



Canadian National Committee for SCOR  
Comité national canadien pour SCOR

# Scientific Committee on Oceanic Research

<http://www.scor-int.org/>

Highlights of the 29th General Meeting  
Woods Hole Oceanographic Institution  
Woods Hole, Massachusetts, USA  
22-24 October 2008

(The full report will as usual be produced by the SCOR secretariat and distributed to national SCOR committees when ready.)

The Canadian National Committee for SCOR was represented at the meeting by Professor Bjorn Sundby, President of SCOR International. Also present from Canada were Professor Lawrence Mysak, President of IAPSO and member of the SCOR executive, and Dr. Ian Perry, Chair of GLOBEC.

## **LARGE-SCALE SCIENTIFIC PROGRAMS**

### **1.1 SCOR/IGBP/IOC Global Ocean Ecosystems Dynamics (GLOBEC).**

The activities of GLOBEC will end in 2009. An IMBER/GLOBEC Transition Task Team has been established to identify GLOBEC activities that may be continued by IMBER. Presently, GLOBEC and IMBER are working together on an end-to-end food web project. GLOBEC will hold its final open science meeting in Victoria, BC, in June 2009.

### **1.2 SCOR/IGBP Integrated Marine Biogeochemistry and Ecosystem Research (IMBER)**

IMBER held a joint open science meeting with LOICZ on coastal margin science in Shanghai, China in September 2007, and is producing an implementation plan for cooperative science in coastal areas. IMBER has received commitments for funding its international project office through 2011. IMBER held an open science meeting (Imbizo) in Miami in December 2008.

### **1.3 SCOR/IOC Global Ecology and Oceanography of Harmful Algal Blooms (GEOHAB)**

GEOHAB continues to develop its Core Research Projects (CRPs). The research plan for harmful algal blooms in stratified systems is in press, and a new Asian GEOHAB activity is under development, and a second meeting was held in Vietnam in January 2008. A modeling workshop is planned for June 2009 in Galway, Ireland. The workshop will be open, and some funding is available for students. GEOHAB still needs to establish an International Program Office.

### **1.4 SCOR International study of Marine Biogeochemical Cycles of Trace Elements and their Isotopes (GEOTRACES)**

GEOTRACES has conducted cruises in the Arctic and the Southern Ocean as part of IPY. An international GEOTRACES Data Management Office has been set up at the British Oceanographic Data Centre (BODC) in Liverpool, UK, and a full-time data liaison officer has been hired. The U.S. National Science Foundation, BODC, and the UK Natural Environment Research Council are co-funding the position. NSF and several European sources are also co-funding the first full-time position for a GEOTRACES International Project Office in Toulouse, France.

**1.5 SCOR/IGBP/WCRP/CACGP Surface Ocean-Lower Atmosphere Study (SOLAS)** will hold its third open science meeting in Barcelona, Spain, in 2009, and a fourth summer school, also in 2009. SOLAS and IMBER have created a cooperative research activity on ocean carbon and have a joint working group to guide the activity and to interact with IOCCP. Professor Doug Wallace (Germany) is the new chair of SOLAS.

## **2. WORKING GROUPS**

### **2.1 GETTING MORE VALUE FROM SCOR WORKING GROUPS**

John Compton (South Africa) introduced the question how SCOR could reach a greater audience and develop a broader interest in science and its societal relevance. Professor Compton proposed that SCOR ask each working group to produce a brief document about their work that could be used to convey the excitement of science to educated non-scientists. Such documents could also become valuable teaching tools. The suggestion stimulated a discussion during which numerous ideas were put forward. An ad hoc group of interested members discussed the ideas and delivered a report to the meeting the following day that will be used to move the subject forward. A copy of the report will be made available to interested parties on the SCOR web site.

### **2.2 DISBANDED WORKING GROUPS**

#### **2.2.1 WG 78 Determination of Photosynthetic Pigments in Seawater**

Chapters of the book are still being completed and a suitable non-profit publisher is still being

sought. So far, Cambridge University Press and Island Press have declined to publish the book. Other non-profit publishers are being considered.

### **2.2.2 SCOR/IOC WG 119 Quantitative Ecosystems Indicators for Fisheries Management**

Registration fees from a WG 119 symposium were used for a workshop on “Coping with global change in marine social-ecological systems” that was held in Rome in June 2008. The workshop brought together natural and social scientists and the participants found the workshop valuable enough that other such events should be planned in the futures.

