

The International Science Initiative in the Russian Arctic (ISIRA)

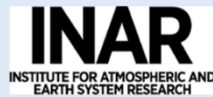
ISIRA National Reports 2021: FINLAND

ISIRA meeting 19 March 2021

19 March 2021; 12:00-15:00 GMT/15:00 – 18:00 Online, Zoom link is in Brella system - <https://next.brella.io/events/assw21/schedule/294781>

Report by Hanna K. Lappalainen (1), Anne Raja-Hanhela (2), Timo Vihma (3), Kalevi Mursula (4), Jari Haapala (3), Pentti Kujala (5), Jaakko Heinonen (6), Hermann Kaarto-Kallio (7), Miska Luoto (1), Lassi Heininen (1), Otso Suominen (8) Arja Rautio (4) et al. and Juho Kupila (9)
a group of national IASC / AOS committee and WG members

(1) University of Helsinki, (2) University of Lapland, (3) Finnish Meteorological Institute (FMI), (4) University of Oulu, (5) Aalto University, (6) VTT, (7) Finnish Environment Institute, (8) University of Turku, (9) Geological Survey of Finland



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

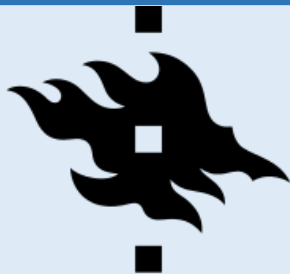
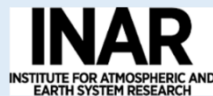


The International Science Initiative in the Russian Arctic (ISIRA)

ISIRA National Reports 2020: FINLAND

ISIRA meeting 30 March 2020

- Many bilateral and international projects going on in various fields:
 - Environmental & atmospheric sciences
 - Environmental health
 - Meteorology and Arctic Ocean
 - Engineering & Technical sciences
 - Geopolitical & social sciences



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



FINNISH METEOROLOGICAL
INSTITUTE



LAPIN YLIOPISTO
UNIVERSITY OF LAPLAND



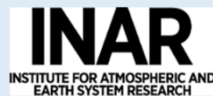
S Y K E



The International Science Initiative in the Russian Arctic (ISIRA)

ISIRA National Reports 2021: FINLAND

- Examples of Russian Arctic projects with the Finnish partners & activities in 2021 by
 - Aalto University – engineering & technical sciences
 - Finnish Meteorological Institute – meteorology and Arctic ocean
 - University of Oulu – environmental health
 - University of Turku – ecology
 - University of Helsinki – geopolitical sciences, atmospheric sciences



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



FINNISH METEOROLOGICAL
INSTITUTE



LAPIN YLIOPISTO
UNIVERSITY OF LAPLAND



S Y K E



ISIRA National Reports 2021: FINLAND

ENGINEERING & TECHICAL SCIENCES

Pentti Kujala, Aalto University



www.merikotka.fi/wp-content/uploads/2019/10/WP1.1_Combination_FINAL-3.pdf



“Future potential of Inland Waterways” (INFUTURE)

- road transport challenges: pollution, accidents, road network congestion. Inland waterway traffic constitutes a cost-effective and environmentally friendly option.*
- Focus on the best ways to develop and to promote sustainable and cost-effective inland waterways transport*
- **budget** EUR 1,251,538 (2014–2020)*
- **partners:** Kotka Maritime Research Association, Aalto Univ., SE Finland Un. of Applied Sciences, Meritaito Ltd., Finnish Waterway Association, Admiral Makarov State Univ. for Maritime and Inland Shipping, North-West Russia Logistics and Information Development Centre*

SIMREC – Simulators for improving Cross-border Oil Spill Response in Extreme Conditions

