

**CANADIAN OCEAN SCIENCE NEWSLETTER**

**LE BULLETIN CANADIEN DES SCIENCES DE L'OCÉAN**

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## OCEAN SCIENCE PROGRAMS

### New SCOR working Groups

At the recent SCOR General Meeting in Germany, participants approved three working groups for the first time since 2003. This was possible because of SCOR's good financial condition. Eight proposals were evaluated by national SCOR committees and discussed at the Bremen meeting. The working groups approved were the following.

#### *WG 145 on Chemical Speciation Modelling in Seawater to Meet 21st Century Needs (MARCHEMSPEC)*

This group will document the current status, and basis in laboratory measurements, of Pitzer models of seawater and estuarine water, focusing on the chemistry of ocean acidification and micronutrient trace metals. Current capabilities and limitations for oceanographic and biogeochemical calculations will be defined, and future needs established. Important gaps in knowledge, which should have high priority for new measurements, will be identified. The components to be covered will include the seawater electrolytes, selected trace metals, buffer solutions, and key organic ligands. The group will specify the functions and capability for a Web-based modelling tool that will make chemical speciation calculations easily accessible for a wide range of applications in oceanographic research and teaching, and thus improve understanding and spread best practices in modelling. The group will implement the Web-based tool for chemical speciation calculations. It will follow up some of the work of WG 139 on Organic Ligands – A Key Control on Trace Metal Biogeochemistry in the Ocean and will contribute to the SCOR GEOTRACES project. WG 145 is chaired by David Turner (Sweden), with Simon Clegg (UK) and Sylvia Sander (New Zealand) serving as vice-chairs. Prof. Turner co-chaired SCOR/IUPAC WG 109 on the Global Biogeochemistry of Seawater and Dr. Sander currently co-chairs SCOR WG 139.

#### *WG 146 on Radioactivity in the Ocean, 5 decades later (Ri05)*

This group will combine and build upon existing global and individual databases of natural and artificial radionuclide distributions to make a user-friendly and easily accessible

## CNC-SCOR

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The Canadian National Committee of the Scientific Committee for Oceanic Research (CNC-SCOR) fosters and facilitates international cooperation. It is a non-governmental body that reflects the multi-disciplinary nature of ocean science and marine technology.

Le Comité national canadien du Comité scientifique de la recherche océanographique (SCOR) favorise et facilite la coopération internationale. Il reflète la nature multidisciplinaire de la science océanique et de la technologie marine.

online product that will be useful to both the scientific community and the public. The group will summarize and publish review papers in peer-reviewed journals on these global radionuclide datasets and provide examples of how the datasets can help improve our understanding of ocean processes and contaminant fate and transport. The group will identify gaps in scientific knowledge in relation to radioactivity in the marine environment and publish the results in a “perspectives” paper. The group will bring together academic, nuclear industry, and national laboratory expertise for an international symposium on radionuclides in the ocean. A warehouse of educational materials will be produced to assist in the education and training of the next generation of marine radiochemists and radioecologists. Finally, the group will develop Web-based tools to enhance public understanding of radioactivity, in particular, in the ocean. The group is co-chaired by Ken Buesseler (USA) and Minhan Dai (China-Beijing). Dr. Buesseler chaired SCOR WG on Sediment Trap and <sup>234</sup>Th Methods for Carbon Export Flux Determination.

#### ***WG 147: Towards comparability of global oceanic nutrient data (COMPONUT)***

This group will establish mechanisms to ensure comparability of oceanic nutrient data. It will assess the homogeneity and stability of currently available reference materials (RMs) for nutrients. Standardized data-handling procedures will be developed, with common data vocabularies and formats, across producers and users, linking national and international data archives. The group will promote the wider global use of RMs by convening workshops to actively encourage their use and to provide training in analytical protocols and best practices, particularly targeted towards developing countries. The group will continue regular global inter-comparison studies, following on from the previous exercises in 2003, 2006, 2008 and 2012, with collaboration of the Scientific Steering Group of the International Ocean Carbon Coordination Project (IOCCP). The GO-SHIP nutrient measurement manual, which was originally a product of the IOC-ICES Study Group on Nutrient Standards, will be updated. The group is co-chaired by Michio Aoyama (Japan) and Malcolm Woodward (UK). The national review process and discussions at the annual SCOR meeting are intended to help ensure that working groups meet SCOR requirements for working group composition and that the terms of reference and products are relevant for a SCOR working group. The final memberships and terms of reference of these three groups will be given on a separate Web page for each group on the SCOR Web site, after changes requested by SCOR have been adopted.

