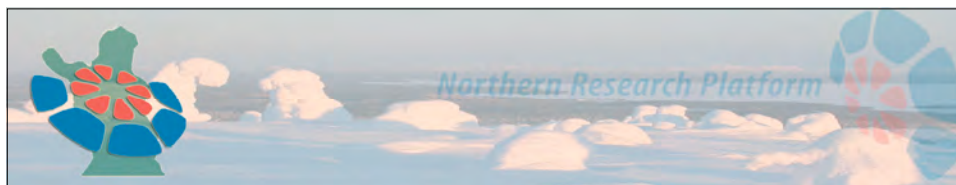


SAON

Finnish Perspectives

Challenges and opportunities

Kari Laine
THULE institute
University of Oulu



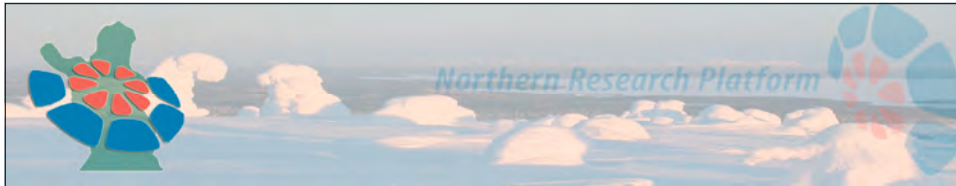
Finnish Perspectives: Challenges and opportunities

**Northern Long-Term Socio-Ecological
Research Platform (Northern LTSER platform)**

– a new tool for collaborative research in Northern Finland

Northern LTSER Platform, founded as a part of Finnish LTER Network in 2007, constitutes environmental transect from northern boreal forest landscapes to arctic tundra.



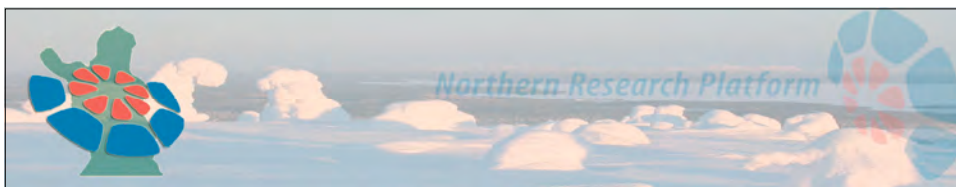


The main aim of the Northern LTSER Platform

is to pool long-term research activities and monitoring data of the northernmost university research stations in Finland under five research themes related to socio-ecological changes in northern nature and communities.

MONITORING - EXPERIMENTS – ?

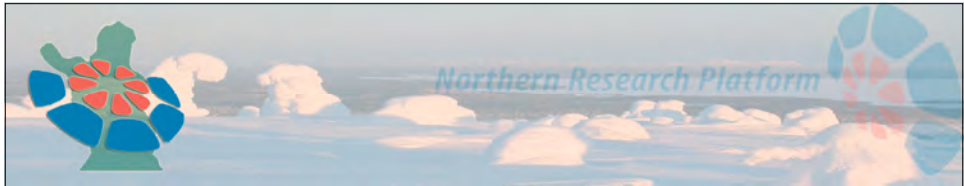
LONG TRADITION – SECURITY - ?



PLATFORM STRUCTURE

The Platform consists of two LTSER-areas and additional LTER-sites and supportive facilities and monitoring programmes by research units of Finnish Forest Research Institute.

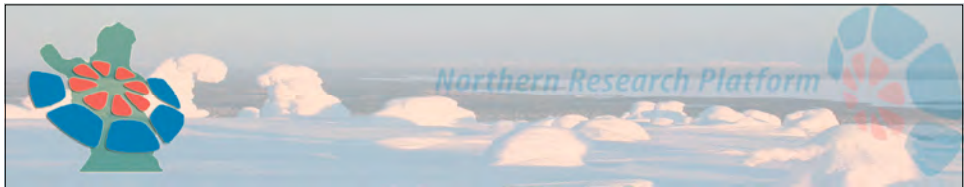
A network of university research stations and northern units of research institutes offers the basic infrastructures for conducting collaborative research, basic laboratory facilities, competent personnel and office as well as accommodation facilities for visiting scientist.



