

ARCTIC GOOS

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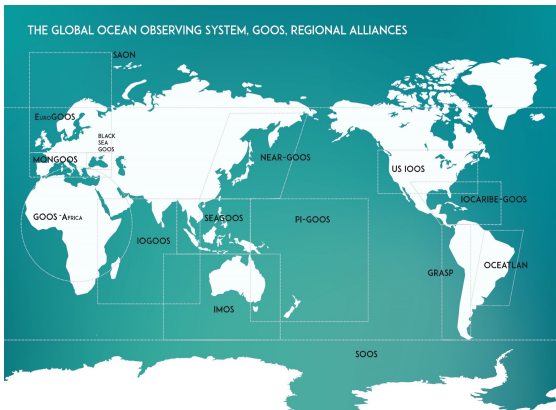
The Arctic Observing Summit is invited to endorse and promote the idea to establish a Regional alliance for the Arctic Ocean – an Arctic GOOS under the UNESCO/IOC led Global Ocean Observing System (GOOS) with the goal to ensure a sustained fit-for purpose ocean observing system in the Arctic Ocean.

The rapid transformations occurring in the Arctic are affecting the entire Earth system, including its climate and weather extremes, through increased temperatures and the continuing loss of ice, glaciers, snow and permafrost. New economic interests in the Arctic have established the region as a larger player in the global economy, but also with very significant local effects. In spite of rapid environmental and social change, the Arctic remains a region of geopolitical stability that is a pre-condition for sustaining Arctic research. Changes in the Arctic are challenging our understanding of their consequences and our ability to provide knowledge for decision-makers. It is critical to anticipate changes in the Arctic rather than respond to them, but to do this requires sustained observations and improved understanding of local, regional and global processes. These research and operational service challenges must be addressed in a coordinated and timely manner to ensure sustainable development and resilient Arctic communities and ecosystems. Understanding the vulnerability and resilience of Arctic environments and societies requires increased international cooperation, including contributions from non-Arctic states. The Global Ocean Observing System (GOOS) is well-suited to foster such international cooperation and coordination regarding ocean observations and operational service provision.

GOOS is a permanent global system for observations, modelling and analysis of marine and ocean variables to support a better understanding of ocean climate and ecosystems, as well as human impacts and vulnerabilities. In this context GOOS coordinates observations around the global ocean for three critical themes:

- **Climate** - a changing climate is linked to a changing ocean. Warming results in land and sea ice melt, and increased carbon uptake is causing ocean acidification, both at alarming rates. The accurate modeling of global climate change and variability, and the monitoring of impacts of climate change mitigation programs, require sustained and extended observations, including those in the deep ocean and in remote regions.
- **Ocean Health** - the global ocean offers a variety of social, economic, cultural and environmental benefits to human livelihoods. Scientific evidence shows that ocean health, measured in terms of productivity, species diversity and resilience, is both impacted by and a threat to human activities. GOOS contributes to the ocean health theme by facilitating ocean monitoring for the conservation of biodiversity and the maintenance of sustainable ocean ecosystem services.
- **Real-time Services** - Real-time ocean data services provide improved weather forecasts and early warning for ocean-related hazards at the coast. This enhances the safety and efficiency of all ocean industries strengthening the global maritime economy. Societies and economies also benefit from this near-term ocean and climate information, such as El Niño forecasts, that are essential to global agriculture, water management, and disaster risk reduction.

These themes correspond to the GOOS mandate to contribute to the UN Framework Convention on climate change, the UN convention on biodiversity and the IOC/WMO mandates to provide operational ocean services, respectively.



GOOS is organised in GOOS Regional Alliances (GRA's) – the GRA's promote implementation of GOOS, both regionally and globally, adapt existing observing systems and integrate them into a common system, survey the users to determine their needs, and increase awareness, build support and develop capacity. At present 13 GRA's exist but none for the Arctic Ocean.

EuroGOOS has over the past 20 years established a coordinated ocean observation effort in the European part of the Arctic Ocean via its Arctic Regional Operational Oceanographic System (Arctic ROOS). Due to the Challenges in the Arctic as described above it has however become clear to us that international cooperation and coordination for the entire Arctic Ocean is needed. EuroGOOS therefore have taken the initiative to start a dialog within IOC on the idea of establishing a GOOS Regional Alliance for the Arctic – **Arctic GOOS**.