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# The Southern Ocean Observing System (SOOS): An update



## The Southern Ocean Observing System (SOOS): An Update

### Summary

This paper presents an update to ATCM XXXIII/IP50 and summarises progress with the design and implementation of a Southern Ocean Observing System (SOOS) over the last year. A SOOS Design Plan has been completed, an International Program Offices is being established at the Institute of Marine and Antarctic Studies in Hobart, Australia, and an Executive Officer has been appointed. The Parties are requested to note this progress and to encourage relevant national agencies to participate in and support the aims of the SOOS.

### Background

1. The development of a Southern Ocean Observing System (SOOS) directly contributes to the recommendations in Resolution 3 (2007) *Long-Term Monitoring*, which welcomed and supported “the proposal by SCAR to establish a multi-disciplinary pan-Antarctic observing system, which will, in collaboration with others, coordinate long-term monitoring and sustained observation in the Antarctic”.
2. The SOOS is also a significant legacy of the recent International Polar Year (IPY). It also addresses one of the key recommendations from the Antarctic Climate Change and the Environment Report (Turner et al., 2009), and recommendations arising from the 2010 Antarctic Treaty Meeting of Experts on Climate Change and Implications for Antarctic Management and Governance (particularly Recommendation 15, regarding the development of sustained integrated observing systems).
3. The SOOS is needed to address six overarching challenges in Southern Ocean science:
  - I. The role of the Southern Ocean in the planet’s heat and freshwater balance
  - II. The stability of the Southern Ocean overturning circulation
  - III. The role of the ocean in the stability of the Antarctic ice sheet and its contribution to sea-level rise
  - IV. The future and consequences of Southern Ocean carbon uptake
  - V. The future of Antarctic sea ice
  - VI. The impacts of global change on Southern Ocean ecosystems
4. There is an urgent need to increase understanding in each of these areas to inform decision-makers confronted with the challenges of climate change, sea-level rise, ocean acidification, and the sustainable management of marine resources. To deliver this information, sustained observations of the physical, biogeochemical and biological state of the Southern Ocean are critical.

### Progress

5. Substantial effort has been made to complete the Southern Ocean Observing System (SOOS) Design Plan. This document outlines the scientific rationale and strategy for the SOOS; identifies the variables to be observed; presents a draft plan for an integrated multi-disciplinary observing system for the Southern Ocean; and identifies the next steps required for implementation. Specific reviews were commissioned in addition to there being an open call to the community for input, including participation by Treaty Observers and Experts such as COMNAP and IAATO. Feedback was generally very positive and constructive. The finalised SOOS Plan will be published shortly. The plan will be made available online via the SCAR website (<http://www.scar.org/soos/>) and others and hard copies will be sent to all Treaty parties.
6. In order to aid implementation a SOOS International Project Office (IPO) is being established in Australia, supported by the new Institute for Marine and Antarctic Studies at the University of Tasmania in Hobart ([www.imas.utas.edu.au](http://www.imas.utas.edu.au)). The SOOS IPO will be co-located with Australia’s

Integrated Marine Observing System (IMOS) ([www.imos.org.au](http://www.imos.org.au)). An Executive Officer has been appointed and will commence in August 2011. The SCAR/Scientific Committee on Oceanic Research (SCOR) Expert Group on Oceanography will act as a Scientific Steering Committee for SOOS. SCAR and Australia will keep Parties informed of progress.

**Conclusions**

7. The Parties are requested to note progress with the SOOS and, consistent with Resolution 3 (2007), to encourage relevant national agencies to participate in and support the aims of the SOOS in order to “support long-term monitoring and sustained observations of the Antarctic environment and the associated data management as a primary legacy of the IPY, to enable the detection, and underpin the understanding and forecasting of the impacts of environmental and climate change”.