



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

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Contemporary Issues in Estuarine Physics, Transport and Water Quality

The "Pan American Advanced Study Institutes" (PASI) Program, is a jointly supported initiative between the Department of Energy (DOE) and the National Science Foundation (NSF). Pan American Advanced Studies Institutes are **short courses of two to four weeks duration**, involving lectures, demonstrations, research seminars and discussion at the advanced graduate and post-doctoral level. PASIs aim to disseminate advanced scientific and engineering knowledge and stimulate training and cooperation among researchers of the Americas in the mathematical, physical, and biological sciences, and in engineering fields. Whenever feasible, an interdisciplinary approach is recommended. The primary objectives of the proposed Pan-American Advanced Studies Institute on Estuarine Physics, Transport and Water Quality are to:

- Disseminate recent findings on estuarine physics, transport and water quality
- Engage more researchers in the topic while stimulating collaboration and exchanges among researchers from the Americas.

Additional information regarding programs and applications may be found at:

<http://pasi.coastal.ufl.edu/index.html>

Centre for Ocean Model Development and Application (COMDA) *A Virtual Centre of Expertise*

Marty Taillefer, Senior Science Advisor, Operational Oceanography, TailleferM@dfo-mpo.gc.ca

The oceans are changing, in some cases rapidly compared to past variations. Surface waters are warming, sea-levels are expected to rise and the oceans are becoming increasingly acidic due to increased CO₂ levels being absorbed by the oceans, jeopardizing many marine eco-systems.

Interestingly, human population growth along the East and West ocean coasts of Canada is growing at an increasing rate. The threats posed to coastal populations and infrastructure by rising sea levels, storm surges, and waves and erosion will mount in coming decades. In addition over-fishing, climate change, acidification, invasive species and toxic blooms will stress the ocean as a food source, as never before.

With these changes in the ocean over the years and decades to come, it is important to understand and be able to predict, up to a few days in advance, local oceanic events. In response to this, DFO has established a national Centre of Expertise for Ocean Model Development and Applications (COMDA). COMDA's goals are to improve DFO's capabilities for ocean and marine eco-system forecasting and analysis. This is done first by coordinating development and implementation of ocean forecasting systems nation wide. Then it is achieved with the continued support and development for coupled ocean atmosphere and ice environmental prediction systems to advance Canadian operational oceanographic capacity.

Ocean Modeling Challenges

Ocean models can assimilate observational information with ocean and eco-system dynamics, and provide "state-of-the-ocean" nowcasts, hindcast evaluations of past changes including anthropogenic perturbations, and forecasts of future states on various space and time scales. This is contributing to a revolution in the application of ocean sciences. Many DFO Science programs currently have modeling components. However, these activities are not coordinated to

their full potential. Shared goals and outcomes are mandatory in ocean forecasting since development costs for operational oceanography are high. Team work and mutual cooperation will ensure maximum effectiveness from contributing parties such as universities, government departments and other countries.

Given the distributed expertise and requirements for model applications across DFO, the initial impetus of COMDA is to establish a national and inter-agency coordination organization and stand up a modern high-speed electronic communication networks to assist with the coordination and cross-pollination of modeling efforts.

COMDA and CONCEPTS

COMDA is a virtual Centre of Expertise (COE) hosted by the Bedford Institute of Oceanography in Dartmouth, Nova Scotia and is responsible to DFO's National Science Directors Committee (NSDC). COMDA's Director is Dr. John Loder and is supported by a scientific steering committee with representatives from various DFO labs and regions.

A primary focus of COMDA has been its participation in the interagency initiative CONCEPTS (Canadian Operational Network for Coupled Environmental Prediction Systems), led by Environment Canada. The set of core projects in CONCEPTS are intended to develop an operational global coupled atmosphere-ice-ocean assimilative and prediction system for Canada. The modeling partnership also include contributors such as the Department of National Defence and the French Mercator Operational Oceanography Centre whose ocean model is being adapted for implementation at the Canadian Meteorological Centre (MSC) in Montreal.

COMDA's contributions to CONCEPTS include test and enhancements of the Mercator Ocean model OPA (Ocean Parallise) on domains ranging to global to basin (i.e. Arctic and North Atlantic) to regional scales (nested Atlantic Canadian Shelf). The initiative would build on MSC's existing meteorological and ice forecasting capabilities and infrastructure.

