Third Arctic Science ministerial Webinar Series

Co-hosted by Iceland and Japan

This webinar series is a cooperation between the ASM3 Organizers in Iceland and Japan and the European Polar Board.

Third Arctic Science Ministerial Webinar Series

Theme 3: Respond

Sustainable development; Evaluation of vulnerability and resilience; Application of knowledge

15 April 2021
16: 00 - 17: 00 UTC

Program here! ▶ https://asm3.org

Update on ASM3 Process

Lindsay Arthur

ASM3 Organizing Committee

Theme 3: Respond

Overview of Theme 3: Respond – Progress since ASM2 and Upcoming Projects

- *Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair*

Highlights from Theme 3: Respond

- **HYdrology, PErmafrost and resilience in Eastern Russian Arctic and Subarctic (HYPE-ERAS)**
  - *David Gustafsson, Swedish Meteorological and Hydrological Institute, Sweden*
- **Arctic Community Resilience to Boreal Environmental change: Assessing Risks from fire and disease (ACRoBEAR)**
  - *Steve Arnold, University of Leeds, UK*
- **ARC-NAV: Arctic Robust Communities-Navigating Adaptation to Variability Joint research project: ARC-NAV: Arctic Resilient Communities - a study of adaptation to environmental variability**
  - *Abigail York, Arizona State University, USA*
- **Local 2 Global**
  - *Selma Ford, ICC*
- **COVID-19 in the Arctic**
  - *Jennifer Spence, SDWG Executive Secretary*

Recommended Actions for responding to Arctic Change

- *Liza Mack, ASM3 Science Advisory Board Member*

Question and Answer Session

Overview of Theme 3: Respond

Sustainable development;
Evaluation of vulnerability and resilience;
Application of knowledge

Embla Eir Oddsdóttir

ASM3 Science Advisory Board Co-Chair

Highlights from Theme 3: Respond

Moderated by Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair

- What progress has been made since ASM2?
- Generally
  - While interdisciplinary approaches appear more frequent, social sciences often seem to be add-ons. Importantly, the number of social science projects appear to be more numerous in the ASM3 process. This is a positive development.
  - Indigenous Knowledge was an important part of a quarter of all projects submitted (27%) and 14% were considered community-driven.
  - While there appear to be more efforts to include local or Indigenous communities / perspectives, inclusion of local or Indigenous people in assessment and definition of Arctic research priorities is rare. Engagement in early stages, participatory processes, and the co-production of knowledge need to be normalized.
  - Out of 429 projects submitted, 8 were submitted by Indigenous organizations (4 by the Inuit Circumpolar Council, 4 by the Saami Council, both of which are Permanent Participants of the Arctic Council).
  - Consideration of gender and diversity in leadership of and participation in project development and implementation has improved marginally.
  - A large number of Russian-led projects that, although somewhat focused on Russian context, has implications for other contexts. Also, quite a few very interesting projects led by Japan.

Highlights from Theme 3: Respond

Moderated by Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair

- Progress since ASM2?

Environmental change

- Greater consideration of impacts on communities, including Indigenous communities
- Greater inclusion of Indigenous Peoples´ perspectives and knowledge
- **Arctic Challenge for Sustainability II, Human Security, Energy and Food in the Arctic under Climate Change**,
- **Arctic Challenge for Sustainability II, Arctic Coastal Change and its Impact on Society**
- **Resilience & Management of Arctic Wetlands (CAFF)**





Highlights from Theme 3: Respond

Moderated by Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair

- Progress since ASM2?

Governance

- More understanding of the need for ethical guidelines for research conducted in the Arctic with particular attention to Arctic communities and Indigenous Peoples.
- **Ethical guidelines for conducting multidisciplinary Arctic research**
- **Principles for the Conduct of Research in the Arctic**

National Inuit Strategy on Research

Graphic Produced by:
Carolina Behe, Inuit Circumpolar Council & **Raychelle Daniel**, Pew Charitable Trusts & **Julie Raymond-Yakoubian**, Kawerak

Highlights from Theme 3: Respond

Moderated by Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair

Progress since ASM2?

Health

- There is more attention given to issues of health in the region, largely spearheaded by Arctic Council Working Groups. Importantly, these include attention to well-being of youth and mental health as well as to impacts of contaminants and the human/animal/environment nexus, including the recent COVID – 19 pandemic and its impact on communities.
- **COVID-19 in the Arctic, Arctic Community Resilience to Boreal Environmental change: Assessing Risks from fire and disease (ACRoBEAR**), **One Arctic - One Health**,
- More attention to food security and pursuing innovative avenues for food production.
- **Phytotron aeroponic plant growing technologies for developing the agro-industrial complex in the polar regions, Arctic Foods Innovation Cluster (AFIC) , Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective**

Highlights from Theme 3: Respond

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Progress since ASM2?

Industry

- Some attention paid to social and environmental impacts of industrial development. Of note is the number of projects led by Russia.
- **Global drivers, local conditions: tools for adapting to global change for sustainable development of industrial and cultural Arctic "hubs" (ArcticHub).**
- **De-icing of Arctic Coasts: Critical or new opportunities for marine biodiversity and ecosystem services.**
- **Arctic Coast Bioremediation** (ACBR) **and Supporting Environmental, Economic and Social Impacts of Mining Activity** (SEESIMA)
- Quite a few projects looking at monitoring and forecasting sea ice dynamics in the Arctic – may be some opportunities for synergies.

Highlights from Theme 3: Respond

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Progress since ASM2?

Infrastructure

- **Arctic and Sub-Arctic Engineering Design Tool.**
- **Arctic Environmental and Engineering Data and Design Support System.**
- **ARCTIC-CHI**
- **NUNATARYUK**

Risk

- **Arctic Challenge for Sustainability II, Sustainable Arctic Sea Routes in a Rapidly Changing Environment**
- **Adapting to newly emerging climage change – related hazards**




Highlights from Theme 3: Respond

Moderated by Embla Eir Oddsdóttir, ASM3 Science Advisory Board Co-Chair

Progress since ASM2?

Socio-economic challenges

- **There were a few projects looking at socio-economic challenges in the region.**
- **Global drivers, local consequences: Tools for global change adaptation and sustainable development of industrial and cultural Arctic "hubs**".
- **JUSTNORTH (or "Towards Just, Ethical and Sustainable Arctic Economies, Environments & Societies").**
- **Gender Equality in the Arctic, Phase III** (GEA III). Equality as fundamental component of addressing socio-economic challenges, sustainable development, adaptive capacity, and resilience in the Arctic.
- **TriArc- The Arctic Governance Triangle:** Government, Indigenous Peoples and Industry in change.

Highlights from Theme 3: Respond

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Future science directions/needs

- More attention to multi-disciplinary, holistic natural and social science research and monitoring, including multi-variable risk assessment of pressures and impacts on system interactions and resilience.
- There is a surprisingly low number of projects engaging with issues of International Law and Governance. As an instrumental component in sustainable development in the region, greater understanding is required.
- Surprising lack of risk and risk assessment projects. One would have thought this to be an important factor in response, adaptation and mitigation.
- Need to encourage development and submission of innovation and engineering-based projects. Important for a solution-oriented approach to adaptation and response.
- 16% of projects submitted were categorized in the Response theme. This may suggest that we need to encourage further project work focusing on responding to climate change and impacts.

