



SCAR Group

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Responsible:

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SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Southern Ocean Observing System 2016-2017 Report

Report Author(s):

Anna Wahlin (Co-Chair); Oscar Schofield (Co-Chair); Andrew Constable (Vice-Chair); Sebastiaan Swart (Vice Chair); Louise Newman (IPO)

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

From 2016-17, SOOS has delivered the Database of Upcoming Expeditions to the Southern Ocean (DueSouth); identified and made discoverable a network of over 600 current and historical moorings in the Southern Ocean; rescued 20 years of data from 63 international moorings; developed 4 regional networks to coordinate Southern Ocean observational efforts; published 8 peer-reviewed strategic and/or review publications; brokered an agreement with EMODnet and JCOMMOPS for delivery of interactive map of Southern Ocean observing platforms (SOOSMap); held 11 meetings/workshops with significant international sponsorship of these events; supported the development of the CCAMLR Marine Protected Area monitoring plan; and delivered the 5-Year Implementation Plan and 5-year Business Plan.

SOOS held its annual EXCOM and Scientific Steering Committee meetings in mid-June. Several key decisions from that meeting are reported here, noting that approval from the co-sponsors SCAR and SCOR is still required before they are confirmed.

[Note – Acronym list provided at the end of this report]

Recommendations that EXCOM should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

- 1) SOOS requests approval of the recommended changes to the membership of the Scientific Steering Committee and Executive Committee (Appended document 2).
- 2) SOOS requests final approval of the 5-Year Implementation Plan – specifically pages 16-17, which provides the timeline of deliverables as recommended by SCAR EXCOM during previous review (Appended document 3)

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- 3) SOOS requests a videoconference between SCAR EXCOM, SCOR EXCOM and SOOS EXCOM, to discuss key strategic issues, governance, and the long-term vision for SOOS within SCAR and SCOR.
- 4) SOOS requests that SCAR EXCOM allow the annual report of SOOS to be used as the basis for this and future reports to SCAR EXCOM (Appended document 1).

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

See SOOS 2016 Annual Report (Appended Document 1). Updates since 2016 are shown under “New outputs and deliverables” below.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

See page 16-17 of SOOS 5-Year Implementation Plan (Appended Document 2)

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

Most significant milestones for SOOS in 2016/2017:

Formation of Regional Working Groups

In 2016/2017, SOOS initiated the development of 4 of 6 Regional Working Groups (RWGs) for the Southern Ocean. Two workshops have been held (West Antarctic Peninsula; Weddell/Dronning Maud Land), and two more are planned for late 2017 (Indian Sector (August) and Ross Sea (September)).

DueSouth: Database of Upcoming Expeditions to the Southern Ocean

DueSouth is an online tool that enables the community to share information on upcoming field campaigns and voyages. It contains user-provided information on voyages and their leadership, as well as information on the projects onboard. It was developed by Data Management Sub-Committee (DMSC) member, James Cusick, from the Australian Antarctic Division, and the SOOS data officer, Pip Bricher. For upcoming voyages, you can report the voyage ship, route, dates, and names and contact details for the scientific leadership. For upcoming projects, you can report the voyage or research facility on which the project will be conducted, brief details of the project, and names and contact details for the project leadership. The database can be searched by text, dates, or geographic location.

DueSouth is currently deployed and operational at <https://data.aad.gov.au/duesouth/>. It will be moved to its own url <http://duesouth.soos.aq> in the coming months.

Mooring Data Rescue Project

Data from 63 moorings spanning nearly 20 years, have now been converted to netCDF files and had metadata applied. The mooring data comes from Italy, Sweden, New Zealand, Poland and the US, and would not have been archived and made available without SOOS' help. Data archival is not yet 100% complete for the New Zealand and US records, but once approved by the PI's, it will be archived at NOAA NCEI. This data will then be discoverable and fully accessible by the community for the first time. This project was supported by NOAA “Big Earth Data Initiative” funding, and this project will continue to rescue mooring data for the remainder of 2017, with

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identified data from New Zealand, Sweden, Italy and the US. All NCEI data is fed to the Antarctic Master Directory at NASA GCMD. Additionally, this project has prompted greater mooring data archiving efforts in China and South Korea, and has resulted in Polish benthic temperature data also being published in NCEI.

