

Report from workshop

Communication between science and the local community in Longyearbyen

Thursday, December 6th 2018,
3:30-6 pm, UNIS, Longyearbyen



The aim of this workshop was to initiate a dialogue on knowledge, challenges and possibilities related to climate, nature, and the environment on Svalbard. A central question asked was how research on climate and the environment can be of use for the local community in Longyearbyen. Different local actors were invited to give short statements about what they see as the most important challenges and possibilities related to climate, nature, and the environment within their sector, as well as what knowledge is needed.

The workshop was prepared and facilitated by Lisbeth Iversen, Nersc on behalf of the UAK and INTAROS project, and Alexandra Meyer, University of Vienna on behalf of the NUNATARYUK project.

The workshop was organized by Nansen Environmental and Remote Sensing Center and collaborating partners under the project “Useful Arctic Knowledge: partnership for research and education” (UAK) in collaboration with the H2020 project Integrated Arctic Observation System (INTAROS), the H2020 project NUNATARYUK and the University Centre in Svalbard (UNIS).

In acknowledgement to the projects that has contributed to this workshop:





Background

The workshop was a part of Research school on cross-disciplinary science in the Arctic and collaboration with local communities, 02 – 07 December 2018, at UNIS, Longyearbyen, Svalbard. This research school was organised by the Nansen Environmental and Remote Sensing Center under the project Useful Arctic Knowledge: partnership for research and education (UAK) funded by the INTPART programme 2018-2020 under contract no 274891. INTPART (International partnerships for excellent education, research and innovation) is funded by the Research Council of Norway and the Norwegian Centre for International Cooperation in Education. The project, which includes partners from Norway, USA and Canada, brings together leading researchers, educators and young scientists working on Arctic science topics described below. The research school is part of the H2020 project INTAROS –Integrated Arctic Observation System, contract no 727890 (<http://intaros.eu>, <http://intaros.nersc.no>).

Topics for the research school

- (1) Studies of natural and human-made hazards in the Arctic addressing problems such as earthquakes, oil spills, slope failures and ice-related hazards. The studies include physical processes and causes behind the hazards, how they can be detected and monitored, and how risks can be minimized and impact mitigated.
- (2) Status and change of the ocean acoustic environment is affected by increased shipping, tourism and exploitation of resources in the Arctic regions. The research school will demonstrate how acoustic data is collected, processed and used to study natural processes and human-induced noise.
- (3) Cross-disciplinary data analysis and data management is important in order to and build knowledge from the increasing amount of data in the Arctic. The research school will have lectures and practical exercises based on data from topic (1) and (2), satellite data and other data proposed by the students.
- (4) Community-based monitoring evolves as an important contribution to an integrated Arctic Observing System, with focus on collaboration and communication between academic research and local communities. The research school will have lectures on such activities in Canada, Alaska and Svalbard.

Workshop

The workshop was arranged as part of the research topic on Community-based monitoring, CBM. CBM evolves as an important contribution to an integrated Arctic Observing System, with focus on collaboration and communication between academic research and local communities. The research school will have lectures on such activities both in Canada, Alaska and Svalbard.

Thursday 06 December the research school had as an overarching topic: Community-based observing and communication at UNIS, Møysalen (auditorium).

Program December 6th

- 0900-0920 **Lecture:** Working with and knowledge exchange among types of experts and representatives from the Longyearbyen community, by Lisbeth Iversen, NERSC
- 0920-1940 **Lecture:** Communication and knowledge transfer to end users of information – types of communication media, cautionary use of certain media types, dealing with sensitive topics, by Maribeth Murray, University of Calgary.
- 0940-1000 **Invited lecture:** The role of information sciences in Arctic research and knowledge production, by Marthe Tolnes Fjellestad, University of Bergen, University library.
- 1000-1030 **Invited lecture:** A citizen science project in Svalbard, by Børge Damsgaard, UNIS
- 1030-1100 *Break*
- 1100-1130 **Invited lecture:** Examples of citizen science activities using NASA cloud observer and CASTAWAY CTD for temperature and salinity measurements, by Hilde Fålund Strøm, Hurtigruten Svalbard
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The workshop “Communication between science and local community in Longyearbyen” was held in the afternoon session of the research school, on the 6.th of December.

