International Council for Science
SCOR
Scientific Committee on Oceanic Research

# SCOR Newsletter

February 2016 • #31


*2016 SCOR Annual Meeting location at the Institute of Oceanology of the Polish Academy of Sciences in Sopot, Poland*

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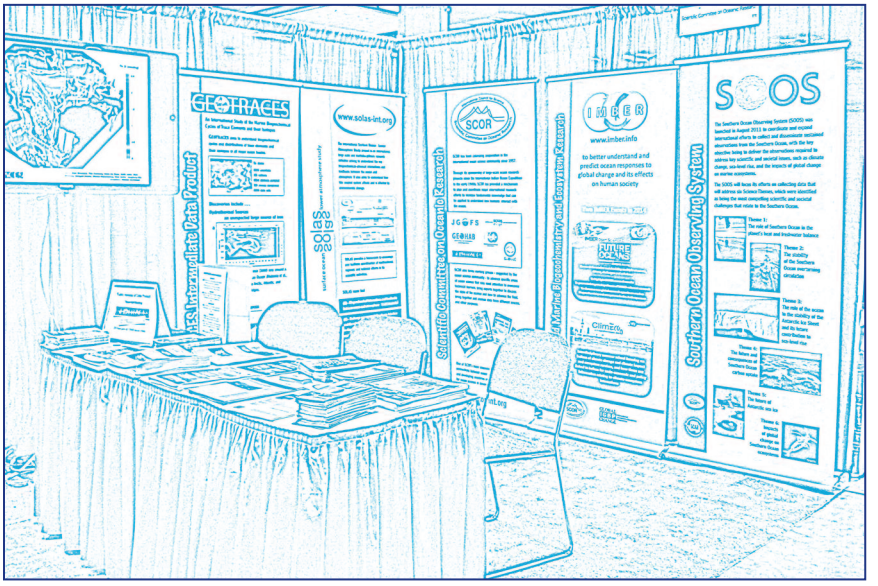
## Ocean Sciences 2016




### Come and see the SCOR Booth (#312) at Ocean Sciences 2016 in New Orleans, Lousiana, USA!

The booth will be open from 23 to 25 February 2016. It will feature banners from SCOR, GEOTRACES, IMBER, SOLAS, and SOOS, as well as a video display from SCOR-sponsored projects. Reports, newsletters, and brochures from SCOR and SCOR-sponsored projects will be available at the booth.

The biennial Ocean Sciences conferences provide an excellent meeting place for SCOR-sponsored research projects and working groups, and a great location to publicize the work being done by these groups. The Scientific Steering Committee of the Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project and the Scientific Steering Group of the International Ocean Carbon Coordination Project (IOCCP) will meet in conjunction with Ocean Sciences 2016. SCOR Working Group 141 on Sea-Surface Microlayers, SCOR Working Group 142 on Quality Control Procedures for Oxygen and Other Biogeochemical Sensors on Floats and Gliders, and SCOR Working Group 145 on Chemical Speciation Modelling in Seawater to Meet 21st Century Needs (MARCHEMSPEC) will also meet in New Orleans. In addition to these events, there will be three Town Hall sessions related to SCOR activities:

- 22 February (12:45-1:45 pm) – Toward a Standard, User-Friendly Chemical Speciation Model for Seawater and Estuarine Waters Town Hall (Convention Center Room 228-230) – WG 145
- 25 February (12:45 PM - 1:45 PM) – Launch of the Second International Indian Ocean Expedition (IIOE-2) Town Hall (Convention Center Room 225-227)
- 25 February (6:30 PM - 7:30 PM) – Opportunities to Strengthen Your Science (and Proposals) using GEOTRACES Data Town Hall (Convention Center Room 228-230)

Finally, SCOR WG 139 on Organic Ligands – A Key Control on Trace Metal Biogeochemistry in the Ocean and Working Group 145 on Chemical Speciation Modelling in Seawater to Meet 21st Century Needs (MARCHEMSPEC) will co-sponsor a session in Room 228-230 on 24 February.

