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## MEMORANDUM

TO: Attendees, 2017 SCOR Annual Meeting  
FROM: Ed Urban, SCOR Executive Director  
RE: Background Book for Meeting  
DATE: 4 August 2017

I am pleased to enclose the background book for the upcoming SCOR Annual Meeting in Cape Town, South Africa. I hope that you have a chance to read it before the meeting, although I know that the time is limited and the background materials are extensive. Please be sure to review the annotated agenda following. I have tried to identify the actions that we need to consider at the meeting and have cross-referenced the agenda items to the pages where relevant background information can be found, so we can make the best use of our time together. Please skim the remainder of the book and focus on those sections that are most closely related to your interests and responsibilities. I hope that the book also will be a useful reference to you between SCOR meetings. The background book is also available on the Web, at [http://scor-int.org/Annual%20Meetings/2017EC/SCOR\\_EC\\_2017.htm](http://scor-int.org/Annual%20Meetings/2017EC/SCOR_EC_2017.htm).

We will not be able to bring extra background books to the meeting, so please bring your copy if you requested one. Please let me know if you think other items should be made available to participants at the meeting.

I look forward to seeing each of you in Cape Town next month.

43<sup>rd</sup> SCOR EXECUTIVE COMMITTEE MEETING  
Cape Town, South Africa  
4-6 September 2017

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**NM = Nominated Member**

## Agenda for 2017 SCOR Annual Meeting in Cape Town, South Africa

	<b>Sun., Sept. 3</b>	<b>Mon., Sept. 4</b>	<b>Tues., Sept. 5</b>	<b>Wed., Sept. 6</b>		
9:00	SCOR Executive Committee Meets in Closed Session	Welcome, Logistics, and Introductions	IOC	GEOTRACES		
9:15		President's Report		Agenda 2030, G7, and WOA-2	IMBER	
9:30		Executive Director's Report	SOLAS			
9:45		Preparations for 2018 SCOR Elections	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>	
10:00		<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>		
10:15		<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>		
10:30		SOOS	SCOR Capacity Building Activities	IOCCP		
10:45		2019 SCOR Annual Meeting		GlobalHAB		
11:00		Current WGs	JCS	Update on ICSU Review and Actions Taken to Respond to Review		
11:15			IQOE			
11:30			IIOE-2			
11:45		<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>		
12:00		<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>		
12:15		<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>		
12:30		WG Proposals – Develop Short List and Select proposals	South African Marine Science	IOCCG InterRidge GACS		
12:45				IABO IAMAS IAPSO		
13:00				WCRP Future Earth/Ocean KAN		
13:15				<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
13:30				<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
13:45				<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
14:00		WG Proposals – Feedback to Proponents	South African Marine Science (cont.)	PICES		
14:15				Finances Report of Ad Hoc Finance Committee		
14:30				Close of Meeting		
14:45				SCOR Executive Committee Dinner	Conference Dinner	SCOR Executive Committee Meets in Closed Session
15:00						
15:15						
15:30						
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# **43<sup>nd</sup> SCOR EXECUTIVE COMMITTEE MEETING**

Cape Town, South Africa

4-6 September 2017

## **ANNOTATED AGENDA**

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### **1.0 OPENING**

#### **1.1 Opening Remarks and Administrative Arrangements, p 1-1**

*Ansorge, Sicre, Urban*

#### **1.2 Approval of the Agenda, p. 1-11**

*Sicre*

Additions or modifications to the agenda as distributed may be suggested prior to approval of the final version.

#### **1.3 Report of the President of SCOR, p. 1-11**

*Sicre*

The President will briefly review her activities for SCOR since the SCOR General Meeting in September 2016 in Sopot, Poland.

#### **1.4 Report of SCOR Executive Director, p. 1-11**

*Urban*

The Executive Director will report on his activities for SCOR since the 2016 SCOR meeting, and on the current condition of SCOR.

#### **1.5 Appointment of an *ad hoc* Finance Committee, p. 1-14**

*Sicre*

The SCOR Constitution requires that a Finance Committee be appointed at every SCOR meeting. It must consist of at least three members of SCOR who are not members of the Executive Committee. The Finance Committee reviews the administration of SCOR finances during the previous fiscal year and the current year, and will propose a budget for 2018 activities and dues for 2019. Members of the 2017 Finance Committee are Annalisa Griffa (Italy), Sinjae Yoo (Korea), and Jing Zhang (Japan). The Committee will report to the meeting under agenda item **8.3**.

#### **1.6 2018 Elections for SCOR Officers, p. 1-14**

*Burkill*

The SCOR Secretary and all three Vice-President positions will be open for nominations for the 2018 elections.

**Action: Appoint Nominating Committee**

## 2.0 WORKING GROUPS

### 2.1 Current Working Groups

The Executive Committee Reporter for each working group (or a member of the group) will present an update on working group activities and progress, and will make recommendations on actions to be taken.

#### 2.1.1 SCOR/InterRidge WG 135 on Hydrothermal energy transfer and its impact on the ocean carbon cycles, p. 2-1 *Smythe-Wright*

WG 135 was extended at the 2016 SCOR meeting for another year to complete its second publication. The status of the second publication is unknown.