Ultimately, the coupled modeling project provides an excellent inter-agency framework for DFO to expand Canadian capabilities in Operational Oceanography – to ensure the sustained and systematic application of science to provide timely and accurate oceanographic products and services that affect the decisions of clients.

COMDA and CANOOS

The Canadian Network of Operational Ocean Systems (CANOOS) builds on existing capabilities and new initiatives within DFO and EC. Presently under CANOOS is the Observatoire du St. Laurent and the East Coast Forecast system.

There are already several operational ocean modeling systems for the East coast of Canada. A successful R&D approach and initiative has been to focus on specific geographic and product development areas. To add to this approach is a new operational forecasting system for the Canadian East coast that is currently under development, involving, participation from the Northwest Atlantic Fisheries Center (NAFC), the Bedford Institute of Oceanography (BIO), the Gulf Fisheries Center (GFC) and Institut Maurice-Lamontagne (IML).

The first near-operational version of the east coast forecasting system is being developed as an element of the Newfoundland Operational Ocean Forecast System (NOOFS) in St. John's with input from all four regions. It is expected to be functional in the summer of 2007, with ongoing system evolution and enhancement. Once the modeling system enters the operational phase, Atlantic Zone Monitoring Program (AZMP) will continue to make major contributions through the timely and routine supply of data.

Canada-Newfoundland Operational Ocean Forecasting System

In the North Atlantic region, the Canada-Newfoundland Operational Ocean Forecasting System (C-NOOFS) is a COMDA pilot project, lead by Dr. Fraser Davidson, which will develop a regional ocean forecasting system for the northwest Atlantic, with special emphasis on eastern Canadian waters.

This work is being done in collaboration with the French ocean forecasting service (MERCATOR), the European ocean forecasting consortium (MERSEA), Environment Canada, and Canadian universities.

COMDA Scientists Develop Ocean and Ice Forecast Tools

Another example of the evolving forecasting tools are those efforts of L'Institut Maurice Lamontagne (IML), a DFO laboratory in Mont-Joli, Quebec. During winter, the presence of ice in the Gulf of St. Lawrence impedes maritime transportation. IML estimates time-of-arrival and safe winter routes for ships. Their initial ice distribution estimates are obtained from Canadian Space Agency satellite images. Ocean models for the Canadian Atlantic coast, developed at IML and DFO's Bedford Institute of Oceanography, are also used by Environment Canada for sea ice forecasting.

COMDA scientists enhance models to improve the availability of ocean current and surface temperature information to users such as the Canadian Coast Guard (CCG). The CCG must accurately estimate the at-sea location of drifting life raft and other search targets. Improved ocean models will include wave information to provide the best available estimate of surface currents allowing the CCG to more effectively search for survivors. The same models also produce wave height and water level predictions for specific near - and offshore sites.

One of the additional developments of C-NOOFS is a scientific version of the Coast Guard's Canadian Search and Rescue Planning Program (CANSARP) software, which uses the latest wind and ocean current forecast to estimate target location of a person fallen overboard or adrift at sea. This will allow COMDA to demonstrate and validate the use of new ocean information prior to application in CANSARP.

Understanding Ecosystems & The Future

Through the efforts of COMDA's national leadership, coordination and advice in areas of ocean model development and the core projects of CONCEPTS and CANOOS, operational global and regional ocean monitoring and forecasting systems will be an important Canadian effort to measure and predict the anticipated adverse effects of climate change upon the marine habitat.

Recent research is making it increasingly clear that climate variability will change and damage the marine environment and the coasts. There is a need to act promptly in order to limit the adverse effects of climate change upon Canada's ocean eco-systems. These efforts, led by DFO research scientists, allows Canadians to understand the changes and mitigate against the adverse effects that will surely cause irreversible damage to nature and human society. A growing ocean modeling capability is vitally important in order to help steer a sustainable course in the future.

Peter J. Wangersky (1927-2007)

Report prepared by Eric Mills, E.Mills@Dal.ca

Pete Wangersky, who died in Victoria on January 7, was one of the most influential figures in the history of oceanography at Dalhousie from the time of his arrival in 1965 to long after his retirement in 1993 and his move to Victoria.

