



CANADIAN OCEAN SCIENCE NEWSLETTER

A new initiative is underway to provide the ocean science community in Canada with timely information, subscription free. This first electronic newsletter has been sent to a strategic email list. We would urge you to forward it to your colleagues, with a request that they (i) subscribe (free), and (ii) provide short bits of information 1-2 paragraphs, that could be used in future newsletters. **Subscribe** (send to listserv@lists.mcgill.ca, with SUBSCRIBE OCEAN-NEWSLETTER in the text message) and **unsubscribe** (send to listserv@lists.mcgill.ca, with SIGNOFF OCEAN-NEWSLETTER in text) requests, and **contributions** (send to dick.stoddart@sympatico.ca) to future newsletters, are strongly encouraged. Please don't assume that just because this first newsletter has reached you, possibly through several different routes, that you are automatically on the "mailing list" - please subscribe to be sure to receive the next issue. See www.cncscor.ca for information on the activities of this newsletter sponsor. This trial newsletter will either flourish or die, depending on the interest and **contributions** (send to dick.stoddart@sympatico.ca) of participants.

The newsletter editorial policy is deliberately simple (i) short articles only, a paragraph to a half page is the guideline, (ii) no graphics/pictures so as to keep download times reasonable, (iii) articles accepted in either English or French, translations are not provided, (iv) the accuracy of the submitted article is the responsibility of the submitter, and (v) the text will not be edited for content except for obvious errors, and re-formatting into a uniform presentation.

LE BULLETIN CANADIEN DES SCIENCES DE L'OCÉAN

Une nouvelle initiative est en cours pour offrir à la communauté canadienne des sciences de l'océan une information d'actualité, et l'abonnement est gratuit. Ce premier bulletin électronique a été envoyé par courriel à des destinataires choisis stratégiquement. Nous vous saurions gré de bien vouloir le transmettre à vos collègues en leur demandant (i) de s'y abonner (gratuitement) et (ii) de fournir quelques nouvelles, 1 ou 2 paragraphes, qui pourraient paraître dans les prochains bulletins. Les demandes **d'abonnement** (envoyer à listserv@lists.mcgill.ca, avec SUBSCRIBE OCEAN-NEWSLETTER dans le message) et **désabonnement** (envoyer à listserv@lists.mcgill.ca, avec SIGNOFF OCEAN-NEWSLETTER dans le message) et les **contributions** (envoyer à dick.stoddart@sympatico.ca) aux bulletins à venir sont vivement sollicitées. Attention, n'allez pas croire que le fait d'avoir reçu ce premier bulletin, qui peut vous être parvenu par différentes voies, signifie que vous soyez inscrit sur la « liste de distribution ». S'il vous plaît, inscrivez-vous pour vous assurer de recevoir le prochain numéro. Consultez le site www.cncscor.ca pour y trouver de l'information sur les activités du commanditaire du bulletin.

Le succès de ce nouveau bulletin dépendra de l'intérêt et des **contributions** (envoyer à dick.stoddart@sympatico.ca) des participants.

La politique éditoriale du bulletin se veut minimaliste : (i) seulement de courts articles, en règle générale un paragraphe ou, tout au plus, une demi-page, (ii) pas de graphiques/illustrations pour réduire les temps de téléchargement, (iii) les articles sont acceptés en français ou en anglais, les traductions ne sont pas fournies, (iv) la responsabilité de l'exactitude d'un article va à la personne qui le soumet et (v) le texte ne sera pas révisé quant à son contenu, sauf pour les erreurs évidentes, et sera reformaté pour assurer une présentation uniforme.

Table of Contents, Newsletter Number 1, July 20, 2003

Table des matières, Bulletin numéro 1, 20 juillet 2003

JOBS:

[Dalhousie \(3 jobs, deadline July 31, 2003\)](#)

OCEAN SCIENCE PROGRAMS:

[Marine Environmental Prediction in the Atlantic Coastal Region](#)

[A Canadian Research Icebreaker and its first mission in the Canadian Arctic](#)

[Surface Ocean Lower Atmosphere \(SOLAS\)](#)

[Centre for Offshore Oil and Gas Environmental Research \(COOGER\)](#)

[CORIOLIS II](#)

