



INTERACT – Access to the Arctic

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on behalf of the INTERACT Consortium

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www.eu-interact.org

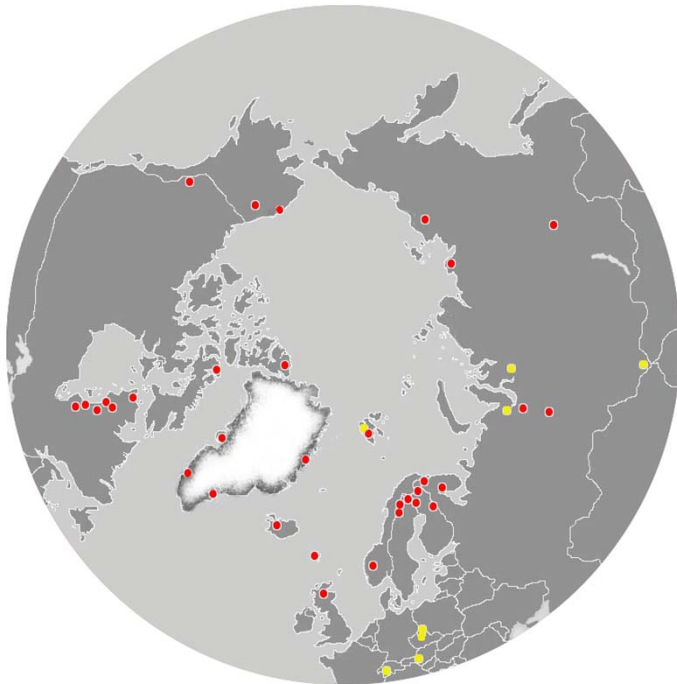
Photo: K. Raundrup

INTERACT - Building capacity for monitoring and research throughout the Arctic: an EU Success Story



**33 partners in 19 countries 2010
+22 Observer Stations by 2013
>50 terrestrial research stations**

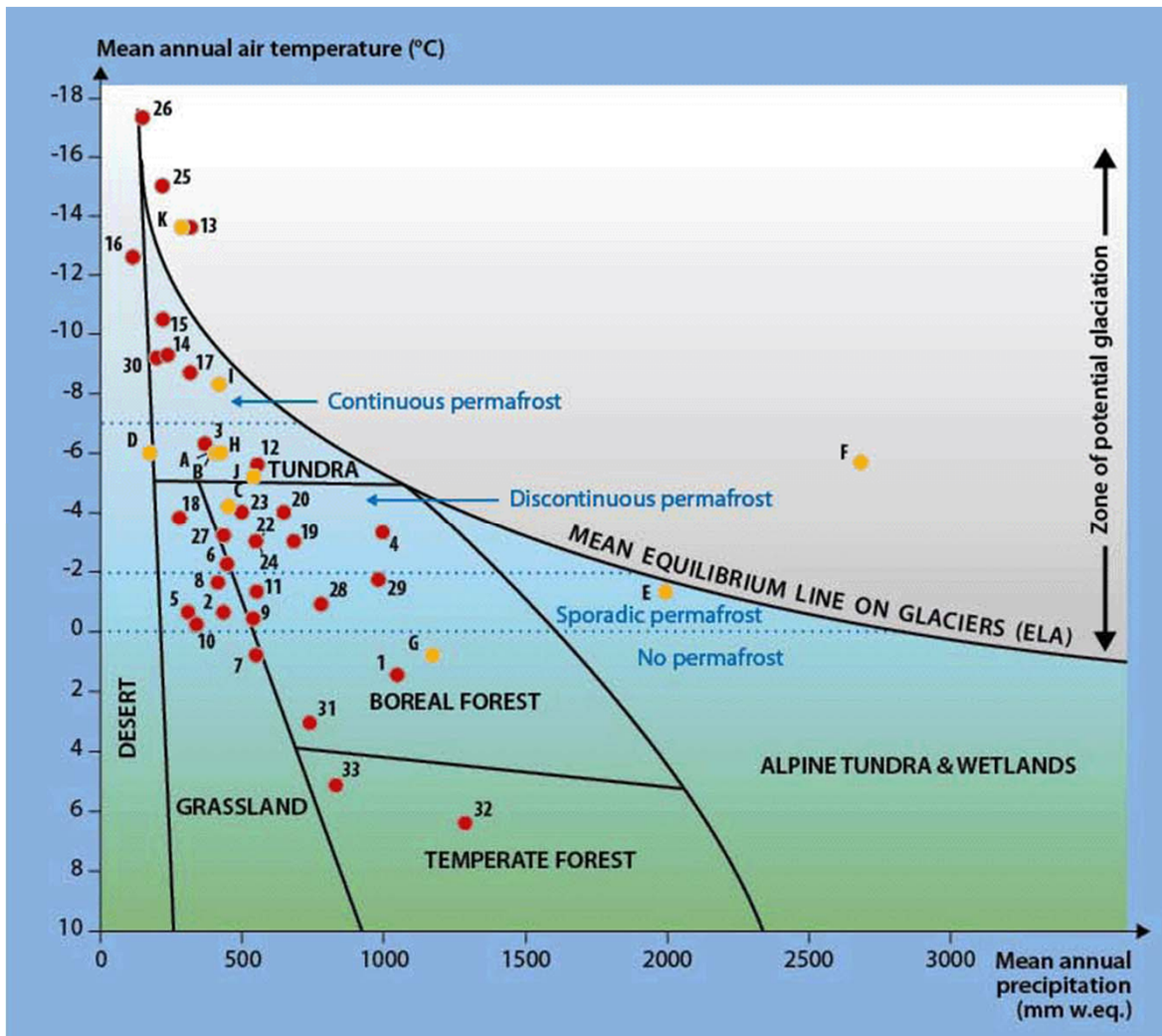
- Biodiversity
- Glaciology
- Permafrost
- Climate
- Hydrology
- Ecology
- Biogeochemistry
- Human dimension
- Etc.