International Southern Ocean Mooring Network

SOOS is developing the first central list of all historic Southern Ocean moorings, and we have so far identified over 600 moorings that have been or are deployed in the Southern Ocean. This list is displayed through an interactive map (currently 308 moorings shown, with over 300 more identified and to be added) with links to the data record where possible. This list will continue to be updated by SOOS, and will feed into the new SOOS Map initiative. The mooring map is available here

<http://soos.aq/activities/soos-at-sea/moorings>

SOOS Map

SOOSmap is a map of observing platforms in the Southern Ocean that will show the current and historical state of the Southern Ocean Observing System, providing information on gaps in sampling effort in time, space, and scientific discipline. The map will display data layers, such as Argo floats, MEOP seal tagging, regular GO-SHIP transects, moorings, gliders, drifting buoys, among others. It will be searchable by time and platform. Following a number of meetings and discussions throughout 2016/17, this tool will be delivered by EMODnET (in collaboration with JCOMMOPS), utilizing the infrastructure that they have already built for EuroGOOS and other regional observing systems (see <http://www.emodnet-physics.eu/Portal>). Delivery is planned for the end of 2017.

8 Peer-reviewed publications (all available [here](#))

1. Hendry, K., Henley, S., Schofield, O. Moving towards an integrated approach for understanding a changing West Antarctic Peninsula. EOS Transactions of American Geophysical Union. (In press)
2. Mazloff, M.R., et al., In Press: Southern Ocean. In: State of the Climate in 2016, American Meteorological Society Bulletin,
3. Saltee, J.-B., 2016: Southern Ocean. In: State of the Climate in 2015, American Meteorological Society Bulletin
4. Pope, A., Wagner, P., Johnson, R., Shutler, J.D., Baeseman, J., Newman, L., 2016: Community review of Southern Ocean satellite data needs, Antarctic Science, DOI:10.1017/S0954102016000390
5. Schofield, O., Newman, L., Bricher, P., Constable, A., Swart, S., Wåhlin, A., 2016: Moving Towards Implementation of a Southern Ocean Observing System, Marine Technology Society Journal, 50(3):63-68., DOI:10.4031/MTSJ.50.3.8
6. Newman, L., et al., 2016: Understanding the Southern Ocean through sustained observations, Bulletin of the Australian Meteorological and Oceanographic Society, Volume 28 No.6 Dec/Jan 2015/16
7. Meredith, M.P., et al., 2016: The interdisciplinary marine system of the Amundsen Sea, Southern Ocean: Recent advances and the need for sustained observations. In: Deep Sea Research Part 11: Topical Studies in Oceanography - Special Issue "International efforts to understanding of the changing Antarctic Climate: The KOPRI expedition to the Amundsen Sea. V. 123, doi:10.1016/j.dsr2.2015.12.002
8. Constable, A.J., et al., 2016: Developing priority variables ("ecosystem Essential Ocean Variables" — eEOVs) for observing dynamics and change in Southern Ocean ecosystems, Journal of Marine Systems, 161., DOI:10.1016/j.jmarsys.2016.05.003

If your Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Since May 2016, the SOOS GCMD portal has increased the number of records that have a “Get Data” link by 2% to 2418 records. The SOOS portal hosts many of the same coastal Southern Ocean data as the AMD, but extends to 40°S, compared to 60°S for the AMD. The total number of records in the SOOS GCMD portal has decreased slightly in the past year, due to changes in the way NASA archives their satellite data. Negotiations on translating metadata records from other data centres into a standard that can be incorporated by the GCMD continue. Visits to the SOOS portal have increased by 80% in the past year and the SOOS portal is now the eighth most popular GCMD portal (up from 11th in 2016).

SOOS generally acts as a broker for connecting scientists and data centres, rather than publishing data ourselves. However, as stated above, 63 new mooring records have been added to NCEI, which feeds metadata to the AMD and SOOS portal on the NASA GCMD. (NB – it may take a month or more for these records to be transferred to the GCMD, due to the way the two systems interact).

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
Apr/May 2018	Support for SOOS SSC Meeting, and side event on Observing System Design Hangzhou, China	10k	Louise Newman	newman@soos.aq
TBA 2019	SOOS SSC Meeting, Wellington NZ	To be determined and requested in 2018	Louise Newman	Newman@soos.aq

Briefly describe what the funds will be used for and what the desired results are:

All funds from SCAR are used to support the travel of SOOS SSC members to attend the annual SSC meetings.

