



Minutes
INTERACT III
Station Managers' Forum VI

11-15 September 2023
Toolik Field Station, Alaska, USA



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Minutes

Day 1, 12 September 2023

Welcome

Morten Rasch welcomed all participants to the meeting - 35 people attended this meeting in Alaska and approximately 21 attended the meeting online. Toolik Field Station, Brian Barnes and Syndonia Bret-Hart (Donie) were thanked for hosting the meeting. Donie also welcomed all participants and gave a presentation about Toolik Field Station, i.e. the history, mission and vision, initiatives, science support and the monitoring network.

A short introduction round was made where all participants should mention what has been the biggest benefit of INTERACT SMF for their station. The main benefits mentioned were:

- Getting to know people and gathering knowledge.
- Learn from each other, make publications.
- The station has gained more visiting researchers.
- Network, inspiration.
- See other research stations, what to improve, inspiration.
- Community of friends.
- Better understanding of the arctic environment.
- See what we have in common – and what is different.
- Transnational Access.
- Joint Research Activities that have initiated networks, collaboration.

Activities and achievements since last meeting/*Elmer Topp-Jørgensen*

There are six tasks in SMF:

Task 2.0 Operate the Station Managers' Forum

Task 2.1 The unpredictable Arctic

Task 2.2 Transport and communication

Task 2.3 Making station data and publications widely available

Task 2.4 Station outreach: Educating local communities and decision makers

Task 2.5 Cleaner Arctic

Task 2.6 The Arctic Resort

Tasks 2.1-2.6 are all related to the Joint Research Activities workpackages.

International collaboration

On 27 October 2022 FARO, ARICE, EPB and INTERACT arranged a workshop about *'The future of Arctic research infrastructure in the Arctic' in Brussels*. INTERACT SMF has also contributed to the *'Synthesis report on the environmental impacts of research and logistics in the polar regions'* made by the European Polar Board.



At the Arctic Science Summit Week (ASSW) 2023, INTERACT had a session on Transnational Access, and Svenja Holste from APECS had a workshop with the title '*Carbon footprint and environmental impact reduction workshop*' based on the guidebook made in SMF.

For the Arctic Circle conference in October 2023, a session is planned on the ICARP IV process, co-hosted with the European Polar Board.

SMF, represented by Elmer Topp-Jørgensen, is part of the European Polar Board Working Group on Environmental Impacts. The Polar Observing Asset working group (POAwg) is established under the SAON Committee and provides technical guidance for sharing information about observing activities. One of the tasks of POAwg is to make a '*Registry of polar observing networks (RoPON)*'.

Books

Upcoming products:

- '*INTERACT Reducing Plastic Consumption and Pollution*' – soon ready for layout.
- Online e-pub of '*INTERACT Field Work Planning Handbook*' (already online) and '*INTERACT Management Planning Handbook*'.
- '*INTERACT Reducing the Environmental Impacts of Arctic Research Stations*' – soon ready for layout.

Ten stations should already have had INTERACT Open House events (Milestone M2.19-20), but this has been delayed due to Covid.

Open Station events material has been produced for these events and includes:

- Three posters about INTERACT and the topics of Climate Change, Invasive Species and Plastic - what can you do?
- Slide show for Open Station events.
- Roll-up displays of INTERACT and individual stations (to be translated into local, non-English languages).

The material can be adapted to individual stations with own photos and text.

INTERACT GIS developments.

SMF leads the development of the system together with UMEÅ IT as technical developers. Elmer Topp-Jørgensen showed the newest developments:

Climate data: As discussed earlier, downscaled monthly temperature and precipitation data retrieved from all stations from 1950 until today have been gathered and will be presented on station pages. Data are shown as WMO Climate Normals (1961-1990 and 1991-2020) and individual years after 2020.

Access application module for research stations: It is now possible for stations on their INTERACT GIS station page to insert a link to direct scientists to their application system or register using the INTERACT GIS application module.



Application Programming Interface: An Application Programming Interface (API) allows others to harvest our data directly from INTERACT GIS. A request is made via the API that accesses the web server to retrieve the requested data.

