



Canadian National Committee for SCOR  
Comité national canadien pour SCOR

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# Scientific Committee on Oceanic Research

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

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## Latest Sea Ice Profiling Technology



ASL Environmental Sciences announces that the next generation of the ASL Ice Profiler is now available. The Ice Profiler has become the global leader in the autonomous measurement of sea ice thickness in remote areas. ASL has taken 3 large orders, totaling 22 units, for the new Ice Profiler known as the IPS-5 model. The Norwegian Polar Institute has ordered and now received 3 Ice Profilers, which will be used to observe the thickness of the sea ice as it is exported through Fram Strait off of Northeast Greenland. The University of Pierre and Marie Curie, France has ordered 7 Ice Profilers to be used in the French Damocles project component and will be mounted in Argo drifting buoys that operate under the Arctic ice. Laval University has ordered 12 Ice Profilers to be used to provide year-round records of ice draft at the mooring sites and are needed to determine the actual rate of ice volume loss. They will be on moorings deployed in the Beaufort Sea, North Water, Hudson Bay, and the mooring operated by Laval University in the Laptev Sea in collaboration with NABOS.

The upgraded Ice Profiler offers several new features:

- Onboard data storage capacity is increased.
- Vertical profiling of backscatter returns from the ice and through the water column.
- A simpler and more cost effective internal alkaline battery pack (standard) and a new lithium battery pack will be available as an option.
- Upgraded software supplied with the instrument provides many enhancements including 12 programmable phases for different sampling schemes at different times of the year, easier to use set-up procedures, and improved testing and reliability enhancements.
- A new, considerably more accurate onboard temperature sensor is included, as well as higher resolution for the existing onboard two-axis tilt sensor.

For more information visit [www.aslenv.com](http://www.aslenv.com).

## Quadrennial Report of Physical Oceanography Research in Canada for the Period 2003-2007

A review of physical oceanography research in Canada for the period 2003-2007 has been completed by Dr. Bill Crawford (Institute for Ocean Sciences) and Dr. Blair Greenan (Ocean Sciences Division, BIO). This report is part of the Canadian contribution to the International Association for the Physical Sciences of the Ocean (IAPSO) on the occasion of the meeting of the International Association of Geodesy and Geophysics (IUGG) in Perugia, Italy in July 2007. Previous reports have been prepared at four-year intervals to coincide with quadrennial IUGG meetings. Drs. Crawford and Greenan are the national representatives of the International Association for the Physical Sciences of the Oceans (IAPSO, <http://www.olympus.net/IAPSO/>).

The report examines Canadian contributions to physical oceanography, ranging from small-scale mixing to regional research projects and global-scale programs such as the International Argo Project. The report is available through the Canadian National Committee for SCOR web site at: [Canadian IAPSO Report for 2003 - 2007](#) The 53 page report, including a substantive list of references, is organized as follow:

#### Global Ocean

- International Argo Project
- Global Scale Modeling
- Climate Dynamics
- Abyssal Flows
- El Nino-Southern Oscillation (ENSO)
- IPCC 4<sup>th</sup> Assessment Report
- Other Global Studies

#### Arctic

- Climate Variability
- Arctic Throughflow
- Sea Ice
- Contaminants Transport
- Carbon Cycle and Ecosystems

#### Pacific Ocean

- Northeast Pacific Ocean
- Subarctic Ecosystem Response to Iron Experimental Release
- Mesoscale Eddies
- Continental Slope and Shelf-slope Exchanges
- Continental Shelf Studies
- Inshore Waters

#### Atlantic Ocean

- The Labrador Sea
- Application of Satellite Altimetry
- Basin Scale Processes
- Atmosphere-Ocean Interactions and Surface Waves
- Biophysical Processes
- Coastal and Nearshore Processes
- Gulf of St. Lawrence

#### Turbulence and Mixing

- Coastal Mixing Induced by Internal Waves
- Island Wake Mixing
- Turbulence in the Nearshore Zone
- Turbulence and Waves in the Laboratory
- Intrusions and double Diffusion
- Mixing on the Continental Shelf
- Acoustics, Bubbles and turbulence

