



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

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**Full-time Research Associate**

Centre for Earth Observation Science, University of Manitoba, <http://umanitoba.ca/ceos/>

The Centre for Earth Observation Science (CEOS) has an opening for a full time (contingent term) appointment at a 'Research Associate' level to work in climate forcing of sea ice dynamic and thermodynamic processes. Candidates with a background in remote sensing, numerical modelling field observations, and or statistical approaches to understanding sea ice processes are encouraged to apply. A Ph.D. or masters in meteorology, oceanography, physical geography or related field is desirable. Candidates should send a CV and letter of intent via email to Prof.

David Barber ([dbarber@cc.umanitoba.ca](mailto:dbarber@cc.umanitoba.ca)). Pay and benefits are competitive internationally and commensurate with qualifications. The University of Manitoba is an equal opportunity employer. Reviews will begin May 15 and continue until filled.

### **Malina (The Inuit Sun Goddess)**

Report by Alfonso Mucci, [alm@eps.mcgill.ca](mailto:alm@eps.mcgill.ca)

The Malina project is a French initiative coordinated by [Marcel Babin](#) from the Marine Optics and Remote Sensing team at Laboratoire d'Océanographie de Villefranche (LOV). It is funded by the Centre National de Recherche Scientifique (CNRS), Institut National des Sciences de l'Univers (INSU), Agence Nationale de la Recherche (ANR), Centre National d'Etudes Spatiales (CNES) and European Space Agency. [Simon Bélanger](#) of the Université du Québec à Rimouski (UQAR) will serve as the Canadian PI. His and other Canadian participations are funded by NSERC. Foreign participants include U.S. researchers funded through NSF and NASA.

Understanding how biodiversity and biogeochemical fluxes are controlled by light penetration in the ocean and how they are affected by ongoing climate change in the Arctic is the overall goal of the Malina project. The focus is on three processes - primary production, bacterial activity and organic matter photo-oxidation - that play a major role on the feedback of the organic/ inorganic carbon fluxes. Hence, the general objective is to determine the impact of climate change on the fate of terrestrial carbon exported from land to the Arctic Ocean, on photosynthetic production of organic carbon, and on microbial diversity.

The Malina project was launched in the Fall 2008 and will be active for the next four years, with activities concentrated in the southern Beaufort Sea and the adjacent to Mackenzie River shelf and delta. The field component of Malina will be undertaken in the area during the Summer/ early Fall of 2009 onboard the CCGS Amundsen icebreaker. The field program includes process studies and an intensive ocean optics program. In addition, paleoceanographic work relevant to the main objectives of the project will be conducted.

A detailed description of the specific objectives of the Malina program and other information (e.g., management, cruise track) can be found in the Malina website: [www.obs-vlfr.fr/Malina/index.html](http://www.obs-vlfr.fr/Malina/index.html)

### **CCGS Amundsen 2009 Expedition Plan**

Report by Alfonso Mucci, [alm@eps.mcgill.ca](mailto:alm@eps.mcgill.ca)

The icebreaker CCGS Amundsen, fresh out of dry dock for repairs, upgrades and scheduled inspections, after spending 15 consecutive months at sea in support of the Circumpolar Flaw Lead (CFL) program and various ArcticNet projects, is being readied for a 6.5 month trip back to the Arctic. The ship is scheduled to leave Quebec City on June 4, 2009 (Leg 1) and will enter the Arctic Ocean in early July through the Bering Strait after travelling through the Panama Canal and a short stopover in Victoria. Since many of the scheduled research activities must be conducted during the ice-free season in the Beaufort Sea, researchers could not wait for the opening of the Northwest Passage. The first scientific leg (Leg 2a) will be carried out between July 16th and 30th by ArcticNet researchers on the Mackenzie Shelf. Moorings will be installed,

and water column and sediment sampling will be carried out. The Malina project (see description above) will be conducted during Leg 2b between July 30<sup>th</sup> and August 27<sup>th</sup>. More than 50 stations will be visited during this leg over much of the southern Beaufort Sea. Researchers from the Canadian Arctic GEOTRACES program (described in an earlier CNC-SCOR Newsletter) will share the ship with their ArcticNet colleagues during Leg 3a (August 27 to September 12<sup>th</sup>). They will work along a single onshore-offshore transect (up to 9 stations) from the Mackenzie valley to the multi-year ice edge. ArcticNet studies initiated during Leg 2a will be completed during Leg 3b (September 12 to October 8) with moorings being serviced, piston coring and bottom mapping activities. ArcticNet researchers will then travels east for Leg 4 (October 8<sup>th</sup> to November 12<sup>th</sup>), servicing moorings in the southeastern Beaufort Sea and Amundsen Gulf, visiting stations along Coronation Gulf, Queen Maud Gulf, McClintock Channel, Parry Channel, Lancaster Sound, Baffin Bay and Davis Strait, as well as a number of inlets and fjords (Scott Inlet, Iqaluit, Nachvak Fjord, Saglek Fjord, Okak Fjord, Anaktalak Fjord) on its way back to Quebec City.

