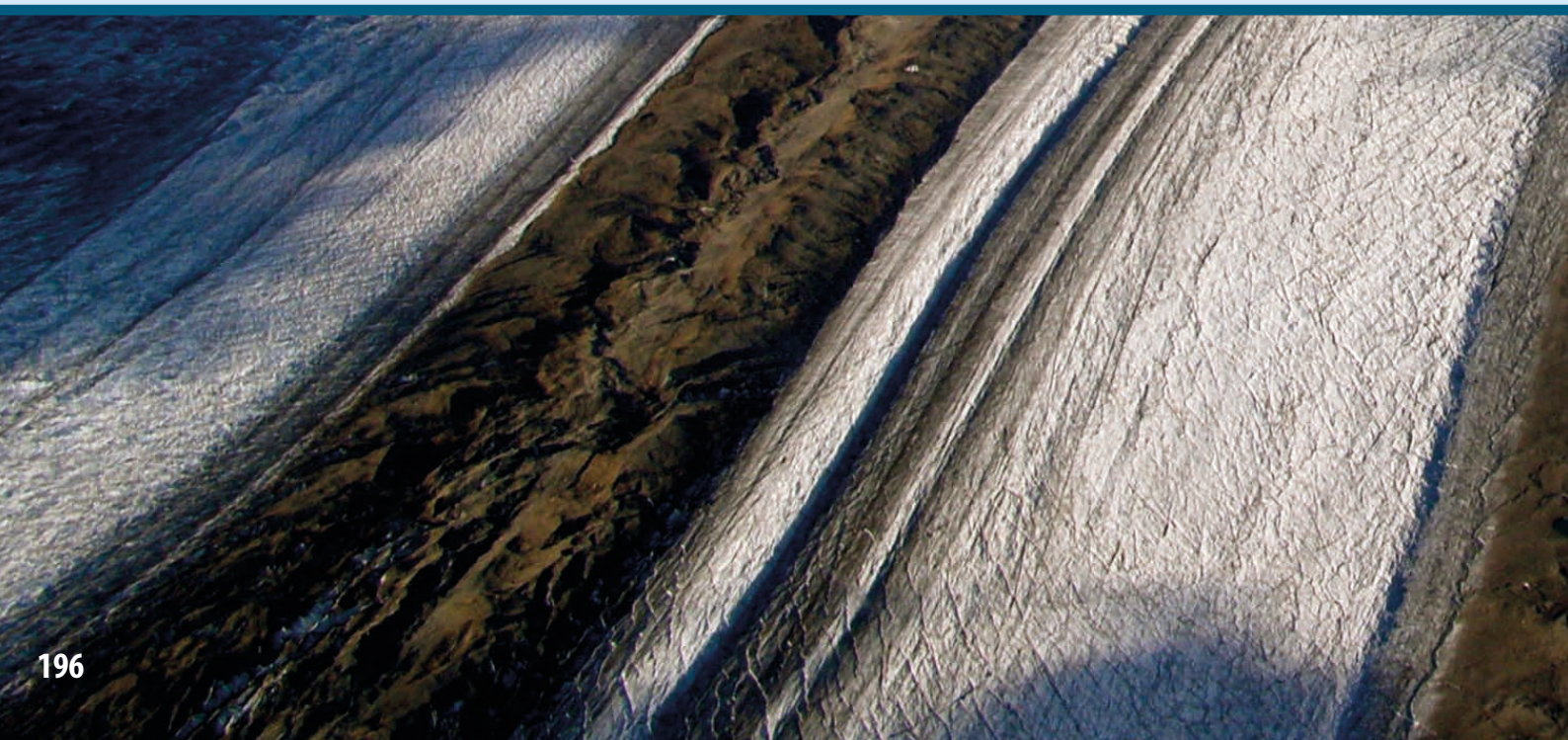
KLRS is located at the shore of Kluane Lake in the southwest corner of the Yukon Territory, Canada. The study area traverses First Nations Traditional Territories, public land, and the Kluane National Park and Reserve. The National Park is a UNESCO World Heritage Site.

BIODIVERSITY AND NATURAL ENVIRONMENT

The location for KLRS was chosen for its easy access to a variety of ecosystems. Within a 30 km radius of the station there are boreal forest, alpine, and ice-cap eco-regions. The ice cap, composed of the St. Elias Mountains, including Mt. Logan, Canada's highest mountain, has a very high density of surge type glaciers. There is extensive alpine, unfragmented boreal forest and grasslands around the KLRS.

HISTORY AND FACILITIES

KLRS was established in 1961 by Walter Wood and the Arctic Institute of North America. Wood had been mapping, photographing, and collecting climate data in the area since 1935. The station has evolved from a few tents beside a military airstrip to a



comfortable base camp providing support for several satellite field camps. Up to 30 researchers can use the facility at a time (from April to September).

GENERAL RESEARCH AND DATABASES

KLRS has hosted a wide variety of disciplines over the last 50 years. The main projects have been related to geology, glaciology and geophysics in the ice-field region, high-altitude physiology on Mt. Logan, a massive collaborative project investigating interactions within the boreal forest over several decades, climate modelling, and remote sensing throughout the region. The KLRS Bibliography can be accessed via www.arctic.ucalgary.ca/research/kluane-lake-research-station. The Arctic Institute of North America also maintains a major data base called ASTIS and publishes the quarterly journal "Arctic".

HUMAN DIMENSION

The study area at Kluane is within the traditional territory of Champagn Aishihik (CAFN), Kluane (KFN), or White River First Nations (WRFN). KFN citizens were very instrumental in the early years of the research station. We now work together sharing information and developing programs that will interest young people in research.

ACCESS

The Station can be accessed by the Alaska Highway via Whitehorse, a community of 25 000, with an international airport receiving at least five flights from major Canadian cities each day. Vehicle rental is available in Whitehorse. The drive to the research station takes two hours on a paved highway.

Category	Sub-Category	Kluane Lake Research Station
Website		www.arctic.ucalgary.ca/research/kluane-lake-research-station
Country		Canada
Opening year		1961
Operational period		April-September, (October- March)
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	sian.williams@ucalgary.ca
Facility owner and manager	Name of the facility owner	Arctic Institute of North America
	Owner status	Government
	Institution responsible for managing the station	Sian Williams, Lance Goodwin
	Contact (access to station)	sian.williams@ucalgary.ca
	Website (institution)	www.arctic.ucalgary.ca
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	61°01′N, 138°24′W
	Altitude of station	793 m a.s.l.
	Min. altitude within study area	790 m a.s.l.
	Max. altitude within study area	5959 m a.s.l.
	Nearest town/settlement	Haines Jct. or Whitehorse (800 or 25 000 inhabitants)
	Distance to nearest town/settlement	65 km Haines Jct, or 210 km Whitehorse
	Map	Map (1:50 000), aerial image, satellite image, Google Earth with high resolution
Climate	Climate zone	Subarctic, Alpine (Boreal Forest)
	Permafrost	Discontinuous
	Years measured	–
	Mean annual temperature	-3.8 °C
	Mean temperature in February	-18 °C
	Mean temperature in July	13 °C
	Mean annual wind speed	3.6 m/s
	Max. wind speed	27.7 m/s
	Dominant wind direction	E
	Total annual precipitation	280 mm
	Precipitation type	Snow, rain
	Ice break up	Kluane Lake: June
Station facilities	Area under roof	1100 m^2
	Scientific laboratories	370 m^2
	Logistic	210 m^2
	Number of rooms (beds)	23 buildings (1 mess, 1 wash house, 4 labs, 2 equipment storage, 2 utilities, 13 cabins with 30 beds)
	Number of staff on station (peak/off season)	5/2
	Max. number of visitors at a time	30
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	30 kW diesel generator, 110/240 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Fume hood, scales, drying ovens
	Scientific services offered	Sharing of equipment and data between principal investigators
Medical facilities	Medical facilities	Standard (first aid)
	Medical suite	–
	No. of staff with basic medical training or doctor	One with current first aid
	Distance to hospital (estimated time)	Nursing station 65 km, hospital 220 km (3-4 hours by ambulance)
	Compulsory safety equipment	–
	Recommended safety equipment	Sat phone or PLB, pepper spray, first aid kit
Landing facilities	Airstrip (Length × Width)	1000 × 30 m (Lake: yes)
	Airstrip surface	Gravel
	Helipad	Yes
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Vehicle (easy access via paved Alaska Highway)
Transport and freight	Transport to station	Plane or vehicle
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
● Ice cap or glacier (30 km)	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
● Deciduous forest	
● Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Grasslands)	

Main science disciplines

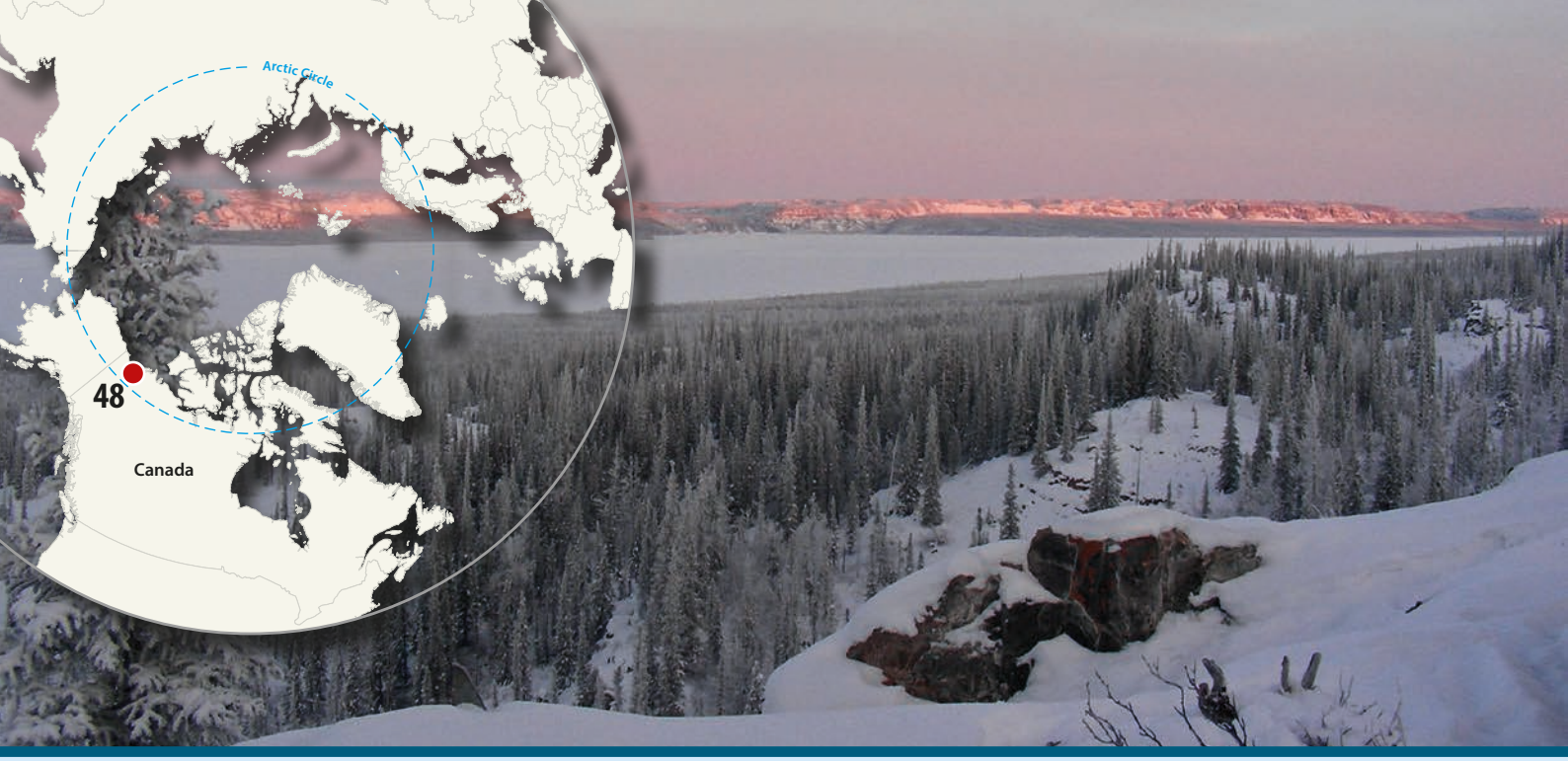
- ● Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet (bandwidth limited)
- ● Computer
- ● Printer
- ● Scanner
- ● Fax



STATION NAME AND OWNER

The Western Arctic Research Centre (WARC) is operated by the Aurora Research Institute and Aurora College. The station is owned by the Government of the Northwest Territories (NWT).

LOCATION

WARC is located in the town of Inuvik, Northwest Territories, in the western Canadian Arctic. WARC provides logistical support for research projects taking place throughout the northern NWT (including the archipelago) and along the northern Yukon coast. There are many protected areas in the vicinity of WARC, including bird sanctuaries, national parks, and territorial parks.

BIODIVERSITY AND NATURAL ENVIRONMENT

Inuvik is located two degrees above the Arctic Circle, but just south of the tree line, in a region underlain by continuous permafrost. The town sits approximately 100 km south of the Beaufort Sea coastline on the eastern edge of the Mackenzie River Delta (13 000 km^2 in area). The delta contains over 45 000 lakes, and experiences some degree of flooding during the ice breakup period each spring. The surrounding landscape includes a wide variety of ecoregions, including tundra, mountains (the Richardson Mountains on the west side of the Mackenzie Delta), coastal zones, and peat plateaus. Characteristic regional fauna include bears, reindeer, caribou, water fowl and shore birds, beluga whales, moose, and a variety of fresh- and salt-water fish.

HISTORY AND FACILITIES

A research centre first opened in Inuvik in 1964; the original facility was torn down in 2010 and replaced with the Western Arctic Research Centre, which opened in 2011. WARC contains

WARC

a conference room, classroom, three laboratories, a research library, a staging area/loading bay, a workshop, and office space for 15 people. Accommodations are a 10-minute walk from WARC in a residential neighbourhood and include four houses each containing six beds, living space, a kitchen, a full bathroom, and laundry facilities. Some extra accommodations are available in the Aurora College dorms during the summer season. WARC can support between 24 and 34 people in our accommodations, and up to 75 in our main facility, at any given time.

GENERAL RESEARCH AND DATABASES

Research undertaken and supported at WARC is wide ranging and includes archaeology, permafrost, limnology, oceanography, geology, spatial information sciences, botany, renewable energy (solar and wind), atmospheric sciences, wildlife, fisheries, and marine mammal health. Social sciences, health sciences, and traditional knowledge studies are also frequently supported. Each year, we support more than 50 separate research projects. The Aurora Research Institute (ARI) maintains the NWT Research Database, which is a searchable database of all research licenses issued by ARI since 1974.

HUMAN DIMENSION

WARC is located in the town of Inuvik (population 3300), which is a regional centre for government and industry. The region surrounding Inuvik is the homeland of the Inuvialuit and Gwich'in indigenous peoples, while the town itself is home to both groups as well as people from many different cultures. The public sector (territorial and Canadian government) is the largest employer, including health care workers, educators, and administrators. The town itself is very well equipped with amenities and services.

ACCESS

Inuvik is accessible via the Dempster Highway for most of the year, except for periods in the spring and fall when both the local ice roads and ferries are not in operation. Air service runs year-round and includes daily jet service from Edmonton, Yellowknife, and Whitehorse. The Inuvik Regional Airport is a 15 minute drive from the town. Depending on destination and season, field transportation can include car/truck, snowmobile, boat, charter plane, or helicopter.

Category	Sub-Category	Western Arctic Research Centre (WARC)
Website		http://nwtresearch.com
Country		Canada
Opening year		1964
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	licence@nwtresearch.com
Facility owner and manager	Name of the facility owner	Aurora College, Government of the Northwest Territories
	Owner status	Government
	Institution responsible for managing the station	Aurora Research Institute
	Contact (access to station)	logistics@nwtresearch.com
	Website (institution)	http://nwtresearch.com
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	68°21′N, 133°43′W
	Altitude of station	15 m a.s.l.
	Min. altitude within study area	0 m a.s.l
	Max. altitude within study area	1700 m a.s.l.
	Nearests town/ settlement	Inuvik (3300 inhabitants)
	Distance to nearest settlement	0 km
	Map	Aerial image, satellite image, Google Earth, topographic maps
Climate	Climate zone	Subarctic
	Permafrost	Continuous
	Years measured	1981-2010
	Mean annual temperature	-8.2 °C
	Mean temperature in February	-25.5 °C
	Mean temperature in July	14.1 °C
	Mean annual wind speed	2.6 m/s
	Max. wind speed	3.4 m/s
	Dominant wind direction	E
	Total annual precipitation	241 mm
	Precipitation type	Snow, rain
	Ice break up	River: May, Lakes: May/June, Coast: June
Station facilities	Area under roof	1320 m^2
	Scientific laboratories	105 m^2
	Logistic	240 m^2 indoors; 3 unheated warehouses and a large, secured yard
	Number of rooms (beds)	4 houses (each with 6 beds, living room, kitchen, bathroom); 10 extra dorm-style beds available during high season (summer); 15 offices, 3 labs, 3 meeting rooms, loading bay/staging area
	Number of staff on station (peak / off season)	18/12
	Max. number of visitors at a time	24 in residence, 75 in research centre
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	120 V, North American 2 and 3 pin plugs
	Power supply	24 hours per day
Scientific equipment	Specific device	Fume hoods, distilled and deionized water, fridge and freezer space, herbarium, and a range of general-use lab equipment
	Scientific services offered	Research licensing support, research library, carpentry and mechanical support, shipping/receiving, gear storage, technical and field support
Medical facilities	Medical facilities	Well equipped; regional hospital open 24 h per day with emergency services (including ambulance)
	Medical suite	Emergency services and staffed hospital in town
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	Less than 1 km, 2 min drive
	Compulsory safety equipment	–
	Recommended safety equipment	First aid kit, satellite phone, wildlife control (bear spray or firearm), GPS
Landing facilities	Airstrip (Length × Width)	Inuvik airport is 1830 × 46 m
	Airstrip surface	Asphalt
	Helipad	Yes, at airport
	Ship landing facilities	Yes, in town
Vehicles at station	Sea transportation	Motor boats (also smaller motor boats and canoes for use in the Mackenzie Delta)
	Land transportation	Car rental in town; station owns snowmobiles and ATV
Transport and freight	Transport to station	Commercial plane, road (via Dempster Highway); cargo can also be shipped to Inuvik by barge
	Number of ship visits per year (period)	Up to 10 (July - September)
	Number of flight visits per year (period)	Several commercial flights per day (year-round)

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
● Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Floodplain, river delta, thermokarst lakes, ice wedge polygons, pingoes)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

CHARS

STATION NAME AND OWNER

The Canadian High Arctic Research Station is owned and managed by the Government of Canada.

LOCATION

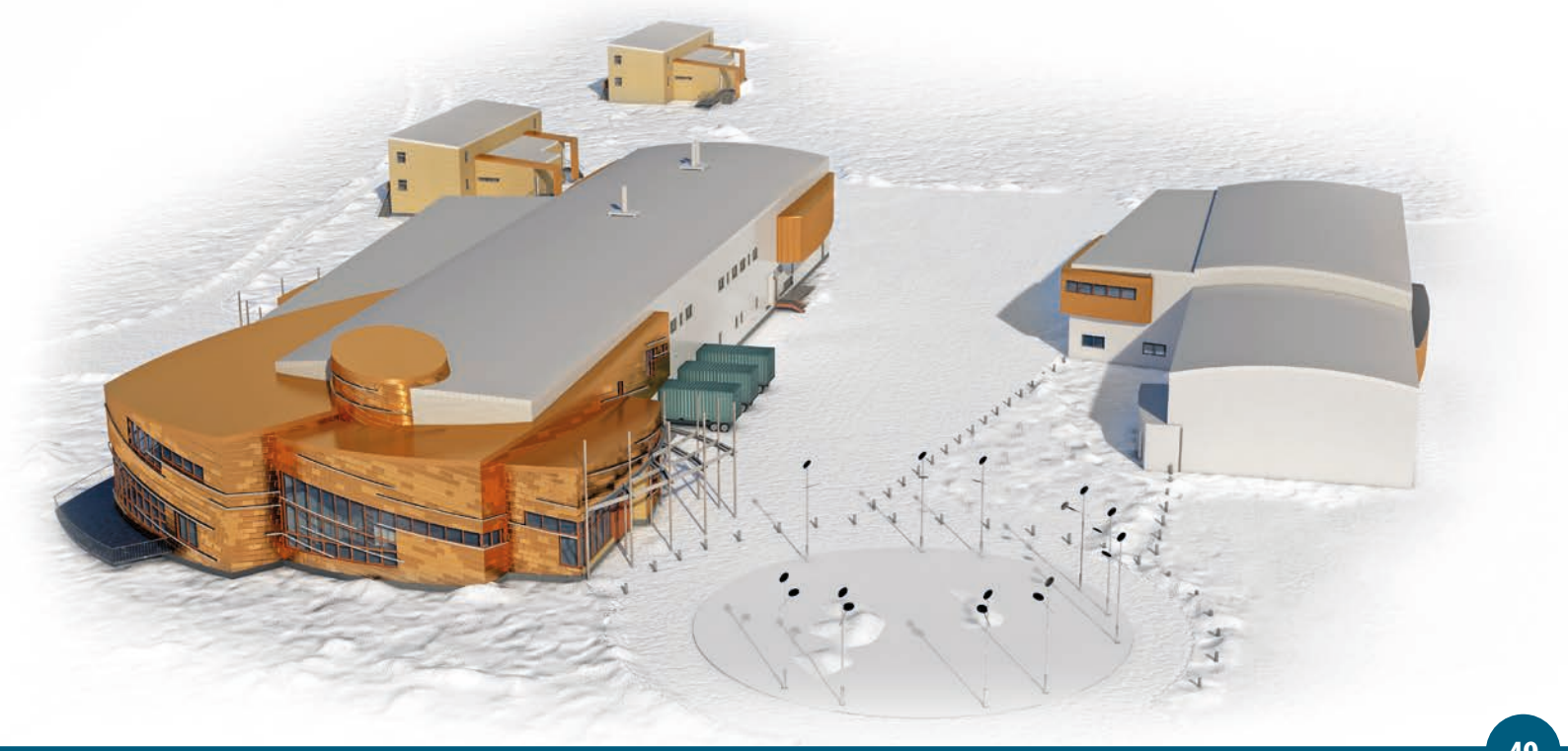
The Canadian High Arctic Research Station (CHARS) is located in Cambridge Bay, Nunavut. The Kitikmeot hamlet's central northern location provides good access to all parts of the Canadian Arctic. The main campus for CHARS is located on the Plateau site in Cambridge Bay, on a slope overlooking the community and the bay. The site is close to other major infrastructure, including the community core.

BIODIVERSITY AND NATURAL ENVIRONMENT

The climate in the Cambridge Bay area is characterised by a high degree of continentality, demonstrated by a large mean annual temperature range (range of ~45°C) and some of the lowest annual precipitation amounts (100–150 mm) encountered in the Canadian Arctic Islands. The annual mean temperature in Cambridge Bay increased by 1.1°C (1961-2010), with most of the warming occurring during the winter months. The bedrock in the Cambridge Bay region and southeastern Victoria Island is Cambrian limestone, and the region hosts a wide range of periglacial landforms, e.g. patterned grounds, solifluction lobes, and thermokarst lakes. Permafrost is nearly continuous, with active layers during summer being <1 m. Bioclimatically, the region is part of the Low Arctic, characterised by a moist tundra with low shrubs, forbs, grasses, and cryptogams. The vascular flora consists of c. 150 plant species. The arthropod fauna around Cambridge Bay is relatively diverse and consists of hundreds of insect and spider species. Cambridge Bay is an important fishing area for arctic char and lake trout, and has a small commercial fishery. Southern Victoria Island is an important staging and nesting area for many migratory birds, particularly waders (shorebirds). It also has sizeable populations of caribou, muskox, arctic hare, arctic fox, and arctic wolf.

HISTORY AND FACILITIES

CHARS was first announced in 2007. Construction of the infrastructure began in 2014 and the station will be operational in time for the 150th anniversary of the Confederation in 2017. It will establish a world-class hub for science and technology in



Canada's North that connects a network of regional facilities. The Station will provide a suite of services for Science and Technology (S&T) in Canada's North, including a technology development centre, knowledge sharing centre, and advanced laboratories. The S&T Program will ensure the new infrastructure supports the planned S&T activities. A five-year planning cycle, starting in 2014, was selected to drive the S&T Program to concrete, measurable results, and to address national priorities.

GENERAL RESEARCH AND DATABASES

The first 5-year Science and Technology Plan will be phased-in beginning in 2014-2015. This Plan outlines the following short-term priorities: (i) information preparedness for development; (ii) alternative and renewable energy; (iii) underwater situational awareness; (iv) predicting the impacts of changing ice, permafrost, and snow on shipping, infrastructure, and communities, and (v) infrastructure for development.

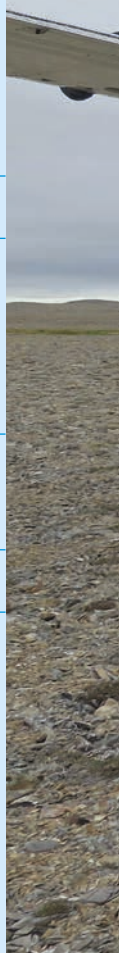
HUMAN DIMENSION

Cambridge Bay (Iqaluktuttiaq in Inuinnaqtun, meaning "good fishing place") is a hamlet located on Victoria Island in the Kitikmeot Region of Nunavut, Canada. The hamlet has a population of c. 1600 people of which about 80% are Inuit. The community is the largest stop for passenger and research vessels traversing the Arctic Ocean's Northwest Passage. Situated between Dease Strait and Queen Maud Gulf on the southeast coast of Victoria Island, part of the Canadian Arctic Archipelago, Cambridge Bay is a transportation and administrative centre for the Kitikmeot Region. The area was a traditional hunting and fishing location and archaeological sites are often found. Barrenground caribou, muskox, arctic char, lake trout, and ringed seal were and remain important primary food sources.

ACCESS

The only passenger services are through the Cambridge Bay Airport with daily air service to Yellowknife, and to the other Kitikmeot Region communities. Although Cambridge Bay lies on the Northwest Passage there are no passenger ships other than tourist cruises and annual sealift to the community. Charter and MEDIVAC (air ambulance) services are available.

Category	Sub-Category	Canadian High Arctic Research Station (CHARS)
Website		www.Science.gc.ca/CHARS and www.Science.gc.ca/SCREA
Country		Canada
Opening year		2017
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– Several kinds of permitting and local consultations required Contact CHARS staff min. 6 months prior to the field season to ensure ample time for preparing the type of research proposed
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Government of Canada Government Canadian High Arctic Research Station CHARS-SCREA@aandc-aadnc.gc.ca www.Science.gc.ca/CHARS and www.Science.gc.ca/SCREA
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	69°07′ N, 105°03′ W 20 m a.s.l. 0 225 m a.s.l. Cambridge Bay, Nunavut (population: 1600) 0 km Maps are in development
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Low Arctic (Zone D - CAVM map) Continuous Since c. 1950 -13.9 °C -32.5 °C 8.9 °C 5.4 m/s 28.1 m/s NW 141.7 mm Snow, rain 22 July
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	Under construction Under construction Under construction Under construction Under construction Under construction Under construction Under construction Under construction Under construction
Scientific equipment	Specific device Scientific services offered	To be decided To be decided
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Medical clinic Fully equiped clininc Clinic has one doctor and many trained nurses; serious cases are medivaced to Yellowknife 0 km First aid kit and staff training; local Inuit guide Firearm
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	1547 m; lands Boeing 737, Hercules, etc Gravel Yes, many Dock for up to 20 m boat; protected bay for mooring large vessels
Vehicles at station	Sea transportation Land transportation	Access to 22 m research vessel – Marty Bergmann; 18′ skiff ATVs, trucks, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Air freight (Canadian North, First Air), annual sea lift, Coast Guard 5 2 daily



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
● Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Ice-wedge polygons)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

M'CLINTOCK CHANNEL

STATION NAME AND OWNER

M'Clintock Channel Polar Research Cabins is a collaboration between Gjoa Haven Hunters and Trappers Organization and Queen's University in Canada.

LOCATION

The M'Clintock Polar Research Cabins are situated along the coast of M'Clintock Channel (68°37' N, 95°52' W), Nunavut in Canada. The nearest community is Uqsuqtuuq (Gjoa Haven) in the Kitikmeot region of Nunavut.

BIODIVERSITY AND NATURAL ENVIRONMENT

In biological science, M'Clintock Channel is possibly most famous for its polar bears. The M'Clintock Channel sub-population estimate is 284 polar bears, based on mark-recapture work completed in 2000. There is low harvest on the polar bears, and the population is thought to be increasing from reduced numbers. The area has the classic flora and fauna of this part of Nunavut, incl. ringed seals, geese, gulls, turns, waders (shorebirds), etc.

