

Annual Report for 2002 of the Scientific Committee on Oceanic Research (SCOR)

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INTRODUCTION

The Scientific Committee on Oceanic Research (SCOR) was created by ICSU in 1957 as the first of its interdisciplinary bodies. SCOR is charged with promoting international cooperation in ocean sciences, which it does primarily through two types of activities. First, the traditional mechanism by which SCOR has operated since its inception is the small, short-lived Working Group, formed to address specific ocean science topics. Second, SCOR has also taken the lead in planning longer-term, large-scale international research programs in ocean sciences designed to address issues of the role of the ocean in global climate change. SCOR promotes the development of the scientific knowledge of the ocean needed to allow humankind to develop sustainably. SCOR also serves as an official scientific advisor to the Intergovernmental Oceanographic Commission (IOC) of UNESCO. This advisory relationship takes the form of cooperative activities, as well as providing direct advice about IOC's structure and function. Working with IOC provides a ready audience for SCOR's policy-relevant products and a conduit of information to governments.

MEMBERSHIP

The members of SCOR are the "Committees for SCOR," which in 2002 existed in 38 countries. Ecuador joined SCOR in 2002. The SCOR Executive Committee is examining its dues structure and membership policies to determine whether any changes need to be made to accommodate developing nations. Each national SCOR Committee is permitted to nominate as many as three scientists to represent it in international SCOR; other individual members of SCOR include the chairs of all SCOR scientific subsidiary bodies and the representatives of other ICSU organizations.

VITAL STATISTICS

Reference to scientific meetings and publications will be found in the discussion of SCOR's scientific activities below. In summary, several scientific reports and issues of newsletters and articles resulted from SCOR activities during 2002. Meetings were held by six SCOR working groups; the JGOFS, GEOHAB, GLOBEC, and SOLAS Scientific Steering Committees (SSCs); the OCEANS Transition Team; and a number of JGOFS and GLOBEC subsidiary groups. These accounted for 30 meetings in 2002 supported fully or partially by SCOR. Approximately 210 scientists were full members of SCOR-sponsored groups at the end of 2002; 20% of these participants are from developing countries and countries with economies in transition. Another 100 scientists serve as Nominated Members to SCOR.

ORGANIZATIONAL MATTERS

Meetings: The XXVIth SCOR General Meeting took place in Sapporo, Japan in October 2002. All of SCOR's scientific activities were reviewed and plans for activities in 2003 were considered. Several working groups were disbanded, having completed their terms of reference, and one new working group was established. SCOR is in the process of decreasing the number of its active working groups, so that the smaller number of groups can meet on an annual basis and complete their terms of reference more quickly.

Finances: The Finance Committee reviewed the state of SCOR's finances and drafted a budget for 2003 activities, which was accepted by the SCOR Executive Committee. Increases in membership fees will, for the foreseeable future, be limited to the levels suggested by ICSU (a 1% increase from 2002 to 2003), except that the SCOR Executive Committee decided to continue to hold the dues of Category I and II nations at their 2001 levels, through 2004.

Secretariat: The SCOR Secretariat now operates with a full-time Executive Director and part-time Finance Officer. The full-time Administrative Officer position is being transformed to a part-time Administrative Assistant position.

ACTIVITIES UNDERTAKEN DURING 2002

Scientific Meetings: The traditional SCOR Working Group is a small (8-10 members), international group established to address a specific scientific problem that would benefit from international attention. Working Groups are expected to accomplish their objectives in four years or less. At the end of 2002, SCOR had 11 working groups (a decrease from 14 groups at the end of 2001), six of which met in 2002. The SSCs for five SCOR-sponsored global programs, and a number of their sub-groups, also held meetings during 2002. A few selected achievements of these groups in 2002 follow.