The workshop started with thematic introduction by Maribeth Murray, University of Calgary, Canada and Mathilde Sørensen, University of Bergen followed by H2020 project introductions by Lisbeth Iversen, NERSC introducing the INTAROS project and Alexandra Meyer, University Vienna introducing the NUNATARYUK project. This was the first workshop collaboration between these two projects. The project presentations were followed by statements by local actors

- Longyearbyen Lokalstyre – Annlaug Kjelstad, Plan and Development Manager
- UNIS – Harald Ellingsen, Managing Director
- Arctic Safety Center – Ann Christin Auestad, Project Manager
- Svalbard Næringsforening (Chamber of Commerce) – Terje Aunevik, Manager
- Visit Svalbard – Ronny Brunvoll, Manager of Tourism and General Manager
- The Governor of Svalbard – Helle Hamnevoll, Advisor Civil Protection

The second part of the workshop was arranged as a dialogue café

Thematic introduction

Maribeth Murray, University of Calgary, Canada

There are different groups that are interested in the work they are doing in Canada.

- End users
- Stakeholders
- Rights-holders

Hopefully they will all be beneficiaries of the data the research project is gathering. As a researcher, you cannot just do your work, write a report, and then go...

You have to think:

How can this research be used, returned to the community, and how can our data be translated so that it can be useful and used by different actors? Through her work and workshops she has revealed that there are different levels of knowledge between the actors in a local situation. They have various perspectives, experience, goals and roles, and this is all influencing how things are perceived, understood, how it matters for each actor, how it can help them. It is important how we write reports and articles, what words we are using. Language is crucial, terms change over time, and people have to use many words in search for data and information. This is an ongoing challenge, and something that needs to be addressed.

Mathilde Sørensen, University of Bergen

Natural Hazards in the Arctic

“Natural hazards become a problem when they interact with human infrastructure”

How can we prevent future disasters?

- Hazard and risk mapping
- Planning and mitigation measures
- Monitoring is crucial for adaptation and mitigation
- Are there conflicts between monitoring needs and environmental protection?

Community-based monitoring programs such as the community-based seismic network or the Global Weather Observation Network can be of vital importance. Online data platforms for environmental monitoring across the Arctic are developing. Scientific communication, media and direct presentations all contribute to the information people are getting. But the scientists should not only blame the media for bringing shallow information, or not be too precise, we could do a lot of effort in order to bring better information to the media, be more humble about uncertainties, but get out data and facts in an understandable and well illustrated way. How we communicate research and results matters.

Introduction of the projects H2020 projects

Lisbeth Iversen, NERSC: INTAROS project

INTAROS: Specific objectives

Knowledge-based planning of the future is required in order to strengthen the societal and economic role of the Arctic region, and to support the EU strategy for the Arctic and related maritime and environmental policies. The aim is to enhance community-based observing programs by further developing the capacity of scientists and community members, and improve the cost-effectiveness of data collection in support of economic and societal activities. In addition the project wishes to contribute to enhance the livelihoods of the indigenous and local communities. Work Package 4-Enhance community-based observing, is especially relevant for the workshop Finn Danielsen, NORDECO, is leading this workpackage with Lisbeth Iversen, NERSC as the co-leader lisbeth.iversen@nersc.no

WP 4 Tasks:

Task 1. Survey and analyze existing community-based observing programs

Task 2. Advance tools for cross-fertilizing indigenous and local knowledge with scientific knowledge

Task 3. Pilot community-based observing to support decision-making processes

Task 4. Develop model of how community-based observing can cross-fertilize w/ scientist-executed observing and demonstrate use of the model

More information on the work in this workpackage can be found here:

CBM Library- Reports- and Workshop Proceedings:

