



Minutes of INTERACT III

Station Managers' Forum I



Photo: Marie Frost Arndal

5-6 February 2020
Bäckaskog Castle, Sweden

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DAY 1, Wednesday, February 5

Welcome and introduction

By Morten Rasch, Chair of INTERACT Station Managers' Forum, University of Copenhagen

The chair of INTERACT Station Managers' Forum, Morten Rasch, welcomed all participants to the meeting at Bäckaskog Castle in Sweden. After a short introduction to the agenda, all participants introduced themselves.

42 INTERACT stations were represented at the meeting along with representatives from a number of external partners and collaborators, e.g. AMAP, Iridium, ECMWF, T-MOSAIc, APECS, AECO, etc., 69 participants altogether.

All presentations from INTERACT III can be found online, see <https://eu-interact.org/presentations-from-station-managers-i/>

Presentation of tasks in INTERACT III

Task 2.0. Operate the SMF, Morten Rasch.

The SMF will be run by: Morten Rasch, University of Copenhagen, Elmer Topp-Jørgensen, Aarhus University, Marie Frost Arndal, Aarhus University and Laura Lønstrup, University of Copenhagen. From Umeå ITS, Britta Löfvenberg will coordinate the development of INTERACT GIS. The following subtasks are included in this WP:

Subtask 2.0.1. Operate the SMF as an advanced platform by coordinating tasks within the WP, and linking INTERACT station managers to other WP's and external partners by convening five SMF meetings (Milestones M2.1-M2.5, Months 3, 13, 25, 37, 48).

Subtask 2.0.2: seminars on environmental, operational, technical and safety aspects for station managers and/or technical staff. For example by arranging safety course and lectures to increase knowledge on station management (Milestones M2.6-M2.9, Months 3, 13, 25, 37, 48 and Milestone M2.10, Month 25).

Subtask 2.0.3: Improve best practices on infrastructure management and safety by cooperating with relevant EU Arctic Cluster projects and other entities of relevance, e.g. Antarctic, alpine, marine and atmospheric research infrastructures (Milestone M2.11, Month 13).

Subtask 2.0.4: Develop the INTERACT GIS to make it a leading international platform operated for the research and other communities.

Subtask 2.0.5: Present relevant INTERACT products ('Station Catalogue', 'Best Practices of Station Management', 'Field Work Planning Handbook', 'INTERACT Minimum Monitoring Programme') to a wider audience by developing smart web-editions to be integrated in the INTERACT homepage and/or INTERACT GIS. Focus on condensed and thematic versions.

Deliverables:

D2.1 INTERACT GIS with new features (Month 22).

D2.2 Updated digital Station Catalogue integrated in INTERACT GIS (Month 28).

- D2.3 Web-editions of updated 'Best Practices of Station Management' (Month 35).
- D2.4 Web-editions of updated 'INTERACT Fieldwork Planning Handbook' (Month 48).
- D2.5 Updated 'INTERACT Minimum Monitoring Programme' (Month 48).
- D2.9 Repository with selected data from INTERACT stations integrated in INTERACT GIS (Month 44).

Task 2.1 The unpredictable Arctic by Elmer Topp-Jørgensen

This task is related to *WP4 Unpredictable Arctic – Extreme weather events* lead by ECMWF.

Subtask 2.1.1 will interface JRA partners working with extreme events with research stations and surrounding communities to:

- i. Identify relevant types of extreme events.
- ii. Develop monitoring programmes for extreme events and rapid biodiversity changes.
- iii. Test the feasibility of monitoring programmes designed by WP4 at four research stations (CEN, GINR, ORS, ARS) (M2.12-M2.13, Months 36, 42).
- iv. Ensure dissemination of refined protocols.
- v. Provide observations on unpredicted extreme events.
- vi. Develop mechanisms for stations and their communities to provide data on unpredicted extreme events to relevant JRA partners, decision makers and other stakeholders.

Task 2.2. Transport and communication by Gerlis Fugmann

This task will cooperate with *WP5 Connecting the Arctic – Transport and Communication* Lead by EPB.