The SCOR Working Group on Coupling Waves, Currents, and Winds in Coastal Models held an editorial meeting in Goa, India to work on its book, which will be peer reviewed and is scheduled for publication in 2003. The Working Group on the Evolution of the Asian Monsoon in Marine Records held its final meeting in Aix-en-Provence, France to discuss Asian monsoons and global linkages on Milankovitch and sub-Milankovitch timescales. A special issue documenting the group's work has been accepted for publication in *Marine Geology*. The Working Group on Quantitative Ecosystem Indicators for Fisheries Management (joint with IOC) met in Cape Town, Africa to plan an international symposium to be held in Paris, France in April 2004. GLOBEC held its 2nd Open Science Meeting, in Qingdao, China in October, which provided an excellent opportunity for GLOBEC scientists to communicate their research results to the international GLOBEC community and to the Chinese scientific community. The Ocean Biogeochemistry and Ecosystems Analysis Transition Team (with IGBP) planned a major international Ocean Science Conference for Paris, France in January 2003, to gather input for its Science Plan/Implementation Strategy.

Education/Training Activities: SCOR's education and training activities are focused in the area of capacity building, as described below.

Activities Involving Developing Countries and Capacity-Building Initiatives: SCOR continued to offer travel awards to ocean scientists from developing countries and countries with economies in transition, as it has for the past 19 years. This program is supported through a grant from the

U.S. National Science Foundation and 59 scientists were awarded full or partial travel grants in 2002 to participate in major international ocean science meetings and training activities. The grant was renewed through June 2005. SCOR is also developing an activity on Regional Graduate Schools of Oceanography, which will foster the establishment of regional centers of excellence in oceanographic and marine environmental education in Southeast Asia, Latin America, Africa, and India. SCOR is cooperating with IOC and the Partnership for Observation of the Global Oceans (POGO) in a program of fellowships for developing nation scientists to visit developed nations for 1-3 months to learn techniques of ocean observations. The second group of fellowships was awarded in 2002. Finally, SCOR makes efforts to involve scientists from developing nations in all working groups and large projects. GLOBEC's Small Pelagic Fishes and Climate Change activity has been particularly active in involving scientists from developing nations. SCOR also provides free copies of reports from SCOR working groups to approximately 40 libraries in 30 developing nations.

Joint Activities With Other ICSU Members: SCOR cooperates with IGBP on a number of different research projects and planning activities related to global change, as described elsewhere in this report. In addition to the major ocean research projects co-sponsored with IGBP, SCOR has co-sponsored working groups with some of IGBP's other core projects, such as the Land-Ocean Interactions in the Coastal Zone (LOICZ) project and the marine component of the Past Global Changes project (IMAGES). SCOR also conducted cooperative work with the World Climate Research Programme (WCRP) and the International Union for Pure and Applied Chemistry (IUPAC) in 2002, and approved a joint working group with IUGG's International Association for the Physical Sciences of the Ocean (IAPSO). SCOR, IOC, and the Scientific Committee on Problems of the Environment (SCOPE) provided scientific input to an assessment of the state of marine science and its applicability to sustainable development, published in 2002 and released at the World Summit on Sustainable Development. SCOR became a member of SCOPE in 2002.

Publications: Publications from SCOR activities in 2002 include

- Healy, T., Y. Wang, and J.-A. Healy (eds.). 2002. *Muddy Coasts of the World: Processes, Deposits and Function*. Elsevier Science Publishers.
- Sarinthein, M., and J.P. Kennett (eds.). 2002. Decadal-to-Millennial-Scale Climate Variability. *Quaternary Science Reviews* 21(10):1117-1280. – Special issue
- Field, J.G., G. Hempel, and C.P. Summerhayes. 2002. *Oceans 2020: Science, Trends, and the Challenge of Sustainability*. Island Press, Washington, D.C.

Special Projects and New Initiatives: SCOR develops new activities based on requests from the ocean science community, as conveyed through the SCOR Executive Committee, national SCOR committees, and sponsors. SCOR also seeks in each annual meeting to identify gaps in its portfolio of activities. SCOR has played a leading role in planning longer-term, large-scale research programs designed to study the role of the ocean in global change. For example, SCOR was instrumental in developing the international components of the Joint Global Ocean Flux Study (JGOFS) and the Global Ocean Ecosystem Dynamics (GLOBEC) project. Both of these major projects are now guided cooperatively by SCOR and IGBP. Likewise, SCOR is cooperating with IOC in the Global Ecology and Oceanography of Harmful Algal Blooms

(GEOHAB) project, which has developed a science plan for global research on the causes of harmful algal blooms and will publish an Implementation Plan in 2003.

