

MINUTES FROM THE 4th SCIENTIFIC STEERING COMMITTEE MEETING

8-10 June 2014, Hobart, Australia

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Introductory Items and the Strategic Plan

Welcome and Introductions

The Co-Chairs welcomed all participants, thanked the hosts and sponsors, and invited introductions from all.

SCIENTIFIC STEERING COMMITTEE MEMBERS		
Ackley, Stephen	University of Texas at San Antonio, USA	ASPeCt Representative
Bhaskar, Parli Venkateswaran	National Centre for Antarctic & Ocean Research, India	
Brandt, Angelika	University of Hamburg, Germany	
Constable, Andrew	Australian Antarctic Division	CCAMLR Representative
Costa, Dan	University of California, USA	
Diggs, Steve	University of California, USA	
Lee, Sang Hoon	Korean Polar Research Institute	
Liu, Jiping	Chinese Academy of Sciences, China	
Mata, Mauricio	Federal University of Rio Grande, Brazil	
Mazloff, Matthew	Scripps, USA	
Sallee, Jean-Baptiste	LOCEAN, France	
Schofield, Oscar	Rutgers University, USA	Palmer LTER, SOCCOM Rep.
Swart, Sebastiaan	Council for Scientific & Industrial Research, S. Africa	
Wåhlin, Anna	University of Gothenburg, Sweden	
Williams, Mike	National Institute Water & Atmos. Res, NZ	
SOOS INTERNATIONAL PROJECT OFFICE		
Louise Newman	SOOS IPO, IMAS Australia	
OBSERVERS		
Bax, Nic	CSIRO, Australia	GOOS Representative
Bindoff, Nathan	Tasmanian Partnership for Advanced Computing	SOOS IPO Sponsor Representative
Coleman, Richard	Institute for Marine & Antarctic Studies, UTas	SOOS IPO Sponsor Representative
Godoe, Olav Rune	Institute of Marine Research, Norway	
Shi, Jiuxin	Ocean University of China	CLIVAR/CLIC/SCAR SORP Rep.
APOLOGIES		
Arata, Javier	INACH, Chile	Chilean National Representative
Ballerini, Tosca	Mediterranean Institute of Oceanography, France	APECS Representative
Budillon, Giorgio	Parthenope University of Naples	Italian National Representative
Garabato, Alberto Naveira	National Oceanographic Centre, UK	SORP Representative
Kovacs, Kit	Norwegian Polar Institute, Norway	Norwegian National Rep.
Meredith, Michael	British Antarctic Survey, UK	POGO Representative
Sparrow, Mike	SCAR Secretariat	SOOS Sponsor Representative
Urban, Ed	SCOR Secretariat	SOOS Sponsor Representative

Goals of Meeting

Newman provided an overview of the SSC meeting, and the following 3 days of workshops.

5-Year Strategic Plan: Overview and discussion

Wåhlin gave an overview of the strategic plan, including how it developed, its structure, timeline and how it will be implemented. The SSC discussed the process for finalisation of the plan. It was highlighted that key representatives and communities had not yet been engaged and broader input should be sought to avoid isolating communities. It was also highlighted that the Strategic Plan had

developed out of many years of discussion and already forms the basis of existing and planned activities. It was therefore agreed that the existing draft would be accepted as the *interim* strategic plan, and that reviews by targeted communities would be sought for high-level, substantive comments. It was also suggested that the draft Strategic Plan be made available on the SOOS website for general community review.

The SSC also discussed the need for an Executive Summary that outlined the scientific goals and vision of SOOS, and included the steps that led to the development of the Strategic Plan. A closing statement that pulls the document together and refers back to the timeline of implementation and identification of resources is also required. The SSC further highlighted that the final document should be submitted to the SOOS Collection in Zenodo, so that it is citable, which will give an indication of its use to the community.

Actions: 1) IPO to draft the Executive Summary for SSC input and approval. 2) IPO to draft a list of representatives from key communities to review the Strategic Plan and send to SSC for input. 3) IPO to write a letter of invitation to review the Strategic Plan, highlighting the level of input required.

Objective One: Design of the Observing System

Objective 1: Facilitate the design and implementation of a comprehensive and multi-disciplinary observing system for the Southern Ocean

GOOS EOVS, with a focus on ecosystem EOVS

Nic Bax (GOOS Biology Panel Co-Chair) updated the SSC on the process used by GOOS to define EOVS and the status of the effort – with a particular focus on ecosystem EOVS. The SSC discussed the process used by GOOS to define EOVS, and the importance of collaborative effort to avoid duplication where possible.