**Transnational Access
Station Managers' Forum
Joint Research Activities
Outreach**

Interact vision

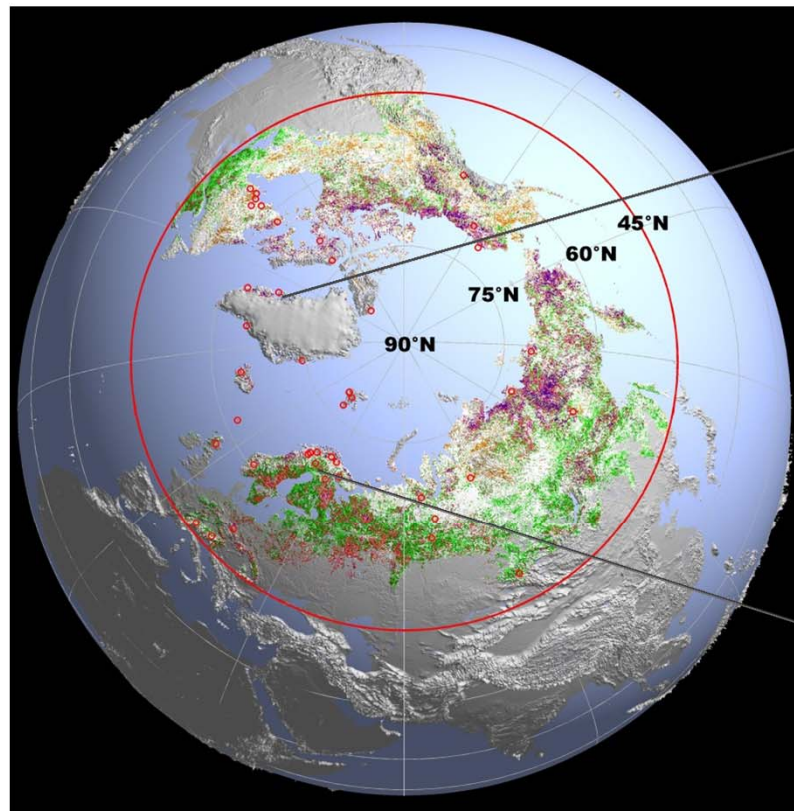
a) Strategically sampling the northern environmental envelope



