

# CLIVAR REPORT

Climate and Ocean: Variability, Predictability, and Change



## Meeting report

### **The 13<sup>th</sup> Session of the CLIVAR/CliC/SCAR Southern Ocean Region Panel**

14 – 15 June, 2018 Davos, Switzerland

September 2018

CLIVAR Report No.04/2018

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## **ACTION ITEMS**

**ACTION:** Riccardo Farneti to ask Matt Mazloff about SORP getting involved with writing the next BAMS State of the Climate Antarctica Chapter, in particular section f 'Southern Ocean'.

**ACTION:** Inga Smith to contact Louise Newman, Seb Swart, Mike Williams and Matt Mazloff and Esmee Vanwijk about a possible SOOS and SORP joint side meeting alongside the SCAR OSC in 2020.

**ACTION:** Inga Smith to Contact Marilyn Raphael to let her know that there seem to be some missing Countries from the ASPeCt list (Norway, Switzerland).

**ACTION:** Jiuxin Shi to put Dave Bromwich in touch with scientists from China who may be able to help with regards to the representation in the YOPP-SH coordination committee.

**ACTION:** Sandra Barreira to find out about Argentinian radiosondes currently done and what extra could be done, including from ships, and will inform Dave Bromwich.

**ACTION:** François Massonnet to talk to Marilyn Raphael about encouraging sea ice projects to get YOPP endorsement.

**ACTION:** SORP members to send exciting science slides to Dave Bromwich for SCAR PSG meeting.

**ACTION:** SORP members who are able to attend the OceanObs19 whitepaper drafting session on 16 June are encouraged to do so.

**ACTION:** SORP members to update regularly SORP-related upcoming meetings and conferences spreadsheet at Google docs.

**ACTION:** Inga Smith to send group photos to Lei Han for inclusion on website.

**ACTION:** Inga Smith and Riccardo Farneti to discuss the template for national reports before sending out a call for reports later in the year. Inga Smith to follow up with the few national representatives who have never filed a report. Joellen Russell and Elisabeth Sikes to take another look at getting a report for the USA.

**ACTION:** Lei Han to set up a Doodle poll for 2 July or 3 July SORP telecon .

**ACTION:** Inga Smith to find out from Mike Sparrow about possible CLIVAR OSC in 2020.

**ACTION:** Inga Smith to find out what SCOR's relationship with SOOS is.

**ACTION:** Riccardo Farneti, John Fyfe, Amy Solomon and Inga Smith to follow up on possible workshop topics and locations.

## 1. Introduction

The 13<sup>th</sup> session of CLIVAR/CliC/SCAR Southern Ocean Region Panel (SORP) was held on 14-15 June 2018, with the first day at WSL Institute for Snow and Avalanche Research SLF and the second day at Congress Centre Davos, Switzerland. SORP-13 took place alongside with the POLAR2018 conference, a joint event from SCAR and IASC (International Arctic Science Committee). Since the first session of the CLIVAR/CliC Northern Ocean Region Panel (NORP) also occurred in Davos on 15-16 June, a joint session from SORP and NORP was convened on the afternoon of 15 June. The rest of the one and half days focused on the SORP business.

## 2. Joint session of SORP/NORP

During the joint session with NORP, co-chairs from both panels briefed the meeting on their terms of reference. Many research aspects of common interests were identified in the open discussion from the panel members, including but not limited to:

### 1. North/South Pole variability/processes:

- a) Ocean State Estimates (OSE): lack of observations is a common issue to both Southern Ocean and Arctic interior;
- b) Need to extend studies to capability and trends (polar ORA in works);
- c) Summer-season variability on sea ice increases in Arctic and Southern Ocean;
- d) How to bring in process perspectives;
- e) CMIP6 metrics (unifying metrics across CMIP models, CORE-II and OSE worlds);
- f) Overturning circulation (hundreds of years timeframe for water to move from north to south).

