



**CANADIAN OCEAN SCIENCE NEWSLETTER**

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

**Newsletter Number 64, 27 April 2012**

**Bulletin numéro 64, le 27 avril 2012**

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## OCEAN SCIENCE PROGRAMS

### **Update on SCOR/InterRidge WG 135: Hydrothermal Energy Transfer and its Impact on the Ocean Carbon Cycles**

The WG met in Hangzhou, China on 10-11 October 2012. Meeting participants worked on two modeling and synthesis papers that will present conceptual models for carbon cycling at the ocean-crust interface and in hydrothermal plumes. The group plans to hold a final meeting and workshop later this year.

### **Update on SCOR WG 139: Organic Ligands – A Key Control on Trace Metal Biogeochemistry in the Ocean**

The WG met for the first time in Salt Lake City, Utah, USA on 25 February to begin to fulfill its terms of reference. Bioactive metals are important at all levels of the oceanic food chain, in terms of availability of trace metals for organismal growth (e.g., iron) or sequestration of toxic trace metals (e.g., copper). In this way, ligands play an important—yet poorly quantified—role in the global carbon cycle and climate. A better understanding of the role of ligands in the global carbon cycle is necessary for specifying model parameters correctly. On a more basic level, ligands control the global cycles of trace elements by their effects on solubility and residence time of the metals in seawater. The working group discussed actions needed to develop a database of the experimental results from ligand titrations and measurements in the ocean (including on GEOTRACES sections), the need for additional intercalibrations and development of more-standardized methods, how to create an online resource of best practices, and how to extend the study of ligands to developing countries.

### **Arctic Productivity**

(Source: [UK National Oceanographic Centre](#))

Increasingly large areas of the Arctic Basin are being exposed to sunlight, which promotes intense phytoplankton blooms during summer months. This is encouraging some to think that a northward expansion of fisheries will automatically follow.

But can such increased productivity be sustained?

To address these uncertainties, ocean modellers from the National Oceanographic Centre (NOC) Southampton have been working to compare the way in which regional and global ocean models describe present day Arctic Ocean ecosystems and the physical factors that

## CNC-SCOR

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*Bjorn Sundby (SCOR Past President)*

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

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

control them. This work has been done in collaboration with researchers from Los Alamos National Laboratory (USA), International Arctic Research Centre (University of Alaska, USA), Polar Science Centre (University of Washington, USA), and Environment Canada (Canada).

Until recently, Arctic Ocean ecosystems received little attention from modellers because of the Arctic Basin's status as a relatively unproductive area. This biological inactivity stems from the region's lack of nutrients, near-complete cover of sea-ice and polar night conditions during the winter months. For modellers studying the biological productivity of the World Ocean, the Arctic Ocean has rarely been a focus of attention.



*Photo: Uppsala University*

The two factors that control the amount of phytoplankton present are

sunlight and nutrients. The Arctic Ocean has very stable vertical stratification that prevents mixing up of deep, nutrient-rich waters. Significant inputs of freshwater from rivers and meltwater from ice act as a freshwater slick – or lid – preventing deeper nutrient-rich waters coming to the surface, with the result that the surface layers of the Arctic Ocean are very poor in nutrients.

All five models participating in the study showed similar and realistic spatial patterns of plankton productivity. However, the models disagreed on the fundamental question of which factor – light or nutrients – was most important for controlling present day Arctic productivity. At present, light and nutrient limitation are tightly coupled together because both are largely driven by the sea-ice. But if the retreat of Arctic sea-ice continues into the future as currently expected, the link between sea-ice and nutrient levels will weaken and the predictions of the models will diverge.

One of the study's authors, Katya Popova suggests: "Care should be taken in carrying out forecasting of the Arctic Ocean ecosystem dynamics in its future transition to the seasonally ice free ocean until there is a sufficient confidence in models ability to predict the present day state of the Arctic Ocean ecosystems."

Further, they caution against the popular view that increased light availability in the ice-free Arctic will simply translate into increased biological productivity that will, correspondingly, promote the northward expansion of

fisheries. Arctic productivity may instead respond quite differently because of the complex impact of climate change on nutrient availability ([click](#)).

## MEETINGS

### CNC-SCOR Annual Meeting, May 28, Montreal

CNC-SCOR will hold its annual business meeting on the first day of the 46th CMOS Congress, May 28<sup>th</sup>. The Committee will meet in Symphonie 2B, on Level 5 of the Hyatt Regency, Montreal. Among the topics discussed will be the selection of a new Chair, the 2012 SCOR-International meeting (October in Halifax), the 2012 lecture tours, and the proposals for new SCOR Working Groups.