*Participants at 2015 SCOR Annual Meeting at the National Institute of Oceanography in Goa, India*

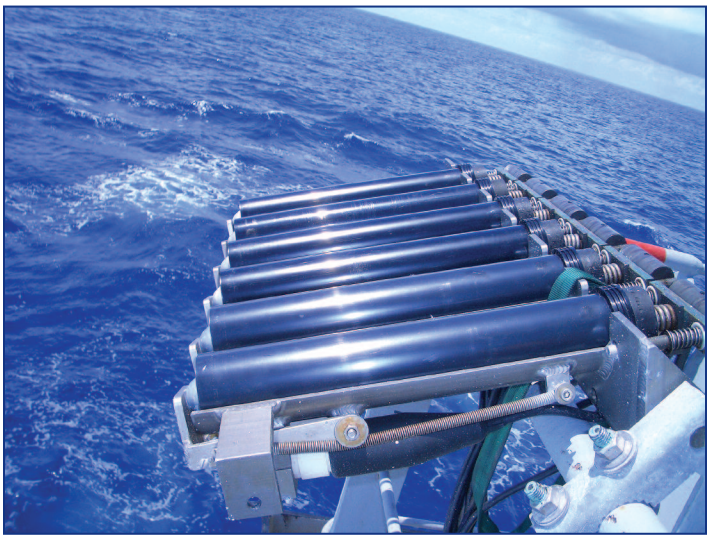
## News from SCOR Annual Meeting

The following three proposals were accepted to start in 2016, after a few modifications requested by SCOR in the group's membership and/or terms of reference. Information will be posted on the working group page (see http://www.scor-int.org/SCOR_WGs.htm) when the memberships and terms of reference have been finalized.

**WG 148 on International Quality Controlled Ocean Database: Subsurface temperature profiles (IQuOD)—** Ocean temperature observations are critical for a range of ocean and climate research activities, providing initial conditions for seasonal-to-decadal prediction systems, evaluating past variations in sea level and Earth's energy balance, ocean state estimation for studying variability and change, and climate model evaluation and development. The IQuOD initiative is a community effort to create the most globally complete temperature profile dataset, with comprehensive metadata and uncertainty information, to advance the above research avenues. In particular, IQuOD will facilitate improvements in bias corrections for XBT-based measurements by providing more complete metadata and uncertainty information.

The SCOR IQuOD working group will be co-chaired by Catia Domingues of the University of Tasmania and Matt Palmer of the UK Met Office. The group will develop, implement and document algorithms for assignment of "intelligent" metadata for temperature profiles where crucial metadata are missing. The group will evaluate and document the most effective combination of automated quality control procedures for temperature profile observations.

International collaboration will be required for the design and coordination of benchmarking experiments using high-quality reference datasets. The group will establish and implement a set of optimal automated quality control procedures, by developing international community consensus and using the knowledge gained in its benchmarking tests. A reference guide for best practices in automated quality control of ocean temperature profiles will be produced, as well as an open-source quality control software toolkit, to promote wide and rapid adoption of best practices by the oceanographic community. The group will examine and document the feasibility of machine learning and other novel computational methods for enhanced quality control, to potentially reduce labor costs associated with human expert quality control procedures. The IQuOD global temperature profile database and added-value products will be freely disseminated as they evolve over the next three years. The work of this group will complement the activities of the IQuOD group sponsored by the International Oceanographic Data and Information Exchange (IODE) of IOC/UNESCO.



*XBT autolauncher (from http://www-hrx.ucsd.edu/pics/Autolauncher.jpg)*

**WG 149 on Changing Ocean Biological Systems (COBS): How will biota respond to a changing ocean?—**Climate models all predict concurrent alterations to multiple oceanic properties, due to the effects of anthropogenic climate change. These projections are supported by a growing body of ocean observations that demonstrate simultaneous shifts in properties such as temperature, $CO_2$, $O_2$, and nutrients.