Breather presentation – Ny Ålesund Research Station/Ingrid Kjerstad

Ny Ålesund Research Station has a communication strategy that targets everyone. A large outreach campaign took place in April 2023, and the campaign used short 1-minute videos, based on one of their science projects, on Facebook, Twitter and YouTube. There were also stories in the News and Newspapers. The campaign was a success and reached a broad audience.

Ny-Ålesund Research Station has launched a research strategy applicable from 2019. The Norwegian Polar Institute (NPI) will perform Norway's host role in Ny-Ålesund and is responsible for the implementation and daily follow-up of the research strategy locally. NPI is thus the point of contact in Ny-Ålesund for scientific research. The research strategy is branding Ny Ålesund as one research station. The earlier known international stations are now considered 'Hosts' but are still approving access to the national houses to their own research projects. Kings Bay Company runs the infrastructure and much of the logistics in Ny Ålesund.

Open floor

Kilpisjärvi biological station/Tanja Lindholm

'Kilpisjärvi Science Trails' was launched as an app in early June 2023 with four different trails with 35 stops. The content is in both written and audio form in Finnish, Swedish and English. The free-of-charge application works both online and offline (uses phones GPS). Advertisement of the app have been made on social media (Facebook, Instagram) and around Kilpisjärvi service providers:

Link to the science trails and more info via the Kasivarsi National Parks site:

<https://www.nationalparks.fi/kasivarsi/trails> or via the university:

<https://www.helsinki.fi/en/research-stations/science-trails>

A bigger information campaign is scheduled for next season, i.e. Summer 2024, and the aim is to have 2,000 users of the system per year.

Uapishka, Canada/ Charles Gicnac and Marianne Valcourt

Introduction to the new station established in 2020. The station is accessible by road and the area is used by many tourists. The GLORIA vegetation monitoring protocol is implemented, and several climate weather stations will be installed. Capacity is for 80 people and the station is open year-round. Tourists account for 70% of the visitors, while researchers account for the remaining 30% - the hope is to increase the number of researchers in the future.

Ongoing research projects are covering the subjects: climate, flora, fauna, spatial organization- and socio-ecological integrity of the territory.

Everyone is encouraged to use the social media channels of INTERACT to attract attention to their station – just send material for Katharina Beckmann to post it on INTERACT Social Media platforms.



The Lotic model/Jens Haga

Jens Haga gave a partly philosophical presentation about how to pass information to next generations.

Zackenberg - Green transition and internet/Torben R. Christensen

PV systems

Solar panels have over the past two years been installed in Zackenberg in three different angles and types, to test-implement the best installations and types of panels:

- Solar panels with an angle of 15 degrees, installed east and west-facing.
- Solar panels with an angle of 45 degrees, installed facing south.
- Solar panels with an angle of 90 degrees – including testing of bifacial solar panels (double-sided).

Most of the solar panels have been operational since August 2022. The station is supplied from batteries, and new and smaller generators are integrated and in use only when needed. Generator use is now reduced to 80% of previous use and on average the generator is in use only 4.5 hours each day. Zackenberg still needs to evaluate the full annual performance, but predictions are that it will meet expectations of at least a 50% reduction in the use of diesel (note the station is closed during winter).

Internet

In 2023, a Starlink connection was installed at Zackenberg to provide internet at the station by using the existing local network infrastructure. Long-range Wi-Fi enables connections to Daneborg and throughout the entire Zackenberg valley. During June – September 2023 the Zackenberg network accommodated more than 300 individual devices (computers, smartphones, instruments, etc.), 159 of which were connected wirelessly (using the station WiFi). The overall network traffic for all these devices exceeds 5 petabytes of data.

Morten Rasch also shared his positive experiences with Starlink from a ship-based expedition, where 32 people on an icebreaker made use of Starlink based internet in the Greenland sea and along the coast of Southeast Greenland.

DTU Arctic Station – main updates/Susanne Hanson

DTU runs the year-round manned DTU Arctic Station and education facility in Sisimiut, Greenland. The station supports research and education addressing Climate Change and a green transition of the Arctic. The Facility is managed and operated by Arctic DTU, Danish Technical University, in collaboration with the Greenlandic Government, Ministry of Education and Research.

