

## **THE INTERNATIONAL OCEAN CARBON COORDINATION PROJECT (IOCCP)**

*A joint project of SCOR and IOC and an affiliate program of the Global Carbon Project.*

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### **The IOCCP is launched at first workshop**

On January 13th, the SCOR-IOC Advisory Panel on Ocean CO<sub>2</sub> and the IGBP-IHDP-WCRP Global Carbon Project launched their new joint pilot project, the International Ocean Carbon Coordination Project. With JGOFS ending, ocean carbon research and observations will now be carried out through a number of national, regional and international programs such as CLIVAR, SOLAS, and IMBER, with no formal mechanism for communication or coordination of these programs or their results. At the same time there is keen interest to develop a more integrated and global view of ocean carbon. The IOCCP will work with national, regional, and international programs and data centers to provide a global view of ocean carbon by: (i) developing a compilation and synthesis of ocean carbon activities and plans; (ii) working with international research programs to fully integrate carbon studies into planning activities; (iii) standardizing methods, qc/qa procedures, data formats, and use of certified reference materials; and (iv) supporting regional synthesis groups to develop regional and global databases.

Further reading:

About the IOCCP (Web-site)

Workshop Summary including objectives and action items (pdf 86 kb)

Workshop Results including overview talks, working group reports, and photos! (Web. Note: workshop results are also available as a cd-rom; please contact [m.hood@unesco.org](mailto:m.hood@unesco.org) for a free copy.)

EOS article about the IOCCP (pdf 1Mb)

### **Ocean carbon experts to be added to CLIVAR Basin Panels**

One of the first objectives for the IOCCP developed at the first workshop was that the IOCCP should serve as a focal point for communication between the carbon community and CLIVAR to identify key areas of common interest and promote stronger collaboration in developing a measurement strategy for carbon and tracers on repeat hydrographic sections. The group developed a specific action item stating that several participants would develop a statement to the CLIVAR community about the need for tracer measurements on specific repeat sections, promote the

appointment of carbon representatives to the CLIVAR basin panels, and establish a closer dialogue with CLIVAR planning of repeat section work in each basin. The CLIVAR community has long expressed the same needs - the 2002 meeting of the CLIVAR Scientific Steering Group (SSG) set action items to identify ocean carbon experts to liaise with the basin panels, and to work with the SCOR-IOC CO2 Panel and these identified representatives to develop a suitable scientific and implementation oversight mechanism. The IOCCP prepared a proposal to the CLIVAR SSG 12 (May 2003) suggesting that ocean carbon experts should be added to the Basin Panels as full members rather than serving in a liaison capacity. The IOCCP has offered to work closely with the CLIVAR project office to identify appropriate experts for each of the Basin Panels and to serve as the focal point for international coordination and planning for ocean carbon and tracer work within CLIVAR. This proposal was accepted by CLIVAR SSG 12 and the IOCCP and CLIVAR International Project Office staff are working closely together to implement it.

Included in this proposal is an annex listing a draft set of core and ancillary measurements. It is important for the international community to reach consensus on such a list to be able to identify which sections may not be measuring critical parameters and to enable national funding agencies to support those key measurements on repeat sections funded by other countries. This list has generated much discussion in the community and we have not yet reached consensus. The IOCCP will continue to foster this discussion via email, and is considering the need for an international workshop in early 2004 to address this and other issues for carbon, tracer, and other biogeochemical measurement priorities on the repeat hydrographic sections.

Further reading: Proposal to CLIVAR SSG 12, Document 5.3.1: CLIVAR and Ocean Carbon (pdf 73kb)

### **IOC to facilitate permission process for research in territorial waters**

At the first IOCCP workshop, the group discussed the difficulties in obtaining permission to make measurements from industry or research ships operating in territorial waters. In several cases, the delays in obtaining the proper permission were so long that the shipping company's route had changed before the permission was granted. The IOC-WMO Joint Commission on Oceanography and Marine Meteorology (JCOMM) Volunteer Observing Ships (VOS) and Ships of Opportunity (SOOP) programs measuring meteorological variables and surface temperature and salinity do not seem to have these difficulties because of the real-time public release of data and agreements of countries participating in the JCOMM programs. The participants at the workshop noted that the ocean carbon community is not technically ready at this point to move towards real-time public release of data, and at present, each carbon SOOP line is operating independently and not as part of any international research program. The workshop requested the IOC to investigate ways to facilitate obtaining proper permissions in a timely fashion. As a first step, the IOCCP developed a case history of specific problems encountered by scientists in their attempts to obtain the necessary permissions. It became clear that there is much uncertainty as to the proper mechanism or channels to seek permission. The IOC is preparing an on-line guide and updated list of focal points in to which scientists, operating through their own proper governmental focal points, may obtain permission to make measurements in territorial waters. The IOCCP will continue to work with the IOC to further develop mechanisms and agreements that will facilitate difficult cases.

Further reading:

UN Convention on the Law of the Sea (See Part XIII on Marine Scientific Research).