CBM Survey Report;
<https://intaros.nersc.no/node/657>

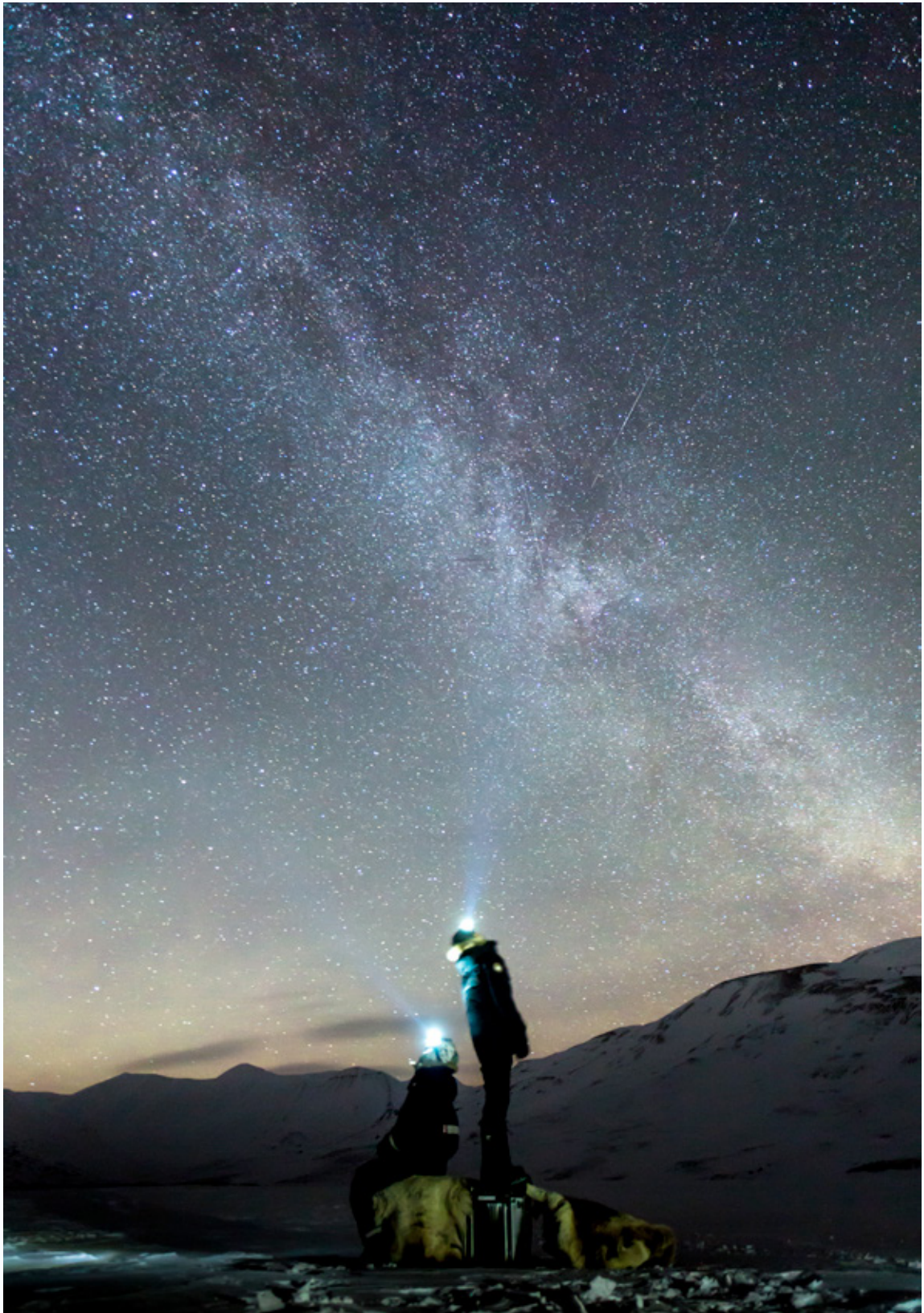
CBM "Library":
<https://intaros.nersc.no/node/740>

Proceedings CBM workshop Quebec City:
<http://www.intaros.eu/news/recent-news/cbm-workshop-quebec/>

Proceedings CBM workshop Fairbanks:
<http://www.intaros.eu/news/recent-news/report-from-community-based-monitoring-workshop-in-fairbanks-alaska/>

Alexandra Meyer, University of Vienna: NUNATARYUK project

The Horizon 2020 Project NUNATARYUK – Permafrost thaw and the changing arctic coast: Science for socioeconomic adaptation studies the impacts of thawing land, coast, and subsea permafrost on the global climate, the local natural environment, and on coastal communities. In Longyearbyen, studies will be carried out on health and pollution risks caused by permafrost thaw, on infrastructure and permafrost thaw, and on the societal impacts of and adaptation to permafrost thaw and climate change.



