

Minutes

General Assembly

INTERACT H2020 General Assembly & Station Managers' Forum
12-14 September 2023 Toolik Field Station, Alaska, US



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1. Introduction

57 participants from 15 countries met at Toolik Field Station in Alaska, USA. The purpose of the meeting was to update each other on the various work packages' progress since last general assembly, to find out if there is any additional need for cooperation between them, and also to talk about the future of INTERACT and the INTERACT Non-Profit Association (INPA).

2. Work Package progress

2.1 WP 9 - The Arctic Resort: increasing benefits and reducing impacts from developing Arctic tourism

Niklas Labba

AECO and Niklas Labba are working together with this work package. The aim of the work package is to review existing tourism policies from an Indigenous peoples' perspective and to create guidelines to be used by local communities but also research stations. This has been achieved by a tight collaboration with station managers and Sámi reindeer herders who are directly affected by tourism.

Both [station specific tourism guidelines](#) and [Sámi tourism guidelines](#) have been developed.

Older policies have been reviewed and suggestions have been made for improvements. For policy makers there is a need on a municipality level to take measures to raise awareness to overcome negative attitudes and racism towards Sámi people, and on a regional level, methods should be developed that enable checks on compliance with laws that prevent grazing reindeer from being disturbed. Tour operators need to develop education modules for guides, managers and service staff together with the Sámi communities and the Sámi communities need to build capacity to develop community-based guidelines and land use plans; develop collaboration with research stations and tour operators; and develop briefings for decision makers and to influence society.

Ways forward are to increase the awareness on positive and negative effects from tourism in Arctic areas and to bridge knowledge gaps between indigenous communities, research stations and tour operators. There is a need to share information between the abovementioned entities and something that would help would be a risk assessment tool for Arctic tourism. The green change is going to affect tour operators' and tourists' behaviour, but we also need the support from Indigenous communities and research stations to assist the development of an ecological and economically sustainable knowledge-based tourism.

2.2 WP8 - Cleaner Arctic, cleaner world: documenting and reducing pollution

Simon Wilson

The objectives of this work package are to work with station managers (WP2, Station Managers' Forum) to identify potential sources of emerging contaminants of concern and reduce their impacts by identifying/establishing screening monitoring protocols for emerging pollutants, and field-testing protocols at INTERACT stations. Furthermore, this work package is collaborating with INTERACT station managers/researchers to promote and support screening monitoring studies, and also refining existing systems at INTERACT stations to minimize introduction and use of new chemicals/pollutants of concern. During the last year, deliverable D8.3 (A compilation of results from testing of protocols with managers of selected INTERACT stations) has been finished.

Organized at the end of 2022, the GAPS Network began a pilot implementation of PUF-PAS sampling at INTERACT Arctic stations. This collaboration will address spatial gaps in coverage for the Arctic region. For each of the four stations selected, sampling materials were provided to establish a second sampling location further away from two stations. This will be used to assess potential local sources affecting POPs concentrations around the station. Two 6-month periods of sampling are expected for this pilot implementation and are expected to be finished early summer 2024 (if the project receives a prolongation).

Deliverable 8.4 (informing appropriate agencies of potential threats from emerging pollutants), is in progress. Ways forward for this work package are legacy activities. It could be to invite additional sites for deployment of passive samplers, and also updating the AMAP monitoring programme (and potentially other programmes such as GAPS, AQUAGAPS) to reflect on the INTERACT experiences.

2.3 WP7 - Preparing for a future world: improving education and awareness at all societal levels

Terry Callaghan (presented by Margareta Johansson and Agata Goździk)

The main objectives are to develop and deliver educational resources at school level in response to needs identified by teachers across the world, and to increase awareness of the general public (including influential people) to Arctic environmental change and its global implications. This work package has four tasks.