### 2. Outstanding polar issues:

- a) Role of fresh water input on variability (which are not included in the reanalyses);
- b) Inability of models to simulate impact of synoptic variability on sea ice and ocean (rapid sea ice change);
- c) Polar mid-latitude linkages: Parallel modelling exercises for Northern Ocean and Southern Ocean, which could be a good place for both panels to work together; PA-MIP (Polar Amplification Model Intercomparison Project) studying the impact of Arctic and Antarctic sea ice on mid-latitudes;
- d) The role of the tropics on the polar regions, comparison of sea ice behaviour at both polar, and bipolar see-saw were also recognized as interesting points to work on.

It was agreed to be desirable to seek possible interactions and synergies among SORP and NORP task teams, in particular concerning links with the CLIVAR Climate Dynamics Panel and projects on observing system design (future design of buoy and radiosonde) in the Antarctic and Arctic (e.g., MOSAiC, the Multidisciplinary drifting Observatory for the Study of Arctic Climate in the Arctic and SOOS in the Southern Ocean).

The next proposed joint activity from SORP and NORP is the 2021 summer school or workshop supported by both CLIVAR and ICTP in Trieste, Italy. Topic and location are yet to be determined by the panel co-chairs.

### 3. Reports from other projects/programs in the region

#### SOOS

Riccardo Farneti, who attended SOOS SSC meeting with Jiuxin Shi in China on 9 May 2018, representing SORP, gave a report on SOOS (Southern Ocean Observing System, [www.soos.aq](http://www.soos.aq)). SOOS is comprised of working groups. SOOS has a new air-sea flux working group (SOFLUX). Inga Smith sits on the steering group for SOFLUX, and they have a meeting on Monday 18 June 2018, which clashes with SCAR PSG but Inga Smith will present at SCAR PSG for SORP then go to SOFLUX.

Dave Bromwich pointed out that there is a proliferation of SCAR groups, so SOOS and SORP must justify existence, and why separate. Expert groups are longer lasting, while action groups are shorter lived, then research programmes (like AntClim21, which expires in 2020 along with all other Scientific Research Programmes, so there will be some discussions at Polar2018 about follow-on efforts, and Tom Bracegirdle is thinking more decadal prediction and AntClimNow is the working title). The SCAR PSG (Physical Sciences Group) has a limited budget of \$28.5K.

Riccardo Farneti said at SOOS SSC a new Circumpolar working group (WG) was proposed (like an ACC (Antarctic Circumpolar Current) working group, but should not overlap with regional working groups which are mainly coastal whereas Circumpolar WG will be more focused on open ocean). JB Sallee has agreed to lead this.

Riccardo Farneti reported China is going to enhance its polar activities, and they are going to the Amundsen Sea and Ross Sea. He also pointed out the DueSouth website, database of upcoming expeditions to the Southern Ocean, and also SOOSMap, which is where data is being collected, and live data feeds.

Regarding the BAMS State of the Climate report, led by SOOS since 2014, Dave Bromwich pointed out this report has extensive Antarctic section. Section f is clearly a SOOS-led “Southern Ocean” section. François Massonnet also pointed out that BAMS reports on extreme events every year, for example on the low Antarctic sea ice concentration in 2018, especially in the Ross Sea.

Collaborations between SOOS and SORP on physical EOVS (Essential Ocean Variables) were also addressed. Patrick Heimbach explained the GOOS process, and since SOOS is not part of GOOS, it could recommend lists of EOVS to GOOS.

The SORP’s ex-officio member in OOPC (Ocean Observation Panel for Climate), Kats Katsumata, has rotated off and Robin Robertson has agreed to take over. Inga Smith also suggested nominating a SORP member to be directly on OOPC in addition to the ex-officio member.

A possible SOOS and SORP joint side meeting alongside the SCAR OSC in 2020 was discussed.