#### Tsunami Research

#### References

#### Internet sites

## **Request for comments on a proposal: a research consortium in atmospheric and related sciences**

*Text in italics prepared by Paul Myers, CMOS President 2007-08, [pmyers@ualberta.ca](mailto:pmyers@ualberta.ca)*

*Recently some discussion has been held about the possibility of forming a research corporation in atmospheric (and related) sciences, based upon the model of UCAR in the United States. Following a discussion at the past CMOS congress in St. John's, Charles Lin of Environment Canada forwarded a short discussion paper on this idea to CMOS, asking for comments. CMOS has posted this document on its web site, asking for comments from members so that the society executive can provide an informed choice.*

*You may ask why this discussion is also being submitted here in an ocean sciences newsletter. I suggested this for two reasons. Firstly, I view ocean sciences as a related discipline to atmospheric sciences and thus would hope that if anything comes out of these discussions, that oceanography is also involved. Secondly, if there are no comments about ocean sciences and inclusion of oceanography, it will be ignored in the ongoing discussions. Thus I think it is important that this material be 'advertised' in a marine sciences forum so that those who think this is relevant or of interest provide comments to the CMOS executive (or directly to the organizers).*

The proposal briefly described below was discussed at a “Town Hall” meeting held 4:30 pm - 5:30 pm May 31, 2007 at the Delta Hotel in St. John’s, Newfoundland (during the 2007 CMOS/CGU/AMS Congress). A brief but wide-ranging discussion was held but no conclusions were reached. The committee looking into the matter feels that it would be useful and in fact necessary to solicit additional input from members of the broader community before proceeding further. In that vein CMOS members are encouraged to consider the matter and submit their comments to the CMOS Executive, c/o the Executive Director, at [exec-dir@cmos.ca](mailto:exec-dir@cmos.ca). with a view to coming up with a CMOS position on the matter.

### Preamble

The Atmospheric Science and Technology Directorate of Environment Canada (EC) organizes an annual meeting of the Heads and Chairs of university departments in Canada engaged in atmospheric and related research. At a recent meeting (April 11, 2007), the idea of a “Canadian UCAR (University Corporation for Atmospheric Research)” was discussed. There was sufficient interest to have a committee examine this further. The committee consisted of Charles Lin (Chair), Don MacIver, Ann McMillan (all of EC), James Drummond (Dalhousie University and University of Toronto), John Gyakum (McGill University) and Theodore Shepherd (University of Toronto). A recommendation was to hold a Town Hall at the St. John’s CMOS/CGU/AMS Congress to have a wider discussion.

### Concept

A research consortium consisting of Canadian university and/or government laboratories engaged in atmospheric and related sciences.

### Rationale

- There is little opportunity for representatives of university departments to meet regularly to discuss issues of common interest.
- Earth System Science is becoming increasingly important, and the consortium would facilitate research and training in this area.
- There already exists significant university-government collaborative initiatives, such as the co-location of the Canadian Centre for Climate Modelling and Analysis (CCCma) and the University of Victoria; the Canadian Network for the Detection of Atmospheric Change (CANDAC); the Canadian SPARC (Stratospheric Processes And their Role in Climate) program; and the Adaptation and Impacts Research Division (AIRD) of EC. Inclusion of government laboratories in the consortium would further promote this synergy and facilitate technology transfer from universities to EC for the public good of Canadians.
- In view of research funding pressures faced by both universities and government laboratories, the consortium would explore new models of funding (e.g., UK's Natural Environment Research Council, NERC) and doing collaborative research (e.g., a "Canadian NCAR" or a network of environmental research centres across Canada).
- Outreach and communication would be improved as a result of the consortium through sharing of expertise and improved coordination.