The first task, 7.1, is to increase public awareness of Arctic environmental change and its global implications. To realise this task, four movies have been produced by the BBC Natural History Unit. The movies are presented in four deliverable reports. Deliverable D7.1, the film with the title “Arctic Amplification”, shows how the changing Arctic affects the rest of the world. Deliverable D7.2, the film with the title “Extreme Causes for Concern”, is showing examples of extreme events that are dangerous to people and ecosystems. Deliverable D7.3, the film entitled “Disappearing homes”, is showing two examples of impacts of climate change on northern communities from opposite sides of the Arctic (Canada and Siberia). Deliverable D7.4, the film with the title “The cost of Arctic Tourism”, is showing how climate change is encouraging winter tourists to turn from the south to the north. The four films will have their premiere at the Arctic Circle Conference, Friday the 20th October in Reykjavik, Iceland. After this date, they will be made available on INTERACT’s web site.

Task 7.2 is networking and communication activities with teachers and schools. 7 newsletters in Polish and English have been sent to almost 2 500 STEM teachers from more than 60 countries with invitations to polar lessons and information on educational material. In addition, INTERACT was shown as one of 15 STEM projects at the 4th Scientix Conference and was presented at POLAR SYMPOSIUM.BIS in Poland in May 2023 as a poster. Task 7.3 is the Promotion of polar issues by providing educational resources to schools. Educational toolkits have been developed for “The changing Arctic”, “Pollution in the Arctic” and “Invasive species”. 60 online lessons for secondary schools are to be conducted by the end of the year and so far, 57 lessons have been organised. The recordings from the lessons are available on the [INTERACT website](#).

Ways forward are to send out three more newsletters for teachers, to finalising two more toolkits, to produce the Report on Educational Toolkits (D7.5), to finalise the postproduction of recordings from lessons to be published on INTERACT YouTube and to compile a list of conducted online lessons (D7.6).

2.4 WP6 - Climate Action: Making data widely available

Carl Sundström

The aim of this work package is to increase awareness of machine learning (ML) and artificial intelligence (AI) and how to use the technology. A pre-study was made on inquiries and needs from research stations to identify datasets and questions to be answered. The applications of machine learning have been explored by using researchers' and station data, making algorithms and methods available and then demonstrating the outcome. Future strategies for AI and ML have been discussed together with ways of ensuring access to relevant data.

The following deliverables in this work package have been approved: D6.1, a Prestudy on inquiries and needs from identified station managers and researchers to identify possible datasets and types of questions to be answered; D6.2, a Workshop with demonstration on technology available today and expected in the future in the area of AI and ML; D6.3, to Use machine learning on some example data to make specific algorithms and methods available to demonstrate the outcome; and D6.4, a report on future strategy and planning for the area of AI and ML to be applied in arctic research. All deliverables can be read and downloaded from the [AI tab](#) on the INTERACT website.

Ways forward for WP 6 is a potential talk at the Arctic Frontiers conference about the AI and ML work done in INTERACT.

2.5 WP5 - Connecting the Arctic: Transport and Communication

Pjotr Elshout

This work package is working on outlining recommendations on how the implementation of the Agreement on Enhancing International Scientific Cooperation could be further developed. There is also an intention to improve communication for local communities and research stations by introducing new, smart instrumentation.

There are two tasks in this work package, Task 5.2 aims to reduce barriers of communication among stations, local communities and the outside world. Iridium has continued work to assess the satellite communications needs and requirements of the INTERACT III partners in Task 5.2.

Within task 5.1, a deliverable report has been submitted since last general assembly. D5.1 "Report on the Significance of the Agreement on Enhancing International Arctic Scientific Cooperation for Research in the Arctic" is based on two surveys of station managers and TA users, one before and one after Russia's invasion of Ukraine in May 2022. The survey participants generally had little knowledge about the Agreement on Enhancing International Scientific Cooperation and therefore didn't use it. Recommendations that came out from the report were: Promotion of the Agreement (at science conferences, national authorities etc.); Improved awareness of National Points of Contact (by listing these on websites used for applying for permits etc.); Improving importing and exporting of samples internationally (with either very clear framework including all sample-regulations per country as a starting point for scientists, or to attempt to homogenise sample-regulations in the Arctic countries multilaterally); Data standardisation; and Improved awareness and visibility of existing publicly available information platforms (promoting the INTERACT page "Permits and Regulations for Arctic Fieldwork").

