

SCAR's ANTOS initiative as a potential model for monitoring terrestrial and nearshore marine environments in the Arctic

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Established in 2015, Polar Knowledge Canada (POLAR) is a Government of Canada agency responsible for advancing Canada's knowledge of the Arctic and Antarctic as well as strengthening Canadian leadership on polar science and technology. POLAR aims to promote collaborative, science-based approaches which includes local and Indigenous Knowledge, engaging Northerners and in particular Inuit Peoples, to create evidence-based solutions and strengthen community resilience in a changing North. POLAR also operates the Canadian High Arctic Research Station (CHARS) campus in Cambridge Bay (Iqalukutiak), Nunavut. This innovative research facility can support a wide range of research needs and provides year-round research and community engagement opportunities. POLAR is particularly supportive of international and community-driven approaches that will ensure that our research facilities and resources will be of maximum benefit to northern communities, Canadians and the world.

ANTOS (Antarctic Nearshore and Terrestrial Observation System (<https://www.scar.org/science/antos/about/>) is a "biologically-focussed initiative to coordinate a cross-continent and cross-national programme-scale assessment of environmental variability and change. It was established in response to the need identified in multiple sectors for long-term commitment to acquire basic information to underpin identification of trends and changes in iconic Antarctic ecosystems. Such information transcends short-term national funding regimes, yet is crucial for informing management approaches and strategies that national bodies must address."

The Goals of ANTOS are to:

- 1) Establish an observation network of representative core 'nodal' sites in the terrestrial and nearshore environments around Antarctica and the sub-Antarctic;
- 2) Measure parameters long term that will enhance understanding of biological response to environmental change;
- 3) Stimulate the development of new observation technologies, data capture, and data sharing;
- 4) Encourage buy-in and involvement of all national programmes through a 'tiered observation network' that requires varying levels of resourcing, logistic and scientific capabilities;
- 5) Provide opportunity for alignment of national and international programmes and projects, and an observational platform to underpin SCAR science activities;
- 6) Provide information to assist evidence-based conservation and policy decisions.

POLAR suggests that this could be an excellent model for environmental monitoring in the Arctic while allowing direct comparison with other polar environments (i.e. the Antarctic). This also fits nicely with the AOS mandate which is to foster "international collaboration and coordination of long-term observations aimed at improving understanding of and response to system-scale Arctic change." Further, the AOS seeks to provide "coordination of and exchange among researchers, agencies, Indigenous Peoples, non-governmental organizations, the private sector and others involved or interested in long-term observing activities." As one of POLAR's goals is also to "Improve

understanding of dynamic northern ecosystems in the context of rapid change", linking with the ANTOS initiative could achieve both AOS and POLAR's objectives. POLAR supports the ANTOS initiative and the CHARS campus could act as a long-term location for an ANTOS-like site and other monitoring activities in the Arctic. Other nearby communities covering different bioclimatic regions could also be included to enhance geographic coverage.