● INTERACT Stations

- 1 Finse Alpine Research Center
- 2 Bioforsk Svanhovd Research Station
- 3 Sverdrup Station, Ny-Ålesund
- 4 Tarfala Research Station
- 5 Abisko Scientific Research Station
- 6 Kilpisjärvi Biological Station
- 7 Kolarí Research Unit
- 8 Kevo Subarctic Research Station
- 9 Oulanka Research Station
- 10 Khibiny Educational and Scientific Station
- 11 Mukhrino Field Station
- 12 Numto Park Station
- 13 Samoylov Research Station
- 14 Spasskaya Pad Scientific Forest Station
- 15 Chokurdakh Scientific Tundra Station
- 16 Barrow Arctic Research Center/
Barrow Environmental Observatory
- 17 Toolik Field Station
- 18 Kluane Lake Research Station
- 19 CEN Radisson Station
- 20 CEN Whapmagoostui-Kuujuarapik Station
- 21 CEN Clearwater Lake Station
- 22 CEN Umiujaq Research Station
- 23 CEN Boniface River Station
- 24 CEN Salluit Research Station
- 25 CEN Bylot Island Field Station
- 26 CEN Ward Hunt Island Station
- 27 Arctic Station
- 28 Greenland Institute of Natural Resources
- 29 Sermilik Research Station
- 30 Zackenberg Research Station
- 31 Litla Skard
- 32 Faroe Islands Nature Investigation (FINI)
- 33 Cairngorm

b) Strategically sampling environmental and ecosystem change



Trend in PAP Mean NDVI with Respect to 1982 (% per Decade)

<-2.0	-1.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	>8.0
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1982 to 2012

1970 to 2009
No change



From space
to the ground
Xu et al., NCC, 2013



1977 to 2009
change



About INTERACT

INTERACT stations host thousands of researchers from world-wide



They participate in all major Arctic terrestrial initiatives e.g. IASC, ISAC, SAON, CBMP, AMAP, IPA/CALM, ITEXGEO, UArctic, global initiatives such as GEO and relevant EU ESFRI projects like LifeWatch, ICOS and SIOS



INTERACT services for the Arctic where observing capacity is low include:

INTERACT partners' multi-disciplinary monitoring activities have been on-going for up to 100 years

Ground validation of remote sensing

Model testing on the ground

Hosting standardised experiments

Hosting observation and sampling networks

Sampling and inventoring

Building capacity for education

Rapid response sampling Arctic-wide (e.g. contaminants)



Increased access to the Arctic – Transnational Access

- Free access and services to international researchers
- INTERACT offers 10 500 days over four years, number of access days offered by a station ranges from 35 days to 2 120.
- The total access cost is estimated to be ca 1.8 million EUR
- Non-EU nationals can be included if they belong to a “user group” led by an EU national



Increased access to the Arctic – T A to 20 stations –
from West Greenland to eastern Siberia

Russia	5 Stations
Finland	4 Stations
Sweden	2 Stations
Norway	2 Stations
Scotland	1 Station
Faroe Island	1 Station
Iceland	1 Station
Greenland	4 Stations