#### **Updates from SCOR Working Groups**

**WG 141 on Sea-surface Microlayers** recently released its best practices manual for studying microlayers, entitled Guide to Best Practices to Study The Ocean’s Surface, edited by group co-chairs Michael Cunliffe (UK) and Oliver Wurl (Germany) ([click here for pdf file](#)). The most immediate purpose of the guide will be as a manual for a course at the Ocean University of China in conjunction with the group’s meeting there in October 2014.

**WG 144 on Microbial Community Responses to Ocean Deoxygenation** held a practical workshop at Saanich Inlet and at the University of British Columbia, Vancouver, BC. from 13 to 18 July 2014, attended by 6 Full Members and 14 additional student and technical participants. During the workshop, the group ground-truthed common standards for process rate and molecular microbial measurements and identified model ecosystems for future cross-scale comparative analyses, largely fulfilling the group’s terms of reference for year 1. After all the data products from the workshop have been completed, the group will compile a report documenting the workshop outcomes. The group has also constructed a Web site at <http://omz.microbiology.ubc.ca/index.html> to enhance the group’s visibility and the visibility of oxygen minimum zone research in general, as well as to

facilitate information sharing between working group members and other researchers working on oxygen minimum zones.

Information on other current SCOR Working Groups as well as a list of past Working Groups can be found on the SCOR web site ([click here](#)).

## MEETINGS

### 2015 CMOS Congress

The 49th CMOS Congress and 13th AMS Conference on Polar Meteorology will be held at the Whistler Conference Center, in Whistler, British Columbia, May 31 – June 4, 2015. The theme of this congress is TROPICS TO POLES: Advancing Science in High Latitudes. More detailed information will be posted as it becomes available on the Congress website at <http://www.cmos.ca/congress2015/index.html>

On-line abstract submissions will be accepted between December 15th and February 15th, 2015.

### Congrès CMOS 2015

Le 49e congrès de la SCMO et 13e conférence AMS sur la météorologie polaire et l'océanographie aura lieu du 31 mai au 4 juin 2015 au Centre de Conférence Whistler, à Whistler, en Colombie-Britannique. De plus amples renseignements seront publiés à mesure de leur disponibilité sur le site Web du congrès à [http://www.cmos.ca/congress2015/index\\_FR.html](http://www.cmos.ca/congress2015/index_FR.html)

La soumission en ligne des résumés se fera entre le 15 décembre 2014 et le 15 février 2015.

### SOLAS Open Science Conference, Kiel, Germany, 7-11 Sept 2015

The [Surface Ocean–Lower Atmosphere Study \(SOLAS\)](#) is an international and interdisciplinary research initiative that with its Open Science Conference offers the ideal programme for scientists who wish to learn about current research in the field of air-sea interactions and processes; to develop future research collaboration and to share their knowledge and to present their own findings by displaying a poster or giving an oral presentation.

Discussion session proposals & financial support applications may now be submitted for the SOLAS OSC 2015.

- [Discussion session proposal submission](#): Each participant of the conference may propose a discussion session for one of the afternoon session slots (8, 9 and 10 Sept). Each session will be 90 minutes long including a 15-minute (max) introduction. See the conference website for detailed instructions on [how to submit a proposal \(click here\)](#).
- [Financial support](#): Limited financial support will be available for early-career scientists from developing countries and countries with economies in transition to participate in the conference. See the conference website for further details and conditions ([click here](#)).

## Request for workshop topics for IMBER IMBIZO IV, 26-30 October 2015

IMBER (Integrated Marine Biogeochemistry and Ecosystem Research) will hold the fourth in its IMBIZO series at the International Centre for Theoretical Physics (ICTP) in Trieste, Italy, from 26-30 October 2015. (IMBIZO is a Zulu word meaning a 'meeting or gathering').

The Overall Theme of IMBIZO IV is Marine and human system - *Addressing multiple scales and multiple stressors*

### Summary

Marine ecosystems are amongst the most productive ecosystems in the world, providing benefits that humans depend on for survival, food, livelihoods and well-being. The interactions between humans and marine systems are complex, and are continually evolving as they mitigate and adapt to the cumulative effects of global change.

The multiple stressors and drivers of global change in the marine and human systems differ geographically, depending on whether they occur in coastal areas, the continental shelf, or the open ocean, and moreover, vary at temporal scales.