The M'Clintock Channel is 274 km long, and between 105 to 209 km wide, making it one of the largest channels in the Canadian Arctic Archipelago.

HISTORY AND FACILITIES

The cabins are maintained by Gjoa Haven Hunters and Trappers Association, and the research is run in collaboration with Queen's University, Kingston, Ontario, Canada.

The community of Gjoa Haven has made significant steps in compiling local Inuit knowledge regarding polar bears. A critical part of this work has been the use of the Hunter and Trapper Organization cabins on the coast of M'Clintock Channel. These cabins are critical staging

points for the extensive sea-ice work involved in the polar bear surveys and the collection of Traditional Ecological Knowledge on polar bears. In 2009-10, the Canadian government's Arctic Research Infrastructure Fund allocated finances to refurbish and upgrading the cabins for scientific and traditional research on polar bear and other wildlife in the region.

GENERAL RESEARCH AND DATABASES

Polar bear research made by scientists supplemented with traditional Inuit knowledge has been the focus of the research at the M'Clintock Channel Research Cabins. For more information, please contact the Gjoa Haven Trappers and Hunters Association.

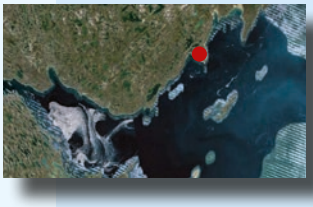
HUMAN DIMENSION

The nearest community is Uqsuqtuuq (Gjoa Haven), a hamlet with a primarily Inuit population of over 1100 people. Gjoa Haven has two grocery stores, a hotel, a police station, a fire department, and a health care facility, as well as local administration offices.

ACCESS

Gjoa Haven has a small airport and an annual sealift. Flight connections are to Yellowknife, Northwest Territories, and destinations in Nunavut, such as Cambridge Bay.

Category	Sub-Category	M'Clintock Channel Polar Research Cabins
Website		–
Country		Canada
Opening year		Cabins refurbished and upgraded 2009
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	degroot@queensu.ca, htogjoa@qiniq.com
Facility owner and manager	Name of the facility owner	A Gjoa Haven Hunters and Trappers and Queen's University, Kingston, Ontario, Canadacollaboraion
	Owner status	NGO and Government
	Institution responsible for managing the station	A Gjoa Haven Hunters and Trappers and Queen's University, Kingston, Ontario, Canadacollaboraion
	Contact (access to station)	degroot@queensu.ca, htogjoa@qiniq.com
	Website (institution)	www.queensu.ca
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	68°37' N, 95°52' W
	Altitude of station	0 m a.s.l.
	Min. altitude within study area	–
	Max. altitude within study area	–
	Nearests town/ settlement	Uqsuqtuuq (Gjoa Haven)
	Distance to nearest settlement	–
	Map	–
Climate	Climate zone	High Arctic
	Permafrost	Continuous
	Years measured	–
	Mean annual temperature	-5.7 °C
	Mean temperature in February	-15.6 °C
	Mean temperature in July	0.9 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	191 mm
	Precipitation type	Snow, rain
	Ice break up	–
Station facilities	Area under roof	Several small cabins along coast
	Scientific laboratories	–
	Logistic	–
	Number of rooms (beds)	–
	Number of staff on station (peak / off season)	Several small cabins along coast
	Max. number of visitors at a time	–
	Showers	–
	Laundry facilities	–
	Power supply (type)	–
	Power supply	–
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	Basic in Gjoa Haven
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	Depends on cabin
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	Flight connections to Yellowknife, Northwest Territories and destinations in Nunavut
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
○ Lake	
○ River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ● Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ○ Telephone
- ○ Satellite phone
- ○ VHF
- ○ E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

STATION NAME AND OWNER

Flashline Mars Arctic Research Station is one of two simulated Mars habitats owned and operated by The Mars Society, Inc. – a U.S. non-profit organisation.

LOCATION

The station is located on Devon Island, a Mars analog environment and polar desert, approximately 165 km northeast of the hamlet of Resolute in Nunavut, Canada (75°25′ N, 89°49′ W). The station is situated on Haynes Ridge, overlooking the Haughton impact crater, a 23 km diameter crater formed approximately 39 million years ago (late Eocene). The location is approximately 1609 km from the Geographic North Pole and approximately 1287 km from the Magnetic North Pole.

BIODIVERSITY AND NATURAL ENVIRONMENT

Because of its relatively high elevation and its extreme northern latitude, Devon Island supports only a meagre population of small birds and mammals, including muskoxen. Animal life is concentrated in the Truelove Lowland area of the island, which has a favorable microclimate and supports relatively lush arctic vegetation. Temperatures during the brief growing season seldom exceed 10 °C and in winter can plunge to as low as -50 °C. With a polar desert ecology, Devon Island receives very little precipitation. Cape Liddon is an Important Bird Area (IBA) notable for its black guillemot and northern fulmar populations. Cape Vera, another IBA site, is also noted for its northern fulmar population. Devon Island is also notable for the presence of the Haughton impact crater, created some 39 million years ago when a meteorite about 2 km in diameter crashed into what were then forests. The impact left a crater approximately 23 km in diameter, which was a lake for several million years.

HISTORY AND FACILITIES

The Flashline Station was built by The Mars Society in 2001, and since then it has been used to conduct planetology studies:

MARS

geological, biological, and climatology studies under conditions similar to those found on Mars, and to develop field tactics based on those explorations, to test habitat design features, tools, and technologies, and to assess crew selection protocols essential to future human spaceflight.

GENERAL RESEARCH AND DATABASES

Experiments at Flashline primarily focus on biodiversity surveys of the arctic desert and geological/geophysical study of the Haughton Crater area. Other experiments included a geophysical analysis of Haughton Crater which answered key questions on the physical characteristics of the 20-million year old meteor crater and examined microfossils in crater soil deposits. Logistics and engineering experiments are also conducted.

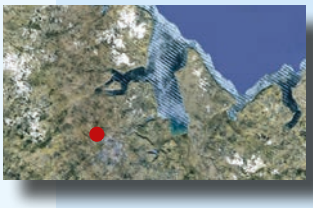
HUMAN DIMENSION

The Mars Society invites researchers to live and work at the station, typically for one month during the arctic summer. Expeditions typically consist of a crew of between six and seven individuals. Typically 1 to 2 months prior to departing for the Canadian Arctic, the crew gathers for an initial face-to-face meeting and training session in Colorado, USA. The station's primary mission is to help develop key knowledge needed to prepare for human Mars exploration, and to inspire the public by making real the vision of human exploration of Mars. The station is 165 km northeast of Resolute/ Qausuittuq, Nunavut, where 80% of the population is Inuit.

ACCESS

Due to the harsh and dangerous environment of the Arctic, crew members must file an application for consideration and complete orientation and training prior to visiting the station. Crew members must travel by commercial airline to Resolute Bay, Canada. There they spend a few days organizing supplies and equipment and conducting some final training while waiting for clear weather. They then board a Twin Otter aircraft for the final leg of the journey to Devon Island. The primary means of crew transportation while on the island is by ATVs.

Category	Sub-Category	Flashline Mars Arctic Research Station
Website		www.fmars.marssociety.org
Country		Canada
Opening year		2001
Operational period		Arctic summer; proposed year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	susanm@marssociety.org
Facility owner and manager	Name of the facility owner	The Mars Society, Inc.
	Owner status	U.S. non-profit corporation
	Institution responsible for managing the station	The Mars Society, Inc.
	Contact (access to station)	susanm@marssociety.org
	Website (institution)	www.marssociety.org
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	75°25′ N, 89°49′ W
	Altitude of station	60 m a.s.l. (approx.)
	Min. altitude within study area	–
	Max. altitude within study area	–
	Nearests town/ settlement	Resolute Bay; population 300
	Distance to nearest settlement	145 km
	Map	Please contact the station manager for additional resources
Climate	Climate zone	High Arctic
	Permafrost	Sporadic
	Years measured	–
	Mean annual temperature	-16 °C
	Mean temperature in February	–
	Mean temperature in July	2 to 8 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	<200 mm (primarily snow)
	Precipitation type	–
	Ice break up	–
Station facilities	Area under roof	7.7 m (25 ft) tall cylinder that measures 8.3 m (27 ft) in diameter
	Scientific laboratories	8.3 m of diameter surface area
	Logistic	160 m^2
	Number of rooms (beds)	First floor: two airlocks, a shower and toilet, a room for the spacesuits, and a combined laboratory and work area. On the second floor are six crew rooms with bunks, a common area, and a kitchen equipped with a gas stove, refrigerator, microwave, oven, and a sink. There is also a loft area accessed by ladder from the second floor which provides storage space and can accommodate a bunk for a seventh crew member.
	Number of staff on station (peak / off season)	Varies
	Max. number of visitors at a time	7
	Showers	1
	Laundry facilities	Only in Resolute Bay
	Power supply (type)	Diesel generators
	Power supply	24 hours per day
Scientific equipment	Specific device	Varies
	Scientific services offered	Free technical support (remote operations); satellite up/downlink; satellite phones
Medical facilities	Medical facilities	Basic safety and first aid
	Medical suite	Only in Resolute Bay
	No. of staff with basic medical training or doctor	Varies
	Distance to hospital (estimated time)	90 air miles
	Compulsory safety equipment	Satellite radio; GPS
	Recommended safety equipment	First aid kit, satellite phone, weapon
Landing facilities	Airstrip (Length × Width)	370 × 18 m
	Airstrip surface	Regolith
	Helipad	Only in Resolute Bay
	Ship landing facilities	Only in Resolute Bay
Vehicles at station	Sea transportation	Only in Resolute Bay
	Land transportation	ATVs; Snowmobiles
Transport and freight	Transport to station	Plane
	Number of ship visits per year (period)	Only in Resolute Bay
	Number of flight visits per year (period)	By reservation only



Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	●
Mountain	○
Valley	○
Lake	○
River	○
Shoreline	○
Tree line	○
Polar deserts/semi-deserts	●
Shrub tundra	○
Gramminoid tundra	○
Forest tundra	○
Peatlands	○
Wetlands	○
Palsa mires	○
Deciduous forest	○
Evergreen forest	○
Human settlements or resource use in the area	○
Other (Impact crater)	●

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ○ Telephone
- ● Satellite phone (Iridium, upon request)
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ○ Scanner
- ○ Fax

PEARL

STATION NAME AND OWNER

Polar Environment Atmospheric Research Laboratory (PEARL) operated by the Canadian Network for the Detection of Atmospheric Change (CANDAC) – an informal university and government consortium. The PEARL Ridge Laboratory building is owned and maintained by Environment Canada and the 0PAL and SAFIRE buildings are owned and maintained by the University of Toronto. Research equipment in the buildings is owned by various university and government organisations.

LOCATION

PEARL is located adjacent to the Environment Canada Weather Station at Eureka, Nunavut, Canada. PEARL operates three facilities: (i) The PEARL Ridge Laboratory (80°03′ N, 86°24′ W, 610 m a.s.l.), (ii) the Zero-Altitude PEARL Auxiliary Laboratory (0PAL) (79°59′ N, 85°56′ W, 10 m a.s.l.), and (iii) the Surface and Atmospheric Flux, Irradiance, Radiation Extension Site (SAFIRE) (79°59′ N, 85°48′ W, 73 m a.s.l.). The area is a land reserve of the Federal government under Environment Canada. The station is situated on the shores of Slidre Fjord. There is no local permanent settlement in the area.

BIODIVERSITY AND NATURAL ENVIRONMENT

The area around PEARL is an arctic desert. The whole area is underlain by permafrost which is exposed in places. The micro-climate is exceptionally mild for this latitude (maximum temperature: 20 °C, minimum temperature: -55 °C). Wildlife includes wolves, muskox, arctic fox, and some caribou as well as migratory birds.

HISTORY AND FACILITIES

The Weather Station at the site has operated for over 60 years. The first research building was constructed in the early 1990s, and PEARL itself was inaugurated in 2006. The laboratories provide housing, facilities for atmospheric (and other) research, instruments, and workshops for maintenance and repair the instruments. Currently there are about 25 instruments operating at the site. Telephone and internet (via geostationary satellite) are available, but with limited bandwidth due to cost. The facility can accommodate 20-40 people at any time of the year.

GENERAL RESEARCH AND DATABASES

The major emphasis at PEARL is on atmospheric research. The original purpose of the installation was to monitor stratospheric

ozone, and although that work is still ongoing, the research has now broadened in scope to encompass the entire atmosphere and beyond. Current measurements include ozone and associated chemicals in the stratosphere as well as the troposphere, aerosols and particulates, radiation and fluxes and upper atmosphere temperatures, winds, and waves. Other research groups including biologists, astronomers, and geologists regularly make use of the nearby Eureka Weather Station as a base. Measurements are regularly submitted to the NDACC, TCCON, and AeroNet databases.

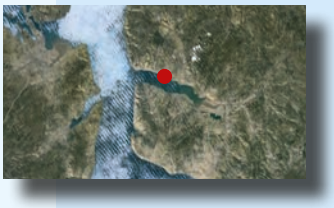
HUMAN DIMENSION

There is no local community. The nearest permanent facilities are the military base at Alert on the north side of Ellesmere Island and the community of Grise Fjord in southern Ellesmere Island. Both of these are about 450 km from PEARL.

ACCESS

Access to the station is by chartered aircraft only, but the site can be accessed at any time of the year. Charter flights can be organised from Iqaluit, Resolute Bay, and Yellowknife. There is an annual sea-lift for bringing in larger equipment and goods. Transport around the site is by 4×4 truck. Many of the instruments on the site are adapted for automatic or semi-automatic operation to reduce the need for on-site support.

Category	Sub-Category	Polar Environment Atmospheric Research Laboratory (PEARL)
Website		www.candac.ca
Country		Canada
Opening year		2005
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes, Eureka Weather Station visitor permit Possibly, Nunavut Research Institute eurekawxstn@ec.gc.ca, www.nri.nu.ca/apps/authoring/dspPage.aspx?page=applications
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	The PEARL RidgeLab is owned and maintained by Environment Canada and the 0PAL and SAFIRE buildings are owned and maintained by the University of Toronto. Research equipment in the buildings is owned by various university and government organisations Informal consortium CANDAC James.drummond@dal.ca, pierre.fogal@utoronto.ca www.candac.ca
Other institutions	Name Country	Polar Environment Atmospheric Research Laboratory Canada
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	PEARL RidgeLab: 80°3′ N, 86°24′ W; 0PAL: 79°59′ N, 85°56′ W; SAFIRE: 79°59′ N, 85°48′ W PEARL RidgeLab: 610 m a.s.l.; 0PAL: 10 m a.s.l.; SAFIRE: 73 m a.s.l. 0 m 610 m a.s.l. Grise Fjord (150 inhabitants) ~ 500 km Google Maps, OpenStreetMap, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous Since c. 1947 -18.8 °C -37.4 °C 6.1 °C 3.1 m/s > 35 m/s SE Snow: 603 mm, rain: 32.5 mm Snow, rain Slidre Fjord typically breaks up in June/July/August
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	PEARL RidgeLab: 550 m^2; 0PAL: 139 m^2; SAFIRE: 15 m^2 PEARL RidgeLab: 118 m^2; 0PAL 125 m^2; SAFIRE: 15 m^2 PEARL RidgeLab: 178 m^2 PEARL RidgeLab: 2 emergency bedrooms, sleeps up to 8 Weather Station: 11 bedrooms, 40 beds PEARL: 2/0; Weather station: 8/8 40 at the Weather Station Yes – at the Weather Station Yes – at the Weather Station Diesel generator operated by Weather Station, 120 V, 240 V, 208 V, 600 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Advanced atmospheric sounding equipment Support for atmospheric measurements. Assistance for other measurements
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	PEARL: Field first aid; Weather Station: Industrial first aid – – 10-14 hour round-trip in air ambulance Proper clothing for conditions VHF radio
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	1460 × 60 m Gravel Not specifically, helicopters land on runway apron Minimal
Vehicles at station	Sea transportation Land transportation	– Pickup-truck, UTV
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Chartered fixed wing aircraft, Coast Guard sealift 1 per year There are about a dozen charter flights per year operated by various organisations



Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake		○
River		○
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands		○
Wetlands		○
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Ground ice)	●	

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	●
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	●
Geology, Sedimentology	●
Geophysics	●
Glaciology	○
Human biology, Medicine	○
Hydrology	○
Isotopic chemistry	○
Limnology	○
Land-use change, Mapping, GIS	○
Marine biology	○
Microbiology	○
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	●
Terrestrial biology – Biodiversity	○
Terrestrial biology – Ecosystem function	○

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	●
Staff available to assist with constructions	●

Communication	
Telephone	●
Satellite phone	○
VHF	●
E-mail	●
Internet	●
Computer	○
Printer	●
Scanner	●
Fax	●

WARD HUNT ISLAND

STATION NAME AND OWNER

The CEN Ward Hunt Island Research Station is owned and run by the Centre d'études Nordiques (CEN: Centre for Northern Studies) in collaboration with Parks Canada (www.pc.gc.ca/index.aspx).

LOCATION

Ward Hunt Island is located at the northernmost tip of Canada, off the coast of northern Ellesmere Island and is part of Quttinirpaaq National Park, Nunavut, Canada (83°06' N, 74°10' W). Quttinirpaaq means "top of the world" in Inuktitut and reflects this station's location, situated about 750 km from the North Pole.

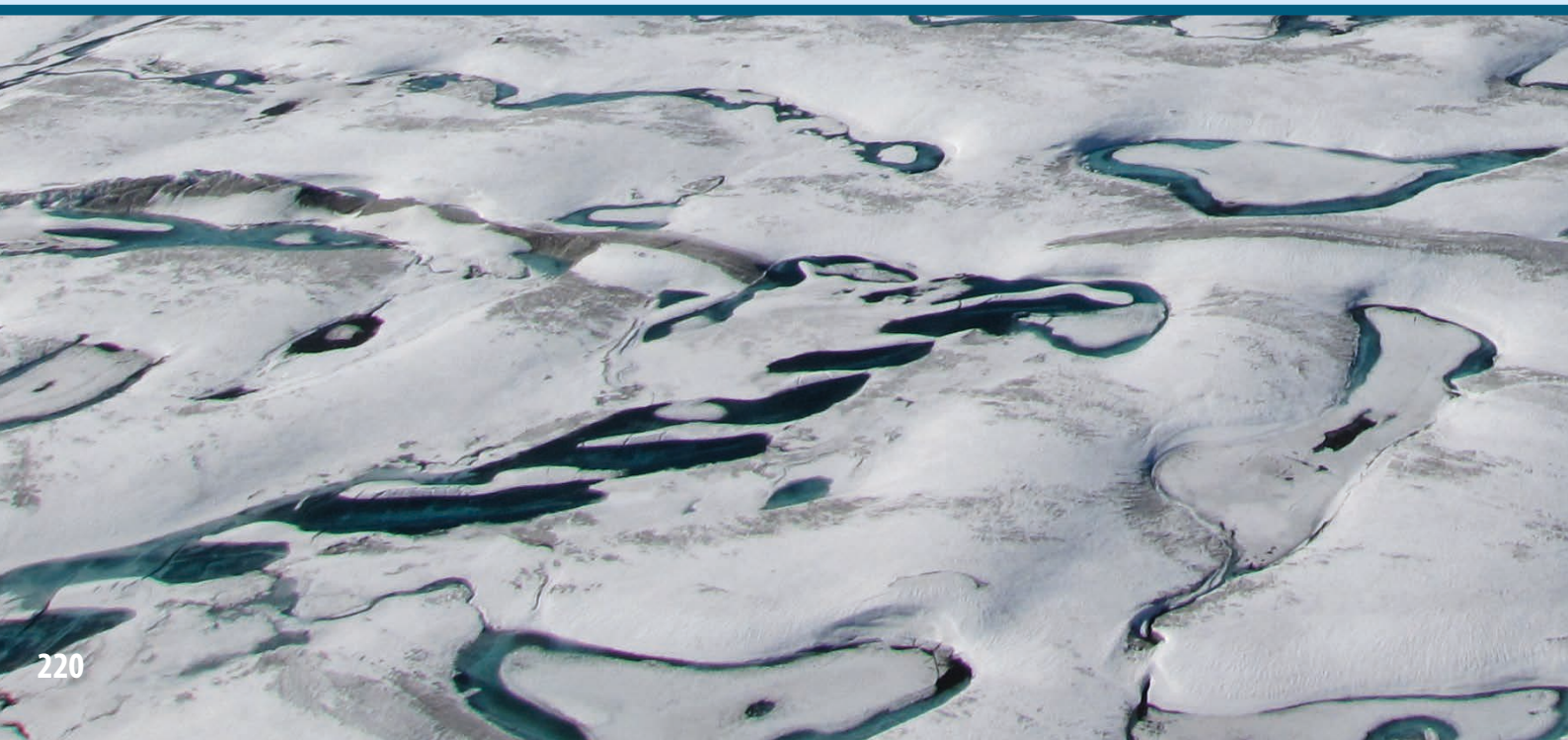
BIODIVERSITY AND NATURAL ENVIRONMENT

This island in the high arctic is 6.5 km long (from east to west) and 3.3 km wide. The climate regime is typical of polar deserts, with dry and extremely cold temperatures (annual mean temperature of -17.3°C). The natural environment features lakes, ice shelves, fjords, epishelf lakes, ice caps and glaciers, sea ice, mountains, and valleys. The desert terrain has a low plant and animal diversity, but the region contains diverse microbial communities such as cyanobacterial mats that survive in these extreme environments. An overview of past studies in this region is given in: Vincent, W.F., et al. 2011: Extreme ecosystems and geosystems in the Canadian High Arctic: Ward Hunt Island and vicinity (Ecoscience 18: 236-261).

HISTORY AND FACILITIES

The first known sighting was in 1876 by Pelham Aldrich, a lieutenant with the George Nares expedition, and named for George Ward Hunt, First Lord of the Admiralty (1874-1877). Ward Hunt Island was briefly used as a weather station during the International Geophysical Year of 1957-58, and since then it has been used as the starting point for a number of attempts to reach the North Pole, beginning with Ralph Plaisted in 1968.

Scientists have been working at the station since the 1950s. Parks Canada has three Weatherhaven shelters with oil burner furnaces, each can host 12 people for sleeping. CEN operates three automated, year-round climate stations of SILA Network in the region. A laboratory made of insulated fiberglass and powered by solar panels was built in 2010 thanks to a federal infrastructure grant.



GENERAL RESEARCH AND DATABASES

Main research fields comprise the structure and functioning of lake and river ecosystems at high latitudes, dynamics of northern ice shelves, microbial ecology, geomorphology of polar desert landscapes, impacts of UV radiation, and Climate Change on aquatic ecosystems. Extensive climate data records are available on the Nordicana D: www.cen.ulaval.ca/nordicanad/. For requests concerning ecological monitoring data, please contact the leading researcher, Warwick Vincent (warwick.vincent@bio.ulaval.ca).

HUMAN DIMENSION

No communities live on Ward Hunt Island. The nearest community is Grise Fjord, located 800 km away on southern Ellesmere Island. Grise Fjord, (Inuktitut: Aujuittuq, "place that never thaws"; Inuktitut syllabics: ᐊᐅᔨᐃᑐᖅ) is a small Inuit hamlet in the Qikiqtaaluk Region in the territory of Nunavut, Canada. With a population of 141 residents (as of the Canada 2006 Census), it is the only Inuit community on Ellesmere Island. It is also one of the coldest inhabited places in the world, with an average yearly temperature of -16.5°C. Grise Fjord lies 1160 km north of the Arctic Circle in the Arctic Cordillera mountain range which is the only major mountain system east of the Canadian Rockies. The Canadian military base Alert is 170 km to the East and slightly to the South of Ward Hunt Island.

ACCESS

Given that this is an extremely isolated station in a national park, all research activities must be planned and proposed at least one year in advance. Contact CEN for more information (cen@cen.ulaval.ca). For information on access and permits, contact Quttinirpaaq Park Manager (www.pc.gc.ca/pn-np/nu/quttinirpaaq/plan.aspx) and the Polar Continental Shelf Project (PCSP) for appropriate application forms to access the site via chartered flights (http://polar.nrcan.gc.ca/).

Category	Sub-Category	CEN Ward Hunt Island Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationwardhunt
Country		Canada
Opening year		1998
Operational period		June-August
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes Via Parks Canada (www.pc.gc.ca/apps/rps/page1_e.asp) and Nunavut Research Institute (www.nri.nu.ca)
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	CEN/Université Laval in collaboration with Parks Canada Government CEN/Université Laval warwick.vincent@cen.ulaval.ca or cen@cen.ulaval.ca www.cen.ulaval.ca, www.pc.gc.ca/eng/index.aspx
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	83°06′ N, 74°10′ W 5 m a.s.l. 0 m a.s.l. 400 m a.s.l. Grise Fjord (150 inhabitants) 800 km Aerial image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous Since 1995 -17.3 °C -33 °C -1 °C 3.3 m/s 29 m/s SSW 150 mm All July or August
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	50 m^2 25 m^2 25 m^2 3 rooms (8 beds), 1 living area, 1 kitchen, 1 lab 0/0 8 to 9 – – Solar and heated by oil and propane, generator on site, 12 V, 24 V, 120 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Some basic laboratory equipment available (microscope/binocular, glassware) Access to extensive climate data records
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	– – – Chartered 2000 km flight to Iqaluit, Nunavut (several hours) Weapon, first aid kit, satellite phone Weapon, first aid kit, satellite phone, pepper spray
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	300 × 40 m Gravel Helicopter lands on level ground –
Vehicles at station	Sea transportation Land transportation	Boat, zodiac for freshwater work –
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Chartered flight, helicopter – –

CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

Features within study area	● Yes ○ No
Ice cap or glacier	●
Permanent snowpatches	●
Mountain	●
Valley	●
Lake	●
River	●
Shoreline	●
Tree line	○
Polar deserts/semi-deserts	●
Shrub tundra	○
Gramminoid tundra	○
Forest tundra	○
Peatlands	○
Wetlands	●
Palsa mires	○
Deciduous forest	○
Evergreen forest	○
Human settlements or resource use in the area	○
Other (High Arctic desert, epishelf lakes, fjords, lakes, coastline, glaciers, glacial features)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	●
Geophysics	●
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	●
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	●
Microbiology	●
Oceanography, Fishery	●
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	○
Satellite phone	●
VHF	●
E-mail	○
Internet	○
Computer	○
Printer	○
Scanner	○
Fax	○

BYLOT ISLAND

STATION NAME AND OWNER

The CEN Bylot Island Field Station is owned and run by the Centre d'études Nordiques (CEN: Centre for Northern Studies) and in collaboration with Parks Canada (www.pc.gc.ca/index.aspx). The CEN secretariat is based at Université Laval, Québec, Canada.

LOCATION

Bylot Island is located off the northern tip of Baffin Island, Nunavut, Canada. It is accessible through the communities of Pond Inlet (Mittimatalik) and Nanisivik, both found on Northern Baffin Island. The field research covers the south plain of the island (1600 km^2), but the research station is located in a large glacial valley at the southwest end of the island (73°08′ N, 80°00′ W).

BIODIVERSITY AND NATURAL ENVIRONMENT

Much of Bylot Island is covered by high mountain peaks and glaciers. The remainder of Bylot Island, and in particular its southern plain, is characterised by extensive low-elevation areas covered by heterogeneous tundra vegetation.

The vegetation found in the wetlands is characterised by the presence of sedges, grasses, and many brown moss species. In contrast to the wetlands, dryer areas are found on slopes, hills and elevated terraces surrounding the valley lowlands, as well as on the rims surrounding tundra polygons. The better drained, dryer soils of these habitats allows for distinct plant communities, including forbs, grasses, and shrubs. These uplands, account for 90% of the south plain surface whereas wetlands account for only 10%. The wetlands of the south plain are a habitat of rare plant quality and productivity for an arctic environment. Benefiting from this "polar oasis" are more than 360 species of plants, 10 mammal species, and 74 bird species. Considered as an important site for many migratory birds, Bylot Island was declared a Migratory Bird Sanctuary in 1965.

The south plain holds one of the world's largest breeding colonies of greater snow geese and the wetlands of the Qarlikturvik valley represent their main brood-rearing site on the island. In addition to the geese, other herbivores are the brown and collared lemmings, Arctic hare, caribou, and rock ptarmigan. The main terrestrial predators are the Arctic fox, long-tailed jaeger, parasitic jaeger, glaucous gull, common raven, and snowy owl. Food web relationships are summarised in Gauthier et al. (2011): Ecoscience 18: 223-235.

HISTORY

The current ecological studies on Bylot Island started in 1988 as a joint collaboration between Université Laval (CEN) and the Canadian Wildlife Service (Quebec region). The initial goals of the study were to initiate a demographic study of the greater snow geese population through a long-term marking program, and to assess the impact of goose grazing on the tundra vegetation. However, over the years, the research program has broadened considerably and now includes many other components of the terrestrial ecosystem.