The task is divided into three subtasks:

Subtask 2.2.1

- i. Survey Agreement on Enhancing International Arctic Scientific Cooperation effectiveness on the permit systems of relevance for scientists travelling to different Arctic countries, including station access systems, Visa application systems, sample and equipment import/export systems and other authority permits needed to conduct science in the Arctic.
- ii. Identify bottlenecks for Arctic cross-border science cooperation and communicate them to WP5.
- iii. Develop an information platform on the INTERACT web site concerning permit procedures and bottlenecks relevant to scientists.

Deliverable: D2.6 Guide on research permit systems for all arctic countries on INTERACT website (Month 14).

Subtask 2.2.2.

- i. Work with WP5 to identify the ultimate communication and positioning system for INTERACT stations and local communities (M2.14, Month 13).

Subtask 2.2.3

- i. Will identify ways in which the CO₂ emissions from research travel to field sites can be reduced.

Deliverable: D2.7 Pocket guide on how to reduce CO₂ emissions in Arctic science (Month 26).

Task 2.3 Making station data and publications widely available by Morten Rasch

This task will cooperate with the Data Watch Guard and work packages *WP3 Giving access to the Arctic* lead by OULU, *WP4 Unpredictable Arctic – Extreme weather events* lead by ECMWF and *WP6 Climate Action – Making data widely available* lead by ÅF.

The task is divided into two sub-tasks:

Subtask 2.3.1: Implement station based state-of-the-art monitoring across the Arctic by providing seminars for station managers and station technicians on state-of-the-art methods/technologies for environmental monitoring based on input from relevant organisations/networks. Recommendations for monitoring programme.

Introduce metadata standards (identified in INTERACT II) for description of international scientific networks and organisations in collaboration with the Data Watch Guard.

Subtask 2.3.2: Provide open access to selected scientific data by establishing an INTERACT repository for key climate related parameters (e.g. air temperature, wind, precipitation) to be integrated in INTERACT GIS in cooperation with the Data Watch Guard. The discussion on how to upload data or link to archived data will continue at the next SMF meeting.

Contribute to WP3, WP4 and WP6 with a selection of climate parameters and photos from contrasting stations to develop machine-learning for environmental change detection.

Deliverables:

D2.8 Pocket guide on metadata standards for scientific networks (Month 29).

D2.9 Repository with selected data from INTERACT stations integrated in INTERACT GIS (Month 44).

Milestones:

M2.15-16 Seminars on state-of-the-art methods/technologies for environmental monitoring (Months 25, 37).

M2.17 Selection of photos from different stations provided to WP6 (Month 12).

Task 2.4 Station outreach: Educating local communities and decision makers by Morten Rasch

This task will cooperate with *WP7 Preparing for a future world – Improving education and awareness at all societal levels* lead by Sheffield University. Martin Breum (journalist specialised in Arctic issues) will advise in communication in general and how to target decision makers.

Subtask 2.4.1: Develop courses and community based monitoring programmes on environmental issues of local relevance for schools and/or high schools near four stations (Milestone M2.18, Month 25). Arrange 'Open House' thematic days for the general public with focus on climate change, invasive species and plastics (Milestones, Ms.19-M2.20, Months 31, 40).

Subtask 2.4.2: Collaborate with WP7 to improve communication between INTERACT stations and decision makers. Developing a course for station managers on how to communicate with decision makers, by making increased use of press releases produced by professional communicators to reach decision makers at different levels (Milestone M2.21, Month 40).

Task 2.5 Cleaner Arctic by Elmer Topp-Jørgensen

This task is related to *WP8 Cleaner Arctic cleaner world – documenting and reducing pollution* lead by AMAP. The aim of this task is to explore ways in which research stations can reduce their pollution, how stations can contribute to monitoring of pollution (incl. AMAP). It will also identify considerations for stations to address to become an 'environmental friendly' station.

Subtask 2.5.1

- i. Survey to document consumption and emission levels (M2.22, Month 37).
 - Energy use and source (heat and electricity).
 - Plastic types and usage.
 - Waste handling.

Deliverables:

D2.10 Check list for environmentally friendly stations (Month 36).

D2.11 Pocket guide on how to reduce plastic consumption and pollution at research stations (Month: 40).

It was suggested to include transport in the survey of energy use and emissions. The Governor of Svalbard also made a similar survey, which might be relevant to look into.