## **IOCCP investigates ways to create journal articles for data sets**

A major issue facing international cooperation in global sciences is how to appropriately acknowledge the contributions of scientists who develop techniques, make the observations, and share their data with the wider community. At a time when so much of our field is limited by lack of high-quality observational data, we need to find a way to encourage scientists to pursue technology development and observations in a way that doesn't limit their careers because of lack of publications or lack of institutional support for these critical contributions. This is especially problematic for international sharing of data, where national funding agencies need to see their contributions and the contributions of the scientists they support acknowledged. In many fields of science (e.g. human genome project, for example), it is not uncommon to see journal articles with 30 or more co-authors, pointing to the need to adequately acknowledge the contributions from many different groups. In oceanography, this remains rare.

One of the action items from the first workshop states that the IOCCP should work with scientific groups and appropriate organizations, such as the American Geophysical Union and the European Geophysical Society, to develop a policy for the proper citation of large-scale data sets. Several workshop participants suggested that one solution may be the development of a peer-reviewed journal that would provide data contributors with a publication and data users with a clearly defined way to appropriately acknowledge the data used.

According to AGU Deputy Executive Director and Director of Publications, Judy Holoviak, AGU developed a policy on referencing data because the publications committee, several JGR editors, and individuals involved in data centers had many of the same concerns as those expressed by the IOCCP. Dr. Holoviak points out that there are two aspects of this policy relevant to the IOCCP:

"1. Citing Deposited Data. Any data set that is deposited with a center that meets AGU's requirements for long-term preservation and open (not necessarily free) access can be cited just in the same way as a journal article is cited. I've been told by a knowledgeable librarian that ISI picks up such citations to data sets, but I don't have first-hand knowledge to that effect. Data that are housed at other facilities or available only through the researcher are considered to be in the same category as grey literature or personal communications and would not be included in the reference lists. The journal *Paleoceanography* has made extensive use of data deposits."

"2. Data Articles. Editors are free to establish a category of articles that are primarily designed to discuss the acquisition, preparation, and use of key data sets. The requirements for the substance of these articles and their lengths will be determined by the journal Editor(s). I'm not certain whether the JGR-Oceans Editors have a standard way of dealing with such papers, but they may be more amenable to establishing this category of article if they heard from folks in the community who would like to see such articles published."

This offers the IOCCP several ways of approaching this issue, and we will continue our investigations and community-wide discussions to determine the best course of action. One possibility may be to host a scoping meeting or special session at an international meeting that would bring together the scientific community, agencies, scientific unions, journal publishers, and data management experts to discuss possible solutions. This is clearly an issue that is being discussed in other field of global science and we should build on existing mechanisms where possible to develop compatible approaches.

Further reading: AGU's Policy on Referencing Data in and Archiving Data for AGU Publications (Web)

### **South China Sea regional carbon pilot project to be launched in November**

Contributed by Arthur Chen.

The South China Sea Regional Carbon Pilot Project is a newly-formed contribution to the GCP agenda for pilot research in the South China Sea region. The approach is to provide initial funding in order to develop several theories regarding carbon cycle dynamics and fisheries productivity in the region, with a focus on biogeochemical dimensions and fisheries along with their interactions and feedbacks. A first workshop is being planned as part of Taiwan's contribution to the Southeast Asian Regional Committee (SARCS) for the START capacity building program. The main objective is to provide advanced training on carbon measurements, monitoring and modeling techniques, as well as to develop a GCP research collaboration team within SARCS. This program is being initiated by Arthur Chen (Institute of Marine Geology and Chemistry, National Sun Yat-sen University, Taiwan), with collaborators from Vietnam, Laos, Thailand, Singapore, Indonesia, Japan and the U.S.

Further reading: Carbon Cycles in the Fluvial and Oceanic Systems of Southeast Asia: IGBP News Letter (pdf 700kb); Advanced Training Workshop on South China Sea Regional Carbon Issues, Chung-Li and Kaohsiung, Taiwan, November 16-29, 2003 (Word 33kb)

### **U.S. Carbon Cycle Science Program develops ocean implementation plan**

Contributed by Scott Doney.

The U.S. Carbon Cycle Science Program has outlined a set of major scientific goals, several of which directly relate to improving understanding of the mechanisms and magnitude of ocean contributions to the global carbon cycle. At the request of the Carbon Cycle Interagency Working Group and their Science Steering Group, an interim Implementation Working Group was assembled in August, 2002, to draft a research plan to guide U.S. ocean carbon research over the next decade. The plan builds upon a series of planning workshops and reports held over the last several years. For the first phase (2005-2009), the effort is focused on the North Pacific and North Atlantic, with a follow-on 5 year field program planned for the Southern Ocean.

The overall goal of the program is to improve our understanding of how the ocean carbon cycle will respond to and feedback on anthropogenic climate change. Specific objectives are to: constrain the decadal evolution of the ocean inventories of carbon and related biogeochemical species; quantify the seasonal to interannual variability in air-sea CO<sub>2</sub> flux; improve understanding of mechanisms involved in carbon-climate feedbacks; and characterize the science behind proposed carbon mitigation strategies. The plan presents an integrated research strategy involving a series of linked elements: hydrographic transects; surface surveys; time-series; process studies; numerical modeling; technology development; and outreach and education.

The plan is available electronically from:

<http://www.carboncyclescience.gov/ccsp-oceans-implementation2may2003.htm>

Community input on the document is requested and will be incorporated into the final version of the plan to be released sometime in late 2003. Please send e-mail comments and feedback directly to the Chair of the implementation writing team (Scott Doney; [sdoney@whoi.edu](mailto:sdoney@whoi.edu)) by Thursday, July 24th.