GENERAL RESEARCH AND DATABASES

A central theme of the research conducted here is trophic interactions in the arctic tundra in relation to environmental changes and greater snow goose ecology, but also long-term monitoring of animal populations, vegetation and climate of the Arctic tundra, impacts of bird populations and Climate Change on lake ecosystems, and geomorphology of ice wedge polygons. Over the years, the Bylot Island research project has grown into one of the largest and longest ecological studies in Nunavut.

Established in 2001, Sirmilik National Park encompasses most of Bylot Island, except for a few pockets that are Inuit-owned lands. Covering an area of 22 000 km^2, this park extends to the northern part of Baffin Island. Sirmilik (which means "place of glaciers" in Inuktitut) reflects the complex of glaciers and ice caps covering most of Bylot Island. Extensive climate data records are available upon request. For requests concerning ecological monitoring data, please contact the lead researcher Gilles Gauthier (gilles.gauthier@bio.ulaval.ca).

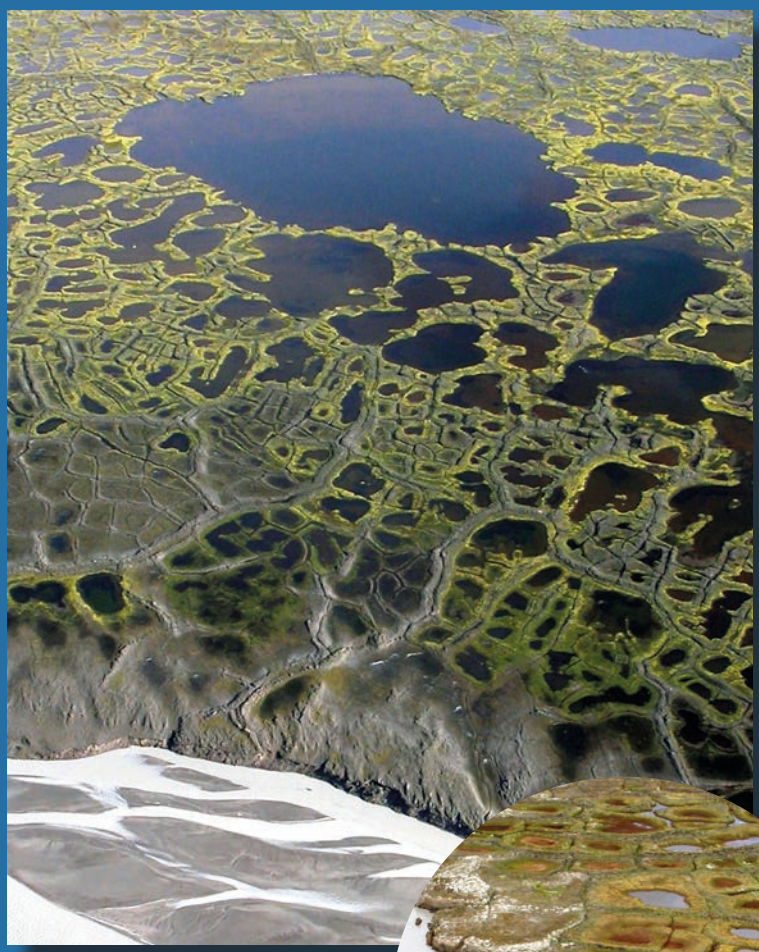
HUMAN DIMENSION

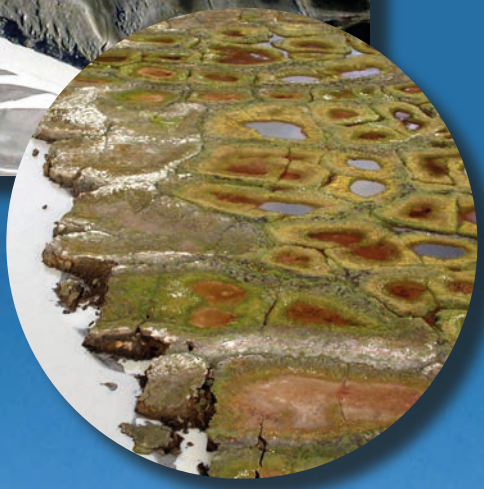
No communities are present on Bylot Island. The nearest community is Pond Inlet (Mittimatalik) found on northern Baffin Island, Nunavut, Canada.

ACCESS

The research station is accessible by chartered flights from Pond Inlet (Mittimatalik). Research must be planned well in advance and coordinated with the station's primary and secondary contacts Gilles Gauthier and Dominique Berteaux (dominique_berteaux@uqar.qc.ca).

Category	Sub-Category	CEN Bylot Island Field Station
Website		www.cen.ulaval.ca/bylot
Country		Canada
Opening year		1989
Operational period		May-August
Permitting issues categories	Permits required for access to the station	Yes (must be required via Parks Canada; www.pc.gc.ca/apps/rps/page1_e.asp)
	Permits required for studies	Yes
	Contact (permit issues)	cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner	CEN/Université Laval in collaboration with Parks Canada
	Owner status	Government
	Institution responsible for managing the station	CEN/Université Laval
	Contact (access to station)	gilles.gauthier@bio.ulaval.ca
	Website (institution)	www.cen.ulaval.ca
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	73°8′ N, 80°00′ W
	Altitude of station	20 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	1300 m a.s.l.
	Nearest town/settlement	Pond Inlet (Mittimatalik; 1300 inhabitants)
	Distance to nearest town/settlement	85 km
	Map	Google Earth with low resolution
Climate	Climate zone	High Arctic
	Permafrost	Continuous
	Years measured	Since 1994
	Mean annual temperature	-15 °C
	Mean temperature in February	-35 °C
	Mean temperature in July	6.1 °C
	Mean annual wind speed	1.9 m/s
	Max. wind speed	9.6 m/s
	Dominant wind direction	E
	Total annual precipitation	220 mm
	Precipitation type	Snow, rain
	Ice break up	Lake: June/July; River: May/June; Sea: July
Station facilities	Area under roof	132 m^2
	Scientific laboratories	26 m^2
	Logistic	106 m^2
	Number of rooms (beds)	3 bedrooms (2 bunkbeds each, 12 beds total), 1 laboratory, 1 kitchen, dome tents are also available
	Number of staff on station (peak/off season)	0/0
	Max. number of visitors at a time	18
	Showers	Yes
	Laundry facilities	–
	Power supply (type)	Solar with a back-up fossil fuel generator (12V/110V), North American two/three-pin plugs (type A/B)
	Power supply	24 hours per day
Scientific equipment	Specific device	Some laboratory equipment available (drying oven, electronic balance, microscope/binocular, glassware)
	Scientific services offered	Access to extensive climate data records
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	– Pond Inlet: nurses only; Iqaluit: doctors and nurses
	Distance to hospital (estimated time)	By plane – Health Centre in Pond Inlet (85 km) and Hospital in Iqaluit (1200 km, duration depends on helicopter availability and weather conditions)
	Compulsory safety equipment	VHF radio
	Recommended safety equipment	Pepper spray, first aid kit, scaring pistol, weapon
Landing facilities	Airstrip (Length × Width)	Twin Otter on skis (until ~31 May; landing on lake 50 m from camp) or wheels (June to August; landing strip 5 km from camp), length unknown
	Airstrip surface	Snow, gravel or clay
	Helipad	Yes (landing area 50 m from camp)
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	Snowmobile (snow season only)
Transport and freight	Transport to station	Commercial flights to Pond Inlet airport only; Twin Otter, helicopter, or snowmobile from there
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	Every week (several times depending of season, May and August)





Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
● Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
● Wetlands	
● Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
● Other (High mountain peaks and glaciers, extensive low-elevation areas covered by heterogeneous tundra vegetation, wetlands, lakes, coastline, glaciers, glacial features, permafrost)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ● Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ● Microbiology
- ○ Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ○ Telephone
- ● Satellite phone
- ● VHF
- ● E-mail (Only one computer for internet and e-mails)
- ● Internet (hi-speed internet currently on)
- ● Computer
- ● Printer
- ○ Scanner
- ○ Fax

CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

IGLOOLIK

STATION NAME AND OWNER

The Igloolik Research Center is owned by the Department of Environment of the Government of Nunavut, CANADA.

LOCATION

The Igloolik Research Center (IRC) with its main building with offices and laboratories, as well as warm and cold warehouses is located in the hamlet of Igloolik, Nunavut, Canada (69°22′ N, 81°48′ W). The center is located on a small island at the northern tip of the Foxe Basin, in between the continent and the large Baffin Island. Additional facilities include stations in Kugluktuk (67°49′ N, 115°06′ W), Arviat (61°06′ N, 94°03′ W), Pond Inlet (72°41′ N, 77°57′ W), and Iqaluit (63°44′ N, 68°31′ W).

BIODIVERSITY AND NATURAL ENVIRONMENT

Igloolik is located in the tundra zone and is part of the northern arctic ecozone. Snow cover usually remains from September to June. Extremely low temperatures are common (-30°C as a mean temperature during winter month). The average precipitation per year is c. 280 mm. Much of the landscape is composed of barren plains covered by frost-patterned soils and rock outcrop.

This area is rich in sea mammals and seabirds, with charismatic polar bears, belugas, and killer whales. The terrestrial wildlife includes in particular caribou (although declining in abundance), Arctic foxes, several waterfowl species, snow geese, falcons, and lemmings.

HISTORY AND FACILITIES

The facility was established by the federal government of Canada in the early 1970s to strengthen research in the Eastern Canadian Arctic. Within the main building, eight offices and two labs lead radially from a central area used for meetings. The research centre supplies local transportation with trucks, snowmobiles, sledges, boats with outboard motors, and ATVs all stored in a warm and a cold warehouse. Biologists, social scientists, and technicians of the Department of Environment, conduct research on a variety of terrestrial wildlife and management issues.

GENERAL RESEARCH AND DATABASES

Research focuses on terrestrial wildlife and habitats with a special mandate on species directly linked to the traditional life of Inuit, i.e. caribou, polar bears, and muskoxen.

The main research objectives of the station are to provide up-to-date information from various sources, including in-house scientific research and Inuit Qaujimajatuqangit, to co-management partners in order to make responsible wildlife management and land use decisions.

Existing data bases include reports and publications arising from research at the station, climate records, terrestrial wildife survey and trends, as well as habitat mapping, wildlife monitoring, and ecosystem modelling.

HUMAN DIMENSION

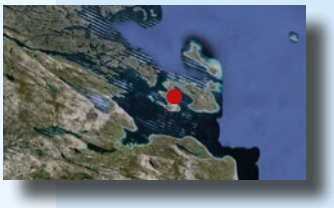
Nunavut is the newest territory in Canada and is one of the most remote and sparsely populated regions in the world. It covers a large area of c. 2 millions km^2. The Igloolik hamlet is located almost centrally in Nunavut and harbores approximately 1600 inhabitants (1/20 of the total population in Nunavut). The traditional Inuit culture still plays a major role in the daily life. Fishing and hunting is very important to local residents, all year round, focusing in particular on caribous, polar bears, seals, and beluga whales.

ACCESS

During the summer, there are commercial plane and boat services available to reach the station.

Regular flights are available from Iqaluit (Nunavut capital), which is connected every day to Montreal and Ottawa. For local transportation the center offers logistical support to researchers working on site and in the larger area. This includes snowmobiles, a 4×4 truck, ATVs, and boats.

Category	Sub-Category	Igloolik Research Center
Website		http://env.gov.nu.ca/wildlife/resources
Country		Nunavut/Canada
Opening year		1975
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes wildlife_research@gov.nu.ca
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Government of Nunavut Government Department of Environment, Government of Nunavut wildlife_research@gov.nu.ca, nlecomte@gov.nu.ca http://env.gov.nu.ca/
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	69°22′ N, 81°48′ W 23 m a.s.l. 0 m a.s.l. 20 m a.s.l. Igloolik (1600 inhabitants) 0 km Map (1:250 000), aerial image, satellite image, Google Earth with high resolution
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous – -13.6 °C -31.2 °C 7 – – NNW 285.9 mm Snow, little rain Lakes: June; sea: August
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	– – – 8 offices, 2 laboratories, 1 canteen, 2 garages (no beds, accomodation possibilities in Igloolik village) 12/12 10 Yes North American systems (Volt). Field generator and regular electricity supply 24 hours per day
Scientific equipment	Specific device Scientific services offered	Different surveying equipment, freezers, microscopes Free technical support; restricted access to extensive ecosystem baseline data
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic – 10 persons with first-aid course 1000 km (5 hours) but a health centre is close-by Weapon, VHF radio, PLB Pepper spray, first aid kit, shot gun for bears
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	1360 × 40 m (commercial airport and lake) Gravel – Port, pontoon, sledges
Vehicles at station	Sea transportation Land transportation	Motor boats ATV, truck, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Persons flight; freight: ship and flight 1 (August) 150 (year-round)



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
○ Valley	
○ Lake	
○ River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Island)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ● Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

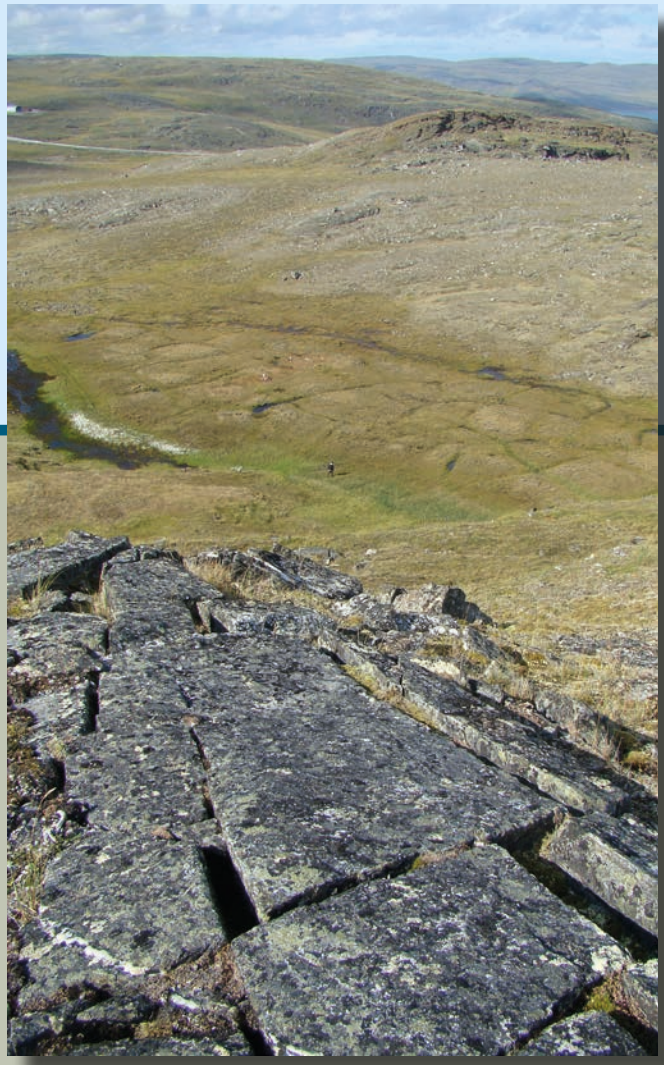
SALLUIT

STATION NAME AND OWNER

CEN Salluit Research Station is owned and run by Centre d'études Nordiques (CEN: Centre for Northern Studies) whose secretariat is based at Université Laval, Québec, Canada.

LOCATION

The station is situated in the Inuit community of Salluit, Nunavik, Québec, Canada (62°12' N, 75°38' W).



BIODIVERSITY AND NATURAL ENVIRONMENT

Salluit is located in the low arctic tundra in the continuous permafrost zone. The hilly bedrock consists principally of gneissic rocks from the Precambrian belonging to the Canadian Shield. The village is located in a valley that opens to the shore of Sugluk inlet (a fjord). The surrounding landscape consists of rocky plateaus with a hilly topography. The region was deglaciated about 8000 years ago and sectors below the elevation of 150 m were inundated by the post-glacial d'Iberville Sea. Till and some glacio-fluvial sediments are the major surficial materials on the plateaus, while the Salluit valley and the other valleys that connect with the fjord (particularly at the fjord head) are floored with fluvial sediments in terraces and marine clay.

The geology and the oceanography of the fjord are poorly studied. The fjord opens to Hudson Strait.

Mean annual air temperature is c. -8 °C and annual precipitation c. 300 mm (50 % snow).

HISTORY AND FACILITIES

Research has been conducted in the region in both natural and human sciences since the early 1960s by various groups. Permafrost research by the CEN began in 1987. In the context of Climate Change, a major research program was undertaken in 2002 to support community adaptation to changing permafrost and to assist the community in addressing housing and infrastructure needs for the rapidly growing population. The field station (a house) was built in 2010 thanks to a grant acquired from a federal research infrastructure program.

GENERAL RESEARCH AND DATABASES

Numerous theses and research papers have been published on permafrost, periglacial geomorphology (ice-wedges, slope processes), archaeology, climatology, paleo-climate (paleo-soils and lake cores), population, culture, and land management in the area. Climate and permafrost temperature data from automatic stations, in operation since August 2002, are available upon request at cen@cen.ulaval.ca. Data available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

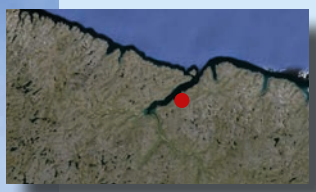
HUMAN DIMENSION

Inuit and their ancestors have occupied the region for over 3500 years. Many of the key archaeological sites of the Hudson Strait region are along the fjord coastline and along Hudson Strait. The shift from a nomadic lifestyle to permanent settlement led to the growth of the village in the 1930s with the installation of the Hudson Bay Company and churches. The population size has reached about 1350 inhabitants, with youths constituting an important part of the population.

ACCESS

Access is by commercial airlines from Montréal and Québec city. Every summer, several cargo ships allow shipping of heavy equipment and materials, though this requires planning in advance. The station has no permanent staff. Local support for services and field work is available in the community. Station users are instructed to do their cleaning and take good care of the premises and do minimal maintenance, if needed. Contact CEN (cen@cen.ulaval.ca) for more information.

Category	Sub-Category	CEN Salluit Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationsalluit
Country		Canada
Opening year		2011
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– – cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	CEN/Université Laval in collaboration with the village of Salluit Government CEN/Université Laval christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca www.cen.ulaval.ca
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	62°12′ N, 75°38′ W 35 m a.s.l. 0 m a.s.l. 460 m a.s.l. Salluit village (1350 inhabitants) 0 km Aerial image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Low Arctic Continuous Since 1997 -3 °C -23.1 °C 9.6 °C 6 m/s 34 m/s SSE 500-600 mm All May or June (year dependant)
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	50 m^2 – – 3 rooms (6 beds plus 1 pullout couch), 1 living room, 1 kitchen 0/0 8 to 9 Yes Yes Solar, electrical, 120 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Local guides and translators available for hire Access to extensive climate data records
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard – Yes – community hospital in village In village, 2 staff with basic medical training (45 min. to Puvirnituq by plane) First aid kit, satellite phone Weapon, pepper spray, satellite phone
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	1174 × 30 m (lake: yes) Gravel Yes Landing wharf and marina in Salluit
Vehicles at station	Sea transportation Land transportation	– ATVs, snowmobiles, 4×4 truck
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Commercial flights 2 (approximately May-June and August-September) Daily (year-round)



CENTRE D'ÉTUDES NORDIQUES
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Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra		○
Forest tundra		○
Peatlands		○
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Permafrost (ice-rich), glacial features, Pingaluit National Park, coast, rivers, lakes, fjords, thermokarst lakes)	●	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop (in village)
- ● Wood workshop (in village)
- ● Plexiglas workshop (in village)
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail (available in village)
- ● Internet (access via rented router to use with personal computer)
- ○ Computer
- ● Printer (available in village)
- ● Scanner (available in village)
- ● Fax (available in village)

BONIFACE RIVER

STATION NAME AND OWNER

The CEN Boniface River Field Station is owned and run by the Centre d'études Nordiques (CEN: Centre for Northern Studies) whose secretariat is based at Université Laval, Québec, Canada. This station is part of the CEN Network.

LOCATION

The CEN Boniface River Field Station is situated within the forest tundra less than 10 km from the tree limit and some 30 km inland from Hudson Bay (57°45′ N, 76°10′ W).

BIODIVERSITY AND NATURAL ENVIRONMENT

The landscape around the station is composed of both wooded hills (30 %) and hills dominated by tundra vegetation (70 %). The most protected sites are generally forested except for areas that have been affected by fire and consequently induced an opening in the forest cover. Landscape features of scientific interest are discontinuous permafrost, thermokarst ponds, palsas, the Boniface River, and the treeline.

HISTORY AND FACILITIES

The CEN Boniface River Field Station was constructed in 1985 by Professor Serge Payette to conduct research on past treeline and tree growth dynamics in the context of Climate Change. It was upgraded in 2010. Presently, the station is comprised of three individual buildings (one with a shower) that serve primarily as laboratories and a kitchen building. These are powered by solar energy and heated with an oil furnace. Onsite there are two zodiac-style boats. Access to the different research sites is primarily by helicopter or by the Boniface River, which is navigable for some 20 km. Dormitory tents and sleeping bags for researchers and students can be provided by the CEN. Typically, between five and twenty people can be found at the research station during the summer season.

GENERAL RESEARCH AND DATABASES

Meteorological stations installed within the proximity of the research station have been recording the prevailing conditions at the tree limit, including the thermal contrast (air and soil) between tundra and forest environments, since 1988. In addition, tree growth has been measured with the aid of a dozen electronic dendrometers since the summer of 2005. Data available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

Topics which are studied at the station include the following, but are not exclusive to these: Vegetation dynamics of a subarctic topo-sequence and the interaction between climate and forest fires, genetic homogeneity in the ecological heterogeneity of Québec subarctic forests in relation to climatic change, black spruce growth as an indicator of Climate Change at the treeline in northern Quebec, origin and dynamics of wooded palsas in the Boniface River region, dwarf birch *(Betula glandulosa)* densification since 1950, the influence of permafrost on riverine ecosystem dynamics, fire history of the Boniface River region, long black spruce tree-ring chronology, riparian ecosystem dynamics, Holocene evolution of a palsa plateau at the tree limit, and structural dynamics of an ancient spruce lichen woodland at the northern forest limit.

HUMAN DIMENSION

No communities live at or near Boniface River Field Station. The nearest community is Inukjuak more than 120 km away and on the shores of eastern Hudson Bay.

ACCESS

Beginning in the summer of 2001, supplies for the research station have been delivered primarily by fixed winged aircraft, i.e. Twin Otter, thanks to the construction of a 300 m long airstrip situated on the opposite shore of the research station. Access to the station is by chartered helicopter or Twin Otter, departing from Whapmagoostui-Kuujjuarapik.

Category	Sub-Category	CEN Boniface River Field Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationboniface
Country		Canada
Opening year		1988
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– – cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	CEN/Université Laval Government CEN/Université Laval christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca www.cen.ulaval.ca
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	57°45′ N, 76°10′ W 100 m a.s.l. 90 m a.s.l. 300 m a.s.l. Umiujaq and Inukjuak (< 400 inhabitants) 130 km Aerial image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic Discontinuous Since 1988 -4 °C -24 °C 12.5 °C 4 m/s 21 m/s S 500 mm All May or June (year dependent)
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	50 m^2 25 m^2 25 m^2 2 rooms (6 beds under 2 roofs), 1 living area, 1 kitchen 0/0 8 to 9 Yes – Solar, wind and heated by oil, 12 V, 24 V, 120 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Local guides and translators available for hire Access to extensive climate data records
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	– – – Heli lifted out of Umiujaq and then 45 min. to Puvirnituq (by plane, 1-2 hours in total) Weapon, satellite phone Pepper spray, weapon, first aid kit
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	300 × 40 m (lake: yes) Sand Helicopter lands on level ground –
Vehicles at station	Sea transportation Land transportation	Boat, zodiac Snowmobile in winter
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Chartered helicopter or floatplane, Twin Otter in winter – –

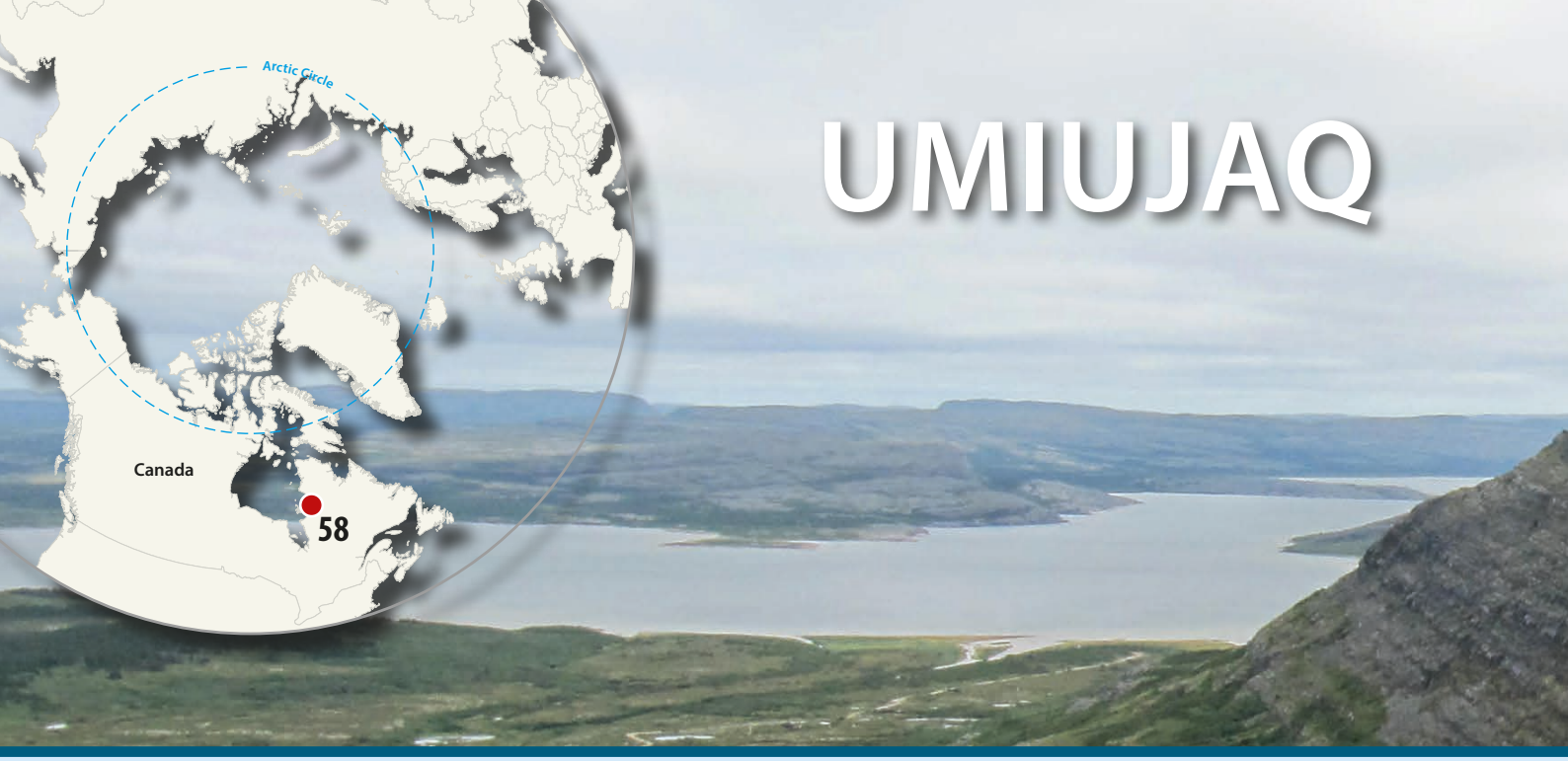
CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain		○
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra		○
Forest tundra	●	
Peatlands	●	
Wetlands	●	
Palsa mires	●	
Deciduous forest		○
Evergreen forest	●	
Human settlements or resource use in the area		○
Other (Thermokarst lakes, permafrost, river(s), peatlands, lakes, glacial features)	●	

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	○
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	●
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	○
Geophysics	○
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	●
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	○
Oceanography, Fishery	○
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	○
Satellite phone	●
VHF	●
E-mail	○
Internet	○
Computer	○
Printer	○
Scanner	○
Fax	○



UMIUJAQ

STATION NAME AND OWNER

The Umiujaq Research Station is owned and run by the Centre d'études Nordiques (CEN: Centre for Northern Studies) whose secretariat is based at Université Laval, Québec, Canada. This station is part of the CEN Network.