The challenge for ensuring sustainable governance of marine ecosystems and human societies in the future is the development of systems level understanding of the effects of global change at multiple scales. IMBIZO IV will explore the interactions of multiple drivers and stressors at different spatial and temporal scales. Of interest will be the global implications (and scaling up) of the responses of marine biogeochemistry, ecosystems, and social and governance structures observed at these different spatial and temporal scales.

### Meeting Format

IMBIZO IV will follow the format of three concurrent and interacting workshops, with joint plenary and poster sessions. This has proved to be an effective format for stimulating discussion between interdisciplinary experts and also to provide linkages between biogeochemistry, ecosystem and social science research. To facilitate effective discussion, each workshop will be limited to about 40 participants. The participants will be selected on the basis of their active interests in the topic. The aim is also to provide balance in scientific disciplines represented at the workshops as well as the geographic origin of the participants.

### Workshops

Each of the three workshops will include oral and poster presentations to showcase the current state of knowledge in marine and human systems and their governance. Discussion sessions will synthesize current knowledge and identify key questions to be addressed by the IMBER research community. It is expected that each workshop will produce a scientific product, for example a synthesis paper or special issue.

We invite members of the community to submit proposals for the topics of the three workshops. Please include a title, short description of the workshop topic, including key points that address the overall IMBIZO theme, and conveners for the workshop. The proposals will be reviewed by a selection committee and notifications of successful proposals will be sent by mid-December 2014.

Please send workshop proposals to Lisa Maddison ([lisa.maddison@imr.no](mailto:lisa.maddison@imr.no)) before **24 November 2014**.

## ***Species on the Move International Conference, Hobart, Tasmania, Australia, 9-12 February 2016***

Accelerating rates of change in the earth's climate system are resulting in a relatively rapid redistribution of the biological resources we are striving to manage. Scientists from a wide variety of fields are seeking to improve the realism, accuracy and precision of analyses and projections, related to climate mediated changes in species and ecosystems, to support robust decision making that will benefit the future of our planet. In focusing on all aspects of redistribution of global living resources this conference, [\*Species on the Move\*](#), hopes to foster the exchange of ideas, discussion of issues and collaboration across disciplines that will assist us to solve the big challenges that arise from 'species on the move'.

The conference is focussed on species range shifts, in all systems and climate zones, from physiology and genetics right through to socio-economic and cultural implications and possible management and adaptation responses. For more information on the conference, [click here](#).

*If you or your organisation/society would like to help shape this exciting conference, please contact Dr Gretta Pecl ([Gretta.Pecl@utas.edu.au](mailto:Gretta.Pecl@utas.edu.au)) or Professor Stephen Williams ([Stephen.Williams@jcu.edu.au](mailto:Stephen.Williams@jcu.edu.au)) for more information.*

Suggestions for theme areas, Steering Committee members, Theme Organisers, Session Chairs and Plenary Speakers are welcomed.

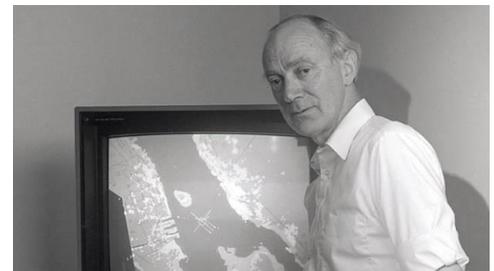
[Click here](#) to view the conference themes.

## **PERSONEL**

### **Richard Michael 'Mike' Eaton**

Richard Michael Eaton, widely recognized as the father of the electronic chart, passed away peacefully at his home in Cole Harbour, Nova Scotia, on Thursday, October 9, 2014.

Born in England 1928, he was educated in England and Scotland and joined the British Royal Navy in 1945. For seven of his 12 years in the Navy he did surveying for nautical charts in both home waters and around Zanzibar and Borneo.



In 1957 he left the Navy, immigrated to Canada and joined the Canadian Hydrographic Service in Ottawa. After two years surveying in Hudson Bay he spent five summers on the Arctic Ocean and Archipelago where he developed new methods for the first modern charting of those waters. For this work he was elected a fellow of the Arctic Institute of North America.

He collected some of the Inuit carvings that were just coming to the attention of the outside world. In 1963 he married Rosemary Gilliat, a well-known photographer. In 1965, they moved from Ottawa to a home in Nova Scotia overlooking their beloved Cole Harbour salt marsh.