## JOBS & TRAINING

### Research Associate, UBC

UBC's Pacific Centre for Isotopic and Geochemical Research (PCIGR) seeks a talented and enthusiastic individual to join this dynamic and technically innovative geochemistry research facility. The PCIGR is a world-class facility with an amazing pool of analytical instruments. The breadth in capability of the facility - radiogenic isotopes, stable isotopes, age dating, trace element geochemistry, in situ analysis by laser - enables a wide range of cutting-edge geochemical research in the earth, environmental, oceanographic, atmospheric and biological sciences. The successful candidate will be hired as a Research Associate (Faculty Member) for a three year term. There is the possibility of renewal based on funding and performance. Further details are here ([click](#)) with an application deadline of **May 15**.

### Professeur(e), géochimiste des isotopes stables, UQAM

Le Département des sciences de la terre et de l'atmosphère recherche des candidats/candidates qualifiés afin de renouveler son corps professoral et assurer un développement de qualité dans tous les domaines d'activités ([cliquer](#)). Date d'entrée en fonction : **1er juin**

#### SOMMAIRE DE LA FONCTION

- Enseignement aux trois cycles universitaires
- Recherche dans le domaine
- Services à la collectivité

#### EXIGENCES :

- Doctorat spécialisé dans le domaine des isotopes stables légers
- Être en mesure de développer un programme de recherche en géochimie des isotopes stables
- Recherche et publications dans les domaines comme l'environnement, l'hydrogéologie, la paléoclimatologie ou la géologie marine
- Démontrer un intérêt pour l'enseignement aux trois cycles universitaires
- Maîtrise du français parlé et écrit

## Professeur(e) régulier en biologie marin, UQAR

L'Université du Québec à Rimouski (UQAR) désire engager une professeure ou un professeur régulier en biologie marine ([cliquer](#)). La personne retenue sera associée au Département de biologie, chimie et géographie (DBCG). Elle aura une responsabilité d'enseignement aux trois cycles universitaires, notamment au sein de la concentration «sciences marines» du baccalauréat en biologie et interagira directement avec le personnel scientifique rattaché au DBCG. Les recherches des professeurs de ce département qui sont associées au domaine des sciences de la mer concernent l'étude et l'aménagement des organismes et écosystèmes marins et côtiers, l'écologie comportementale, l'écologie microbienne, la biologie adaptative et évolutive, la paléontologie et la biologie du développement des poissons, la télédétection et la géochimie. Ces travaux traitent d'aspects tant fondamentaux qu'appliqués. Ces chercheurs sont fortement impliqués dans plusieurs regroupements de recherche tels que le Centre d'études nordiques (CEN), ArcticNet, Québec-Océan, et le Groupe de recherche sur les environnements nordiques (BORÉAS). Date d'entrée en fonction : **1er décembre**

International oceanographic opportunities are posted on the CMOS site ([click](#)).

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

## GENERAL

### Ocean Acidification Survey

The International Ocean Acidification Reference Group (iOA-RUG) is looking for community feedback on the use of CLIVAR/CO<sub>2</sub> repeat hydrography data. Scientists working in the area of ocean acidification are urged to complete the online questionnaire ([click](#)).

### New Funding Opportunity in Marine Microbiology

The Moore Foundation has opened a new competition as part of its Marine Microbiology Initiative (MMI; [click](#)). Ten to fifteen of the world's most innovative scientists will be chosen based on their potential to conduct cutting-edge research that supports MMI's objectives to uncover the principles that govern the interactions among marine microbes and that govern microbially mediated nutrient flow in marine ecosystems. MMI expects to support candidates at varying career stages, from a variety of scientific backgrounds, to enhance the diversity of tools and approaches used to address outstanding questions in the field. The application deadline is **June 4**.

MMI's present five-year program concludes at the end of this year. It supported 12 Investigators to work on: evolution and ecology; bacterial, archaeal, eukaryotic, and viral organisms and communities; open ocean, coastal, and benthic habitats; and carbon, nitrogen, and sulfur biogeochemistry.

### Strategic Environmental Assessment for the SW Scotian Slope

DFO's "Review of a Strategic Environmental Assessment for the Southwestern Scotian Slope" looks at the Canada-Nova Scotia Offshore Petroleum Board document entitled "Strategic Environmental Assessment: Petroleum Exploration Activities on the Southwestern Scotian Slope." The review found that the SEA had

generally identified the major ecosystem attributes of the southwestern Scotian Slope study area, and provided a general characterization of applicable environment-offshore petroleum activity interactions. However, several recommendations were made for improvements ([click](#)).

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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 #65 will be distributed on June 15, 2012. Please send contributions to Bob Wilson, [wilson@telus.net](mailto:wilson@telus.net)  
Bulletin #65 sera distribué le 15 juin 2012. Veuillez faire parvenir vos contributions à Bob Wilson, [wilson@telus.net](mailto:wilson@telus.net)

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