LOCATION

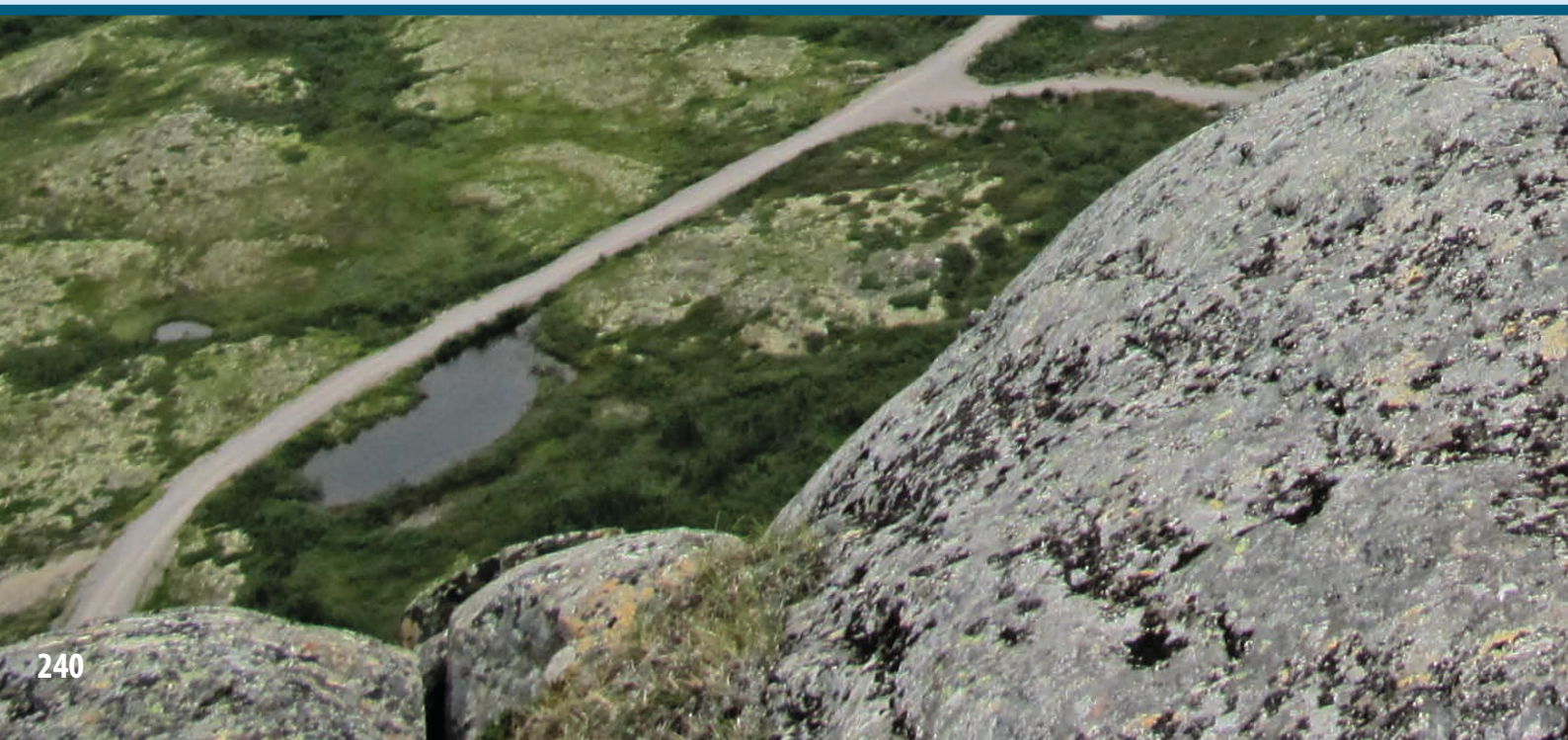
The station is in the village of Umiujaq, situated on the shores of the eastern Hudson Bay in Nunavik, Québec, Canada (56°33' N, 76°32'W).

BIODIVERSITY AND NATURAL ENVIRONMENT

The village is located 15 km north of Richmond Gulf (Lac Guillaume-Delisle), an immense inland bay connected to the Hudson Bay via a rocky gulch resembling a canyon. The many rivers flowing into the Gulf make its waters brackish and rich in brook trout, whitefish, seal, and beluga. The sheltered maritime environment features sporadic black spruce and larch, but the surrounding area is rather characterised by shrub tundra, discontinuous permafrost (mostly palsa bogs), and thermokarst lakes. In front of the village are the Nastapoka Islands (cuestas) where many species of birds, such as common loons, eider ducks, and peregrine falcons, find summer shelter and nest. The steep cliffs plunge into the Nastapoka Sound with waters up to 110 m deep. About 30 km north of Umiujaq is the Nastapoka River with its scenic 30 m high falls. The river estuary is extraordinarily rich and diverse with landlocked freshwater seals, salmon, and many fish species. Access to the Tursujuq Provincial Park, as well as to the marine/coastal-, river-, lake-, mountainous-, deltaic-, and shrub tundra environments, and the migrating treeline, is from Umiujaq.

HISTORY AND FACILITIES

Umiujaq was established in 1986 by Inuit from Kuujjuarapik, 160 km to the south, who decided to relocate in the region where they hoped to better preserve their traditional lifestyle in an area where fish and game were not threatened by development. CEN's research has been conducted here since 1980. In previous years, CEN researchers used a meat plant/warehouse that has shared ownership (CEN, Anniturvik Landholding Corporation, and Makivik Corporation). In 2010, CEN undertook major station upgrades and restored the warehouse (still shared with its partners), built a vehicle garage, and a three-bedroom



house. The facility is next to a pier for easy maritime access and can accommodate seven to eight people at a time. The house is equipped with partial solar powered electricity, running water (kitchen, toilet, and laundry), and oil heating.

GENERAL RESEARCH AND DATABASES

Past and present research has focused on permafrost studies, coastal geology, and geomorphological characterisation of the region. Other research topics cover biodiversity and dynamics of northern aquatic ecosystems, impacts of thawing permafrost in the context of global warming, wetlands paleoecology, research on mercury dynamics (air, precipitation, snow), snow and ice dynamics, greenhouse gas emissions from thermokarst ponds and tundra, sea and lake bottom mapping, and plant community dynamics and response of northern plants to Climate Change. Archeological studies and community based monitoring activities have also taken place. CEN operates four climate stations in the area and thermistor cables are installed to monitor permafrost temperature. CEN has extensive climate data since 1997 which are available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

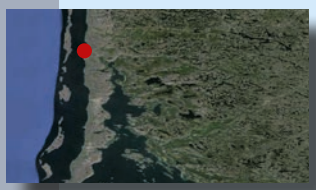
HUMAN DIMENSION

Umiujaq has a population of about 500 inhabitants, mainly Inuit. The people speak Inuktitut and English with some French. Some research on the social dimensions has been conducted over time.

ACCESS

Umiujaq is only accessible by commercial airlines. All research activities must be planned in advance. Maritime transport is available twice a year. Local guides and translators are available for hire. Access to the surrounding area by chartered flights (floatplane and helicopter) can be organized by CEN from the Whapmagoostui-Kuujjuarapik Research Station. Contact CEN (cen@cen.ulaval.ca) for more information.

Category	Sub-Category	CEN Umiujaq Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationumiujaq
Country		Canada
Opening year		2011
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner	CEN/Université Laval in collaboration with Makivik Corp. and the village of Umiujaq
	Owner status	Government
	Institution responsible for managing the station	CEN/Université Laval
	Contact (access to station)	christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca
	Website (institution)	www.cen.ulaval.ca
Other institutions	Name	Nunavik Research Institute (www.makivik.org) and Anniturvik Landholding Corporation
	Country	Canada
Location	Geographical coordinates	56°33′N, 76°32′W
	Altitude of station	5 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	400 m a.s.l.
	Nearest town/settlement	Umiujaq village (400 inhabitants)
	Distance to nearest town/settlement	0 km (station in village)
	Map	Aerial image, Google Earth
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	Since 1997
	Mean annual temperature	-3 °C
	Mean temperature in February	-22.4 °C
	Mean temperature in July	12.2 °C
	Mean annual wind speed	5.9 m/s
	Max. wind speed	28.3 m/s
	Dominant wind direction	S
	Total annual precipitation	500-600 mm
	Precipitation type	All
	Ice break up	May or June (year dependant)
Station facilities	Area under roof	50 m^2
	Scientific laboratories	100 m^2
	Logistic	Garage 60 m^2
	Number of rooms (beds)	3 rooms (6 beds plus 1 pullout couch), 1 living room, 1 kitchen
	Number of staff on station (peak/off season)	0/0
	Max. number of visitors at a time	8 to 9
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Solar, hydroelectric, 120 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Local guides and translators available for hire
	Scientific services offered	Access to extensive climate data records
Medical facilities	Medical facilities	Standard
	Medical suite	–
	No. of staff with basic medical training or doctor	Yes – community hospital in village
	Distance to hospital (estimated time)	In village, 2 staff with basic medical training (45 min. to Puvirnituq by plane)
	Compulsory safety equipment	First aid kit, satellite phone
	Recommended safety equipment	Weapon, pepper spray
Landing facilities	Airstrip (Length × Width)	1174 × 30 (lake: yes)
	Airstrip surface	Gravel
	Helipad	Yes
	Ship landing facilities	Port, landing wharf, pier, sledge rental in village
Vehicles at station	Sea transportation	Upcoming 26 foot aluminum Silver Dolphin equiped with bottom mapping
	Land transportation	ATVs, snowmobiles, 4×4 truck
Transport and freight	Transport to station	Commercial flights
	Number of ship visits per year (period)	2 (approximately May-June and August-September)
	Number of flight visits per year (period)	Daily (year-round)



CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ○ Permanent snowpatches
- ○ Mountain
- ● Valley
- ● Lake
- ● River
- ● Shoreline
- ● Tree line
- ○ Polar deserts/semi-deserts
- ● Shrub tundra
- ○ Gramminoid tundra
- ● Forest tundra
- ● Peatlands
- ● Wetlands
- ● Palsa mires
- ○ Deciduous forest
- ● Evergreen forest
- ● Human settlements or resource use in the area
- ● Other (Thermokarst lakes, cuestas, permafrost, isostatic uplift, raised beaches, glacial features, landlocked marine species, migrating treeline, deltaic environments)

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop (in village)
- ● Wood workshop (in village)
- ● Plexiglas workshop (in village)
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail (available in village)
- ● Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

STATION NAME AND OWNER

The CEN Whapmagoostui-Kuujjuarapik Research Station is owned and run by the Centre d'études Nordiques (CEN: Centre for Northern Studies) with its secretariat based at the Université Laval, Québec, Canada. It is on Cree land and is run in collaboration with the Cree First Nation of Whapmagoostui.

LOCATION

The CEN Whapmagoostui-Kuujjuarapik Research Station (55°16′N, 77°45′W) is located on the eastern shore of Hudson Bay at the maritime limit of James Bay, and in the adjacent villages of Whapmagoostui (Cree First Nation) and Kuujjuarapik (Inuit).

BIODIVERSITY AND NATURAL ENVIRONMENT

The climate at Whapmagoostui-Kuujjuarapik is strongly influenced by the proximity of Hudson Bay, and the recent pronounced loss of sea ice in this sector of northern Canada has been accompanied by large increases in air temperature. Discontinuous or scattered permafrost occurs throughout the region and is degrading rapidly. Whapmagoostui-Kuujjuarapik is located at the terrestrial boundary between taiga and tundra. South of the Great Whale River is the taiga zone (Boreal forest), while north of the river, the forest tundra zone progressively dominates the landscape. The vegetation type is coastal forest tundra, with some 400 recorded species. Parabolic dunes occur along the coast and are strongly influenced by plant cover. Paleoecological studies have documented the Holocene evolution of landscapes, including lakes, wetlands, and forests. The Manitounuk Islands, located just a little north along the coast, are part of the Hudsonian cuestas that are characterized by rocky beaches and vertiginous cliffs.

HISTORY AND FACILITIES

The first signs of human occupation in the Whapmagoostui-Kuujjuarapik region have been dated at 3800 BP. In the past, the English name Great Whale and the French name Poste-de-la-Baleine have been used to designate this community. The Hudson Bay Company (HBC) established the first fur trade post here in 1750 and marked the onset of continuous occupation.

This station is the CEN's principal field station and has operated since the 1970s, with diverse research projects on past and present environments. In 2010, major upgrades to the station were undertaken, consisting of the construction of a state-of-art

WHAPMAGOOSTUI-KUUJJUARAPIK

Community Science Centre to serve the needs of the circumpolar science community for research planning, information exchange, national research workshops, and coordination of field operations, and the local communities for information exchange, identification of northern research needs, science training of northerners, exchange of traditional knowledge, and outreach activities. The centre offers a conference room with a capacity for 50 participants, a permanent, interactive display on local natural history and on CEN research activities. In addition to this new building, the station also has wet and dry laboratories, a greenhouse, a dormitory, a cafeteria (with full-meal services during the summer season), vehicles for rent, wireless internet, rental of sampling and camping equipment, and an onsite station manager.

GENERAL RESEARCH AND DATABASES

Current projects include work on biodiversity and dynamics of northern aquatic ecosystems; impacts of thawing permafrost in the context of global warming; wetland paleoecology; restoration of vegetation in degraded sites, and research on mercury dynamics (in relation to air, precipitation, snow). An overview of past studies in this region is given in: Bhiry, N., et al., 2011: Ecoscience 18: 182-203. CEN operates several climate stations in the area. In addition to the available scientific literature, CEN has extensive climate data recorded since 1957 which are available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

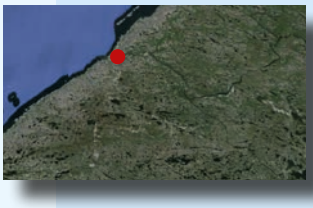
HUMAN DIMENSION

This bicultural community represents the ancestral limit of the Cree and Inuit territories. It is both the northernmost Cree community and the southernmost Inuit community in Quebec. Whapmagoostui-Kuujjuarapik has a population of about 1600 inhabitants. The spoken languages are Cree, Inuktitut, and English with some French. Rapid social, economic, and environmental change, initiated in the mid-20th century, continues to this day.

ACCESS

Whapmagoostui-Kuujjuarapik is only accessible by commercial airlines. All research activities must be planned well in advance. Local guides and translators are available for hire. Access to the surrounding area by chartered flights, boat, and ATVs can be organized by the station manager.

Category	Sub-Category	CEN Whapmagoostui-Kuujjuarapik Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationkuujjuarapik
Country		Canada
Opening year		1971
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner	CEN/Université Laval in collaboration with Cree First Nation Government
	Owner status	
	Institution responsible for managing the station	CEN/Université Laval
	Contact (access to station)	christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca
	Website (institution)	www.cen.ulaval.ca
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	55°16′ N, 77°45′ W
	Altitude of station	50 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	140 m a.s.l.
	Nearest town/settlement	Whapmagoostui (1400 inhabitants, communities of Whapmagoostui and Kuujjuarapik combined)
	Distance to nearest town/settlement	0 km (station in town)
	Map	–
Climate	Climate zone	Subarctic/Boreal
	Permafrost	Discontinuous
	Years measured	Since 1957
	Mean annual temperature	-4 °C
	Mean temperature in February	-22.4 °C
	Mean temperature in July	12.7 °C
	Mean annual wind speed	4.7 m/s
	Max. wind speed	26.9 m/s
	Dominant wind direction	ESE (changes to WNW in winter)
	Total annual precipitation	648 mm
	Precipitation type	All
	Ice break up	River and sea in May
Station facilities	Area under roof	5860 m^2
	Scientific laboratories	1260 m^2
	Logistic	948 m^2
	Number of rooms (beds)	13 rooms (28 beds)
	Number of staff on station (peak/off season)	3/1
	Max. number of visitors at a time	28
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Solar, electrical, 120 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Laboratory equipment: wet and dry lab, drying oven, electronic balance, microscope/binocular, glassware, greenhouse
	Scientific services offered	Greenhouse available for experiments; access to extensive climate data records
Medical facilities	Medical facilities	Well equipped (standard)
	Medical suite	Yes
	No. of staff with basic medical training or doctor	CLSC in village (community hospital) with 4 nurses, 1 doctor
	Distance to hospital (estimated time)	180 km; 1 hour to Chisasibi (by plane)
	Compulsory safety equipment	–
	Recommended safety equipment	Pepper spray, satellite phone, weapon
Landing facilities	Airstrip (Length × Width)	1531 × 45 m (lake: yes)
	Airstrip surface	Gravel
	Helipad	Yes
	Ship landing facilities	Port, landing wharf, pier, pontoon
Vehicles at station	Sea transportation	Motor boat, freighter, zodiac
	Land transportation	Trucks (4×4), ATVs, snowmobiles, bicycles
Transport and freight	Transport to station	Commercial flights, helicopter, ship
	Number of ship visits per year (period)	3 cargos, 1 barge (June and August, September and October)
	Number of flight visits per year (period)	2 flights per day (year-round)



CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
○ Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
○ Gramminoid tundra	
● Forest tundra	
● Peatlands	
● Wetlands	
● Palsa mires	
○ Deciduous forest	
● Evergreen forest	
● Human settlements or resource use in the area	
● Other (Trees are present, below treeline; thermokarst lakes, cuestas, sporadic permafrost, isostatic uplift, raised beaches, glacial features, deltaic environments, sand dunes)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop (in town)
- ● Wood workshop (in town)
- ● Plexiglas workshop (in town)
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

RADISSON

STATION NAME AND OWNER

CEN Radisson Ecological Research Station (Station de recherche écologique de Radisson). The station is the property of the Radisson municipality. It is run and operated by the following three member institutions of the Centre d'études Nordiques (CEN: Centre for Northern Studies): Université Laval, Université du Québec à Rimouski and Centre Eau, Terre et Environnement of the Institut national de la recherche scientifique. The station has a long-term lease with the municipality. The CEN secretariat based at Université Laval oversees the management of the station. This station is part of the CEN Network, more precisely the Qaujisarvik Network of stations, and is the most southerly station of the network at 53°N.

The vast expanse of the Québec territory, adjacent to James Bay, is administered by the Société d'énergie de la Baie James which is a subsidiary of Hydro Québec. Hydro Québec is responsible for emergency services and requires an annual logistical and security plan for all visitors.

LOCATION

The station is in the centre of the village of Radisson (53°47'N, 77°37'W), a small village of approximately 350 inhabitants situated on the margins of the Robert-Bourassa hydroelectric dam (LG2), which is part of the La Grande River hydroelectric complex.

BIODIVERSITY AND NATURAL ENVIRONMENT

Radisson is surrounded by the eastern Canadian Shield taiga with Boreal forest that is dominated by black spruce and grey pine. The region is relatively poor in terms of plant species diversity with a count of about 350 vascular plant species, yet the diversity in wildlife is rich with forty mammal and sixty bird species. Forest fires are a very dynamic element of the region, sculpting the landscape into natural mosaics nested between rocky hills which confine the lower wetlands (mainly lakes and bogs). Radisson is situated in a postglacial marine invasion with limited drainage due to the presence of clay in the lowlands.

From 1989 to 1996, fires within the town of Radisson considerably changed the landscape. The region has been studied and monitored extensively since 1974 in the context of the development of the hydroelectric complex. Consequently, Hydro-Québec and the Société d'énergie de la baie de James have produced several syntheses on the area.

HISTORY AND FACILITIES

Researchers from the CEN have been working in this region since 1994, but the station was established in 1999 and was upgraded in 2010. The facility consists of three houses (3 bedrooms each), with a total capacity for 25 people, a laboratory building with a chemical hut, a meeting room, and a workshop.

GENERAL RESEARCH AND DATABASES

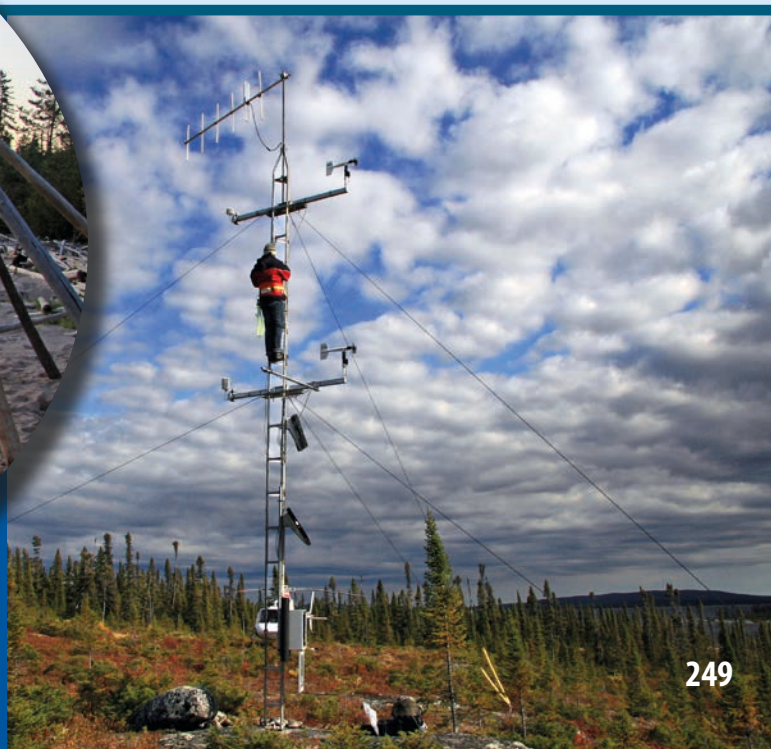
Past research has focused on regional ecosystem dynamics, specifically on the response of the forest to disturbances such as fire and insect outbreaks, dendrochronology, riparian vegetation, snow, secular variations in water levels, hydrology, climate and reservoirs, greenhouse gas emission by reservoirs, and limnology. Research topics have covered issues on wildlife (birds, caribou, small mammals, and fish) and vegetation (biodiversity). CEN operates three climate stations in the area, one of which is near the town, another is in the centre of the LG2 reservoir, and a third is approximately 350 km inland on an island of the LaForge 1 reservoir. Besides scientific literature, CEN has also collected extensive climate datasets since 1996, which are available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

HUMAN DIMENSION

The town of Radisson is located on the south shore of the La Grande River which drains the water from the LaGrande hydroelectric complex. It is the most northern French speaking community of Québec. It is also the only non-aboriginal community north of 53°N. Despite its remoteness, Radisson offers a wide array of services: i.e. gas station, hardware and grocery store, and a small hotel.

ACCESS

Radisson is accessible by road. From Matagami, the James Bay route covers over 624 km. This route provides access to several Cree villages and trans-taiga ecosystems which border the hydroelectric reservoirs. It is a private road requiring user registration at the entry gate for security reasons. Contact CEN for more information (cen@cen.ulaval.ca).



Category	Sub-Category	CEN Radisson Ecological Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationradisson
Country		Canada
Opening year		1999
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– – cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	CEN/Université Laval in collaboration with INRS, UQAR Government CEN/Université Laval christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca www.cen.ulaval.ca
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	53°47′ N, 77°37′ W 135 m a.s.l. 0 m a.s.l. 160 m a.s.l. Radisson (300 inhabitants) 0 km (in town of Radisson) Aerial image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic/Boreal Sporadic Since 1995 (LaGrande) -3 °C -21.6 °C 13.7 °C 4.5 m/s 37 m/s W 684 mm All River and sea in May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	5860 m² 1260 m² 948 m² 11 rooms (24 beds) 0/0 28 Yes Yes Solar, hydroelectric, 120 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	Local guides and translators available for hire Access to extensive climate data records
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard – CLSC in village (community hospital), 4 nurses and 1 doctor In town – Pepper spray, satellite phone, weapon
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	1970 × 45 m (lake: yes) Asphalt Yes Port in Chisasibi, landing wharf, pier
Vehicles at station	Sea transportation Land transportation	Zodiac, boat, canoe ATVs, snowmobiles, small car, 4×4 trucks
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Accessible by road and commercial flights – –

CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	○
Mountain	○
Valley	●
Lake	●
River	●
Shoreline	●
Tree line	○
Polar deserts/semi-deserts	○
Shrub tundra	○
Gramminoid tundra	○
Forest tundra	○
Peatlands	●
Wetlands	●
Palsa mires	●
Deciduous forest	○
Evergreen forest	●
Human settlements or resource use in the area	●
Other (Boreal forest, approx. 100 km to James Bay, hydroelectric reservoirs (La Grande), lakes, rivers, mines, forest fires)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	●
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	●
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	●
Geophysics	●
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	●
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	●
Oceanography, Fishery	●
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	●
Staff available to assist with constructions	○

Communication	
Telephone	●
Satellite phone	●
VHF	●
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	●

CLEARWATER LAKE

STATION NAME AND OWNER

The CEN Clearwater Lake Research Station is legally owned by the Kativik Regional Government (KRG), but is operated by the Centre d'études Nordiques (CEN: Centre for Northern Studies) through a long term lease. This station is part of the CEN Network, more precisely the Qaujisarvik Network of stations and is part of a provincial park that is co-managed by KRG and the government of Québec (Tursujuq National Park).

LOCATION

Situated in Nunavik on the shores of Clearwater Lake (Lac à l'Eau Claire, 56°20′N, 74°27′W), the station is about 125 km inland from the eastern coast of Hudson Bay.

BIODIVERSITY AND NATURAL ENVIRONMENT

Clearwater Lake is the second largest natural lake of the province of Québec (2243 km^2). It sits at an altitude of 240 m, the limit reached by the postglacial sea, and drains into Hudson Bay via Clearwater River (Rivière à l'Eau-Claire) with a maximum outflow rate of 150 m^3/s. The lake features two adjacent, circular basins (26 and 36 km in diameter) that were created by a meteoritic impact about 290 ± 20 million years ago (Permian Age). Even though vascular plant diversity is low on regional granite gneisses, the volcanic breccias (clastic-textured extrusive igneous rocks) situated on the islands of the western basin (11 islands forming a circle) are populated by 250 vascular species, 15% of which are specific to the shores. Avifauna is abundant and the islands constitute an enclave for shrub tundra in an area that is rather characterised by forest tundra.

HISTORY AND FACILITIES

CEN research has been conducted here since 1980, but the station buildings are recent, built in 2000 and upgraded in 2011. The buildings were originally built by outfitters but have been considerably upgraded by the CEN. The three buildings can accommodate nine people. They are equipped with solar-powered electricity, running water, dry toilettes, and oil heating. The station is accessible from June to October by float plane or helicopter. About 10 km to the southeast, there is a natural airstrip maintained by Air Inuit. However, a river separates the station from the airstrip.

GENERAL RESEARCH AND DATABASES

Past research has focused on regional ecosystem dynamics, specifically on the response of the forest to disturbances such as fire and insect outbreaks, dendrochronology, riparian vegetation and biodiversity, periglacial processes, secular variations in water levels, and hydrology. Other research topics have covered limnology of the two basins, geological and geomorphological history, and biophysical features of the area. Wildlife studies (birds, caribou, small mammals, fish, and biting insects) have also been conducted, as well as archeological studies (recently). CEN operates three climate stations in and around the western basin of the lake, one of which is on a small island directly in the centre of the basin. In addition to scientific literature, CEN has extensive climate data since 1986 which are available through Nordicana D: www.cen.ulaval.ca/nordicanad/.

HUMAN DIMENSION

Clearwater Lake is situated within the boundaries of a provincial park and on aboriginal land. First Nations people, the Cree, still use the land extensively for hunting and fishing, especially during spring and autumn. There are no permanent settlements around the station, the closest village Umiujaq is about 135 km west on the shores of Hudson Bay. Access to the station is organised by CEN from the Whapmagoostui-Kuujjuarapik Research Station.

ACCESS

Clearwater Lake is an isolated station in a provincial park; therefore all research activities must be proposed and planned in advance. Contact CEN for more information (cen@cen.ulaval.ca).