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Question and Answer Session

HYdrology, PErmafrost and resilience in Eastern Russian Arctic and Subarctic (HYPE-ERAS)

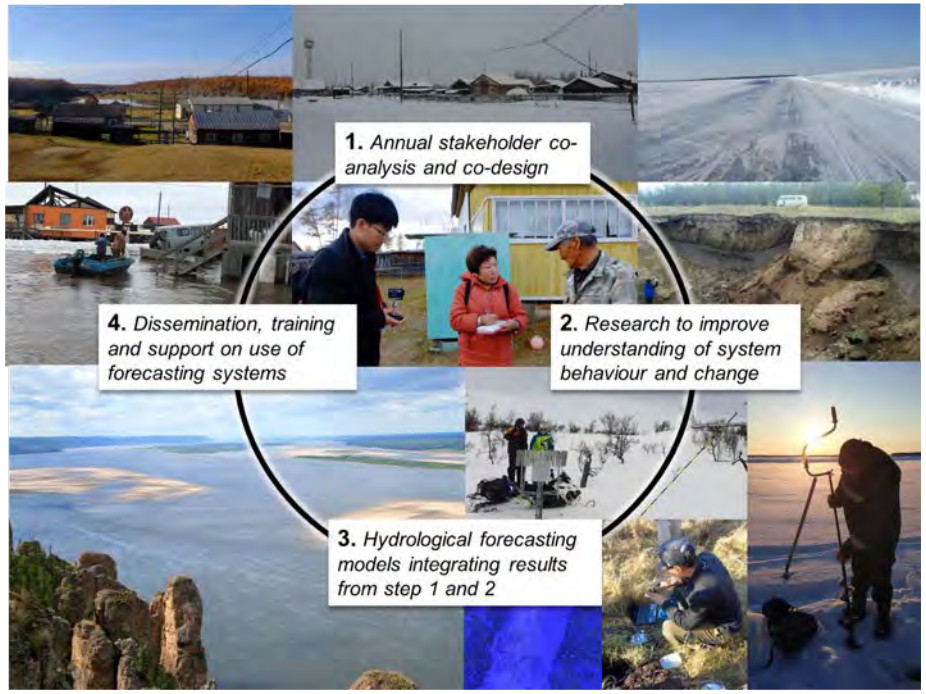
David Gustafsson

Swedish Meteorological and
Hydrological Institute, Sweden

HYPE-ERAS is funded by FORMAS, RFBR and JST through the Belmont Forum Collaborative Research Action: Resilience in the Rapidly Changing Arctic

Rapidly changing arctic/sub-arctic systems

Environmental change ⇔ Societal challenges



Republic of Sakha (Yakutia), Russia

Study area and project partners from Sweden, Russia, and Japan

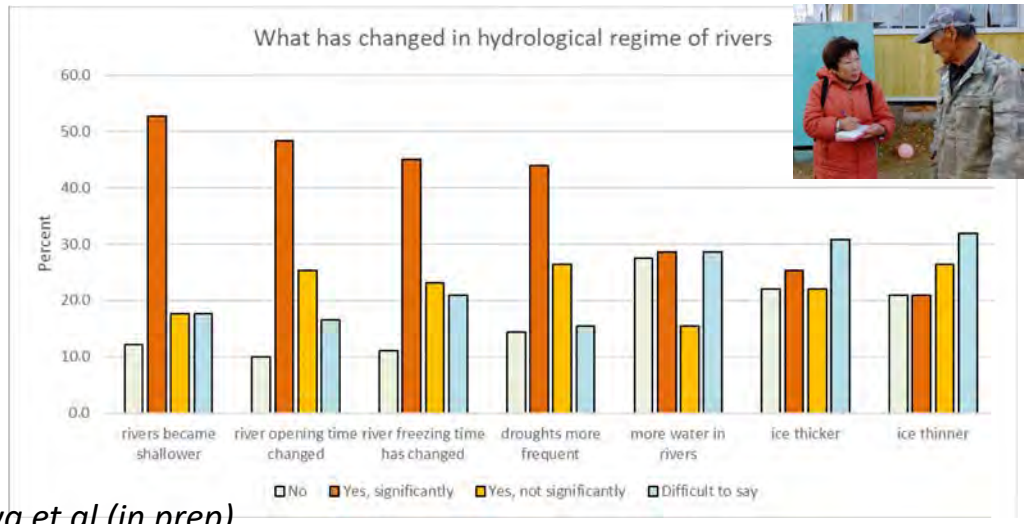
HYPE-ERAS research themes

- Water in Yakutian life
- Where water comes from
- New flood hazard knowledge
- Roads on thinner ice
- Understanding climate change
- Hydrological modelling and forecasting

https://hype-eras.org

Resilience by knowledge and forecasting

Perception of climate change impact in local communities



Boyakova et al (in prep)

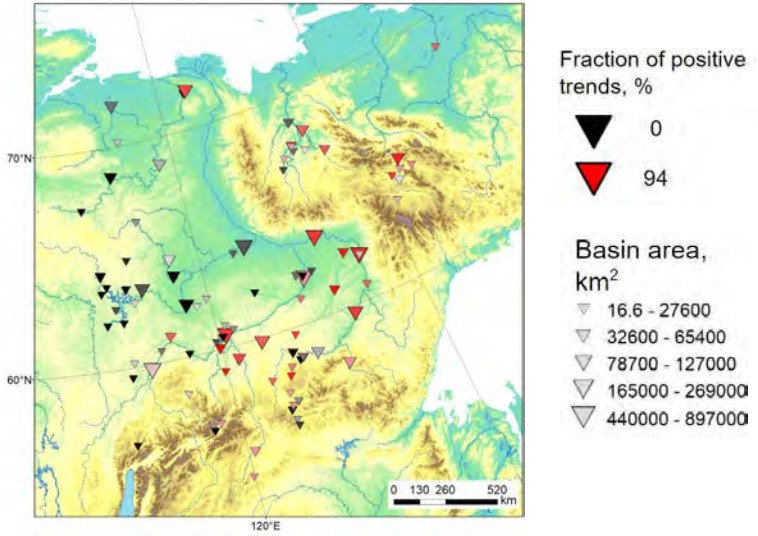
Separating source distribution of Lena river discharge

Park et al (in prep)

Trends in river discharge by observations (1940's-2010s')

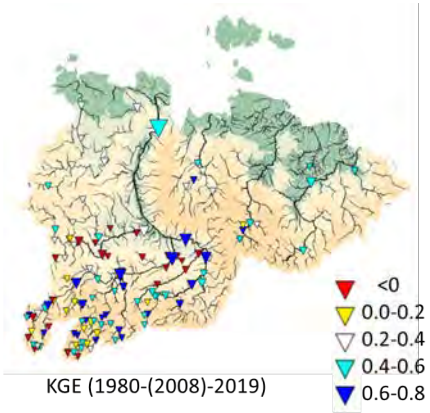
Trendy rivers:
- Large area
- High streamflow
- Flow all year round

Stable rivers:
- Small area
- Low streamflow
- Frozen up to the bottom in winter

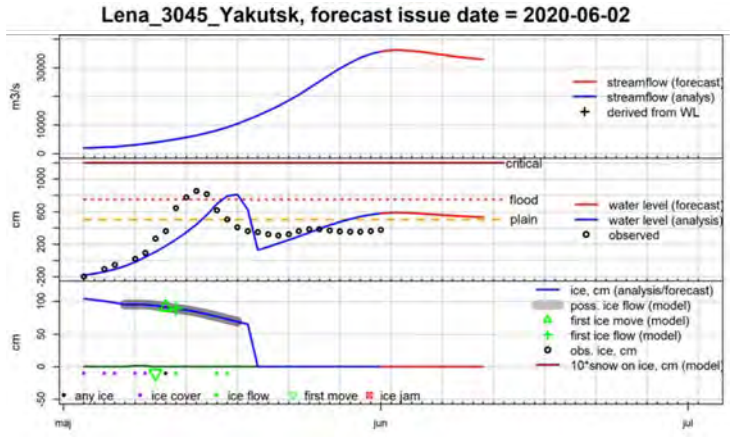


Lebedeva et al (in prep)

Hydrological forecasting of river ice breakup and flooding



KGE (1980-(2008)-2019)



Gustafsson et al (in prep)

https://hype-eras.org

Arctic Community Resilience to Boreal Environmental change: Assessing Risks from fire and disease (ACRoBEAR)