A checklist for environmentally friendly stations will be made together with all station managers at SMF meetings. It will not be a certificate for the stations, but more a process on how to be able to reduce the CO₂ emission for example.

Subtask 2.5.2: Pilot implementation of a plastic monitoring programme with local communities at four stations (M.2.23, Month 30). Develop recommendations to reduce environmental impacts based on survey in Subtask 2.5.1 (M2.22, Month 37)

Task 2.6 The Arctic Resort by Jan Dick

This task will contribute to *WP9 The Arctic Resort lead – increasing benefits and reducing impacts from developing Arctic Research* by SESAM and will explore different ways in which research stations can contribute to the development of sustainable tourism at or near research stations.

Subtask 2.6.1: consult with station managers to determine actual and potential opportunity for tourism at their sites in order to develop sustainable tourism at INTERACT research stations by:

- i. Assessing best practices for handling the impact of tourism at research stations and in their study areas to contribute to WP9 (D2.12, Month 30)(Milestone M2.24, Month 12).
- ii. Implementing best practices for how research stations can make tourists respectfully aware of station operations, science and local communities with input from WP9 (D2.13, Month 30).
- iii. Identifying with WP9 mechanisms to better educate tour companies and tourists.

All stations were encouraged to put their station on a 'tourist matrix' provided by Jan Dick, to get an overview of what the stations are doing and the potential in relation to tourism.

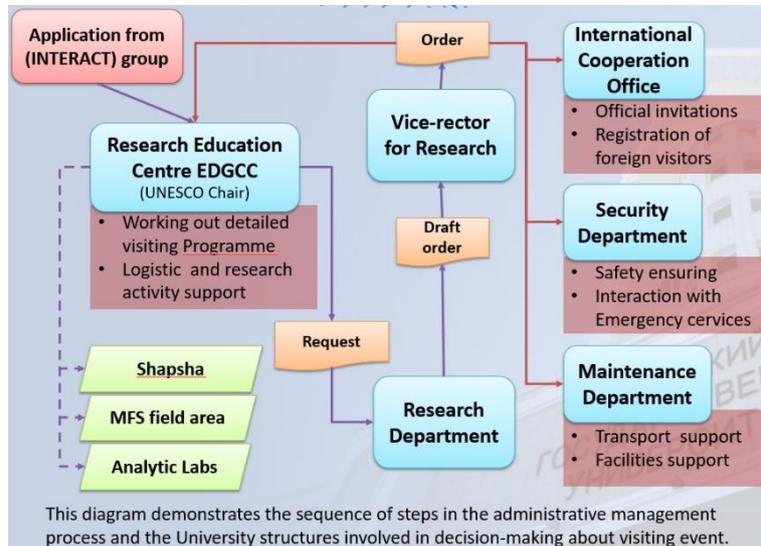
SMF Seminar

Best practices of organizing and financing research stations. Prospects and consequences of different administration and leadership models.

This seminar was brought up as a wish from station managers, and some stations were asked to give a presentation of their organisation and funding mechanisms for inspiration.

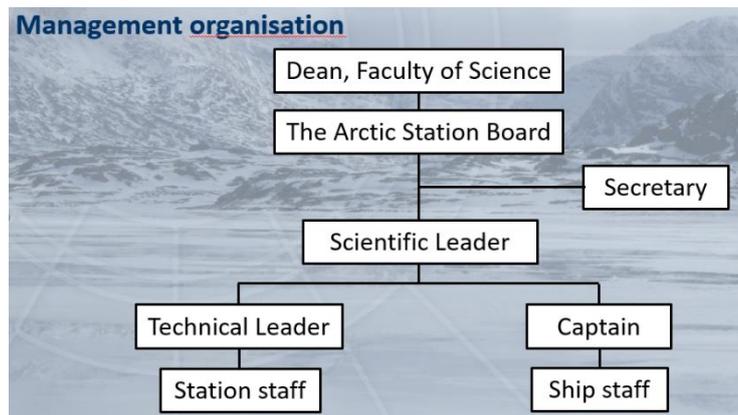
1. Mukhrino by Elena Lapshina

MFS is owned and run by the Research Education Centre “EDGCC” (UNESCO Chair) of Yugra State University, Russia. The station was established in 2009 and has 6 employees. Funding: 90% of the money from INTERACT goes to visitors (flight tickets etc.). 5% is used for the run of the station. Government funds the rest. The university has no money to support the station. Indirect cost from grants can be used for technical support to the station.