[International Polar Year \(IPY\) 2007/2008](#)

PERSONNEL:

[New Appointments](#)

MEETINGS:

[CNC/SCOR Annual General Meeting](#)

[Ocean Science at 2004 Edmonton Congress](#)

[Ocean Observations Panel for Climate \(OOPC\)](#)

[Polar Connections](#)

Dalhousie (3 jobs, deadline July 31, 2003) Postdoctoral Fellow and/or Research Associate Positions in Atmosphere and Ocean Modelling

Dalhousie University is searching for Postdoctoral Fellows or Research Associates to work on three sub-projects in atmosphere and ocean modelling as part of a collaborative research and development program on Interdisciplinary Marine Environmental Prediction in the Atlantic Coastal Region. The successful candidates will join a team of researchers from the Department of Oceanography and nearby laboratories of the Meteorological Service of Canada (MSC) and the Department of Fisheries and Oceans (DFO). The research team will develop an advanced real-time observation and modelling system for coastal and inner shelf environments, and use this system to test and improve our ability to predict change on short- to medium-range scales in the coastal marine environment. In particular, a high-resolution coupled inter-disciplinary

environmental prediction and observing system will be developed for Lunenburg Bay on the south shore of Nova Scotia, Canada.

Atmospheric and Coupled Modelling

This subproject focuses on atmospheric modelling and coupling activities, using state-of-the-art MSC atmospheric models and the associated coupler software that has been developed to facilitate the interaction of various numerical models in an interdisciplinary modelling system. In particular, this person will be providing assistance to co-investigators in the coupling of their component models with the atmospheric model, and in configuring, evaluating and improving the atmospheric model aspects in the inter-disciplinary coupled system. The successful applicant will have a Ph.D. in Atmospheric Science or related discipline, a working knowledge of atmospheric modelling and dynamics, and the willingness and capability to develop, implement and test new modelling algorithms or strategies.

Shelf Circulation Modelling

The lateral boundary conditions for the high-resolution model of Lunenburg Bay will be provided by a real-time shelf model that is the subject of this sub-project. This system has been developed at Dalhousie University and is based on the Princeton Ocean Model (POM). This work will include continuing support for real-time running, testing, archiving, analysis and dissemination of model output. Years 2 and 3 will focus on model validation and improvements that will be required as a result of interactions with the other elements in the overall project. Validations in hindcast mode are planned for year 2, while nowcasts and forecasts are planned for year 3. The successful applicant will have a Ph.D. in Physical Oceanography or related discipline, a working knowledge of ocean modelling and ocean dynamics, and the willingness and capability to develop, implement and test new ocean modelling schemes. Experience with POM would be an advantage.

Sea Breeze and Fog Modelling

The objective of this sub-project is to improve the atmospheric models' skill in predicting sea breezes and fog which are common and potentially hazardous weather in coastal marine environments. This will be addressed by using numerical tools based on high-resolution 3D atmospheric models, used in conjunction with sophisticated boundary layer instrumentation that has been installed in Lunenburg Bay, in particular the wind profiler and acoustic temperature sounder near the coast, together with the extra buoys in the bay. Also, the ocean and wave modelling modules will supply detailed water temperature and sea state conditions needed by the atmospheric model. The responsibilities will include: ensuring that the modelling system is functioning properly, setting up procedures to use observations for initialization and verification, conducting case studies, and making modifications to the model parameterizations or initial conditions to improve model results. The successful applicant will have a Ph.D. in Atmospheric Science or related discipline, a working knowledge of atmospheric modelling and dynamics, and the willingness to work with data and the capability to develop, implement and test new modelling algorithms, particularly for the atmospheric boundary layer.

For each position, funding is available for three years at an annual salary of between \$38,000 and \$44,000CDN plus benefits, commensurate with qualifications and experience. Applicants should send a statement of interest, a curriculum vitae and the names and addresses of three references no later than 31 July, 2003 to Mr. Raymond St-Pierre, Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada, B3H 4J1 (Fax: 902-494-2885, email: raymond.stpierre@phys.ocean.dal.ca)

All qualified candidates are encouraged to apply; however in accordance with Canadian immigration requirements, Canadian citizens and permanent residents of Canada will be given priority. Dalhousie University is an Employment Equity/Affirmative Action employer. The University encourages applications from qualified Aboriginal people, persons with a disability, racially visible persons and women.