**Action: Determine whether to disband the group.**

#### 2.1.2 SCOR/IGBP WG 138: Modern Planktic Foraminifera and Ocean Changes, p. 2-2 *Brussaard*

The final workshop of the group was held on 30 August-4 September 2015 on Catalina Island, California, USA (see

[http://www.eforams.org/img\\_auth.php/e/ed/SCORWG138\\_Catalina\\_2nd\\_circular.pdf](http://www.eforams.org/img_auth.php/e/ed/SCORWG138_Catalina_2nd_circular.pdf)). No report was received for the SCOR meeting.

**Action: Consider disbanding the group.**

#### 2.1.3 WG 139: Organic Ligands – A Key Control on Trace Metal Biogeochemistry in the Ocean, p. 2-3 *Devey*

At the 2016 SCOR meeting, SCOR WG 139 was granted an extension for an additional year to complete on-going activities. The first is the special issue of *Frontiers in Marine Science - Marine Biogeochemistry*, Research Topic: Organic ligands - A key control on trace metal biogeochemistry in the ocean: <http://journal.frontiersin.org/researchtopic/3981/organic-ligands--a-key-control-on-trace-metal-biogeochemistry-in-the-ocean>. It received 16 submissions of high-quality articles. This is the second special issue from WG 139. The first special issue was published in 2015 in *Marine Chemistry* (issue 173). WG 139 activities are expected to continue in the coming year, including continued progress on the best practices manual for ligand measurements, and completion of speciation analyses on the intercalibration samples collected from the Gulf of Mexico and Southern Ocean.

**Action: Consider a “no cost” extension for the group until its work is completed.**

#### 2.1.4 WG 141 on Sea-Surface Microlayers, p. 2-10 *Burkill*

A subset of the group conducted a multi-disciplinary sea-surface microlayer (SML) research cruise on the R/V *Falkor* (Schmidt Ocean Institute) in 2016. The cruise started in Darwin, Australia and finished in Guam, sampling the SML and underlying water at more than 17 stations, performing on-board ship experiments and aerial ROV deployments. The cruise was used as a ‘hand-on’ teaching platform for several PhD students and allowed for the continued refinement of the ‘Guide to best practices to study the ocean’s surface’ (see TOR 1). See <https://schmidtocean.org/cruise/study-of-the-sea-surface-microlayer/>. Two review papers resulted from the group’s work this year<sup>1</sup> and a special issue of *Elementa: Science of*

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<sup>1</sup>Anja Engel, Hermann W. Bange, Michael Cunliffe, Susannah M. Burrows, Gernot Friedrichs, Luisa Galgani, Hartmut Herrmann, Norbert Hertkorn, Martin Johnson, Peter S. Liss, Patricia K. Quinn, Markus Schartau,

*the Anthropocene* has been opened (see <https://collections.elementascience.org/sea-surface-microlayer>). A post-cruise meeting will be held in August 2017 to co-compare the multi-disciplinary data sets and synthesize an integrated understanding of the SML and the role of the SML in global-scale processes. Part of the meeting will consider the refinement of the ‘Guide to best practices to study the ocean’s surface’ based on sampling experiences from the cruise and any updates to the best practice sampling document will be made if needed.  
**Action: Consider a “no cost” extension for the group until its work is completed.**

**2.1.5 WG 142 on Quality Control Procedures for Oxygen and Other Biogeochemical Sensors on Floats and Gliders, p. 2-14** *Burkill*

WG 142 is preparing a manuscript (Bittig et al., in preparation) that summarizes the protocols for successful operation of oxygen sensors on profiling floats. The efforts of WG142 are being successfully transferred to a broader community, including operators of gliders. The committee work has also played a seminal role in planning for a global array of Biogeochemical-Argo floats, as well as the development of data processing protocols for the Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) profiling float array. The next meeting of the WG is tentatively set for the Argo Data Management Team meeting in Hamburg, Germany during late November 2017. A focus of this meeting would be passing much of the Working Groups findings on to the Argo Data Management Team.

**Action: Consider a “no cost” extension for the group until its planned work is completed.**

**2.1.6 WG 143 on Dissolved N<sub>2</sub>O and CH<sub>4</sub> measurements: Working towards a global network of ocean time series measurements of N<sub>2</sub>O and CH<sub>4</sub>, p. 2-18** *Turner*

The group produced a technical report on *The Production of Methane and Nitrous Oxide Gas Standards* (see [http://www.scor-int.org/Publications/SCOR\\_WG\\_143\\_Technical\\_Report.pdf](http://www.scor-int.org/Publications/SCOR_WG_143_Technical_Report.pdf)). The planned activities for the coming year are to (1) conduct data synthesis and manuscript writing for the intercomparison of methane and nitrous oxide in seawater and (2) complete the cruise report for the Baltic Sea expedition (see <https://www.io-warnemuende.de/message/items/tracking-down-the-greenhouse-gases-methane-co-iow-heads-a-method-standardization-expedition.html>). The group plans to hold its final meeting in conjunction with the Ocean Sciences Meeting in February 2018 in Portland, Oregon, USA.