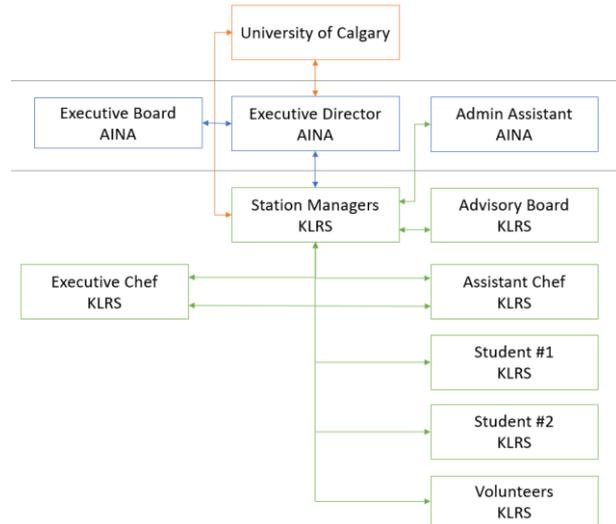
2. Arctic Station by Morten Rasch

The scientific leader of Arctic Station, Greenland is in general an education position, i.e. a young scientific leader in a time limited position for example Ph.D or Post doc., ideally employed for 3 years. The station is owned by University of Copenhagen and has room for up to 26 scientists. Staff: 1 Scientific leader, 1 Technical leader, 1 Captain, 2-3 Logistics assistants. The Board is involved in the daily run of the station. The station receives an operating grant of 2.7 mio DKK from University of Copenhagen, and get income from user fees.



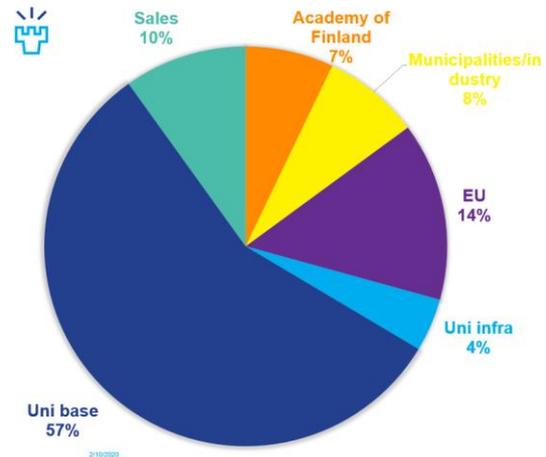
3. Kluane Lake by Harry Penn

Kluane Lake Research Station, Canada, is owned and managed by the Arctic Institute of North America (AINA), and can accommodate up to 42 persons. Two persons are sharing the Station manager position and spends 40% on research, 60% as station manager and vice versa (equals one full time position researcher). Costs are paid by users, governmental funds and scientific grants as well as paying field schools. Executive board consists of six people from industry and academia.



4. Oulanka by Rico Pavola

Oulanka Station in Finland is part of an Infrastructure unit at University of Oulo. As an infrastructure unit, staff are not expected to conduct research as PI. Staff: 6 (technical staff). Number of beds: 72. Organisation: Part of the Infrastructure unit – board only advisory. Directly under the vice-rector of research. See diagram for funding.



Notes from the discussion in breakout groups:

1. Management of stations

Station head needs autonomy (as well as accountability). Short decision paths are important, otherwise it can be slow. If paths are long, people need to communicate and work together well. Very important for station manager to have control over his or her own budget and change expenditures to address things that come up.

Some kind of executive director is common, but can be challenging.

Advisory boards vary with some being more involved than others. Often they have some scientific advice functions.

Funding – stable, long term is advisable. Most stations are partly government or university funded. Important to have long term planning for infrastructure.

2. Financing models

All stations are different – some have 24/7 support while other stations are un-manned. Scientists need a safe platform to work from, and it is important to support science. Discussion on how to find the balance: How should technical and scientific issues be prioritised?

Concluding remarks: Could we make a comprehensive mapping of station management?