Provide an estimate on the % of the budget to be used for support of early career researchers:

Agreement at present is that funds are to be used for SOOS SSC members only. Two of the current SOOS SSC members could be classified as Early Career Researchers (Seb Swart, Jean-Baptiste Sallee), however this may change for the 2018 SSC following the open call for nominations at the end of 2017. The use of the funds by individual SSC members varies from year-to-year depending on their ability to obtain other funding in support of their SSC meeting participation. We cannot, at this stage, predict which SSC members will be requesting support for the 2018/2019 meetings.

2017:

2018:

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

In 2017, the SOOS SSC comprised 3 members from 2 “initial stages programs” and “Associate members” (Sweden, Turkey). In 2018, we will have at least 2 members from these same countries. The use of the funds by individual SSC members varies from year-to-year depending on their ability to obtain other funding in support of

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their SSC meeting participation. We cannot, at this stage, predict which SSC members will be requesting support for the 2018/2019 meetings.

2017:

2018:

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

1. Scripps Institution of Oceanography: Host support for the 2016 SOOS EXCOM, SSC, Data Management Sub-Committee meetings, and joint SOOS-SOCCOM workshop (May 2016, USA)
2. Southern Ocean Carbon and Climate Observations and Modelling (SOCCOM): Joint SOOS-SOCCOM workshop (May 2016, USA)
3. University of Gothenburg: International workshop for the SOOS-Endorsed NECKLACE project (Oct 2016, Sweden)
4. Scientific Committee for Oceanic Research (SCOR) – Support for 2016 and 2017 Scientific Steering Committee meetings (jointly with SCAR)
5. Continued sponsorship of IPO by the Australian Research Council's Antarctic Gateway Partnership, Australian Antarctic Division, Antarctica New Zealand, and new IPO sponsorship by the University of Gothenburg (confirmed for 2 years) as a contribution to Data Officer salary.
6. SCAR support for West Antarctic Peninsula Workshop ice breaker (May 2017, UK)
7. British Antarctic Survey: Hosting of West Antarctic Peninsula Workshop (May 2017, UK)
8. Alfred Wegener Institute: Hosting and support for the 2017 SOOS EXCOM meeting; Scientific Steering Committee Meeting; Data Management Sub-Committee Meeting; SOOS-AWI Joint Symposium; OASIIS workshop (June 2017, Germany)
9. Ekman Foundation: Sponsorship of SOOS SSC Ice breaker (June 2017, Germany)
10. Partnership for Observation of the Global Ocean (POGO): Support for OASIIS workshop (June 2017, Germany)
11. Australian Research Council's Antarctic Gateway Partnership: Support for OASIIS workshop (June 2017, Germany)

Sponsorship of Upcoming Events

12. SOOS Southern Ocean Indian Sector workshop (Japan, 12-16 August 2017): National Institute of Polar Research (NIPR Japan); Australian Antarctic Division
13. SOOS Ross Sea Working Group workshop (Shanghai, China, 11-15 Sept 2017): Shanghai Jiao Tong University – local host; Science Office of Chinese Antarctic and Arctic Administration (Pending approval); Polar Research Institute of China; SOA First Institute of Oceanography; SOA Second Institute of Oceanography State Key Laboratory of Satellite Ocean Environment Dynamics; SOA Third Institute of

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Oceanography (Pending approval); Institute of Oceanography, Chinese Academy of Science (Pending approval); Qingdao National Laboratory in Ocean Science and Technology (Pending approval)

14. MEASO2018 (Hobart, Australia, April 2018): CAML; Australian Antarctic Division; ACE CRC; University of Tasmania; CSIRO; NIPR; ICED
15. 2018 SOOS Executive Committee and Scientific Committee meetings: Second Institute of Oceanography; State Oceanic Administration; SCAR; SCOR; other co-sponsorship TBA (Hangzhou, China, Apr/May 2018)
16. SOOS Working Group Co-Chairs and SSC meeting: Polar2018 venue provided by SCAR

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Key collaborations in 2016/2017 include:

- CCAMLR: *Quarterly meetings between SOOS IPO and CCAMLR Secretariat; SOOS reports to SC-CCAMLR and working groups (e.g., CEMP, EMM); CCAMLR representatives at all SOOS Regional Working Group workshops*
- CCAMLR Ross Sea Marine Protected Area planning efforts: *Strong collaboration between CCAMLR MPA planning efforts and the SOOS Ross Sea regional working group*
- Partnership for Observation of the Global Oceans (POGO): *Collaboration on development of OASIS working group and support for working group deliverables*
- Integrated Marine Observing System (IMOS): *Quarterly meetings with IMOS director; involvement of IMOS in Indian Sector working group; Collaboration on Global GliderDAC network*
- Global Ocean Observing System (GOOS): *Collaboration and engagement with GOOS Panels; Regular meetings with GOOS Regional Alliances Chair; SSC member involved on all GOOS videoconferences and GRA meetings; GOOS representative at SOOS SSC meeting*
- WMO Year of Polar Prediction (YOPP): *SSC member attending all YOPP meetings; Communication of YOPP requirements through SOOS newsletter; engagement with YOPP at annual SSC meeting*
- CLIVAR-CliC-SCAR Southern Ocean Regional Panel: *Involvement of SORP rep in SOOS meetings; regular communication between SOOS IPO and SORP Chairs; Collaboration with SORP on YOPP engagement and EOVR review*
- Coalition of Legal Toothfish Operators (COLTO) and Australian Southern Ocean Fishing Interests: *Engagement of COLTO members in Indian Sector working group; engagement of SOOS in proposed COLTO data auditing efforts*
- Mesopelagic Southern ocean Prey and Predators (MESOPP): *Engagement of SOOS in MESOPP workshops and communication of MESOPP in newsletter*
- WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology in-situ Observing Programmes Support Centre (JCOMMOPS):

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Regular engagement with JCOMMOPS team for delivery of DueSouth and SOOS Map; developing engagement on registration of all mooring platforms

- Southern Ocean Carbon and Climate Observation and Modelling (SOCCOM): *Engagement with SOCCOM for float deployments; updates to community; collaboration on SOOS Map data layers*
- Association of Polar Early Career Scientists (APECS): *New decision for involvement of APECS rep in all SSC meetings, and all SOOS working groups (to be initiated by end 2017)*
- WCRP Climate of the Cryosphere (CliC): *Collaboration with CliC on delivery of Satellite data requirements review*
- WCRP Climate and Modelling (CLIVAR): *Report to CLIVAR SSG*
- European Marine Observation and Data Network (EMODnet): *Collaboration on delivery of SOOS map*
- AntClim21: *Involvement of representative at SOOS SSC meeting*
- SCAR Data Management (SCADM): *Collaboration on AMD and SOOS GCMD portal; collaboration on data vision paper*
- ICED, AntECO, AntERA, AntClim21, CLIOTOP, ACCE, EGBAMM: *Collaboration on MEASO2018 conference*

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

Refer to Annual Report

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

TBA

Membership

Information on membership and proposed changes is provided for SCAR comment in Appended Document 3.

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End

** Please include any APECS representative / Junior Officers*

Other members

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

SOOS requests support for advocating to national programs and researchers, the use of DueSouth database as a planning tool. SOOS also requests continuation of support for communication of upcoming meetings and activities through the SCAR network as appropriate.

Acronyms used in this report:

ACE CRC – Antarctic Climate and Ecosystems Cooperative Research Centre
AMD – Antarctic Master Directory
CAML – Census of Antarctic Marine Life
CCAMLR – Commission for the Conservation of Antarctic Marine Living Resources
CEMP – CCAMLR Ecosystem Monitoring Program
CSIRO – Commonwealth Scientific and Industrial Research Organisation
DueSouth – Database of Upcoming Expeditions to the Southern Ocean
WG-EMM – CCAMLR Working Group on Ecosystem Monitoring and Management
EMODnet – European Marine Observation and Data Network
EuroGOOS – European Global Ocean Observing System Regional Alliance
EXCOM – Executive Committee
GO-SHIP – Global Ocean Ship-Based Hydrographic Investigations Program
ICED – Integrating Climate and Ecosystem Dynamics
JCOMMOPS – Joint Technical Commission for Oceanography and Marine Meteorology
in-situ Observing Programmes Support Centre
MEOP – Marine Mammals Exploring the Oceans Pole to Pole
MPA – Marine Protected Area
GCMD – NASA Global Change Master Directory
NECKLACE – Network for the Collection of Knowledge on melt of Antarctic ice shelves
NOAA NCEI – National Oceanic and Atmospheric Administration National Centers for
Environmental Information
OASIS – Observing the ocean beneath Antarctic sea ice and ice shelves
SCOR – Scientific Committee on Oceanic Research
SOCCOM – Southern Ocean Carbon and Climate Observations and Modeling