SOOS proposed candidate EOVS

The SSC discussed the list of Candidate EOVS that were developed by communities of the 6 Science Themes. There were a number of changes suggested. The SSC also discussed the way forward and agreed that, as a first step, the GOOS EOVS templates should be used and filled in for the SOOS list of candidates. There was much discussion on what the “pass mark” should be for a *candidate* EOVS to become an EOVS. It was agreed that the impact and feasibility of each EOVS needed to be clearly articulated and must have supporting documents to refer to. The EOVS for biogeochemistry were discussed and it was highlighted that biogeochemical variables in the sea-ice zone would be different to those of the open ocean, which needs to be taken into account when updating the list of candidates.

The SSC suggested that a number of Task Teams be formed around each discipline (Physics, Biology, Chemistry) to progress the list of candidates to a list of EOVS, and to identify the process and resources required to quantify sampling requirements..

Action: 1) IPO to update existing list of candidate EOVs and make this information available on the SOOS website. 2) IPO to identify the GOOS templates and appropriate Task Teams to update them to reflect SOOS requirements.

Objective Two: New Observation Technologies

Objective 2: Advocate and guide the development of new observation technologies

New Endorsement Category

Swart presented a document outlining the new endorsement category on Observation Technologies, which had been proposed during the 3rd SSC meeting in Norway. The SSC agreed that this was important and made some suggestions for changes to the document.

There was much discussion around how SOOS could best facilitate the development and uptake of new observation technologies in delivering actions against Objective 2. There was consensus that a Capability Working Group on technological development would be the best approach, with development of specific Task Teams within the Working Group for narrowly focussed efforts. The SSC discussed many areas of focus for the potential Working Group, such as:

- Providing a go-to place for information on available technology
- Producing information on what sensors to use for specific observations and appropriate data collection protocols
- Providing a connection to technology developers (businesses and engineering groups linked to institutes)
- Work on specific technology issues e.g., under ice observational technology
- Identification of Southern Ocean-specific technology requirements and issues
- Facilitate connection between developers and end-users
- Synchronisation of data streams for similar technologies
- Training opportunities
- Help to bridge commercial efforts with institutes that have shared interests, to facilitate co-funding of development

The SSC also discussed the wording of Key Result Area 2.2 and suggested changing the focus from providing information on businesses to providing information on accuracies to aim for and the appropriate technology to provide these accuracies. This information would develop from the EOVS templates and activities under Objective 3.

The SSC highlighted that for KRA 2.3 to be achieved Regional Working Groups should articulate priority technological requirements in their annual report to the SSC. KRA 2.3 also needs to be modified to include information on what is already being developed to avoid duplication of effort.

Action: 1) Swart to modify Technological Capability Endorsement Policy and work with the IPO to make the information available on the SOOS website. 2) IPO to change KRA 2.2 and 2.3 to reflect SSC discussion. 3) IPO to work with SSC to identify potential leaders of a Technology Capability Working Group and facilitate development of the Working Group.

Objective Three: Facilitating Observations

Objective 3: Compile and encourage use of existing international standards and methodologies, and facilitate the development of new standards where required

Status and way forward with Objective 3

Little has been done to progress Objective 3 so far. The SSC discussed a number of issues that need to be addressed when developing this product. It was highlighted that the correct method and technology depends on the question being asked, e.g., the highest precision measurements may not be required to address a particular question. The SSC suggested that a minimum metadata requirement must be set but that standards should not be set so high that they cannot be met. SOOS has already secured some support from SCOR to move forward with compiling information for Objective 3. The SSC agreed that the way forward is to first compile the information on standards and requirements for observations of the candidate EOVS only.

Action: IPO to hire someone to compile information on existing standards and requirements for the candidate EOVS.

Objective Four: Regional Implementation

Objective 4: Unify and enhance current observation efforts and leverage further resources across disciplines, and between nations and programmes

Key SOOS products

Newman and Bricher provided the SSC with an update on progress of a number of key SOOS products, including the SOOS Field Project Mapping tool, the National Capabilities product, the Satellite Data Requirements Community Report, and the SOOS Publication archive on Zenodo.