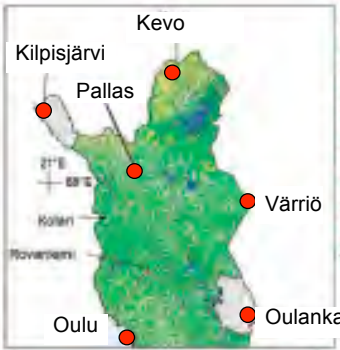
Northern Research Platform

Partners

- Thule Institute, University of Oulu,
- Oulanka Research Station, Univ. of Oulu
- Kilpisjärvi Biological Station, University of Helsinki,
- Värriö Research Station, University of Helsinki,
- Kevo Subarctic Research Station, University of Turku,
- Finnish Meteorological Institute,
- Forest Res. Institute,
- Environmental Res. Institute SYKE,
- Geological Survey in Finland,
- Game and Fish Res. Institute,
- other national res. institutes

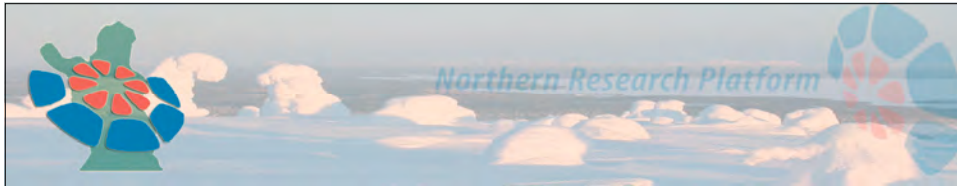


Northern Research Platform



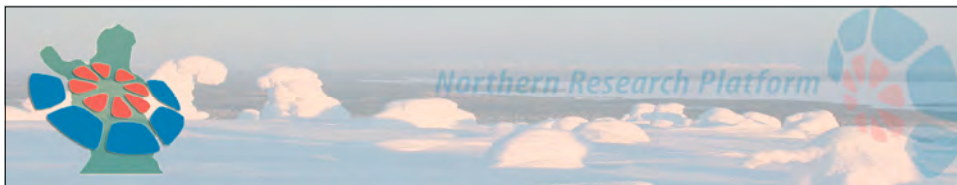
The Platform consists of two LTER-areas (Kuusamo and Enontekiö) and additional LTER-sites (Kilpisjärvi, Kevo, Oulanka, Pallas and Värriö) and supportive facilities by research units of Finnish Forest Research Institute. LTER-sites focus on monitoring natural systems and processes whereas LTER-areas deal with socio-ecological systems that emerge through the interaction between ecosystems and socioeconomic systems.

Thule Institute, University of Oulu, Finland, Kilpisjärvi Biological Station, University of Helsinki, Finland, Värriö Research Station, University of Helsinki, Finland, Kevo Subarctic Research Station, University of Turku, Finland, Finnish Meteorological Institute, Finland, Forest Rese. Institute, Environmental Res. Institute SYKE, Geological Survey in Finland, Game and Fish Res. Institute, oteher national res. institutes



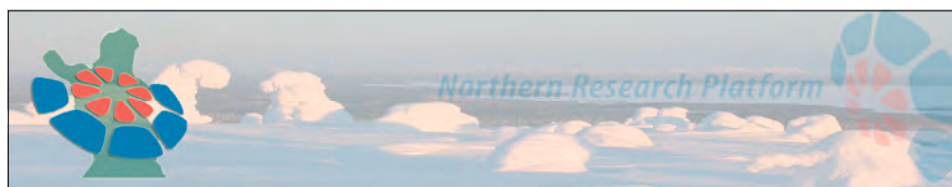
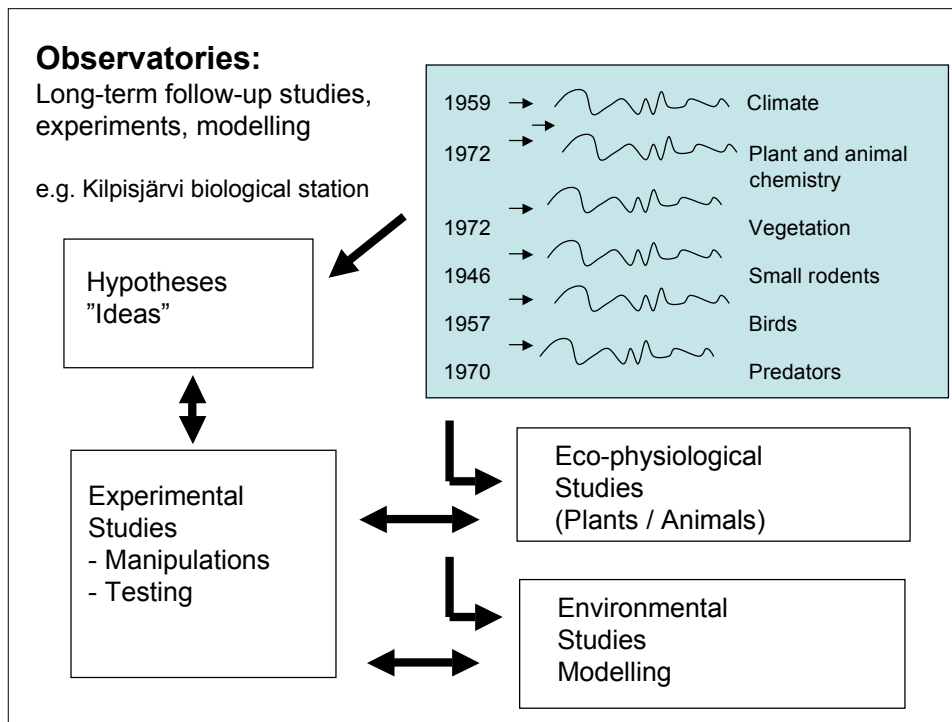
RESEARCH OBJECTIVES