**Action: Consider funding for 2018 meeting of working group.**

**2.1.7 WG 144 on Microbial Community Responses to Ocean Deoxygenation, p. 2-21** *Miloslavich*

WG 144 held a symposium in Goa, India, at the National Institute of Oceanography during 2–5 December 2016. The group is producing a special issue from the symposium, in *Deep-Sea Research II* (DSR II). N. Ramaiah, Sean Crowe, Virginia Edgcomb and Bess Ward will be the editors. So far, nine manuscripts have been submitted and are under review and it is expected there will be about 15 papers in the special issue. DSR II estimates the time from initial

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Alexander Soloviev, Christian Stolle, Robert C. Upstill-Goddard, Manuela van Pinxteren & Birthe Zänker (2017) The Ocean’s Vital Skin: Toward an Integrated Understanding of the Sea Surface Microlayer. *Frontiers in Marine Science* 4:165. doi: 10.3389/fmars.2017.00165

Wurl O, Ekau W, Landing WM, Zappa CJ. Sea surface microlayer in a changing ocean – A perspective. *Elem Sci Anth.* 2017;5:31. DOI: <http://doi.org/10.1525/elementa.228>



submission to publication to be about 1.5 years, so the special issue should be published sometime in 2018. A tentative list of authors and titles, compiled at the time of the symposium, is given in the WG report.

**Action: Consider disbanding group, after special issue is completed.**

### **2.1.8 WG 145 on Chemical Speciation Modelling in Seawater to Meet 21st Century Needs (MARCHEMSPEC), p. 2-35** *Sicre*

The group published a paper on its work.<sup>2</sup> A second SurveyMonkey questionnaire, aimed at users outside the academic community, was launched in April 2017 and gathered 57 additional responses. Members of the group were successful in obtaining funding from NERC and NSF for a research project, starting in July 2017, to develop a full characterization of the chemistry of TRIS buffers in artificial seawater over the full range of relevant salinities and temperatures. Measurements in the USA and UK will be complemented by measurements carried out at GEOMAR (Kiel, Germany) and at the French, German and Japanese national standards laboratories. An analysis and summary of the results of both SurveyMonkey questionnaires will be prepared for publication. The next WG meeting is planned for February 2018 in conjunction with the Ocean Sciences Meeting.

**Action: Consider funding for 2018 WG meeting.**

### **2.1.9 WG 146 on Radioactivity in the Ocean, 5 decades later (RiO5), p. 2-39**

*Smythe-Wright*

The working group will meet after the background papers for the SCOR meeting were completed.

**Action: Consider disbanding group in 2018.**

### **2.1.10 WG 147: Towards comparability of global oceanic nutrient data (COMPONUT), p. 2-40** *Roman, Sicre*

WG 147 has a busy year ahead. Its next activity will be a training workshop at NIOZ in the Netherlands (<https://www.nioz.nl/en/education/marine-studies/scor-pogo-international-training-workshop-for-nutrient-analysis-2017>) in November. SCOR is providing some funding from its developing country scientist travel grant for this event. Members of the group are collecting two additional batches of Atlantic Ocean seawater, from deep and mid-depth waters, for CRM production. WG 147 is working on revisions on the portion of the GO-SHIP manual related to nutrient measurements. In conjunction with the 2018 Ocean Sciences Meeting in Portland, Oregon, WG 147 has submitted a proposal for a special session on "Biogeochemistry and Nutrients in open ocean waters: Sustainable Ocean Observations and Time Series Efforts" and will hold the final meeting of the group.

**Action: Consider funding for WG meeting in 2018 and discuss how to increase use of the nutrient CRMs.**

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<sup>2</sup>Turner, D.R., E.P. Achterberg, C.-T.A. Chen, S.L. Clegg, V. Hatje, M.T. Maldonado, S.G. Sander, C.M.G. van den Berg, M. Wells. 2016. Toward a Quality-Controlled and Accessible Pitzer Model for Seawater and Related Systems. *Frontiers in Marine Science* 3: doi:10.3389/fmars.2016.00139.

**2.1.11 WG 148 on International Quality Controlled Ocean Database: Subsurface temperature profiles (IQuOD), p. 2-47** *Hutchinson, Shapovalov*

A session on “Scientific data rescue of ocean data with a focus on climate analysis” was proposed for the 2018 Ocean Sciences meeting in February 2018, in Portland, Oregon, USA. WG 148 is planning to hold its 2018 meeting in April 2018 at the UK Met Office (piggy-backing on the EGU annual meeting). The major objectives of the meeting will be to conduct an AutoQC benchmarking exercise; refine i-metadata, uncertainty and duplicates flagging, coordinate machine learning activities, and discuss potential outreach activities.

**Action: Consider funding for 2018 WG meeting.**

**2.1.12 WG 149 on Changing Ocean Biological Systems (COBS): how will biota respond to a changing ocean?, p. 2-53** *Miloslavich*

WG 149 will hold a workshop in Monaco in mid-2018 to introduce the multiple drivers best-practices guide (BPG) to early-career scientists, and will hold its third WG meeting after the Monaco workshop. The BPG will be introduced to North American scientists in mid-July 2018 at the early-career Gordon Research Seminar which precedes the Ocean Global Change Gordon Research Conference. A joint IMBER/SCOR WG149 session has been proposed at the 4<sup>th</sup> Symposium on the Effects of Climate Change on the World’s Oceans (June 2018 in Washington D.C.)