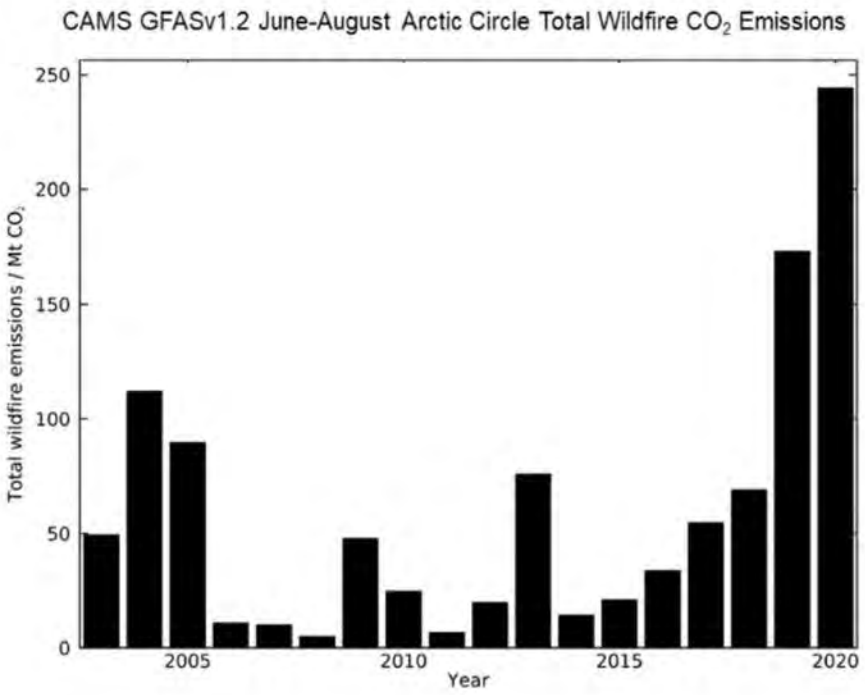
Steve Arnold

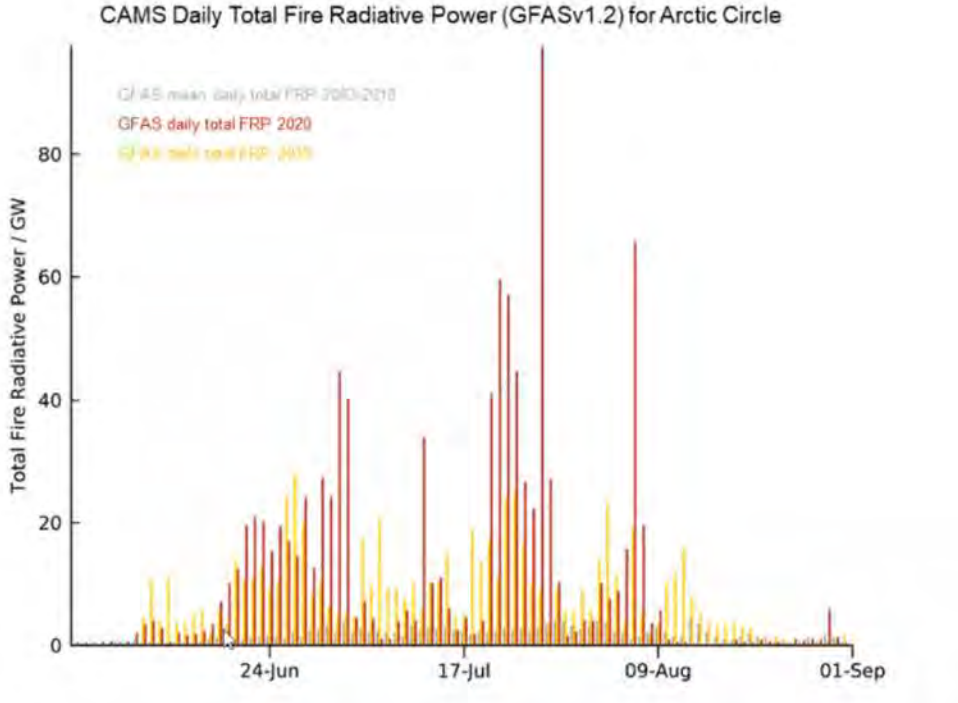
University of Leeds, UK

s.arnold@leeds.ac.uk

Changing high latitude fire regime?

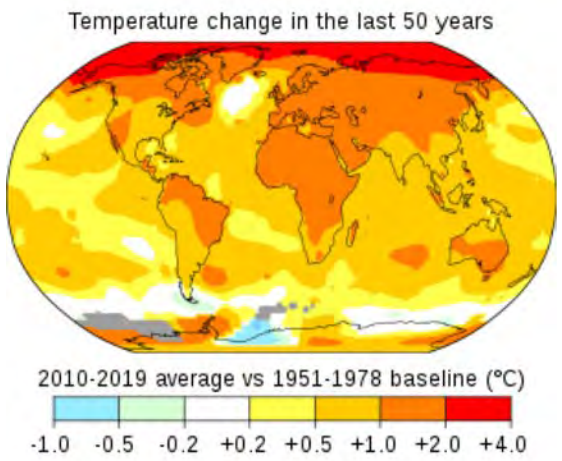
Fires in the pan-Arctic





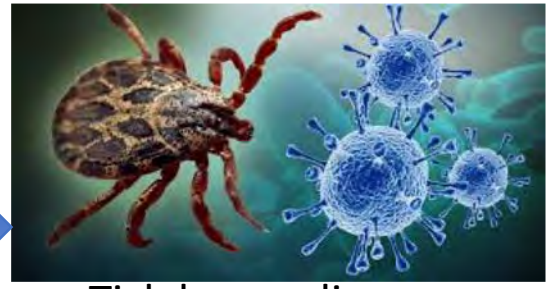
Mark Parrington (ECMWF) / Tom Haigh (Leeds)

Some climate change → Health pathways at high latitudes

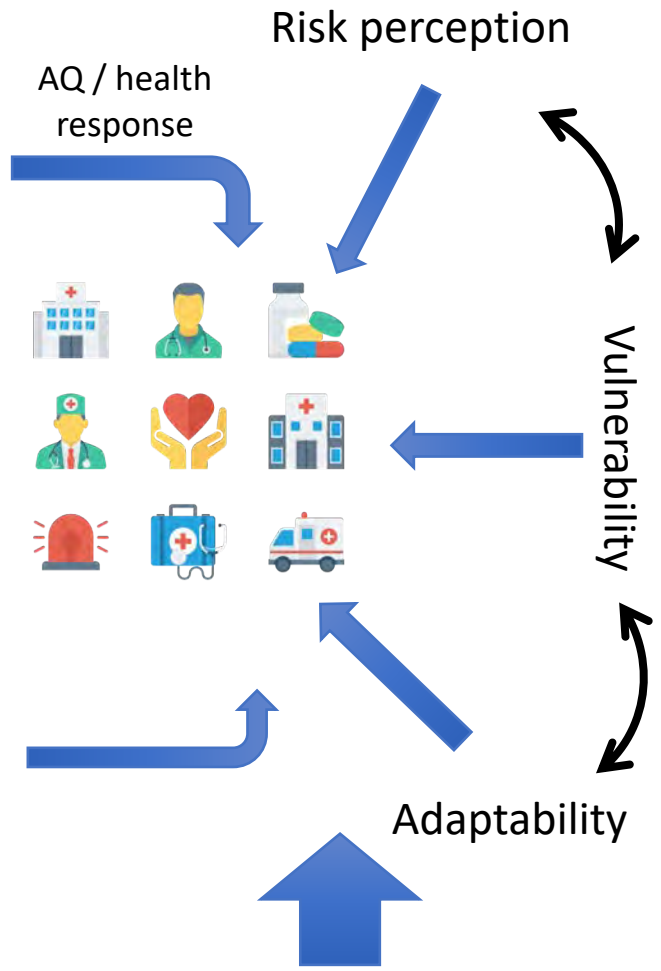


Vegetation fires

?



