



SOOS
SOUTHERN OCEAN
OBSERVING SYSTEM

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ANNUAL REPORT

TO THE SCOR EXECUTIVE COMMITTEE

2017

Background

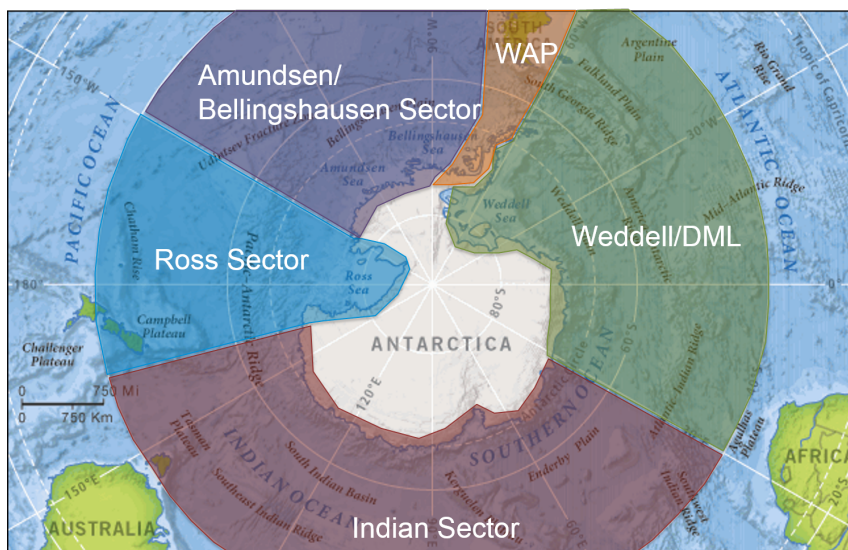
SOOS is a joint initiative of the Scientific Committee on Antarctic Research (SCAR) and the Scientific Committee on Oceanic Research (SCOR), and endorsed by the Partnership for Observations of the Global Ocean (POGO), and the Climate Variability and Predictability (CLIVAR) and Climate and Cryosphere (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.

Update on key activities

- SOOS Regional Working Groups - status (more information [here](#))

SOOS is developing 5 Regional Working Groups that will coordinate and implement the observing system in their region, bringing together efforts in planning, logistics, resources, data management and access. These regional groups will encompass national observing efforts, and will work with circumpolar observing programs and projects to ensure required coverage of observations.



- **West Antarctic Peninsula Working Group:**
 - * Chairs: Oscar Schofield (USA), Kate Hendry (UK), Sian Henley (UK), South American chair to be identified
 - * 2016 activities: 1) Organisation of the first workshop from 15-16 May 2017, hosted by BAS, UK
- **Southern Ocean Indian Sector Working Group:**
 - * Chairs: Tsuneo Odate (Japan), Philippe Koubbe (France), So Kawaguchi (Australia), Andrew Constable (SOOS Liaison)
 - * 2016 activities: 1) development of leadership; 2) identification of host and venue for the first workshop (13-16 August 2017, NIPR and TUMSAT, Japan)
- **Ross Sea Working Group:**
 - * Chairs: Mike Williams (New Zealand), Walker Smith (USA), Giorgio Budillon (Italy)
 - * 2016 activities: 1) development of leadership, 2) planning of first workshop (hosted by Meng Zhou, 11-15 Sept 2017, Shanghai Jiao Tong University, China), 3) workshop funding proposal to US CLIVAR (decision pending), 4) discussions with CCAMLR Ross Sea Marine Protected Area planning group, 5) involvement of Chairs in the CCAMLR Ross Sea MPA workshop on development of monitoring and observation requirements
- **Weddell/DML Working Group:**
 - * Chairs: To be identified
 - * 2016 activities: 1) outreach to the Alfred Wegener Institute for gauging interest in development 2) planning for initial scoping meeting. This will be a half-day joint SOOS-AWI symposium (13th June 2017, hosted by AWI, Germany) with involvement of representatives from other nations involved in the region, including S. Africa, France, Norway, UK and Brazil.
- **Amundsen/Bellingshausen Working Group:**
 - * This working group has not yet been initiated. Discussions will be held at the June 2017 Scientific Steering Committee meeting to plan a way forward for its development.