**Action: Consider funding for 2018 WG meeting.**

**2.1.13 WG 150 on Translation of Optical Measurements into particle Content, Aggregation & Transfer (TOMCAT), p. 2-58** *Burkill*

The chair of WG 150 published an article in *Eos* informing the community about the group and its first meeting.<sup>3</sup> WG 150 will carry out intercalibrations between in situ camera systems, LOPC and backscatter sensors during the UK COMICS cruises (<http://comics.ac.uk/>) in the Southern Ocean in November-December 2017 and in the Benguela in April May 2018. The group is planning an international “autumn school”, likely hosted at the National Oceanography Centre, Southampton, in late 2018. During the year the group will finalize its list of essential variables and publish these freely available online, and will decide on a public depository and publish the first set of example data and codes. The group will host a dedicated session during the Ocean Science Meeting in February 2018 in Portland, Oregon to promote TOMCAT’s work and to advertise the autumn school, and will hold its next WG meeting there.

**Action: Consider funding for 2018 WG meeting.**

**2.1.14 WG 151: Iron Model Intercomparison Project (FeMIP), p. 2-63** *Devey*

During the coming year, the group will proceed with objective 1 (collating information about the three main processes identified as being most important in models of iron cycling: external input, biological cycling, and speciation/scavenging) and objective 2 (testing cases for model skill metrics for the different platforms). Results from O1 and O2 will be presented at the Feb. 2018 meeting of WG 151 and publicized during a Town Hall session during Ocean Sciences 2018. The outcome of O1 is planned to be a publication and the release of code for different process closures. The outcome of O2 is planned to be a release of evaluation tools and consensus values via the website, plus a companion paper. Champions and preliminary plans will be developed for O3 and O4 during the kick-off meeting of the WG in Feb. 2018.

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<sup>3</sup> <https://eos.org/meeting-reports/optical-sensors-can-shed-light-on-particle-dynamics-in-the-ocean>

**Action: Consider funding for 2018 WG meeting.**

**2.1.15 WG 152 on Measuring Essential Climate Variables in Sea Ice (ECV-Ice), p. 2-66**

*Turner*

Two virtual meetings are planned for summer/fall 2017, to discuss planning of the upcoming intercalibration experiments as part of TR #1 and the next in-person meeting, in June 2018, in conjunction with BEPSII, MOSAiC and CATCH during the 2018 SCAR/IASC POLAR 2018 Conference, in Davos, Switzerland. At the meeting, WG 152 members and others will review progress on the group's Terms of Reference (present the data collations (TR #2); pursue the elaboration of intercalibration experiments (TR #1 and #3), including reviewing results of primary production experiment in Saroma; and finalize plans for a gas concentration experiment at UEA. The intercalibration experiment on gas concentrations will be conducted at the UEA ice-tank facility in summer 2017. EUROCHAMP 2020 funding will be available for this intercalibration experiment. The funding will cover travel expenses for 1-3 international participants, and the costs of operating the facility. At least one ice growth experiment (~10 days) will be run. If feasible, a second experiment at a different temperature will be conducted.

**Action: Consider funding for 2018 WG meeting.**

**2.2 Working Group Proposals**

**2.2.1 Integration of Plankton-Observing Sensor Systems to Existing Global Sampling Programs (P-OBS), p. 2-75**

*Burkill*

**Action: Consider as new SCOR working group.**

**2.2.2 Eastern boundary upwelling systems (EBUS): diversity, coupled dynamics and sensitivity to climate change, p. 2-89**

*Shapovalov*

**Action: Consider as new SCOR working group.**

**2.2.3 International Network for the Study of How Organisms Respond to Environmental change (INSHORE), p. 2-111**

*Miloslavich*

**Action: Consider as new SCOR working group.**

**2.2.4 Expanding Regional Application of Dynamic Ocean Management (ERADOM), p. 2-131**

*Devey*

**Action: Consider as new SCOR working group.**

**2.2.5 Floating Litter and its Oceanic Transport Analysis and Modelling (FLOTSAM), p. 2-149**

*Halpern*

**Action: Consider as new SCOR working group.**

### 3.0 LARGE-SCALE SCIENTIFIC PROGRAMS

SCOR currently sponsors five large-scale research projects; four of them are co-sponsored by other organizations. Each project has its own scientific steering committee (SSC) to manage the project. SCOR and other co-sponsors are responsible to oversee the projects, which they do primarily through responsibility for the project SSC memberships and terms of reference, although sponsors also oversee the results of the projects' activities. Any proposed changes in membership or terms of reference are considered by the SCOR Executive Committee, in partnership with other co-sponsors, throughout the year. The SCOR Secretariat oversees the use of grant funds provided to the projects through SCOR. SCOR uses solely grant funds for IMBER, SOLAS, and GEOTRACES, but is providing SCOR support for IQOE and IIOE-2 until they are self-supporting.

#### 3.1 SCOR/Future Earth Integrated Marine Biosphere Research, p. 3-1 *Burkill*

IMBER has been in transition for the past several years, from having IGBP as a co-sponsor to having Future Earth as a co-sponsor, and in transition from the first to second phase of IMBeR. The IMBeR Science Plan/Implementation Strategy has been reviewed and reviewers' comments have been responded to by IMBER. IMBER will hold its [5<sup>th</sup> Imbizo open science meeting](#) in Woods Hole, Massachusetts, USA in October 2017 and will hold its [second Open Science Conference](#) in Brest, France in 2019. Funding for the IMBER International Project Office in Bergen, Norway and its Regional Project Office in Shanghai, China have been extended to 2020. IMBER is in the process of selecting a new Executive Officer.