- To study population dynamics and productivity of populations living in northern and peripheral conditions
- To assess the effects of global change on northern ecosystems
- To study importance of the environment and environmental changes to livelihoods and people's welfare
- To study the complexity and support the practice of information management within long-term socio-ecological research collaboration



RESEARCH THEMES

- A. Population dynamics and productivity of plant and animal populations living in the periphery of their distribution**
- B. Effects of global change on northern ecosystems**
- C. Changing society and livelihoods in rural and peripheral areas**
- D. Human health and wellbeing in northern communities**
- E. Information management and research infrastructure for scientific collaboration**



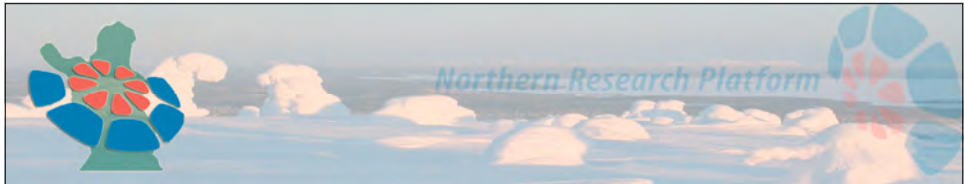
AVAILABILITY OF THE DATA

1. **In general the long-term data series are available** for the national and international research community in the archives at the research station and/or with the permission of the group leaders.
2. **Birth cohorts of Northern Finland:** (<http://kelo oulu.fi/NFBC/index.html>) give a lot information about the Well-being and Health of population in northern Finland.
3. **The automatic measurements** of Pallas and Värriö site (O₃, NO, SO₂, aerosol, photosynthesis, sulphates, weather etc.) co-ordinated University of Helsinki and Finnish Meteorological Institute etc
4. **Statistical material** about the development of the rural areas in Finland and the types of Finnish rural areas
5. There are also **monitoring programmes** covering the whole country or Northern Finland (forest monitoring projects of Metla) ICP Forests (UN/ECE)/Forest Focus (EU) Level II Programme,

	<i>Category</i>	<i>Name</i>	<i>LTSER/LTER-site or whole platform</i>
List of networks that the LTSER-area or part of it belongs	a) National and/or international ecological research networks	University of Arctic SMEAR SCANNET Scandinavian/North European network of field bases ITEX International tundra experiment SEDIFLUX NORNET Northern Environmental Research Network RERN, Recreation Research Network ICP Forest (UN/ECE) ICP Integrated monitoring ICP Vegetation CALM – Circumpolar Active Layer Monitoring	KIL, KUU VÄR KIL, KUU, KEV KIL KEV platform KUU KUU, ROI KUU, ROI platform (Heavy metal sites) KEV
	c) National and/or international social research networks	ECONOR IPY	platform
	d) National and/or international socio-cultural monitoring networks	PANParks Research Network	KUU
	e) National and/or international multidisciplinary research, education- or development networks (e.g. biosphere reserves)	LAPBIAT Lapland atmosphere-biosphere facility IMAGE – International Monitor of Auroral Geomagnetic Effects IMAGE – International Monitor of Auroral Geomagnetic Effects FDSN – Federation of Digital Broad-Band Seismographic Networks	KIL, KUU, VÄR, KEV KEV KEV KEV