#### ASPeCt

François Massonnet presented the slides on behalf of Marilyn Raphael (same slides that Marilyn will present at SCAR PSG on Monday). François Massonnet reported links between ASPeCt (Antarctic Sea-ice Processes and Climate), SORP, AntClim21 and other groups, and on coordinating seasonal predictions of sea ice in the Southern Ocean for 2017-2019. (<http://github.com/fmassonn/sipn-south-public> for feedback). Restructuring of ASPeCt has been done. Sea ice activities by other countries were also reported.

Dave Bromwich asked about funding for SIPN-South (<http://acecrc.org.au/sipn-south/>), and François Massonnet said there was none, and now looking at legacy after YOPP-SH.

Katie reported that sea ice thickness data still collected, but upheaval at AAD data centre means it has not been made as available as previously, but should be soon.

Patrick Heimbach mentioned Norway made significant efforts to make an early warning system regarding the Hellmer et al. warm water intrusions. Tore Hatterman recently presented on this. Sea ice and ice shelf feedback are part of this.

## **YOPP-SH report**

Dave Bromwich reported on YOPP-SH (Year of Polar Prediction – Southern Hemisphere, <http://polarmet.osu.edu/YOPP-SH/>) by presenting the slides he had shown to COMNAP last week. PPP (Polar Prediction Project, [www.polarprediction.net](http://www.polarprediction.net)) is a WMO initiative, and YOPP-SH is a core part of PPP. The key thing of YOPP is environmental prediction, not just atmosphere but also ocean and sea ice. It has primarily an Arctic focus, but Dave Bromwich has been pushing for Southern Ocean and is having some success. The YOPP office is based at AWI which has really driven YOPP.

Polar Prediction School with lots of hands-on practices occurred earlier this year in Abisko in Sweden, and the next one is likely to be planned in 2021.

The YOPP time line is (Jung et al., 2016, BAMS) planned as: Core phase mid-2017 to mid-2019 (consolidation phase is mid-2019 to 2022); Special Observing Periods (SOPS): 3 for NH (Northern Hemisphere), 1 for SH (Southern Hemisphere): SH Special Observing Period: 16 Nov 2018-15 Feb 2019: ~2000 extra radiosondes, ~100 extra ocean buoys.

The coordination committee consists of representatives from Argentina, Australia, Brazil, Chile, Germany, Italy, Japan, New Zealand, Russia, UK, USA, SOOS, SORP, but no-one from China has been identified yet.

The next YOPP-SH meeting (3<sup>rd</sup> time) will be held in Madison, Wisconsin on 19 July 2018.

Observational commitments for YOPP-SH SOP include:

- Additional radiosondes: 2116 extra launches (these are key data for NWP), but no extra from McMurdo Station or South Pole. No extras between Ross Ice Shelf and the Antarctic Peninsula.
- Drifting buoy deployments in the Southern Ocean
- Ship observation from the Southern Ocean
- Ocean Observatories Buoy at 55° S, 90° W (west of Drake Passage) will continue through YOPP-SH SOP, with surface weather, fluxes, water column observations being conducted.
- China interested in having a ring of buoys around Antarctica.

Dave's showing map of radiosondes at COMNAP struck a chord with operators who said some bases had not been shown. Dave said lots of COMNAP was about new bases, new ships, not so much about who was going to do the science, and in most cases the science budget was flat. The coordinated latitudinal releases have not yet been planned. Katie pointed out it is really dangerous to launch radiosondes from ships (because people can get dragged off), so US ships do not routinely do this (Russians will, and Australia and Japan will if especially requested but specially set up for this).

Dave said China could fill a lot of the gaps. Korea and Chile are collaborating to get more launches from King George Island, as well as in Terra Nova Bay by Korea and Italy.

The data collected during YOPP will go straight to the GTS (WMO Global Telecommunication System). While Katie mentioned GTS doesn't want sea ice buoys because they die so quickly.

Dave also showed the slide of International Program for Antarctic Buoys (IPAB) provided by Ignatius Rigor (UW) and SVP-B (surface drifters) for ocean and sea ice which reports location and measurements of temperature and pressure.