**Action: None. IMBER funding is provided by specific funding from NSF and NASA grants to SCOR.**

#### 3.2 GEOTRACES, p. 3-27 *Devey*

GEOTRACES continues its systematic exploration of the chemistry of the ocean. The major activities for the past year have been preparation of the 2017 Intermediate Data Product, which will be released at the 2017 Goldschmidt Meeting on 13-18 August 2017, in Paris, France. As with the 2014 Intermediate Data Product, graphics of the sections will be distributed on memory cards, at the Goldschmidt meeting and at the 2018 Ocean Sciences Meeting. Ninety-six GEOTRACES cruises have been conducted (including 11 International Polar Year cruises) with 1,024 section stations completed and almost 900 peer-reviewed papers published. Planning is underway for Pacific and Indian ocean cruises. GEOTRACES held two synthesis meetings in the United Kingdom in December 2015, which resulted in a special issue of *Philosophical Transactions of the Royal Society A* since last years SCOR meeting.<sup>4</sup>

**Action: None. GEOTRACES funding is provided by specific funding from an NSF grant to SCOR.**

#### 3.3 Surface Ocean – Lower Atmosphere Study (SOLAS), p. 3-56 *Garçon, Turner*

SOLAS has added Future Earth as a co-sponsor, in place of IGBP, and its Phase II Science Plan 2015 has been approved by co-sponsors. SOLAS has also produced a 2016-2018 Implementation

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<sup>4</sup> <http://rsta.royalsocietypublishing.org/content/374/2081>

Strategy. SOLAS is working with Future Earth, IMBER, and other projects to develop an Ocean Knowledge Action Network (KAN). SOLAS is planning its 2018 Summer School for 23 July-3 August 2018 in Cargese, Corsica, France.

**Action: None. SOLAS funding is provided by specific funding from an NSF grant to SCOR.**

### **3.4 SCOR/POGO International Quiet Ocean Experiment (IQOE), p. 3-70**

*Urban, Shapovalov*

IQOE's Science Committee was formed in early 2016 and met for the second time in London, UK in January 2017. Work has proceeded this year on forming working groups and getting them activated. POGO has been funding an IQOE-related working group for the past two years, which has proposed an acoustic Essential Ocean Variable for the Global Ocean Observing System and is working on an online database of passive acoustic observing systems. The IQOE Website is being re-designed and will be launched later this year. Funding is being provided for IQOE activities by a consortium of Monmouth University and Rockefeller University in the United States. A proposal has been submitted to a national government for placement of an IQOE International Project Office at a institutional member of POGO.

**Action: Consider 2018 support from SCOR to IQOE.**

### **3.5 SCOR/IOC/IOGOOS Second International Indian Ocean Expedition (IIOE-2), p. 3-74**

*Burkill*

The Science Committee for the IIOE-2 held its first meeting in Perth, Australia in January 2017. SCOR supported one chair of each of the Science Themes to attend the meeting. The second meeting will be held in Lombok, Indonesia in March 2018. IIOE-2 is co-sponsoring a session on "The Second International Indian Ocean Expedition (IIOE-2) and Related Oceanic and Coupled Atmospheric Research in the Indian Ocean" at the IAPSO-IAMAS-IAGA conference immediately before the SCOR annual meeting.

**Action: Consider 2018 support from SCOR to IIOE-2.**

## **4.0 INFRASTRUCTURAL ACTIVITIES**

### **4.1 IOC/SCOR International Ocean Carbon Coordination Project, p. 4-1**

*Telszewski, Halpern*

IOCCP plays an important role in the Global Ocean Acidification Observing Network (GOA-ON) through participation of two SSG members Richard Feely and Benjamin Pfeil, and Project Director Maciej Telszewski on the GOA-ON Executive Council. IOCCP serves as the Biogeochemistry Panel of the Global Ocean Observing System. IOCCP has assisted with the Surface Ocean CO<sub>2</sub> Atlas (SOCAT). In September 2016, SOCAT version 4 (SOCATv4) was released, with 18.5 million quality-controlled, surface ocean fCO<sub>2</sub> (fugacity of carbon dioxide) observations with an accuracy of better than 5 µatm from 1957 to 2015 for the global ocean and coastal seas. Automation of data upload and initial data checks speeds up data submission and will allow annual releases of SOCAT from version 4 onwards. Three community publications that resulted from IOCCP activities acknowledged NSF support through SCOR (see IOCCP report).