### **Concluding Activities of GLOBEC**

Report by Ian Perry, GLOBEC Chair, DFO, Pacific Biological Station, Nanaimo, BC  
[Ian.Perry@dfo-mpo.gc.ca](mailto:Ian.Perry@dfo-mpo.gc.ca)

The Global Ocean Ecosystem Dynamics (GLOBEC) program, a core program of IGBP, SCOR and IOC, will complete its more than 10 years of active research at the end of 2009. To present and celebrate the successes of GLOBEC, the program will host its 3<sup>rd</sup> (and final) Open Science Meeting in Victoria, BC, 22-26 June 2009. This short article outlines the events at this Open Science Meeting, describes the activities of GLOBEC to the completion of the program, and describes what will happen to GLOBEC research after the program has concluded.

### **Open Science Meeting**

The Open Science Meeting will culminate the integration and synthesis activities of GLOBEC by providing a new mechanistic understanding of the functioning of marine ecosystems towards developing a predictive capability and management framework for marine ecosystems in an era of global change. The three co-convenors are Ian Perry (Canada), Manuel Barange (UK), and Eileen Hofmann (USA). The conference will be structured around topical workshops/theme sessions and plenary sessions. Workshop topics include:

- Modelling ecosystems and ocean processes;
- Comparison of processes and climate impacts in sub-Arctic and Antarctic marine ecosystems;
- Worldwide large-scale fluctuations of sardine and anchovy;
- Krill biology and ecology in the world's oceans;
- Biogeochemistry of the oceans in a changing climate;
- Continuous plankton recorder surveys of the global ocean;
- Cod and climate change;
- Plankton phenology and life history in a changing climate;
- Climate impact on ecosystem dynamics of marginal and semi-enclosed seas: and
- Socio-economic dynamics and ecosystems, governance implication.

The three days of plenary sessions will focus on GLOBEC's achievements; ecosystem structure, function and forcing; ecosystem observation, modelling and prediction; ecosystem approaches to management; and Marine Science – into the future. These plenary sessions will feature both invited and contributed papers. The concluding session of “Into the Future” will feature retrospective and personal views from “insiders” and those more “external” to GLOBEC activities, as well as a “hand-off” of on-going GLOBEC work to IMBER, the Integrated Marine Biogeochemistry and Ecosystems Research program of IGBP and SCOR. Speakers in this session include Ken Denman (Canada), John Steele (USA) and Julie Hall (New Zealand). Social events include an opening reception at the BC Provincial Museum and a celebratory banquet, as well as an opportunity (provided by the University of Victoria) for tours to the Bamfield Marine Station. Details and registration information are available at the GLOBEC web site [www.globec.org](http://www.globec.org). The proceedings from the GLOBEC Open Science Meeting will be published in *Progress in Oceanography*.

### **Activities to the conclusion of GLOBEC**

Although this Open Science Meeting is a major milestone in the synthesis and integration of GLOBEC research, it is in itself not the conclusion of GLOBEC. The formal GLOBEC program will continue into early 2010 by wrapping up a number of on-going projects. These include development of a Summary for Policymakers, translating GLOBEC understanding of marine ecosystems in an era of change into issues of importance to policy and decision makers dealing with concerns for global (and local) ocean ecosystems. These include on-going collaborations with FAO on the impacts of global change on world fisheries and aquaculture. Concluding activities also include a ‘brochure’ style publication written in non-scientific language describing for the general public the new understanding of ocean systems in a world of global change (which includes climate change). There is also a new collaborative program between IMBER and GLOBEC which will study issues of global change in the Antarctic (ICED, Integrated Climate and Ecosystem Dynamics in the Southern Ocean) which builds upon the success of GLOBEC's Southern Ocean program. Two other programs of GLOBEC are expected to continue. These programs both started half-way through GLOBEC, and are anticipated to continue for another 5 years. They are the Ecosystem Studies of Sub-Arctic Seas (ESSAS) Program (which will hold its 2009 Annual Science Meeting in Seattle, WA, 17-20 June 2009 just prior to the GLOBEC OSM), and the Climate Impacts on Top Predators (CLIOTOP) Program. More information on these on-going programs is also available at the GLOBEC web site. In addition, three books plus several special journal issues synthesising GLOBEC findings are in preparation for publication. The books include “Climate Change and Small Pelagic Fish (edited by D. Checkley, J. Alheit, Y. Oozeki and C. Roy, published by Cambridge University Press in June 2009), “Marine Ecosystems and Global Change” (edited by M. Barange, J. Field, R. Harris, E. Hofmann, I. Perry and F. Werner, published by Oxford University Press in early 2010), and “Resilience of Fisheries Systems to Global Change: a social-ecological perspective” (edited by R. Ommer, I. Perry, P. Cury and K. Cochrane, published by Wiley-Blackwells in early 2010).