Tick-borne disease

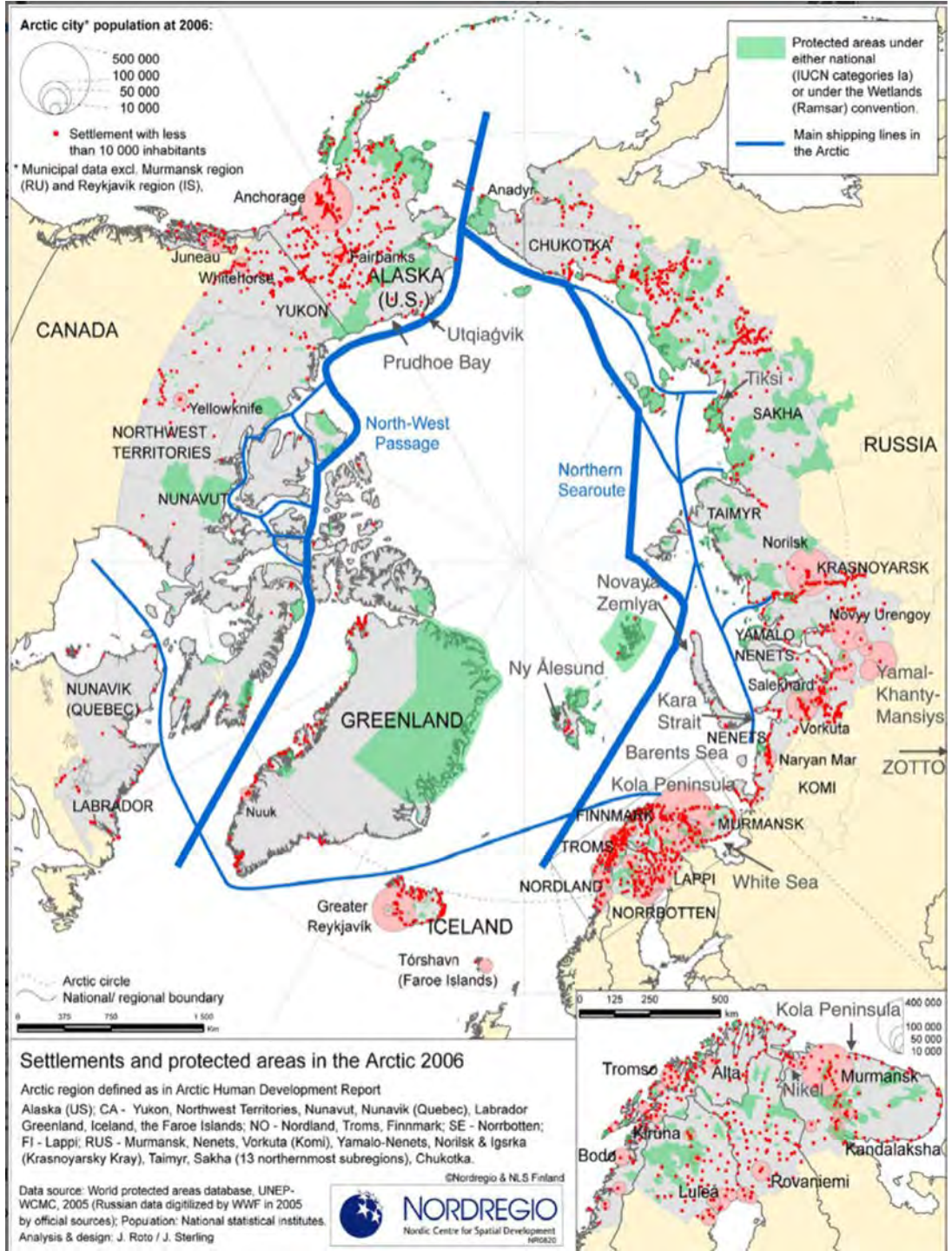


ACRoBEAR Aims

To predict and understand health risks from wildfire air pollution and natural-focal disease (NFD) at high latitudes, under rapid Arctic climate change, and resilience and adaptability of communities across the region to these risks.

This will be achieved through integrating satellite and in-situ observations, modelling, health data and knowledge, and community knowledge and stakeholder dialogue.

3rd ARCTIC SCIENCE MINISTERIAL



European Polar Board

Focus on three regions:

- Jämtland, Sweden.
- Yakutia, Russia.
- Fairbanks, Alaska.

Schmale et al., (2018)

Risk and vulnerability in high latitude communities: key questions

How do risk perceptions, vulnerability, prevention and preparedness plans, and outcomes differ between Arctic communities?

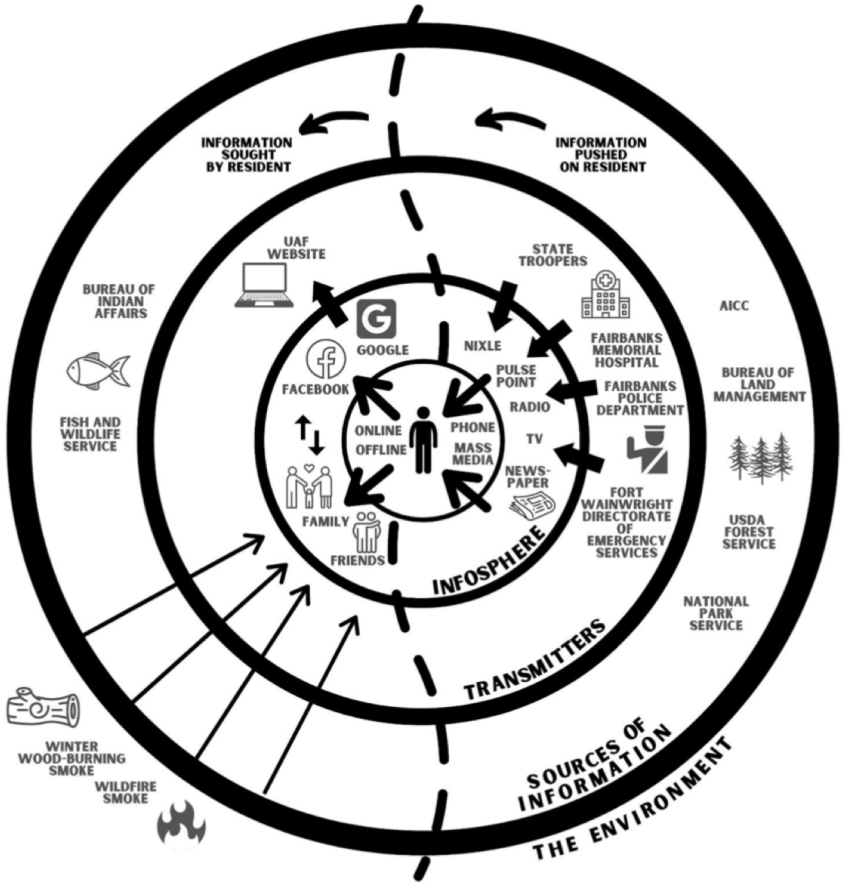
What are the factors shaping socially-differentiated vulnerabilities and adaptive capacities to current and future risks?

Which data are most useful to inform decision-making and what are the roles of local, indigenous, expert and lay knowledge?

ACRoBEAR Community Stakeholder Forum (CSF)