It is the experience that students do not read material on safety issues and use of station facilities being handed out. Instead, the station has made a video with all the important information needed for guests. From fall 2023, everyone visiting the station and the campus facility in Sisimiut will have to complete a safety course with an introduction film and a quiz before arriving.

The municipality sees a significant increase in tourists in Sisimiut, not least because the number of cruise ships has increased enormously over the last couple of years. A new initiative 'the Knowledge Path' is made in collaboration with DTU, the local municipality and Visit Greenland. DTU have assisted with an active dissemination of DTU's activities around the city through this Knowledge



Path. In this way, DTU helps their researchers with outreach and the municipality with a half-day activity for tourists. The trail will consist of 10-15 signs at DTU projects around the city with a QR code leading to a graphical presentation of the project. The signs will be in three languages, GL, DK, and EN. After the completion of Sisimiut Knowledge Path, a similar one will be constructed in Kangerlussuaq, where also international research projects can be included.

An ATV track has been created between Kangerlussuaq and Sisimiut, partially overlapping with the original hiking trail. The route provides access between Sisimiut and Kangerlussuaq and gives access to the back country east of Kangerlussuaq, especially during summertime.

More info can be found here: [The Arctic Circle Road and ATV track \(arcticcircletrail.gl\)](https://arcticcircletrail.gl)

SMF participants are encouraged to collect the different quizzes, tests etc. used by their research stations for a session about this at the next SMF meeting. A session allocated for this purpose will be used to show the different systems and possibilities, e.g. quiz on safety, code of conduct etc.

[Dirigibile Italia/Nicoletta Ademollo](#)

The Dirigibile Italia station opened in 1997 and is managed by CNR-ISP, but hosts researchers from other institutions and universities. The station can host up to seven researchers at a time. Since 2018 the station has been open throughout the year.

Access to the station is through a national call and a peer-review process. More than 30 project applications were received for 2023, including INTERACT and SIOS access projects. The station expects a similar number of projects as in 2022. So far there has been 1373 man-days at the station in 2023.

The PRA (Arctic Research Programme), funded by the Italian Ministry for University and Research for studies in the Arctic (three calls for projects up to now) has been renewed for two more years (1 M€/y). See <https://www.programmaricercaartico.it/index-projects>.

SENTINEL Holthedalfonna ice drilling campaign in Svalbard took place in April 2023 and collected a deep ice core from Holtedahlfonna (HDF) Glacier summit.

From April 2023 the station will have an electric car for moving people and cargo in and around the Ny-Ålesund.

A new version of the Italian Arctic Data Centre is available and slowly populating:
<https://iadc.cnr.it>

[The unpredictable Arctic, test implementation of CAFF/CBMP extreme events and biodiversity monitoring/Elmer Topp-Jørgensen](#)

The aim of this task is to create strategies for research stations that enhance society's ability to effectively manage extreme events. The task will encompass a pilot implementation of monitoring programs for extreme events at a minimum of four INTERACT stations, showcasing the geographical and socio-ecological diversity within the INTERACT network.



Subtask 2.1.1 aims to connect JRA partners specializing in extreme events with research stations and their adjacent communities in order to:

- identify relevant types of extreme events,
- develop monitoring programmes for extreme events and rapid biodiversity changes,
- test the feasibility of monitoring programmes designed by WP4 at four research stations

A list of extreme events has now been defined and references added. The table is now divided into:

- Description of extreme events
- Detection of and monitoring the extreme event itself
- Monitoring ecosystem impacts of the extreme event

Next steps:

- Approval by CAFF/CBMP, incl. identification of prioritized FECs for each type of extreme event
- Finalising guidance documents
- Test implementation 2023 at INTERACT stations
- Integrate in CBMP interactive online tools

Discussion and comments:

The above-mentioned list of extreme events will be shared with SMF. It is up to the individual station to define their own monitoring area, and if an event occurs, consider if there is anything to change/add to monitoring at the station.

Question from audience: Is there any connection with LTER – are they working on same classification as FEC's (Focal Ecosystem Compartments)? Elmer will bring this back to CBMP and ask for clarification.