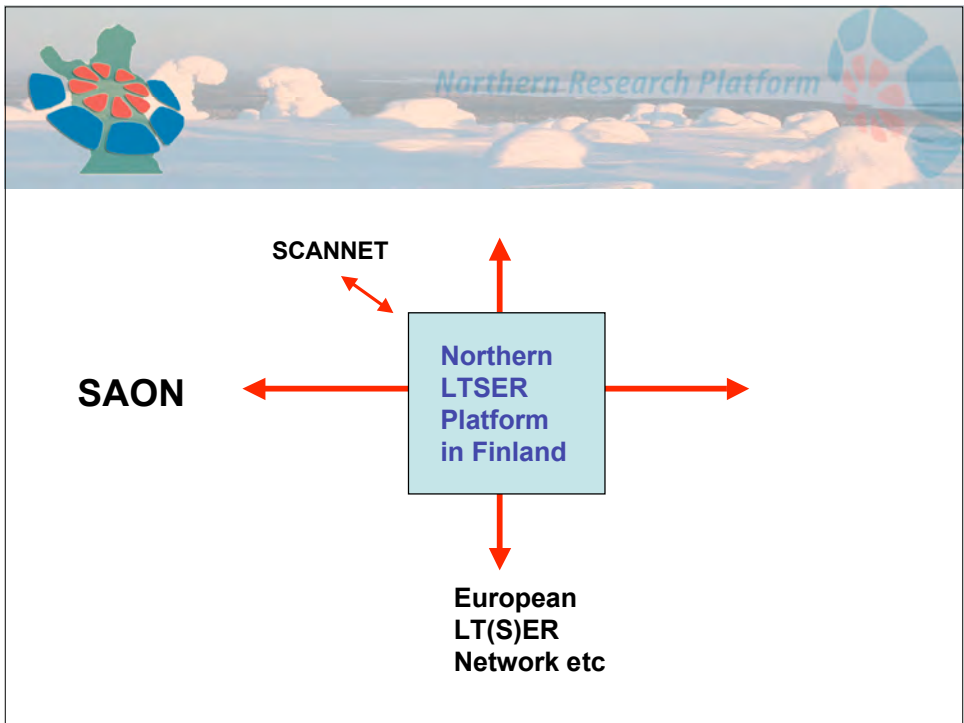
Finnish research activities north of the 70th latitude (e.g.):


- **Spitzbergen:** Glacier research (University of Lapland and Univ of Oulu)
Atmospheric research (Finnish Meteor. Institute)
Geomagnetism and auroral borealis research (Finnish Meteor. Institute and University of Oulu)
Geological research (Univ of Helsinki, Geol. Survey of Finland)
- **Barents Sea:** Marine radioactivity (STUK – Radiation and nuclear safety authority)
- **Arctic Siberia:** Development of atmospheric observatory in Tiksi (Finnish Meteor. Institute)



Northern Research Platform

- **INFORMATION MANAGEMENT / database**
- **METADATA**
- **E – SCIENCE**
- **GIS**
- **RESEARCH INFRASTRUCTURE**
- **COLLABORATION WITH TECHNOLOGY DEVELOPERS**
– platforms for testing
- **EDUCATION AND COMMUNICATION**
- **LOCAL PARTICIPATION**







Northern Research Platform


Thank you !

CONTACT INFO

Platform coordinator prof. Kari Laine
email: kari.laine@oulu.fi

**THULE**
INSTITUTE
thule.oulu.fi

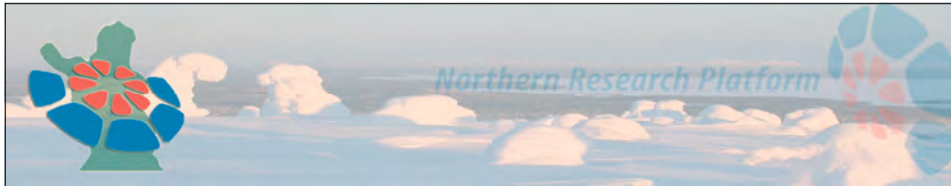
**LTSER**
www.environment.fi/syke/ltser



Northern Research Platform

The main aim of the Northern LTSER Platform

- To facilitate internationally significant research in Finland by high quality research infrastructure and well managed long-term data series
 - To collaborate with other networks in Europe and globally in doing large scale, interdisciplinary and integrative research
 - To become an attractive platform for cooperation and visits by researchers from abroad
- To facilitate stakeholder learning and education in all levels in the area of conservation and sustainable use of ecosystem services