A major challenge is to determine the cumulative effects of such interactive and widespread alterations of oceanic conditions on organisms, communities, and ecosystems. Research must advance in parallel to tackle three major themes: (1) effects of multiple environmental drivers on the performance of individual organisms; (2) community and foodweb responses to complex ocean change; and (3) time scales of biological responses to climate change.

*GEOMAR Mesocosms in Spitzbergen (Photo: Maike Nicolai, GEOMAR; ttp://www.bioacid.de/upload/images/2010-06-02_Mesokosmen-Spitzbergen-1k_MaikeNicolai.jpg)*

This working group, chaired by Philip Boyd of the University of Tasmania, will assess how well research is moving from the effects of single drivers to multiple interacting drivers, from effects on single organisms to effects on ecosystems, and from studies of acclimation to studies of adaptation. The group will identify gaps in research that need to be addressed and will develop a multi-driver "Best Practice Guide" to help this research field move forward in a coordinated manner. The group will mentor early-career scientists in the design process for complex multiple-driver manipulation experiments, familiarize them with the Best Practice Guide, and teach them practical methodologies for the analysis of their experimental findings. The group will build an interactive Web site on multiple drivers and marine biota to increase cooperation within this international research community, and to provide educational information at a variety of levels.

**WG 150 on Translation of Optical Measurements into particle Content, Aggregation & Transfer (TOMCAT)—**Sinking particles transport organic carbon to the deep sea. The magnitude of particle export and the rate at which particles are consumed determine carbon sequestration in the ocean, and directly influence atmospheric carbon dioxide concentrations and global climate. While technologies to image particles have advanced greatly during the past two decades, techniques to analyze the immense datasets have not. One short-coming is the translation of optical particle properties (e.g., the image) into particle characteristics such as carbon content and sinking speed.

This working group will be chaired by Sarah Giering of the UK National Oceanography Centre. The group will compare devices that optically measure particles and will document the advantages and disadvantages of each device and any issues related to intercalibration, define key parameters to use for interpretation of the optical information, and decide which measurements are most important for characterizing particle export. The group will improve techniques and algorithms for the conversion of optical observations into fluxes. It will recommend how to best analyze increasingly larger data sets and develop software examples and codes, placed on a public repository. The group will deposit optical particle data in an internationally recognized database to which new data can be added as they become available, and will advise on future methods to maximize data collection and interpretation.

## News from SCOR Working Groups

**SCOR WG 146 on Radioactivity in the Ocean, 5 decades later (RiO5)** is planning its 2016 meeting and a training workshop in conjunction with World Ocean Day (June 8) at Xiamen University (China).

**SCOR WG 147; Towards comparability of global oceanic nutrient data (COMPONUT)** is in the process of producing certified reference materials (CRMs) for nutrients in seawater. The group received 74 replies from 29 countries to a questionnaire distributed by SCOR, documenting a need for almost 3,000 bottles per year of the CRMs. The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) is assisting in production of the CRMs.

## News from Large-Scale Ocean Projects

**The International Quiet Ocean Experiment (IQOE)** recently launched its Web site (see www.iqoe.org), including information about the IQOE Science Committee membership and terms of reference, IQOE products, and links to related activities and to a database of literature about sound in the ocean and its effects on marine organisms. The IQOE Science Committee is chaired by George Frisk (USA) and Peter Tyack (UK), and will meet for the first time in London (UK) on 29-31 March 2016. Project participants are already working on activities to make acoustic observations collected in the past more available, and to create linkages between IQOE and other organizations and projects with common interests.

**The Second International Indian Ocean Expedition (IIOE-2)** was launched on 4 December 2015, at the conclusion of the

Indian Ocean Symposium in Goa, India. The first cruise of the IIOE-2, on the ORV *Sagar Nidhi*, left Goa for Mauritius on 4 December.

The IIOE-2 Science Plan and Implementation Strategy were released on 4 December. A Web site was also launched on that day, at http://www.iioe-2.incois.gov.in/IIOE-2/index.jsp.