- **SOOS Capability Working Groups - status (more information [here](#))**

SOOS Capability Working Groups help develop important observational capabilities, such as developing and implementing technologies, improving observational design, efficiency and coverage, and enhancement of information management and dissemination. They are either initiated by SOOS or proposed by the broader community.

- **Censusing Animal Populations from Space:**
 - * Chairs: Mark Hindell (Australia), Peter Fretwell (UK)
 - * 2016 activities: 1) Development of a number of research grants submitted to international funding agencies; 2) an annual workshop alongside SCAR OSC; 3) workshop report
- **Southern Ocean Fluxes:**
 - * Chairs: Seb Swart (Sweden), Sarah Gille (USA)
 - * 2016 activities include SOOS Working group is fully established, with finalised Terms of References following the 2015 workshop. Has developed four focused Task Teams to push specific activities.
- **Benchmarking (eEOV):**
 - * Chairs: Andrew Constable, Others TBA
 - * 2016 activities: Specific working group activities have stalled but future efforts will be coordinated as part of the Theme 4 program of work of the “Marine Ecosystem Assessment for the Southern Ocean ([2018 MEASO](#))” conference. This international conference will be sponsored by SOOS and will develop community efforts around assessment of the status and trend of habitats, key species and ecosystems in the Southern Ocean. This will form the basis for ongoing work of this working group.
- **SOOS-initiated POGO Working Group Observing and Understanding the Ocean beneath Antarctic sea ice and ice shelves (OASIS):**
 - * Chairs: Esmee van Wijk (Australia), Richard Coleman (Australia), Pierre Dutreix (USA), Laura Herraiz-Borreguero (UK), Alexander Brearley (UK)
 - * 2016 activities: 1) Successful proposal for funding of working group by Partnership for Observation of the Global Oceans (POGO); 2) development of leadership team; 3) Organisation of first workshop (14-17 June 2017, AWI, Germany)

- SOOS Key Products – 2016 progress and current status

- **Community review of Southern Ocean satellite data needs** : A joint SOOS-ClIc-SCAR effort, providing a statement on Southern Ocean satellite data needs, across research, industry and logistical communities, and with the scientific rationale required to underpin future strategic planning and investment.

- **Database of Upcoming Expeditions to the Southern Ocean “DueSouth”**:



This is a tool that enables the community to share information on upcoming field campaigns and voyages. It enhances opportunities for collaboration and sharing of resources, as well as support logistics and

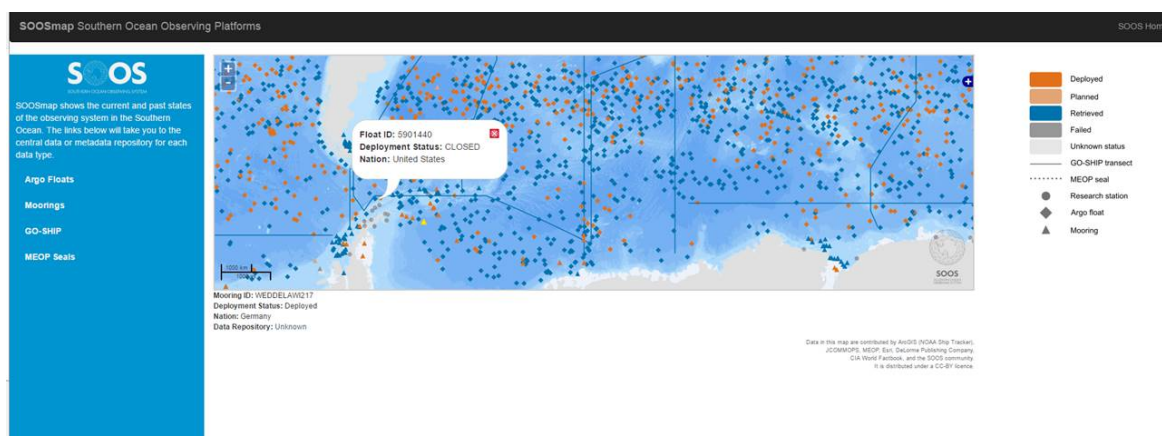
planning. Developed with in-kind resources by the Australian Antarctic Division, the database is currently sitting at

<https://data.aad.gov.au/duesouth/> and will be moved to its own url at

www.duesouth.soos.aq within the next few weeks. It will be integrated and coordinated with the efforts of COMNAP and SCAR to better inform the scientific community of activities in the region. SOOS is open to community involvement in development and population of this database. A direct link from our [homepage](#) will be provided once this product goes live.