Action > Synthesize the discussion on financing by doing a survey. Send out a questionnaire to all station managers. Make few slides to show policy makers and decision makers.

Task 2.6 The Arctic resort by Melissa Nacke, AECO

The Association of Arctic Expedition Cruise Operators' role is to ensure that expedition cruises and tourism in the Arctic is carried out with consideration for the natural environment, local cultures and cultural remains. AECO's members include vessel operators, and there are over 70 international members and 51 vessels operating in the Arctic. AECO have Community Guidelines and site specific Guidelines.

The 'Community' could also be scientific – the scientist could go onboard the ship and tell the story instead of taking people to the station.

Action > Consult with station managers to determine actual and potential opportunities for tourism at their sites in order to develop sustainable tourism at INTERACT research stations. Come up with a template, and find stations to test this.

'Scientific community guidelines': Suggestion to make a two hour seminar at a SMF meeting to get the perceptions from station managers, and get input to guidelines.

Task 2.6 The Arctic resort by Jan Dick

Jan had put up a 'matrix' where station managers could mark their station and station area in regard to tourism (tourist enabled or not, both in terms of facilities and surroundings).

Discussion about what a guide should include, and how to identify the problems and solutions (see appendix 1 for detailed report on this session).

Action > At the next SMF in September 2020 there will be a special session on this, where small break out groups can brainstorm. After that Jan will design a questionnaire to pitch the information that is relevant for the guidebook (for example erosion, disturbance etc.).

Action > Ask all station managers if anyone is interested in working on a similar theme, but make it into a research paper? Identify authors as soon as possible.

Guidebooks by Laura Lønstrup

Two new guide books are planned:

- i. Reducing the Environmental Impact of Arctic Research Stations.
- ii. Reducing the Environmental Impact of Arctic Research.

To get input on the content of these guidebooks, four break-out groups were established.

Input from two groups on Environmental Impact of Arctic Research Stations:

- Alpine guidebooks might be useful to look at.
- Separate local transport from the transport to the station.
- Solar ventilation, insulation.
- Merchandise items, environmental friendly items.
- Compost food waste, use local products, use leftover food, make food from scratch.
- Use second hand materials, for example furniture.
- Hazards – transport of chemicals, batteries.
- Pests.
- Make audit of the station – what is the energy consumption, need of beds, light use – make a guide for how to improve it in the future.
- Non-scheduled transport; info about vessels in the area etc.
- Use four-stroke engines instead of two-stroke, electrical vehicles.
- Garbage compressing, remove wrapping from packages send to the station.
- Green roofs and walls.

Input from two groups on Reducing the Environmental Impact of Arctic Research:

- Good overview of what is already available at the station, so people don't bring extra.
- Reducing open fires, shampoo, sewage.
- Knowledge on chemicals, use of tracers in the field.
- Installation and removal of equipment in the field.
- Drones – noise pollution.
- Be as 'invisible' scientist as possible.
- Reduce your impact; emissions, pollutants, waste.
- Make a list of 'good consumer' things – to inspire visitors.

Remember that <https://www.isaaffik.org/> is a good place to share logistics in Greenland and the Arctic.

Breather presentation – CIAO

China Iceland Arctic research Observatory by Halldór Johannsson

The presentation is available on the INTERACT website <https://eu-interact.org/presentations-from-station-managers-forum-vi/>.

INTERACT GIS management organization by Morten Rasch

The INTERACT GIS system now includes the following modules:

- i. A station catalogue module
- ii. A research project database
- iii. A publication database
- iv. An application module (for application for access to research stations)

Currently, apparently only two stations use the INTERACT GIS application module, and a major challenge is to get more stations to use the application module in the future.

Workpackage 2, Subtask 2.0.4 consists of the following tasks:

- i. Develop INTERACT GIS to make it a leading international platform.
- ii. Consolidate the INTERACT GIS Management Organisation.
- iii. Ensure an effective operation with an increasing number of stations involved (i.e. stations using the application module).
- iv. Integrate standard station descriptions and science metadata and data in formats developed in cooperation with relevant organisations/networks.
- v. Integrate thematic maps (climate zones, vegetation, permafrost etc.) in cooperation with relevant organisations/networks.