Marine Environmental Prediction in the Atlantic Coastal Region

In this project, recently funded by the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS), a multidisciplinary team will develop a real-time prediction capability for the coastal regions of Atlantic Canada. This research and development will make heavy use of a newly established atmosphere-ocean observing system in Lunenburg Bay, Nova Scotia (www.cmep.ca). The observations will be used to guide and test the marine coastal prediction system in an examination of marine environmental phenomena important on daily to weekly time scales including: waves, surface winds, sea breezes, fog, coastal upwelling, and circulation and ecosystem dynamics in coastal embayments. The outcomes will be particularly relevant for the problem of coastal pollution, and the resulting technology will be transferable to other similar coastal areas. This project will lead to significantly improved knowledge and understanding of: (i) how the coupled ocean/atmosphere system works in the Atlantic sector; (ii) how ecological processes can be incorporated into realistic physical models; (iii) the predictive skill of interdisciplinary coupled atmosphere/shelf/bay models on time scales of days to weeks; and (iv) the consequences of episodic phenomena including extreme weather events. It will result in coupled atmosphere/ocean/wave models and techniques that will be suitable for adaptation by government agencies and it will produce improved numerical models for describing and forecasting coastal ocean physical and biological conditions. The biological models in particular will be tools for research and further development. All these advances will contribute to the detection and prediction of change in coastal environments subject to human activities and the influences of changing climate. (For more information, contact Raymond St-Pierre, Program Manager, Lunenburg Bay Project (902) 494-2203 or e-mail Raymond.stpierre@phys.ocean.dal.ca)

A Canadian Research Icebreaker and its first mission in the Canadian Arctic

A consortium of Canadian universities and Federal agencies has recently obtained a major grant from the International Venture Fund of the Canada Foundation for Innovation to transform the 98-m icebreaker *Sir John Franklin* into a state-of-the-art research vessel to study the changing Canadian Arctic. Hosted by Université Laval, the infrastructure also includes the specialized equipment necessary for the ship's scientific mission, and partial operating funds for the first 4 years. Over the next 15 years, the vessel is expected to support several major multidisciplinary

programs of international stature to advance our understanding of climate, oceanic circulation, sea-ice dynamics, biology, biogeochemistry, sedimentology, paleoceanography, and geology in the Canadian sector of the Arctic Ocean. The infrastructure will also support ship-based studies of the response of the coastal inland zone of the Canadian Arctic to climate forcing, and epidemiologic studies of the impact of climate change on the health of Northerners. Details of the infrastructure and its capabilities can be found at <http://www.cases.quebec-ocean.ulaval.ca/vessel.asp#introduction>.

The first scientific mission of the research icebreaker is the Canadian Arctic Shelf Exchange Study (CASES, 2002-2007, <http://www.cases.quebec-ocean.ulaval.ca/>), funded by the Natural Science and Engineering Research Council of Canada. CASES brings together over 70 leading experts in polar science from 10 Canadian universities, 5 Federal Departments/Agencies (Fisheries & Oceans, Environment, Natural Resources, Defence, Museum of Nature), and 9 foreign countries (USA, Japan, UK, Denmark, Russia, Poland, Norway, Belgium, Spain) with the objective to understand and model the biogeochemical and ecological response of the Mackenzie Shelf ecosystem to sea-ice cover variability. CASES addresses (1) the role of hydrologic, oceanographic and meteorological processes in ice accretion, ablation and transport on the shelf and beyond; (2) the hydrodynamic (including ice and snow cover dynamics) control of Arctic shelf photosynthetic production and its exportation to the benthos and the pelagic food web; (3) the potential impact of increased UV radiation on biological productivity; (4) the role of microheterotrophs and mesozooplankton in transforming autochthonous and allochthonous particulate and dissolved matter on the shelf; (5) the fluxes of particulate matter and carbon across the shelf to the deep basins; (6) the distribution of riverine and air-borne contaminants in the trophic web; (7) the potential impact of a reduction in ice habitat on the marine Arctic food web; and (8) decadal and millennial variations in ice cover and their impact on ecosystem productivity. Physical and biological measurements will be used to constrain and calibrate (9) regional models of climate and ice dynamics in the western Canadian Arctic and (10) biophysical models of the carbon flows on the Canadian Arctic shelf.

