



12.11. 2019

To:
Jan Rene Larsen
SAON executive board

From:
Prof. Tuukka Petäjä
University of Helsinki
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Regarding a proposal to be submitted in response to European Commission call, ID: LC-CLA-20-2020, Supporting the implementation of GEOSS in the Arctic in collaboration with Copernicus.

I am coordinating a response to the European Commission call LC-CLA-20-2020. The tentative name for our consortium is **Integrative and Comprehensive Understanding on Polar Environments 2 (iCUPE2)**.

The consortium builds upon existing iCUPE -consortium supported by the Commission. In iCUPE we provide novel insights and observational data on global grand challenges with a polar focus. We utilize an integrated approach combining in-situ observations, satellite remote sensing and multi-scale modeling to synthesize data from comprehensive long-term measurements, intensive campaigns and satellites, to relate the observed parameters to impacts, and to deliver data products, metrics and indicators to the stakeholders concerning the environmental status, availability and extraction of natural resources in the polar areas.

In iCUPE2 we continue to develop pilot services in Arctic urban air pollution, local sources and transboundary transport, characterization of arctic surfaces and their changes, assessment of concentrations and impacts of heavy metals and persistent organic pollutants and their cycling, quantification of emissions from natural resource extraction and validation and optimization of satellite Earth Observation (EO) data streams. We aim to support European leadership and collaboration in key environmental observations, fill relevant gaps and improves coordination, interoperability and validation of the polar in-situ and EO observations, working towards integration of data streams and foster interoperability and data sharing in a GEOSS and Copernicus perspectives.

In iCUPE2 we will, by utilizing the full capacity of integrative in-situ observations, satellite remote sensing, community-based observation systems and supporting modeling frameworks, we aim to

- 1) improve and extend the terrestrial, marine and cryospheric in-situ measurements and the community-based monitoring systems necessary for the monitoring of the Arctic in a harmonized manner;
- 2) to develop, set up and maintain pilot services in a co-design manner while including both state-of-the-art observational capacity and crucial contributions from community-based observation systems and the knowledge of the indigenous people, and
- 3) to implementing the coordinated network of those services necessary for the adaptation to climate change in the region.

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The iCUPE2-project will advance the operationalization of an integrated pan-Arctic Observing System in preparation for a possible future ArcticGEOSS initiative and will contribute to interoperability of Arctic Data systems. In close interaction with the EU-Arctic cluster, EuroGEOSS and ESA, we will make a positive contribution to national, regional and international decision-making processes and science strategies.

The iCUPE2 is coordinated by Tuukka Petäjä (UHEL, Finland). The beneficiaries are leading European expert organizations (U Tromso, Norway, CNR, Italy, NCSR, Greece, AU, Denmark, AWI, TROPOS, GFZ and HZG, Germany, CNRS, France, EULS, Estonia, FMI, Finland, SU, Sweden, and PSI, EPFL, Switzerland) with complementary expertise working in the Arctic area. We will include non-funded partners from USA (e.g. Univ Alaska) and Russia (e.g. Moscow State University) to complement our expertise and expand our scale from European Arctic to circumpolar context. We are also open for additional beneficiaries willing to join the consortium.

Our objectives and actions are co-aligned with Sustaining Arctic Observing Networks (SAON) and we cordially seek support from SAON executive board for our proposal.

On behalf of the iCUPE2 consortium,



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