Category	Sub-Category	CEN Clearwater Lake Research Station
Website		www.cen.ulaval.ca/en/page.aspx?lien=stationlec
Country		Canada
Opening year		2005
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	–
	Contact (permit issues)	cen@cen.ulaval.ca
Facility owner and manager	Name of the facility owner	CEN/Université Laval in collaboration with Kativik Regional government/Tursujuq Park
	Owner status	Government
	Institution responsible for managing the station	CEN/Université Laval
	Contact (access to station)	christine.barnard@cen.ulaval.ca or cen@cen.ulaval.ca
	Website (institution)	www.cen.ulaval.ca
Other institutions	Name	Kativik Regional Government (www.krg.ca)
	Country	Canada
Location	Geographical coordinates	56°20′ N, 74°27′ W
	Altitude of station	224 m a.s.l.
	Min. altitude within study area	215 m a.s.l.
	Max. altitude within study area	400 m a.s.l.
	Nearest town/settlement	Umiujaq (< 400 inhabitants)
	Distance to nearest town/settlement	135 km
	Map	Aerial image, Google Earth
Climate	Climate zone	Subarctic
	Permafrost	Discontinuous
	Years measured	Since 1995
	Mean annual temperature	-3 °C
	Mean temperature in February	-22.4 °C
	Mean temperature in July	11.8 °C
	Mean annual wind speed	5.9 m/s
	Max. wind speed	28.3 m/s
	Dominant wind direction	S
	Total annual precipitation	500-600 mm
	Precipitation type	All
	Ice break up	June (year dependent)
Station facilities	Area under roof	50 m^2
	Scientific laboratories	25 m^2
	Logistic	25 m^2
	Number of rooms (beds)	4 rooms (11 beds), 1 living area, 1 kitchen
	Number of staff on station (peak/off season)	0/0
	Max. number of visitors at a time	11
	Showers	Yes
	Laundry facilities	–
	Power supply (type)	Solar and heated by oil, propane and generator available, 12 V, 24 V, 120 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Local guides and translators available for hire
	Scientific services offered	Access to extensive climate data records
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	Heli lifted out to Umiujaq and then 45 min. to Puvirnituq (by plane, 1-2 hours in total)
	Compulsory safety equipment	Weapon, satellite phone
	Recommended safety equipment	Pepper spray, weapon, first aid kit
Landing facilities	Airstrip (Length × Width)	600 × 400 m (lake: yes)
	Airstrip surface	Sand (also accessible by floatplane)
	Helipad	Helicopter lands on level ground
	Ship landing facilities	–
Vehicles at station	Sea transportation	Boat, zodiac
	Land transportation	Snowmobile in winter
Transport and freight	Transport to station	Chartered helicopter or floatplane, Twin Otter in winter
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain		○
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra		○
Forest tundra	●	
Peatlands	●	
Wetlands	●	
Palsa mires	●	
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Thermokarst lakes, permafrost, raised beaches, glacial features, land-locked marine species, migrating treeline, deep lake created by meteorite impact)	●	

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	●
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	○
Geology, Sedimentology	●
Geophysics	●
Glaciology	●
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	●
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	●
Oceanography, Fishery	●
Paleoecology	●
Paleolimnology	●
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	○
Satellite phone	●
VHF	●
E-mail	○
Internet	○
Computer	○
Printer	○
Scanner	○
Fax	○

NUNAVUT RESEARCH INSTITUTE

STATION NAME AND OWNER

Nunavut Research Institute is located in Iqaluit, Nunavut, Canada, and is operated by Nunavut Arctic College.

LOCATION

The institute is located in the City of Iqaluit which lies on Kooje-see Inlet at the end of Frobisher Bay on the southeastern coast of Baffin Island. The institute further maintains accommodation facilities in Arviat and Igloolik, and laboratory facilities in Rankin Inlet and Cambridge Bay.

BIODIVERSITY AND NATURAL ENVIRONMENT

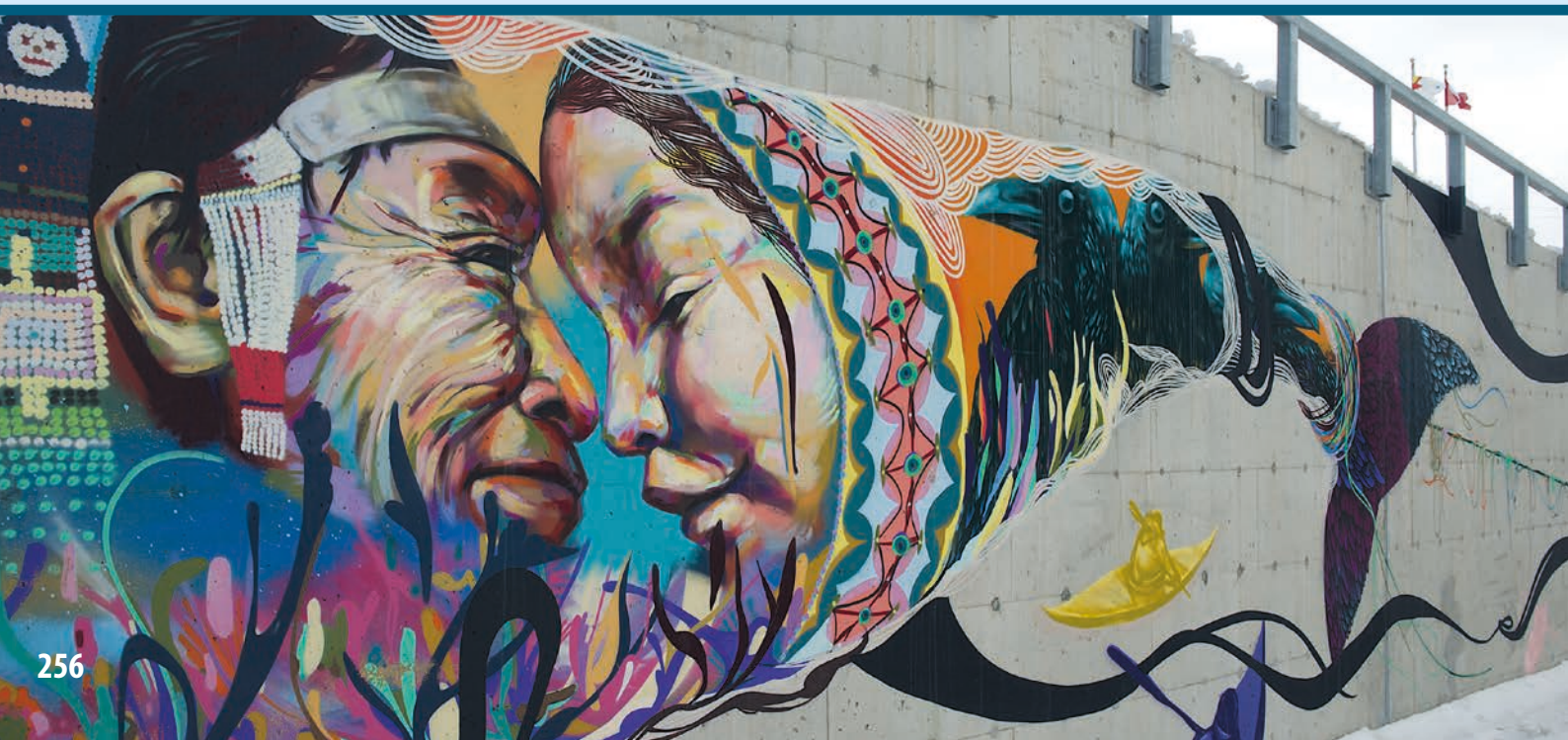
The Nunavut Research Institute is situated in the arctic zone with vegetation consisting of mosses, lichens, small shrubs, grasses, and low flowering plants. The sub-soil remains frozen throughout the year. Temperatures average below freezing eight months of the year. The terrain around Iqaluit is hilly with influence of marine and glacial deposits. Tidal range in Iqaluit is up to 12 m with a mean tidal range of 9 m. Caribou, polar bear, fox, wolves, and hares can be found in the vicinity of the town. Ring, harp, and bearded seal are found in Frobisher Bay, and beluga whales and walrus are common in the region as well. Eider ducks and Canada geese appear during the warmer months, and wheatears, snow buntings, and rock ptarmigan are present in spring and summer. Arctic char are abundant in the rivers and coastal lakes. Land-locked cod can be found in some lakes off Frobisher Bay.

HISTORY AND FACILITIES

The Iqaluit Research Centre was opened by the Department of Indian and Northern Affairs in 1978 to support the Eastern Arctic Marine Sciences Project. Operations were transferred to the Science Institute of the Northwest Territories (SINT) in 1988. Today the Nunavut Research Institute in Iqaluit consists of a research institute with two laboratories and a teaching facility with a laboratory, workshop, and storage facility. In addition, the research institute has accommodation facilities in Arviat and Igloolik. Laboratory facilities are available for use by researchers in Cambridge Bay and Rankin Inlet.

GENERAL RESEARCH AND DATABASE

Nunavut Research Institute accommodates more than 100 re-search projects each year within the fields of natural, social, and



health sciences. Descriptions of research projects licensed by the institute are available on the website at www.nri.ca.

Nunavut Research Institute shares a research library with several other organisations that carry out research in Nunavut. The library can be accessed at www.nwmb-lib.com. Research is carried out by Canadian and international universities with an interest in the Arctic.

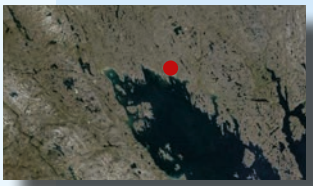
HUMAN DIMENSION

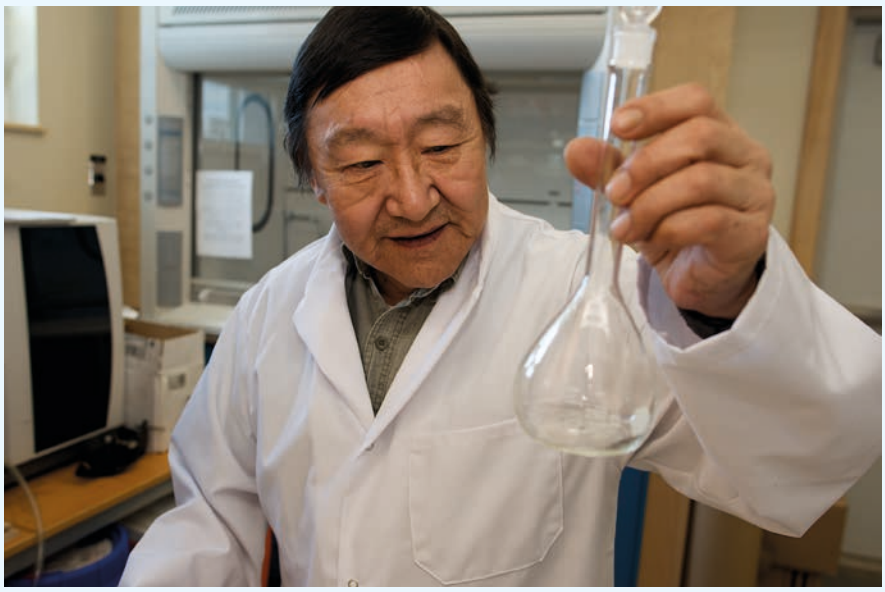
The Nunavut Research Institute is situated in the city of Iqaluit. The city is the largest community and capital in Nunavut. The city has a population of approximately 8000 people. Approximately 60% of the population is Inuit.

ACCESS

Iqaluit is located 2084 km north of Ottawa and 2200 km east of Yellowknife. The Iqaluit Airport is a hub for aircrafts to several small communities throughout Nunavut as well as Ottawa and Montreal. Two airlines from Ottawa serve Iqaluit daily while scheduled flights arrive and depart for Yellowknife and Edmonton 3 days of the week. Weekly flights between Nuuk, Greenland and Iqaluit may occur during the summer months.

Category	Sub-Category	Nunavut Research Institute
Website		www.nri.ca
Country		Canada
Opening year		1997
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	Research Liason (+1-867-979-7279)
Facility owner and manager	Name of the facility owner	Nunavut Arctic College
	Owner status	Government
	Institution responsible for managing the station	Nunavut Research Institute
	Contact (access to station)	www.nri.ca
	Website (institution)	www.nri.ca
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	63°45′N, 68°31′W
	Altitude of station	50 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	2200 m a.s.l.
	Nearests town/ settlement	Iqaluit (8000 inhabitants)
	Distance to nearest settlement	0 km
	Map	Map (1:50 000), aerial image, satellite image, Google Earth
Climate	Climate zone	Low Arctic
	Permafrost	Continuous
	Years measured	Since 1950
	Mean annual temperature	-9.5 °C
	Mean temperature in February	-28 °C
	Mean temperature in July	3.6 °C
	Mean annual wind speed	4.7 m/s
	Max. wind speed	31 m/s
	Dominant wind direction	NW
	Total annual precipitation	404 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: May/June, Sea: July
Station facilities	Area under roof	Iqaluit: 1229.6 m^2; Arviat: 111.5 m^2; Cambridge Bay: 111.5 m^2; Igloolik: 111.5 m^2; Rankin Inlet: 111.5 m^2
	Scientific laboratories	Iqaluit: 57.2 m^2, 21.9 m^2, 63.22 m^2; Cambridge Bay: 111.5 m^2; Rankin Inlet: 111.5 m^2
	Logistic	Iqaluit: 1 workshop, 1 large storage facility
	Number of rooms (beds)	Iqaluit: 30 beds, 12 offices, 3 labs, 2 meeting rooms, 2 classrooms, 1 library; Arviat: 6 beds; Igloolik: 6 beds; Rankin Inlet: 1 lab; Cambridge Bay: 1 lab
	Number of staff on station (peak / off season)	5-research institute staff; 2-teaching staff
	Max. number of visitors at a time	30
	Showers	3
	Laundry facilities	2
	Power supply (type)	120 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Advanced lab equipment (only in Iqaluit)
	Scientific services offered	Lab rental, free technical support, equipment storage
Medical facilities	Medical facilities	Iqaluit: well-equipped hospital; other locations: a nursing station
	Medical suite	Yes (only in Iqaluit)
	No. of staff with basic medical training or doctor	Iqaluit: hospital with full staff; other locations: nurses present
	Distance to hospital (estimated time)	Iqaluit: 1 km, 5 min; other locations: ≤ 1km from nursing station
	Compulsory safety equipment	VHF radio, satellite phone
	Recommended safety equipment	First aid kit, satellite phone, SPOT, GPS, gun
Landing facilities	Airstrip (Length × Width)	Iqaluit: 2623 × 61 m; Rankin Inlet: 1586 × 46 m; Cambridge Bay: 1327 × 46 m; Arviat: 1058 × 30 m; Igloolik: 1194 × 30 m
	Airstrip surface	Iqaluit and Rankin Inlet: asphalt; others: gravel
	Helipad	Helicopters can land in all locations but no designated helipads
	Ship landing facilities	None in any location, ships off load onto barges
Vehicles at station	Sea transportation	Small craft in all locations
	Land transportation	Car, truck, snowmobile, and ATVs
Transport and freight	Transport to station	Plane year-round, sealift in July-October
	Number of ship visits per year (period)	(2013 numbers) Iqaluit: July-October, 15 cargo ships; Arviat: 9; Cambridge Bay: 2; Igloolik: 2; Rankin Inlet: 9
	Number of flight visits per year (period)	Ilqaluit: 2 flights daily (Ottawa). From Montreal and Yellowknife 3 times/week, Greenland (July, August) 1 per week. Regularly to most Nunavut communities





Features within study area	● Yes ○ No
● Ice cap or glacier	
● Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Fossil mounts, ice wedges)	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ○ Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

LIRS

STATION STATION NAME AND OWNER

The Labrador Institute Research Station (LIRS) is located in North West River, Newfoundland and Labrador. It is operated by the Labrador Institute of Memorial University. The building is owned by the Newfoundland and Labrador (NL) Provincial Government's Department of Transportation and Works."

LOCATION

LIRS's main offices are located in Happy Valley-Goose Bay, NL, with a satellite office located in Labrador City, NL. NWR is centrally located and its population is made up of Inuit, Euro-Canadian, Innu and Metis people. LIRS is located in the Taiga/Boreal Forest Region.

BIODIVERSITY AND NATURAL ENVIRONMENT

North West River experiences generally mild summers with cold winters. Winters usually begin in mid-November and last until mid-April and summers begin in June and end in early September. The temperature generally ranges from about -30 °C at its coldest in the winters to about 30 °C in the summers. The town is on a hill dividing Little Lake from the larger Lake Melville. A small band of water (North West River) connects the two. The area of North West River is located on a sandy plain surrounded by mountains. NWR falls within the Lake Melville Ecoregion, which is a unique ecosystem within Labrador. Immediately adjacent to the community are important waterfowl staging areas, seabird breeding colonies, and important breeding habitats for a variety of marine mammals. The nearby Mealy and Red Wine Mountains have endangered herds of woodland caribou. The eastern end of Lake Melville has been designated as an internationally Important Bird Area due to the high concentrations of moulting scoters in late summer. Numerous archaeological discoveries have been made in the area, the oldest of which is the Maritime Archaic Indian site dating 5000 bp.

HISTORY AND FACILITIES

The facility is new but is seeing an increasing amount of use. The station is co-located with the College of the North Atlantic and the NWR Community Library, and includes employee and general office space, large board room, scientific laboratory, GIS/social science laboratory, general (wet) laboratory, archaeology lab, accommodation for four people, full kitchen and dining area,

and storage and laundry space. Our primary scientific lab is currently being developed. Equipment includes: digital balances, a variety of microscopes, incubators, sample freezer, water purification, pH testing kit, centrifuge, digestion block, water bath, large volume stirrer, portable ventilation system, etc. There are more than seven work stations, sinks, teaching area, and lots of open space for further development. Also included: satellite internet and telephone service.

GENERAL RESEARCH AND DATABASES

LIRS is just coming online, but the Labrador Institute (LI) has a long history of research in Labrador in many disciplines, including but not limited to health research, arts and culture, social programs, climate change, archaeology, education, mining and resource development history, migratory birds, and land mammals. Currently, the LIRS is supporting and/or taking part in climate change research, land use studies, interior archaeology, archaeological mitigation, addictions awareness, aquatic ecology, soil amendment research, and mine tailings remediation. LIRS and LI are currently undergoing a period of significant growth. As a result, we will increase our capacity in environmental studies, climate change, earth sciences, anthropology, archaeology, and geography. We will also be starting an artist in residence programme.

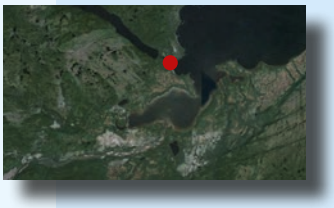
HUMAN DIMENSION

The research station is located in North West River, Central Labrador. Central Labrador has been inhabited by the Innu and Inuit for over 6000 years. The NunatuKavut community council land claim is also nearby, though this claim has not been settled, and the proposed Mealy Mountain National Park is also just across Lake Melville from LIRS.

ACCESS

NWR is accessible by road all year round. Goose Bay Airport is a 30 minute drive from the station. Chartered boats are available in summer; snowmobiles may be rented in winter; rental cars are available year-round in Happy Valley-Goose Bay. The airport has modern facilities including helicopters and bush planes for charter, and coastal trawlers are available.

Category	Sub-Category	Labrador Institute Research Station (LIRS)
Website		www.mun.ca/labradorinstitute
Country		Canada
Opening year		1978
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes Operations, Facilities, and Logistics Coordinator
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	NL Department of Works, Services, and Transportation Government Labrador Institute krista.oxford@mun.ca www.mun.ca/labradorinstitute
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	53°31′N, 60°08′W 21 m a.s.l. 0 1600 m a.s.l. North West River 0 km Map (1:50 000), aerial image, satellite image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Taiga/Boreal Forest Sporadic 1941-2014 0 °C -15.7 °C 15.1 °C 4.2 m/s 21 m/s W 940 mm Rain, snow May, June
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	1400 m^2 400 m^2 2 storage rooms, 6 offices, 2 laboratories, 2 meeting rooms, 2 kitchens, 1 server room 2 apartments (4 beds) 20 No fixed number. Additional accomodation nearby Yes Yes On Hydroelectric Grid 24 hours per day
Scientific equipment	Specific device Scientific services offered	Advanced Laboratory Equipment –
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Basic first aid and some Laboratory safety equipment; local medical clinics; fully equipped hospital in Happy Valley-Goose Bay – Goose Bay Hospital ambulance service 33 km – Standard
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	Airport in Goose Bay (33 km) away via highway Asphalt At forestry centre nearby. Also in Goose Bay Yes
Vehicles at station	Sea transportation Land transportation	Small boats Taxis in the community, rental cars in Goose Bay (33 km)
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Drive from airport in Goose Bay (33 km). Taxi from airport c. 100 CDN$ Regular service in Goose Bay Regular service in Goose Bay



MEMORIAL UNIVERSITY Labrador Institute

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line	●	
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra	●	
Forest tundra	●	
Peatlands	●	
Wetlands	●	
Palsa mires	●	
Deciduous forest	●	
Evergreen forest	●	
Human settlements or resource use in the area	●	
Other (Glaciers)	●	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

ARCTIC STATION

STATION NAME AND OWNER

Owner of the Arctic Station in Greenland is the Faculty of Science at the University of Copenhagen, Denmark.

LOCATION

The Arctic Station is located on the south coast of the Disko Island in central West Greenland (69°15′ N, 53°34′W). It is facing the Disko Bay/Davis Strait and is characterised by a low arctic, coastal climate. Some of the world's largest icebergs drift by the Arctic Station .

BIODIVERSITY AND NATURAL ENVIRONMENT

The surroundings of Arctic Station are characterised by a large variety in landscape, flora, and fauna. The station and the nearby town Qeqertarsuaq are situated on a ridge of Precambrian gneisses overlain by massive basalts from the Tertiary. The surrounding mountains have an altitude of 600-800 m a.s.l. Three major valley glaciers, Lyngmarksbræen, Chamberlain's Glacier, and Petersen's Glacier, can be visited on a single day trip. The area around Qeqertarsuaq is situated in the transition zone between continuous and discontinuous permafrost. A large variety of periglacial phenomena can be studied, i.e. ice- and sand wedges, stone polygons, mud circles, as well as palsa and pingo formations. The coastline is situated only 300 m south of the station along a 100 m wide sandy coastal barrier. The vegetation within the immediate surroundings of the Arctic Station is unique to low arctic Greenland. This is illustrated by the number of species of flowering plants within walking distance from the station: 212 of the 513 Greenlandic flower species occur in the area. This plant diversity is caused by a relatively favourable local climate, a high altitudinal gradient, rich soils, and several homothermic springs.

HISTORY AND FACILITIES

The botanist Morten Petersen Porsild founded the Arctic Station ("Den Danske Arktiske Station") in 1906. The locality selected was c. 1 km east of the town Qeqertarsuaq (formerly Godhavn) which is located on the south coast of the Disko Island – also named Qeqertarsuaq. The idea of establishing an arctic research facility in Greenland was supported by famous explorers of the northern polar regions, e.g. Knud Rasmussen, Ludwig Mylius-Erichsen, and Fridtjof Nansen. The University of Copenhagen became the

owner of the research facility in 1953. Arctic Station has around 150 Danish and international visitors, students, and researchers each year. Arctic Station has rooms for 26 people. Kitchen, living room, seminar room, scientific library, and laboratories are found at the station.

GENERAL RESEARCH AND DATABASES

The surroundings of Arctic Station offer both terrestrial and marine environments, which makes the research station ideal for botanists, zoologists, geologists, geophysicists, and physical geographers. A meteorological station was established in 1990, and a full record of climate data exists since 1991. These monitoring data are available through Dr. Birger Ulf Hansen, University of Copenhagen, Institute for Geology and Geography (buh@ign.ku.dk).

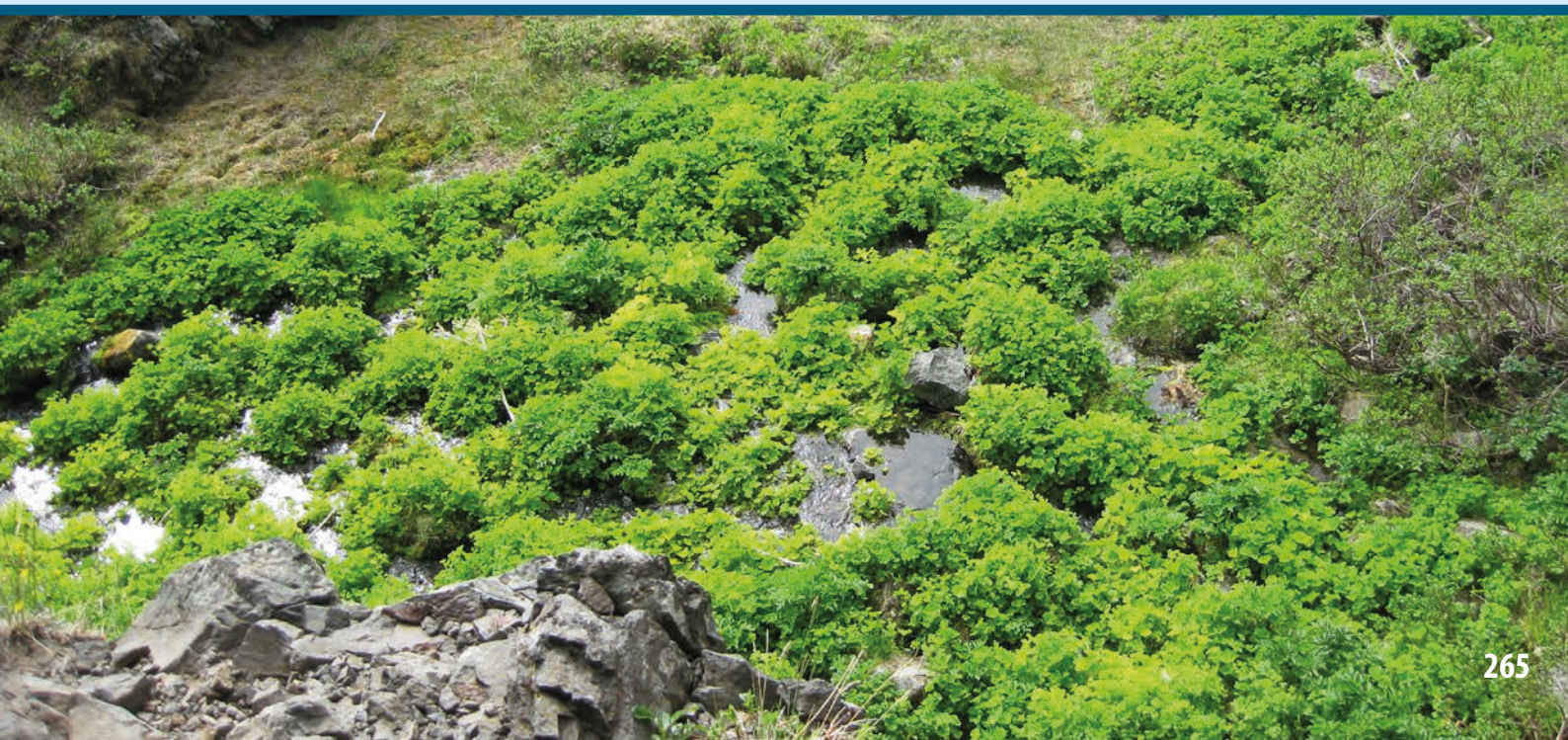
HUMAN DIMENSION

Arctic Station is located only 1 km east of the town Qeqertarsuaq (Godhavn) with a population of around 1000 inhabitants. The city was established in 1773 by Sven Sandgren. Whaling has always been very important for the city.

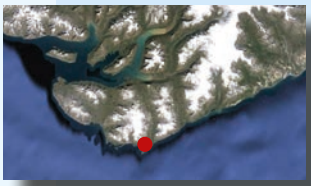
Fishing and hunting are still among the primary occupations for the island's inhabitants. Tourism is another major business. As something quite unique for Greenland, it is possible to ride a dog sledge on the local glaciers at Qeqertarsuaq under the midnight sun during summer. One can hike to the top of the Lyngmarksfjeld where efforts are rewarded by a fantastic view of Disko Bay and the gigantic icebergs at Ilulissat Icefjord almost 100 kilometres away.

ACCESS

The Arctic Station can be visited without problems throughout the year. Qeqertarsuaq Heliport is served in winter by the Bell 212 helicopter. Air Greenland operates winter-only air services from Qeqertarsuaq Heliport to Ilulissat, Qasigiannguit, and Aasiaat. During summer and autumn, when the waters of Disko Bay are ice-free, transport between towns and settlements is by sea only. A ferry (Diskoline) links Qeqertarsuaq with Ilulissat, Aasiaat, and Qasigiannguit. For further information see www.diskoline.gl.



Category	Sub-Category	Arctic Station
Website		http://arktiskstation.ku.dk/english
Country		Greenland/Denmark
Opening year		1906
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes – if you want the stay at the station Yes arktisk-station@science.ku.dk
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Faculty of Science, University of Copenhagen Government Arctic Station administration, Faculty of Science, University of Copenhagen arktisk-station@science.ku.dk http:\\arktiskstation.ku.dk/english
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	69°15′N, 53°34′W 20 m a.s.l. 0 m a.s.l. 800 m a.s.l. Qeqertarsuaq (850 inhabitants) 1 km Various maps are avaiable at the station, satellite images, and Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Low/High Arctic Discontinuous and continuous – -3.2 °C -11.6 °C (January) 7.6 °C 4.3 m/s (6 m above terrain) 23.6 m/s E and W 436 mm Rain, snow Lake: May
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	955 m^2 225 m^2 70 m^2 (storage) 26 beds, 2 classrooms, 3 laboratories, 1 living room, 1 kitchen 3/3 26 Yes Yes 220V – 50 kHz AC 24 hours per day
Scientific equipment	Specific device Scientific services offered	Please contact station for full list Technical and logistical support, access to extensive baseline data
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard (first aid kit) – – In town (less then 2 km, less than an hour) VHF radio Weapon and first aid kit
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – – (open for winter landing) Yes
Vehicles at station	Sea transportation Land transportation	Ship (for rent), small boat Bicycles (snowmobile and small boats for rent)
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Winter: helicopter; Summer: ship 3-5 per week (summer) Helicopter (weekly during winter)



Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra	●	
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires	●	
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Numerous homothermic springs)	●	

Main science disciplines

- Anthropology, Sociology, Archaeology
- Astrophysics
- Atmospheric chemistry and physics
- Climatology, Climate Change
- Community based monitoring, Citizen Science
- Ecosystem services
- Environmental sciences – Pollution
- Geocryology, Geomorphology
- Geodesy
- Geology, Sedimentology
- Geophysics
- Glaciology
- Human biology, Medicine
- Hydrology
- Isotopic chemistry
- Limnology
- Land-use change, Mapping, GIS
- Marine biology
- Microbiology
- Oceanography, Fishery
- Paleoecology
- Paleolimnology
- Soil Science
- Terrestrial biology – Biodiversity
- Terrestrial biology – Ecosystem function

Workshop facilities

- Metal workshop
- Wood workshop
- Plexiglas workshop
- Staff available to assist with constructions

Communication

- Telephone
- Satellite phone
- VHF
- E-mail
- Internet
- Computer
- Printer
- Scanner
- Fax

GREENLAND INSTITUTE OF NATURAL RESOURCES

STATION NAME AND OWNER

Greenland Institute of Natural Resources (GINR) is owned by the Government of Greenland.