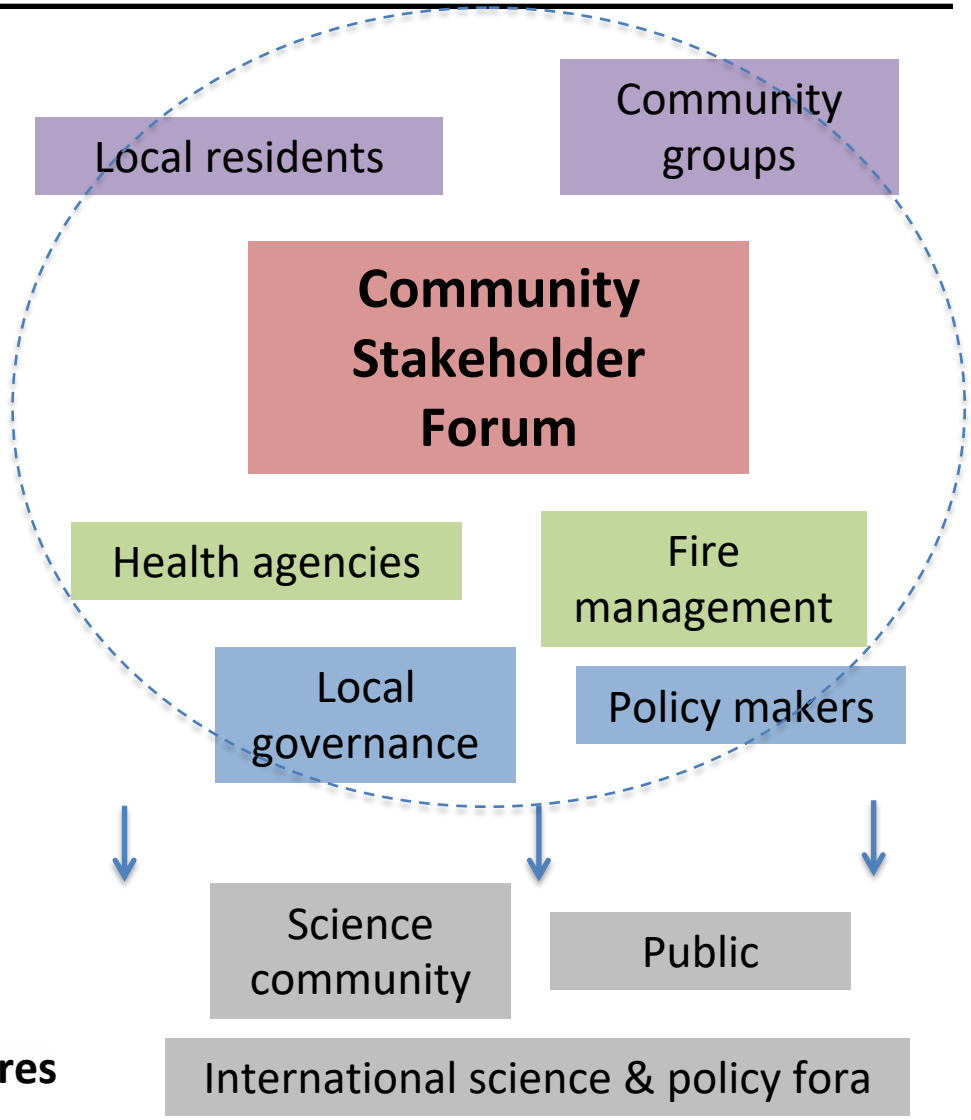
- Two-way dialogue with local communities and agencies at several points throughout project.
- Original plan for physical forum meetings in Fairbanks, Jämtland, Yakutia.
- COVID-compliant online alternatives developed. Two sessions completed with Fairbanks community.
- Yakutia engagement enabled via new *Arctic Voices* project (James Ford, Leeds).

ACRoBEAR Stakeholder groups



Fairbanks Information Ecosystem for Wildfires

Bob Orttung, George Washington Univ.



ACRoBEAR project tools and structure

Community perceptions, knowledge and requirements

Observations (satellite, climate/weather data, NFD data, AQ network, health datasets)

NFD parameterization

Health response data

Regional AQ estimates

Pan-Arctic hindcast

Fire activity and emissions

Health outcomes

Future scenarios

Climate / AQ / NFD / health risk relationships

Outputs

Health Risk and Policy Scenario Dashboard

Models (fire models, reanalysis products, regional modelling, Earth system modelling)

Thanks for listening!

ACRoBEAR Team

Steve Arnold (PI) - University of Leeds, UK.

Marianne Lund, Jennifer West - Center for International Climate Research (CICERO), Norway.

Robert Orttung, Susan Anenberg, Veronica Southerland - George Washington University, USA.

Tuukka Petaja, Ekaterina Ezhova - University of Helsinki, Finland.

Joakim Langner, Camilla Andersson, Ana Carvalho - Swedish Meteorological and Hydrological Institute, Sweden.

Bertil Forsberg - Umeå University, Sweden.

Kathy Law - Laboratoire Atmosphères, Milieux, Observations Spatiales (CNRS-LATMOS), France.

Christine Wiedinmyer - CIRES, University of Colorado - Boulder, USA.

Svetlana Malkhazova - Lomonosov Moscow State University, Russia.

Gerd Folberth, Steven Turnock - Met Office, UK.

External Advisory Group

Henry Burgess, NERC Arctic Office.

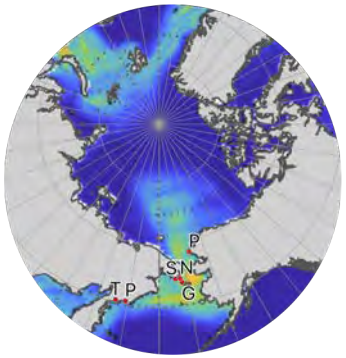
Julia Schmale, EPFL, Switzerland.

HiFACE Workshop on High Latitude Vegetation Fires (Fall 2021, Oslo)

@ACRoBEARArctic

https://bag.leeds.ac.uk/projects/acrobear/

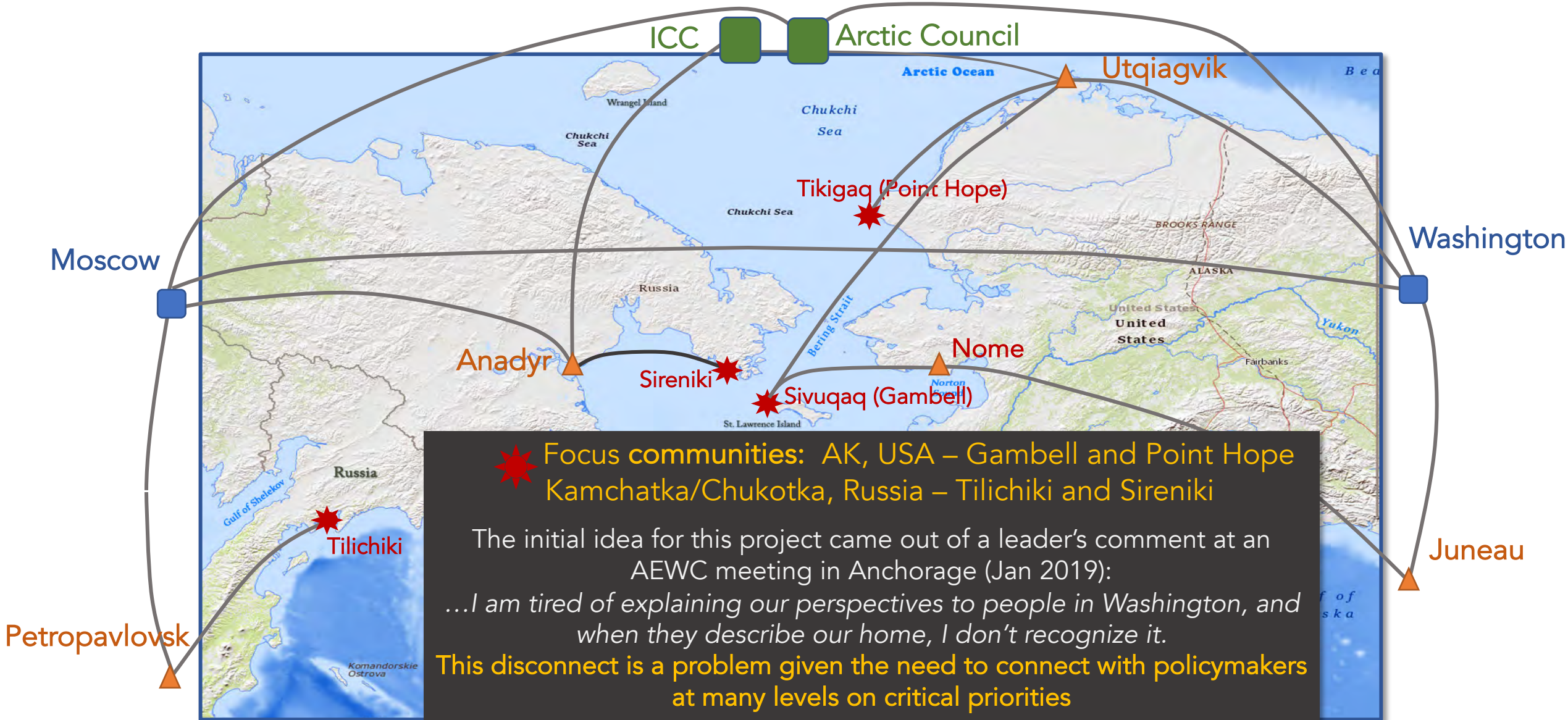
ARC-NAV: Arctic Robust Communities-Navigating Adaptation to Variability



Abigail York

Arizona State University, US

Lack of responsiveness to local and regional priorities and concerns



Focus **communities:** AK, USA – Gambell and Point Hope
Kamchatka/Chukotka, Russia – Tilichiki and Sireniki

The initial idea for this project came out of a leader's comment at an AEWC meeting in Anchorage (Jan 2019):

…I am tired of explaining our perspectives to people in Washington, and when they describe our home, I don't recognize it.