A first expedition to the CASES study area for the mooring of instruments and for preliminary sampling was successfully completed in September/October 2002 on board the CCGS *Radisson* and *Laurier* (see expedition reports at <http://www.cases.quebec-ocean.ulaval.ca/fieldwor.asp>). The main thrust of the field program will be the one-year overwintering of the Canadian research icebreaker on the Mackenzie Shelf, starting in September 2003. During this annual cycle, the ship and landfast ice camps will support the year-round sampling of the Shelf ecosystem. Ship-based sampling will be conducted along a series sampling transects, adjusted seasonally with the expansion-reduction of the open water (navigable) area. Including the 2002 expedition, this plan will guarantee a 3-year interannual comparison of late-summer ecosystem maturity in response to ocean, sea ice and atmospheric forcing processes. It will also represent an unprecedented, year-round, highly-integrated, multidisciplinary study of an Arctic shelf ecosystem, including a segment of the circum-Arctic flaw polynya system.

Surface Ocean Lower Atmosphere (SOLAS)

The Canadian Surface Ocean Lower Atmosphere (SOLAS) Research Network has had an exciting and productive year. With the success of the Fe enrichment experiment in the Pacific

last summer and the spring bloom experiment in the North Atlantic this April, the Web site and newsletter now fully operational and the great turn out at the SOLAS special session in the CMOS Congress last month, the program is well on its way to success. The program gained worldwide media attention with the SeaWiFS picture of the iron patch, taken last summer during the Fe addition experiment in the Pacific, which visually demonstrated our success to both the public and scientific communities. Another exciting development for the future of C-SOLAS is the first International SOLAS Open Science Conference to be held in Halifax, Nova Scotia, October 11-14, 2004 and hosted by the C-SOLAS Secretariat. The conference will be a great opportunity for increasing the scientific profile of Canadian ocean and atmosphere science in the international community. Canada continues to lead SOLAS efforts in the world. Of course none of this would be possible without the support of our sponsors including the Natural Science and Engineering Research Council of Canada, Canadian Foundation for Climate and Atmospheric Sciences, Dalhousie University and support from our network partners, the Department of Fisheries and Oceans and the Meteorological Service of Canada. More information on C-SOLAS can be found at www.csolas.dal.ca .

Centre for Offshore Oil and Gas Environmental Research (COOGER)

In November 2002, Fisheries and Oceans Canada (DFO) established the Centre for Offshore Oil and Gas Environmental Research (COOGER) to co-ordinate the department's nation-wide research into the environmental and oceanographic impacts of offshore petroleum exploration, production and transportation. Based at the Bedford Institute of Oceanography in Dartmouth, Nova Scotia, COOGER seeks to improve scientific knowledge, identify priority research needs, and coordinate and implement collaborative research efforts. COOGER strives to improve the quality of science by fostering research collaborations with other government research agencies, universities and industry, thus minimizing research duplication. Furthermore, it will seek out new funds to support research on offshore oil and gas environmental issues. COOGER also facilitates the opportunity to share experiences and to foster collaboration at the international level. It is recognized within COOGER that the potential to design and conduct large-scale research projects by sharing expertise and resources in an international setting is almost limitless.

The scientific journal, *Spill Science & Technology Bulletin*, dedicated a special issue to profiling COOGER research. Released in 2003, the first issue of the eighth volume of this journal highlights research findings describing the mechanisms, environmental significance and applications of oil-particle interactions. Also, the International Oil Spill Conference <http://www.iosc.org/> was held in Vancouver, British Columbia on April 6-10, 2003, with close to 1,800 participants from 50 countries. Among the exhibits was the new COOGER display, featuring information about offshore oil and gas environmental impacts and risks and oil spills and remediation efforts. Two papers profiling COOGER research were presented: 'Habitat recovery in an oil-contaminated salt marsh following bioremediation treatments' by Kenneth Lee (DFO), and 'Characteristics of oil droplets stabilized by oil-mineral aggregation' by Ali Khelifa (Dalhousie University).

