Arena for the gap analysis of the existing Arctic Science Co-Operations
AASCO 4-5 February 2025, Oceanographic Museum

PROGRAM

Tuesday, 4 February 2025

08:30 **Registration**

09:00 **Opening session**
Hanna Lappalainen, University of Helsinki - Masters of the Ceremony

09:10 Welcome address, HSH Prince Albert II of Monaco

09:20 Hanna Snellman, University of Helsinki

09:30 Kick-off Panel moderated by Lars Kullerud, University of the Arctic

Speakers:
Tuukka Petäjä, University of Helsinki
Sandy Starkweather, Sustainable Arctic Observing Networks (SAON)
Aaja Chemnitz, Arctic Parliamentarians

09:50 Group photo

10:00 **Coffee break**

10:35 Robert Calcagno, the Oceanographic Institute of Monaco

10:45 Olivier Wenden, the Prince Albert II of Monaco Foundation

10:55 **Arctic policy – Funding perspectives**

10:55 Frederik Paulsen, Chair of UArctic

11:15 Shaping Arctic Futue Research: The Impact of EU-PolarNet on Arctic research cooperation, Nicole Biebow, POLARIN & EU-PolarNet 2, Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschun

11:30 Arctic research and EU 9th/10th FPs, Ms Szilvia Nemeth, European Commission DG Research & Innovation Unit B4 – Ocean, Seas and Waters (remote)

11:45 **Arctic perspectives – Current frameworks**
Tuukka Petäjä, University of Helsinki

11:45 ICARP IV Research priorities & IPY, Gerlis Fugman, International Arctic Science Committee

12:00 Summary from the Aussois IPY planning workshop, Markus Frey, British Antarctic Survey

12:15 Climate, Environment and Societies (PACES) Initiative, Steve R. Arnold, University of Leeds and Kathy Law, LATMOS-CNRS, Paris

Discussion & reflections

12:30 **Lunch at the Museum**

14:00 **Arctic perspectives – Current frameworks**
Petteri Uotila, University of Helsinki

14:00 AASCO research priorities, Timo Vihma, Finnish Meteorological Institute

14:45 Achieving Progress under SAON's Arctic Roadmap for the Observing And Data Systems (ROADS) Process, Sandy Starkweather, US Arctic Observing Network

15:00 Arctic Research Cooperation: Expanding our view on why we do and who we do it for? ICARP Science diplomacy & open data, Jennifer Spence, Arctic Initiative Belfer Center for Science and International Affairs, Harvard Kennedy School

15:15 Pan-Eurasian Experiment (PEEX) Program, Tuukka Petäjä, PEEX Science Program Director, University of Helsinki

15:30 From Indigenous Knowledges to Climate Innovation: Centering Arctic Community Priorities in Science, Cana Uluak Itchuaqiyaq, Indigenous Knowledge, Technical & Scientific Communication, Center for Sustainable Engagement in the Arctic

Discussion & reflections

16:00 **Roundtables**
Renuka Badhe

Organizing into groups for detailed discussions and reflections to the on the going frameworks. Tables will have their own discussion theme, and the discussion (ca 2 hours) is coordinated by a designated chairperson and supported by a co-chair. The groups will discuss the themes based on the ICARP Research Priorities Themes (RPT, icarp.iasc.info/engagement/research-priority-teams), PACES and Climate Inventions (climateinterventions.org)). List of Tables and chairs

Table-1 **Arctic Sea ice and Greenland Ice Sheet (ICARP RPT 1)**
Chair Petteri Uotila, University of Helsinki
Co-chair Angelika Humbert, The Alfred Wegener Institute

Guiding questions

1. What are the main research priorities related to Arctic sea ice?
2. How could observations and monitoring support these research priorities?
3. What would be the next steps in implementing supportive actions
4. How to monitor adequately the state of the Greenland Ice Sheet - from surface processes to sea level rise?
5. How to increase knowledge on processes of the ice sheet hydrology?