- **SOOS Map:**

SOOSmap will be an interactive web map of the major observing platforms in the Southern Ocean, with the capacity to filter the results by time and by platform type. It will demonstrate the status of the Southern Ocean Observing System. Towards development of an initial “un-resourced” version of this product, the SOOS data officer was successful in a funding proposal and in 2016 undertook a professional development course in web mapping through Penn State University. The initial infrastructure for the map has been built, and contributing data streams have been identified and included (see below, not yet online).



In order to provide a more functional and well-supported tool long-term, SOOS is currently in discussion with communities such as JCOMMOPS and EMODnet-Physics groups, who have the resources and infrastructure to develop and host maps of Southern Ocean Observing Platforms. We hope to deliver a fully-supported community product by the end of 2017.

– **Annual Community Calendar:**

An online, interactive calendar that provides an annual view of all upcoming meetings of relevance to the Southern Ocean observational community. This will help avoid schedule clashes, enhance joint-meeting planning, and keep the community up-to-date on SOOS activities.

– **Southern Ocean Mooring Network and data rescue:**

This project has two components:

- 1) To provide location and status information on all moorings deployed in the Southern Ocean via an [online map](#);

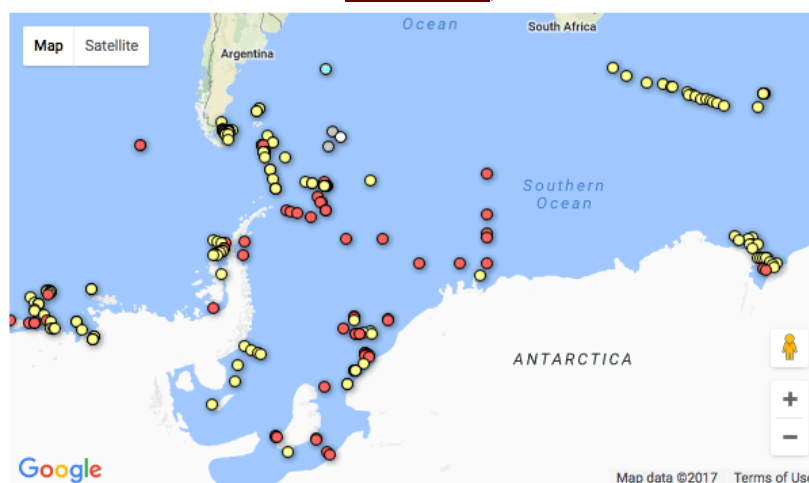


Fig. 1. Map of Southern Ocean mooring locations. Red = currently deployed, yellow = retrieved, grey = unknown deployment status, white = failed, turquoise = planned.

- 2) Support submission of orphan mooring data. Funded by the US Big Earth Data Initiative, this is a joint SOOS-NCEI (US National Center for Environmental Information) effort to rescue and publish data from international oceanographic moorings. Thus far, the project has translated mooring data from New Zealand, USA (multiple institutional datasets), Italy and Sweden and this will soon be available through NCEI. Translation of mooring data from other institutes in the USA, Korea and China is currently being negotiated. If time allows, this project may focus on registration of mooring platforms at JCOMMOPS.

