	INSTITUTE FOR ATMOSPHERIC AND			ST TUT OF OF EATON	1755	WMO	NERSC	
UNIVERSITY OF HELSINKI FACULTY OF SCIENCE	EARTH SYSTEM RESEARCH ¹ Institute for Atmospheric and Earth System Research University of Helsinki Helsinki Finland	² Estonian University of Life Sciences Tartu Estonia	³ Institute of Northern Environmental Problems, Kola Science Centre, RAS Apatity Russia	⁴ P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences (RAS) Moscow Russia	⁵ Moscow State University Moscow Moscow Russia	⁶ World Meteorological Organization Geneva Switzerland	⁷ Nansen Environmental and Remote Sensing Centre Bergen Norway	⁸ Finnish Meteorological Institute Helsinki Finland

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ARCTIC DATASETS: part of PEEX International Collaboration



Comprehensive Understanding on Polar Environments www.atm.helsinki.fi/icupe

Delivered Datasets

Dec 2018 - Emerging organic contaminants in air from the Arctic May 2019 - Emerging organic contaminants in snow from the Arctic June 2019 - Anthropogenic contaminants in snow from polar regions June 2019 - Anthropogenic contaminants in ice cores from polar regions Sep 2019 - Emerging organic contaminants in water from the Arctic Sep 2019 - Pilot dataset on Near-Real Time aerosol absorption measurements from Zeppelin Station, Ny Ålesund, Svalbard

Dec 2019 - Arctic atmospheric Hg(II) observations

Jan 2020 - Long-term monitoring of atmospheric mercury at the polar station Amderma, Russian Arctic

Mar 2020 - Classification of artificial light sources in the Yamal Peninsula, Western Siberia Mar 2020 - Fractional snow cover area in selected sites of Svalbard islands (Norway) Mar 2020 - Small-scale vertical and horizontal variability of the atmospheric boundary layer aerosol using unmanned aerial systems

Pan-Eurasian Experiment

PEEX MetaData

collection

peexdata.atm.helsinki.fi

summer, green - spring, dark yellow - autumn, blue - winter); linear approximation for AMEEs duration for spring (green dashed line), and AMDEs duration for winter (purple dashed line); for total AMEEs duration (brown dash with two dots) and for total AMDEs duration (purple dash with two dots)/ & (b) Lognormal distribution of mercury concentration during June 2010 - October 2013.

Available Teasers

Time series of lake size changes in Northeast Greenland Dataset and code on classification of artificial light sources Arctic atmospheric Hg speciation and isotope observations Fractional snow cover area in selected sites of Svalbard islands, Norway Dataset on atmospheric composition at Fonovaya Observatory, West Siberia Proxies for mixing layer height, condensation sink and gross primary production Source apportionment of organic aerosols in the Arctic including the source regions Multi-year dataset on mercury measurements at the Amderma station, Russian Arctic Dataset on micro-climatic features and Urban Heat Island Intensity in cities of Arctic region Continuous vert. obs of aerosol & cloud properties from the Polarstern cruises PS 106.1/106.2 using CLOUDNET station Concentration of organic contaminants, mercury and other heavy metals in annual snow & shallow core records Visible Near Infrared airborne and simulated EnMAP satellite hyperspectral imagery of Toolik Lake, Alaska Absorption coefficient / equivalent black carbon standardized dataset for long term impacts in the Arctic Elemental and organic carbon over the northwestern coast of the Kandalaksha Bay of the White Sea Small-scale vertical and horizontal variability of the atmospheric boundary layer aerosol using UAS Dataset for ground-validation of precipitation measurements in high-latitudes and Arctic region

In-Situ Stations: e-Catalogue www.atm.helsinki.fi/peex/index.php/peexrussia-in-situ-stations-e-catalogue

Although more than 200 stations are presented in PEEX domain, only about 60 Russian stations have metadata information available. The metadata enables to categorize stations in a systematic manner and to connect them to international observation Networks as well as to standardize data formats following guidelines of WMO, GAW, etc. PEEX provides e-catalogue (as a living document) introducing measurements and contact information of the Russian stations.



Which st

Name of

To give wider visibility to the stations activities To promote PEEX research and stations into network partnertship

> Example: NADYM

Time series and trends at the Marre-Sale station (2005-2018) Example:

0.265

0.358

0.558

0.407

-0.121

-0.563

-0.347

-0.056

-0.037

0.117

0.253

0.031

0.029

-0.009

0.032

0.110

0.099

0.009

0.111 -0.105

-0.132

0.066

-0.045

negligible



Occurrence, transport and exchange fluxes of emerging organic contaminants in the Arctic

DATASETS in

PEEX SMEAR I data

direct link to

database

Request from

the stations'

owners

Catalog-intaros.nersc.no

From 200+ stations (in total) 11 **Russian stations in Arctic** were selected for the Atmospheric, **Terrestrial & Cryospheric parts**



R	PAN-EURASIAN EXPERIMENT PEEX
In Collabo	-Situ Atmospheric-Ecosystem rating Stations-Russian Federation

Which station is in this pa Name of the Site and num	ge: ber in the map.	Nady)		
Where is the station meas Type of surface + geograph	uring:	Atmosphere (meteorology)	Temperature.	– Conifer Lat 65° 19' N		
Who is running the station Institutions that own or ma	n: anage the station or	Atmosphere (composition)		Long 72° 52' E Alt 22 m		
other collaborating institut	tions	Hydrosphere	Water table depth.			
What is this station	Par-Eurasian Experiment SI	Cryosphere	Snow depth and density. Permafrost temperature and active layer thickness in different landscapes, cryogenic processes, ground temperature profile down to the bed rock (borehole).			
measuring: Overview of the measurements	Name of station	Pedosphere	Soil water holding capacity (%), soil bulk density, amount of soil organic matter, soil nutrient concentrations, soil chemical characteristics.			
according to system compartments + fluxes between	(unequalities) At 20 m	Biosphere	Moss and lichen ground cover ground vegetation species characterization, litterfall, biodiversity.			
compartments	Protophere	Fluxes	CH ₄			
+ other relevant	Moghers	Other		a for a		
Who to contact for	Flaant Coher Main in Austracturent	Field campaign works at the st collecting. Dur field studies, d	Field campaigns during 2009-2017: annual permafrost intensive works at the station, site and boreholes surveys, temperature data collecting. During 1971-2009: same, unregular. Hosting intensive field studies, development of novel instrumentation.			
more information	Active doce	Main infrastru	ictures			
and/or data requests.	MORE INFO & DATA & CONTACT Website	No permanent	t buildings.			
With whom is the	Data Contant PART OF	Active since	1971	新西 主人		
List of major projects or networks where the station is already a partner.		MORE INFO Website Data Contact	& DATA & CONTACT Request from contact Olga Ponomareva, o-ponomareva@yandex.ru	Contraction of the second seco		
	How does the station look like: Images of the site, station surroundin measuring infrastructe.	part of TSP (Thermal S CALM (Circum GTN-P (Global GCW (Global C	State of Permafrost) polar Active Layer Monitoring) Terrestrial Network - Permafrost) Sryosphere Watch)			



(a) Air temperature at 2m & (b,c,d) Monthly variability by years for the air temperature at 2m, wind speed at 10m, relative humidity at 2 m



Trends (value and sign for months of January-December; and for selected months for the (a) air temperature at 2m, T2m (b) wind speed at 10m, WU10m, and (c-d) relative humidity at 2 m, RH2m

Integrated Arctic Observation System



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