It was suggested to include satellite data in the tool, as it is easy to detect extreme events using satellite photos. This will be integrated. It was also mentioned that a simple minimum FEC list, maybe not so labor intensive, i.e. will be great to have for the station managers.

Making station data and publications widely available/Elmer Topp-Jørgensen

Deliverable D2.8 is to develop a pocket guide on metadata standards for scientific networks.

SMF contributes to development of the Registry of Polar Observing Networks (RoPON) system, developed by Polar Observing Assets working group as an Arctic Council initiative under Sustained Arctic Observing Network (SAON). INTERACT SMF have provided our INTERACT GIS metadata standards related to stations, networks and projects. RoPON is a work in progress, but it is already now possible to access the website of RoPON: <https://polarobservingregistry.org/>

Station outreach/Elmer Topp-Jørgensen

Ten stations have signed up for Open House events in INTERACT III on the following topics:

1. Climate Change,
2. Plastic Pollution

3. Invasive Species

The material developed for the open house events includes background info about the three topics and a 'What can you do?' section. Material such as roll-ups, posters and PowerPoint presentations have been developed and will soon be available at the INTERACT website. As for the PowerPoint presentations, it is possible to adapt the slides to specific stations, and the slides can then run as automatic slideshows during events.

A cleaner Arctic – Plastic reduction guidebook/Marie Frost Arndal

In June 2023 a first draft of an '*INTERACT Plastic Reduction Guidebook*' was circulated to all station managers for comments. The guidebook has focus on recommendations for both station managers and researchers and a general introduction to plastic, the problems with plastic waste and its production and possible solutions.

The guidebook has eight chapters:

1. Introduction to plastic
2. Environmental impacts of plastics
3. International agreements and legislation
4. Guidelines for station managers
5. Guidelines, when working at a research station
6. Monitoring of plastic use, waste generation and pollution
7. Influence on local communities
8. A future outlook

As not many station managers have commented on the first draft, Katharina will circulate it again, to receive some more input. The final guidebook will then be layouted and printed.

The future of SMF – workshop on challenges, opportunities and priorities/Morten Rasch

Station managers were divided into smaller groups to discuss the following questions:

1. What has been the most important outcome for your station by being a part of INTERACT Station Manager Forum?
2. What is currently the biggest challenges of your station?
3. What should be the focus of INTERACT Station Manager Forum in a future without EU-funding (i.e. under INPA)?
4. What should be the focus of INTERACT Station Manager Forum in a future with new EU-funding or other extensive funding?

Reporting in plenum on September 13.



Day 2, 13 September 2023

Open floor session continued

CEN Wapmagoostui-kuujuarapik research station– new protocol for monitoring/Lise Millera Ferriz

Task 2.5 Cleaner Arctic aims to investigate ways for stations to actively participate in AMAP and other pollution monitoring programs. This involves implementing a pilot monitoring initiative at a minimum of four INTERACT stations and subsequently assessing the final protocol in collaboration with all station managers.

Lise talked about the implementation of a new protocol for litter, nano- and microplastics monitoring in Whapmagoostui-Kuujuarapik (Nunavik, QC), regarding the terrestrial monitoring. Two protocols have been developed:

Protocol 1: Litter, nano- and microplastics monitoring in a local plastic accumulation zone.

Protocol 2: Nano-plastics monitoring in smoke deposits.

Next steps of the project are:

1. Proceed with analyses of the samples
2. Share results in an open database (e.g. Nordicana D)
3. Extend the protocols for use at other stations in the Arctic

The protocol is not based on the existing AMAP (Arctic Monitoring and Assessment Programme) protocol – further discussion is needed concerning this, as ideally only one common protocol should be used.

Follow-up on the future of SMF: Workshop on challenges, opportunities, and priorities

Morten Rasch and four working group rapporteurs, i.e. Sydonia Bret-Harte, Inger Kjerstad, Charles Gignac and Marianne Valcourt

Please note: To enhance clarity, the responses from the four groups are consolidated into a single compilation, facilitating a more straightforward comprehension of the answers.

Question 1 - What has been the most important outcome for your station by being a part of INTERACT Station Manager Forum?