Statements by local actors

Longyearbyen Lokaltstyre – Annlaug Kjelstad, Plan and Development Manager

Longyearbyen is undergoing great societal changes in addition to climate change. The town is transforming its economy, and there is a very high turnover of the population.

The planning and building law as it is practiced on the mainland is not effective on Svalbard. Planning and building is regulated through the Svalbardmiljøloven – the Svalbard environmental Law. Cultural heritage and environmental protection are important aspects of this law.

The main priority for areal and community planning in Longyearbyen is safe housing: to find safe areas for new homes, and to secure existing homes.

How to plan for the ongoing climate change?

- Areal planners cannot go out and do the research on the impacts of climate change, hence they are dependent on scientists to provide data, models, maps etc.
- Areal planning has to be based on existing reports/theses
- Often there are uncertainties regarding the rate and timing of environmental impacts
- Is it important for areal planners to know all about the cause of environmental changes if their effects and impacts are known?
- There is a need to know not only how climate change impacts infrastructure, but also how it affects us as individuals and as a society
- There is also a need for more technical information, updated reports and research

Some technical challenges for areal planning:

- It is a challenge to keep an overview and stay updated regarding the newest data, models, maps etc.
- Avalanches (snow and other) present a challenge for areal planning in Longyearbyen. Furthermore, avalanche risks and models are changing due to climatic changes
- It is challenging to build on permafrost
- Sea-level rise represents a challenge for future planning, and there is a lack of information, guidelines and standards regarding sea-level rise

How to approach (the need for) science?

- Analyzing the reports – the facts, the impacts, the effects, the consequences
- What do we know and what do we assume? Which “stories” do we tell – and how do we construct our analysis?
 - o People in town
 - o Scientists
 - o Politicians/administration in LYB
 - o The “Oslo-government”
 - o Tourists
 - o Others
- It is always a challenge to ask the right questions in areal and community planning!

Statements by local actors

Arctic Safety Center – Ann Christin Auestad, Project Manager

The Arctic is a very rapidly changing environment. “Old” experiences and knowledge may not hold true anymore.

Statements:

- Environmental changes increase uncertainty: A changing environment creates uncertainties and risks, and hence posit a challenge for safety.
 - Dynamic population: With the high turnover of the population, valuable knowledge is lost. Also this posits a risk. Through seminars and courses, some of this knowledge can be secured and transferred.
 - Data changes quickly: There is a lot of gathered data on the local environment on Svalbard. However, as the environment is changing, some of these data are outdated.
 - Students and researchers in the field under conditions of change: With a changing environment, it has become more challenging to go out in the field to collect data.
 - Accountability: who is responsible for safety in the field?
- Under these challenging and changing conditions, the objective of the Arctic Safety Center is to contribute to a safe and sustainable human presence in the high Arctic, through knowledge exchange and competence building.

Visit Svalbard – Ronny Brunvoll, Manager of Tourism and General Manager

Tourism has become a main economic sector in Longyearbyen and there are currently 75 operating tourist companies in town. The tourist sector faces different challenges. In town, there are challenges related to housing, but the focus of this talk are the challenges that climatic changes pose for field activities.

Challenges related to climate change:

- The weather has become more unstable, which makes it more difficult to plan trips.
- More cancellations are effecting the reputation of the tourist industry.
- Less secure sea ice
- Avalanches and landslides present challenges to security in the field. This creates a demand for better safety routines and better educated guides.
- With erosion, less sea ice, challenging weather conditions etc. there are new restrictions on where the tourist companies can operate.
- Due to less sea ice there are more polar bears on land.
- The increasing regulations on traffic around Longyearbyen create challenges for the tourist sector as it restricts the areas for operation.