Upcoming in-person outreach at events will be the Arctic Circle in October 2023 (EU Polar Cluster Booth and Session) and the SCAR Open Science Conference 2024, and communicating the results of the report with National Points of Contact. Ways forward is to make station managers aware of who

their national point of contact is, using the Agreement when planning research, and let others know the Agreement exists.

2.6 WP4 - Unpredictable Arctic – extreme weather events

Jonathan Day

The overall aim of this work package is to document and improve awareness of the many consequences of extreme weather events in the Arctic that are of importance to ecosystem services, and to local and global communities. The objectives are to document the effects of extreme weather events on rapid changes in Biodiversity; to identify the societal impacts of extreme weather on local communities through community engagement; and to evaluate the ability of current state-of-the-art weather predictions to forecast such events. This work package will also provide guidance on how the INTERACT network can be used to improve weather forecasts and the way they are used in the Arctic and beyond.

Since the last General Assembly Task 4.4 has been achieved. This includes a multi-model evaluation of forecasting systems at Arctic/INTERACT stations YOPPSiteMIP – a flagship activity of the WMO's Polar Prediction Project. Observatory files were produced for 7 Arctic stations and archived at Met Norway's YOPP portal. The data was presented at a co-organised workshop 17-20 April in Stockholm, Sweden on Model Intercomparison and Improvement Projects (MIIPs) for the polar regions and beyond. Furthermore, three papers on forecast evaluation and data descriptions were produced.¹

Ways forward for this work package are for example to add a link to the YOPPSiteMIP data from the INTERACT data infrastructure, and also wrapping up publications, review process and promotion. Merged Observatory Data Files could be used for other applications (meteorology and beyond), and potentially, related activities in Polar Coupled Analysis and Prediction for Services (PCAPS) could be continued under WMO's World Weather Research Programme.

2.7 WP3 - Giving Access to the Arctic

Hannele Savela

The aim of this work package is to offer free-of-charge transnational, remote and virtual access to world-class infrastructures for world-class research. Transnational access means fully funded access to research infrastructure for selected user groups, including the logistical, technological and scientific support usually provided to external researchers using the infrastructure. Remote access means that the staff at the infrastructure is conducting the study/collecting the samples/doing the monitoring for the user(s) according to their research plan. Virtual access means free and open access to data from infrastructures, without any selection or evaluation process. The data is offered at the [INTERACT Data Portal](#).

Since the last meeting in September 2022, 1885 days of access has been declared for 73 user groups, constituting of 184 users from 22 countries. The user feedback has been excellent: 100% would recommend TA and 90% had an excellent or good experience. 12 publications have been reported by

¹ 1. Day et al., (submitted to GMD): The YOPP site Model Intercomparison Project (YOPPSiteMIP) phase 1: project overview and Arctic winter forecast evaluation. 2. Morris et al. (submitted to ESSD): Special Observing Period (SOP) Data for the Year of Polar Prediction site Model Intercomparison and Improvement Project (YOPPSiteMIIP). 3. Uttal et al. (in prep), Merged Observatory Data Files (MODFs) for the YOPP site Model Intercomparison Project (YOPPSiteMIP)

TA users, and this number could potentially rise with the help from SCITES.ai/ORCID. The expenditures of the TA/RA budget this far can be read in Appendix 3.