Pete was born in Woonsocket, Rhode Island and schooled in Lynn, Massachusetts and Woonsocket before going into chemistry at Brown University. Always eclectic in his interests, he went to Yale for a Ph.D, studying under the great polymathic zoologist, ecologist and limnologist G. Evelyn Hutchinson. After stints at the Scripps Institution of Oceanography, in the U.S. Army, with the U.S. Fish and Wildlife Service, and at the University of Miami, he returned to Yale as an Assistant Professor in the Bingham Oceanographic Laboratory. There he stayed until it became clear that oceanography at Yale had little future, a realization that led to his move to Halifax. Pete arrived from Yale in 1965 to take a position as a marine chemist in the Chemistry Department and Dalhousie's cross-departmental Institute of Oceanography. In 1971 the Institute of oceanography evolved into the graduate Department of Oceanography, and Pete served as its Head/Chair in 1973-74 and 1977-1980.

Pete was a mainstay of the Institute and Department in more than one way. With Gordon Riley and a few others, he shared the introductory teaching of the department. Thinking back to those days, I once wrote that "... Pete has done nearly everything. Though he may not care to remember, I have even heard him lecture on geophysics to Dal students, musing, as many of us have, how 'Bouguer' should be pronounced." I also wrote then that Pete "never let chemical oceanography be the complete compass of his life; he was a theoretical ecologist as well as a chemical oceanographer long before either of these 'interdisciplinary' field became widely accepted as intellectually respectable." There is a remarkable tribute to Pete, his teaching, his generosity, and his warm, expansive personality, in a special issue of Marine Chemistry published in 1997.

One could give a chronology of Pete's life, list his publications, and outline his research interests (which ranged from the dynamics of dissolved and particulate carbon in the sea to the effect of time-lags in mathematical population models). All would be tribute to his catholic tastes in science and his powerful effect on several generations of chemical and biological oceanographers. No doubt someone will do all of this soon in his memory. But for me the recollection that characterizes him best is of a lengthy, early, series of Sunday afternoon at-homes at the corner of Henry and South when Pete and his wife Ellie opened the door to all and sundry in the university for a late afternoon cup of coffee and wide-ranging conversation. The

coffee was of numbing, paralytic strength, and the conversation represented best what life in science is all about - an interest in everything, skill at research, and a willingness to share the life of knowledge unreservedly. In these, Pete Wangersky was a master.

Call for Papers, Scientific/Technical Symposium on Storm Surges

Report by Val Swail, Val.Swail@ec.gc.ca



Joint WMO-IOC Technical Commission
for Oceanography and Marine Meteorology

The Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology will be convening a Scientific/Technical Symposium on Storm Surges in Seoul, Republic of Korea on October 2-6, 2007. You are encouraged to participate in this event, and submit your paper on the subject of:

- storm surge modelling;
- operational storm surge forecasting;
- hindcasting and climatology;
- meteorological forcing;
- regional application of storm surge techniques
- and other related issues

The deadline for abstract submission is April 30, 2007. Additional information on the conference may be found at: www.jcomm2007sss.org/

CNC/SCOR Lecture Tour

The CNC-SCOR Western Winter Tour will occur the week of Feb 26 - Mar 2, 2007. Dr. Erica Head from Bedford Institute of Oceanography will be giving a seminar entitled: The Labrador Sea Ecosystem: Biological and hydrographic observations (1995-2006). Times and locations are as follows:

Tuesday, Feb 27 : Seminar Room, Pacific Biological Station in Nanaimo. Time: 13:30. Local Contact: Ian Perry, perryi@pac.dfo-mpo.gc.ca

Wednesday, Feb 28: Main Auditorium. Institute of Ocean Sciences in Sidney. Time: 14:00

Thursday, Mar 1: Rm 330A, Earth and Ocean Sciences Main, University of British Columbia in Vancouver. Time: 15:00

Friday, Mar 2: Room 3-36, Tory Building, University of Alberta in Edmonton. Time: 13:00
for more information on latter 3 locations contact Susan Allen (sallen@eos.ubc.ca).

Abstract:

The Labrador Sea is a region of particular interest to climate scientists, oceanographers and geochemists because of its role in deep winter convection, formation of Labrador Sea Water and carbon flux. In this talk, however, the main focus will be on processes that occur in the shallow near surface layers. Scientists from the Bedford Institute of Oceanography have been occupying a section (the AR7W line) across the Labrador Sea between southern Labrador and SW Greenland annually in spring or summer since 1990. From 1990 to 1994, the programme included measurements of physical and chemical variables, and since 1995 biological measurements have also been added. In addition, satellite imagery has allowed synoptic observations of sea surface temperature and chlorophyll throughout the region.