Mike joined the Bedford Institute of Oceanography (BIO) in 1965 and earned a physics degree from Dalhousie University, graduating in 1970. Satellite navigation and computers were revolutionizing navigation at this time and Mike started a small 'Navigation Group' at BIO and contributed significantly to the development of the Loran-C navaid. He was awarded the Medal of Merit from the International Association in 1983, and the Canada Marine Safety Award from the Canadian Marine Advisory Council in 1988.

By the early 1980s Mike realized that the new Electronic Chart (EC) was a major breakthrough in navigation and he devoted the rest of his career to developing, promoting and advising on the installation of this system around the world. The EC displays a ship on a digital chart which is positioned by GPS and radar superimposed. He created an electronic chart test program, the results of which laid the foundation for the International Hydrographic Organization's 'Specifications for ECDIS', which in turn formed the basis for the UN International Maritime Organization's 'ECDIS Performance Standards'.

His commitment to this work and its contribution to improvements in shipping and safety earned him the Order of Canada. From 1989 until he retired 15 years later Mike was chairman and chief developer for the International Hydrographic Organization's working group on the design of ECDIS display, with the objective of ensuring the mariner sees a clear and uncluttered display of all the vital information needed for safe navigation.

## CANADIAN JOBS and TRAINING

No Canadian employment opportunities have been offered or located. You may find international oceanographic opportunities posted on the CMOS web site.

Looking for work? Try the CMOS site ([click](#))

Vous recherchez un emploi? Visitez le site SCMO ([click](#))

## GENERAL

### 2014 SCOR Meeting

SCOR held its XXXII General Meeting in Germany, at the Center for Marine Environmental Studies (MARUM) at the University of Bremen. Representatives of national SCOR committees reviewed all SCOR activities, approved new working groups, and were briefed on activities of partner organizations. The meeting was preceded by a meeting of the SCOR Committee on Capacity Building and followed by a day of presentations about ocean science in Germany and a tour of the MARUM laboratories.

### *Elections for SCOR Officers*

Four individuals took up new SCOR Officer positions at the end of the SCOR meeting. National SCOR committees elected Corina Brussaard, a Nominated Member from The Netherlands, as the new SCOR Secretary. Dr. Brussaard served for two years (2012-2014) as a SCOR Vice-President, and her term as SCOR Secretary will be from 2014 to 2018. Dr. Brussaard is a senior scientist at the Royal Netherlands Institute for Sea Research, where her research focuses on marine viral ecology. She was formerly a member of SCOR WG 126 on The Role of Viruses in Marine Ecosystems. Dr. Brussaard is chair of the Netherlands SCOR Committee.

Sergey Shapovalov is a Nominated Member from Russia and is a newly elected SCOR Vice-President, for a 2014-2016 term. Dr. Shapovalov is head of the Center for Coordination of Ocean Research in the P.P. Shirshov Institute of Oceanology of the Russian Academy of Sciences. His research interests primarily involve the physical processes of interaction at the air-sea and ocean-seafloor boundaries.

Sun Song is a Nominated Member from China (Beijing) and is a newly elected SCOR Vice-President, for a 2014-2016 term. He was a member of SCOR WG 118 on New Technologies for Observing Marine Life. Prof. Sun is Director of the Institute of Oceanology of the Chinese Academy of Sciences. His research interest is mainly in marine ecology, especially in the zooplankton population dynamics and ecosystem dynamics. Prof. Sun is the chair of the China-Beijing SCOR Committee.

Ilana Wainer is a Nominated Member from Brazil and is a newly elected SCOR Vice-President, for a 2014-2016 term. Dr. Wainer previously served as a SCOR Vice-President for one term (2010- 2012) and as a Co-opted Member of the SCOR Executive Committee. She is currently an Associate Professor in the Department of Physical Oceanography, at the University of Sao Paulo, Brazil. Dr. Wainer's research focuses on physical oceanography effects on climate and modeling these effects. Specifically, she has worked on modern and paleoclimate of the southeastern Brazilian shelf, Antarctic sea ice, effects of tropical variability on the North Atlantic Oscillation, and representation of Southern Ocean processes (subjection, glacial cycles, precipitation, ocean-atmosphere interactions) in global climate model. Dr. Wainer is chair of the Brazilian SCOR Committee.

John Turner has replaced Athena Coustenis as the ex-officio member from the International Association of Meteorology and Atmospheric Sciences (IAMAS). He is a research scientist at the British Antarctic Survey in Cambridge, UK where he leads a project investigating the climate of the Antarctic. Since 1986, Dr. Turner has investigated high-latitude precipitation, polar lows, teleconnections between the Antarctic and lower latitudes and weather forecasting in the Antarctic.