Dave has been talking to the Russia and China about trying to get their ships to do deployments.

Isa Rosso (Postdoc at Scripps) provided slide for shipboard underway meteorological to oceanographic measurements during YOPP-SH (Dave is trying to get funding to pay her specifically to work on this). Dave explained the need for real-time data for weather prediction, that even "as people get off the ship" is too late. Dave said issues with getting data, for example some countries will not allow data transmission.

Joellen explained that operational people use data from the GTS, but it is raw so scientists don't often use it. NetCDF is best format, according to Dave. Joellen said "format" equals "labour", so that is often the issue. Katie said GTS is built by WMO so historically atmospheric.

Dave explained to COMNAP operators with François's slide on SIN-South that it is really necessary be able to predict sea ice for ship movements.

Regarding the real-time numerical weather prediction, Dave briefed as follows:

- Antarctic Mesoscale Prediction System (AMPS, USA): Regional, dedicated NWP for Antarctica at 8km, finest grid in western Ross Sea and Ross Ice Shelf at 0.9 km. Runs at 00 and 12 UTC for various durations. Global open access via AMPS webpage Supersite output being negotiated.
- European Centre for Medium-Range Weather Forecasts (ECMWF): operational global forecast. 16 km coupled forecasts. Tendencies archived. Output at supersites archived also. Global open access via their YOPP webpage.
- National Centers for Environmental Prediction (NCEP, USA) and UK MetOffice: continuing usual activities. Data denial experiments proposed by NCEP, but it turned out that their computers were fully occupied with the transition to the FV3 model. FV3 model is a coupled model that could replace GFS. The GFDL model is being designed for having ocean and sea ice processes.

Regarding the new realtime/near real-time NWP, efforts from below countries are undergoing:

India: has been running Polar WRF for sometime in support of their logistical operations at Maitri Station.

Chile: Real-time starting November 2018: Polar WRF runs for the Antarctic Peninsula - Open Access on the [www.meteochile.cl](http://www.meteochile.cl)

MeteoFrance: near real-time: Arpege stretched global grid centered over Antarctica. Limited runs with AROME. Access not known currently

China: Polar WRF runs for Antarctica for logistical resupply. Available online.

Joellen pointed out this is the first time sea ice has been compared for Antarctica.

Dave also introduced the Observing System Experiments (OSEs) (also known as data denial, which run the model with and without extra observations), which will apply the SOP observations to improve real-time Antarctic NWP.

US NSF has funded a project (starting 1 June 2018 for 3 years) to evaluate impact of SOP observations on AMPS forecasts. This will be done by two data assimilation techniques in order to see which approach results in the greatest forecast improvements. The project will have a lasting value for AMPS and PPP/YOPP community with implementation of an advanced data assimilation approach in AMPS. Japan and France are developing plans for their own OSEs.

Dave presented COMNAP with some opportunities for the countries to participate in YOPP-SH. Better weather forecasts will result. He asked for support for extra observations, encouraged the scientists to participate in YOPP-SH, and initiated their own Antarctic NWP efforts to optimise local forecasts (growing number of nations are undertaking this task using PolarWRF).

Regarding the funding, WMO has “trust funds” and Canada in particular has donated to the trust fund because of interest in Arctic predictions. YOPP-endorsed projects/initiatives and institutes as of 24 May 2018: only two ocean ones for SH (AdelieHRM and SIPN South). The budget is around 10 times more for the Arctic than the Antarctica (and SIPN South has zero money at all). Website of the endorsement for projects: <http://apps3.awi.de/YPP/>

“Saildrones” were mentioned by Isa Rosso in her slides presented by Dave, and discussed by the panel. Joellen said they are surface measurement devices, and Karen pointed out their website: <https://www.saildrone.com>.