This disconnect is a problem given the need to connect with policymakers at many levels on critical priorities

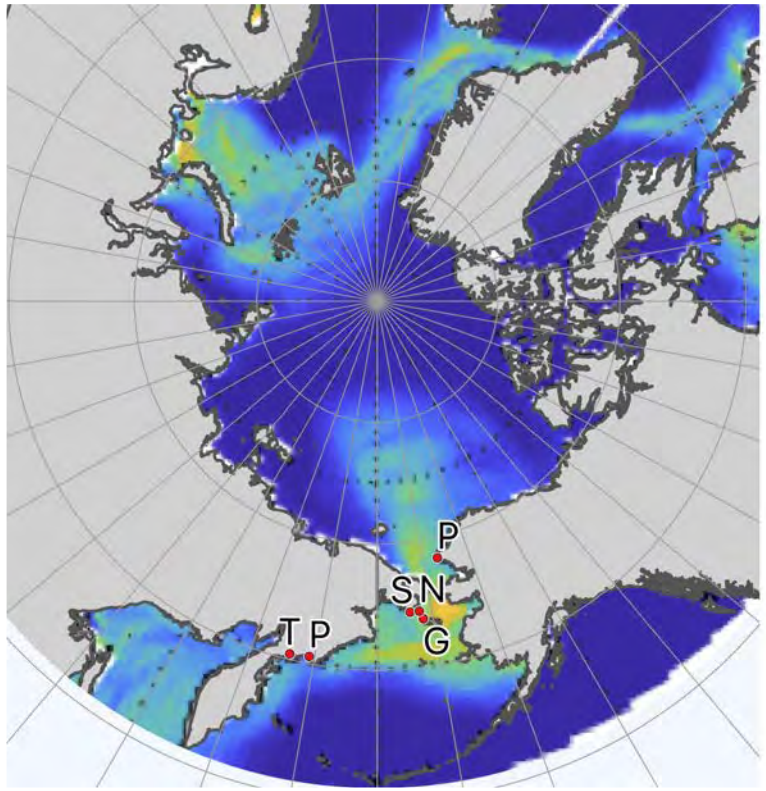
ARC-NAV: Arctic Robust Communities-Navigating Adaptation to Variability

ICC
Chukotka

Kamchatka Institute of Geography

Kamchatka Association of Indigenous Peoples

Rodovaya Obschina/ Sireniki



ALASKA ESKIMO WHALING COMMISSION

Native Village of Point Hope

Native Village of Gambell

Photo Credit: AEWC/NSB

Arizona State University

University of Northern Iowa

UAF University of Alaska Fairbanks

McGill University
Lamont-Doherty Earth Observatory
Columbia University | Earth Institute

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Not secure | icemotion.labs.nsidc.org/SITU/

Apps | Inbox (433) - ggc.ns... | Canal cycling | cycle... | Fire Retardant Coati... | TaxAct Online | TaxAct Online | Community Engage... | Other bookmarks

Tracking Options

Timeline Settings

What's this?

Start Date		End Date	
Yr	Mo	Yr	Mo
2006	1	2007	12

Adjust time start/end 1 year

Back | Forward

Place a Track

What's this?

Start of Track

Latitude	Longitude
74.0384	222.7094

Clear All | + Add Track

Output Type

What's this?

- (•) Ice Tracks (Lagrangian)
- ( ) Fixed Point (Eulerian)

Loop Controls: step month

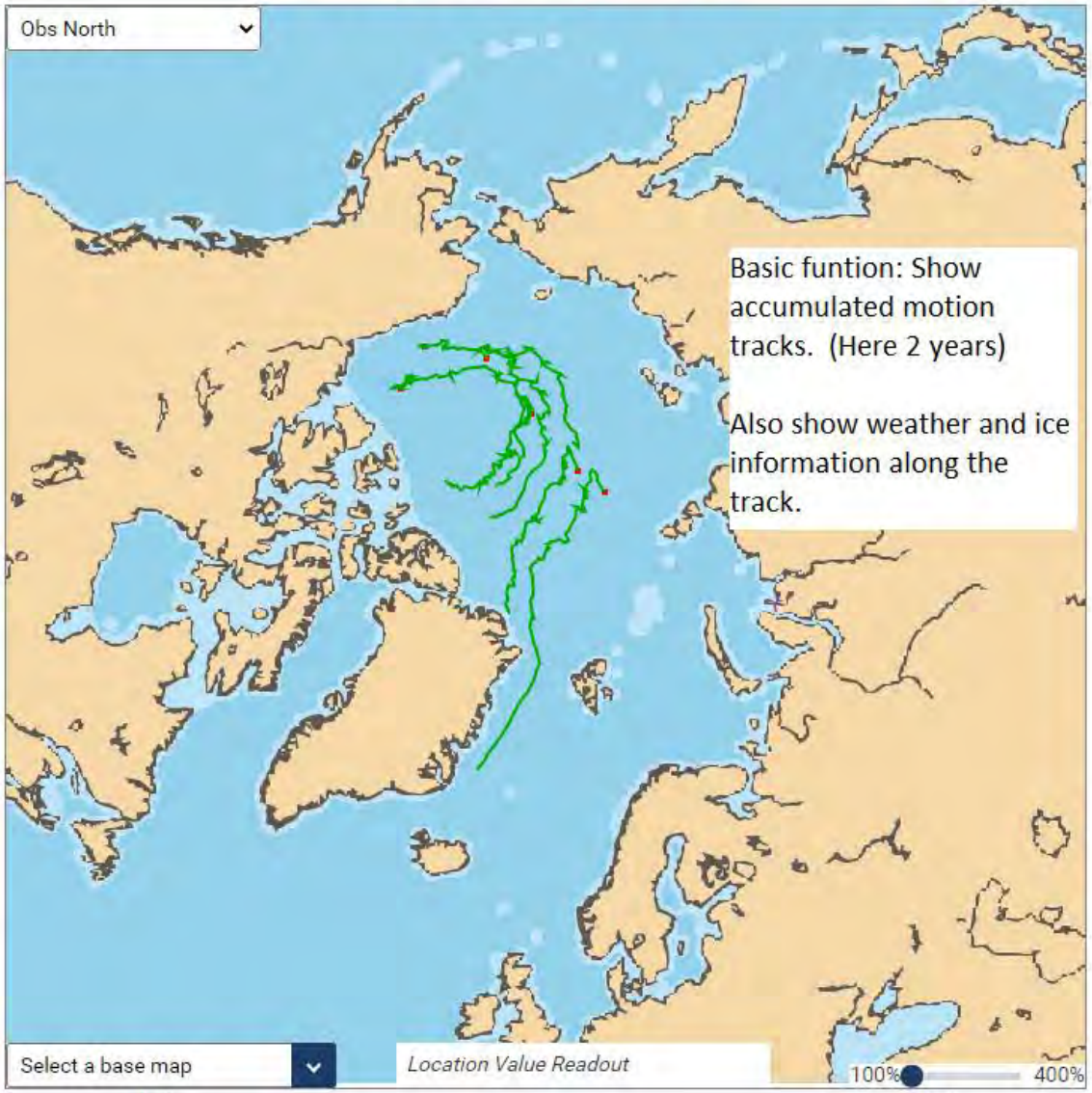
What are these?

Include in loop: Track | Map | Vectors

Ice Tracker

How to Use

Obs North



clock clock

Use the Base Map Controls to generate.

min 00,000.00 [units] max 00,000.00 [units]

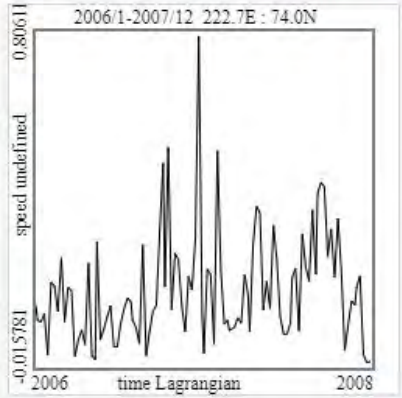
Time Series

Parameters

Information below is from last track placed.