Upcoming meetings and workshop (KRA 4.3)

The SSC discussed upcoming workshops and meetings of relevance to SOOS, and identified those where a SOOS presence should be ensured. The following meetings were highlighted:

- Antarctica New Zealand Symposium (Jul 2015, NZ) – Newman
- IUGG (Jul 2015, Czech Rep) – M. Meredith, S. Swart, A. Wåhlin
- IASES (Jul 2015, India) – O. Schofield, P. Bhaskar
- CCAMLR WG-EMM (Jul 2015, Poland) – A. Constable
- YOPP Summit (Jul 2015, Switzerland) – M. Sparrow
- SCAR-COMNAP AGM (Aug 2015, Norway) – J. Baeseman
- COMNAP Antarctic Roadmap Challenges Workshop (Aug 2015, Norway) – A. Wåhlin
- ANTOS (Aug 2015, NZ) – Newman (virtual)
- IGS Ice/Ocean (Aug 2015, UK) – M. Williams
- SOOS Air-Sea Fluxes (Sept 2015, Italy) – A. Naveira Garabato, S. Swart, J. Liu, M. Mazloff
- CLIVAR-CLIC-SCAR SORP (Sept 2015, Italy) – A. Naveira Garabato
- ISCHMO (Oct 2015, Chile) – M. Mata
- IICWG (Oct 2015, Germany) –

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- Polar Data Forum (Oct 2015, Canada) – P. Bricher
 - SCADM (Oct 2015, Canada) – P. Bricher
 - SCOR AGM (Dec 2015, India) – P. Bhaskar
 - CLIVAR IOC-GOOS Symposium (Dec 2015, India)
 - AGU Ocean Sciences Meeting (Feb 2016, USA) – O. Schofield, S. Swart, L. Newman
 - Earth Observation and Cryosphere Science (May 2016, Italy)

The SSC discussed how best to ensure representation of SOOS at relevant meetings. It was agreed that a list of contact points for specific communities would be developed from SSC, ex-officio and National Representatives, for easier identification of best representatives to attend meetings.

Action: IPO to draft list of contact points and circulate with SSC and ex-officio members, and National Representatives. This information will also be made available on the SOOS website

SOOS SSC 2016

SOOS received a number of offers to host the 2016 SSC meeting. The SSC discussed all options and shortlisted three but agreed that more information on the level of support being offered was required before a decision could be made. It was agreed that more information would be sought from each of the proposed hosts, and that EXCOM would make a decision following this.

Action: IPO to request further information and EXCOM to make decision on location during July EXCOM meeting.

SOOS connection to other large international efforts

1) WMO Year of Polar Prediction

The SSC discussed the WMO YOPP initiative at length. Many members were not familiar with the objectives of the program and there was general agreement that the YOPP Implementation Plan did not clearly articulate its goals for the Southern Ocean. The SSC discussed the potential overlap with SOOS requirements, specifically observations of air-sea fluxes and sea ice, and highlighted that observations of the ocean are also required for predictability. A number of field campaigns taking place during 2017-2019 were identified as potential contributions to YOPP Phase 2. The SSC also highlighted the limited capability of SOOS to contribute to an initiative outside of core SOOS priorities, and it was agreed that there has to be mutual benefit to any significant involvement of SOOS. Many questions were raised on the precise observational requirements and modelling objectives of YOPP. What does YOPP need from SOOS? What can SOOS gain from contributing to YOPP? Can numerical predication experiments be organised? Can YOPP help to push national funding bodies to support SOOS-YOPP initiatives?

The SSC agreed that better communication between SOOS and YOPP is required. It was decided that SOOS would produce a short response to the YOPP implementation plan that would highlight how the Southern Ocean community will contribute and connect to YOPP. The modelling expertise encompassed by the CLIVAR-CliC-SCAR SORP was also highlighted and it was agreed that SORP would be invited to produce this document jointly with SOOS.

Action: IPO to work with SSC and SORP to produce a document to be presented at the YOPP Summit.

Update: SOOS and SORP jointly produced the Working Paper “Southern Ocean community comment on the Year of Polar Prediction Implementation Plan”, which is available from the SOOS Resources database at www.soos.aq. The paper was presented by M. Sparrow (SCAR-WCRP) and was well received by the YOPP community.