The central basin of the Labrador Sea contains relatively warm water that is mainly of N. Atlantic origin, while the shelves are influenced by cold water outflows from the Arctic and are ice-covered for part of the year. The distributions and interactions of these water masses influence both the suites of organisms (e.g. zooplankton) that are found in the different regions and the timing of critical events (e.g. the spring bloom). After 12-17 years of sampling, as well as constructing climatological seasonal cycles, it has now become possible to discern trends in some of the hydrographic, chemical and biological variables. For example, along the AR7W section, since 1990, near surface temperatures over the shelves and in the central basin have increased by $\sim 1.5^{\circ}\text{C}$, and over the same period phytoplankton nutrient concentrations (nitrate and silicate) have shown varying trends in different areas that point to an increase in the contribution of Atlantic water and decrease of that of Arctic water. Total phytoplankton biomass since 1995 has shown a decreasing trend, with the proportion of smaller forms increasing, potentially leading to a decrease in export production.

Call for Abstracts - 10th Canadian Workshop on Harmful Algae

The 10th Canadian Workshop on Harmful Algae will be held at the Maurice Lamontagne Institute in Mont-Joli, Quebec, Canada, from May 9 to 11, 2007. **The Abstract Submission Deadline has been extended to: March 1, 2007.** Registration Deadline: April 5, 2007

The biannual Canadian Workshop on Harmful Algae is sponsored by the Phycotoxins Working Group of the Canadian Department of Fisheries and Oceans (DFO). This series of workshops is Canada's premier forum focussed on the problem of harmful algae. The Canadian Workshop on Harmful Algae is an ideal opportunity for scientists and others to present their research and discuss current topics in the field. The event also fosters networking and partnerships at regional, national and international levels. In 2007, the 10th Canadian Workshop on Harmful Algae will include the following themes:

- the taxonomy, ecology and physiology of harmful algae;
- the biogeography of harmful algae and their dispersion vectors;
- the impacts of climate variability, climate change and other human activities on the proliferation of harmful algae;
- harmful algae monitoring and new observation systems;

- freshwater cyanobacteria;
- toxin detection and analysis methods;
- mitigation measures.

The Workshop is open to anyone interested in the problem of harmful algae in Canada and abroad. We invite participation from scientists, managers, regulatory agencies, exhibitors, aquaculturists, private organisations and the media. Participation at the Workshop is free, and registration is now open. We welcome both oral and poster presentations in either official language, French or English. Further information and registration forms can be found on the Workshop website: <http://www.osl.gc.ca/conf/tox2007/>

Michel Starr and Michael Scarratt
 Co-chairs, organising committee
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Appel aux conférenciers - 10e Atelier canadien sur les algues nuisibles

Le 10e Atelier canadien sur les algues nuisibles se tiendra à l'Institut Maurice-Lamontagne à Mont-Joli, Québec, Canada, du 9 au 11 mai 2007. **La date limite pour l'envoi des résumés est prolongée au 1^{er} mars 2007.** Date limite d'inscription: 5 avril 2007

Ayant lieu tous les deux ans, l'Atelier canadien sur les algues nuisibles est parrainé par le Groupe de travail sur les phycotoxines du ministère des Pêches et des Océans Canada. Cet atelier est l'événement le plus important au Canada traitant de la problématique des algues nuisibles. L'Atelier canadien sur les algues nuisibles représente un moment idéal pour les scientifiques et autres intervenants du domaine de présenter leurs résultats de recherche et de tenir des tables rondes sur des sujets d'actualité. Cet événement stimule aussi le réseautage et le partenariat à l'échelle régionale, nationale et internationale. En 2007, le 10e Atelier canadien sur les algues nuisibles abordera en outre les thèmes suivants :

- la taxonomie, l'écologie et la physiologie des algues nuisibles;
- la biogéographie des algues nuisibles et les vecteurs de dispersion;
- les impacts de la variabilité du climat, des changements climatiques et d'autres activités humaines sur la prolifération des algues nuisibles;
- le monitoring des algues nuisibles et les nouveaux systèmes d'observation;
- la problématique des cyanobactéries en eaux douces;
- les méthodes de détection et d'analyse des phycotoxines;
- les mesures d'atténuation des algues nuisibles.