## **2.3 CURRENT WORKING GROUPS**

### **2.3.1 WG 111 Coupling Winds, Waves and Currents in Coastal Models**

This group has been around for a while, but it seems now to be on track to complete its book early in 2009. The book is entitled *Coupled Coastal Wind-Wave-Current Dynamics* and will be published by Cambridge University Press

### **2.3.2 WG 115 Standards for the Survey and Analysis of Plankton**

The group planned a series of papers for a special issue of the *Journal of the Marine Biological Association of the U.K.*, but, only one of the papers was completed as planned and the timeline has slipped. The meeting decided that the group be disbanded without insisting on a product.

### **2.3.3 SCOR/LOICZ/IAPSO WG 122 Estuarine Sediment Dynamics**

The group has held its final meeting and expects to publish its findings in a special issue to *Coastal and Estuarine Science* in 2009.

### **2.3.4 SCOR/IMAGES WG 124 Analyzing the Links Between Present Oceanic Processes and Paleo-records (LINKS)**

The group held its final meeting in 2006 and is preparing a series of manuscripts that target understanding how changes in ocean productivity are connected with the signal recorded at the seafloor. The group was given one more year but no new funding to finish their terms of reference.

### **2.3.5 WG 125 Global Comparisons of Zooplankton Time Series**

The group held its final meeting in 2008 and will publish a series of papers in a special issue of *Progress in Oceanography* to appear in 2009. The NOAA National Marine Fisheries Service has committed funds to bring more participants (and data) into the process.

### **2.3.6 WG 126 Role of Viruses in Marine Ecosystems**

This group had a very productive meeting in 2007 that lead to a multi-lab comparison of techniques, including counting, virus production, and molecular tools. The group’s forthcoming book, tentatively entitled *Methods in Aquatic Viral Ecology*, is expected to be ready for publication in 2009. The group and a related group from EuroOCEANS published a perspective for *Nature Reviews Microbiology*. A final meeting will be held in 2009.

### **2.3.7 SCOR/IAPSO WG 127 on Thermodynamics and Equation of State of Seawater**

The group has met with the International Association of the properties of water and seawater, the “Saline Gibbs Function” has the blessing of the International Association of the Properties of Water and Steam, and 12 papers have been published. The group is seeking endorsement of their work by asking IOC to recommend the adoption of the new international equation of state of seawater. IOC is interested since they were involved in endorsing the first equation of state. The work still to be done will require another two years, although no additional meetings will be needed.

### **2.3.8 WG 128 on Natural and Human-Induced Hypoxia and Consequences for Coastal Areas**

This group, which started in 2005, has been very active and successful and is now preparing for their special issue, potentially for *Biogeosciences*. The group has not spent all of its budget and the meeting agreed to allow them to use some or all of their remaining funds towards publication costs.

### **2.3.9 SCOR/IAPSO WG 129 on Deep Ocean Exchanges with the Shelf**

The initiative to form this group stems from the IUGG meeting in Perugia in 2006. The group convened a workshop in Cape Town, South Africa on 6-8 October supported by the U.S. Office of Naval Research, IUGG, SCOR, and IAPSO. Papers from the workshop will be published in *Ocean Science*. The group’s next meeting will be held in conjunction with the IAPSO meeting in Montreal, mid 2009.

### **2.3.10 SCOR WG 130 on Automatic Plankton Visual Identification**

This group is using open source software for automatic plankton identification. The group met for the second time on 6-9 May in São Paulo, Brazil, with most of the meeting expenses funded by Petrobras.

### **2.3.11 SCOR WG 131 on The Legacy of in situ Iron Enrichment: Data Compilation and Modeling**

The working group has made good progress in compiling data from past iron-enrichment experiments, but the work of bringing the data into an open access database is not yet completed.

The group has requested additional funding for a post-doctoral fellow to work with the data center, as well as funding for a workshop on modeling the enrichment experiments. SCOR decided to continue to support the development of the database for one more year, but not to provide support for a meeting until this has been accomplished.