## **SOMIP, AntClim21 and FAFMIP**

SORP’s input to and further building of collaborations with SOMIP (Southern Ocean Model Intercomparison Project) and AntClim21 (Antarctic Climate Change in the 21st Century, a SCAR SRP (Scientific Research Programme)) were discussed in the session. SOMIP is supported by SOCCOM (Southern Ocean Carbon and Climate Observations and Modelling) with particular focus on the “blindspots” of freshwater and winds.

The problem with the CMIP6 models is that they did not include freshwater from Antarctica, and the problem with the wind is that it appears too weak and too equatorward. SOMIP works on the perturbation experiments in the Southern Ocean, and aims to reduce uncertainties in climate projections by defining the role of the oceans in climate with regards to the Southern Ocean.

The job of SOMIP is closely aligned with FAFMIP (Flux Adjustment Forcings), using an adaptation of the FAFMIP wind forcing anomaly and complementing their study by including an additional fresh water forcing anomaly around Antarctica. The SORP member, Joellen Russell, leads for modelling side of SOCCOM, and the former co-chair of SORP, Lynne Talley leads for observations.

Farneti reported FAFMIP (Flux Anomaly Forced Model Intercomparison Project surface flux perturbations, Gregory et al., 2016). FAFMIP anomalies are the results of CMIP5 atmosphere-ocean GCMs (AOGCM) under the scenario called 1pctCO2. The main objective of FAFMIP is to foster the establishment of an OGCM-based FAFMIP intercomparison with the same goal as the AOGM FAFMIP project and focus on Southern Ocean dynamic responses under FAFMIP flux anomalies, with attention to previous OGCM intercomparison (CORE1 and CORE2). OGCMs might not be directly comparable with respect to AOGCMs, but will provide complementary insights. Sea ice dynamics is included but not fully coupled. Advantage for OGCMs is that they can run at high resolution. Possibility of forming a task team of FAFMIP within SORP was mentioned.



## SIPN-South

Massonnet presented SIPN-South (Sea Ice Prediction Network Southern Ocean) project.

The motivation is the increased variability of summer Antarctic sea ice; in the Ross Sea, the sea ice almost disappeared in McMurdo Sound.

SIPN-South, which is a YOPP-SH project, will last at least two years, with the objectives as follows:

- (1) Be a focal point for Antarctic seasonal sea ice outlooks
- (2) Provide news and information on Antarctic sea ice
- (3) Coordinate a realistic prediction exercise in conjunction with the YOPP-SH

First seasonal sea ice coordinated experiments involve 160 forecasts from 13 contributors, who are Naval Research Labs, Nico Sun, NASAS GMAO, FIO-ESM, ECMWF, AntGateway Partnership, MPAS-CESM, Lamont sea ice group NASA GSFC, Modified CanSIPS, MetOffices, UCL, EMC. Some of them are coupled dynamic models, some are statistical models, and one is the ocean-sea ice dynamical model. Some models provided one forecast, while some provided an ensemble of up to 50 forecasts. All the models did SIA (sea ice area) daily or monthly, and some also did SIC (sea ice concentration).

Forecast and model spread are bigger than the observational uncertainty. For example, total sea ice area for February 2018 ranged from about 0.8 to 4.5 million square km. The anomaly in Ross Sea is difficult to predict, and only the NASA GMAO model managed to capture this. Even within the same system, there are many differences in forecasted ice edges (e.g. MetOffice ensemble: everything from no sea ice in Ross Sea to very wide sea ice extent in the Ross Sea).

The project will deliver information to potential users. Probability of ice presence was provided by fraction of ensemble members with  $SIC > 15\%$ .

Project webpages: <http://acecrc.org.au/sipn-south/>

<https://github.com/fmassonn.sipn-south-public> to reproduce the figures etc.