Climatic changes also create new possibilities for the tourist sector, however:

- With less sea ice, the season on sea is prolonged.
- The changing climate also has a positive effect on product development, as tourist operators are forced to develop more experiences and activities in proximity to Longyearbyen.
- Climate change also creates new visitors, who want to see the Arctic before it changes too much, to see the polar bears before they disappear etc. This increased tourism, however, creates more emissions, which in turn has a negative impact on the environment.

In times of a changing climate, the tourist sector needs good risk assessments, better weather forecast and an enhanced focus on security in the field.

It is a huge paradox that many tourist want to see the ice and glaciers before they disappear...

Statements by local actors

The Governor of Svalbard – Helle Hamnevoll, Advisor Civil Protection

There are different departments at the Governor of Svalbard, probably with slightly different perspectives on the topic. The following statements attempt to present the perception of the governor in general.

Adaptation to climate change:

- There are many consequences of a warmer climate on Svalbard (such as heavy rainfall, heavy snowfall, thawing of permafrost, rain-on-snow events, decreased sea ice etc., closing down of the airport, challenges for wildlife and the local environment and infrastructure)
- Mitigation measures are central in adaptation to climate change. In civil protection, planning is highlighted as a primary tool for mitigation.

Greater uncertainty in planning:

A warmer and wetter climate creates greater uncertainties in planning. One instrument of planning in civil protection is risk and vulnerability analyses. The Sysselmann strives for a holistic approach to risk and vulnerability analyses, and a central aim is to involve local actors in town. This is done through a variety of fora, such as the preparedness council. The Governor also works closely with the Longyearbyen Lokalstyre (the local government)

In the context of climate change, there is a need for a common knowledge base.

Research needs from the perspective of the Sysselmann:

- The effects of climate change on critical infrastructure
- The effects of climate change on commercial activities (shipping and fisheries)
 - A changing climate leads to increased maritime activity in the Arctic. This may challenge the capacity of existing SAR (Search and Rescue) on Svalbard.
- The effects of climate change in wildlife and ecosystems. This involves humans as well.



Photo: Lisbeth Iversen

Questions to lead the discussion during the dialogue café:

- Which societal challenges and possibilities exist in relation to climate, nature, and the environment on Svalbard?
 - Which societal domains on Svalbard are/ will be affected by environmental change?
 - What do we need to know about climate and the environment on Svalbard in order to feel safe? What do we know, which knowledge gaps exist?
 - How can/should knowledge about climate and the environment be made accessible for the local community and how can research projects facilitate this?
 - Which actors are relevant and responsible for dealing with the social effects of environmental changes on Svalbard?
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Summarized comments and new questions:

Which societal challenges
exist in relation to
climate, nature, and the
environment on Svalbard?



Challenges related to climatic changes:

- Sea ice retreat -> more open water -> more shipping -> the local police needs to survey a larger area
- Increased access due to environmental changes, open sea -> more shipping -> higher chances for collisions etc. -> challenges for the local police
- Arrival of new species -> new parasites & threats to ecosystems
- Erosion
- Glacial loss
- Coastal runoff
- A changing environment presents challenges related to infrastructure
- Challenges to safe roads & buildings
- A changing environment challenges and changes the local identity
- A changing environment creates a sense of insecurity
 - Sea ice
 - Polar bears
 - Avalanches
- Uncertainty of future events
- In LYB, a main challenge is to feel safe
- Long-term experience and knowledge is a challenge (because of the high turnover of the population)
- Currently, there is a good evaluation of risk in LYB
- How secure does the society feel?
- Svalbard is a lot about going out into nature (both for recreational purposes but also in relation to employment – tourism and research and higher education involves activities in the field). With a changing environment, there are more challenges related to professional and recreational field activities
- Polar bears numbers increase. This affects outdoor life
- Avalanche hazards increase -> uncertainty during fieldwork and sports activities
- The town is exoticized (“last-chance” tourism)
- A changing climate has an effect on all domains of society!