There has been a lot of TA user community activities throughout the year: At the Arctic Science Summit Week in February 2022 the second TA User Community Meeting was held (which was Milestone M3.9). In March there was a webinar for data managers; in January and April two webinars were held for station managers and administrators; and in April yet another webinar was held for TA/RA users. The layout of the Arctic Research Blogs has been updated and there has been high visibility on social media. The [INTERACT Data Portal](#) has now 15 VA providers (Sonnblick Observatory and Kainuu Fisheries Research Station were the last ones to join) and more are joining. One VA promotion campaign was held in September-October 2022 and a new one will start in the autumn of 2023.

2.8 WP2 - Station Managers' Forum (SMF)

Morten Rasch/Elmer Topp-Jørgensen

The aim of the INTERACT's Station Manager Forum (SMF) is to foster a culture of cooperation between stations and with scientific communities, industries, local communities and infrastructures in other regions. At the moment, everything is on time within the WP. All achieved milestones, deliverables and publications can be found on the [INTERACT website](#).

Since the last Station Managers' Forum there have even been a few bonus products: SMF has contributed to the European Polar Board's (EPB) Environmental Impacts Report; there is ongoing work together with EPB and FARO to get input to ICARP IV; and a presentation about INTERACT tools at the EUROGEO workshop. A review paper on extreme events studies in the Arctic is also being produced. Yet another bonus activity are the seminars on geopolitics in the Arctic that were held at SMF 5 and 6.

A couple of deliverables are in the pipeline: D2.4 Web-editions of updated "Best practices of Station Management" and D2.5 Updated "INTERACT Minimum Monitoring Programme". D.2.8 Pocket guide on metadata standards for scientific networks has been postponed to align with the Register of Polar Observing Networks under SAON/Arctic Council (POAwg). D2.9 Repository with selected data from INTERACT stations integrated in INTERACT GIS is also on its way.

Ways forward are to keep publishing the products from this work package as real books, and with the help of cooperation partners it has been possible to produce many more than originally thought. The two milestones that were delayed due to Covid-19 have been given new deadlines and work is on track to meet these ("Open House Arrangements at Research Stations" and "Courses on Community Based Monitoring at Schools/High Schools").

2.9 WP1 - Coordination

Margareta Johansson

This work package aims primarily to make sure that the project runs smoothly and that there is synergy between the work packages. The "watch dog" experts make sure that innovation, data accessibility and education activities are achieved beyond state-of-the-art.

Since the last General Assembly INTERACT 2 has been ended. Its original end date was September 2020, but was prolonged one year. The final report was submitted in total 8 times before the report finally was closed by EU in August 2023.

INTERACT 3 second periodic report (covering 1 July 2021 – 31 December 2022) was rejected because EU requested additional bank statements for Russian partners, and in September 2023 it was resubmitted. 3 years into the project the consortium has used ca 47% of the total budget of 10 000 000€.

A 1-year prolongation will be requested which gives INTERACT TA another field season, summer 2024 (to compensate for the lost season during Covid-19). All in all 19 deliverables have been approved and 27 submitted. There are still 18 deliverables to go (whereof 6 are late). 40 milestones have been reached and there are still 8 left to reach (of which 6 are late).

Within this work package the Daily Management Group meets every month (the [minutes](#) are available on the website). Work package leader meetings are held every 6 months, and the general assembly meets once per year. During the last year, INTERACT has been represented at the following external meetings; The European Polar Board (EPB) Spring Plenary, NSERC PermafrostNet International Day of Permafrost, Arctic Science Summit Week, The Future of Research Infrastructure in the Arctic and at the Arctic Circle.

Since the last general assembly seven new stations have joined the INTERACT network as Observer stations. From the data watch dog's point of view, INTERACT has made good progress towards federated search, but INTERACT needs to harmonise information so that it can be used efficiently. Next step would be to integrate with the SAON Data Portal, and preparations for the data theme in Arctic Observing Summit (27-29 March 2024 in Edinburgh) have started.

The deliverable D1.2 is a paper on science diplomacy with the title "The rise and fall of science diplomacy in the Arctic – the INTERACT experience", presenting how INTERACT, by linking 90 research stations across the whole Arctic, contributed to opening up the Arctic to the rest of the world and making connections between different networks. The INTERACT Non-Profit Association INPA will secure a long term sustainable network, implementing a roadmap for the future.

