



**SCAR Sub-Group**

SG

**SORP**

PS

Person Responsible: Inga Smith and Torge Martin

## **SCAR Delegates Report 2020**

# **SORP (CLIVAR-CliC-SCAR Southern Ocean Region Panel)** **2018-2020 Report**

## **Summary**

### **Report Author(s)**

Torge Martin (Germany) and Inga Smith (New Zealand)

### **Summary of activities from 2018-20**

The Southern Ocean Region Panel (SORP) is co-sponsored by the World Climate Research Programme's core projects the Climate and Ocean: Variability, Predictability and Change (CLIVAR) and the Climate and Cryosphere (CliC), and the Scientific Committee on Antarctic Research (SCAR). The SORP serves as a forum for the discussion and communication of scientific advances in the understanding of climate variability and change in the Southern Ocean. It advises CLIVAR, CliC, and SCAR on progress, achievements, new opportunities and impediments in internationally-coordinated Southern Ocean research.

During 2019 highlights of SORP activities were:

- (i) The SORP co-chairs were co-authors on the CLIVAR-led paper Stammer et al. (2019);
- (ii) Eight current, immediate-past, and ex-officio panel members are co-authors of the SOOS-led paper related to Southern Ocean observations: Newmann et al. (2019);
- (iii) SORP a session at the 2019 IGS Sea Ice Symposium (co-organized with the CLIVAR/CliC Northern Oceans Region Panel (NORP));
- (iv) Two current members and one immediate-past member of the panel participated at the OceanObs'19 Conference with support of CliC.
- (v) SORP involvement in YOPP-SH through liaison efforts of François Massonnet, including co-authorship of submitted manuscript: Bromwich et al. (submitted).

SORP has been very active during 2018-2019. SORP organized a panel meeting (SORP-13) alongside the Polar 2018 Conference in 15-16 June 2018 at Davos, Switzerland. During SORP-13, a joint session from SORP and the Northern Oceans Research Panel (NORP) was organized to discuss future collaborations and common research goals. SORP, together with NORP, co-organized a session at the IGS Sea Ice Symposium in 19-23 August, 2019 at Winnipeg, Canada. The session mixed

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Arctic and Antarctic modeling and observational research and it was a great success in terms of talks and posters.

Extensive participation in international research coordination and collaboration has occurred with several relevant programmes, including the Southern Ocean Observing System (SOOS), the Ocean Observations Panel for Climate (OOPC), Antarctic Sea-ice Processes and Climate (ASPeCt, which is co-sponsored by CliC and SCAR) and the Year of Polar Prediction Southern Hemisphere (YOPP-SH).

In 2019, the panel welcomed four new members (Katy Altieri (South Africa), Ronald Souza (Brazil), Michiyo Yamamoto-Kawai (Japan), and Neil Swart (Canada)) and an ex-officio representative of SOOS (Matt Mazloff, USA); In 2020, the panel recruited 3 new members (Torge Martin (Germany), Libao Gao (China, early career), Tore Hattermann (Norway))

National reports were obtained from 11 countries for 2018 so far, which allowed SORP to see opportunities for further cooperation in the Southern Ocean. All national reports can be downloaded from the SORP website (<http://www.clivar.org/clivar-panels/southern/national-representatives>).

In addition to having at least one early career scientist among its panel members (F. Massonnet (Belgium) who rotated off at the end of 2019, and Libao Gao (China) who joined SORP in 2020), early career scientists have been recruited for some of the National Representative roles (Nathaelle Bouttes-Mauhourat (France) and Louise Biddle (Sweden)). These roles are separate to full panel membership, and provide capacity building by involving more early career scientists in SORP activities than is possible with the strict fourteen member panel membership.

SORP members are also active in other activities while representing SORP. e.g., Sandra Barreira was invited as a lecturer at the ninth ODC (UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate) training course on climate dynamics and air-sea interactions in June 2019.

### Summary Budget 2019 to 2022

	2019	2020	2021	2022
	Spent	Allocated	Request	Request
(US\$)	0	3600	5400	2000

Note: Due to COVID-19 and cancellation of the SCAR OSC 2020 and associated business meetings, the SORP-14 business meeting that was due to be held in Hobart, Australia 30-31 July 2020 will now be held in 2021. Funds from 2019 were to be held over for spending in 2020 for SORP-14. We are now asking for those funds (USD 3600) be held over to 2021, and an additional USD 1800 for 2021 to support travel of panel members to the rescheduled SORP-14 meeting. Funds will be used to support travel to SORP-14 of early career researchers and scientists from countries with developing Antarctic programmes, as outlined below.