**Actions: None. IOCCP funding is provided by specific funding from an NSF grant to SCOR.**

#### **4.2 SCAR/SCOR Southern Ocean Observing System (SOOS), p. 4-38 Swart, Miloslavich**

SOOS is developing 5 Regional Working Groups that will coordinate and implement the observing system in their regions, bringing together efforts in planning, logistics, resources, data management and access. These regional groups will encompass national observing efforts, and will work with circumpolar observing programs and projects to ensure required coverage of observations in the following regions: West Antarctic Peninsula (WAP), Southern Ocean Indian Sector, Ross Sea, Weddell/DML, and Amundsen/Bellinghshausen. The WAP workshop took place in May 2017, the Indian Ocean workshop will take place in August 2017, and the Ross Sea workshop will take place in Sept. 2017. SOOS Capability Working Groups help develop important observational capabilities, such as developing and implementing technologies; improving observational design, efficiency and coverage; and enhancing information management and dissemination. The Capability Working Groups include the following: Censusing Animal Populations from Space, Southern Ocean Fluxes, Benchmarking (eEOV), and a SOOS-initiated POGO Working Group Observing and Understanding the Ocean beneath Antarctic sea ice and ice shelves (OASIIS). The SOOS report details various SOOS mapping tools and databases that are coming on line.

**Action: Consider 2018 funding for SOOS.**

#### **4.3 IAPWS/SCOR/IAPSO Joint Committee on Seawater (JCS), p. 4-46 Smythe-Wright**

The JCS did not meet as a full group in 2016-2017. However, 6 JCS members attended the 2016 International Association for the Properties of Water and Steam (IAPWS) Annual Meeting in Dresden, Germany (Sept 11-16, 2016). Two JCS members attended the 2016 International Symposium on Stratified Flows (San Diego, Aug 29-Sept 1, 2016). The four *Metrologia* review papers published in January 2016 continue to be heavily downloaded, especially part 4 on relative humidity. Parts 1 and 4 of the *Metrologia* papers have just been selected as one of the “2016 Highlights of *Metrologia*”. These papers have their own Web page ([http://iopscience.iop.org/journal/0026-1394/page/Highlights\\_of\\_2016](http://iopscience.iop.org/journal/0026-1394/page/Highlights_of_2016)).

**Action: Consider funding for 2018.**

#### **4.4 GlobalHAB, p. 4-49**

*Urban, Sun*

The GlobalHAB SSC met for the second time in March 2017 in Naples, Italy to work on its Science and Implementation Plan and to plan activities for the coming year. GlobalHAB SSC members helped work on the GEOHAB special issue of *Oceanography*, including a paper about GlobalHAB. GlobalHAB is developing links with various related projects (e.g., the IOC GO<sub>2</sub>NE project and the Global Ciguatera Strategy), and is working with the Intergovernmental Panel on Harmful Algal Bloom on a good practices manual for research on harmful algal blooms. Work continues on the IOCCG-GEOHAB monograph on ocean color satellite techniques for the study of HABs.

**Action: None. GlobalHAB funding is provided by specific funding from an NSF grant to SCOR.**

#### **4.5 Workshop on Seafloor Ecosystem Functions and their Role in Global Processes, p. 4-57**

*Urban*

SCOR sponsored a meeting of 12 marine scientists in September 2014 to develop a high-profile paper on research priorities related to seafloor ecosystem functions and their role in global processes. *Trends in Ecology and Evolution* invited submission of a manuscript from the workshop. An update on the status of the publication will be presented at the SCOR meeting.

**Action: None**

### **5.0 CAPACITY-BUILDING ACTIVITIES**

#### **5.1 SCOR Committee on Capacity Building, p. 5-1**

*Ittekkot*

The SCOR Committee on Capacity Building revised the application form for the SCOR Visiting Scholars program and created a request form for meeting organizers to submit to request funds for travel of developing country scientists to their meetings. The SCOR Executive Committee approved Claudia Benitez-Nelson (USA) to replace Venu Ittekkot as the chair of the committee in early 2017. Benitez-Nelson and Ed Urban represented SCOR at a side event at the UN Ocean Conference in June 2017, which SCOR led.

**Action: Consider funding for 2018 activities of the committee.**

#### **5.2 SCOR Visiting Scholars, p. 5-1**

*Ittekkot*

SCOR has sent 26 Visiting Scholars to 15 different countries in the first 9 years of the program, including 5 in 2017. The program has resulted in a significant outcome for a moderate investment, including a four-year Research Camp at the University of Namibia that has been developed by a two-time SCOR Visiting Scholar, Kurt Hanselmann (see item 5.5).

**Action: Funding for this activity is provided by an NSF grant to SCOR. Identify sources of funding for the program from other countries to expand the program.**

#### **5.3 POGO-SCOR Visiting Fellowships for Oceanographic Observations, p. 5-4**

*Urban*

SCOR has co-funded this program with POGO since 2001. The program has funded more than 125 fellows so far. Four fellowships were awarded in 2017.

**Actions: None. Funding for this activity is provided by an NSF grant to SCOR.**

#### **5.4 NSF Travel Support for Developing Country Scientists, p. 5-16**

*Urban*

SCOR was awarded a three-year renewal of its grant from the National Science Foundation for travel of developing country scientists to scientific meetings. The new grant will run until 31 July 2020. The funding is used primarily for travel grants, but also for the SCOR Visiting Scholars and POGO-SCOR Fellowships. The SCOR Committee on Capacity Building approved several batches of requests since the 2016 SCOR meeting and additional requests will be considered after the SCOR meeting in South Africa.