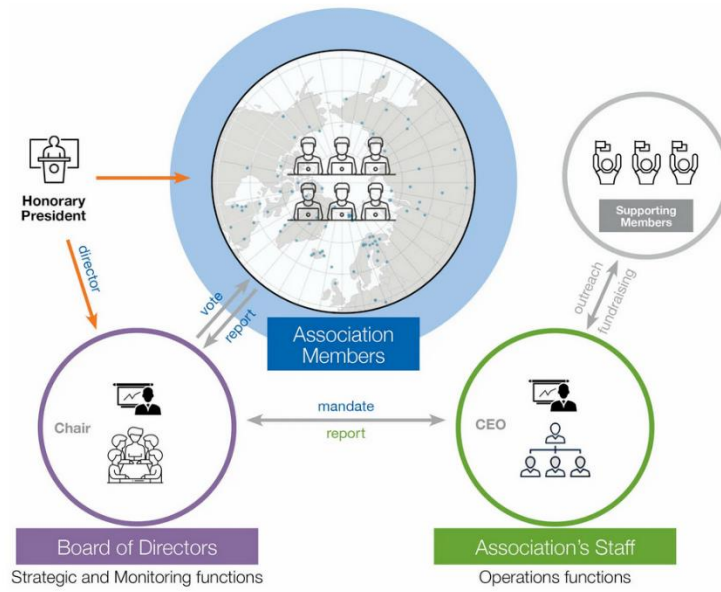
All deliverables from INTERACT 1, 2 and 3 can be found on the [website](#). Alongside its website, INTERACT is present on social media, such as Facebook, X (Twitter), LinkedIn, and Instagram.

3. INTERACT Non-Profit Association (INPA)

INTERACT Non-Profit Association (INPA) has a wide and grand mission: The purpose of INPA is to support the use and operational procedures of infrastructures in Arctic, sub-Arctic, boreal alpine regions, to support research and scientific development in the field of climate change and environment, and to increase general awareness about these topics within the general public and among politicians and decision-makers. The structure of INPA is outlined in the figure below.

Progress made within INPA during the last year was presented. Many new activities have started including six action groups that all INPA members can contribute to. In addition, INPA has also been included as partners in two new big EU consortia (POLARIN and Aquarius) where INPA will e.g. provide the INTERACCESS tool to register and evaluate TA applications.

So far, 25 INTERACT research stations are members of INPA. Campaigns to reach out to the other stations that have not yet joined and to show the benefits will be made during the autumn. It is easy to become a member: visit www.interactassociation.org or email info@interactassociation.org. The annual membership fee is 200€, and there are many benefits for the members.



A schematic of the structure of INPA. The Association's members (the research stations) makes the decision at the General Assembly that the Board of Directors and the Association's staff then work to implement.

Appendix 1: TA

Access modalities	TA, RA, VA
Stations	52 >> 39 (TA), 33 >> 26 (RA), 29 >> 25 stations (VA)
Person-days offered	6 495
TA/RA Calls	1st (2020), 2nd (2020), 3rd (2021), 4th (2022) 5th (2023)?
Person-days applied	13 844
User Groups applied	298
Person-Days granted	4811
User Groups granted	148 >> 133 (15 projects cancelled)