## Progress to date

### Sub-group Outcomes Summary

(Summarize the above and in each case provide your sub-group name in left hand column to assist Science Group COs in compiling their reports)

Sub-group	Activity/Outcome/Benefit/Achievement
SORP	Co-authored the CLIVAR-led paper: Stammer et al. (2019)
SORP	Co-authored the SOOS-led paper: Newmann et al. (2019)
SORP	SORP a session at the 2019 IGS Sea Ice Symposium (co-organized with NORP)
SORP	Members of the panel participated at the OceanObs'19 Conference with support of CliC
SORP	Co-authored YOPP-SH submitted manuscript: Bromwich et al. (submitted).

### Sub-group Cash Flow

(From previous Delegates meeting to date)

(Note: We are assuming this is asking about spending after Polar 2018 until now)

Sub-group	Allocation	Amount spent		
		2018	2019	2020
SORP	3600	0	0	0

## Future plans

### Planned activities in 2020 to 2022

Sub-group	Planned activity
SORP	SORP-14 business meeting (1.5 days), now planned for 2021 (was due to be in Hobart alongside SCAR OSC 2020).
SORP, ASPeCt, SOOS, YOPP-SH/WAMC, SOFLUX	Sea ice fluxes half-day workshop (0.5 days), now planned for 2021 (was due to be in Hobart alongside SCAR OSC 2020)
SORP (with NORP)	GCOS-GOOS-WCRP OOPC Ocean heat and freshwater storage and transport in observations and climate models workshop (26-30 October 2020 in Exeter, UK – may be rescheduled due to COVID-19, SORP member Neil Swart on organizing committee)
SORP	Synthesis report of National Reports on progress, achievements, new opportunities and impediments in Southern Ocean research; preparation in conjunction with Davina Hunt who is funded through the Science Teaching Leadership Programme of Te Apārangi Royal Society of New Zealand (NZ Government Programme).

**Planned use of funds for 2020 to 2022**

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2020	COVID-19 has meant all planned spending needs to be deferred	0	Torge Martin	torge.martin@gmail.com
2021	SORP-14 and associated workshop	5400	Torge Martin	torge.martin@gmail.com
2022	SORP-15	2000	Torge Martin	torge.martin@gmail.com
<b>Total</b>		<b>7400</b>		

**Any additional detail on funds usage and desired results/outcomes**

Funds will be used to support travel to SORP-14 of early career researchers and scientists from countries with developing Antarctic programmes. SORP-14 was planned to be the first in-person meeting for SORP since 2018 (when SORP-13 was held alongside Polar 2018). As such, there are 7 out of 14 SORP full panel members who have never had a chance to meet in-person as a group.

**Percentage of the budget to be used for support of early-career researchers**

2020: 0% (no meeting)  
 2021: 50% (e.g. Libao Gao (Early career from China))  
 2022: 50% (e.g. Libao Gao (Early career from China))

**Percentage of the budget to be used for support of scientists from countries with developing Antarctic programmes**

2020: 0% (no meeting)  
 2021: 50% (e.g., Neil Swart (Canada), Robin Robertson (Malaysia))  
 2022: 50% (e.g., Neil Swart (Canada), Robin Robertson (Malaysia))

**Membership**

**Leadership**

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-chair	Inga	Smith	University of Otago	New Zealand	inga.smith@otago.ac.nz	Jan, 2015	2020
Co-chair	Torge	Martin	GEOMAR	Germany	torge.martin@gmail.com	Jan, 2020	Dec, 2022