Canada (non-EU funding)	1 Station but..
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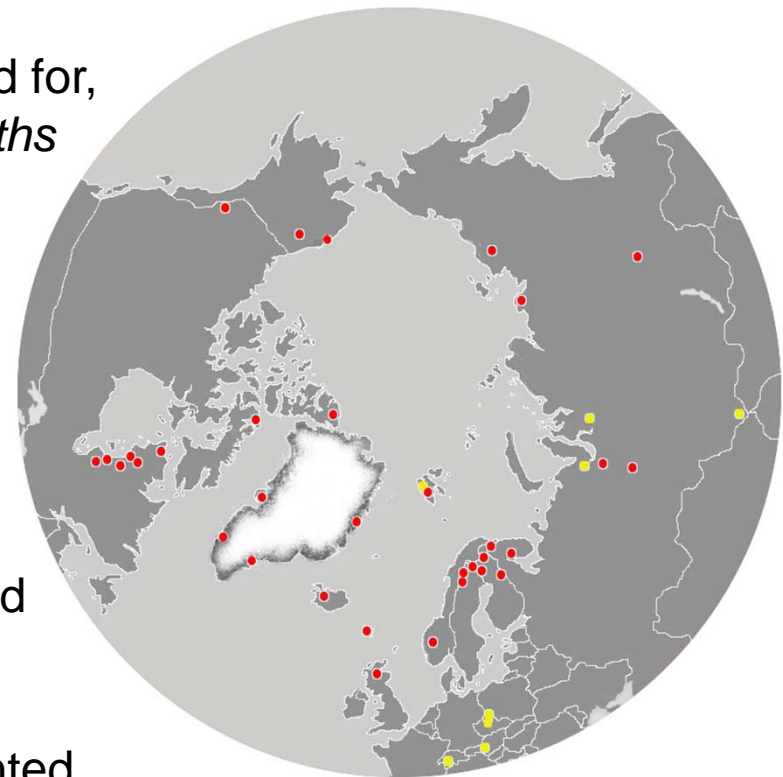
US (No funding!)	2 Stations
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Days applied for,
first 18 months
= 9184