TA User Projects

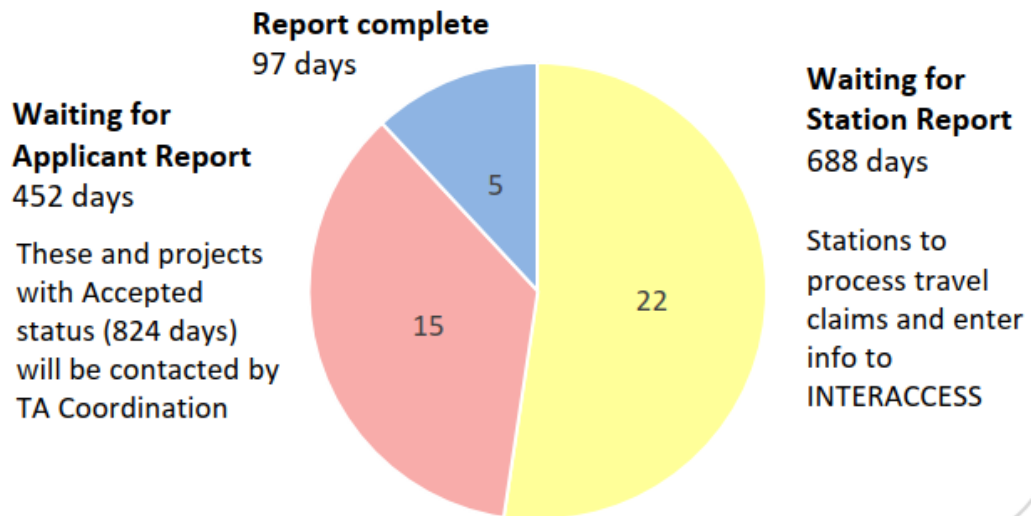
Applied	Granted	Reported	Reporting	Accepted	Cancelled (8 to RUS)
298	148 >>133	65 (49%)	42 (32%)	26 (20%)	15

= Projects in the field in 2023

Access Days

Granted days (all projects)	Accepted	Granted/Used (Reporting)	Used (Reported)	Total "bound"
4811 (74% of offered)	874	1478	1781	4133 (85% of granted)

Projects with Reporting status (42 projects)



TA/RA projects	Access costs	ODC
Declared in 2nd PR	524 000 EUR	449 600 EUR
Projects 2023*	883 600 EUR	713 800 EUR
Total used/bound	1.407.600 (~90%)	1.163.400 (~60%)
TA/RA Budget INTERACT III**	1.559.008€	1.982 726€

*Incl. already reported costs when applicable and granted costs for projects where stations have not entered costs to INTERACCESS yet. Estimated costs of postponed projects from 2020-2022, conducted in 2023 also added here. >> **OVERESTIMATION**

** Total INTERACT III TA/RA Budget 4.037.416 € (incl. OH 25%)

Appendix 2: List of participants

Name	Surname	Organization	In person/ online
Name	Surname		
Nicoletta	Ademollo	Institute of Polar Science, Italian National Research Council	In person
Brian	Barnes	IAB/UAF	In person
Katharina	Beckmann	Lund University	In person
Luisella	Bianco	4PM SRLS	Online
Alexander	Borodin	Iridium Communications	In person
Sydonia	Bret-Harte	Toolik Field Station, UAF	In person
Martin	Breum	HAMACOM	In person
Terry	Callaghan	Sheffield University	Online
Torben R.	Christensen	Aarhus University, Oulu University	In person
Luigi P.	D'Acqui	CNR	In person
Jonathan	Day	ECMWF	Online
Jan	Dick	UKCEH	Online
Elke	Ludewig	GeoSphere Austria	Online
Pjotr	Elshout	European Polar Board	Online
Giorgio	Falsaperna	Linkpro	Online
Dominique	Fleury	French Polar Institut	Online
Marie	Frost Arndal	Aarhus University	In person
Charles	Gignac	Station Uapishka	In person
Agata	Goździk	Institute of Geophysics, Polish Academy of Sciences	Online
Tomas	Gustafsson	AFRY	In person
Jens	Haga	Finse Alpine Research Centre	In person
Susanne	Hanson	Head of Arctic DTU	In person
Laura	Härkönen	Kainuu Fisheries Research Station, Natural Resources Institute Finland	In person
Erika	Hille	Aurora Research Institute (Aurora College)	Online
Margareta	Johansson	Lund University	In person
Mikko	Jokinen	Luke	In person
Ingrid	Kjerstad	The Norwegian Polar Institute	In person
Cornelya	Klutsch	Norwegian Institute of Bioeconomy Research	Online
Niklas	Labba	JNL	Online

