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Arctic Datasets as Part of PEEEX International Collaboration

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The INAR is leading the Pan-Eurasian EXperiment (PEEX; www.atm.helsinki.fi/peex) initiative. The PEEEX Research Infrastructure's has 3 components: observation, data and modelling. Observations networks produce large volumes of raw data to be pre/processed/analysed and delivered in a form of datasets (or products) to research and stakeholders/end-users communities. Here, steps taken are discussed and include an overview (as PEEEX-e-Catalogue) of measurement capacity of existing stations and linkages to INTAROS (intaros.nersc.no) and iCUPE (www.atm.helsinki.fi/icupe).

In-Situ Atmospheric-Ecosystem Collaborating Stations

Although more than 200 stations are presented in the PEEEX regions of interest, but so far only about 60+ Russian stations have metadata information available. The station metadata enables to categorize stations in a systematic manner and to connect them to international observation networks, such as WMO-GAWP, CERN and perform standardization of data formats. As part of the

INAR activities with Russian partners, an e-catalogue was published as a living document (to be updated as new stations will join the PEEX network). This catalogue (www.atm.helsinki.fi/peex/index.php/peex-russia-in-situ-stations-e-catalogue) introduces information on measurements and contacts of the Russian stations in the collaboration network, and promotes research collaboration and stations as partners of the collaboration network and to give wider visibility to the stations activities.

Integrated Arctic Observation System (INTAROS)

For Arctic region, 11 stations were selected for the Atmospheric, Terrestrial and Cryospheric parts/themes. The updated metadata were obtained for these measurement stations located within the Russian Arctic territories. Metadata include basic information, physico-geographical and infrastructure description of the sites and details on atmosphere and ecosystem (soils-forest-lakes-urban-peatland-tundra) measurements. Measurements at these sites represent more local conditions of immediate surrounding environment and datasets (as time-series) are available under request. For SMEAR-I (Station for Measuring Atmosphere-Ecosystem Relations) station included in the INTAROS web-based catalogue (catalog-intaros.nersc.no/dataset), the measurement programme includes meteorological (wind speed and direction, air temperature and relative humidity), radiation (global, reflected, net), chemistry/aerosols (CO₂, SO₂, O₃, NO_x, etc.); ecosystem, photosynthesis, irradiance related measurements.

Integrative and Comprehensive Understanding on Polar Environments (iCUPE)

More than 20 open access datasets as products for researchers, decision- and policy makers, stakeholders and end-users communities are produced. A list of expected datasets is presented at www.atm.helsinki.fi/icupe/index.php/datasets/list-of-datasets-as-deliverables. These datasets are promoted to larger science and public communities through so-called "teasers" (www.atm.helsinki.fi/icupe/index.php/submitted-datasets). For the Russian Arctic regions, these also include those from the iCUPE Russian collaborators: atmospheric mercury measurements at Amderma station; elemental and organic carbon over the north-western coast of the Kandalaksha Bay of the White Sea; micro-climatic features and Urban Heat Island intensity in cities of Arctic region; and others. Delivered datasets (www.atm.helsinki.fi/icupe/index.php/datasets/delivered-datasets) are directly linked (and downloadable) at website, and corresponding Read-Me files are available with detailed description and metadata information included. Selected datasets are also to be tested for pre/post-processing/analysis on several cloud-based online platforms.

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