**Action: None. Funding for this activity is provided by an NSF grant to SCOR.**

### **5.5 Research Camps at the University of Namibia, p. 5-18**

**Urban**

The Research Camps at the University of Namibia have reached the end of their first 4-year grant from the Agouron Institute. An evaluation is being conducted to determine what changes should be made if the program were continued. This evaluation will include a visit by Venu Ittekkot and Ed Urban to Namibia in August 2017 to meet with officials at the University of Namibia and the Namibian National Marine Information and Research Centre (NatMIRC), a partner in the program.

**Action: None. Funding for this activity is provided by a grant from the Agouron Institute to SCOR.**

## **6.0 RELATIONS WITH INTERGOVERNMENTAL ORGANIZATIONS**

### **6.1 Intergovernmental Oceanographic Commission (IOC), p. 6-1**

**Sicre, Arico**

SCOR continues to co-sponsor several activities with IOC, including IOCCP (see item 4.1), the GlobalHAB project (see item 4.4), and the Second International Indian Ocean Expedition (see item 3.5).

**Actions: None**

### **6.2 Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), p. 6-1**

**Urban**

SCOR has funded GESAMP Working Group 38 on Atmospheric Input of Chemicals to the Ocean through grants from the U.S. National Science Foundation. From 27 February to 2 March 2017, two workshops took place at the University of East Anglia (UEA), Norwich, United Kingdom under the auspices of Working Group 38 and sponsored by WMO, NSF, SCOR, SOLAS, and UEA. These workshops focussed on the changes in the acid/base balance of the atmosphere and ocean, and their impacts on air-sea exchange. Workshop 1 focussed on Changing Atmospheric Acidity and its Impacts on the Oceanic Solubility of Nutrients and Workshop 2 focussed on The Impact of Ocean Acidification on Fluxes of Non-CO<sub>2</sub> Climate-Active Species. As many as 12 peer-reviewed publications may result from these workshops.

**Action: None. Funding for this activity is provided by an NSF grant to SCOR.**

### **6.3 North Pacific Marine Science Organization (PICES), p. 6-15**

**Sun**

PICES plays an important role in bringing a North Pacific perspective to the global activities of SCOR. By participating in and implementing these activities in the region, PICES can advance its own scientific agenda. Ed Urban represented SCOR at the 25<sup>th</sup> PICES anniversary meeting in November 2016. SCOR provided travel support for developing country scientists to attend PICES-related meetings in the past year and PICES has provided support for people from PICES nations to attend the activities of SCOR projects. PICES supports the participation of one Associate Member of WG 149. Of particular note is the participation of PICES in implementing the SCOR-IOC GlobalHAB project, and cooperation with IOCCP and with the IMBeR ESSAS activity and with IMBeR more broadly.

**Actions: None**



## **7.0 RELATIONS WITH NON-GOVERNMENTAL ORGANIZATIONS**

### **7.1 International Council for Science**

*Sicre*

ICSU reviewed SCOR and SCAR in 2015 and 2016. The SCOR Executive Committee drafted a response to the review, including implementing actions related to the recommendations, and gave an opportunity for national SCOR committees to respond to the draft response. The final response was sent to ICSU on 4 May 2017. The SCOR Executive Committee will meet in closed session on 3 September 2017, immediately before the SCOR annual meeting, to discuss progress on the actions that are underway to respond to recommendations from the ICSU Review Panel.

**Actions: Discuss SCOR actions to respond to ICSU review.**

#### **7.1.1 World Climate Research Programme (WCRP), p. 7-1**

WCRP co-sponsors the SOLAS project. WCRP projects particularly related to SCOR interests include the CLIVAR project and the WCRP Grand Challenge on Regional Sea-Level Change and Coastal Impacts. SCOR is co-sponsoring and providing funding for the WCRP Polar Challenge (see <http://www.wcrp-climate.org/index.php/polarchallenge>) and provided travel support for a scientist from India to attend the WCRP/IOC Regional Sea Level Changes and Coastal Impacts in New York City in July 2017.

**Action: None**

#### **7.1.2 Scientific Committee on Antarctic Research (SCAR), p. 7-7**

*Brussaard*

SCOR cooperation with SCAR is particularly in relation to the Southern Ocean Observing System, but SCAR conducts several other activities that may interest SCOR (see SCAR report in Tab 7).

**Action: Discuss whether SCOR should offer to help with other SCAR activities.**

#### **7.1.3 Future Earth Initiative, p. 7-16**

*Sicre*

SCOR has been working with the Future Earth initiative in 2017 to help develop an Ocean Knowledge Action Network (KAN), in cooperation with the IMBeR and SOLAS projects.

**Action: None.**

## **7.2 Affiliated Organizations**

### **7.2.1 International Association for Biological Oceanography (IABO), p. 7-25**

*Miloslavich*

IABO has continued its work to coordinate the field of marine biodiversity research internationally, particularly through the series of World Conferences on Marine Biodiversity. The 4<sup>th</sup> World Conference on Marine Biodiversity (WCMB) will be held in Montreal, Canada on May 13-16, 2018 (see <http://www.wcmb2018.org>). The next IABO General Assembly will be held in conjunction with the WCMB. IABO has established an international award, in recognition of Carlo Heip's leadership in marine biodiversity research and founding of the World Conference on Marine Biodiversity, the Carlo Heip International Award for outstanding accomplishments in marine biodiversity science. The award will recognize an individual who has demonstrated exemplary leadership in marine biodiversity science. IABO invites SCOR members to encourage their scientists to nominate people for this new award.

