

## **ARCTIC-ERA: ARCTIC climate change and its impact on Environment, infrastructures, and Resource Availability**

**Call:** Arctic Observing and Research for Sustainability

**Type of Project:** Type 3 - Research Grant

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ARCTIC-ERA addresses critical aspects of human well-being and sustainable use of Arctic infrastructure and resources under the conditions of regionally accelerating global warming. The ongoing and projected significant changes in the Arctic atmosphere, sea ice, and ocean will be expressed through integrated impact factors such as storminess, coastal erosion, icing of ships and marine structures, duration of the navigation period, requirements for heating and warmth of houses, construction and transportation safety standards, and access to natural resources. This will make it possible to develop recommendations on adaptation of coastal settlements and ports, transportation, fishery, oil and gas exploitation to the ongoing and future changes and mitigation of their negative effects, and to identify new opportunities associated with the "Opening of the Arctic". Using meteorological, cryospheric, oceanographic, and geophysical data (both observations and reanalyzes) for the post-1950 period, the team will derive time series of Climatic Variables critical for Social and Economic Activities (CVSEAs). These time series characterizing the environment, industrial activities and human well-being will be further analyzed along with the output of the CMIP5 project with a view of developing probabilistic multi-decadal projections of CVSEAs. An assessment of the current status of the economy and societal well-being of population of the settlements in the Arctic as well as forward projections of this status will result in recommendations on how to minimize the negative consequences of projected changes and to benefit from emerging opportunities. The project outcomes will be of direct relevance to future IPCC and Arctic Council assessments and to national Climate Change and Sustainability Reports. They will also represent significant value to such agencies as hydrometeorological services, shipping companies, and many other Arctic operators involved in issues related to environment, health, and natural resources.