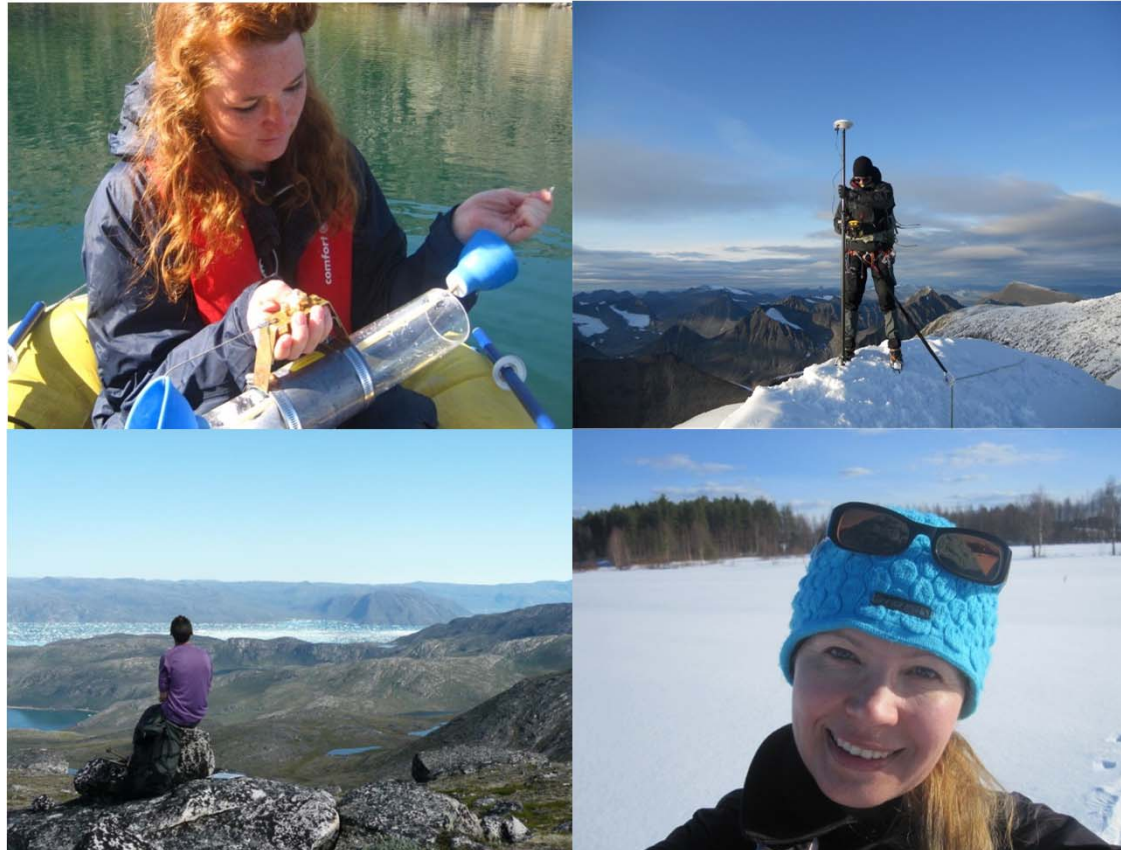
Groups
applying
from 19
countries

Days granted
= 5400

Groups granted
= 136 = **360 researchers**



**A Transnational Access Call is open 1.8.-30.9.2013 at
www.interact-eu.org**



Apply for Transnational Access to conduct research at the coolest places of the North!

Joint Research Activities

Developed and tested instruments to monitor energy exchange in different Arctic environments as partial ICOS stations



INTERACT Station Managers' Forum

Best practice of station management and administration

- design of research and monitoring programmes
- safety issues
- education and training



INTERACT Station Catalogue



STATION NAME AND OWNER

The Chokurdakh Scientific Tundra Station is owned by the Institute for Biological Problems of the Cryolithosphere (Siberian Branch of the Russian Academy of Sciences).

LOCATION

The Chokurdakh Scientific Tundra Station (70°49'28" N, 147°29'23" E; elevation 11 m a.s.l.) is situated in the Kytalyk Wildlife Reserve, located on the north bank of the Elon' (Berelekh) River in Northeastern Yakutia, Republic of Sakha (Yakutia), Russian Federation, approximately 25 km north of the Chokurdakh settlement and around 480 km north of Arctic Circle.

BIODIVERSITY AND NATURAL ENVIRONMENT

The research area consists of three different morphological units, i.e. (i) the present, frequently flooded river floodplain, (ii) the river terrace with tundra vegetation, and (iii) higher (10-30 m) plateaus with well-drained soils. The ice-rich continuous permafrost reaches more than 300 m depths. The levees on the floodplains are overgrown with *Salix* brush. The backswamps consist of meadows with low grass (*Arctophila fulva*) and sedges (*Carex*

arctisiberica, *C. glacialis*) grading into shallow lakes. In the tundra, the main vegetation types are dry heath with *Betula nana* on higher sites (polygon rims, palsas); moist tundra with *Eriophorum tussocks*; wet sites with *Sphagnum* and *Carex* sp., and wet sites with a species-poor vegetation of *Carex* and some *Eriophorum*. At several sites the Sphagnum vegetation overlies a very thin active layer of loose moss peat (<20 cm thickness).

HISTORY AND FACILITIES

The station was established in 2001 by the Siberian Branch of the Russian Academy of Sciences and the Vrije University of Amsterdam (Netherlands) with financial support from the government of Netherlands and with permission and help of the Ministry for Nature Protection of the Republic of Sakha (Yakutia). For accommodation, there is one 4x8 m large living house with four beds and firewood and kerosene heating. Additional tent accommodation for 4-6 peoples is possible during summer time. Kitchen is available. In addition, a big house for 10-12 peoples and a



sauna can be rented from the Kytalyk Wildlife Reserve. There are two 5 m high observational towers for meteorological and flux measurements. Basic instruments are available at the station. Electrical power supply is provided by solar power and wind generator (12 V DC) and portable electrical generators (220 V AC).

GENERAL RESEARCH AND DATABASES

The interdisciplinary research at the Chokurdakh Scientific Tundra station mainly focuses on studies of the environmental

conditions and the role of permafrost ecosystems in Climate Change. This includes the interaction between the atmosphere, the biosphere, the hydrosphere, and the cryolithosphere with respect to biodiversity and global environmental change. Short-term monitoring data exists for different aspects of human activity. Data is available at the web-sites of PIN-MATRA and TCOS-Siberia projects.