### **2.3.12 SCOR/LOICZ WG 132 on Land-based Nutrient Pollution and the Relationship to Harmful Algal Blooms in Coastal Marine Systems**

This working group, which started its work in mid-2008, is co-funded by the Institute of Oceanology of the Chinese Academy of Sciences and by the Land-Ocean Interactions in the Coastal Zone project with a small contribution from SCOR. A second meeting will be held in

October 2009 in Beijing, China to coincide with the SCOR Executive Committee meeting and a GEOHAB open science meeting.

## **NEW WORKING GROUP PROPOSALS**

Seven new working group proposals were received by the SCOR Secretariat:

- 1. Evaluating the Ecological Status of the World's Fished Marine Ecosystems**
- 2. OceanScope**
- 3. Coral Triangle: The centre of maximum marine biodiversity**
- 4. Global Patterns of Phytoplankton Dynamics in Coastal Ecosystems: Comparative Analysis of Time-Series Observations**
- 5. Hydrothermal energy transfer and its impact on the ocean carbon cycles**
- 6. Coupled climate-to-fish models for understanding mechanisms underlying low-frequency fluctuations in small pelagic fish**
- 7. The Microbial Carbon Pump in the Ocean**

The following three new working groups were approved:

### **OceanScope Working Group (Thomas Rossby, USA, chair)**

This group will (1) address and prioritize the scientific challenges that can be best addressed by an integrated Volunteer Observing Ship (VOS) program, (2) outline and promote appropriate and necessary sensor, instrument and software development; (3) develop an institutional framework that enhances the links between the merchant marine and ocean observation communities including ongoing VOS programs, and (4) identify and develop an integrated framework for data management and distribution. The group will be co-funded by the International Association for the Physical Sciences of the Oceans.

### **Working Group on Hydrothermal Energy Transfer and its Impact on the Ocean Carbon Cycle (Chris German, USA and Nadine Le Bris, France, co-chairs)**

This group will synthesize existing knowledge of chemical substrates, mechanisms and rates of chemosynthetic carbon fixation at hydrothermal systems as well as the transfer of phytoplankton-limiting micronutrients from these systems to the open ocean. The group will integrate these findings into conceptual models of energy transfer and carbon cycling through hydrothermal systems, which would lead to an estimation of the contribution of primary production from these systems to the global ocean carbon cycle. Finally, the group will identify critical gaps in knowledge and propose a strategy for future field, laboratory, experimental and theoretical studies to bridge these gaps and better constrain the impact of deep-sea hydrothermal systems on ocean carbon cycles. The group will be co-sponsored by the InterRidge project.

### **Working Group on The Microbial Carbon Pump in the Ocean (Nianzhi Jiao, China, and Farooq Azam, USA, co-chairs)**

This group will summarize representative microbial data on biomass, production and diversity, as well as dissolved ocean carbon (DOC) data, along environmental gradients; establish the current state of knowledge; and identify essential scientific questions regarding the role of microbial processing in carbon cycling in the ocean. The group will also assess the available techniques for quantifying functional groups of prokaryotes and different types of DOC, document state-of-the-art techniques and parameters addressing microbial processing of organic carbon, and establish/standardize key protocols for the essential observation/measurements. The group plans to convene one or more international workshops and publish a special volume in an internationally recognized peer-reviewed journal or a protocol book (practical handbook) by a major publisher on measurements of the key parameters related to microbial processing of carbon in the ocean. The group's work will result in recommendations for future research related to the microbial carbon pump in the ocean, toward development of a large-scale interdisciplinary research project. The Chinese National Science Foundation and State Key Laboratory for Marine Environmental Science will provide partial support for the group.

## **THE OCEAN IN A HIGH CO<sub>2</sub> WORLD**

The Scientific Committee on Oceanic Research (SCOR) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO convened an open symposium on *The Ocean in a High-CO<sub>2</sub> World* on 10-12 May 2004 in Paris, France. The symposium addressed the biological and biogeochemical consequences of increasing atmospheric and oceanic CO<sub>2</sub> levels, and possible strategies for mitigating atmospheric increases. Topics ranged from ocean physics, to chemistry and biology, including the impacts of elevated CO<sub>2</sub> levels on marine life, the dissolution of calcium carbonate, and the impacts on coral reefs. Speakers also evaluated the possible benefits and impacts of surface fertilization and deep-ocean CO<sub>2</sub> injection strategies. Symposium participants did not address whether it would be a good policy choice to sequester carbon dioxide in the ocean, but did identify what scientific information is available, and what is still needed, to make informed policy decisions.