### **Impacts of Severe Arctic Storms and Climate Change on Arctic Oceanographic Processes**

Report by Will Perrie, [PerrieW@mar.dfo-mpo.gc.ca](mailto:PerrieW@mar.dfo-mpo.gc.ca)

This project, led by BIO's Ocean Sciences Division (OSD), has recently been initiated and funded as part of the International Polar Year (IPY). Its focus is to understand the effects of intense storms and severe Arctic weather on coastal regions. The locations that will be studied are the Southern Beaufort Sea, and the Western Canadian Arctic.



Figure 1. Example of ocean surface waves.

Climate change influences storms and severe weather by altering the areas of open water and ice cover. Ocean surface flows modulate storm development, storm direction, and marine winds. Increased open water in the Arctic affects Arctic weather. Scientific research in this IPY project will examine the following ocean processes: waves, storms, ocean currents, marine winds, erosion, and sediment deposits.

Coastal land and water are vital to the people of Northern Canada. The coast is an important part of their daily lives and culture. Arctic storms have an effect on sediments, erosion, waves, and surges. Changes that occur in these areas influence arctic lifestyle, aquatic species, and resource development.

Arctic storms seem to be growing in strength. Increased understanding of storms and patterns will provide information beneficial to Northerners.



Figure 2. Example of Arctic storm.



Figure 3. Erosion hazard index for areas of the coast near Tuktoyaktuk.

This project is a collaboration between the Ocean Circulation Section (Will Perrie) and Coastal Ocean Sciences Section (Charles Tang) of OSD, and also with Natural Resources Canada (Steve Solomon) and McGill University (John Gyakum). A complementary PERD (Panel on Energy R&D) project led by Steve Solomon is mooring an array of instruments to collect wave and current data during summer storms off Tuktoyaktuk.

Automatic meteorological data is available from a station on nearby Pelly Island maintained by MSC (Meteorological Service of Canada). Finally collaboration with the Institute of Ocean Sciences (H. Melling) is providing offshore measurements of waves and currents at a deep water position nearer to the shelf break.

### **Savi Narayanan Elected Vice Chair of IOC**

Dr. Savi Narayanan was elected as the Vice Chair (VC) of Intergovernmental Oceanographic Commission (IOC) during the 24th Session of the IOC Assembly, held on June 19-28, 2007. The IOC of UNESCO was established in 1960 and now has the mandate to "promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and

to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States." The Officers of IOC consist of a chair and 5 vice chairs to ensure representation from all geographical regions.

Canada has been a major contributor to IOC and thus to global ocean science and had several vice chairs and chairs in the past. Geoff Holland, Chairman from 1995 to 1999 is still an active participant in IOC even after his retirement.

Savi holds a doctorate degree in applied mathematics (1973) from Harvard University. Savi has had a rich and diverse career in ocean sciences in Canada, including researcher, consultant, data manager and senior administrator. Currently in the Department of Fisheries and Oceans she is the Dominion Hydrographer of Canada, and the Director General of Ocean-Sciences and Canadian Hydrographic Service.



(left to right) Savi Narayanan, Canada, VC; Neville Smith, Australia, VC; Cherif Sammari (Tunisia), VC; Javier Valladares (Argentina), Chair; Koïchiro Matsuura, Director General of UNESCO; Julian Reyna (Colombia), VC; Patricio Bernal (Executive Secretary, IOC)

## **Symposium on the Ocean in a High-CO<sub>2</sub> World**

SCOR, IOC of UNESCO, IAEA and the IGBP are planning a second Symposium on the Ocean in a High-CO<sub>2</sub> World in Monaco, October 6-8, 2008. The symposium will feature invited and contributed oral and poster presentations on the following topics:

- scenarios of ocean acidification
- effects of changes in seawater chemistry on nutrient and metal speciation
- ocean carbon system from deep-time to the present to the distant future
- paleo-chemistry
- mechanisms of biocalcification
- impacts on benthic and pelagic calcifiers
- physiological effects, from microbes to fish
- adaptation and (micro)evolution
- fisheries, food webs, and ecosystem impacts
- biogeochemical consequences and feedbacks to the Earth system
- economic consequences
- CO<sub>2</sub> disposal

Information about the meeting will be posted at [www.ocean-acidification.net](http://www.ocean-acidification.net) as it becomes available.