6. How to do we best foster coordinated monitoring programs of Greenland in the International Polar Year 2032/33?

Table-2	Short-lived climate forcers (SLCFs) (ICARP RPT 1)
Chair	Heikki Lihavainen, SIOS
Co-chair	Yubao Qui, Digital Belt and Road Program (DBAR)

Guiding questions

1. What would be the main research priorities and knowledge gaps in context SLCF and Arctic climate?
2. What observations and where are required to fill the knowledge gaps and improve Arctic climate projections?
3. How to avoid biases caused by SLCF data gaps in understanding SLCF emissions and effects now and in climate projections as half of the Arctic is in many ways inaccessible?
4. What would be ambitious enough goals for 5th IPY in SLFC context?

Table-3	Interplay between Arctic processes and the coupled climate system (ICARP RPT 1)
Chair	Timo Vihma Finnish Meteorological Institute
Co-chair	Dorotea Iovino, Foundation Euro-Mediterranean Centre on Climate Change (CMCC)

Guiding questions

1. What are the key knowledge gaps and research priorities regarding local physical processes in the Arctic atmosphere, ocean, and sea ice?
2. How are local processes in the Arctic atmosphere, ocean, and sea ice influenced by heat and moisture transports to the Arctic
3. How are climate feedback effects expected to evolve during this century and beyond?
4. How do changes in the Arctic system impact weather and climate in mid-latitudes?

Table-4	Climate interventions (climateinterventions.org, ICARP RPT 7)
Chair	John Moore, Arctic Centre, University of Lapland
Co-chair	Marc Macias-Fauria, Department of Geography & the Scott Polar Research Institute University of Cambridge

Guiding questions

1. What systems in the Arctic are most at risk of collapse, and what, if anything, might delay or avert them?
2. What systems might be helped with only local (domestic law) interventions?
3. What field tests in the Arctic might be feasible - socially, legally and technically?
4. How might preserving the Arctic cryosphere be paid for?

Table-5	Research priorities around Arctic air pollution (PACES)
Chair	Steve Arnold, University of Leeds
Co-chair	Kathy Law, LATMOS –CNRS, Paris / Alexander Baklanov University of Copenhagen

Guiding questions

1. What are key remaining knowledge gaps in understanding sources and processing of local emitted air pollutants in the Arctic?
2. What are the research priorities in better understanding impacts of local Arctic air pollution on health, ecosystems, climate?
3. Which science questions could be better addressed by improving frequency and coverage of regular vertical profile sampling of air pollution in the Arctic?

Additional questions; How to improve regular vertical sampling in the Arctic (PACES)

1. Which science questions could be better addressed by improving frequency and coverage of regular vertical profile sampling (aerosol, trace gas, temperature, humidity) in the Arctic?
2. What are the potential platforms available to undertake routine vertical profile sampling?
3. Which technological / instrumentation developments can we expect in advance of IPY (2032-33) to help enable routine vertical sampling?

Table-6 The role of Co-Production and local communities (ICARP RPT 3, 5)
Chair Cana Itchuaqiyaq, Center for Sustainable Engagement in the Arctic
Co-chair Hanna Snellman, Univeristy of Helsinki

Guiding questions

1. How do you ensure that the principle of "nothing about us without us" guides your research, particularly when working with Arctic Indigenous communities?
2. Beyond this principle, what other ethical guidelines do you prioritize to ensure your research aligns with the values and self-determination of Indigenous peoples?
3. What is your process to actively involve local communities as co-creators in shaping, conducting, and disseminating your research to make it meaningful and beneficial to them?
4. How do you approach language justice and meaningful access in your work, such as sharing research findings in Indigenous languages or through culturally appropriate and accessible mediums?

Table-7 Pan-Arctic Science Research Collaboration (ICARP RPT 4)
Chair Jennifer Spence, Harvard Kennedy School
Co-chair Kamrul Hossain, Northern Institute for Environmental and Minority Law, Arctic Centre, University

Guiding questions

1. To what extent is Pan-Arctic research collaboration important?
2. What is your vision for Pan-Arctic research collaboration in 2035?
3. What are the challenges for Pan-Arctic research collaboration?
4. What are the tools available and/or do we need to advance Pan-Arctic research collaboration?