Additional information on COOGER will soon be available through (i) COOGER News, a bilingual quarterly newsletter, and (ii) a COOGER home page. For more details, contact Rosalie Allen, COOGER Program Coordinator, at AllenRE@dfo-mpo.gc.ca

CORIOLIS II A new oceanographic research vessel in Quebec

A consortium of Quebec universities (Université du Québec à Rimouski (UQAR), Université Laval (Québec), Université du Québec à Montréal and McGill University) has acquired a 50 m research vessel – the Coriolis II - originally built in 1990 for the Canadian Coast Guard. Modified for oceanographic research, the vessel carries a crew of 10 and can accommodate 14 scientists. Normal cruising speed, using two of its four engines, is 12 knots. The equipment includes a dynamic positioning system, two A-frames, one of which with a 9 ton capacity, several winches including a dedicated CTD winch, an acoustic doppler current profiler (ADCP) installed in a moon pool. The main deck provides a 133 m² exterior working surface, a 21 m² wet laboratory, and a 21 m² dry laboratory. Additional laboratory space is available in the form of containers. For more information about the ship and its availability, contact Mr. Bruno Beaulieu, reformat@imq.qc.ca

International Polar Year (IPY) 2007/2008

The year 2007 will mark the 125th anniversary of the First International Polar Year (1882-1883), the 75th anniversary of the Second Polar Year (1932-1933) and the 50th anniversary of the International Geophysical Year (1957-1958). The IPYs and IGY were major initiatives that resulted in significant new insights into global processes and laid the foundation for decades of invaluable polar research. Initial thoughts on planning for the 2007/2008 IPY may be found in a special edition the Arctic Ocean Sciences Board's July 2003 on "News from AOSB" <http://www.joss.ucar.edu/aosb/pubs.html>. Possible Canadian contributions to the IPY are being discussed under the guidance of the Canadian Polar Commission; discussions may be found on their web site under the "Polar Science Forum" at <http://www.polarcom.gc.ca/homepage.htm>. The Canadian National Committee for SCOR has set up a sub-committee, consisting of Rob Macdonald (lead) MacdonaldRob@pac.dfo-mpo.gc.ca, Louis Fortier and Allyn Clarke, to review some possibilities for Canadian ocean science contributions to IPY.

New Appointments

The Department of Earth and Ocean Sciences at the University of British Columbia has welcomed (or will welcome by the end of the summer) five oceanographers into the faculty.

Philippe Tortell: Assistant Professor: Interests: Biological oceanography; physiology, ecology, and evolution of marine phytoplankton and bacteria; CO₂ effects on oceanic productivity; trace metal nutrition and toxicity in the sea, biological isotope fractionation.

<http://www.eos.ubc.ca/public/people/faculty/tortell.html>

Dominique Weis: Professor, CRC Chair: Interests: Distribution of elements and isotopes in Earth systems with emphasis on the use abundances and isotopic ratios in defining the source and evolution of igneous rocks, of water masses and of pollutants, the interaction between different reservoirs (mantle, crust and atmosphere) and the role of tectonic settings.

<http://www.eos.ubc.ca/public/people/faculty/weis.html>

Maite Maldonado: Assistant Professor, CRC Chair: Interests: The relationships between marine phytoplankton and trace metals. <http://www.eos.ubc.ca/research/geochem/maldonado.htm>

Claudio DiBacco: Assistant Professor: biological oceanography, environmental influences on larval distribution. To start July 2003.

Evgeny Pakhomov: Assistant Professor: biological oceanography, fisheries oceanography. To start September 2003.

The Department of Oceanography of Dalhousie University appointed Dr. Markus Kienast as Assistant Professor in geochemical oceanography (effective May 2004). Dr. Kienast's research interests include (a) Marine geochemical proxies of global climate change; (b) Nitrogen isotope indicators of past changes in nutrient availability and consumption; and (c) Paleoceanography of the South China Sea and Asian palaeomonsoon.