LOCATION

The Greenland Institute of Natural Resources with its main buildings, laboratories, and living quarters is located in Nuuk, Greenland (64°11′N, 51°41′W). A small field station is situated in Kobbefjord (64°08′N, 51°23′W), c. 20 km southeast of Nuuk.

BIODIVERSITY AND NATURAL ENVIRONMENT

GINR and the Kobbefjord field station provide access to a low arctic ecosystem in West Greenland with different biotopes such as dwarf-shrub heaths, fens, grasslands, and lakes. Monitoring of a variety of parameters on vegetation, arthropods, mammals (both terrestrial and marine), birds, freshwater lakes, and the marine environment has been carried out at GINR for several years.

HISTORY AND FACILITIES

GINR was founded in 1995 (preceded by Greenland Fisheries Research; established in 1946), and the main building was inaugurated in 1998. The main building houses c. 3000 m^2 of facilities necessary for the Institute's activities, i.e. offices, laboratories, deep-freeze rooms, storage, conference room, and meeting rooms. Adjacent to the main building is an 850 m^2 annex with a large multi-room used for meetings and seminars. Furthermore, the annex has five apartments and eight rooms for visiting researchers, as well as a garage/storage room. GINR has a third building near the city centre of Nuuk with furnished guest rooms for students and visiting scientists. In addition to the buildings in Nuuk, GINR owns two field stations, one in Kobbefjord, near Nuuk, and another in Niaqornat, in the Uummannaq area, Northwest Greenland. These field stations function as bases for small research teams and accommodates four people each. GINR also owns two ships, Sanna and Pâmiut, which are used for scientific investigations in both sheltered and open waters. Also, the institute has several small boats and aluminium dinghies. For transport on land, GINR owns three cars and several snowmobiles.

GENERAL RESEARCH AND DATABASES

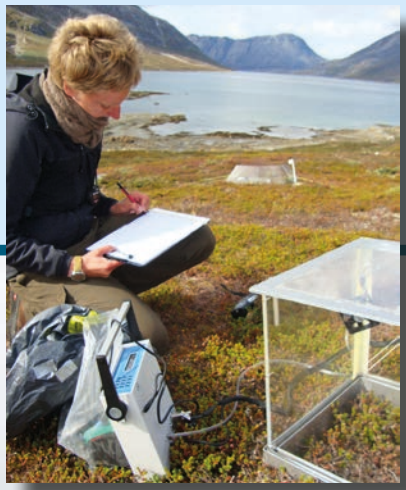
Research and monitoring activities focus on living marine resources (fish, shellfish, marine mammals, and birds), land-based resources (land mammals and vegetation), as well as physical and chemical processes in the environment in relation to Climate Change and its impact on society. Population assessments and management advice are produced and reviewed in scientific committees under various international bodies where GINR is represented. GINR takes part in the monitoring programme Greenland Ecosystem Monitoring (www.g-e-m.dk). The objective is to provide long-term data series of the natural innate oscillations and plasticity of arctic ecosystems. This is accomplished through monitoring of selected biotic parameters and elements throughout the year on a long-term basis. Data from the monitoring is provided free of charge.

HUMAN DIMENSION

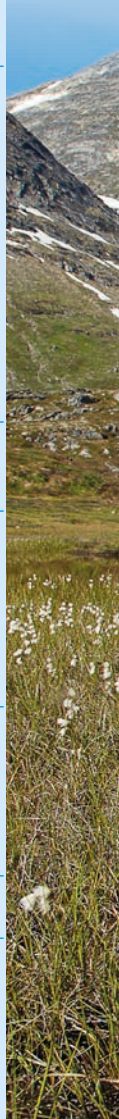
GINR is located in Nuuk, the capital of Greenland, with c. 16 000 inhabitants. GINR actively communicates with users of the environment (fishermen, hunters, and recreational users) and with direct recipients of scientific advice (e.g. politicians). Users of the environment and their comprehensive knowledge of the natural environment are included during planning and implementation of the institute's activities. Fishing and hunting is part of the traditional culture and is still practiced professionally and for recreational purposes.

ACCESS

Nuuk can be reached by air either via Kangerlussuaq, West Greenland (www.airgreenland.com) or via Reykjavik, Iceland (www.airiceland.is). Transportation to the field station in Kobbefjord is by one of GINR's own smaller boats carrying up to 11 persons.



Category	Sub-Category	Greenland Institute of Natural Resources (GINR) with field stations in Kobbefjord (KB) and Niaqornat (NQ)
Website		www.natur.gl, www.g-e-m.dk
Country		Greenland
Opening year		GINR 1998 (KB 2010, NQ 2007)
Operational period		Year-round (KB: May-September)
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	–
	Contact (permit issues)	–
Facility owner and manager	Name of the facility owner	Greenland Institute of Natural Resources
	Owner status	Government
	Institution responsible for managing the station	Greenland Institute of Natural Resources
	Contact (access to station)	info@natur.gl, booking@natur.gl
	Website (institution)	www.natur.gl
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	64°11′N, 51°41′W (KB: 64°08′N, 51°23′W; NQ: 70°47′N, 53°40′W)
	Altitude of station	50 m a.s.l. (KB: 5 m a.s.l., NQ: 30 m a.s.l.)
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	1600 m a.s.l.
	Nearest town/settlement	Nuuk (16 000 inhabitants); NQ: Uummannaq (1200 inhabitants)
	Distance to nearest town/settlement	Nuuk: 0 km (KB: 20 km, NQ: 60 km)
	Map	Map (1:75 000), aerial image, satellite image, Google Earth
Climate	Climate zone	Low Arctic
	Permafrost	Sporadic (NQ: discontinuous)
	Years measured	1958-2010 (NQ: 1961-2006)
	Mean annual temperature	-0.9 °C (KB: -0.9 °C; NQ: -4.4 °C)
	Mean temperature in February	-7.8 °C (KB: -7.8 °C; NQ: -13.8 °C)
	Mean temperature in July	6.9 °C (KB: 6.9 °C; NQ: 8.1 °C)
	Mean annual wind speed	5.9 m/s (KB: 5.9 m/s; NQ: 3.7 m/s)
	Max. wind speed	36 m/s
	Dominant wind direction	N
	Total annual precipitation	782 mm (KB: 782 mm; NQ: 200 mm)
	Precipitation type	Rain, snow (NQ: snow, rain)
	Ice break up	Lakes: May/June; fjord: May (KB); Sea: open water all year round (NQ: June)
Station facilities	Area under roof	1850 m^2 (KB: 55 m^2; NQ: 69 m^2)
	Scientific laboratories	C. 250 m^2 (KB: 15 m^2, NQ: 90 m^2)
	Logistic	1500 m^2 (KB: 40 m^2; NQ: 69 m^2)
	Number of rooms (beds)	Nuuk: 48 officies, 8 laboratories, 4 meeting rooms, 9 storage rooms, 13 rooms/apartments (21 beds), 1 canteen; KB: 1 room (4 beds), 1 lab; NQ: 2 rooms (4 beds), 1 living room
	Number of staff on station (peak/off season)	60/60 (KB: 4/0; NQ 0/0)
	Max. number of visitors at a time	20-25 (KB: 4, plus tents; NQ: 7)
	Showers	Yes (KB: yes; NQ: no)
	Laundry facilities	Yes (only in Nuuk)
	Power supply (type)	Nuuk and NQ: 230 V (Eurasian type plugs); KB: fossil fuel generator (230 V)
	Power supply	24 hours per day
Scientific equipment	Specific device	Advanced laboratory equipment (only in Nuuk)
	Scientific services offered	Free technical support (Nuuk), free access to extensive ecosystem baseline data (Nuuk, KB)
Medical facilities	Medical facilities	Nuuk: well equipped; KB: standard; NQ: basic
	Medical suite	Yes (only in Nuuk)
	No. of staff with basic medical training or doctor	Nuuk Hospital with staff (KB, NQ: none)
	Distance to hospital (estimated time)	5 km, 5 min (KB: 20 km, 1 hour by boat; NQ: 60 km to Uummannaq, 1 hour by helicopter)
	Compulsory safety equipment	VHF radio
	Recommended safety equipment	First aid kit, satellite phone, weapon (in some cases)
Landing facilities	Airstrip (Length × Width)	950 × 18 m (only in Nuuk: airport is regular operated by "Greenland Airports")
	Airstrip surface	Tarmac
	Helipad	Yes (KB: helicopter may land, but no helipad)
	Ship landing facilities	Nuuk: port, langing wharf, pier, pontoon; KB: sledges; NQ: landing wharf
Vehicles at station	Sea transportation	Ship, motor boat, zodiack, smaller motor boat for KB and NQ
	Land transportation	Car (only Nuuk), snowmobile, dog sledge (NQ)
Transport and freight	Transport to station	Plane, helicopter (Nuuk, NQ), boat (KB)
	Number of ship visits per year (period)	Nuuk: c. 55, KB: 2-3 weekly by small motorboat (May-December); NQ: 13 freight ships annually (May-December)
	Number of flight visits per year (period)	Nuuk: several per day; KB: none; NQ: 1-2 per week (year-round)



Features within study area	● Yes ○ No
● Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ● Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ○ Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ● Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

SERMILIK

STATION NAME AND OWNER

The Sermilik Research Station is owned by the Department of Geography and Geology, Geocenter Denmark, University of Copenhagen.

LOCATION

The station is located at 65°40′ N and 38°10′W in southeast Greenland, about 20 km north of the small town Tasiilaq (Ammassalik). The station is situated on the shore of the Sermilik Fjord on the west side of Ammassalik Island adjacent to the Mittivakkat Glacier, a local small ice cap.

BIODIVERSITY AND NATURAL ENVIRONMENT

The research area is situated in the low arctic coastal vegetation zone, and demonstrates a large flora diversity. It is dominated by dwarf-shrub heaths, snow-bed communities, and open fell-field communities. Fens, herb slopes, and copses are present but are only found in smaller niches in the alpine dominated landscape.

HISTORY AND FACILITIES

During an expedition in 1933, led by the famous polar researcher Knud Rasmussen, the first surveys of glaciers and geomorphology were carried out on Ammassalik Island and at the Mittivakkat Glacier. In 1970 a permanent field station, the Sermilik Research Station, was established, to provide a logistic base for the ongoing glaciological, hydrological, and geomorphological investigations of the Mittivakkat Glacier and its catchment. In 1993, an automatic meteorological station was established at a nunatak situated close to the equilibrium line of the Mittivakkat Glacier to study the glacier climate (515 m a.s.l.). In 1997, a second meteorological station was established, to study the climate in the coastal region. A third meterological station was established at about 200 m a.s.l. in 2009, comprising data on short wave incoming radiation, temperature, relative humidity, wind (direction and speed), and precipitation.

The main building of the station is an insulated wooden

house of 60 m^2 with three rooms for scientists, a dining room, a living room, a kitchen, a toilet, and a storage room. A second, non-insulated building of 50 m^2 holds workshop, equipment, generator, a rubber boat, as well as optional accommodation for four persons in a separate room. The station buildings allow for accommodation of 6-10 researchers. During student summer field courses a tent camp is established at the station.

GENERAL RESEARCH AND DATABASES

The station supports a comprehensive year-round monitoring programme covering basic climatology and local climate gradients in the Mittivakkat Glacier drainage basin, glacier mass balance, run-off and sediment transport, and the development of coastal and delta geomorphology. Data are available on request from the three climate stations and a hydrometric station. Glacier mass-balance measurements and glacier surveys has been carried out since the mid 1980s and delta surveys since 1989. Maps, digital 3D terrain models, satellite data, and aerial photographs, in addition to a complete bibliography of publications arising from research at the Sermilik Research Station are available on request.

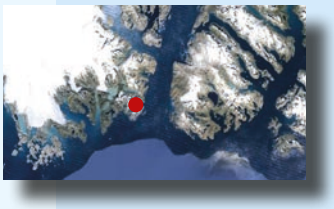
HUMAN DIMENSION

More than half of the population of East Greenland (c. 3000 inhabitants) live in the town Tasiilaq (c. 1700 inhabitants) which is located 20 km south of the research station. Even though the traditional Inuit culture still plays a major role in daily life, Tasiilaq is also a modern community. Fishing, hunting, service industries, and tourism are the major businesses in the town. The Ammassalik Island and the valleys behind the town have a unique flora and are popular places for hiking.

ACCESS

The Sermilik Research Station can be reached by commercial air carrier via Island to Kulusuk Airport (Greenland Air or charter flights) followed by a helicopter flight to Tasiilaq. From Tasiilaq to the station a boat or a helicopter charter is recommended depending on the weather, snow, or ice conditions, and the amount of luggage/cargo. It is also possible to reach the station after a 15-20 km hike. It is highly recommended to book favourable air tickets half a year in advance and to plan at least two travel days to reach Sermilik Station from Europe.

Category	Sub-Category	Sermilik Research Station
Website		www.geo.ku.dk
Country		Greenland/Denmark
Opening year		–
Operational period		Mid June - Mid September
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	mp@geo.ku.dk
Facility owner and manager	Name of the facility owner	Department for Geography and Geology, University of Copenhagen, Denmark
	Owner status	Government
	Institution responsible for managing the station	University of Copenhagen, Denmark
	Contact (access to station)	Mp@geo.ku.dk
	Website (institution)	www.geo.ku.dk
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	65°40′ N, 38°10′ W
	Altitude of station	15 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	937 m a.s.l.
	Nearest town/settlement	Tasiilaq (25 000 inhabitants)
	Distance to nearest town/settlement	20 km
	Map	1:10 000 0 tourist map
Climate	Climate zone	Low Arctic
	Permafrost	Discontinuous
	Years measured	–
	Mean annual temperature	-1.7 °C
	Mean temperature in February	-7.5°C (January)
	Mean temperature in July	6.4 °C
	Mean annual wind speed	–
	Max. wind speed	–
	Dominant wind direction	–
	Total annual precipitation	984 mm
	Precipitation type	Snow, rain
	Ice break up	Lakes and sea: June
Station facilities	Area under roof	100 m^2
	Scientific laboratories	Ad hoc
	Logistic	20 m^2
	Number of rooms (beds)	4 (10 beds)
	Number of staff on station (peak/off season)	0/0
	Max. number of visitors at a time	6
	Showers	Yes
	Laundry facilities	–
	Power supply (type)	220 V by 4000 W generator
	Power supply	24 hours per day
Scientific equipment	Specific device	Climate station
	Scientific services offered	Data base
Medical facilities	Medical facilities	Basic
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	20 km (app. 1 hour)
	Compulsory safety equipment	–
	Recommended safety equipment	Riffle
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	Yes
	Ship landing facilities	Landing wharf
Vehicles at station	Sea transportation	Boat
	Land transportation	–
Transport and freight	Transport to station	On foot, boat, or helicopter from Kulusuk/Tasiilaq
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



Features within study area	● Yes ○ No
● Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
● Lake	
● River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
● Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
○ Peatlands	
○ Wetlands	
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○ Deciduous forest	
○ Evergreen forest	
○ Human settlements or resource use in the area	
○ Other	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
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- ● Geodesy
- ● Geology, Sedimentology
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- ○ Isotopic chemistry
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- ● Microbiology
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- ● Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ○ Telephone
- ● Satellite phone
- ● VHF
- ○ E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

STATION NAME AND OWNER

Zackenberg Research Station is owned by the Government of Greenland. Aarhus University (Denmark) is responsible for running the station.

LOCATION

Zackenberg Research Station is located in Young Sund – Tyrolerfjord complex in Northeast Greenland. The station is situated in the southern part of the National Park of North and East Greenland, the largest national park in the world (approximately 1 million km^2). The nearest settlement is the military outpost Daneborg (with a marine research facility) 25 km southeast of the station. The nearest town is Ittoqqortoormiit, 450 km south of the station.

BIODIVERSITY AND NATURAL ENVIRONMENT

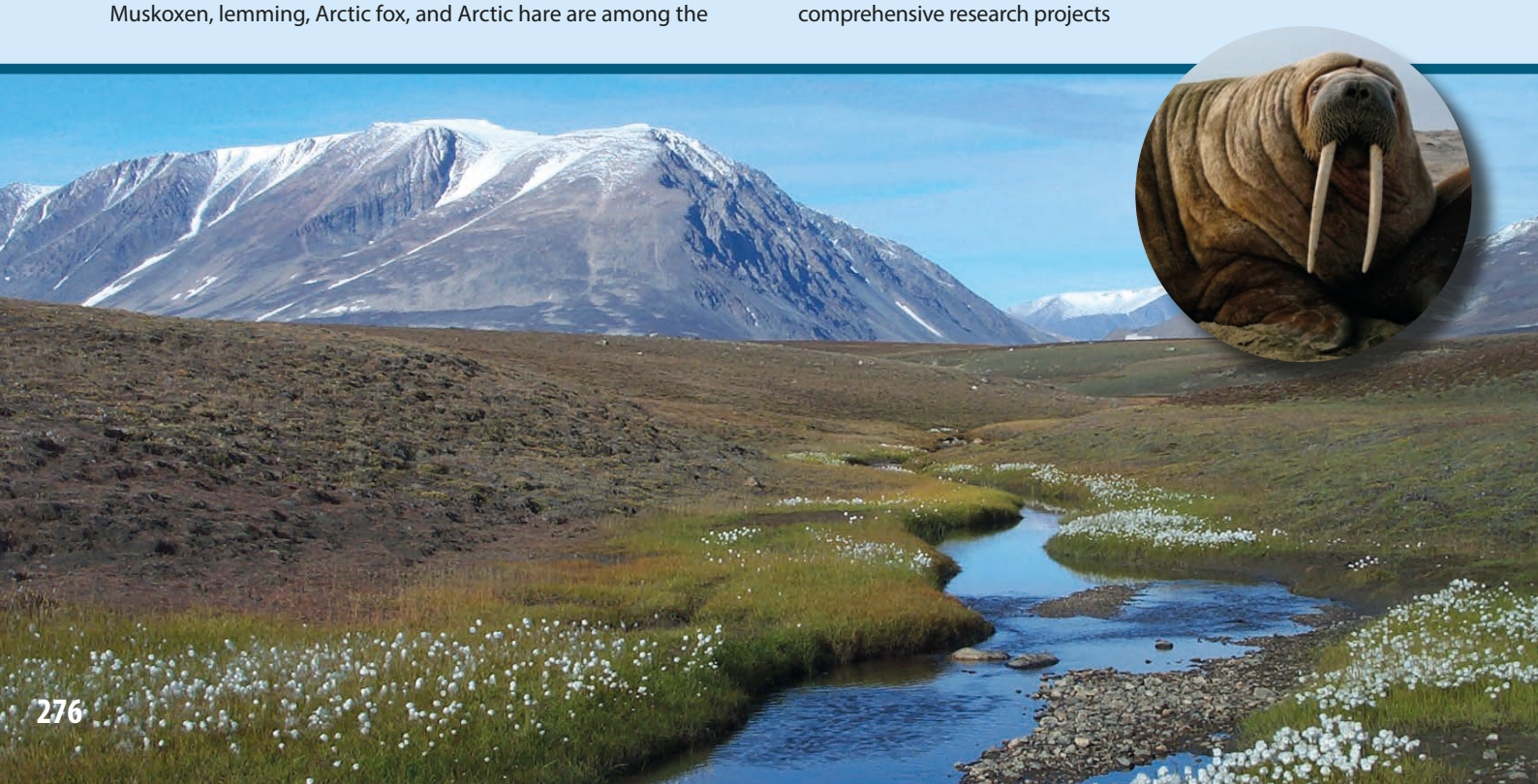
Zackenberg Research Station is situated in the High Arctic in an area with continuous permafrost. The study area comprises the drainage basin of the river Zackenbergelven, with a total size of c. 500 km^2. A great variety of biotopes like ponds, fens, heaths, fell field plateaus and grasslands occur within the core study area. Muskoxen, lemming, Arctic fox, and Arctic hare are among the common mammals in the area, while polar bear and Arctic wolf are occasional visitors.

HISTORY AND FACILITIES

In 1974, a national park was established in Northeast Greenland, which became a UNESCO Man and Biosphere Reserve in 1977. In 1991, the first expedition under the research programme Zackenberg Ecological Research Operations was made to Zackenberg. In 1995, a temporary field station was established, and in 1997 Zackenberg Research Station was officially opened. Each year, the station is manned from 1 May to 31 October. In the remaining part of the year, the station is only in use if needed. The station has 25 beds, two laboratories, a workshop, a mess with cook, and satellite-based telephone, fax, and email service. An accommodation and laboratory facility is located next to the military outpost Daneborg. This facility accommodates 10 scientists.

GENERAL RESEARCH AND DATABASES

Zackenberg Research Station provides facilities for specific but comprehensive research projects



ZACKENBERG

and for an extensive long-term research/ monitoring programme, called Zackenberg Basic. Zackenberg Basic consists of five sub-programmes: ClimateBasis (monitoring the climate), GeoBasis (monitoring the carbon balance of the ecosystem, other feedbacks to Climate Change, and physical landscape processes), BioBasis (monitoring the living nature), MarineBasis (monitoring physical and biological processes in the marine ecosystem), and GlacioBasis (monitoring the mass balance of local glaciers). At the station, there are approximately 25 ongoing projects per year, of which about two third focus on Climate Change feedbacks. Results from the research and monitoring at Zackenberg are reported in the ZERO Annual Reports published by Aarhus University. PDF-versions of the annual reports are available at www.zackenberg.dk.

The database of the Zackenberg Basic monitoring is available for direct access through the internet at data.g-e-m.dk. This homepage also holds the manuals for the different monitoring sub-programmes. All data from Zackenberg Basic are provided free-of-charge to any scientist interested in making use of the data for scientific purposes. Existing databases also include a bibliography of publications arising from research at the station since it opened in 1995, and a GIS of the study area with access through the internet.

HUMAN DIMENSION

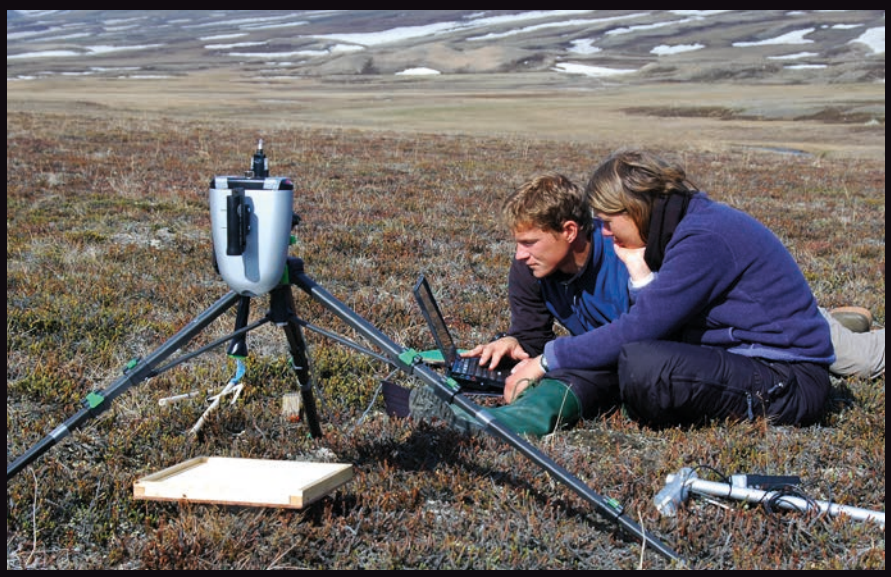
The nearest town is Ittoqqortoormiit, 450 km to the south. The population in Ittoqqortoormiit is approximately 450 people. Zackenberg Research Station cooperates with other field stations in Greenland (Arctic Station, Sermilik Station, and Greenland Institute of Natural Resources), and two Greenlandic research institutes (Asiaq and Pinngortitalerifik) are involved in the work at Zackenberg.

ACCESS

Transport to and from Zackenberg Research Station is handled by the Zackenberg Secretariat at Aarhus University as a package solution from any airport serviced by Icelandair. Travels are based on a combination of commercial flights (to Akureyri on Iceland) and chartered flights (from Akureyri to Zackenberg). It is mandatory to submit an application to the Zackenberg Secretariat prior to the visit of the station. The application will be reviewed by a scientific committee and afterwards the secretariat will take care of all practicalities in relation to logistics.

Category	Sub-Category	Zackenberg Research Station
Website		www.zackenberg.dk, www.g-e-m.dk
Country		Greenland/Denmark
Opening year		1995
Operational period		(March-April), May-October
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes zackenberg@au.dk
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Asiaq, Government of Greenland Government Department of Bioscience, Aarhus University zackenberg@au.dk www.au.dk
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	74°28′ N, 20°34′ W (substation Daneborg: 74°18′ N, 20°13′ W) 38 m a.s.l. 0 m a.s.l. 1492 m a.s.l. Ittoqqortoormiit (503 inhabitants) 450 km Map 1:250 000, aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous – -9.2 °C -19.4 °C 6.1 °C 2.8 m/s (2 m above terrain), 3.4 m/s (7.5 m above terrain) 29.6 m/s NNW 200 mm Snow, rain Lake: May/June (date of 50% ice cover); River: May/June; Sea: July
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	650 m^2 at Zackenberg, 290 m^2 at Daneborg 40 m^2 at Zackenberg, 50 m^2 at Daneborg 150 m^2 at Zackenberg, 120 m^2 at Daneborg Zackenberg: 15 rooms for accomodation (24 beds), 5 laboratories, 1 living room, 1 canteen; 10 beds at Daneborg 4/1-3 21 at Zackenberg, 10 at Daneborg Yes Yes Fossil fuel generator (400 V/230 V, 50 hz AC power. DIN standard) 24 hours per day
Scientific equipment	Specific device Scientific services offered	Advanced climate stations, differential GPS, basic laboratory equipment, different surveying equipment, microscopes Free technical support, free access to extensive ecosystem baseline data
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard (well equipped first aid kit) – 1-2 1000 km (5 hours) Different weapons, VHF radio, PLB First aid kit
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	380 × 20 m Gravel Yes –
Vehicles at station	Sea transportation Land transportation	Different types of rubberboats ATV, snowmobiles
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Persons: by air; Cargo: by air and sea 1 (August) 20 (May-October)

ZERO
ZACKENBERG ECOLOGICAL RESEARCH OPERATIONS



Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches	●	
Mountain	●	
Valley	●	
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra	●	
Gramminoid tundra	●	
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Size of drainage basin: 514 km^2, ice cap 30 km away from station)	●	

Main science disciplines

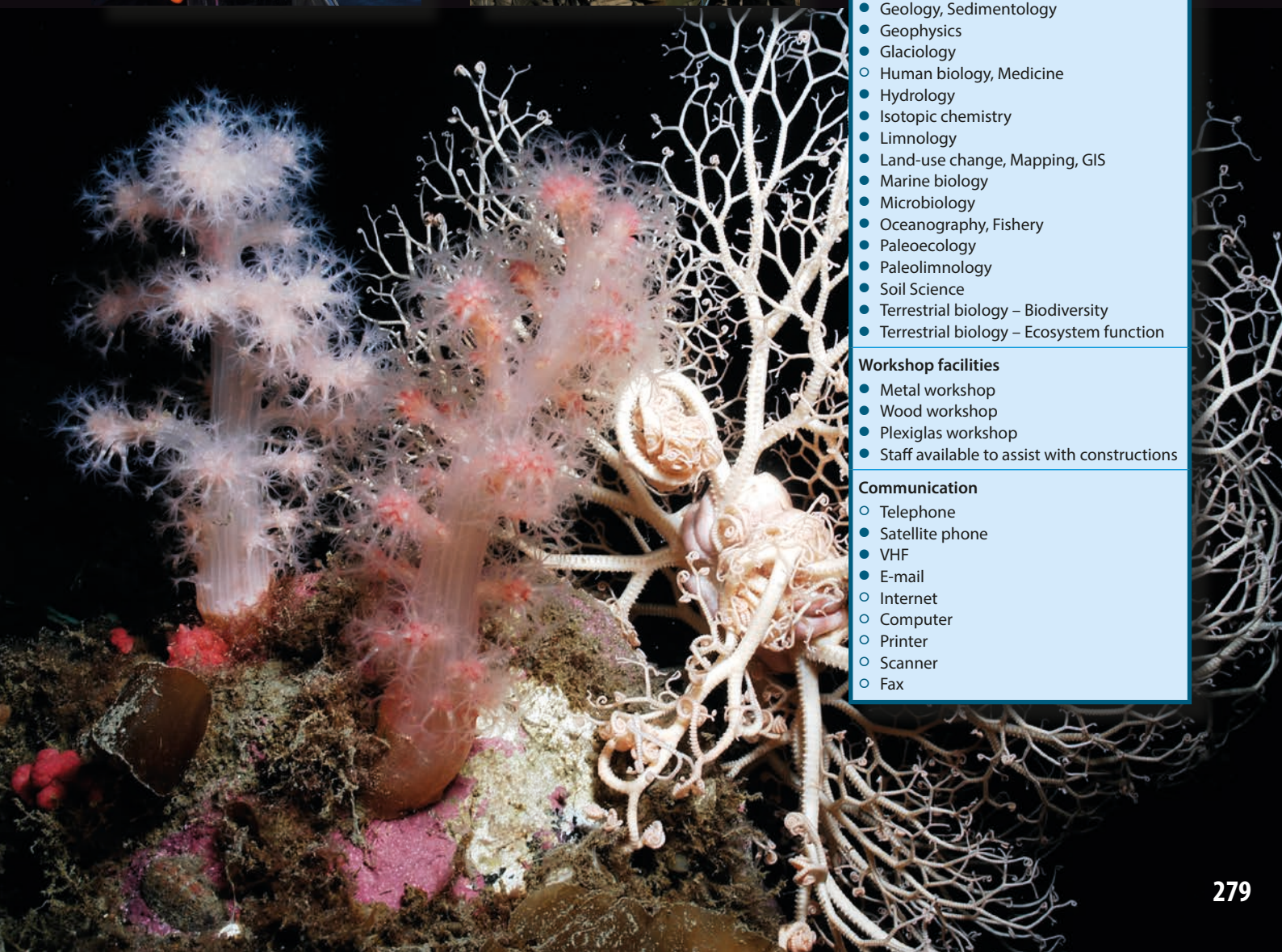
- ● Anthropology, Sociology, Archaeology
- ● Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ● Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ● Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ● Isotopic chemistry
- ● Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ● Paleoecology
- ● Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ○ Telephone
- ● Satellite phone
- ● VHF
- ● E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax



VILLUM

STATION NAME AND OWNER

Villum Research Station (VRS) is owned by the Government of Greenland and operated by Aarhus University, Denmark.