### **After GLOBEC**

Although GLOBEC will formally conclude as an IGBP, SCOR and IOC program at the end of 2009/early 2010, the advances of, and issues raised by, GLOBEC continue to be significant and important. Many of these issues will be taken on by IMBER as it revises its research plan for its next 5 years of activities. A Transition Task Team was formed by IGBP and SCOR, chaired by

John Field (South Africa) to identify scientific issues of importance for ocean science (including issues raised by GLOBEC) that IMBER should consider for its next phase of research. The report of this Transition Task Team is also available on the GLOBEC web site. It includes recommendation for the study of new and emerging issues not present at the start of GLOBEC or IMBER, development of regional and comparative programs, data management, and funding and implementation issues.

Throughout its more than 10 years of active study of marine ecosystem process and responses to global changes, GLOBEC has produced over 3200 publications (over 2700 of them refereed), 26 special journal issues (and still counting), and 5 books. In addition, it has contributed to new ideas and approaches for managing marine ecosystems, and to new and emerging science issues involving marine systems. Some researchers have expressed concern about what will happen to studies of marine ecosystems, in particular of the higher trophic levels, once GLOBEC is concluded. It is clear that, while GLOBEC has accomplished much, there is much that still remains to be studied. The GLOBEC legacy and issues will continue in IMBER, in the on-going Regional projects begun by GLOBEC, and in the scientific philosophy, approach, and methodologies that GLOBEC has advanced.

#### **Rob W. Macdonald, Chair of CNC/SCOR**



Rob Macdonald will become the Chair of the Canadian National Committee (CNC) of the Scientific Committee on Oceanic Research (SCOR) at its Annual General Meeting on May 31, 2009. Robie is a Research Scientist at DFO's Institute of Ocean Science in Sidney, B.C. He is internationally recognized for his work on contaminant pathways in Pacific and Arctic aquatic systems. Dr. Macdonald directs interdisciplinary programs to study the environmental pathways of contaminants including their delivery, transport, and elimination from aquatic systems. The focus of his research has been on contaminant transport in the context of oceanographic biogeochemical processes.

Robie received his PhD from Dalhousie University in 1972. He has published 145 papers in refereed journals, 30 papers in refereed proceedings/book chapters, over 50 technical/data reports and one co-edited book (The Organic Carbon Cycle in the Arctic Ocean). He has participated in over 50 field trips, 29 as chief scientist, 20 to the Arctic Ocean using departmental vessels, icebreakers and ice-capable aircraft. Included amongst his many awards and distinctions, Robie has received the Best Paper award for articles published in Science of the Total Environment during 2004 and 2005, the Miroslaw Romanowski Medal of the Royal Society of Canada (2005), the President's Prize of the Canadian Meteorological and Oceanographic Society (2000) and was inducted as a Fellow of the Royal Society of Canada in 2004. Robie has been an Adjunct Professor at University of Victoria (CEOR), University of Manitoba (Department of Environment and Geography), and professor invite à l'Institut National de la Recherche Scientifique (Québec).

Robie has served on many ocean science committees, most recently as co-Chair of the Canadian IPY Science Review Committee, member of Polar Research Board (United States) of The National Academies (2001-04), member of Canadian Arctic Shelf Exchange Study (CASES) science steering committee (2000-present), member of the Canadian IPY Steering Committee, member of the Continental Margins Task Team, and member of the Canadian National Committee for the Scientific Committee on Oceanic Research (CNC/SCOR) (2003-2007). In this latter capacity, as a member of CNC/SCOR, Robie has helped initiate and maintain many programs, including reviewing new SCOR working group proposals, contributing articles by himself and colleagues to the electronic Newsletter, ensuring updates to the listing of ocean science MSc and PhD theses, providing contributions to the oceanographic historical photo collection, and participating in the CNC/SCOR lecture series as a tour speaker in 2007.

Robie succeeds Gordon McBean as Chair of CNC/SCOR. Gordon will remain on the Committee as Past-Chair.

### **Deceased Oceanographers**

Each year CMOS recognizes in their publications, and with a moment of silence at their annual Congress, the passing of Canadian meteorologists and oceanographers. Should you be aware of the passing of any Canadian oceanographers in 2008, or up to May 2009, it would be very much appreciated if you could pass relevant information to both the Secretary of CNC/SCOR ([dick.stoddart@sympatico.ca](mailto:dick.stoddart@sympatico.ca)) and to the Executive Director of CMOS, Ian Rutherford ([cmos@cmos.ca](mailto:cmos@cmos.ca))

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

Previous newsletters may be found on the CNC/SCOR web site.  
Les bulletins antérieurs se retrouvent sur le site web du CNC/SCOR.

Newsletter #44 will be distributed on June 30, 2009. Please send contributions to [dick.stoddart@sympatico.ca](mailto:dick.stoddart@sympatico.ca)  
Bulletin #44 sera distribué le 30 juin 2009. Veuillez faire parvenir vos contributions à [dick.stoddart@sympatico.ca](mailto:dick.stoddart@sympatico.ca)

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