CNC/SCOR Annual General Meeting

The Canadian National Committee (CNC) for the Scientific Committee on Oceanic Research (SCOR) held its Annual General Meeting on June 1, 2003. Amongst other things the meeting decided to:

- initiate a Canadian ocean science electronic newsletter for greater outreach to the community as a whole.
- review five new SCOR working group proposals, of which 1-2 might be funded internationally. The proposals deal with: physical and biochemical classification coastal estuaries; global marine biogeochemical cycles of trace elements and their isotopes; reconstruction of past ocean circulation; links between present oceanic processes and paleo-records; and, physical and biological structure of meso-scale rings in the world's oceans.
- initiate a subcommittee to investigate possible Canadian ocean science contributions to the International Polar Year in 2007. The Canadian Polar Commission (CPC) is the likely body to coordinate Canada's involvement in IPY.
- proactively encourage ocean science theme sessions at CMOS congresses.
- collect and post information on Canadian ocean science MSc and PhD theses on its web site. UBC theses are already posted.
- prepare and publish a poster on CNC/SCOR.

The majority of Canadian contributions to SCOR are through participation on international SCOR Working Groups, large-scale ocean science programs, affiliated programs, international committees, and capacity building efforts. Canadian efforts may be found at www.cncscor.ca, while international efforts are at <http://www.jhu.edu/~scor/>.

Ocean Science at 2004 Edmonton Congress

Ocean Science was well represented in theme sessions at the Ottawa 2003 Congress. Plans are proceeding to do at least as well if not better at next year's Congress. Session chairs have already been approached for ocean and related sciences for:

High Latitude Oceans: North Atlantic, North Pacific and the Arctic and their linkages

Arctic session

Archipelago flow through

CASES

Paleoclimate

CLIVAR

Operational oceanography

Ocean data assimilation

Unstructured Grid Modelling

Climate Carbon Connection: Measurement and Modeling of the Past and Present

Air/sea interaction, waves

Cryosphere and climate

Geophysical fluid dynamics

Other ocean sessions will likely be identified in the coming months. If you wish additional information, or wish an additional theme session to be considered, please contact the Chair of the Scientific Program Committee, Geoff Strong at: geoff.strong@shaw.ca

Ocean Observations Panel for Climate (OOPC)

The Ocean Observation panel for Climate (OOPC) of the Global Ocean Observation System (GOOS) meets from Sept 3-6, 2003 in Ottawa, hosted by DFO's Marine Environmental Data Service (MEDS). OOPC members are selected on the basis of their expertise from the global community; at present Bob Keeley from MEDS is the only Canadian in the Panel.

Amongst its many activities the OOPC includes: Argo (a pilot project under OOPC whereby up to 3000 robotic diving profilers are deployed around the world oceans, transmitting T&S profiles in real time) Tropical Moored Buoys; WCRP/SCOR Working Group on Air Sea Fluxes; VOS Climate Project; Surface Reference Sites; The Surface Flux Analysis Project (SURFA); SST / Sea-Ice Working Group for GCOS; Global Eulerian Observatories; Observing System Sensitivity Experiments; Observing System Evaluation; Ocean Climate Indices; Ocean Carbon; Data and Information Technology Project; Sea Ice; and Surface Salinity from Space. Details on OOPC programs and composition may be found at <http://ioc.unesco.org/oopc/>

Polar Connections

With Canada moving toward the ratification of the Madrid Protocol (Bill C-42) it is time to start working toward a Canadian Antarctic Research Program (CARP). As a first step towards the creation of CARP the Canadian Committee for Antarctic Research is organizing a capacity building and science-planning workshop called Polar Connections. Polar Connections will bring together Canadian researchers, representatives of Canadian Research Granting Councils, funding agencies and representatives of several foreign Antarctic Research Programs with the specific purpose of: (a) identifying the key Antarctic research questions and programs that have relevance to existing Canadian science activities, (b) defining research priorities for a Canadian Antarctic Research Program based on existing strengths in global science and Antarctic/Arctic research

activities and (c) begin to build Canadian science teams around a series of strategic themes defined by these research priorities. Polar Connections will be held the University of Alberta from September 26 to 28, 2003. The workshop will focus on the Southern Ocean, Andrew Clarke from the British Antarctic Survey will be one of the invited speakers, and it is expected that 6-8 international speakers will talk about their respective fields of science. Additional information may be obtained from Wayne Pollard, Chair, Canadian Committee for Antarctic Research at pollard@geog.mcgill.ca or from Olav Loken, Secretary, CCAR at oloken@sympatico.ca.