- budget for the aims at mitigating the risks oil-spills pose on the environment of the Gulf of Finland by cooperation between Finland and Russia and jointly developing a new generation of cost-efficient simulation environment training that capacitates response teams to maximize the efficiency of their operations
- **Budget** EUR 1 467 266.
- **Partners:** Kotka Maritime Research Association KMRA, Aalto Univ., SYKE, South-Eastern Finland Univ. Applied Sciences. Univ. Helsinki UH, State Marine Technical University of Saint-Petersburg, Admiral Makarov State Univ. Maritime and Inland Shipping

[/www.xamk.fi/en/research-and-development/simrec-simulators-for-improving-cross-border-oil-spill-response-in-extreme-conditions/](http://www.xamk.fi/en/research-and-development/simrec-simulators-for-improving-cross-border-oil-spill-response-in-extreme-conditions/)



ISIRA National Reports 2021: FINLAND

METEOROLOGY

Timo Vihma, FMI

Polar Meteorology and Climatology

Arctic - Mid-latitude linkages

Atmospheric moisture budget in Polar Regions

Boundary layer meteorology

Sea ice and snow



Deployment of a weather mast in Svalbard (photo Timo Vihma).



In winter Arctic sea ice releases a lot of heat and moisture to the atmosphere. The ice ridges and floe edges enhance the wind forcing on sea ice drift (photo: Timo Vihma).

Arctic Forcing on European weather and climate (AFEC)

- years 2018-2022
- funding: Academy of Finland
- coordinator: Timo Vihma, FMI
- partnerit: numerous national and international partners, from Russia: Nansen International Environmental and Remote Sensing Centre, St. Petersburg

Antarctic Meteorology and Snow Research: from Process Understanding to Improved Predictions (ASPIRE)

- *years: 2017-2020*
- *funding: Academy of Finland*
- *coordinator: Timo Vihma, FMI*
- *Partners: numerous national and international partners, from Russia: Arctic and Antarctic Research Inst., St. Petersburg*

ISIRA National Reports 2021: FINLAND

ENVIRONMENTAL HEALTH

Auli Rautio, University of Oulu



Development of Think Tank Functions of the Northern Dimension Institute

- designed to enhance genuine regional cooperation in the Northern Dimension area through science diplomacy, capacity building and people-to-people contacts.
- Coordinator: Aalto University
- partners: IIASA, University of Oulu, St Petersburg State University of Economy, Northern Arctic Federal University and Aalto University
- budget 0,68 M€ (ENI-2017-38)
- years 2019-21.



Permafrost thaw and the changing Arctic coast, science for socio-economic adaptation (Nunataryak)

- *develop quantitative understanding of the fluxes and fates of organic matter released from thawing coastal and subsea permafrost*
- *assess what risks are posed by thawing coastal permafrost, to infrastructure, indigenous and local communities and people's health, and from pollution*
- *estimate the long-term impacts of permafrost thaw on global climate and the economy.*
- *Coordinator: AWI, 20 partners, Rautio as WP leader*
- *Budget 11,47 M€, 2017-2022, H2020-BG-2016-2017*



Healthy food and lifestyle choices in the Arctic

- *to contribute to a more healthy diet in a changing Arctic through bringing scientists and stakeholders from Norway, Finland and Russia together. A specific focus will be on local food culture and food, alcohol as a part of eating habits, and food wastage in the Arctic.*
- *Coordinator: NILF, 8 partners, incl. Narfu, NSMU and UOULU (Rautio) partners, budget 60 000€/year, 2015-2018.*

ISIRA National Reports 2020: FINLAND

ECOLOGY

Otso Suominen
University of Turku



Atlantic salmon



Photo: wikipedia.org/wiki/Atlantic_salmon



Conserving our Atlantic salmon as a sustainable resource for people in the North (KO4178 CoASal)