Table-8 Data-sharing, AI (e.g. ICARP RPT 2, 5)
Chair Pier Luigi Buttigieg, the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research
Co-chair Jørn Kristiansen, The Norwegian Meteorological Institute

Guiding questions

1. How can data platforms incorporate Indigenous and local knowledge alongside or integrated with scientific data?
2. What are the most critical unmet needs of diverse user groups, and how can data-driven services be designed to meet those needs effectively?
3. Can interdisciplinary approaches enhance the availability, quality and usability of environmental data?
4. How do geopolitical challenges and regulatory frameworks impact polar data sharing and service provision, and what actionable recommendations can address these issues?
5. The (artificial) elephant in the room: How do we leverage the AI boom for better data sharing, without it undermining foundational architectures?
6. Why can't I find all Arctic data (or even metadata) from trusted sources across all Arctic platforms?
7. What is working in delivering scientific data to other societal actors in a way they can react to? Why are most scientific data products still underused or invisible?
8. What can we - as an Arctic community - do now to improve the situation?

16:30 Coffee and refreshments available

Round Table discussions continue

18:00 Tour at the Museum

18:30 Dining Reception at the Aquarium, Drinks & Food

Wednesday, 5 February 2025

09:00 Welcome

09:15 Art performance

Ia Laiti, Nea-Veera Mäkäräinen, Saana Lahtela, Liisa Yrjänä
Santasport Institute, Vocational Education on Dance, Rovaniemi
Choreography: Viljami Pekkala

09:30 Arctic futures - Invited talks
Heikki Lihavainen, SIOS

09:30 Global Challenges: Arctic and boreal viewpoints, Markku Kulmala, University of Helsinki

09:50 When is Arctic change bad? Kim Holmén, Norwegian Polar Institute

10:10 To intervene in the cryosphere or not, what do we need to know? John Moore, Arctic Centre, University of Lapland

Discussion & reflections

10:30 Coffee break

11:00 Arctic futures - Invited talks

Heikki Lihavainen, SIOS

11:00 Insights from establishing global data flows for Essential Ocean Varibles: Detecting assets, gaps, and opportunities with the IOC-UNESCO Ocean Data and Information System, Pier Luigi Buttigieg, the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research

11:20 Improving weather and climate services in the polar regions, Jørn Kristiansen, the World Weather Research Programme's Polar Coupled Analysis and Prediction for Services (PCAPS)

11:40 Need for a coordinated program on the Greenland Ice Sheet in the next IPY, Angelika Humbert, AWI

Discussion & reflections

12:20 Lunch

13:20 Roundtables' reports
Renuka Badhe

13:20 Table-1 Arctic Sea ice and Greenland Ice Sheet, Petteri Uotila & Angelika Humbert
13:30 Table-2 Short-lived climate forcers (SLCFs), Heikki Lihavainen & Yubao Qui
13:40 Table-3 Interplay between Arctic mesoscale processes and the coupled climate system, Timo Vihma & Dorotea Iovino
13:50 Table-4 Climate interventions, John Moore & Marc Macias-Fauria
14:00 Table-5 How to improve regular vertical sampling in the Arctic (PACES), Steve Arnold & Kathy Law
14:10 Table-6 The role of Co-Production, local societies, Cana Itchuaqiyaq & Hanna Snellman
14:20 Table-7 Pan-Arctic Science Collaboration, Jennifer Spence & Kamrul Hossain
14:30 Table-8 Data-sharing, AI, Pier Luigi Buttigieg & Jørn Kristiansen

Discussion & reflections

15:00 Conclusions and next steps
Tuukka Petäjä and Hanna Lappalainen, University of Helsinki

15:30 The end of the AASCO 2025 event