2) AtlantOS

Swart provided a short overview of the AtlantOS program and efforts to ensure the inclusion of activities in the South Atlantic. AtlantOS previously has been northern hemisphere biased but new efforts by the Southern Hemisphere countries (namely South Africa, Brazil, Argentina) are drawing attention and scope of AtlantOS towards the south and into the Southern Ocean. This is scientifically sound given the larger scale climatic links between the north and south Atlantic. There are potential far reaching benefits to having SOOS and AtlantOS better aligned given their parallel objectives towards observing systems. Mata also highlighted Brazilian involvement in the initiative. It was agreed that both Swart and Mata would keep the SSC informed of relevant events and activities.

Implementation Categories Overview

Schofield provided a short overview of the Implementation Categories (Regional Working Groups, Capability Working Groups, Task Teams) and proposed a number of options for the operational process of development, reporting and outcomes of these groups.

Working Groups

Working Groups will be the main avenue of implementing SOOS. The SSC discussed SOOS expectations of Working Groups. It was recognised that the Regional Working Groups would have overarching Terms of References that are common across all regions and are based on SOOS' requirements of key objectives and outcomes. They would then tailor specific objectives and a workplan to region-specific focus topics. Conversely, Terms of Reference for Capability Working Groups would be specific to each group, and would be defined by the Working Group not SOOS. The SSC discussed the examples provided of Terms of Reference for the West Antarctic Peninsula Working Group and the Indian Sector Working Group and suggested some changes to these documents.

The SSC then discussed the process for proposing, developing and reviewing Working Groups. It was agreed that there would be a 3 x year call for Working Group proposals. The approval process would be conducted via email by the SSC. The proposal-to-review process would involve 1) development of proposal based on website guidelines, 2) Send proposal to IPO for identification of SSC sponsor, 3) Proposal team and sponsor work to finalise proposal, 4) Proposal is sent to SSC for review, 5) IPO collates the responses and communicates with sponsor and proposers. It was agreed that if there is no clear consensus on a Working Group proposal the decision would be delayed until discussion at the subsequent annual SSC meeting. It was agreed that the two existing proposals for Regional Working Groups, and the one existing proposal of a Capability Working Group, would be used as test cases for the proposal review process, and would be used to develop a Working Group proposal template.

Other requirements discussed include:

- Development of review criteria (SOOS expectations)
- SSC sponsor is elected for each Working Group as contact point between Working Group and SOOS

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- Certain level (to be defined) of international involvement should be sought, but if not then proposal should include a discussion of why not.
 - Website guidelines developed to provide information on SOOS expectations of Working Groups.
 - Flexibility required in the structure and longevity of Working Groups, dependent on objectives and focus (e.g., “Standing” versus “finite” Working Groups).

Action: 1) IPO to work with the SSC to develop a document outlining the requirements and Terms of Reference of Regional Working Groups and Capability Working Groups. 2) IPO to provide information online on the process of proposing Working Groups, and a template for Regional and Capability Working Group proposals. 3) IPO to initiate review of the 3 existing Working Group proposals as a test case of the review process.

Task Teams

Air-Sea Fluxes Task Team update

Newman gave a short overview of the activities of the Air-Sea Fluxes Task Team, highlighting the upcoming workshop to be held 21-23 September, Frascati, Italy. Discussions at the SSC meeting (and the subsequent international workshops) highlighted the importance of air-sea flux observations and development of flux EOVS and the SSC agreed that this workshop would be an important milestone for SOOS in enhancing air-sea flux efforts.

Ross Sea Observations Task Team update

SOOS was approached by China to make recommendations on how they could best contribute to the international effort to make observations in the Ross Sea, in preparation for their new Ross Sea station. Mike Williams (leader of the Task Team) gave an overview of the document. The SSC agreed this was an important product for SOOS, and would provide a good foundation for similar documents from other regions.

The Implementation Workshop

The SSC discussed at length the key objectives of the SOOS Implementation Workshop (11-12 June 2015), including brainstorming on the most efficient use of breakout session times. It was agreed that full Working Group Terms of Reference could not be developed in the timeframe available, and that workshop participants would not represent all of the key communities/expertise required for each Working Group. It was agreed that the most efficient use of the workshop time would be to build community consensus on the regions encompassed by the Regional Working Groups, and to identify the priority topics for Capability Working Groups. Suggestions of key Working Group members, products and outcomes would also be important information to obtain for each of the proposed Working Groups.

Update: The outcomes of the SOOS Implementation Workshop will be compiled in a Workshop Report and made available on the SOOS website by end August 2015.