– **NASA GCMD SOOS Metadata portal :**

Continued growth of individual researchers' metadata records, and negotiations for bulk harvest of metadata from key portals (e.g., AODN, PANGAEA, CCHDO, SeaDataNet)

- **NECKLACE data management:**
Identification of data issues and requirements of NECKLACE community, identification of available infrastructure to meet community needs, and development of a NECKLACE data policy
- **Programmatic Connections of note in 2016**
 - CCAMLR: The CCAMLR secretariat and SOOS IPO meet regularly to ensure collaboration on aligned objectives. CCAMLR is involved in all of SOOS Regional Working Group workshops. SOOS is involved in discussions on development of the Ross Sea MPA, and other MPA proposals
 - SC-CCAMLR and CEP: SOOS was involved in the 2016 Joint CEP and SC-CCAMLR workshop
 - WMO Year of Polar Prediction (YOPP): SOOS IPO is supporting the WMO YOPP effort through outreach and communication activities. An official SOOS point-of-contact for YOPP has been nominated (Matthew Mazloff, SIO, USA) and is engaged at a scientific and coordination level
- **Communication and Outreach in 2016**
 - 3 Newsletter issues published – subscribe here <http://www.soos.aq/index.php/registration>
 - 6 peer-reviewed [publications](#)
 - 2 [Workshop Reports](#)
 - SOOS 2016 [Posters and Presentations](#) published online
 - Regular updates to social media channels
- **Meetings and Workshops in 2016**

In 2016, SOOS was presented or represented at 21 international meetings/workshops. SOOS also held the following meetings:

 - SOOS Data Management Sub- Committee Meeting (May 2016, Scripps USA)
 - Joint SOOS-SOCCOM Workshop (May 2016, Scripps USA)
 - International workshop of SOOS-endorsed NECKLACE project (Oct 2016, Sweden)
 - SCAR OSC Scientific Session (Aug 2016, Malaysia)
- **SOOS Governance and Strategic Activities in 2016**
 - 3 new members of the Scientific Steering Committee (SSC): Anya Waite (Germany), Burcu Ozsoy (Turkey), Dake Chen (China)
 - 3 new National Representatives: Sandra Barreira (Argentina), Piotr Kuklinski (Poland), Bruno Delille (Belgium)
 - SOOS SSC Meeting (May 2016, Scripps USA)
 - SOOS Executive Committee Meeting (May 2016, Scripps USA)
 - Finalisation of the [5-Year Implementation Plan](#) (still in progress)
 - Development of the 5-Year Business Plan (currently under approval)
 - Development of the SOOS Stakeholder Engagement strategy (currently in draft)

Upcoming Activities in 2017/2018

- The following meetings will take place in 2017:
 1. West Antarctic Peninsula Working Group (May 2017, UK)
 2. SOOS Executive Committee Meeting (June 2017, Germany)
 3. SOOS Scientific Steering Committee meeting (June 2017, Germany)
 4. SOOS Data Management sub-Committee meeting (June 2017, Germany)
 5. POGO OASIS Working Group (June 2017, Germany)
 6. Indian Sector Working Group (Aug 2017, Japan)
 7. Ross Sea Working Group (Sept 2017, China)

Challenges

The SOOS International Project Office (IPO) is funded in the following manner:

- 1) Salaries of the 2 staff (at 1.8 %FTE) is funded by the Australian Research Council's Antarctic Gateway Partnership, with contribution by the University of Gothenburg, Sweden and overheads covered by the University of Tasmania, Australia.
- 2) Direct funding of IPO by the Australian Research Council's Antarctic Gateway Partnership, Australian Antarctic Division, and Antarctica New Zealand
- 3) In-kind sponsorship of IPO through delivery of services and expertise: University of Gothenburg (Sweden), Rutgers University (USA), Australian Antarctic Division, Australia's Integrated Marine Observing System (IMOS), Tasmanian Partnership for Advanced Computing (TPAC), NASA GCMD, Bioflex Nutrition (Australia)

Funding of staff and direct funding for the IPO is not secure long-term, and ends in mid-2018 when the Australian Research Council's Antarctic Gateway Partnership program ends. Whilst efforts are being made by SOOS and the Australian community to ensure continuation of staff and IPO support beyond 2018, no funding pathway presently exists.

In addition to this, SOOS is at a point of significant growth and activity, and existing IPO staff and resources are insufficient to support this growth. Nearly all SOOS products and activities are un-resourced, and rely on volunteer and in-kind efforts. SOOS has developed a 5-Year Business Plan (draft available by request) that articulates the resources required to deliver the 5-Year Implementation Plan (<http://soos.aq/activities/implementation>) and invites discussion with any parties interested to contribute to this international initiative.