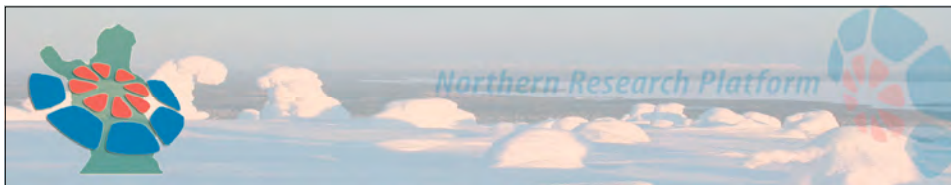
RESEARCH THEMES

A. Population dynamics and productivity of plant and animal populations living in the periphery of their distribution

- Monitoring a wide spectrum of plant and animal life history parameters over long periods of time to separate natural noise from unnatural alarming signals

B. Effects of global change on northern ecosystems

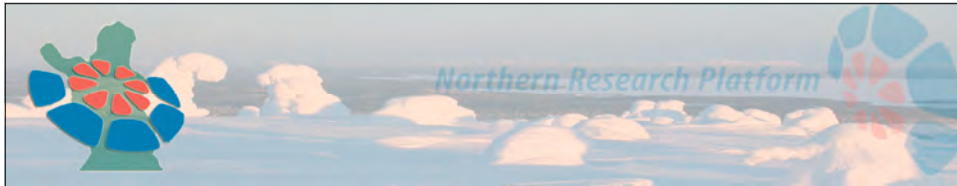
- Potential impact of climate change on the distribution and function of northern ecosystems
- Effects of heavy metal, mercury and nitrogen load on the northern environment.
- Changes in UV and stratosphere ozone and their effects on northern ecosystems
- Climate gases fluxes (CO₂, CH₄, N₂O) in northern environment



RESEARCH THEMES

C. Changing society and livelihoods in rural and peripheral areas

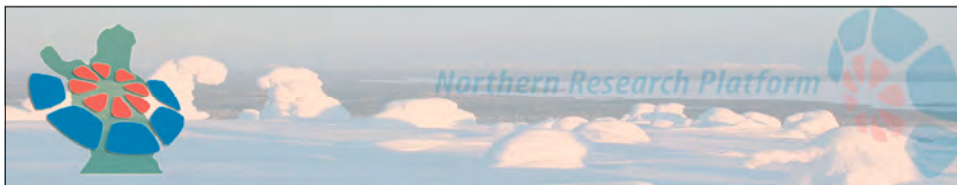
- How the policies of developing rural and peripheral areas do support ecological, social, cultural and economic dimensions of sustainable development in local level?
- Social impacts of environmental conservation at local level and social impacts of using natural resources at local level?
- Developing the methods to monitor socioecological impacts of tourism and measure the effectiveness of the development efforts towards sustainable tourism



RESEARCH THEMES

D. Human health and wellbeing in northern communities

- Consequences of ecosystem change for human wellbeing
- Building up a network of communities located in the Northern Finland within the dwellers' knowledge of environmental changes (e.g. signs of climate changes) and experienced health and wellbeing are at regular intervals studied and monitored.



RESEARCH THEMES

E. Information management and research infrastructure for scientific collaboration

- Promotion a collaborative socio-technical approach to the development of information infrastructure and practices in an incremental, processlike manner as a part of the evolving practices and conventions of LTSER scientific collaboration.
- Long-term development of information management to optimally account for and support the evolving ways of doing LTSER science

Finnish research activities north of the 70th latitude:

- Spitzbergen: Glacier research (University of Lapland and Univ of Oulu)
- Spitzbergen: Atmospheric research (Finnish Meteor. Institute)
- Spitzbergen: Geomagnetism and auroral borealis research (Finnish Meteor. Institute and University of Oulu)
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