**Action: Identify areas of future cooperation with IABO and consider scientists to nominate for the Carlo Heip International Award.**

**7.2.2 International Association for Meteorology and Atmospheric Sciences (IAMAS), p. 7-28**

*Turner*

The international Commission on Atmospheric Chemistry and Global Pollution (iCACGP) of IAMAS co-sponsors SOLAS. iCACGP is one of 10 IAMAS commissions that form the core of IAMAS activities. The IAMAS Bureau and Executive have been heavily involved in the planning of the joint IAPSO-IAMAS-IAGA assembly, which will be held in Cape Town, South Africa on 27 August–1 September 2017, just before the SCOR annual meeting.

**Actions: Identify future areas of cooperation with IAMAS.**

**7.2.3 International Association for the Physical Sciences of the Oceans (IAPSO), p. 7-31**

*Smythe-Wright*

SCOR and IAPSO have co-sponsored many working groups in the past, and are discussing IAPSO co-sponsorship of new SCOR working groups. The two organizations currently co-sponsor the Joint Subcommittee on Seawater (see item 4.3).

**Action: Identify future areas for SCOR cooperation with IAPSO.**

**7.3 Affiliated Programs**

**7.3.1 InterRidge - International, Interdisciplinary Ridge Studies, p. 7-37** *Dyment, Devey*

InterRidge has been a long-time affiliated program of SCOR, and the two organizations are co-sponsoring WG 135 on Hydrothermal Energy Transfer and its Impact on the Ocean Carbon Cycles. The InterRidge IPO moved to a new location in Toulouse, France this year.

**Action: None**

**7.3.2 International Ocean Colour Coordinating Group (IOCCG), p. 7-43** *Bernard, Sun*

SCOR co-sponsors various IOCCG activities through support from the U.S. National Aeronautics and Space Administration. Currently, the SCOR/IOC GEOHAB project and IOCCG are co-sponsoring a project on applications of remote sensing to detect harmful algal blooms. SCOR provided support for developing country scientists to participate in the 2016 IOCCG Summer School. The third International Ocean Colour Science (IOCS) meeting, convened by the IOCCG in partnership with EUMETSAT, ESA, the European Commission and likely NASA, took place from 15 to 19 May 2017, in Lisbon, Portugal.

**Action: None.**

**7.3.3 Global Alliance of CPR Surveys (GACS), p. 7-49**

*Burkill*

GACS continues work toward fulfilling its goals of providing a global network of Continuous Plankton Recorder surveys and has achieved some success in helping establish new CPR surveys and providing training for people responsible for these new surveys. The latest Global Status report was released in June 2016, available electronically at

<https://www.sahfos.ac.uk/publications/scientific-reports/ecostatus-reports/>.

**Action: None**

## 7.4 Other Organizations

### 7.4.1 Partnership for Observation of the Global Oceans (POGO), p. 7-51 *Shapovalov*

SCOR and POGO have many areas of mutual interest and have a good history of cooperation over the 17 years of POGO's existence. The two organizations have co-sponsored a fellowship program for ocean observations since 2001 and worked together to develop the International Quiet Ocean Experiment (see item 3.4). SCOR and POGO also work together in relation to global capacity building for ocean science, and their executive directors are currently working together on publications related to the organizations' capacity-building activities.

**Action: None**

## 8.1 Membership

*Urban*

### 8.1.1 National Committees, p. 8-1

*Report on Membership Changes since 2013 Executive Committee Meeting, p. 8-1*

*Member Nations and Nominated Members, p. 8-2*

*Membership in the Scientific Committee on Oceanic Research (SCOR), p. 8-3*

**Actions: None.**

## 8.2 Publications Arising from SCOR Activities, p. 8-5

*Urban*

SCOR projects and working groups have produced many publications in the past year. Several SCOR working groups have special issues or significant papers under development, which will appear in the next year.

**Action: None**

## 8.3 Finances, p. 8-5

*Finance Committee, Urban*

The SCOR Executive Committee approved a Finance Committee consisting of Annalisa Griffa (Italy), Sinjae Yoo (Korea), and Jing Zhang (Japan). This committee will conduct its work during the SCOR meeting and will report on (1) the 2016 Audit report, (2) recommendations related for revisions to the 2017 SCOR budget, (3) recommendations for the 2018 SCOR budget, and (4) recommendations for dues levels in 2019.

**Actions: Present (1) the 2016 Audit report, (2) recommendations related to revisions to the 2017 SCOR budget, (3) recommendations for the 2018 SCOR budget, and (4) recommendations for dues levels in 2019.**

## 9.0 SCOR-RELATED MEETINGS

### 9.1 SCOR Annual Meetings

#### 9.1.1 2017 Executive Committee Meeting, p. 9-1

*Sicre*

**Action: Thank hosts of the meetings**

#### 9.1.2 2018 General Meeting: Plymouth, UK, p. 9-1

*Burkill*

**9.1.3 2019 Executive Committee Meeting: Toyama, Japan, p. 9-1**

*Zhang*

**9.2 Locations of Past SCOR Annual Meetings, p. 9-1**

**9.3 SCOR-Related Meetings Since the 2016 SCOR Annual Meeting and Planned for the Future, p. 9-2**