The symposium included plenary presentations, discussion sessions on research priorities, and a poster session. To highlight some of the significant results from the symposium, a subset of results will be published in a special section of the *Journal of Geophysical Research -Oceans*. The papers in this special section will contribute to the work of the Intergovernmental Panel on Climate Change (IPCC) and to its Special Report on Carbon Dioxide Capture and Storage. Research priorities identified at the symposium are published in a separate document for the benefit of ocean scientists and research program managers worldwide. IOC and SCOR are considering follow-up actions to the symposium, including recommendations to develop a Web-based information and communications service for scientists and the general public. For more information: <http://ioc.unesco.org/iocweb/co2panel/HighOceanCO2.htm>

## **SCOR'S 50<sup>TH</sup> ANNIVERSARY SYMPOSIUM**

The 50<sup>th</sup> anniversary, which preceded the General Meeting, was held in Woods Hole, Massachusetts, USA—the site of the first SCOR meeting—on 19-21 October 2008. This open

meeting was attended by about 125 scientists from around the world, including 27 young scientists selected by SCOR member nations. CNC/SCOR sponsored one young Canadian scientist (Rob Campbell) to attend the meeting. The young scientists presented posters to symposium participants and were hosted by the Woods Hole Oceanographic Institution (WHOI) to a special reception with WHOI post-docs. The directors of the Marine Biological Laboratory (Gary Borisy) and WHOI (Susan Avery), opened the symposium. Peter Liss then provided remarks from SCOR's parent, the International Council for Science, and Prof. Bjørn Sundby welcomed participants on behalf of SCOR. George Hemmen and Elizabeth Gross, the former SCOR Executive Secretary and Executive Director, respectively, reviewed the history of SCOR, to set the stage for the remainder of the symposium, which focused on future ocean science. Excellent keynote presentations were given by Andy Ridgwell, Chris Scholin, and Martin Visbeck. Bjorn Sundby gave the closing address on the future of SCOR.

Six SCOR Presidents participated in the symposium as did all three of the SCOR Executive Secretaries/Executive Directors. Sadly, one of the former SCOR Presidents, Warren Wooster, was not able to attend and died shortly after the symposium after a long illness.

## **SCOR FINANCES**

A 5% dues increase for 2009 was approved by the Executive Committee meeting in Bergen in 2007. On the recommendation of the Ad Hoc Finance Committee, the 2008 General Meeting approved a 5% dues increase for 2010.

The financial situation of SCOR is healthy. SCOR is well supported by the U.S. National Science Foundation (NSF) and other sources, but there is always a need to diversify the sources of funding. The SCOR administration is very "lean" compared to other ICSU organizations. Thus, SCOR has only one full-time and two part-time staff members: Ed Urban, Elizabeth Gross, and SCOR's new financial assistant, Lora Carter.

## **COMPOSITION OF THE SCOR EXECUTIVE COMMITTEE**

Professor Bjorn Sundby (Canada) stepped down as President of SCOR. As Past President, he remains member of the Executive Committee. Professor Wolfgang Fennel (Germany) was elected the new SCOR President, and Mary (Missy) Feeley (Vice-President, USA), and John Compton (Co-opted Member, South Africa) joined the executive committee. Three members rotated off at the end of the meeting: Victor Akulich (Vice-President, Russia), Robert Duce (Past President, USA), and Laurent Labeyrie (Co-opted Member, France).

## **FUTURE MEETINGS**

**2009**—The 2009 SCOR Executive Committee Meeting will be held in Beijing, China, on 20-22 October, in conjunction with an open science meeting of the GEOHAB Core Research Project on HABS in Eutrophied Systems and SCOR/LOICZ WG 132 on Land-based Nutrient Pollution and the Relationship to Harmful Algal Blooms in Coastal Marine Systems.

**2010**—SCOR has accepted an offer from the French SCOR Committee to hold the 2010 SCOR

General Meeting in Toulouse, France.

**2011**—The Finnish SCOR Committee has invited SCOR to hold its 2011 Executive Committee meeting in Finland.