- Enhanced visibility of the station.
- Attracting new people to come to the stations (via transnational access).
- Learning from other stations' practices and infrastructures.
- Collaboration and sharing of information.
- Making connections with other station managers.
- Common decisions on issues such as plastic pollution (via best practices guides).



- INTERACT GIS is very useful to advertise the stations (catalog of station characteristics and environments) and data availability to researchers.
- Standardization of protocols.
- SMF/INTERACT is a body that has standing, helps to express the intent of the community, helps in lobbying and decision-making and in persuading policy makers and funders.
- Provides opportunities to visit and experience other infrastructures.
- Support of our community, share problems and knowledge,
- Get new ideas during discussions leading to new developments.
- Get solutions, broad network of contacts,
- Hands-on experience during visits.
- Increase visibility.
- Increased funding.
- Exchange of knowledge.
- Knowledge on safety, station management.
- Get environmental guidelines.
- Network - get to know other people from other stations
- Knowledge of other stations, how they're organized, how they prepare to host scientists.
- Increase visibility, international cooperation, collaboration between researchers,
- Sharing ideas, learn from stations with a lot of experiences,
- Standardize measuring methods.
- Open data portal, GIS portal.
- Outreach and safety material from INTERACT.

Question 2. What is currently the biggest challenges of your station?

- After discussion, the group felt that this question was not really clear, because there are so many individual challenges that stations face and which SMF cannot really help with. We decided to go on to questions 3 and 4, then come back, but we did not really come up with anything for this question.
- Funding! Internal funding conflicts in our own institutions. Funding to support the infrastructure problems due to thawing permafrost.
- Funding. Long-term financing for long-term infrastructure or program.
- To build up the infrastructure: a proper station.
- Better use or increase in awareness of the station capacity to researchers or education institutes (for new and old stations).
- Information/knowledge sharing between researchers and stations.
- A theme to involve the local community in research and monitoring – a need for a forum to exchange and discuss this subject (as provided so far by INTERACT).
- Maintenance of facilities and development.
- Funding (science and maintenance),
- Find people who want to commit and work there, attract researchers/scientists.
- Remote Access, not so easy to perform.
- Relations between scientists, tourists and local/indigenous people.
- Climate Change, Politics.

Question 3 What should be the focus of INTERACT Station Manager Forum in a future without EU-funding (i.e. under INPA)?

- Continue virtual meetings to promote collaboration and keep the network alive.
- Keep the platforms running in a minimal way.
- Transition to INPA.
- Use INPA to help us raise more funds for SMF and Transnational Access.
- Extend smaller scale invitations to see each others' infrastructures, for example to local station managers within one's own country.
- Use in-kind contributions to the extent possible for exchange between stations.
- Russia – how to deal with the loss and collaboration with Russia without funding?
- Fundraising – focus on training in fundraising and how to do fundraising for stations.
- A central entity connecting stations to increase and promote cooperation.
- Take good practice somewhere and apply it at your site/station.
- To have a pan-arctic network (in this new geopolitical reality).
- The issue with increasing cruise ships visiting stations (size, safety, pollution).
- To meet! A platform for stations to exchange ideas and establish new projects cooperation.
- To keep the secretarial function.
- Come up with ideas, new monitoring ideas, international network.
- Harmonize certain protocols.
- Connecting projects and people.

Question 4. What should be the focus of INTERACT Station Manager Forum in a future with new EU-funding or other extensive funding?

- Scientific collaboration to provide complete coverage of observation and research in the Arctic:
 - Common monitoring programs to provide a better representation of the Arctic as climate continues to change.
 - Connect the research done at our infrastructures.
 - How to deal with the loss of Russian stations?
- More best practices guides:
 - Improving interactions with local communities.
 - Co-production of knowledge in working with indigenous/local communities/citizen science.
 - How to handle tourism as it continues to increase in the Arctic.
 - Dealing with mental health situations at stations.
 - Codes of conduct and how to handle sexual misconduct.
 - How best to provide remote access: Communication with researchers and what to require of them.
- Share experiences.
- Provide guidelines for protocols.
- Training:
 - Workshops for researchers to prepare them to come to the Arctic.
 - Open access data training for researchers and students.
- Share new technical/transport/logistic/communication solutions, for example:
 - Renewable energy.
 - New internet solutions that are better and less expensive.