HUMAN DIMENSION

The Chokurdakh Scientific Station is situated in the Kytalyk Wildlife Reserve of the World Wide Fund for Nature, which is dedicated to the preservation of the white crane (*Grus leucogeranus*). Human activity is restricted to fishing and reindeer herding.

ACCESS

The Chokurdakh Scientific Tundra Station can be reached from Chokurdakh settlement which is 25 km by airplane from Kytalyk Wildlife Reserve. In winter time (November-April), transport takes place by snowmobiles to Chokurdakh.

Text descriptions

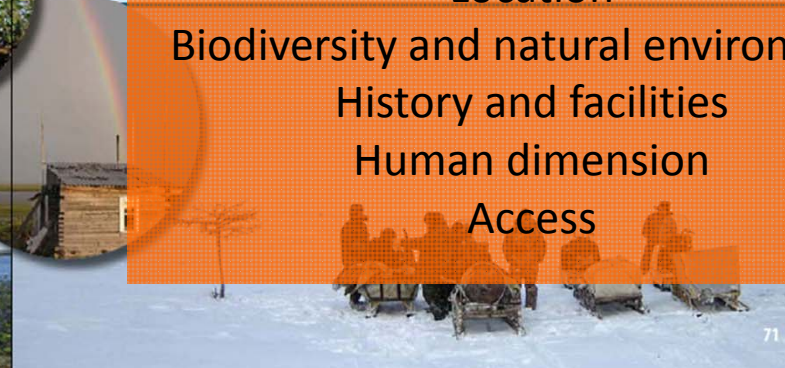
Location

Biodiversity and natural environment

History and facilities

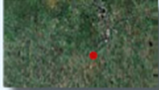
Human dimension

Access



INTERACT Station Catalogue

Category	Sub-Category	Kolari Research Unit
Website		http://www.metsla.fi/ko/index-en.htm
Country		Finland
Opening year		1964
Operational period		Year-round
Permitting issues categories	Permits required for access to the station	Yes
	Permits required for studies	Yes
	Contact (permit issues)	mirja.vuopio@metsla.fi
Facility owner and manager	Name of the facility owner	Finnish Forest Research Institute METLA
	Owner status	Government
	Institution responsible for managing the station	Finnish Forest Research Institute METLA
	Contact (access to station)	mikko.jokinen@metsla.fi
Other institutions	Name	-
	Country	-
Location	Geographical coordinates	67°21'16" N, 22°49'46" E
	Altitude of station	221 m a.s.l.
	Min. altitude within study area	200 m a.s.l.
	Max. altitude within study area	800 m a.s.l.
	Nearest town/settlement	Kolari (1500 inhabitants)
	Distance to nearest town/settlement	4 km
Map		Several maps, air photographs, satellite images open access to digital maps of Finland
Climate	Climate zone	Sub-Arctic (Northern-Boreal)
	Permafrost	-
	Years measured	Since 2010
	Mean annual temperature	0.8 °C
	Mean temperature in February	-18.4 °C
	Mean temperature in July	15.4 °C
	Mean annual wind speed	2 m/s
	Max. wind speed	10.1 m/s
	Dominant wind direction	S
	Total annual precipitation	491.5 mm (2010), 612.7 mm (2011)
	Precipitation type	Rain, snow, hail
	Ice break-up	May
	Station facilities	Area under roof
Scientific laboratories		26 m ²
Logistic		1200 m ²
Number of rooms (beds)		3 guest rooms, 16 beds
Number of staff on station (peak/off season)		10/30
Max. number of visitors at a time		5/10
Showers		Yes
Laundry facilities	Yes	
Power supply (type)	230 V, 50 Hz AC power	
Power supply	24 hours per day	
Scientific equipment	Specific device	Light table, 2 heat closets, 5 exsiccators, 4 microscopes, 4 scales, ultrasonic washer, fume hood
Scientific services offered	Scientific services offered	-
Medical facilities	Medical facilities	Basic
	Medical suite	-
	No. of staff with basic medical training or doctor	10
	Distance to hospital (estimated time)	5 km (10 minutes, 2 hours by car)
	Compulsory safety equipment	-
Landing facilities	Airstrip (Length x Width)	-
	Airstrip surface	-
	Helipad	-
	Ship landing facilities	-
Vehicles at station	Sea transportation	-
	Land transportation	Car, ATV, snowmobile
Transport and freight	Transport to station	-
	Number of ship visits per year (period)	Car, railway, boat, plane (airport 75 km away)
	Number of flight visits per year (period)	-