## 4. Panel business

### White paper for OceanObs19

Inga led a brief discussion going through the draft of the white paper for OceanObs19 in terms of structure. The influence of OceanObs was stressed by members, Joellen said OceanObs09 are still widely used in USA for funding etc. Patrick mentioned OceanObs19 aims to have more stakeholder/end-user engagement. Louise Newman is organising an in-person session in Davos for Saturday 16 June 2018 at 9am in room C Sanada 1 to start drafting whitepaper.

### CMIP6 activities related to SORP

There are 21 endorsed MIPs of which at least seven are relevant to SORP (and NORP): DCP, FAFMIP, HighResMIP, ISMIP6, OMIP, PAMIP, SIMIP. See a full list here: <https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips>

In the discussion of what involvement SORP should have, it was mentioned that it was too late to provide data for MIPs, but SORP could be involved in paper-writing using MIP data.

François pointed out SIMIP is a diagnostic MIP, rather than a full MIP. There are 13 themes identified and there will be teams that work on these (e.g. snow on sea ice, Alek Petty). It is advisable trying to avoid what happened with CMIP5 where there was a rush to write papers and duplication of effort. It is not clear whether other MIPs are taking this approach.

Joellen said within SOCCOM there are at least four intercomparisons. Groups are pushing to get CMIP6 analysis papers out as quickly as possible. With CMIP5, it looks a long time for all 28 model data sets to be made available.

Issues are arising with storage of the CMIP6 data at all modelling centres. Joellen and others are setting up ESMValTool to try and help lower the bar by dealing with gridding issues. Karen pointed out that ESMValTool is not that low a bar.

Riccardo suggested that SORP try and get a similar effort to SIMIP for other MIPs such as OMIP. Riccardo would be willing to set up a subgroup to look at water mass transformation.

Joellen expressed her concern that splitting up might exclude younger researchers who are keen to just get in and do work, whereas coordinated efforts might slow things down. She said there are 30 postdocs and graduate students at SOCCOM meeting, funded to do intercomparisons.

Joellen pointed out that SORP's role is meant to be more advisory, so should be writing more high level opinions and strategy. Patrick suggested viewpoints paper. He said OMDP spun out CORE activity, but that was a clear gap. Inga pointed out that SORP's role is to identify gaps, and work to fill those. Joellen mentioned that intercomparison of models and observations is a huge gap, and that model-model intercomparisons are therefore more common.

Patrick said there is a model and observation intercomparison (Obs4MIPS) effort but could be improved on. Three big modelling efforts: MIPS, ORA-IP (Ocean Reanalysis Intercomparison), and CORE-II, all draw up their own metrics, such as barotropic stream function, but these do not have observational equivalent and are dealt with differently for each of the three approaches so some harmonization work could be done. SORP could recommend essential metrics that cut across different models to make comparison. Joellen said focus on new metrics for CMIP6, more observation based

would be something that SORP could do. Issue with Obs4MIPs is that observational datasets are at certain locations but need to be globally gridded for Obs4MIPs.

## **Science talk by Liz Sikes**

Liz Sikes, one of the few paleo-oceanographers who looks at both past and present Southern Ocean dynamics, gave a talk on “How the ocean exhales: clues on climate and carbon sequestration since the last glacial maximum from the Southern Ocean”. The main region Liz works on is Tasman Sea, southwest Pacific near New Zealand. She pointed out that in the Southern Ocean, wind driven upwelling “ventilates” deep water. Change in ocean circulation or winds can alter the partitioning of CO<sub>2</sub> between the atmosphere and the ocean. Combined Southwest Pacific core profile (Sikes et al., 2016) with a similar profile from Brazil margin (Lund et al. 2016) show that at LGM, differences between Pacific and Atlantic Ocean were bigger than today in terms of <sup>13</sup>C. This December, Liz is going to the Indian Ocean sector of the Southern Ocean to look at the gap between Pacific and Atlantic.