## **Large-Scale Ocean Research Projects**

### ***International Indian Ocean Expedition-2***

SCOR's preparations for the International Indian Ocean Expedition-2 continue. SCOR sponsored a meeting in Bremen, Germany on 12-13 September to review the draft science plan prepared by the SCOR Science Plan Development Committee (SPDC). The meeting finalized the 6 themes of the plan and core questions for each theme. The meeting also began compiling a list of research plans in the Indian Ocean during the period of the Expedition. This list will be available soon on the Web page of the SPDC ([click here](#)) and updated frequently, to stimulate coordination of research in the same area and/or on the same themes by scientists from different nations. The Intergovernmental Oceanographic Commission is forming an Interim Planning Committee (IPC) to prepare for discussions at the IOC General Assembly in June 2015. SCOR has nominated two individuals for the IPC.

### ***GEOTRACES***

The GEOTRACES Data Management Committee met in Stellenbosch, South Africa on 6-7 October, followed by a meeting of the GEOTRACES Scientific Steering Committee (SSC) on 8-10 October. The SSC reviewed national plans for GEOTRACES section cruises and process studies, and reviewed follow-up activities related to the first

GEOTRACES Intermediate Data Product (<http://www.geotraces.org/dp/idp2014>). GEOTRACES will hold meetings in 2015 to begin to synthesize knowledge of ocean cycling and fluxes of trace elements and isotopes.

### Call for Nominations – The Royal Canadian Geographical Society Massey Medal

Established in 1959 by the Massey Foundation, the Massey Medal is awarded annually by the Society. Its purpose is to recognize outstanding career achievement in the exploration, development or description of the geography of Canada. [Click here](#) for more information. The Committee will keep all nominations under consideration for a period of three years. Properly documented nominations received at the Society's office by close of business on **7 January 2015** will be considered in awarding medals. A list of past recipients is available [here \(click\)](#).



### Candidature à la Médaille Massey de la société géographique royale du Canada

Créée en 1959 par la Fondation Massey, la Médaille Massey est décernée chaque année par la Société. Elle vise à souligner des réalisations personnelles exceptionnelles dans les domaines de l'exploration, du développement ou de la description de la géographie du Canada. [Cliquer ici](#) pour en savoir davantage.

Le comité conserve toutes les mises en candidatures pendant trois ans. Les candidatures bien documentées reçues avant la fermeture des bureaux, le **7 janvier 2015**, seront étudiées en vue de l'attribution des médailles de l'année suivante. La liste complète des lauréats de la Médaille Massey depuis sa création en 1959 est disponible [ici \(cliquer\)](#).

### 2015 Northern Science Award

The Northern Science Award is presented annually to an individual or a group who have made a significant contribution to meritorious knowledge and understanding of the Canadian North and, in the spirit of the last IPY (2007-2008), will recognize the transformation of knowledge into action. The Centenary Medal created to commemorate the 100th Anniversary of the International Polar Year, 1882-1883, together with a prize of \$10,000, is presented as the Northern Science Award (NSA) annually by the Canadian Polar Commission to give prominence to the importance of scientific knowledge and its applications to Canada's North.

Anyone can make a nomination. More information is available at the Canadian Polar Commission web site ([click here](#)). The deadline for submission of nominations is **31 January 2015**.

### Prix de la recherche scientifique sur le Nord 2015

Le prix de la recherche scientifique sur le Nord est décerné chaque année à une personne ou à un groupe qui ont apporté une contribution importante à la connaissance et à la compréhension du Nord canadien et, dans l'esprit de la dernière API (2007-2008), il soulignera la transformation du savoir en action. Le Prix de la recherche scientifique



sur le Nord (PRSN) comprend la Médaille du Centenaire créée pour commémorer le 100e anniversaire de l'Année polaire internationale 1882-1883 et une bourse de 10 000\$, et est présenté annuellement par la Commission canadienne des affaires polaires pour faire ressortir l'importance de la connaissance scientifique et de ses applications au Nord canadien.

Tous peuvent présenter une candidature. Pour plus de détails visiter le site Web de la Commission canadienne des affaires polaires ([cliquer ici](#)). La date limite de présentation de candidatures est le **31 janvier 2015**.