- **Short description:** will document and examine the effects of the new sea salmon fishery regulations, study the growing threats Atlantic salmon populations face today with climate change, growing cage culture industry and emerging diseases; raises awareness and knowledge on the unique and joint Atlantic salmon resource in the Barents region, enhances cooperation between local fishermen, decision makers and research institutions in Norway, Finland, Russia and Sweden.
- **Funding:** 824 118 € **Total budget:** 1 146 619 € , **Duration:** 01.01.2020 - 31.12.2021
- **Lead partner:** Office of the Finnmark County Governor, Vadsø, Norway **Other partners:** Knipovich Polar Research Institute of Marine Fisheries and Oceanography, Murmansk, Russia; University of Turku, Kevo Subarctic Research Institute, Utsjoki, Finland; Swedish University of Agricultural Sciences, Department of Aquatic Resources, Uppsala, Sweden; Institute of Marine Research, Bergen, Norway

ISIRA National Reports 2021: FINLAND

GEOLOGY AND ENVIRONMENT

Juho Kupila

Geological Survey of Finland



GEOLOGICAL
SURVEY OF
NORWAY

- NGU -



<http://projects.gtk.fi/HazArctic/index.html>

Geo-Bio Hazards in the Arctic Region (KO1115 HazArctic)

- **Short description:** The project will study areal extension, mechanism and risk for oxidation of two kinds of environments which can produce hazardously acid substances: (1) man-made mining areas and (2) potentially hazardous sulfur bearing Litorina clay sediments which can oxidize due to descent of ground water level. In addition, studies related to the mine environment (stability of closed and open mines and their water quality, mine tailings reuse and assessment of actual state of territories in the vicinity of closed mines) will be carried out. Also, the role of microbes in the geo-bio interaction in possible hazardous environments, both man-made mining areas and “natural” clay-sulfur sediments, will be studied.
- **Funding:** 647 375 € **Total budget:** 1 294 750 € , **Duration:** 01.01.2019 - 31.12.2021
- **Lead partner:** Geological Survey of Finland, Rovaniemi **Other partners:** Natural Resources Institute Finland (LUKE); Geological Survey of Norway (NGU); Geological Survey of Sweden (SGU); Geological Institute and Mining Institute – Subdivision of the Federal Research Centre “Kola Science Centre of the Russian Academy of Sciences” (GI KSC and MI KSC)

ISIRA National Reports 2021: FINLAND

GEOLOGY AND ENVIRONMENT

Tarja Hatakka and Jaana Jarva
Geological Survey of Finland



Environmental impacts of the Krasny Bor toxic waste landfill (KS 1203 EnviTox)

- **Short description:** The project is aiming at developing feasible recommendations and tools for enhancing good quality environment in the Krasny Bor toxic waste landfill surroundings. The project will provide up-to-date information on the state of the environment in the area around the Krasny Bor toxic waste landfill and suggest feasible measures for its improvement. Based on the vulnerability and risk analysis, feasible risk management measures to mitigate identified environmental risks are given. Implementation of these measures will lead to the overall improvement of the environmental status in the region.
- **Funding:** 748 813 € **Total budget:** 936 016 € , **Duration:** 01.03.2019 - 28.2.2022
- **Lead partner:** State Geological Unitary Company «Mineral» **Other partners:** Geological Survey of Finland (GTK); South-Eastern Finland University of Applied Sciences (Xamk); Institute of Limnology, Russian Academy of Sciences; Institute of Precambrian Geology and Geochronology, Russian Academy of Sciences.



CBC 2014-2020
SOUTH-EAST FINLAND - RUSSIA

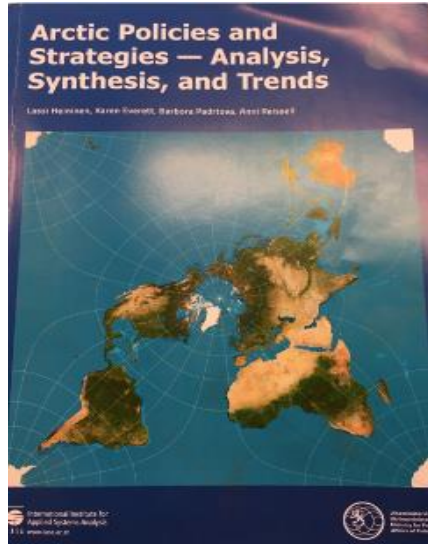
Funded by the European Union,
the Russian Federation and
the Republic of Finland.