IGBP's Phase II will be implemented in 2003. IGBP II will feature integrated projects of terrestrial, oceanic, and atmospheric research, as well as interface projects on land-atmosphere, ocean-atmosphere, and land-ocean interactions. Two of these new projects are being planned and implemented jointly between SCOR and IGBP:

Surface Ocean-Lower Atmosphere Study (SOLAS)—Processes at the ocean-atmosphere interface govern the transfer of chemical species, momentum, and energy between the ocean and atmosphere. Ignorance of the magnitude and temporal variability of such transfers hinder our ability to develop a predictive understanding of global change. SOLAS will focus on understanding biogeochemical and physical interactions of the uppermost layer of the ocean (0 – 200 m) and the portion of the atmosphere immediately above the ocean surface (to about 1 km). SOLAS will serve as IGBP II's ocean-atmosphere interface project. SOLAS convened a meeting of national representatives and other interested scientists in 2002, using funds from an ICSU grant and other sources (see below). WCRP and the Commission on Atmospheric Chemistry and Global Pollution of the International Association of Meteorology and Atmospheric Sciences also are involved in SOLAS.

Ocean Biogeochemistry and Ecosystems Analysis—SCOR and IGBP are cooperating to develop a new activity on ocean biogeochemistry and ecosystems. It will build on the results of JGOFS and other projects, integrate with ongoing projects (i.e., GLOBEC, SOLAS, and the Land-Ocean Interactions in the Coastal Zone project), and address new research questions that previously were not possible to study or were unrecognized. SCOR and IGBP will convene an Open Science Meeting in January 2003 using funds from an ICSU grant and other sources. Input from the working groups and plenary speakers, and comments from the Web, along with other material will be used by the Ocean Biogeochemistry and Ecosystems Analysis Transition Team to identify the key science themes and questions that will form the scientific focus of the new project. The final Science Plan and Implementation Strategy is expected to be completed by the end of 2003 for review by IGBP and SCOR.

SCOR is working with IGBP to develop a *Framework for Future Research of Global Change in the Ocean*, which will guide the integration of marine research in IGBP II.

Brief Report of Use of 2002 ICSU Grants: SCOR received two Category II grants from ICSU in 2002, in support of the two new international research projects described above: SOLAS (\$40,000) and the Ocean Biogeochemistry and Ecosystems Analysis project (\$50,000).

Surface Ocean – Lower Atmosphere Study (SOLAS): The \$40,000 ICSU grant in 2002 to SCOR, IGBP, and WCRP was used to convene a meeting of national SOLAS representatives, which was held at the Royal Netherlands Academy of Arts and Sciences, Amsterdam on 11-12 June 2002. The objective of the meeting was to provide the 19 national representatives with the opportunity to present the current status of national SOLAS activities in order to assist the SOLAS Scientific Steering Committee (SSC) in writing the SOLAS Implementation Strategy.

National representatives were present from Australia, Belgium, Brazil, Canada, Chile, China (Beijing), China (Taipei), France, Germany, Japan, Korea, The Netherlands, New Zealand, Norway, Russia, Spain, Sweden, the United Kingdom, and the United States. The SOLAS Editorial Committee met immediately before and after the meeting to work on the SOLAS Implementation Strategy, which will be published in 2003.

Ocean Biogeochemistry and Ecosystems Analysis Project: The \$50,000 ICSU grant in 2002 to SCOR and IGBP will be used to partially fund the Ocean Biogeochemistry and Ecosystems Analysis Open Science Conference in Paris, France (7-10 January 2003). In particular, the funding will make it possible to broaden the participation of scientists from developing nations, women scientists, and social scientists. The conference will start with 15 plenary lectures, followed by working group discussions. In addition, two poster sessions will feature a total of 200 posters presented, the abstracts of which are available on the conference Web site. Approximately 370 participants from 36 countries have registered for the conference. In addition, the ICSU funds allowed a relatively low registration fee (US\$110), which will facilitate participation from a wide variety of self-funded individuals.

CONCLUSION AND FUTURE PLANS

The 36th SCOR Executive Committee Meeting will take place in Moscow, Russia on September 15-18, 2003.

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