- Provide instrumentation to stations to harmonize climate monitoring and bring it to a high standard:
 - Greenhouse gas monitoring equipment for all! (assuming an unlimited budget)
- How to save money, make money, do research.
- Help INTERACT become the player in the Arctic by including all infrastructures.
- Similar as today is preferred – continue what is already going on, continue with TA.
- Work together for a green transition of the stations. Standardise the ethical and inclusivity of stations (could be directly into the INTERACT portal).

Science diplomacy/Martin Breum

Martin Breum talked about the pause in Arctic cooperation with Russia - why, for who and for how long?

After the war in Ukraine, all cooperation was paused in Arctic Council and its subsidiary bodies. Everything was stopped, i.e. no meetings, and all working groups were put on pause. Not only were meetings with Russia suspended - all meetings of the council were suspended now for more than a year. Some work has been restarted without Russian involvement, but it is unclear, when or under which circumstances, work may be totally resumed.

Lack of collaboration with Russia may lead to a situation in which Russia will partner with China – Russia may not want to resume collaboration with The West.

Russia had the chairmanship of Arctic Council when the war started. On May 23 2023 the Chairship of the Arctic Council was transitioned from the Russia to Norway. On 29 August the member states reached consensus, in consultation with the Permanent Participants, on a first set of modalities for the resumption of work at the Working Group level. It is now possible to finish existing projects with Russian colleagues and to publish joint works in Arctic Council.

Group work on how to prepare for a potential re-start of cooperation with Russia?

1. Status of cooperation with Russian partners?
2. Are there existing untapped options?
3. How to prepare for new opportunities at your station/institution?
4. Suggestions for INTERACT?

Responses to the questions:

Please note: To enhance clarity, the responses from the four groups are consolidated into a single compilation, facilitating a more straightforward comprehension of the answers.

- 1. Status of cooperation with Russian partners?**
 - No cooperation at all. It is not possible to send data or salary to Russia.
 - Formally obliged not to have contacts (letters from government).
 - No communication with stations, but ok for persons (if connected to EU institutions).
 - In the INTERACT context, the EU demanded to cut down ties.
 - DK: Interest from the government about contacts with Russia/China.



- We don't have cooperation with Russian partners, so we don't know. We don't have contacts.
- 2. Are there any existing untapped options?**
- Data sharing or share references of Russian papers.
 - No, we cannot go behind government.
 - To get an acceptance from the EU and/or INPA. Continue private contact (if it seems safe for both parties). To have an organization (independent from the government), who would make contact.
- 3. How to prepare for new opportunities at your station/institution?**
- Wait until there is a change in governments.
 - Going back to how it was done, when the USSR collapsed and how we resumed collaboration with Russian scientists. However, it looks like a long way from now.
 - We could offer to substitute Russian stations for certain projects. To do research in Russian station remotely.
- 4. Suggestions for INTERACT?**
- INTERACT should advocate for collaboration with Russia, support TA to Ukrainian scientists.
 - INTERACT can act as a hub.
 - To write a letter on the background of the paper about the missing of Russian collaboration on climate change? This is not in the interest of fighting climate change. The idea of INTERACT is to connect the Arctic.
 - Be a platform for the connection between researchers. Could be open to data uploading (without any contacts between researchers).

Open floor continued

Reindeer app/Mikko Jokinen

Mikko presented a reindeer app, in which reindeer herders can answer questions about the conditions of snow. The project creates an online application for reindeer herders to collect and deliver data on difficult snow, ice and pasture conditions. Application promotes Citizen Science on climate change and helps authorities to estimate if there is need for further investigations on harsh and unusual pasture conditions and economic compensations for reindeer economy. The App is still under construction. It will be done under this project:

<https://www.luke.fi/en/projects/povaus>

Closing of SMF/Morten Rasch

Hopefully this will not be our last SMF. It has been a great SMF with many exciting and useful presentations during the Open Floors and with lively discussion among the participants. The outcome of the 'Future of INTERACT' will be presented in the minutes. Big thank you to Syndonia Bret-Harte for hosting the Station Manager Forum at Toolik Field Station and big thanks to everyone who participated in this SMF VI.