## **Science talk by Sandra Barreira**

Sandra works in sea ice charts and tracking of icebergs and related fields, with coastal oceanography are undertaken mainly in Argentinian Sea. She gave an overview of her institute and their work. Multi-disciplinary researches are taking place: in physical oceanography, CO<sub>2</sub> measurements from ships are made, in marine chemistry: contamination, toxicity and biological risks of the Plata River are investigated. In marine climatology: sea ice and meteorological fields forecast, climatology of the South Atlantic Ocean and Antarctica are being undertaken. Sandra also introduced Sistema de Informacion Glaciologica (SIGLAC) whose daily data from ships and Antarctic stations that are coded according to coast stations. Web-based tool has images of ice to help with identification. English version of this also exists.

## **Science talk by Karen Assmann**

Karen talked about the ocean heat transport toward the ice shelves in the Amundsen Sea, where ACC (Antarctic Circumpolar Current) comes up onto the continental shelf. She argued that the ocean heat transport toward the ice shelves in the Amundsen Sea promotes the ice shelf melting there, and the barotropic volume transport dominates the CDW (Circumpolar Deep Water) flow at the shelf break and on the outer shelf. Eastwards undercurrents are deemed important for getting CDW onto the continental shelf. As the second-largest producer of ice shelf melting in Antarctica, the Getz Ice Shelf is under researched and Jacobs et al (2013) is the only paper on Getz oceanography so far.

## **National representatives and national reports**

Inga ran through the spreadsheet of national representatives and status of the national reports. The next call for the annual report this year will be made later in 2018, and the panel will try to pull together a summary of gaps and opportunities for international collaborations. Links to report are available at SCAR website but keep hosted on CLIVAR's. The national representatives are encouraged to use DueSouth to find information on cruises for their country (or get them to ask SOOS to chase up the identified gaps).

## **Task team planning**

Riccardo led the discussion on SORP task teams. Six task teams were planned at the current stage, which are (with the tentative leading person(s) from the panel)

1. Ocean carbon and BGC: Sikes

2. Ocean Observations for the Southern Ocean (OceanObs19): Assmann, Smith, Katsumota (this focuses on white paper writing but could be longer term afterwards to focus on ships, gliders, remote sensing etc).
3. CMIP6: Farneti, Massonnet
4. Ocean State Estimates: Heimbach, Mazloff
5. Year of Polar Prediction liason: Massonnet, Bromwich
6. Antarctic sea ice-ice shelf-ice sheet-ocean-atmosphere interactions: Heimbach, Assmann

## **Upcoming events**

Several upcoming meeting were reported by the panel members, such as the 3<sup>rd</sup> YOPP-SH workshop, AGU Fall Meeting 2018 with a large Southern Ocean session which Joellen co-chairs, ISMIP workshop, IUGG conference and so on.

## **Next meeting and telecon of the panel**

The next panel session, i.e. SORP-14 is considered to be at SCAR 2020 in Hobart, Tasmania, Australia, 31 July-11 August 2020 (side meetings 31 July to 2 August). SOOS was interested in a joint meeting alongside SCAR 2020. It is to be clarified whether there will be a CLIVAR OSC 2020.

Next teleconference is to be scheduled in early July to follow up on any action items.

## 5. AGENDA

### 13th Session of the CLIVAR/CliC/SCAR Southern Ocean Region Panel

Thursday, 14 June 2018

8am - 5pm

WSL Institute for Snow and Avalanche Research SLF (Flüelastrasse 11, Davos Dorf), room C157

Friday, 15 June 2018

8am – 5pm

Room A Flüela, Congress Centre Davos, between Davos Dorf and Davos Platz. The main entrance and the parking lots can be reached from the Talstrasse.

Note that Friday 15 June 2018, 1 - 5pm is a combined meeting with the CLIVAR/CliC Northern Oceans Region Panel.

