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Theme

Sub-Theme 1: The need for the Observing System

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Poster title (brief)

INTAROS mapping of requirements for observations in the Arctic

Abstract - text box

The ambition of INTAROS Initial Requirement Mapping was to define the high-level requirements of an integrated Arctic Observing System (iAOS) based on identification of the major societal drivers of a sustained observing system in the Arctic region, driven by issues affecting the entire area and expressed through international agreements (i.e. climate, environment, biodiversity, sustaining ecosystem services, improving the livelihoods of indigenous and local communities, support to maritime safety, etc.).

It was decided to focus on the individual thematic areas - meteorology, terrestrial, cryosphere, sea ice and ocean – separately with the purpose of capturing the special requirements, phenomena and essential variables to observe within each of them. It is very well known that these thematic areas are closely interconnected and have different levels of maturity in scientific understanding of the phenomena, definitions of essential variables and observing capacity. It is therefore a big challenge to INTAROS to use the collected information to design an integrated

multipurpose and multiplatform observations system to optimises efforts and costs.

The detailed analysis of phenomena and observation requirements for the entire region given in this report reveals the following conclusions:

- The Arctic is a region very sensitive to environmental changes. There is a very close interrelation and delicate balance between the five thematic areas (atmosphere, terrestrial, cryosphere, sea ice and ocean). This has a great impact on physical, chemical and biological processes in the area.
- Due to the hostile environment, there is a great lack of basic observations in the Arctic that can support scientific understanding of key processes. Most of the existing data are collected via time limited research project. This lack of process knowledge is reflected in big errors in forecasting models – operational as well as climate.
- It is therefore crucial to establish a sustained Integrated Arctic Observing System that in the short timeframe can increase fundamental scientific and in a longer timeframe can secure a robust basis for decision making to the benefit of the people living in the Arctic, the environment, the broader international society, and commercial activities.
- It is foreseen that a future Arctic observation system will rely heavily on satellite observations supplemented more traditional in-situ platforms.
- In all countries around the Arctic, there are community based observing systems that represent a strong potential for further development. Existing activities shall form the natural basis for a future more intensive and integrated sustainable Arctic Observing System.