Note: Ice Age Estimate

What's this?



speed

color line overlay

Plot All Parameters

Downloads

Spreadsheets

Tracks | Vectors

Maps

Save Map

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European Polar Board

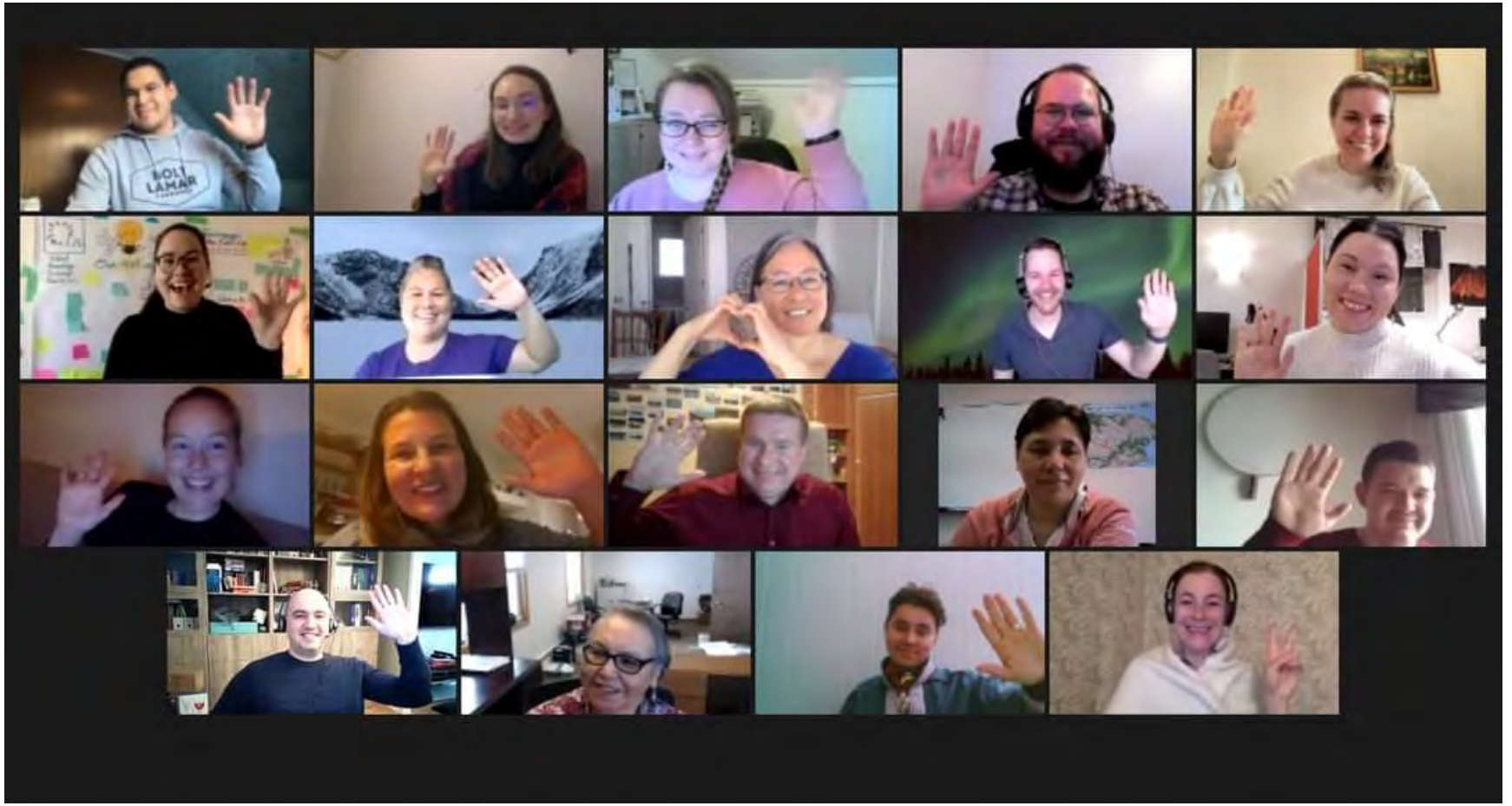
Local 2 Global

Selma Ford
ICC

3rd ARCTIC SCIENCE MINISTERIAL

L2G | Circumpolar Mental Well-being

European Polar Board



3rd ARCTIC SCIENCE MINISTERIAL

L2G | Circumpolar Mental Well-being

European Polar Board

Pillars	Target Audience	Deliverables
#1 Digital storytelling	Arctic Indigenous youth	Youth will create videos that tell their own stories about mental health, suicide and living. Establishment of a virtual Arctic youth network in mental wellbeing.
#2 Knowledge exchange	Arctic frontline mental health workers	1) 5 virtual knowledge exchange sessions 2) In-person international study tours
#3 Adverse childhood experiences	Researchers and policy-makers	International forum for researchers, policymakers, youth & other stakeholders. share knowledge related to adverse and protective childhood experiences, and the links with suicide prevention.

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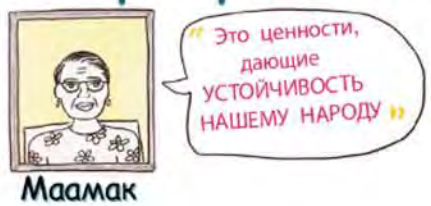
L2G | Circumpolar Mental Well-being

Виртуальный обмен знаниями/ Virtual Knowledge Exchange

Семейная программа : основанная на ценностях Инупиат - «Илиткусиат»