*Please identify early-career researchers with \* in first column*

## Other members

First Name	Last Name	Affiliation	Country	Email
<b>Riccardo</b>	Farneti	The Abdus Salam International Centre for Theoretical Physics (ICTP)	Italy	<a href="mailto:rfarneti@ictp.it">rfarneti@ictp.it</a>
<b>Robin</b>	Robertson	Xiamen University Malaysia	Australia	<a href="mailto:robin.robertson@xmu.edu.my">robin.robertson@xmu.edu.my</a>
<b>David</b>	Bromwich	Byrd Polar and Climate Research Center, Ohio State University	USA	<a href="mailto:bromwich@polar.met1.mps.ohio-state.edu">bromwich@polar.met1.mps.ohio-state.edu</a>
<b>Sandra</b>	Barreira	Argentine Naval Hydrographic Service (SHN)	Argentina	<a href="mailto:barreira.sandra@gmail.com">barreira.sandra@gmail.com</a> / <a href="mailto:barreira@ara.mil.ar">barreira@ara.mil.ar</a>
<b>Elisabeth</b>	Sikes	Department of Marine and Coastal Sciences, Rutgers University	USA	<a href="mailto:sikes@marine.rutgers.edu">sikes@marine.rutgers.edu</a>
<b>Karen</b>	Assmann	University of Gothenburg	Sweden	<a href="mailto:karen.assmann@marine.gu.se">karen.assmann@marine.gu.se</a>
<b>Michiyo</b>	Yamamoto-Kawai	Tokyo University of Marine Science and Technology	Japan	<a href="mailto:michiyo@kaiyodai.ac.jp">michiyo@kaiyodai.ac.jp</a>
<b>Neil</b>	Swart	Environment and Climate Change Canada	Canada	<a href="mailto:neil.swart@canada.ca">neil.swart@canada.ca</a>
<b>Ronald</b>	Souza	National institute for Space Research - INPE	Brazil	<a href="mailto:ronald.buss@inpe.br">ronald.buss@inpe.br</a>
<b>Katye</b>	Altieri	University of Cape Town	South Africa	<a href="mailto:katye.altieri@uct.ac.za">katye.altieri@uct.ac.za</a>
<b>*Libao</b>	Gao	FIO	China	<a href="mailto:gaolb@fio.org.cn">gaolb@fio.org.cn</a>
<b>Tore</b>	Hattermann	Norwegian Polar Institute	Norway	<a href="mailto:tore.hattermann@npolar.no">tore.hattermann@npolar.no</a>
<b>Matt</b>	Mazloff	University of California San Diego	USA	<a href="mailto:mmazloff@ucsd.edu">mmazloff@ucsd.edu</a>

Please identify early-career researchers with \* in first column

## Additional information (optional)

Please add any more detail here that you wish, on your subgroup activities, papers published, etc.

## Notable Papers

(Five to ten most notable papers – see the example below, which includes a brief statement (shaded) indicating the link to the group)

1. Stammer, D., A. Bracco, L. Beal, N. Bindoff, P. Braconnot, W. Cai, D. Chen, G. Danabasoglu, B. Dewitte, **R. Farneti**, K. Takahashi Guevara, B. Fox Kemper, J. Fyfe, S. Griffies, S. Jayne, R. Mathew Koll, A. Lazar, M. Lengaigne, X. Lin, S. Marsland, P. Monteiro, W. Robinson, R. Rykaczewski, S. Speich, **I. J. Smith**, A. Solomon, J. Vialard (2019), Ocean climate observing requirements in support of climate research and climate information. Proceedings of OceanObs'19, Frontiers in Marine Science. doi:10.3389/fmars.2019.00444

This paper is a forward looking paper on future ocean climate observations needed for climate research. It was the outcome of OceanObs'19 whitepaper call, and is published in the international peer-reviewed journal Frontiers in Marine Science. This paper was

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led by the CLIVAR SSG co-chairs, and SORP contributed through co-authorship by SORP co-chairs Riccardo Farneti and Inga Smith.

2. Newmann, L., P. Heil, R. Trebilco, **K. Katsumata**, A. J. Constable, E. van Wijk, **K. Assmann**, J. Beja, P. Bricher, R. Coleman, D. Costa, S. Diggs, **R. Farneti**, S. Fawcett, S. T. Gille, K. R. Hendry, S. F. Henley, E. Hofmann, T. Maksym, **M. Mazloff**, A. J. Meijers, M. P. Meredith, S. Moreau, B. Ozsoy, **R. Robertson**, I. R. Schloss, O. Schofield, **J. Shi**, **E. L. Sikes**, **I. J. Smith**, S. Swart, A. Wahlin, G. Williams, M. J. Williams, L. Herraiz-Borreguero, S. Kern, J. Lieser, R. Massom, J. Melbourne-Thomas, P. Miloslavich, G. Spreen (2019), Delivering sustained, coordinated and integrated observations of the Southern Ocean for global impact. Proceedings of OceanObs'19, Frontiers in Marine Science. doi:10.3389/fmars.2019.00433

This paper is a forward looking paper planning integrated observations for the Southern Ocean. It was the outcome of a writing workshop jointly held by SOOS and SORP at the Polar 2018 conference in Davos in 2018 as a response to the OceanObs'19 whitepaper call, and is published in the international peer-reviewed journal Frontiers in Marine Science. This paper was led by Louise Newmann from SOOS, and 8 SORP members contributed as co-authors (bolded above).