LOCATION

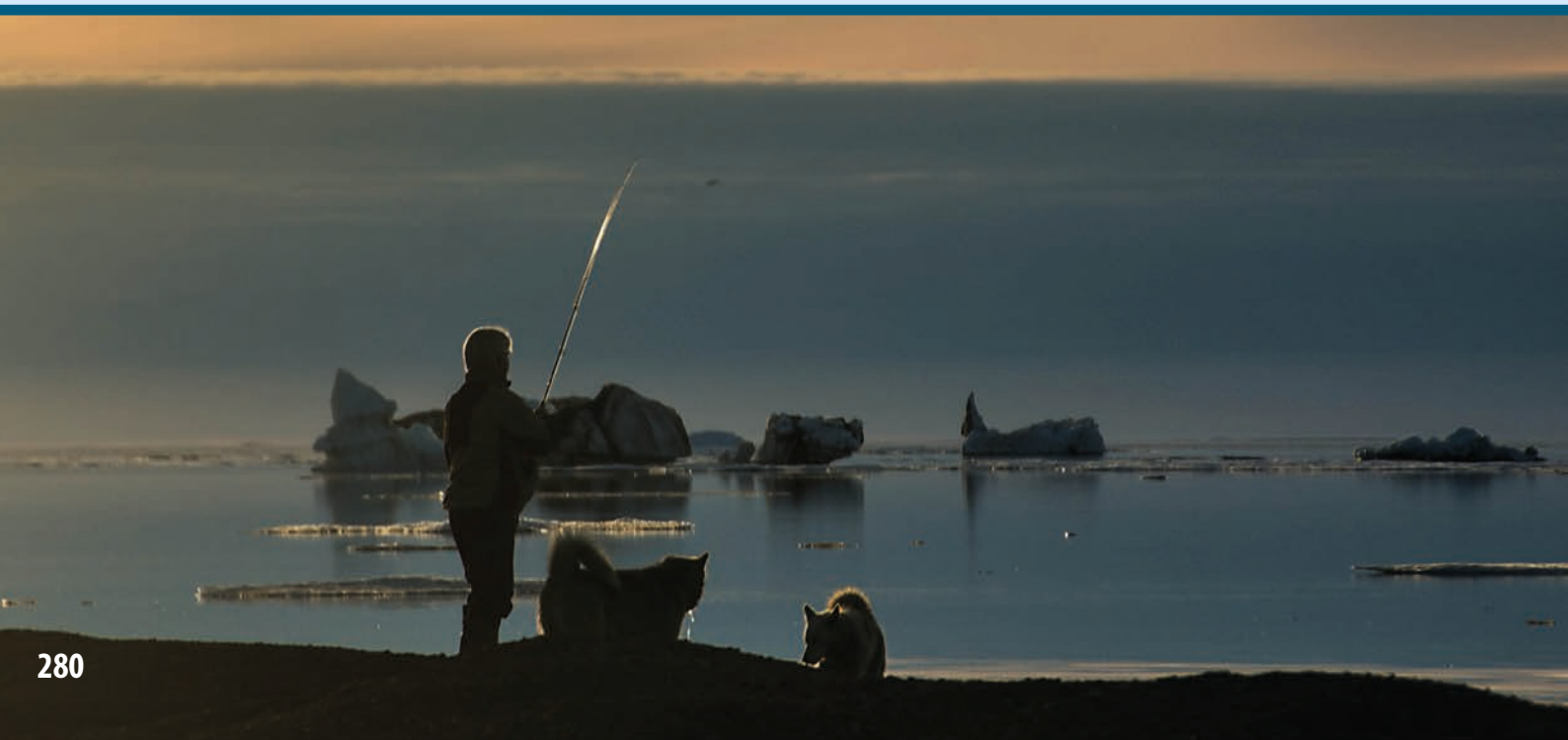
VRS is located on Princess Ingeborgs Peninsula (c. 20 ×15 km^2 lowland plain) at the military facility, Station Nord, in North Greenland (81°36′N, 16°39 W). The station is situated within the National Park of North and Northeast Greenland, the largest national park in the World. The military station has an average elevation of 30 m a.s.l. with a gentle slope to the coast. A 2 km gravel/ice runway, which is kept open year round, is the only gateway to Station Nord. The station acts as a gateway to the northern part of the National Park of North and Northeast Greenland.

BIODIVERSITY AND NATURAL ENVIRONMENT

The station is situated in the High Arctic, and the surroundings are mainly Polar Desert. The area has continuous permafrost, and a continuous snow cover characterise the area for almost ten month per year. The mean annual temperature is c. -17 °C and the mean annual precipitation is c. 190 mm. Mean monthly temperature is -31 °C during the coldest month (February) and 3 °C during the warmest month (July). The Princess Ingeborgs Peninsula plain consists of Quaternary raised marine silt, beach shingle, and glacial deposits. The Quaternary deposits are underlain by rocks of Permian age. Station Nord is situated very close to the Polar Sea, and the sea-ice conditions in the area are generally severe with heavy sea-ice throughout the year. Consequently, ships cannot service Station Nord. Provide access to another Greenland with unique arctic ecosystems including species like ivory ant geese, whales, and muskox.

HISTORY AND FACILITIES

Station Nord was opened in 1952 as a Danish weather station and emergency runway, and it remained open until 1972, when it was closed and left unused, until the Danish military acquired it in 1975. The research activities at Station Nord have been ongoing since the 1970s with measurement activities being intensified since 1990. The research facilities were established by the Danish National Environmental Research Institute (NERI), which is now merged with Aarhus University. In 2014, the research facilities at Station Nord were substantially upgraded based on a



major grant from the Danish private fund, Villum Foundation.

VRS now consists of three buildings, including a main building with laboratories and accommodation facilities, an atmospheric/air observatory situated two km outside Station Nord, and a garage with storage facilities. The station can house 14 scientists at a time. The total area under roof is c. 600 m^2.

GENERAL RESEARCH AND DATABASES

Once the new station is fully operating, a database will be established for storage of all kind of scientific data. At present only atmospheric data are stored in a database maintained by Aarhus University. Meteorological and atmospheric chemical data are reported to EMEP (European Monitoring and Evaluation Programme), and AMAP (Arctic Monitoring and Assessment Programme) and will in the future also be reported to WMO-GAW (World Meteorological Organisation, Global Atmosphere Watch). A list of the parameters currently being measured at Station Nord can be found on http://envs.au.dk/en/research/facilities/villumresearchstation.

HUMAN DIMENSION

Station Nord is operated by the Danish military and is manned year round by five soldiers. The nearest Inuit community is situated more than 800 km away.

ACCESS

Traditionally, transport to Station Nord has been with the Danish Air Force Hercules C-130 aircrafts on space-available conditions. From 2015, Aarhus University will arrange weekly flights between Longyearbyen, Svalbard, and Station Nord.

Category	Sub-Category	Villum Research Station (VRS)
Website		http://envs.au.dk/en/research/facilities/villumresearchstation
Country		Greenland (Denmark)
Opening year		1990
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes, fee for entering the national Park hsk@envs.au.dk
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Greenland Institute of Natural Resources Government Aarhus University hsk@envs.au.dk www.villumresearchstation.dk
Other institutions	Name Country	– –
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	81°36′ N, 16°39′ W Average 30 m a.s.l. 0 100 m a.s.l. – 800 km 1:1000, geological map, aerial images, sallite image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	High Arctic Continuous, active layer is shalow 8-10 cm 1990-2002 and since 2006 -16.9 °C -30.9 °C 3.4 °C 4 m/s >40 m/s S, SW 188 mm Snow June/july
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	600 m^2 c. 220 m^2 c. 400 m^2 1 office, 6 laboratories, 3 depots, 7 rooms with bunk beds, 1 living room, heated garage with storage facilities 1-2 14+10 Yes Yes 230 V Eurasian type plugs 24 hours per day
Scientific equipment	Specific device Scientific services offered	5 laboratoires: Air measurements, clean room, microbio, chemistry and biology/geology lab, and workshop Free access to climate, meteorological, and air pollution data and a mapping of biological mapping from ground based observations, air plane remote sensing and satellite images
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Well equipped – Staff with basic medical training present 800 km VHF radio First aid kits, defilibrator, various figher extinguishers
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	Landing airstrip Ice or gravel Helicopter may land, but no helipad –
Vehicles at station	Sea transportation Land transportation	– –
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Plane – High season: once per week; low season: once per month or when needed

Features within study area	Yes	No
Ice cap or glacier	●	
Permanent snowpatches		○
Mountain		○
Valley		○
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts	●	
Shrub tundra	●	
Gramminoid tundra		○
Forest tundra		○
Peatlands		○
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area		○
Other (Fladende Isblink)	●	

Main science disciplines	
Anthropology, Sociology, Archaeology	●
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	●
Geodesy	●
Geology, Sedimentology	●
Geophysics	○
Glaciology	●
Human biology, Medicine	○
Hydrology	○
Isotopic chemistry	●
Limnology	○
Land-use change, Mapping, GIS	●
Marine biology	●
Microbiology	●
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	○
Terrestrial biology – Biodiversity	○
Terrestrial biology – Ecosystem function	●

Workshop facilities	
Metal workshop	●
Wood workshop	●
Plexiglas workshop	○
Staff available to assist with constructions	●

Communication	
Telephone	○
Satellite phone	●
VHF	●
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	○

SUDURNES

STATION NAME AND OWNER

Sudurnes Science and Learning Center is a non-profit organisation, partly financed and accredited by the Ministry of Education, Science, and Culture in Iceland.

LOCATION

The Center is located by the Sandgerdi harbour (64°02′ N, 22°42′ W) on the western coast of the Reykjanes Peninsula, about 50 km west of the capital, Reykjavik. It is in close proximity to coastal areas of high natural value, listed in the Icelandic Nature Conservation Registry, and Important Bird Areas identified by BirdLife International.

BIODIVERSITY AND NATURAL ENVIRONMENT

Reykjanes Peninsula is situated in the maritime subarctic climate zone, on the rift between the Eurasian and the North American tectonic plates, where the mid-Atlantic Ridge rises above the ocean's surface. Geologically, the peninsula is young and characterized by volcanism and vast lava fields covered with moss heath vegetation, dominated by montane moss *(Racomitrium lanuginosum)*. The coastal areas are wildlife-rich with rocky shores, sandy beaches, muddy flats, and sea cliffs as well as some dry grasslands and small freshwater lakes by the coast. A total of 196 bird species have been recorded in the area, including 61 nesting species and many migrant birds from Eurasia, Africa, and America.

HISTORY AND FACILITIES

In 1992, an abandoned fish factory was turned into a research laboratory for the international, collaborative project Benthic Invertebrates of Icelandic Waters (BIOICE). Sudurnes Science and Learning Center was established in 2012. The Southwest Iceland Nature Research Centre (established 2000) and The University of Iceland's Research Centre in Sudurnes (established 2004) are part

of the Center. The Center has an excellent taxonomic laboratory, fish rearing and experimental facilities. It has three laboratories, three wet labs with clean borehole seawater, three meeting rooms, six bedrooms with 12 beds as well as kitchen, showers, and a laundry room. The facilities are ideal for conducting scientific studies in taxonomy, marine biology, ornithology, and general ecology. The Center offers the possibility to catch birds close by for in-house tests and measurements. Workshops are available in the village.

GENERAL RESEARCH AND DATABASES

Sudurnes Science and Learning Center focuses on bird studies, marine invertebrates, and seashore ecology. The Center cooperates with the Icelandic Marine Research Institute utilizing automated analyses of zooplankton (ZooImage) for taxonomic purposes. Other studies are mainly on aquaculture animals such as the European lobster, arctic char, and cod, where the Center carries out its own projects and/or participates in service programmes using the facilities at the Center. The main focus of The University of Iceland's Research Centre in Sudurnes is on research and teaching in marine biology and ecotoxicology, emphasizing on postgraduate students. The Southwest Iceland Nature Research Centre collects and stores information and data regarding the nature in the southwest region of Iceland. The main focus has been on ecological research, mainly on bird ecology and benthic invertebrates. The Nature Research Centre takes part in monitoring breeding success in seabirds in Iceland as well as monitoring migratory waders that go through the Sudurnes region. Climatic data are available for the area at The Icelandic Meteorological Office since 1953.

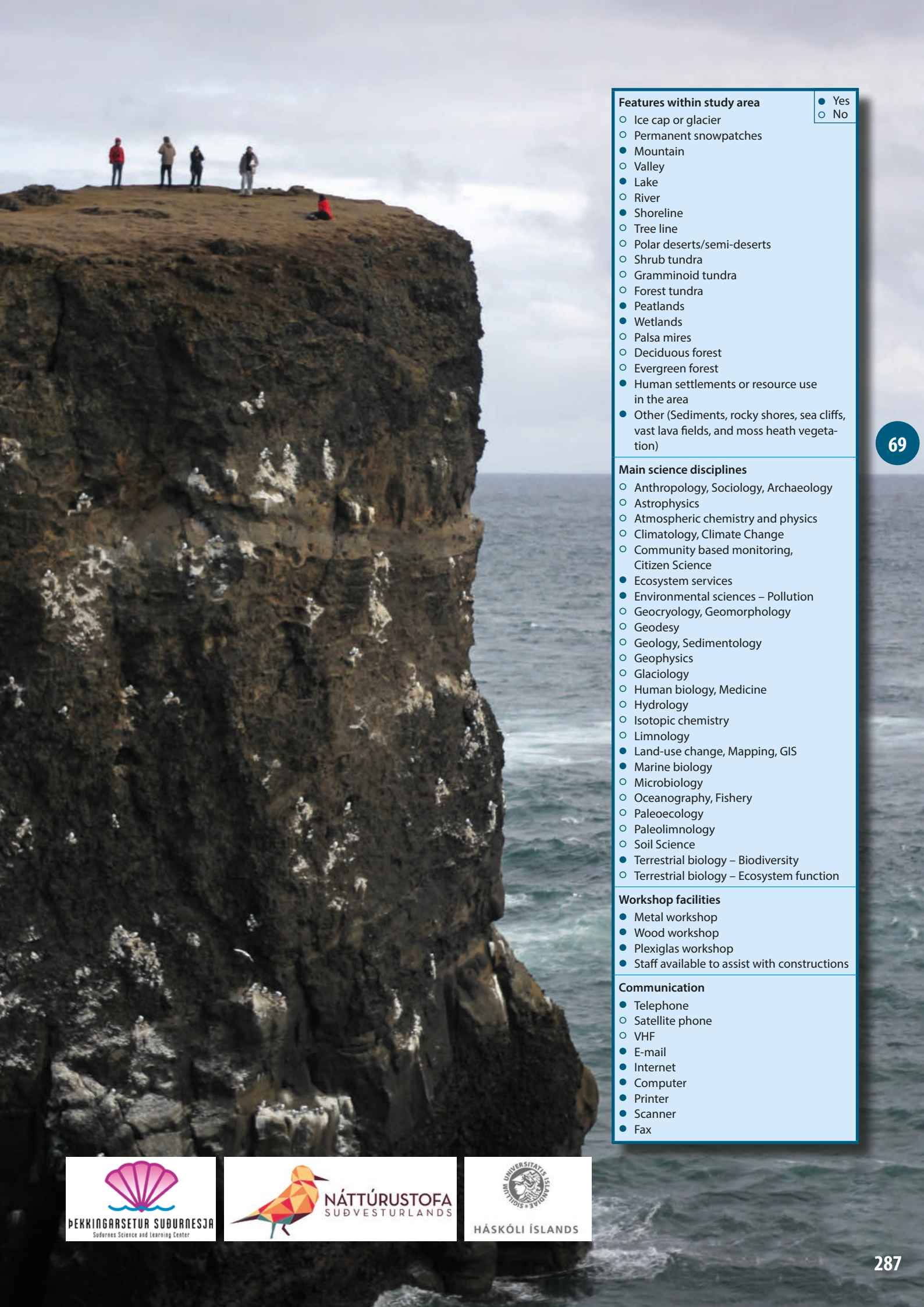
HUMAN DIMENSION

Sudurnes Science and Learning Center is located in Sandgerdi, a small fishing village with 1600 inhabitants. Fishing, service industries, and tourism are the primary occupations in the area.

ACCESS

Sudurnes Science and Learning Center is easily accessible by car or bus throughout the year. It is located only 7 km from the international airport in Keflavik.

Category	Sub-Category	Sudurnes Science and Learning Center
Website		www.thekkingarsetur.is
Country		Iceland
Opening year		2012
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	Yes Yes thekkingarsetur@thekkingarsetur.is
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Sudurnes Science and Learning Center Government Sudurnes Science and Learning Center thekkingarsetur@thekkingarsetur.is www.thekkingarsetur.is
Other institutions	Name Country	Southwest Iceland Nature Research Centre, The University of Iceland's Research Centre in Sudurnes Iceland
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearests town/ settlement Distance to nearest settlement Map	64°02′ N, 22°42′ W 3 m a.s.l. 0 m a.s.l. 400 m a.s.l. Located in Sandgerdi (1600 inhabitants), Reykjanesbaer (14 000 inhabitants) 7 km away 0 km Map (1:250 000), geological map, vegetation map, coastal habitat map, areal image, SPOT satellite image, Google Earth with high resolution
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic – Since 1953 (for Keflavík airport) 4.7 °C 0.7 °C 10.6 °C 6.7 m/s 34.5 m/s NNE and SW 1092 mm Rain, snow Lake Sandgerdistjorn: March/April; Sea: Open water all year round
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak / off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	1470 m^2 320 m^2 140 m^2 10 offices, 3 laboratories, 3 wet labs, 3 meeting rooms, 1 storage room, 6 bedrooms (12 beds), shared kitchen and bathroom 10/6 12 in beds (+ 12 futons) Yes Yes 220 V / 380 V (geothermal and hydroelectric; Eurasian type plugs) 24 hours per day
Scientific equipment	Specific device Scientific services offered	Basic lab and fieldwork equipment incl. a microscope, 10 binocular microscopes, respirometers, coulter counter, drying oven, fume hood, centrifuge, sieves, sieve shaker (contact the station for details) Technical support, lab and field work support, assistance with logistics
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	Standard (first aid kit) Sudurnes Hospital and Health Center in Reykjanesbaer – 9 km, 10 min by car – Mobile phone
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	3065 × 60 m Asphalt Yes Yes
Vehicles at station	Sea transportation Land transportation	Port in Sandgerði Car
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Accessible by road, international airport and harbour near by Daily (year round) Daily (year round)



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
○ Valley	
● Lake	
○ River	
● Shoreline	
○ Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
○ Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
○ Evergreen forest	
● Human settlements or resource use in the area	
● Other (Sediments, rocky shores, sea cliffs, vast lava fields, and moss heath vegetation)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ○ Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ○ Soil Science
- ● Terrestrial biology – Biodiversity
- ○ Terrestrial biology – Ecosystem function

Workshop facilities

- ● Metal workshop
- ● Wood workshop
- ● Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

LITLA-SKARD

STATION NAME AND OWNER

Litla-Skard is not a typical research station but a bio-monitoring site. The site is operated jointly by the Agricultural University of Iceland, the Icelandic Institute of Natural History, the Icelandic Meteorological Office, the Environmental and Food Agency of Iceland, and the Iceland Forest Service.

LOCATION

The Litla-Skard bio-monitoring area is located in the lowlands of western Iceland (64°43′ N, 21°37′ W), about 38 km from the shoreline and 100 km north of Reykjavik.

BIODIVERSITY AND NATURAL ENVIRONMENT

The Litla-Skard area exhibits birch shrubs, moss heaths, sedge mires, grassland as well as, sparsely vegetated fell fields. Also a small lake is found within the area. In total, 101 vascular plant species and 19 moss species have been recorded at the site. Birds dominate the vertebrate fauna with 22 species recorded in the area. Most notable of these are whooper swans *(Cygnus cygnus),* great northern divers *(Gavia immer),* and redwings *(Turdus iliacus)* in summer; snow bunting *(Plectrophenax nivalis)* in winter and raven *(Corvus corax)* and ptarmigan *(Lagopus muta)* year around. Three species of mammals occur at the site: Arctic fox *(Alopex lagopus)*, American mink *(Mustela vison),* and wood mouse *(Apodemus sylvaticus)*. Two species of fish occur in the lake: three-spined stickleback *(Gasterosteus aculeatus)* and brown trout *(Salmo trutta)*.

HISTORY AND FACILITIES

The Litla-Skard site was designated as a bio-monitoring area in 1996. Litla-Skard is an old, lowland farm. The site is now owned by the Iceland Forest Service. In the past most of the area was used for grazing livestock, mainly sheep. The site has not been grazed since 1985. Afforestation at the site is very limited and disturbance level from human activities is low. The total land area of the Litla-Skard bio-monitoring area is 3 km^2 with an elevation of 60-230 m a.s.l. At Litla-Skard there are no research buildings or laboratories, and permanent staff is not located at the site. However, accommodation and laboratory space are available at the campus of the Agricultural University of Iceland in Hvanneyri, 27 km away from the site.

Icelandic Institute of Natural History · Agricultural University of Iceland · Skógrækt Ríkisins · Environment Agency of Iceland · Icelandic Met Office

GENERAL RESEARCH AND DATABASES

Litla-Skard is a national site for the International Cooperative Program on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP IM). The main research emphasis till now has been on chemistry of precipitation, climate, and hydrology. A vegetation inventory has been carried out at the site, and the main vegetation and soil types have been mapped. The research is mostly confined to a 560 000 m^2 catchment area. Automated weather and hydrological stations were set up at the site in 2000. Existing data bases include climatic records, data on catchment hydrology and water chemistry, as well as limited biological records.

HUMAN DIMENSION

Before the Litla-Skard area was established as a research and monitoring site in 1996, farmsteads and sheep grazing dominated the land-use. Currently there are no farms in the area and domestic grazing animals have been absent for over 20 years.

ACCESS

Litla-Skard is reached by car throughout the year. It is located by the main central highway, c. 100 km from Reykjavik. Keflavik International Airport is situated about two hours drive from the site.

Category	Sub-Category	Litla-Skard
Website		www.ust.is/litla_skard
Country		Iceland
Opening year		1996
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	hlynur@lbhi.is
Facility owner and manager	Name of the facility owner	Iceland Forest Service
	Owner status	Government
	Institution responsible for managing the station	Agricultural University of Iceland and Icelandic Meteorological Office
	Contact (access to station)	hlynur@lbhi.is
	Website (institution)	www.lbhi.is
Other institutions	Name	Environment Agency of Iceland, Iceland Forest Service, Icelandic Institute of Natural History
	Country	Iceland
Location	Geographical coordinates	64°43′ N, 21°37′ W
	Altitude of station	115 m a.s.l.
	Min. altitude within study area	115 m a.s.l.
	Max. altitude within study area	229 m a.s.l.
	Nearest town/settlement	Borgarnes (2000 inhabitants)
	Distance to nearest town/settlement	25 km
	Map	Map (1:250 000), aerial image, SPOT satellite image, Google Earth with low resolution
Climate	Climate zone	Low Arctic
	Permafrost	–
	Years measured	15
	Mean annual temperature	3.1 °C
	Mean temperature in February	-1.8 °C
	Mean temperature in July	10.8 °C
	Mean annual wind speed	4.2 m/s
	Max. wind speed	33.5 m/s
	Dominant wind direction	NE
	Total annual precipitation	740 mm
	Precipitation type	Snow, rain
	Ice break up	Lake Silungatjörn: April/May
Station facilities	Area under roof	No buildings at site, but facilities at the campus of nearby AUI University
	Scientific laboratories	At a nearby campus, 40 m^2
	Logistic	–
	Number of rooms (beds)	6 (6 beds)
	Number of staff on station (peak/off season)	–
	Max. number of visitors at a time	6
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	Eurasian two-pin plug, 220 V
	Power supply	24 hours per day
Scientific equipment	Specific device	Climate station
	Scientific services offered	Free access to baseline data
Medical facilities	Medical facilities	Standard (In the nearby town of Borgarnes, 25 km away)
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	110 km (1.5 hour)
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	–
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–

Features within study area	● Yes ○ No
Ice cap or glacier	○
Permanent snowpatches	○
Mountain	●
Valley	●
Lake	●
River	○
Shoreline	○
Tree line	●
Polar deserts/semi-deserts	●
Shrub tundra	●
Gramminoid tundra	●
Forest tundra	○
Peatlands	●
Wetlands	●
Palsa mires	○
Deciduous forest	○
Evergreen forest	●
Human settlements or resource use in the area	○
Other (Size of drainage basin: 55.5 ha)	●

Main science disciplines	
Anthropology, Sociology, Archaeology	○
Astrophysics	○
Atmospheric chemistry and physics	●
Climatology, Climate Change	●
Community based monitoring, Citizen Science	○
Ecosystem services	○
Environmental sciences – Pollution	●
Geocryology, Geomorphology	○
Geodesy	○
Geology, Sedimentology	○
Geophysics	○
Glaciology	○
Human biology, Medicine	○
Hydrology	●
Isotopic chemistry	○
Limnology	●
Land-use change, Mapping, GIS	●
Marine biology	○
Microbiology	○
Oceanography, Fishery	○
Paleoecology	○
Paleolimnology	○
Soil Science	●
Terrestrial biology – Biodiversity	●
Terrestrial biology – Ecosystem function	○

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	●
Satellite phone	○
VHF	○
E-mail	●
Internet	●
Computer	●
Printer	●
Scanner	●
Fax	●

RIF

STATION NAME AND OWNER

The Rif Field Station is a non-profit organisation named after the peninsula of Rif, in the northernmost part of Iceland.

LOCATION

The station is located in Raufarhöfn, a small village on the north-east coast of the Melrakkaslétta peninsula in Northeast Iceland. The peninsula is the northernmost lowland area in Iceland, only 3 km south of the Arctic Circle. The northern part of the peninsula is an important area for conservation, especially as a habitat for many bird species. The area has no protection status according to the Nature Conservation Act, but is listed as an internationally Important Bird Area (IBA) by BirdLife International. Most of the area is privately owned but some of the abandoned farms are owned by the Government of Iceland.