Challenges related to socio-economic changes:

- The socio-economic changes also create a sense of insecurity
 - For example regarding jobs and employment
- The socio-economic changes impact local identity
- The shifting population presents a challenge, regarding life-time memory and the identification with place (“I’m only here for 5 years so why should I care?”). The shifting population is not conducive to long-term care and interest in long-term sustainability
- The settlement plan is outdated
- Energy is a main challenge. Excess energy generated in the summer needs to be stored through the winter.
- Challenges related to renewable energy: How much is actually possible in terms of renewable energy? Wave energy? Thermal energy? Solar energy? Cabled energy from mainland Norway is very expensive, but probably cleaner than other options.
- Community guidelines – when do people learn about these?
- Company responsibility and guide unions -> can add security
- A main aim of the Longyearbyen Lokalstyre is that people should feel safe and secure in Longyearbyen
- People need a sense of security, both in relation to their local environment and regarding jobs and a secure source of income
- With the high turnover and high influx of people, how can a local identity and the community be held intact?

Possibilities/opportunities related to these changes:

- Existing challenges could potentially trigger innovations and solutions that could be of use in other arctic localities
 - For example regarding flexible housing (as a response to the housing crisis) or waste management
- A changing climate can lead to increased tourism, to longer tourist seasons -> more jobs
- Open sea -> more ships
- Cruise tourism has no positive impact, neither economic nor otherwise
- Climate change and a changing environment attracts more researchers to Svalbard
- Climatic changes can lead to a change of business (more fisheries)
- There are good technical solutions available to deal with the changes
- The environmental changes could lead to the development of more local databases
- But: for every possibility there is also a challenge!

What do we need to know about climate and the environment on Svalbard in order to feel safe? What do we know, which knowledge gaps exist?

- More local weather stations to improve weather forecast
- Monitoring of permafrost – is it stable or not?
- Analysis of sediments – the city is built upon sediments
- More data for long-term modelling (permafrost, analysis of sediments in basin)

Communication between science and the local community

- What is the role of UNIS and its impact on the local community?
- In general it is challenging to predict the risk of future events. Scenario building can be of use here
- Some research projects are interested in bigger issues than the local community!
- How available are data/maps/information?
- There is a need to inform the society continuously about the changes taking place
- By looking into the environmental consequences of climate change, science can assist communities in planning
- There is a good evaluation of the risks in the area around Longyearbyen. There are good available data and good maps. But these data have to be transferred to the local community.
- A main challenge is the lack of communication between researchers and the local community in Longyearbyen. There is to date no database where all knowledge about Svalbard is gathered. The local community should know what is being done regarding research on Svalbard and where to find it. This is essential for planning!
- Research and findings have to be communicated to the local community. People should know where to access the information
- Workshops should be organized regularly where scientific findings are communicated to the local community

Communication between science and the local community

- Portals are a good instrument for data dissemination!
- Scenarios are an effective tool for communicating scientific results to local communities. An example for how to use scenarios in science communication related to climate change is the SNAP project: Scenarios Network for Alaska + Arctic Planning (<https://www.snap.uaf.edu/>)
- Community members should also be involved in research whenever possible
- A challenge for community involvement in research is the high overturn of the population in LYB. How to get people involved when they only stay for a short while?
- The needs and concerns of the local community should be included more into research proposals. In many cases, community involvement is a prerequisite for receiving funding, but often researchers do not know how to do that. Creating a forum for identifying the needs and concerns of the local community and communicating these to researchers could be useful in this regard, and something that both the community and researchers would benefit from.
- There is a need for reliable sources of information (for example a list of serves)
- Better communication between society and science (having responsible persons for this, hold regular workshops)
- Research could be better coordinated so that people know who is doing what, where and when
- Better coordination between researchers (previous events – reference)
- Observational data for shipping and sea ice predictions
- How can resources be shared?
- In which language should the science be communicated to the local communities?
- Research could be better coordinated so that people know who is doing what, where and when

Other comments:

- Just because LYB exists now, should it always exist? Just because of strategic reasons?

Links:

UAK - Useful Arctic Knowledge: <https://uak.ucalgary.ca/>,
INTAROS: <http://intaros.eu>, <https://intaros.nersc.no>
NUNATARYUK: <http://nunataryuk.org>



Photo: Espen Storheim, the Nansen Center

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