An IIOE-2 Joint Project Office has been formed, consisting of nodes in Perth, Australia and Hyderabad, India. The IIOE-2 co-sponsors—SCOR, IOC, and IOGOOS—are beginning implementation of the project and selection of the chairs of project working groups and science themes.

The new **GlobalHAB** Scientific Steering Committee (SSC) will meet for the first time in Oban, Scotland on 8-10 March 2016. The SSC will use the meeting to draft an implementation plan for the project with 3-year and 10-year horizons, and to draft an addendum to the GEOHAB Science Plan, which will continue to form a foundation for the GlobalHAB project.

## Capacity Building

The SCOR Committee on Capacity Building has approved SCOR travel support for developing country scientists to attend meetings related to ocean acidification, zooplankton population dynamics, physical oceanography, ocean global change biology, remote sensing of ocean color, radioisotopes, paleoceanography, the ocean's role in climate, and fisheries. SCOR will also help support training workshops convened by SCOR WG 144 on Microbial Community Responses to Ocean Deoxygenation in India, SCOR 146 on Radioactivity in the Ocean, 5 decades later (RiO5) in China, and SCOR WG 147: Towards comparability of global oceanic nutrient data (COMPONUT) in The Netherlands.

Three individuals have been selected as SCOR Visiting Scholars for the year 2016:

- Baban Ingole from NIO, India will teach biological oceanography at the University of Dhaka.
- Jacob Larsen from the University of Copenhagen will teach a course on harmful algal species at Namibia's Ministry of Fisheries & Marine Resources (NATMIRC) in Swakopmund.
- Jorge Santos from the Norwegian College of Fishery Sciences will work with students and scientists at the Oceanographic Research Institute in Durban, South Africa and other nations in the region on fishery topics.

Congratulations to these three new SCOR Visiting Scholars!

## Publications

The Joint Committee on the Properties of Seawater (IAPSO/SCOR/IAPWS) published 4 review articles in Volume 53, Number 1 of the journal *Metrologia* (see http://iopscience.iop.org/0026-1394/53/1).

A paper resulted from the work of SCOR WG 138 on Modern Planktic Foraminifera and Ocean Changes: Jonkers L., and M. Kucera. 2015. Global analysis of seasonality in the shell flux of extant planktonic Foraminifera. *Biogeosciences* 12:2207–2226

## Future SCOR Annual Meetings

2016—SCOR will hold its 2016 General Meeting in Sopot, Poland on 5-7 September, at the Institute of Oceanology of the Polish Academy of Sciences.

**The SCOR Executive Committee is accepting invitations from national SCOR committees to host the 2017 SCOR annual meeting.**

**For additional information about SCOR activities, please see the SCOR Web site:** http://www.scor-int.org. To reach Secretariat staff, please send an email to Ed Urban (Ed.Urban@scor-int.org).

## ACRONYMS

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| GOOS | Global Ocean Observing System |
| IAPSO | International Association for the Physical Sciences of the Ocean |
| iCACGP | Commission on Atmospheric Chemistry and Global Pollution |
| IGBP | International Geosphere-Biosphere Programme |
| IIOE-2 | International Indian Ocean Expedition (SCOR, IOC, and Indian Ocean GOOS) |
| IMBER | Integrated Marine Biogeochemistry and Ecosystem Research project (co-sponsored by SCOR and Future Earth) |
| IOC | Intergovernmental Oceanographic Commission |
| IOCCP | International Ocean Carbon Coordination Project |
| IQOE | International Quiet Ocean Experiment (SCOR and POGO) |
| POGO | Partnership for Observation of the Global Oceans |
| SCAR | Scientific Committee on Antarctic Research |
| SCOR | Scientific Committee on Oceanic Research |
| SOLAS | Surface Ocean – Lower Atmosphere Study (Co-sponsored by SCOR, Future Earth, WCRP, and iCACGP) |
| SOOS | Southern Ocean Observing System (SCOR and SCAR) |
| WCRP | World Climate Research Programme |
| WG | working group |