Le 10e Atelier canadien sur les algues nuisibles s'adresse à tous ceux qui sont intéressés par la problématique des algues nuisibles aussi bien au Canada qu'à l'étranger. Nous invitons les

scientifiques, les décideurs, les représentants d'organisations gouvernementales responsables de la réglementation, les exposants, les aquaculteurs et autres représentants d'organismes privés ainsi que les médias à y participer. La participation à cet atelier est gratuite. Nous accueillons les présentations sous forme de conférences ou d'affiches dans l'une des deux langues officielles de l'atelier, soit le français et l'anglais. Détails complets et formulaire d'inscription sont disponibles à: <http://www.osl.gc.ca/conf/tox2007/>

Michel Starr et Michael Scarratt
Co-présidents du Comité organisateur
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[Nominations for CMOS Awards](#)

It is time to think about nominations for oceanographers for various CMOS awards; the deadline is February 15, 2007. See <http://www.cmos.ca/prizese.html> for details on the various awards and the “call” for nominations for this year. In some years CMOS awards, for eligible ocean scientists, have not had any nominations; e.g. the Tully Medal, and the Prize in Applied Oceanography. A list of past winners is listed on the aforementioned web site. Oceanographic nominations are encouraged for the Tully Medal, the Prize in Applied Oceanography, the President's Prize, Graduate Student Prizes, the Roger Daley Postdoctoral Publication Award, and Environmental Citations.

Another category for prestigious recognition by CMOS is that of electing CMOS Fellows; such recognition has not been given to an oceanographer for the past six years. The deadline for nominations is March 15, 2007. Details on nominations and past elections may be found at: <http://www.cmos.ca/fellows.html>. The ocean science community should consider appropriate nominations for this year. The March 15, 2007 deadline is also applicable for the Neil J. Campbell Medal for Exceptional Volunteer Service, see “call for nominations” at: <http://cmos.ca/indexe.html>

Finally, CNC/SCOR through CMOS, provides a NSERC Scholarship supplement annually in the amount of \$5,000.00 for each of two years to a deserving student in ocean science. The submission deadline for the award is April 15, 2007 (see http://www.nserc.ca/sf_e.asp?nav=sfnave&lbi=2b_4 for details).

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 2006, or up to June 2007, it would be very much appreciated if you could pass relevant information to both the Secretary of CNC/SCOR (dick.stoddart@sympatico.ca) and to the Executive Director of CMOS, Ian Rutherford (cmos@cmos.ca)

Call for SCOR Working Group Proposals for 2007

The 38th Executive Committee Meeting will take place in Bergen, Norway on 26-28 August 2007 and it will evaluate proposals for new SCOR Working Groups at that time. New Working Group proposals will be entertained until **30 April 2007**. Model proposals and other information about working groups may be found at <http://www.scor-int.org/wkgrpinfo.htm>

SCOR examines the disciplinary balance of its working groups annually. Comments from the 2006 evaluation recommended that “SCOR encourage multidisciplinary approaches, at the limits between existing large programs. In biology, we need some activities on the benthic boundary interface with chemistry, physics, and sedimentology, including exported fluxes from the surface ocean. [Earlier discussions at the meeting identified ecology of the mesopelagic zone as a potential area of SCOR interest.] In the area of physical oceanography, we need some integrative activities and perhaps something on sea ice. In chemistry/biogeochemistry, we need something on remote sensing and clathrate dynamics.” Each proposal, whether in these areas or others, will be evaluated against each other by national SCOR committees in terms of scientific merit and quality, timeliness, and achievability of the proposed terms of reference.

SCOR tentatively plans to start two new working groups in 2008, pending availability of adequate funding. National SCOR committees are an important aspect of SCOR’s operation and can play a key role in reviewing working group proposals and in seeking new funds to pay for working group activities. Proponents should consider submitting their proposals through their national SCOR committees, although SCOR will also accept proposals from individuals and other organizations. Details on the call for proposals may be found at: <http://www.scor-int.org/2007EC/2007EC.htm> (the second entry).

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 #28 will be distributed on March 20, 2007. Please send contributions to dick.stoddart@sympatico.ca
Bulletin #28 sera distribué le 20 mars 2007. Veuillez faire parvenir vos contributions à dick.stoddart@sympatico.ca

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