Fact sheet

Ownership

Access

Location

Climate

Science

Facilities



Features within study area	Yes/No
<input type="checkbox"/> Ice cap or glacier	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Permanent snowpatches	
<input checked="" type="checkbox"/> Mountain	
<input checked="" type="checkbox"/> Valley	
<input checked="" type="checkbox"/> Shoreline	
<input checked="" type="checkbox"/> Tundra	
<input checked="" type="checkbox"/> Tree line	
<input type="checkbox"/> Other	
Main science disciplines	
<input checked="" type="checkbox"/> Anthropology, Sociology, Archaeology	
<input type="checkbox"/> Astrophysics	
<input type="checkbox"/> Atmospheric chemistry and physics	
<input type="checkbox"/> Isotopic chemistry	
<input checked="" type="checkbox"/> Climatology, Climate Change	
<input type="checkbox"/> Environmental sciences, Pollution	
<input type="checkbox"/> Geodesy	
<input checked="" type="checkbox"/> Geology, Sedimentology	
<input checked="" type="checkbox"/> Geophysics	
<input type="checkbox"/> Glaciology	
<input type="checkbox"/> Geocology, Geomorphology	
<input type="checkbox"/> Soil science	
<input type="checkbox"/> Human biology, Medicine	
<input checked="" type="checkbox"/> Mapping, GIS	
<input checked="" type="checkbox"/> Marine biology	
<input checked="" type="checkbox"/> Oceanography, Fishery	
<input checked="" type="checkbox"/> Microbiology	
<input checked="" type="checkbox"/> Hydrology	
<input checked="" type="checkbox"/> Terrestrial biology, Ecology	
<input type="checkbox"/> Paleoclimatology	
<input type="checkbox"/> Paleocology	
<input type="checkbox"/> Limnology	
Workshop facilities	
<input type="checkbox"/> Metal workshop	
<input type="checkbox"/> Wood workshop	
<input type="checkbox"/> Plexiglas workshop	
<input checked="" type="checkbox"/> Staff available to assist with constructions	
Communication	
<input checked="" type="checkbox"/> Telephone	
<input checked="" type="checkbox"/> Satellite phone	
<input checked="" type="checkbox"/> VHF	
<input checked="" type="checkbox"/> E-mail	
<input checked="" type="checkbox"/> Internet	
<input checked="" type="checkbox"/> Computer	
<input checked="" type="checkbox"/> Printer	
<input checked="" type="checkbox"/> Scanner	
<input type="checkbox"/> Fax	



Research and monitoring at INTERACT sites (March 2014) – branded reports

One report will present:

- Metadata of research and monitoring projects carried out at INTERACT Stations (at least from the year 2000)
- A list of parameters monitored at individual INTERACT Stations
- Description of best practices for monitoring selected parameters.