3. Bromwich, D. H., K. Werner, B. Casati, J. G. Powers, I. V. Gorodetskaya, **F. Massonnet**, V. Vitale, V. J. Heinrich, D. Liggett, S. Arndt, E. Bazile, B. Barja, Y. Choi, S. R. Colwell, R. R. Cordero, M. Gervasi, T. Haiden, J. Inoue, T. Jung, H. Kalesse, M. A. Lazzara, K. W. Manning, K. Norris, S.-J. Park, I. Rigor, P. M. Rowe, P. Seifert, M. Zannoni and X. Zou, 2020: The Year of Polar Prediction in the Southern Hemisphere (YOPP-SH). Bull. Amer. Metero. Soc., submitted.

This paper is a summary of the 2018-2019 Special Observing Period (16 November 2018 to 15 February 2019) for the Year of Polar Prediction in the Southern Hemisphere (YOPP-SH). This paper was led by David Bromwich in his YOPP-SH role, and François Massonnet was a member of SORP during his participation in the preparation of this paper, when he acted in a liaison capacity between SORP and YOPP-SH.

### **Direct support from outside organisations received for your activities**

*(Numbered list with values indicated if direct cash support. Please restrict in-kind support to substantive in-kind support only)*

1. CLIVAR: CHF 4000 (for support of SORP-14 and Sea ice fluxes half-day workshop in 2020: changes due to COVID-19 to be discussed with WCRP-CLIVAR)
2. CliC: CHF 4000 (for support of SORP-14 in 2020: changes due to COVID-19 to be discussed with WCRP-CliC)
3. US CLIVAR: Travel support for members from US to attend relevant activities, amount depending on need.

## **Major collaborations your Science Group has with other SCAR groups and with organisations/groups beyond SCAR**

*(Numbered list of substantive collaborations)*

### **Within SCAR**

1. ASPeCt: Co-chair Inga Smith is also a member of ASPeCt and attended the ASPeCt workshop in 2019. A joint SORP-ASPeCt-YOPP-SH/WAMC-SOFLUX workshop on fluxes in the sea ice zone was planned for 2020 alongside the SCAR OSC, but is now being replanned due to COVID-19.
2. SOOS (<https://www.scar.org/science/soos/>): Matt Mazloff is a member of the SOOS SSC and ex-officio member of SORP. A joint joint SORP-ASPeCt-YOPP-SH/WAMC-SOFLUX workshop on fluxes in the sea ice zone was planned for 2020 alongside the SCAR OSC but is now being replanned due to COVID-19.

### **Outside SCAR**

1. YOPP-SH: François Massonnet was liason with YOPP-SH in 2019, and Inga Smith is now liasing with YOPP-SH in 2020 (attending conference calls and conveying information to and from SORP). A joint joint SORP-ASPeCt-YOPP-SH/WAMC-SOFLUX workshop on fluxes in the sea ice zone was planned for 2020 alongside the SCAR OSC but is now being replanned due to COVID-19.
2. WAMC: A joint SORP-ASPeCt-YOPP-SH/WAMC-SOFLUX workshop on fluxes in the sea ice zone was planned for 2020 alongside the SCAR OSC but is now being replanned due to COVID-19.
3. CLIVAR NORP: SORP a session at the 2019 IGS Sea Ice Symposium (co-organized with NORP). NORP and SORP are also jointly involved in the GCOS-GOOS-WCRP OOPC Ocean heat and freshwater storage and transport in observations and climate models workshop (26-30 October 2020 in Exeter, UK – may be rescheduled due to COVID-19, SORP member Neil Swart is on the organizing committee)
4. UN DECADE: SORP contributed comments via SOOS-led feedback on the Global UN Implementation Plan for the UN Decade of the Ocean Science for Sustainable Development.

### **Outreach, communication and capacity-building activities**

*Brief highlights of any activities undertaken since the SCAR Delegates meeting in 2018.*

1. SCAR website for SORP has been substantially improved since the 2018 delegates meeting (we are grateful for the efforts of the SCAR Executive Director and her team for this).
2. SORP has moved to monthly Zoom calls in 2020 because of the lack of an in-person meeting due to COVID-19 restrictions.

## SCAR fellowship reviewers

*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, along with 1-3 keywords on their principal expertise.*

First Name	Last Name	Email	Principal Expertise
Inga	Smith	Inga.smith@otago.ac.nz	Sea ice physics, ice-ocean interactions (especially observations)
Sandra	Barreira	barreira.sandra@gmail.com	Sea Ice modelling and climatology, sea ice-atmosphere interactions, sea ice products