<http://envitox.spb.ru/>

ISIRA National Reports 2021: FINLAND

GEOPOLITICS

Lassi Heininen
University of Helsinki



- Supporting Russian and international early career scientists
 - Calotte Academy 2020: autumn 2020, application for NCMs, Kola Science Center & Luzin Institute for Economic Studies
- IR Professorship (Heininen) at NArFU (2019-2021) including research project on Arctic Geopolitics & Security, funding will be applied by NArFU



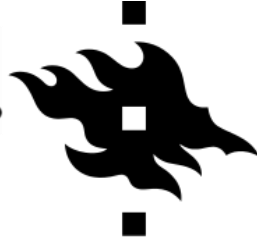
- The Aleksanteri Institute operates as a unit of the University of Helsinki Faculty of Arts. In addition, it has a special task of coordinating and organising Finnish research and teaching in Russian and Eastern European Studies and of providing information services for the network of 12 Finnish universities active in the field.
- The Aleksanteri Institute promotes Russian and Eastern European studies in the Finnish society and is also one of the best-known institutes in its field globally.
- www.helsinki.fi/en/aleksanteri-institute/institute

ISIRA National Reports 2020: FINLAND

ATMOSPHERIC SCIENCES

Hanna Lappalainen, Tuukka Petäjä,
Markku Kulmala,
University of Helsinki

INAR
INSTITUTE FOR ATMOSPHERIC AND
EARTH SYSTEM RESEARCH



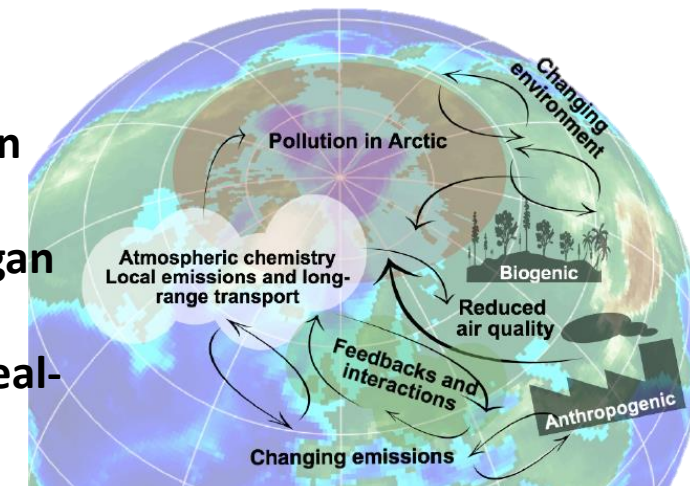
HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Pan-Eurasian Experiment Program (PEEX), 2012-

- Over 30 partner institutes in Russia
- Multidisciplinary research & R&E education program
- Development of the Earth Observatory – an in situ stations network for detecting atmosphere – Earth surface interactions and feedbacks (Kulmala, Nature Comment Jan 2018)
- Russia HQ hosted by Moscow State University
- Overview paper on the Recent advances on the system understanding of the Northern Eurasian region and China urban environment under climate change (PEEX) program perspective



Thematic Network on Arctic Boreal Hub:
www.uarctic.org/organization/thematic-networks/arctic-boreal-hub/

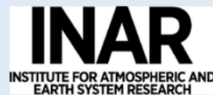


The International Science Initiative in the Russian Arctic (ISIRA)

ISIRA National Reports 2021: FINLAND

SUMMARY

- active bilateral collaboration with Russia in various domains and disciplines funded by Academy of Finland, Nordfrosk, EU
- COVID19 situation has downshifted several activities 2020-early 2021



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



FINNISH METEOROLOGICAL
INSTITUTE



LAPIN YLIOPISTO
UNIVERSITY OF LAPLAND



S Y K E



The International Science Initiative in the Russian Arctic (ISIRA) ISIRA National Reports 2021: FINLAND

THANK YOU