Objective Six: Support Activities

Objective 6: Provide services to communicate, coordinate, advocate and facilitate SOOS objectives and activities.

Newman gave a brief overview of national and institutional strategic plans that highlight the importance of contributions to SOOS. The SSC were requested to notify the IPO if SOOS was highlighted in their national or institutional strategic plans, to aid in measuring progress against KRA 6.1.

SOOS Endorsed Projects

Newman highlighted a number of issues with the existing process of endorsement of projects. The SSC discussed the utility and importance of SOOS endorsement for funding of projects, highlighting that endorsement carried more weight in some countries than others. It was suggested that the wording of the letter was not as important as the letter itself. It was agreed that the IPO would draft a standard endorsement letter, which would be sent to all applicants following positive review by the nominated SSC members. It was also agreed that for those requiring tailored endorsement letters, they would be encouraged to contact the leaders of the Regional Working Groups in which their projects fell (if appropriate).

The SSC also discussed updating SOOS' expectations of endorsed projects, to include a statement that by receiving SOOS endorsement they are agreeing to adhere to the SOOS Data Policy, and that they would acknowledge SOOS endorsement in any publications resulting from the project (to enable metrics to measure footprint of SOOS endorsement).

Action: 1) IPO to draft standard endorsement letter for EXCOM approval. 2) IPO to update website guidelines of endorsement to include new requirements and connection to Regional Working Groups.

SOOS Communication Strategy and support activities

Newman provided a brief update on recent communication activities. In particular it was highlighted that production of the quarterly SOOS newsletter took up to 8 weeks each year for the IPO to produce, which could not be sustained with the current capacity of the office. Newman highlighted that the IPO would be seeking in-kind sponsorship from institutes and organisations to take on the production of the newsletter. Alternatively, the IPO will look to hire someone to produce the newsletter although at a significant cost to the IPO budget.

Newman also notified the SSC that the website is badly out-of-date and needs a significant update to better reflect recent activities and implementation of the Strategic Plan. This will be a key activity of the IPO for the latter part of 2015 and will need SSC input and feedback.

Newman highlighted the SOOS 3-Year Progress Report and requested that SSC disseminate the report to key people, institutes and organisations in their country, or provide the IPO with a list of key people to post the report to.

Action: 1) SSC to provide IPO with list of key people for receiving 3-Year Progress Report. 2) IPO to explore options for external production of newsletter. 3) SSC to provide feedback on website content and structure following redevelopment.

SOOS Sponsorship, Support, Partnerships & Affiliation

Sponsorship and Support

Newman provided a status update of sponsorship and support of SOOS and highlighted a number of concerns and potential gaps. The SSC discussed these issues briefly and acknowledged that a great deal more time was required to address these issues. It was agreed that these issues would be dealt with at the monthly EXCOM meetings, and that sponsorship will be the first agenda item at the 2016 SSC meeting to ensure adequate time.

Partnership and Affiliation

Newman reminded the SSC of previous discussions around development of a number of categories to better define institutional, organisational and programmatic connections to SOOS. The SSC discussed whether these categories of affiliation were still required. It was agreed that the existing category of “Affiliated Institutes, Organisations and Programs” was adequate and that this topic could be revisited at the next SSC meeting following growth of the SOOS network through the Working Groups. It was also agreed that a Sponsorship and Partnership Guide was not required at this time.

SOOS Governance

SSC currently comprise 17 SSC members and 4 ex-officios. The SCAR/SCOR budget provided for each annual meeting is not currently covering the costs of this large SSC. At the end of 2015, Angelika Brandt will rotate off the SSC. The SSC discussed whether a call for nominations for a new SSC member to replace Brandt was required. It was agreed that SSC membership should be reduced over several years, particularly given that the governance and representation of SOOS will grow with development of Working Groups. The SSC agreed that a call for nominations would be opened at the end of 2016 for 1-2 new members to replace Brandt and the 3 existing members that will be rotating off at the end of 2016. The SSC also noted the importance of maintaining representation of key communities and expertise, and gender balance.

Objective Five: Data Management and Delivery

Objective 5: 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

A joint session with the SOOS Data Management Sub-Committee was held to discuss implementation of activities against Objective 5. The discussions and outcomes of this joint session are available in the minutes of the SOOS Data Management Sub-Committee meeting on the SOOS website.