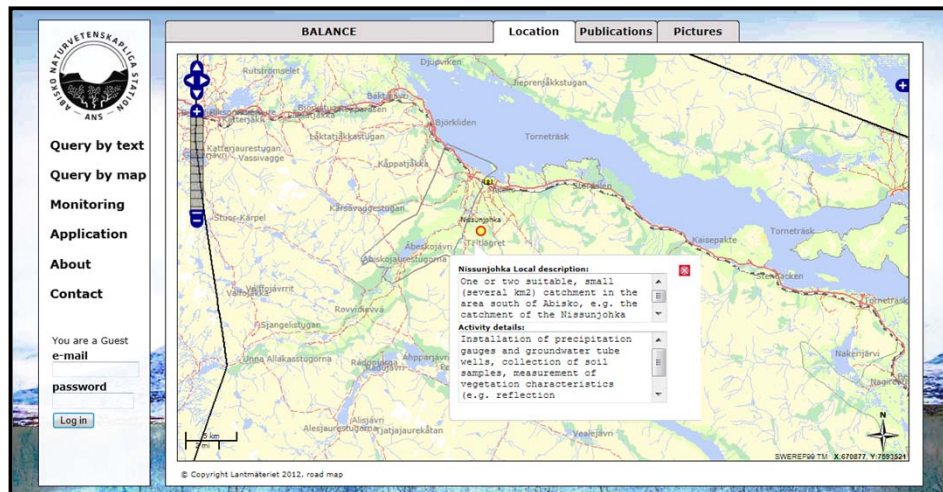
A second report will present:

Summaries of Transnational Access projects and their broader contexts in popular science format.

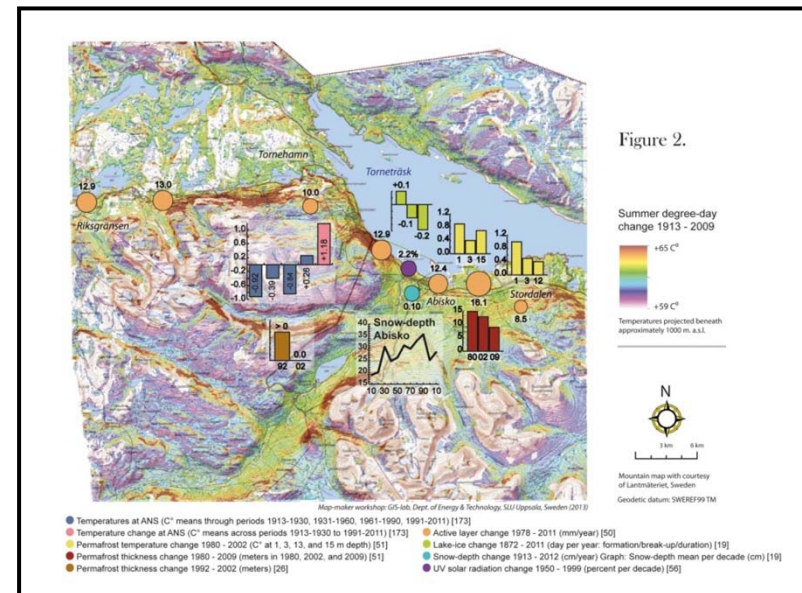


Data Management

- ✓ Increase transparency and availability of data through collective data archives
- ✓ Minimize risks for information gaps and unexploited synergies
- ✓ Provide standardised tools for data management, as well as for station management



- **Geographic database management system (Abisko Scientific GIS)**
- **Future implementation beyond the INTERACT project**
- **ScanDB software for processing, storing, and sharing data products at INTERACT infrastructures**





Abiotic change 1913-2009 in the Abisko region, sub-Arctic Sweden. Callaghan et al. (2013) Accepted for publication in Phil. Trans. Royal Soc.


Outreach

The screenshot displays the website's header with the logo 'INTERACT ACT' and the URL 'www.eu-interact.org'. A navigation menu includes 'INTERACT HOME', 'ABOUT INTERACT', 'FIELD SITES', 'JOINT RESEARCH ACTIVITIES', 'STATION MANAGERS' FORUM', 'TRANSNATIONAL ACCESS', and 'OUTREACH'. A large banner image shows a group of people in winter gear on a snowy mountain slope. Below the banner, a sidebar on the left lists menu items: 'OUTREACH', 'FEATURES', 'WHAT'S ON', 'GALLERY', 'ARCTIC RESOURCES', 'DOCUMENTS', and 'ARCTIC ART'. The main content area is titled 'Outreach' and contains four article cards: 'Case study: Using local knowledge', 'Arctic Research blogs', 'Discussing Climate Change', and 'Zackenberg Diaries'. Each card includes a small image and a 'More...' link.

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