### 2014 A. G. Huntsman Foundation Medal for Excellence in Marine Science

**Dr. Edward DeLong** of the University of Hawaii was awarded the 2014 A.G. Huntsman Foundation Medal for Excellence in Marine Science for his contributions to marine microbial genomics, biogeochemistry, ecology, and evolution. The award ceremony took place 13 November 2014 at the Bedford Institute of Oceanography in Dartmouth, Nova Scotia. Following the ceremony, Dr. DeLong presented a distinguished lecture entitled "Marine microbial community dynamics, activity & function: an "omics" perspective".



The **Royal Society of Canada** ([www.rsc.ca](http://www.rsc.ca)) presented the 2014 A.G. Huntsman Award to Dr. DeLong to recognize his research contributions to marine science, which have been transformational for the fields of marine microbial ecology and biogeochemistry. His pioneering research has led to several major scientific discoveries, each of which has spawned an entirely new sub-discipline of investigation. Dr. DeLong's leadership is his hallmark and an enduring legacy in marine sciences.

The **A.G. Huntsman Award** ([www.HuntsmanAward.org](http://www.HuntsmanAward.org)) was established by the Bedford Institute of Oceanography in 1980 to recognize excellence of research in, and outstanding contribution to, the marine sciences. The award honours those men and women, of any nationality, who have had, and continue to have, a significant influence on the course of marine scientific thought. The award was created to honour the memory of Archibald Gowanlock Huntsman (1883–1972), pioneer Canadian oceanographer and fishery biologist.

### 4th Intercalibration Exercise for Nutrients

IOCCP and Japan Agency for Marine-Earth Science and Technology (JAMSTEC) have invited more than 80 laboratories worldwide to participate in the 2014 inter-comparison study designed to test the global comparability of nutrient measurements and to promote the use of CRM of nutrients in seawater.

The oceanographic community has continued to improve comparability of nutrient data from the world's oceans in many ways, including through 3 international inter-laboratory comparison studies since 2003 and the development of nutrient reference materials (RMs). However, adequate comparability and traceability of nutrient data have not yet been achieved.

Certified reference materials, CRMs, of nutrients in seawater that cover wide range of nutrients concentration became available in 2014. IOCCP and JAMSTEC decided to continue and expand the intercomparison study using both RMs and newly arrived CRMs. Invited laboratories will confirm their participation by 30 November 2014 to allow for sample shipment by the end of the year. Reporting deadline for analyses' results was set to 28 February 2015 and we hope to be able to report integrated findings in mid-2015.

For more information visit our Nutrients page at <http://www.ioccp.org/nutrients>

### Call for 2015 SCOR Visiting Scholars

SCOR began a program in 2009 to enlist the services of ocean scientists from the SCOR community, from both developed countries and developing countries, to teach short courses and to provide more extended on-site education and mentorship at developing country institutions. This program is open to any scientists who have time available to spend teaching and mentoring in a developing country. The scholarships are not intended to conduct joint research, although such research may develop as an outcome of a visit.

Hosting visiting scientists can have many benefits to host institutions also, such as inspiring, motivating, and informing students and faculty, and leading to future collaborations between the visiting scientist and the host institution.

This program sends ocean scientists interested in short-term visits to developing countries. The program is a partnership, with the host institution providing local accommodation and SCOR paying for airfares and other local expenses, as necessary. The participating scientists donate their time. They may be onsite for as little as two weeks to as long as visa requirements allow. Applicants may already have selected a host institution or SCOR will help identify hosts.

Applications for the 2015 SCOR Visiting Scholars Program should be sent to [Ed.Urban@scor-int.org](mailto:Ed.Urban@scor-int.org) by **15 December 2014**.

[Click here](#) for more information.

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#### CANADIAN OCEAN SCIENCE NEWSLETTER LE BULLETIN CANADIEN DES SCIENCES DE L'OCÉAN

Previous newsletters may be found on the CNC/SCOR web site.

Newsletter #80 will be distributed in January 2015.  
Please send contributions to Michel Mitchell,  
[michel.mitchell@dfo-mpo.gc.ca](mailto:michel.mitchell@dfo-mpo.gc.ca)

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Les bulletins antérieurs se retrouvent sur le site web du CNC/SCOR.

Le Bulletin #80 sera distribué en janvier 2015.  
Veuillez faire parvenir vos contributions à Michel Mitchell,  
[michel.mitchell@dfo-mpo.gc.ca](mailto:michel.mitchell@dfo-mpo.gc.ca)

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