It was suggested that the possible establishment of a more permanent INTERACT GIS Management Organisation is postponed to the last few months of INTERACT III (i.e. the autumn of 2023). An interim management organization consisting of two representatives from SMF coordination (to represent the station managers and the INTERACT GIS Station Manager Forum perspectives) and two representatives from Umeå IT (representing the technical perspectives) was suggested and approved. A more detailed description of the new management organization can be found in the document 'suggestions concerning the formal framework for the run and development of INTERACT GIS during INTERACT III, by Morten Rasch (See Appendix 2).

DAY 2, Thursday February 6

Pocket guides by Gerlis Fugmann

A new pocket guide is planned in INTERACT III on Communication systems and Positioning systems. People were divided into small break out groups to discuss the content of these pocket guides:

Notes on Positioning

1) Chapter on maps and compass use

- Importance of checking for actual declination; old U.S. maps do not have the correct magnetic declination any more (changes with earth magnetic field - magnetic north pole moving several km every year).

2) Chapter on GPS – give general instructions (but each instrument has specific instructions)

- Models change over time – do not recommend particular models.
- Instructions for taking positions for sampling.

- Position format instructions; confirm before going out.

3) Chapter on emergency locator beacons, with information similar to what was presented in the course

4) Chapter on preparing before you go

- Checklist on what to do before you go, say where you are going.
- File a trip plan, guidelines on what a field trip plan should include.

5) Chapter on how coverage differs from continent to continent for people working internationally

- This would be helpful for visitors to stations, including TA users.

6) Chapter with instructions on what to do if you can't reach anyone (emergency preparedness and checklists)

- Example: WARC sends people out with 72-hour packs (freshwater, food, thermal blanket, fire starter) because it will take two days for Canadian military to get there.
- Heat vests that are good for 16 hours after contact with oxygen (single use).
- A checklist of basic emergency supplies would be helpful.

7) Chapter on importance of local knowledge

Example: importance of checking in with locals on best routes through a river delta

- Make a small 'pocket card' that can easily be brought to the field and which contains most important info.
- Make guidelines for the stations.

Notes on Communication

- Divide book into before, during and after the fieldwork, and also distinguish between practical work and an emergency.
- Important to fill out fieldwork info on where you are going. Remember extra clothes and always bring a 'Basic kit' to the field for emergency.
- Station personal: good briefings important, for example about the area topography, educate the visitors in the area, how to monitor and listen to communication from the Station/base. Morning briefings – check weather forecast, sea state. Agree on all plans and where it is safe to go, safe river crossings, etc. – discuss this before going out. There should be one contact point at the station and field groups should decide who would be responsible for communication with the station/base.
- VHF – agree on number of radios per group. Good tips, as for example: hold the VHF radio over your head when listening (to receive), talk clearly in the radio, etc.
- Other forms of communication: use fire if safe, make yourself more visible by walking in a snow patch, use chocolate powder to write in snow (!).
- Don't rely on communication – think for yourself!
- Keep a logbook of all calls, position, date, time and person calling. Agree on a special time for calling in, and a procedure in case of missed calls, and action to take in case of an emergency.
- List the responsibility of the stations as well as the responsibility of users.
- Maps of GPS signals in the area.
- Make a list of pros and cons for communication equipment.
- Guidelines and rules.
- Insurance needs.

Closing of SMF

By Morten Rasch (University of Copenhagen) and Elmer Topp-Jørgensen (Aarhus University)

Station managers were reminded that:

- A number of 360-degree cameras are circulated to interested stations. The SMF keeps track of cameras and ensure these are circulated. Stations were reminded to use the equipment and to report to the SMF once done, to discuss where to send the kit.
- New research and Monitoring report will soon be made. Important that all station managers upload their project metadata in INTERACT GIS. Guidelines for uploading excel files with project metadata will be circulated.

Action > Elmer will send out a template to all station managers to ease the uploading of metadata.

Action > Station managers remember to sign up for INTERACT GIS (register on website and use 'Contact' on the website to write note on which station you will be managing and if others need to have access to the station in INTERACT GIS).

Action > Next SMF meeting will be held back to back with the Annual meeting of INTERACT III, September 21-25 in North America.

Appendices 1

1. Report Task 2.6: The Arctic Resort

See attached pdf.

2. INTERACT GIS management organization

See attached pdf.