Government of Canada | Gouvernement du Canada

SÁMIRÁÐÐI
SAAMELAISNEUVOSTO
SAMERÅDET
СОЮЗ СААМОВ
SAAMI COUNCIL

INUIT

3rd ARCTIC SCIENCE MINISTERIAL

L2G | Circumpolar Mental Well-being

European Polar Board

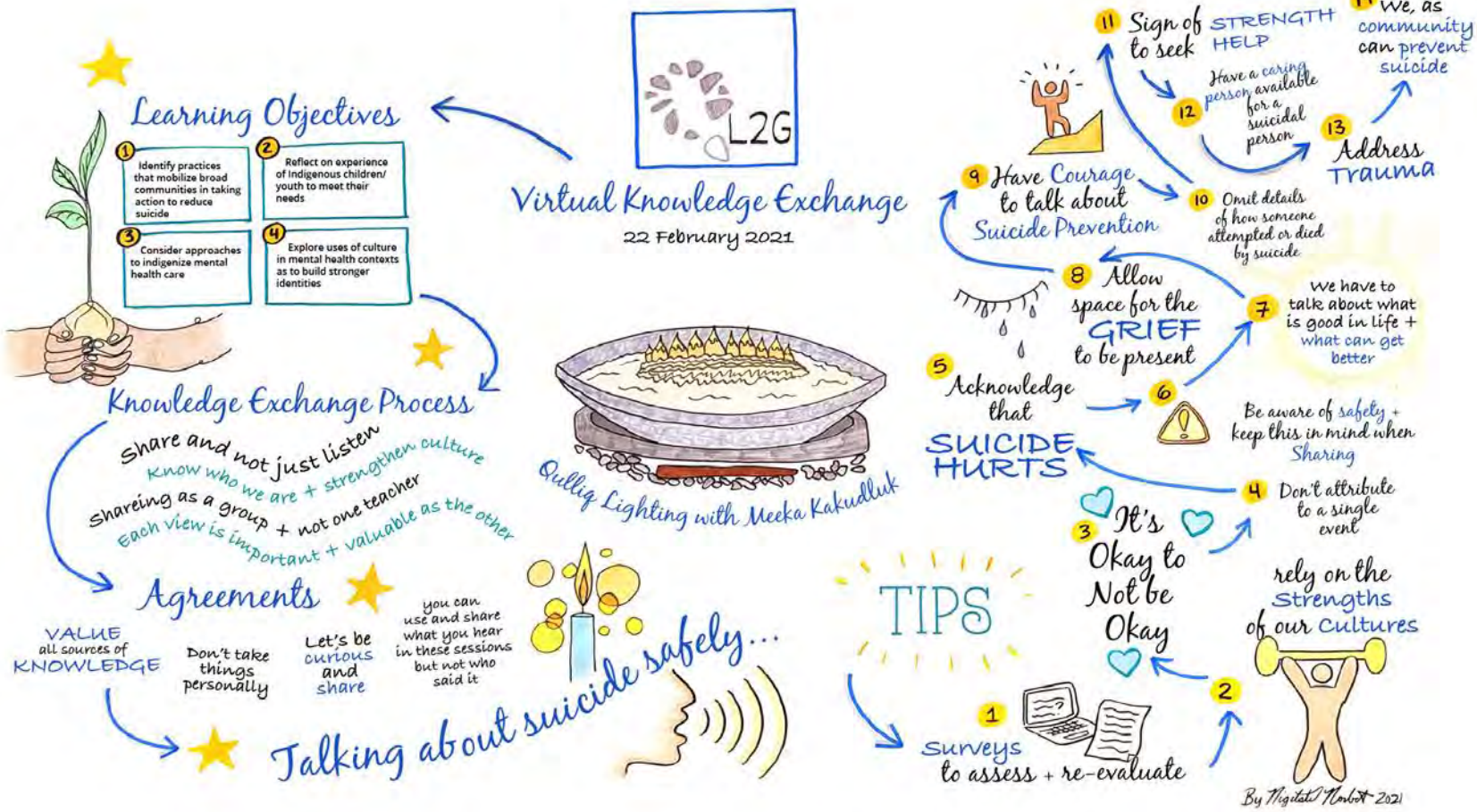
Goals of the Virtual Knowledge Exchange

- Creating a space where frontline workers can expand their skills by trading knowledge with peers who work in Arctic suicide prevention and mental wellbeing
- Advancing the use of Indigenous knowledge and practices in Arctic mental health
- Strengthening international cooperation to address suicide in Arctic regions; and
- Fostering relationships between frontline workers so they can continue to reach out to one another, share ideas and exchange resources even after the knowledge exchange has ended


Где находятся, живут или работают участники группы L2G по виртуальному обмену знаниями.
Dustin/Дастин
Svetlana/Светлана
Amy/Эми
Annie/Энни
Jacey/Джейси
Rena/Рина
Nigit'stil / Нигит'стил
Amanda/Аманда
Jonathan/Джонатан
Sheila/Шейла
Jeremy / Джереми
Selma / Сельма
Aqissiaq/Акиссиак
Arnarak/Арнарак
Marya/Марья
Andrey/Андрей
Tonje / Тонье
Renathe/Рената
Susanna/Сюзанна
Hanna/Ханна
Where L2G Virtual Knowledge Exchange cohort members are from, live or work
Na'Dene family
Athabaskan branch
Eyak branch
Tlingit branch
Eskaleut family
Inuit group of Inuit-Yupik branch
Yupik group of Inuit-Yupik branch
Aleut (Unangam Tunuu) branch
Not represented by Permanent Participants
Critically endangered or recently extinct
Dialects
Altaic family
Turkic branch
Mongolic branch
Tunguso-Manchurian branch
Paleo-Asian family
Paleo-Asian family
Uralic family
Finno-Ugric branch
Samoyedic branch
Language isolates
Ket
Nivkh
Tsimshianic
Haida languages
Yukagir languages

3rd ARCTIC SCIENCE MINISTERIAL

L2G | Circumpolar Mental Well-being



LIVE GRAPHIC RECORDING Nigit'stil Norbert | Drawing Change

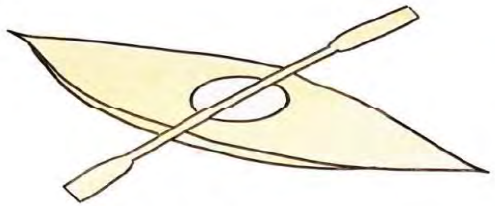
3rd ARCTIC SCIENCE MINISTERIAL

European Polar Board

L2G

Virtual Knowledge Exchange

March 15, 2021



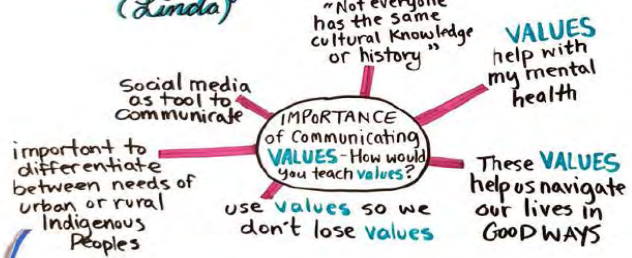
Family Program : based in Inupiat Ilitqusiat Values

Maamag (Linda)

"These are the values that have SUSTAINED OUR PEOPLE"

- INUIT VALUES with a focus on STRENGTH of FAMILIES
- BEING PROUD OF YOUR CULTURE

= LEADS to HEALTH EMPOWERMENT and MAKES US STRONG



SANKS

Sámi Norwegian National Advisory Unit on Mental Health and Substance Use:

Renathe

1. Traditional Healing Access
2. family culture + communication
3. Patient culture context
4. Addressing discrimination for being Sámi
5. Culturally Sensitive Treatment

Revitalization of Traditional KAYAKS +

Building STEAM BATHS (xaayax, Banya)

☆ Normalizing conversations about feelings

Sámi

Cultural Clothing Strengthens youth mental health

APIA

AwaKuxtwin (working together)

Intensive Outpatient Therapy

"your life is gifted to you, what you make of it is your gift in return"

What / How does Indigenising mental health care look like?

'WOUNDED HEALERS' DOCUMENTARY

☆ Inuit Counsellor Training Program

VAAJMORE: MEANS HEART

youth choir with purpose to highlight mental illness among Sámi youth

GOING OFF (on-the-land) GROWING STRONG

*teenage men at risk

FRIENDS act as ROLE MODELS

Self empowerment workshops for youth

HEALING Through CULTURE

NUNAVUT LEGISLATIVE ASSEMBLY MENTAL HEALTH ACT (NEW)

☆ Family involvement as a VALUE in mental health care - notifying family when member is at risk

By Nigitstil Norbert 2021

ARCTIC COUNCIL

Sustainable Development Working Group

L2G Circumpolar Mental Well-being

SÁMIRÁÐÐI SAAMELAISNEUVOSTO SAMERÅDET СОЮЗ САМОВ SAAMI COUNCIL

INUIT

Government of Canada | Gouvernement du Canada

LIVE GRAPHIC RECORDING Nigit'stil Norbert | Drawing Change

3rd ARCTIC SCIENCE MINISTERIAL

L2G | Circumpolar Mental Well-being

European Polar Board

OUTCOMES

“Thank you very much for your concern and for organizing these meetings. The materials that you give us, I was ready to share at once with as many caring people as possible. Today we have just a parents' meeting, at which I want to talk about what can and should be done in order to prevent the irreparable. Without your help, I would not have learned so much information. I will try to share it, because this knowledge can save someone's life and this cannot be postponed until later.”

COVID-19 in the Arctic

Sustainable Development Working Group

Jennifer Spence

SDWG Executive Secretary

Recommended Actions

Sustainable development;
Evaluation of vulnerability and resilience;
Application of knowledge

Liza Mack

ASM3 Science Advisory Board Member

Questions & Answers

Third Arctic Science Ministerial Webinar Series

Theme 3: Respond

Sustainable development; Evaluation of vulnerability and resilience; Application of knowledge

Please type any questions related to the webinar series in the Q&A box.

Any remaining questions may be sent to
ml-asm3@mext.go.jp

Third Arctic Science Ministerial Webinar Series

ASM3 Closing Webinar

Ministerial Review –
Joint Statement and Actions

9 June 2021
13: 00 - 15: 00 UTC

Program here! ▶ https://asm3.org

https://asm3.org

ASM3

3rd Arctic Science Ministerial
Co-hosted by Iceland and Japan
NEW DATE: 08-09 May 2021
Tokyo, Japan

Webinar Series

This webinar series is designed to increase transparency of the Arctic Science Ministerial

Concept Note

Since the last Arctic Science Ministerial in 2018, changes in the Arctic ecosystem and the

Briefing Meetings

Briefing meetings for embassies will take place throughout the planning process for

3rd ARCTIC SCIENCE MINISTERIAL

European Polar Board

Thank You

ASM3 Email: ml-asm3@mext.go.jp

Government of Iceland
Ministry of Education, Science and Culture

MEXT MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY-JAPAN