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The Southern Ocean Observing System (SOOS) 2012 Report

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Introduction

The Southern Ocean Observing System (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 Oceans (**POGO**) and the Climate Variability and Predictability (**CLIVAR**) and Climate and Cryosphere (**CliC**) projects of the World Climate Research Programme.

SOOS was launched in 2011 with the mission to *establish a multidisciplinary observing system to deliver the sustained observations of the Southern Ocean.*

This report highlights SOOS achievements in 2012, and planned activities for 2013.

SOOS Activities and Milestones in 2012

1. SOOS Meetings & Workshops

The **SOOS Scientific Steering Committee (SSC)** held its inaugural meeting in Salt Lake City, Utah, in February 2012. Mr John Gunn stepped down as Co-Chair shortly afterwards, due to a change in employment; Dr Oscar Schofield (Rutgers University, USA) was selected as the new SSC Co-Chair, alongside Prof. Mike Meredith (BAS). The SSC Terms of Reference, SOOS Governance, and SOOS Communications and Endorsement Policies were developed and approved by the SSC in 2012.

The **Data Management Sub-Committee (DMSC)** of the SSC was created and held a virtual meeting in July in Portland, Oregon, alongside the SCAR Open Science Meeting. The role of the DMSC, chaired by Dr Kim Finney (Australian Antarctic Division), is to develop the SOOS data portal and data products and to liaise with international and national data centres. Draft DMSC Terms of Reference, a work plan, and a Data Management Policy have been developed and will be considered further at the first formal DMSC meeting in 2013.

The SOOS-led **'Seeing Below the Ice Workshop'** was held 22-25 October in Hobart, Australia. The workshop, sponsored by CSIRO, Antarctica New Zealand, CliC and POGO, attracted over 50 international scientists and provided the opportunity to discuss the current status of both Antarctic and Arctic observing systems, define problems, and recommend solutions to develop a sustained strategy for observations in the Southern Ocean sea ice zone. The draft strategy will be released in 2013.

A **SOOS Forum** was held at the **AGU Fall Meeting** in San Francisco, California, as part of the AGU Town Hall series. SSC members discussed current SOOS activities and received ideas from the broader Southern Ocean community.

The Co-Chairs, Executive Officer, SSC members, and IMAS Executive Director presented SOOS at over 30 international meetings, workshops and conferences in 2012 to announce and promote SOOS to the scientific community and relevant programmes.

2. Proposals

SOOS-led proposals were submitted as a topic for a new **SCOR Working Group**, to measure change in the biological properties of marine ecosystems, and an **EU 7th Framework Programme for Research**, to investigate multi-disciplinary impacts of enhanced melting of Antarctic ice shelves. Unfortunately neither proposal was successful. The SCOR working group proposal was redrafted and resubmitted to the **International Council for Science (ISCU)** in December 2012, and was successful.

SOOS contributed to a large US proposal for a Southern Ocean Biogeochemical Observations and Modelling (SOBOM) centre, to be based at Princeton University, New Jersey. SOOS Co-Chair Oscar Schofield is one of the principal investigators, and Co-Chair Mike Meredith is on the International Collaborations Committee.

If funded, SOBOM will represent a strong advance in circumpolar physical oceanography and biogeochemistry. Numerous other smaller projects have received endorsement from SOOS at their proposal stages.

3. Publications

SOOS published or submitted the following articles in 2012, to announce and promote SOOS to the scientific community and relevant programmes:

Meredith M.M., et al., accepted: Refining the vision of the Southern Ocean Observing System, *Current Opinions on Environmental Sustainability*.

Newman L., et al., 2012: Launch of a new system for observing the Southern Ocean, *South African Network for Coastal and Oceanic Research*, 198: 9.

Newman L., et al., 2012: The Southern Ocean Observing System, *CLIVAR Exchanges*, 58(v. 17/1).

Rintoul S.R., et al., 2012: *SOOS Initial Science and Implementation Strategy*, SCAR-SCOR Report.

Rintoul S.R., et al., 2012: The Southern Ocean Observing System, *Oceanography*, 25(3): 68-69.

Sparrow M., et al., 2012: Launch of the Southern Ocean Observing System, *Evolution and Biodiversity in the Antarctic – SCAR News*.

Schofield O., et al., 2012: Implementing a Southern Ocean Observing System, *Eos*, 93: No. 26, 26 June 2012.

4. Sponsorship & Endorsement

The Institute for Marine & Antarctic Studies at the University of Tasmania hosts and sponsors the SOOS International Project Office (IPO), including the full salary and on-going costs of the SOOS Executive Officer for its initial five years (2011-2016). The Australian Antarctic Division renewed its financial support for SOOS IPO activities for the 2012/2013 financial year. The IPO also welcomed new sponsorship from Antarctica New Zealand in 2012. Antarctica New Zealand has teamed with the New Zealand Antarctic Research Institute to reaffirm their commitment to SOOS by renewing their IPO sponsorship in 2013.

SOOS commenced an endorsement programme for relevant projects and programmes (<http://www.soos.aq/index.php/community/endorsed-programmes>). SOOS also accepted an invitation from the Global Alliance of Continuous Plankton Recorder Surveys to become a stakeholder in the survey.

5. Communication & Outreach

The SOOS corporate identity was developed, communication products developed and distributed, and a website (www.soos.aq) and social media site (www.facebook.com/SOOSnews) launched. Individuals can subscribe to the SOOS website and the database of subscribers is used as a communication tool to reach the SOOS community (subscribers can also search the database based on name, expertise, affiliation, etc.). A newsletter, *SOOS Update*, was developed and is distributed regularly to all SOOS subscribers, sponsors and endorsers.

SOOS engaged with, and supported, a number of development activities and meetings during 2012, including Southern Ocean Sentinel, Forum for Research into Ice Shelf Processes (FRISP), and Antarctic Sea Ice Processes and Climate (ASPeCT). Links with these programmes will be used to progress the detailed design of the observing system and the steps towards its implementation.

SOOS Planned Activities in 2013

The operational prototype of the SOOS Data Portal was launched on 1 February 2013 (<http://soos.aodn.org.au/soos/>). The data portal, a key development that will provide one-stop access to distributed data archives holding all SOOS related data, will be presented as a poster at the European Geosciences Union General Assembly in Vienna, Austria, in April.

The SSC will hold their annual meeting in Shanghai, China, 20-22 May. A major focus of the meeting will be the detailed development and integration of workplans for the six SOOS science themes. A SOOS ‘Asian

Workshop' and a DMSC meeting will also be held in Shanghai, 23-24 May. The workshop and meetings are sponsored by the Australian Ocean Data Centre Joint Facility (AODC JF), Polar Research Institute of China (PRIC), SCAR and SCOR.

The Council of Managers of National Antarctic Programs (COMNAP) will host and sponsor a one-day SOOS Workshop to coincide with their AGM in Seoul, Korea, in July, to identify how COMNAP can support SOOS' objectives and needs.

SOOS will continue to progress the detailed design plans and sampling requirements to implement the science strategy, engage with relevant international science programmes and stakeholders, maintain and initiate new communication and outreach activities, and seek to expand SOOS sponsorship in 2013 to ensure adequate funding of the IPO and SOOS activities.