## **Registration for OBI'07 Conference**

The Centre for Marine Biodiversity and the Bedford Institute of Oceanography (BIO) announce the opening of general registration for the Ocean Biodiversity Informatics (OBI) International Conference on Marine Biodiversity Data Management being held at the Main Auditorium of the Bedford Institute of Oceanography, Dartmouth, N.S., Canada, on October 2-4, 2007. Links to the self registration form and other conference information can be found at <http://www.marinebiodiversity.ca/OBI07>

Fees on or before Sep 10/2007: Individual \$100; Student \$50; Banquet Ticket \$45. Fees after Sept 10/2007: Individual \$125; Student \$60; Banquet Ticket \$55. All registrations include: entrance to presentations at BIO on Oct 2,3,4; coffee and lunch at BIO on Oct 2,3,4; reception at BIO on Oct 2; shuttle service between local hotels, BIO and Pier 21; parking at BIO. Full fee registrations include ticket for Pier 21 banquet on Oct 3. DFO, BIO and CMB personnel are admitted without charge to all BIO activities except the Pier 21 Banquet for which tickets must be purchased separately. Space is limited, so please register early!

This conference is co-organized by International Ocean Data and Information Exchange (IODE), the International Council for Exploration of the Sea (ICES) and the Ocean Biogeographic Information System (OBIS) and is intended to focus on biological data quality issues and the value of cross-disciplinary interchange. Abstracts of 45 oral presentations and 12 posters have so far been submitted and are also available for online viewing.

## **Congress 2008 Call for Sessions**

The Canadian Meteorological and Oceanographic Society (CMOS) Congress 2008 will be held in Kelowna, British Columbia, Canada at the Grand Okanagan Lakefront Resort from 26 to 30 May, 2008. The Congress theme is "Water, Weather, and Climate: Science Informing Decisions". In addition to the normal CMOS Congress Program, the Scientific Program Committee has proposed the following special sessions: International Polar Year; Mountain weather, climate and hydrology; Water resources and climate change; Operational oceanography; Coastal oceans in a changing climate; Fire weather and forecasting; Forest hydrology; Air quality in valleys; Avalanche science and forecasting; Energy and climate; Climate change policy and economic impacts; ocean models.

If you are interested in proposing a new special session or being a convener/co-convener of the above sessions, please submit your session proposal through: [https://www1.cmos.ca/abstracts/theme\\_proposal/default.asp](https://www1.cmos.ca/abstracts/theme_proposal/default.asp) The proposal should include a few sentences describing the special session. The deadline for proposing a special session is September 14, 2007.

Peter Jackson ([peterj@unbc.ca](mailto:peterj@unbc.ca)) and  
Diane Masson ([MassonD@pac.dfo-mpo.gc.ca](mailto:MassonD@pac.dfo-mpo.gc.ca))  
Co-Chairs of the Scientific Program Committee CMOS 2008 Congress

## **Congrès 2008 Appel de sessions**

Le Congrès 2008 de la Société Canadienne de Météorologie et d'Océanographie se tiendra à Kelowna, Colombie-Britannique, du 26 au 30 Mai 2008. Le thème du congrès est "Eau, météo, et climat: La science comme outil de décision". En plus du programme habituelle de la SCMO, le Comité du Programme Scientifique suggère les sessions suivantes: Année Polaire Internationale; Météo de montagne, climat et hydrologie; Ressources hydriques et changement climatique; Océanographie opérationnelle; Océans côtiers et le changement de climat; Feu, météo et prévisions; Hydrologie des forêts; Qualité de l'air dans les vallées; Étude des avalanches et prévisions; Énergie et climat; Politiques sur le changement climatique et impacts économiques; modélisation des océans.