BIODIVERSITY AND NATURAL ENVIRONMENT

The northern coast of Melrakkaslétta is highly exposed to cold northerly winds. Fog is frequent along the coast. The coast is characterized by algae rich gentle sloping gravel banks with numerous open and land-locked bays, inlets, salt marshes, and brackish lagoons. Low average summer temperature and high humidity affect the vegetation in the area, and plants of arctic origin are characteristic for the area. At least 53 species of birds have been found breeding in the area, and seabirds, waterfowl, and waders occur frequently in the area. Rock ptarmigan and purple sandpiper are found breeding in high densities. The shores of Melrakkaslétta are used by locally breeding birds as well as up to 20 000 arctic waders on their way to the breeding grounds in Greenland and arctic Canada.

HISTORY AND FACILITIES

Rif Field Station was established in 2014. The station is currently housed in a three-floor building, partly run as a guesthouse. Accommodation facilities include two bedrooms, a kitchen, a living room, and a bathroom. It is available for 6-8 persons at a time. Laboratory and storage facilities are located in the basement. Accommodation for larger groups can be provided in a nearby guesthouse. In Raufarhöfn there is a grocery store, a hotel, a restaurant, a coffee shop, a bank, a post office, a health care centre, and a swimming pool. The station has unlimited access to the land of Rif, the northernmost part of Iceland, for scientific purposes.

GENERAL RESEARCH AND DATABASES

The Rif Field Station is in its development stage. Research will include basic monitoring projects on weather/Climate Change, vegetation, and birds. Long-term research will be conducted on arctic species like rock ptarmigan, gyrfalcon, arctic tern, and purple sandpiper as well as on high arctic migratory birds. Data on climate dates back to 1920. Arrival dates for different bird species has been registered since 2001.

HUMAN DIMENSION

For centuries sheep farming was practiced along the northern coast of Melrakkaslétta, supplemented with some small scale fishing by farmers, both at sea and in freshwater lakes. Farmers also benefitted from the large amount of driftwood that washed up on the shore. Today most of these farms have been abandoned, although some are still used as summer houses. . The village of Raufarhöfn (180 inhabitants), with its great natural harbour, was established for fishery, and eider down is still collected in large eider colonies.

ACCESS

Raufarhöfn is easily accessible by car, on paved road all the way from Reykjavík. The nearest domestic airports are at Þórshöfn (67 km), Húsavík (130 km), and Akureyri (222 km). Eagle Air operates flights from Reykjavík to Húsavík, and Air Iceland from Reykjavík to Akureyri. Norlandair operates flights between Akureyri and Þórshöfn. A limited scheduled bus service is available between Akureyri, Húsavík, and Raufarhöfn.

Category	Sub-Category	Rif Field Station
Website		–
Country		Iceland
Opening year		2014
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	nna@nna.is
Facility owner and manager	Name of the facility owner	Rif Field Station
	Owner status	Non-profit organization
	Institution responsible for managing the station	Northeast Iceland Nature Research Centre
	Contact (access to station)	nna@nna.is
	Website (institution)	www.nna.is
Other institutions	Name	Icelandic Institute of Natural History, University of Iceland, University of Akureyri, The Agricultural University of Iceland, Stefansson Arctic Institute
	Country	Iceland
Location	Geographical coordinates	Raufarhöfn: 66°27′ N, 15°57′W; Rif Farm: 66°31′ N, 16°11′W
	Altitude of station	Raufarhöfn: 6 m a.s.l. (Raufarhöfn); Rif farm: 1 m a.s.l.
	Min. altitude within study area	0 m a.s.l.
	Max. altitude within study area	284 m a.s.l.
	Nearests town/ settlement	Raufarhöfn: 180 inhabitants
	Distance to nearest settlement	Raufarhöfn: 0 km; Rif farm: 22 km
	Map	Map 1:100 000; 1:250 000, aerial image, Google Earth
Climate	Climate zone	Subarctic
	Permafrost	–
	Years measured	2001-2008
	Mean annual temperature	3.4 °C
	Mean temperature in February	-0.7 °C
	Mean temperature in July	9.1 °C
	Mean annual wind speed	6.5 m/s
	Max. wind speed	29.9 m/s (24.10.2008)
	Dominant wind direction	–
	Total annual precipitation	650 mm
	Precipitation type	Rain, snow
	Ice break up	Lakes: March/April; Sea: Open water all year round
Station facilities	Area under roof	66 m^2 + area for scientific laboratories
	Scientific laboratories	C. 10-15 m^2
	Logistic	–
	Number of rooms (beds)	1 kitchen and a living room in a shared room, 2 bedrooms (6-8 beds), 1 bathroom
	Number of staff on station (peak / off season)	–
	Max. number of visitors at a time	6-8, possibility of more in nearby guest house
	Showers	Yes
	Laundry facilities	Yes
	Power supply (type)	230 V
	Power supply	24 hours per day
Scientific equipment	Specific device	–
	Scientific services offered	–
Medical facilities	Medical facilities	Raufarhöfn, health care centre
	Medical suite	–
	No. of staff with basic medical training or doctor	–
	Distance to hospital (estimated time)	130 km to Húsavík
	Compulsory safety equipment	Mobile phone for field work
	Recommended safety equipment	First aid kit for field work
Landing facilities	Airstrip (Length × Width)	Airports: Þórshöfn (67 km), Húsavík (130 km), Akureyri (222 km)
	Airstrip surface	Asphalt
	Helipad	–
	Ship landing facilities	Raufarhöfn: port, landing wharf, pier, lighthouse
Vehicles at station	Sea transportation	None but possibility of renting a boat in Raufarhöfn
	Land transportation	None – rental cars available
Transport and freight	Transport to station	Car
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	Akureyri: Several per day; Húsavík: Once a day except Saturdays, Þórshöfn: Once every weekday from Akureyri

Features within study area	Yes	No
Ice cap or glacier		○
Permanent snowpatches		○
Mountain	●	
Valley		○
Lake	●	
River	●	
Shoreline	●	
Tree line		○
Polar deserts/semi-deserts		○
Shrub tundra		○
Gramminoid tundra		○
Forest tundra		○
Peatlands	●	
Wetlands	●	
Palsa mires		○
Deciduous forest		○
Evergreen forest		○
Human settlements or resource use in the area	●	
Other (Salt marshes, inlets and brackish salt lagoons, sea cliffs, lichen rich heathland)	●	

Main science disciplines		
Anthropology, Sociology, Archaeology	●	
Astrophysics		○
Atmospheric chemistry and physics		○
Climatology, Climate Change	●	
Community based monitoring, Citizen Science		○
Ecosystem services	●	
Environmental sciences – Pollution	●	
Geocryology, Geomorphology		○
Geodesy		○
Geology, Sedimentology		○
Geophysics		○
Glaciology		○
Human biology, Medicine		○
Hydrology	●	
Isotopic chemistry		○
Limnology	●	
Land-use change, Mapping, GIS	●	
Marine biology	●	
Microbiology		○
Oceanography, Fishery	●	
Paleoecology		○
Paleolimnology		○
Soil Science		○
Terrestrial biology – Biodiversity	●	
Terrestrial biology – Ecosystem function	●	

Workshop facilities	
Metal workshop	○
Wood workshop	○
Plexiglas workshop	○
Staff available to assist with constructions	○

Communication	
Telephone	○
Satellite phone	○
VHF	○
E-mail	○
Internet	●
Computer	○
Printer	○
Scanner	○
Fax	○

FINI

STATION NAME AND OWNER

The Faroe Islands Nature Investigation (FINI) belongs to Jarðfeingi (Faroese Earth and Energy Directorate) and partners.

LOCATION

FINI comprises a growing number of monitoring sites placed on public and private land in the Faroe Islands. The 18 islands form a self-governing country under the sovereignty of the Kingdom of Denmark. The total area is approximately 1400 km^2 and has a population of almost 50 000 people (2010). The monitoring sites are placed on mountain slopes and summits that are accessible within an hour hike from the road and within an hour drive by car from the capital Tórshavn.

BIODIVERSITY AND NATURAL ENVIRONMENT

The Faroe Islands are a group of islands situated between the Norwegian Sea and the northeast Atlantic Ocean with more than 300 km distance to the next land area (approximately half way between Scotland and Iceland). The islands have an oceanic subarctic climate and are characterised by a high relief. The mountain areas are heavily grazed by sheep. The floral and faunal biodiversity is low, reflecting the isolated location, the extreme oceanic climate, the steep topography, and intensive land use. The most dominant vegetation in the Faroe Islands is grassland, found from sea level to the mountain tops. *Racomitrium* heaths and fell-field vegetation dominate the alpine vegetation. *Calluna* heaths are common in the lowlands. Birds dominate the terrestrial wild life.

HISTORY AND FACILITIES

Most of the monitoring sites of FINI are less than 10 years old. FINI has no station facilities at the sites, but can offer office facilities including internet access, other logistic support, and advice at FINI, Jarðfeingi, in Tórshavn.

GENERAL RESEARCH AND DATABASES

The research at the FINI sites focuses on geohazards, meteorology, geophysics, and plant ecology. The existing database includes a bibliography of publications based on monitoring data.

HUMAN DIMENSION

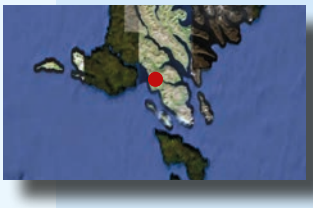
People in towns and villages live a modern European life. Houses are modern, the infrastructure is well developed and it is easy to travel by car. At the same time rich elements of traditional Faroese culture are deeply rooted in daily life: fishing, bird and whale hunting, traditional food and singing, and chain dancing.

The language is Faroese which has close roots in the Old Norse language.

ACCESS

You can arrive to the Faroe Islands all year by ship or by plane. The ferry leaves from Hanstholm, Denmark and Seyðisfjørður, Iceland. Look for www.smyrilline.com. Flight connections to the Faroe Islands leave from Copenhagen (Denmark), Aalborg (Denmark), Billund (Denmark), Reykjavik (Iceland), Bergen (Norway), London (UK) and Barcelona (Spain). Look for www.atlantic.fo. The local infrastructure in the Faroe Islands is well developed with busses and ferries. It is also possible to rent cars and helicopter routes are fairly cheap. Look for www.visitfaroeislands.fo.

Category	Sub-Category	Faroe Islands Nature Investigation (FINI)
Website		www.jf.fo
Country		Faroe Islands
Opening year		1999
Operational period		Year-round
Permitting issues categories	Permits required for access to the station Permits required for studies Contact (permit issues)	– Yes (Permit required for permanent stations) lm@jf.fo
Facility owner and manager	Name of the facility owner Owner status Institution responsible for managing the station Contact (access to station) Website (institution)	Jarðfeingi and partners Government Jarðfeingi and partners lm@jf.fo www.jf.fo
Other institutions	Name Country	Náttúrugripasavnið, Landsverk, Umhvørvisstovan Faroe Islands
Location	Geographical coordinates Altitude of station Min. altitude within study area Max. altitude within study area Nearest town/settlement Distance to nearest town/settlement Map	62°04′ N, 06°58′ W 725 m a.s.l. 0 m a.s.l. 882 m a.s.l. Tórshavn (18 000 inhabitants) 15 km Map (1:20 000 and 1:100 000), aerial image, satellite image, Google Earth
Climate	Climate zone Permafrost Years measured Mean annual temperature Mean temperature in February Mean temperature in July Mean annual wind speed Max. wind speed Dominant wind direction Total annual precipitation Precipitation type Ice break up	Subarctic – – 6.5 °C 3.6 °C 10.3 °C 5.9 m/s 43.2 m/s SW 1284 mm Rain, snow, hails Sea is ice free year-round
Station facilities	Area under roof Scientific laboratories Logistic Number of rooms (beds) Number of staff on station (peak/off season) Max. number of visitors at a time Showers Laundry facilities Power supply (type) Power supply	No station facilities, accomodation in Tórshavn 30 m² (in Tórshavn) 50 m² (in Tórshavn) Accomodation in Tórshavn (2 rooms) 1/1 20 – – Electricity 220 V 24 hours per day
Scientific equipment	Specific device Scientific services offered	– Logistical scientific services
Medical facilities	Medical facilities Medical suite No. of staff with basic medical training or doctor Distance to hospital (estimated time) Compulsory safety equipment Recommended safety equipment	– – – 15 km (30 minutes) – –
Landing facilities	Airstrip (Length × Width) Airstrip surface Helipad Ship landing facilities	– – In Tórshavn Port in Tórshavn
Vehicles at station	Sea transportation Land transportation	– Car, bus (not at the station)
Transport and freight	Transport to station Number of ship visits per year (period) Number of flight visits per year (period)	Flight or ferry to the Faroe Islands Weekly (summer) Daily (year-round)



JARÐFEINGI
FAROESE EARTH AND ENERGY DIRECTORATE

● Yes
○ No

Features within study area

- ○ Ice cap or glacier
- ○ Permanent snowpatches
- ● Mountain
- ● Valley
- ○ Lake
- ○ River
- ● Shoreline
- ○ Tree line
- ○ Polar deserts/semi-deserts
- ○ Shrub tundra
- ○ Gramminoid tundra
- ○ Forest tundra
- ○ Peatlands
- ○ Wetlands
- ○ Palsa mires
- ○ Deciduous forest
- ○ Evergreen forest
- ○ Human settlements or resource use in the area
- ● Other (Steep cliffs)

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ○ Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ○ Community based monitoring, Citizen Science
- ○ Ecosystem services
- ○ Environmental sciences – Pollution
- ● Geocryology, Geomorphology
- ○ Geodesy
- ● Geology, Sedimentology
- ● Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ○ Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ● Land-use change, Mapping, GIS
- ● Marine biology
- ● Microbiology
- ● Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ○ Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ● Wood workshop
- ○ Plexiglas workshop
- ● Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ● VHF
- ● E-mail
- ● Internet
- ● Computer
- ● Printer
- ● Scanner
- ● Fax

CAIRNGORMS

STATION NAME AND OWNER

The ECN Cairngorms site is owned by Scottish National Heritage, a Scottish government funded body that looks after Scotland's landscapes whilst research is managed by Centre for Ecology and Hydrology. ECN stands for the UK Environmental Change Network, and is the UK's long-term environmental monitoring and research programme. The ECN makes regular measurements of air, soil, water, and a range of animals and plants across a network of sites to determine how and why the natural environment is changing (see www.ecn.ac.uk for more information).

LOCATION

The ECN Cairngorms site is a north facing granite catchment overlain with peat situated in the Cairngorms Mountains of Scotland (57°07′ N, 03°49′W), rising from about 350 m a.s.l. through the tree line at 500 m a.s.l. to the highest summit at 1111 m a.s.l. The catchment area is 10 km^2. The site is part of the Invereshie and Inshriach National Nature Reserve, and forms part of the Cairngorms National Park.

BIODIVERSITY AND NATURAL ENVIRONMENT

The catchment is composed of a wide range of ecosystems from pine forest at low altitude, through bog communities on ground with impeded drainage, to alpine vegetation including moss and lichen heaths on the highest ground. The charismatic capercaillie, a member of the grouse family (IUCN Red listed), is found in the pine woods along with pine martin. Several species of deer can be found grazing a variety of habitats from the forests to the summits. The site has virtually no natural tree line due to past overgrazing but is now being extensively re-colonised by *Pinus sylvestris*.

HISTORY AND FACILITIES

From the middle of the nineteenth century the site was mainly used as deer forest, as part of a large sporting estate in private ownership (Invereshie Estate). It became part of the Cairngorms National Nature Reserve in 1954. Ecological and environmental research has been undertaken in the area since the early 1960s, and the site joined the Environmental Change Network of the UK in 1998. There are no buildings on the site, but accommodation for a small number of visitors can be arranged on site (camping), and there are local hotels and guest houses nearby.

GENERAL RESEARCH AND DATABASES

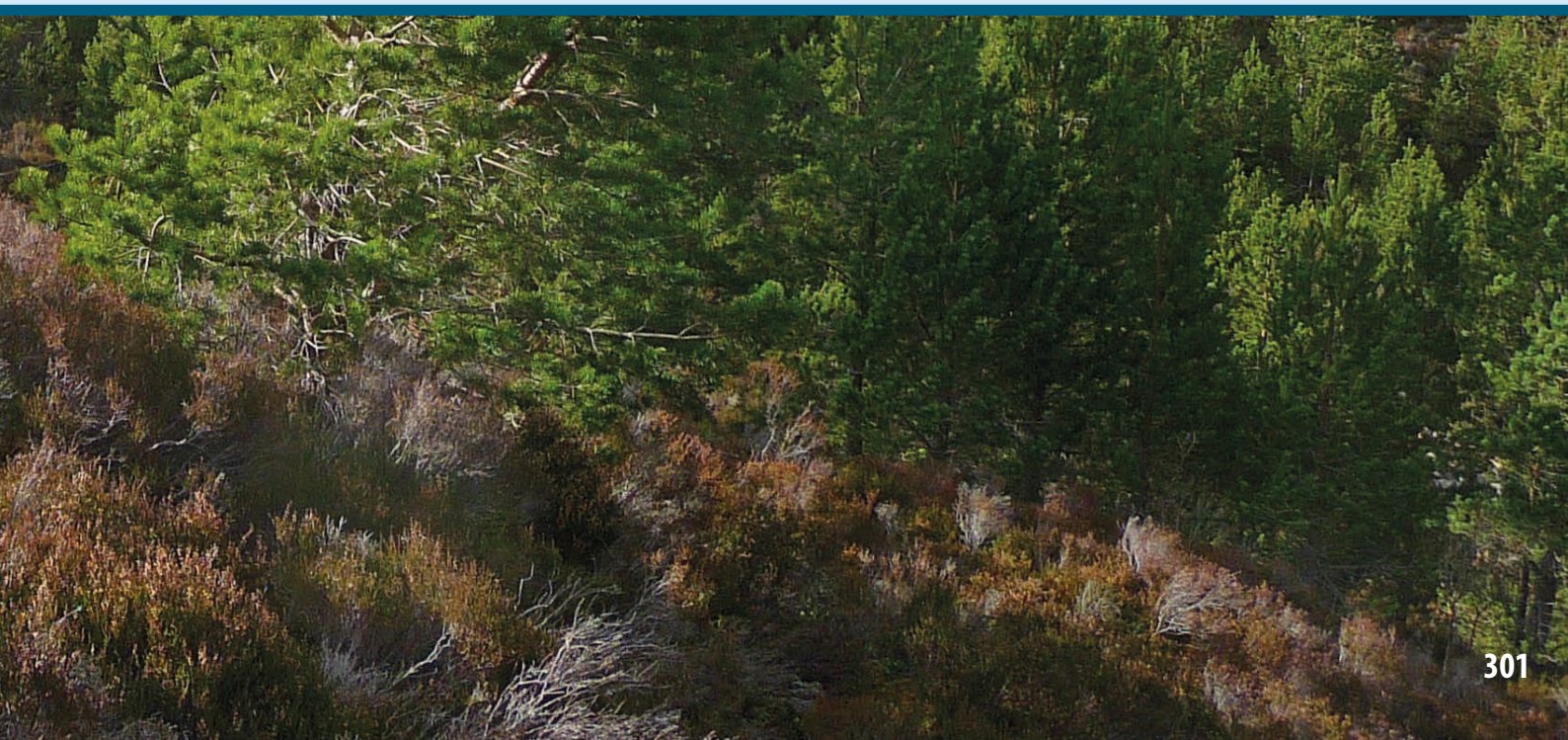
Research on the site includes both terrestrial and freshwater environmental monitoring as part of the ECN and also as part of the Austrian GLORIA programme (www.gloria.ac.at), examining temperature effects on vegetation across Alpine Europe. Intensive hydrological and snow related research took place in the early 1990s. The Cairngorms area has been the focus of many land use change and tourism impact studies since c. the 1980s, and the data is being used in current ecosystem service research.

HUMAN DIMENSION

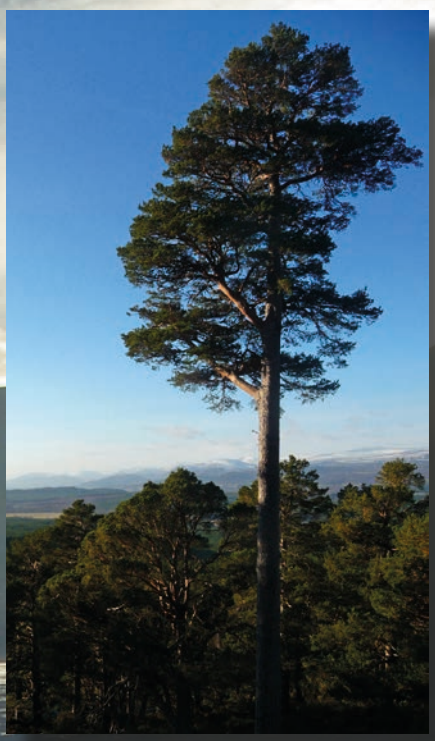
The research site is uninhabited and used for recreation; hiking, trekking, and mountain biking. Aviemore, the nearest town, has a population of around 2500 and became one of the first skiing resorts to be established in Scotland with the opening of the chairlift in 1961. The resort has since grown into the UK's most visited ski resort during the winter months. In 2013 the national park became the first Long-Term Social-Ecological Research (LTSER) platform in the UK, providing a platform for linking ecological, social and economic research.

ACCESS

The research site is close to Aviemore, which has good rail and bus services to Edinburgh (approximately 3 hours) and Inverness (less than an hour). A full suite of laboratory facilities are available at the Centre for Ecology and Hydrology, Edinburgh (CEH) located 10 km south of Edinburgh.



Category	Sub-Category	Cairngorms
Website		www.ecn.ac.uk
Country		Scotland, UK
Opening year		1998
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	–
	Permits required for studies	Yes
	Contact (permit issues)	jand@ceh.ac.uk
Facility owner and manager	Name of the facility owner	Scottish Natural Heritage
	Owner status	Government
	Institution responsible for managing the station	Center for Ecology and Hydrology
	Contact (access to station)	jand@ceh.ac.uk
	Website (institution)	www.ceh.ac.uk
Other institutions	Name	–
	Country	–
Location	Geographical coordinates	57°07′ N, 03°49′ W
	Altitude of station	700 m a.s.l.
	Min. altitude within study area	350 m a.s.l.
	Max. altitude within study area	1100 m a.s.l.
	Nearest town/settlement	Aviemore (2500 inhabitants)
	Distance to nearest town/settlement	10 km
	Map	Map 1:250 000, aerial image, satellite image, Google Earth with low resolution
Climate	Climate zone	Alpine (temperate forest and heath)
	Permafrost	–
	Years measured	Since 1998
	Mean annual temperature	5.09 °C
	Mean temperature in February	0 °C
	Mean temperature in July	10.5 °C
	Mean annual wind speed	7.3 m/s
	Max. wind speed	29.3 m/s
	Dominant wind direction	SW
	Total annual precipitation	835 mm
	Precipitation type	Snow, rain, hail
	Ice break up	–
Station facilities	Area under roof	–
	Scientific laboratories	Use facilities at CEH Edinburgh (over 500 m^2)
	Logistic	Use facilities at CEH Edinburgh (over 500 m^2)
	Number of rooms (beds)	–
	Number of staff on station (peak/off season)	0/0
	Max. number of visitors at a time	80
	Showers	–
	Laundry facilities	–
	Power supply (type)	–
	Power supply	–
Scientific equipment	Specific device	Automatic weather station, variety of survey equipment
	Scientific services offered	Free technical support, free access to extensive ecosystem baseline data
Medical facilities	Medical facilities	–
	Medical suite	–
	No. of staff with basic medical training or doctor	2 at CEH Edinburgh
	Distance to hospital (estimated time)	30 km (1 hour by car)
	Compulsory safety equipment	–
	Recommended safety equipment	–
Landing facilities	Airstrip (Length × Width)	–
	Airstrip surface	–
	Helipad	–
	Ship landing facilities	–
Vehicles at station	Sea transportation	–
	Land transportation	No motorised transport
Transport and freight	Transport to station	Car/on foot
	Number of ship visits per year (period)	–
	Number of flight visits per year (period)	–



Features within study area	● Yes ○ No
○ Ice cap or glacier	
○ Permanent snowpatches	
● Mountain	
● Valley	
○ Lake	
● River	
○ Shoreline	
● Tree line	
○ Polar deserts/semi-deserts	
○ Shrub tundra	
● Gramminoid tundra	
○ Forest tundra	
● Peatlands	
● Wetlands	
○ Palsa mires	
○ Deciduous forest	
● Evergreen forest	
○ Human settlements or resource use in the area	
● Other (Size of drainage basin: 10 km^2)	

Main science disciplines

- ○ Anthropology, Sociology, Archaeology
- ○ Astrophysics
- ● Atmospheric chemistry and physics
- ● Climatology, Climate Change
- ● Community based monitoring, Citizen Science
- ● Ecosystem services
- ● Environmental sciences – Pollution
- ○ Geocryology, Geomorphology
- ○ Geodesy
- ○ Geology, Sedimentology
- ○ Geophysics
- ○ Glaciology
- ○ Human biology, Medicine
- ● Hydrology
- ○ Isotopic chemistry
- ○ Limnology
- ○ Land-use change, Mapping, GIS
- ○ Marine biology
- ○ Microbiology
- ○ Oceanography, Fishery
- ○ Paleoecology
- ○ Paleolimnology
- ● Soil Science
- ● Terrestrial biology – Biodiversity
- ● Terrestrial biology – Ecosystem function

Workshop facilities

- ○ Metal workshop
- ○ Wood workshop
- ○ Plexiglas workshop
- ○ Staff available to assist with constructions

Communication

- ● Telephone
- ○ Satellite phone
- ○ VHF
- ○ E-mail
- ○ Internet
- ○ Computer
- ○ Printer
- ○ Scanner
- ○ Fax

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ORGANISATIONS WORKING WITH INTERACT

The International Arctic Science Committee (IASC) is a non-governmental, international scientific organization. The IASC mission is to encourage and facilitate cooperation in all aspects of arctic research, in all countries engaged in arctic research and in all areas of the arctic region.
www.iasc.org

Arctic Monitoring and Assessment Programme (AMAP) is an Arctic Council initiative with the objective of providing reliable and sufficient information on the status of, and threats to, the arctic environment, and providing scientific advice on actions to be taken in order to support arctic governments in their efforts to take remedial and preventive actions relating to contaminants.
www.amap.no

The Circumpolar Biodiversity Monitoring Program (CBMP) is an Arctic Council initiative supporting an international network of scientists, governments, Indigenous organizations and conservation groups working to harmonize and integrate efforts to monitor the Arctic's living resources.
www.caff.is/monitoring

Sustaining Arctic Observing Networks (SAON) is an Arctic Council initiative that supports and strengthens the development of multinational engagement for sustained and coordinated pan-arctic observing and data sharing systems that serve societal needs, particularly related to environmental, social, economic and cultural issues.
www.arcticobserving.org

International Study of Arctic Change (ISAC) is a program that provides a scientific and organizational framework focused around its key science questions for pan-arctic research including long-term planning and priority setting. ISAC establishes new and enhances existing synergies among scientists and stakeholders engaged in arctic environmental research and governance.
www.arcticchange.org

The WWF Global Arctic Programme has coordinated WWF's work in the Arctic since 1992. WWF works through offices in six arctic countries, with experts in circumpolar issues like governance, climate change, resilience, fisheries, oil and gas, and polar bears.
www.wwf.org

INTERACT STATION MANAGERS' FORUM

The Station Managers' Forum under INTERACT provides a platform for exchange of information between research station managers and disseminates this information to the network, associated partners, local communities and other interested stakeholders.

The Station Managers' Forum produces a number of deliverables related to ecosystem research and monitoring, as well as station management and administration. This catalogue is a deliverable of the forum and upcoming products include reports on station management and administration, and research and monitoring undertaken at INTERACT stations.

Managers exchange and share information through biannual meetings, provide input to reports and can ask other managers for advice through a web-initiated dialogue forum. The Station Managers' Forum meetings are open to external partners (non-consortium members) and will be used to provide information from the different infrastructures to other managers and INTERACT work package deliverables.

www.eu-interact.org

INTERACT

International Network for Terrestrial Research and Monitoring in the Arctic

The INTERACT network is a one-stop shop for access to research infrastructures in the Arctic and mountain areas of the Northern Hemisphere.

The main objective of the INTERACT network is to build capacity for identifying, understanding, predicting and responding to changes throughout the wide environmental and land-use envelopes of the Arctic and mountain areas of the Northern Hemisphere.

The INTERACT network of field stations provides a unique platform for terrestrial sciences and the network hosts and operates top level research and monitoring projects and programmes within a wide range of scientific disciplines.

In this catalogue you will find details of all the INTERACT stations that can be used for selecting research infrastructures that suit your specific scientific needs. It is our hope that you will find this catalogue useful in the planning of your scientific activities or simply enjoy an interesting tour of a variety of terrestrial field bases in the INTERACT network.

Let's INTERACT !

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