Leena	Leppänen	Finnish Meteorological Institute	In person
Porkell	Lindberg Þórarinnsson	Rif Field Station / Northeast Iceland Nature Research Centre	In person
Tanja	Lindholm	University of Helsinki	In person
Maarten	Loonen	University of Groningen, Arctic Centre	Online
Dirk	Mengedoht	AWI	Online
Lise	Millera Ferriz	Centre études nordiques (Université Laval)	In person
Verena	Mohaupt	AWI	Online
Steffen	Olsen	DMI	Online
Hlynur	Oskarsson	Agricultural University of Iceland	In person
Riku	Paavola	Oulanka research station / University of Oulu	In person
Rainer	Prinz	Department of Atmospheric and Cryospheric Sciences, University of Innsbruck, Austria	Online
Zofia	Rączkowska	Institute of Geography and Spatial Organisation, Polish Academy of Sciences	In person
Morten	Rasch	University of Copenhagen	In person
Katrine	Raundrup	Greenland Institute of Natural Resources	Online
Steffen	Ringsø Nielsen	Arctic DTU	In person
Pedro	Rodrigues	Rif Field Station	Online
Krzysztof	Rymer	ADAM MICKIEWICZ UNIVERSITY POLAR STATION "PETUNIABUKTA"	In person
Hannele	Savela	UOULU	Online
Wlodek	Sielski	Institute of Geophysics PAS / Hornsund Polish Polar Station	In person
Jørgen	Skaftø	Aarhus Universitet	In person
Vanessa	Spadetto	University of Oulu / INPA	In person
Carl	Sundström	AFRY	In person
Otso	Suominen	University of Turku / Kevo Research Station	In person
Elmer	Topp-Jørgensen	Aarhus University/INTERACT	In person
Marianne	Valcourt	Station Uapishka SENC	In person

Sölvi Rúnar	Vignisson	Sudurnes Science and Learning Center	In person
Simon	Wilson	AMAP	Online

Appendix 3: Agenda

INTERACT H2020 General Assembly & Station Managers' Forum
11th – 15th September 2023 at Toolik Field Station, Alaska, USA

Thursday 14 th September 2023 General Assembly INTERACT III	
	Work package presentations 10 min presentation on progress and ways forward, then 10 min discussion
8:30-8:40	Welcome and introduction
8:40-9:00	WP 9 The Arctic Resort: increasing benefits and reducing impacts from developing Arctic tourism <i>Niklas Labba & Melissa Nacke</i>
9:00-9:20	WP 8 Cleaner Arctic, cleaner world: documenting and reducing pollution <i>Simon Wilson</i>
9:20-9:40	WP 7 Preparing for a future world: improving education and awareness at all societal levels <i>Terry Callaghan</i>
9:40-10:00	WP 6 Climate Action: Making data widely available <i>Tomas Gustafsson/ Carl Sundström</i>
10:00-10:30	Coffee break
10:30-10:50	WP 5 Connecting the Arctic: Transport and Communication <i>Pjotr Elshout</i>
10:50-11:10	WP 4 Unpredictable Arctic – extreme weather events <i>Jonathan Day</i>
11:10-11:30	WP 3 Giving Access to the Arctic <i>Hannele Savela</i>
11:30-11:50	WP 2 Station Managers' Forum (SMF) <i>Morten Rasch/Elmer Topp-Jørgensen</i>
11:50-12:10	WP 1 Coordination <i>Margareta Johansson</i>
12:30-13:30	Lunch
13:30-14:30	INPA <i>Vanessa Spadetto</i>

14:30-15:30	Any other business
15:30-16:00	Wrap up and ways forward <i>Margareta Johansson</i>