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Report on the 2014-2015 activities of the Southern Ocean Observing System (SOOS)

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An Information paper submitted by SCAR

Introduction

The Southern Ocean influences climate, sea level, biogeochemical cycles and biological productivity on a global scale. Many of the most difficult and pressing issues faced by society—how to mitigate and adapt to climate change and sea-level rise, how to manage the effects of ocean acidification, and how best to conserve marine resources and biodiversity—cannot be addressed effectively without improved understanding of Southern Ocean processes and feedbacks and their sensitivity to change. The most urgent research challenges in the Southern Ocean often span traditionally separate scientific disciplines. The Southern Ocean Observing System (SOOS) provides the sustained, integrated, multi-disciplinary observations required to meet these challenges.

The SOOS is a joint initiative of the Scientific Committee on Antarctic Research (SCAR) and the Scientific Committee on Oceanic Research (SCOR), and endorsed by the Partnership for Observations of the Global Ocean ([POGO](#)) and the Climate Variability and Predictability ([CLIVAR](#)) and Climate and Cryosphere ([CliC](#)) projects of the World Climate Research Programme (WCRP).

SOOS was launched in 2011 with the mission to facilitate the collection and delivery of essential observations on dynamics and change of Southern Ocean systems to all international stakeholders, through design, advocacy, and implementation of cost-effective observing and data delivery systems.

SOOS Implementation

In 2014, SOOS clarified its mission and objectives, and developed *Implementation Structures* to support implementation activities (e.g., Working Groups, Task Teams). This was articulated in the SOOS 5-year Strategic Plan, which is currently in internal review, and will soon be disseminated for external comments.

This plan restructured SOOS Objectives into a logical sequence of implementation around key objectives:

Objective 1: Design

Facilitate the design and implementation of a comprehensive and multi-disciplinary observing system for the Southern Ocean through:

- Physical Oceanographic Essential Ocean Variables (EOVs) Task Team
- Ecosystem EOVs Task Team
- Sea Ice EOVs Task Team
- Ocean-Ice EOVs Task Team

Objective 2: Capabilities

Advocate and guide the development of new observation technologies

Objective 3: Facilitating Observations

Compile and encourage use of existing international standards and methodologies, and facilitate the development of new standards where required

Objective 4: Regional Implementation

Unify and enhance current observation efforts and leverage further resources across disciplines, and between nations and programmes through:

- Ross Sea Task Team
- Air-Sea Fluxes Task Team
- Observations Under Ice Task Team
- Joint SOOS-CliC-SCAR Southern Ocean Satellite Data Requirements Task Team
- National Capabilities Product
- Southern Ocean “Webcam” of Field Activities

Objective 5: Data Delivery

Facilitate linking of sustained long-term observations to provide a system of enhanced data discovery and delivery, utilising existing data centres and programmatic efforts combined with, as needed, purpose-built data management and storage systems.

Objective 6: Support Activities

Provide services to communicate, coordinate, advocate and facilitate SOOS objectives and activities.

During this period SOOS has held several workshops and meetings and carried out a wide variety of communication and other activities in order to meet its objectives.

SOOS Planned Activities for April 2015 - Onwards

Implementation activities in 2015-2016 will focus on achieving the objectives and deliverables outlined in the SOOS 5-year Strategic Plan.

Specific activities already planned for this period are listed below:

- Release of the SOOS 3-year Progress Report in online and hardcopy format.
- International Planning Workshop “Implementation of a Southern Ocean Observing System (Hobart, Australia, June 11-12th), with the aim to develop international Regional Southern Ocean Working Groups. The workshop will be hosted by the Institute for Marine and Antarctic Studies, University of Tasmania (IMAS-UTas) and sponsored by Australia’s Antarctic Gateway Partnership, Antarctic Climate and Ecosystems Cooperative Research Centre (ACE-CRC), Tasmanian Polar Network and Antarctic Tasmania.
- International Workshop “Assessing the State of the Climate of the Southern Ocean” (Hobart, Australia, June 10th), to discuss issues concerning particular issues of data availability and quality, and methods. The workshop will be hosted by IMAS-UTas and sponsored by New Zealand’s The Deep South Science Challenge.
- 4th SOOS Scientific Steering Committee Meeting (Hobart, Australia, 8-10 June 2015). Hosted by IMAS-UTas.
- 4th SOOS Data Management Sub-committee meeting (10-11th June 2015). Hosted by IMAS-UTas.
- Online publishing of the SOOS 5-year Strategic and Operating Plans (in SOOS Zenodo Collection).
- Submission of the SOOS Community Report on Satellite Data Requirements (planned for the journal *Antarctic Science*, July 2015).
- Air-Sea Flux Workshop (21-23 September, Frascati, Italy), sponsored by the European Space Agency (ESA), WCRP-CLIVAR and SOOS.

- Development and delivery of an online Southern Ocean portal detailing existing and planned field activities of relevance to SOOS.
- Release of the SOOS Metadata Portal with regular population with new records.

Sponsorship and Endorsement of the SOOS

- SCAR and SCOR both continued their support of the annual SOOS SSC meeting (2014 and 2015).
- IMAS-UTas continued to host the SOOS International Project Office (IPO) and will do so until Aug 2016.
- The Australian Research Council's Special Research Initiative for Antarctic Gateway Partnership (Project ID SR140300001) sponsored the SOOS IPO with 100,000 AUD over 3 years towards supporting new SOOS initiatives, and a further 300,000 AUD over 3 years to support the salary of the SOOS Data Officer (2015- Aug 2016), and then the SOOS Executive Officer (Aug 2016 – Aug 2017) when the existing IMAS hosting contract finishes.
- The Australian Antarctic Division continued to provide financial support to the SOOS IPO in 2014-2015 financial year.
- The Australian Integrated Marine Observing System (IMOS) continued their in-kind support of the SOOS IPO in 2014 and onwards into 2015. This support was extended to include support of Finance and Administration duties for the SOOS IPO.
- New Zealand Antarctic Research Institute (NZARI) will provide support for SOOS in 2015 through sponsorship of New Zealand Scientific Standing Committee (SSC) Member Mike Williams to attend SOOS activities.
- Antarctica New Zealand (ANZ) have sponsored SOOS since 2012. ANZ and SOOS will develop an official Memorandum of Understanding (MoU) in 2015 to better articulate and define ANZ sponsorship and involvement in SOOS.
- The Tasmania Partnership for Advanced Computing (TPAC) continued their in-kind sponsorship of SOOS by providing web-programming support.
- Nation Science Foundation – CLIVAR & Carbon Hydrographic Data Office (NSF-CCHDO) are new sponsors in 2014, through their in-kind support of 1-month web-programming activities per year.
- The University of Gothenburg, Sweden, are also new sponsors for 2014/2015, through their in-kind support of Anna Wåhlin's (SOOS Co-Chair) involvement in SOOS.

SOOS thanks all of its sponsors for their support over the last few years, and for their continued assistance into 2015.

SCAR will continue to keep the Treaty Parties updated on progress with the SOOS. For further and more detailed information see www.soos.aq or contact the SOOS Executive Officer Louise Newman newman@soos.aq.