Si vous avez une session spéciale à nous proposer ou si vous êtes intéressé à présider/co-présider une des sessions ci-dessus, veuillez nous soumettre votre proposition à partir du site [https://www1.cmos.ca/abstracts/theme\\_proposal/default.asp](https://www1.cmos.ca/abstracts/theme_proposal/default.asp) Votre proposition devrait inclure une courte description de la session spéciale. La date limite pour envoyer vos propositions est le 14 septembre 2007.

Peter Jackson ([peterj@unbc.ca](mailto:peterj@unbc.ca)) et  
Diane Masson ([MassonD@pac.dfo-mpo.gc.ca](mailto:MassonD@pac.dfo-mpo.gc.ca))  
Co-présidents du comité du programme scientifique, SCMO 2008

## **First Workshop on Sustaining Arctic Observing Networks, 12-14 November 2007 Stockholm, Sweden**

The need for a well-coordinated and sustained Arctic Observing Network that meets scientific and societal needs has been identified in numerous high profile reports and at a variety of workshops and conferences. In November 2006 the Arctic Council (AC) urged all member nations to maintain and extend long-term monitoring of change in the Arctic, with a view to building a lasting legacy of the International Polar Year (IPY). Further, the AC requested that its working group, the Arctic Monitoring and Assessment Programme (AMAP), work with other AC working groups, the International Arctic Science Committee (IASC), and other partners in efforts to create a coordinated Arctic Observing Network that meets identified societal needs. The goal of developing an Arctic Observing Network as a legacy of IPY (WMO/ICSU) was endorsed by the WMO XV Congress in May 2007.

In January 2007 the Sustained Arctic Observing Networks Initiating Group (SAON IG), composed of representatives of international organizations, agencies, and northern residents involved in research and operational and local observing, has been formed to develop a set of recommendations on how to achieve long-term Arctic-wide observing activities that provide free, open, and timely access to high quality data that will realize pan-Arctic and global value-added services and provide societal benefits. The Swedish and Canadian IPY Committees have agreed to take the lead in the launch of the SAON initiative by running a succession of workshops together with the SAON IG. The first workshop will be held in Stockholm, Sweden on 12-14 November 2007 and the second workshop will be held in Canada in Spring 2008. A third workshop in Finland is planned for Autumn 2008, to be hosted by the Finnish Meteorological Institute.

The members of the Workshop Organizing Committee invite you to the First Workshop on Sustaining Arctic Observing Networks:

Kjell Danell (co-chair), IPY Joint Committee  
Sverker Sorlin (co-chair), Swedish IPY Committee  
John Calder, AMAP  
David Carlson, IPY IPO  
David Hik, Canadian IPY Committee  
Volker Rachold, IASC  
Odd Rogne, AMAP and IPY IPO

For further information, please go to: <http://www.arcticobserving.org>

## **International SCOR Newsletter No. 9 July 2007**

The latest international SCOR newsletter may be found at: <http://www.scor-int.org/> It contains reports on a number of issues, including: the movement of the SCOR Secretariat to the University of Delaware; an update on SCOR capacity-building activities; information on several SCOR Working Groups (WG 125 on Global Comparisons of Zooplankton Time Series, WG 126

on Role of Viruses in Marine Ecosystems, WG 127 on Thermodynamics and Equation of State of Seawater); information on Large-Scale Ocean Research Projects (GEOHAB, GEOTRACES, GLOBEC, IMBER, SOLAS), and other activities such as the Second Symposium on The Ocean in a High-CO<sub>2</sub> World, the Surface Ocean CO<sub>2</sub> Variability and Vulnerability Workshop, the SCAR/SCOR Expert Group on Oceanography Southern Ocean Observing System Workshop, various publications and information on SCOR-related upcoming meetings.

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

Newsletter #32 will be distributed on October 18, 2007. Please send contributions to [dick.stoddart@sympatico.ca](mailto:dick.stoddart@sympatico.ca)  
Bulletin #32 sera distribué le 18 octobre 2007. Veuillez faire parvenir vos contributions à [dick.stoddart@sympatico.ca](mailto:dick.stoddart@sympatico.ca)

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