#### Dates:

14-15 June 2018

#### **Thursday 14 June 2018**

##### SORP-13

(Chairs: Inga Smith and Riccardo Farneti)

08:00-08:15 Welcome and Introduction [Farneti/Smith]

08:15-08:30 Meeting goals [Farneti/Smith]

08:30-09:00 SOOS report [Farneti and possibly Louise Newman]

09:00-09:30 ASPeCt report [Massonnet]

09:30-10:00 YOPP-SH report [Bromwich]

10:00-10:30 Coffee break and group photo

10:30-12:00 Task Teams reporting: what has happened? Future plans? Are they all useful/relevant? Do we need some new ones (e.g., process studies)?

12:00-13:00 Lunch

13:00 -13:30 Climate predictability of the ocean-atmosphere-ice system in the Southern Ocean: presentations and discussions on SOMIP (Southern Ocean Model Intercomparison Project) and AntClim21: SORP input and further building of collaborations [Russell]

13:30-13:45 Ocean-sea ice SOMIP-like simulations [Farneti]

13:45-14:30 Drafting of a white paper for OceanObs19 [Katsumata: Kats will not be present, so video conference or someone else to present?]

14:30-15:00 Meeting reports (5 minutes each) on recent meetings and initiatives:  
[List of important science and science planning meetings since SORP-12?]

15:00-15:30 Coffee Break

15:30-16:00 CMIP6 activities related to SORP. There are 21 endorsed MIPs of which at least 7 are relevant to SORP (and NORP): DCP, FAFMIP, HighResMIP, ISMIP6, OMIP, PAMIP, SIMIP. See a full list here: <https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips> [Farneti]

16:00-17:00 Science talk [Sikes] [30 minute talk, 30 minutes for discussion]

17:00 End of day

18:00 Working dinner in the evening

## 15 June 2018

**[SORP-13 solo in the morning, joint with NORP-1 in the afternoon after 3:30pm]**

08:00 Science talk [Barreira] [30 minute talk, 30 minutes for discussion]

09:00 Sea Ice Prediction Network Southern Ocean [Massonnet]

09:15 National representatives and national reports [Smith]

09:45 Task teams planning

10:00 SORP-14 and SORP rotations [Farneti, Smith]

10:30 Break [complimentary refreshments served in the hallway]

11:00 Science talk [Assmann] [30 minute talk, 30 minutes for discussion]

12:00-13:00 Working lunch

13:00-14:30 Any other SORP business

**14:30 SORP-13 and NORP-1 joint session**

14:30 NORP introduction; history, goals, structure (10 min) [Fyfe/Solomon]

14:40 SORP introduction; history, goals, structure (10min) [Smith/Farneti]

14:50 NORP/SORP Chairs introduce cross-panel (NORP/SORP/CDP/ARP/OMDP) task teams and discuss NP/SP variability/processes, joint interests, outstanding polar issues (20 min) [Fyfe/Solomon/ Smith/Farneti]

- 15:10 Panel member introductions (~24 members, 1-2 min each, 30 min total (see below))[All]
- 15:30 Break [complimentary refreshments served in the hallway]
- 16:00 Panel member introductions continued (~24 members, 1-2 min each, 30 min total) [All]
- 16:10 Potential joint projects, e.g., 2020 CLIVAR/CliC summer school in Trieste and white paper; cross-panel task teams will organize sessions around mutual scientific questions (20 min) [Farneti/Fyfe]
- 16:30 Open discussion (10min + if room is available after 5pm) (Suggested topics include: NORP and SORP Task Teams: common goals and possible interactions and synergies. For example, a recommendation from the last CLIVAR SSG Meeting (November 2017) is for SORP to strengthen links with the Climate Dynamics Panel. This could be relevant for NORP too. MOSAiC (The Multidisciplinary drifting Observatory for the Study of Arctic Climate, <http://www.mosaicobservatory.org/>). Project on observing system design in the Antarctic and Arctic, such as future design of buoy and radiosonde (a Horizon-2020 EU project), with SOOS in the Southern Ocean [Massonnet]. Discussion on CMIP6 activities related to SORP/NORP). [All]
- 17:00 Close of meetings