THE INTERNATIONAL OCEAN CARBON COORDINATION PROJECT (IOCCP)

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

Project Coordinator: Kathy Tedesco, Intergovernmental Oceanographic Commission - UNESCO

NEWSLETTER No. 26, December 2009

*** GO-SHIP News
*** Surface Ocean CO₂ Atlas (SOCAT) Project Homepage Launched
*** Release of the Global Surface pCO₂ (LDEO) Database V2008
*** Special Issue on the Future of Ocean Biogeochemistry in a High-CO₂ World Published
*** New CO₂ Outreach Tool Developed

www.ioccp.org

GO-SHIP News

The Global Ocean Ship-based Hydrographic Investigations Panel was established in 2007 by the IOCCP and CLIVAR to develop a strategy for a sustained global repeat hydrography program as a contribution to the OceanObs09 Conference (September 2009) and to revise the 1994 WOCE hydrographic program manual. Based on community discussions at the OceanObs09 Conference, the Panel recommended the development of a sustained repeat hydrography program to:

- develop formal international agreements for a sustained international repeat ship-based hydrography program, including an internationally-agreed strategy and implementation plan building on the guidelines in the Community White Paper,
- advocate for national contributions to this strategy and participation in the global program,
- provide a central forum for communication and coordination, and
- develop syntheses of hydrographic data, in partnership with national, regional, and global research programs.

The IOCCP and CLIVAR International Project Offices have agreed to provide project office support to this program as it develops. In November, the 3rd session of the IOC-WMO Joint Technical Commission on Oceanography and Marine Meteorology (JCOMM) supported the initiative of IOCCP and CLIVAR to develop a sustained program for ship-based repeat hydrography.

Under the guidance of an expanded GO-SHIP committee, program development is moving forward and will begin its 2010 activities with an open 1-day international planning meeting in conjunction with the 2010 Ocean Sciences meeting on Sunday, 21 February, at the Crowne Plaza Hotel in Portland, Oregon. The meeting will (i) inform the wider community about the initiative to develop a sustained coordination activity for hydrography, (ii) review existing national plans and proposals for repeat...
hydrography, (iii) identify potential areas of duplication or sections that do not include
the full suite of core variables, (iv) review ongoing and planned ocean interior
synthesis activities, and (v) discuss data assembly / management of recent and near
future cruises. The agenda currently includes speakers from 11 countries who will
present their repeat hydrography plans. The meeting is open to all but space is limited.

More information about GO-SHIP and the international planning meeting is available
on the new GO-SHIP Web site at www.go-ship.org. The site includes an updated
inventory of on-going and planned repeat hydrography programs, a community
bulletin board, and links to resources for the hydrographic community. Draft chapters
for the revised hydrographic program manual are also available on the site. The final
versions will be made available in January 2010.

Surface Ocean CO2 Atlas (SOCAT) Project Homepage Launched

A dedicated SOCAT homepage is now available under http://www.socat.info/. The Surface Ocean CO2 Atlas project was initiated at the "Surface Ocean CO2 Variability and Vulnerability" (SOCOVV) workshop in 2007 where participants agreed to establish a
global surface CO2 dataset that brings together, in an common format all publicly
available fCO2 data for the surface oceans. After several meetings and workshop it is the
aim to release the first SOCAT dataset by summer 2010.

For more information: Visit www.socat.info

Release of the Global Surface CO2 (LDEO) Database v2008

The Global Surface pCO2 (LDEO) Database V2008 is now available online through
CDIAC web page: http://cdiac.ornl.gov/oceans/LDEO_Underway_Database/LDEO_home.html

Approximately 4.5 million measurements of surface water partial pressure of CO2
obtained over the global oceans during 1968-2008 are listed in the Lamont-Doherty
Earth Observatory (LDEO) database, which includes open ocean and coastal water
measurements. The data assembled include only those measured by equilibrator-C02
analyzer systems and have been quality-controlled based on the stability of the system
performance, the reliability of calibrations for CO2 analysis, and the internal
consistency of data. To allow re-examination of the data in the future, a number of
measured parameters relevant to pCO2 measurements are listed. The overall
uncertainty for the pCO2 values listed is estimated to be +/- 2.5 μatm on the average.

This version is referred to as Version 2008, and includes the data collected through 31
December 2008. In this update, twenty six new cruise/ship files are added to the
previous version 2007. Dr. Nicolas Metzl of Universite Pierre et Marie Curie, Paris,
kindly called our attention to discrepancies between his original and our data file listed
in Version 2007. The discrepancies were caused by applying temperature correction to
his data which were already corrected to SST. Affected are a total of 13,981 records for the southern Indian Ocean in the file names OISO for years 1998 and 2000 (File Name OISO). The errors range from -29.6 μatm to +1.3 μatm with an average of -9.27 +/- 3.43 μatm. In Version 2008, these errors are corrected, and a total of 67,403 new OISO data spanning years 2000-2008 are added.

The documentation for the database can be found in NDP-088r, which was updated to the latest version.

For more information please contact:
Alex Kozyr
Carbon Dioxide Information Analysis Center Environmental Sciences Division
Electronic address: kozyra@ornl.gov
Ocean CO₂ WWW Page: http://cdiac.ornl.gov/oceans/home.html

Special Issue on the Future of Ocean Biogeochemistry in a High-CO₂ World Published

The December special issue of Oceanography magazine:
December 2009
Volume 22, Number 4
Special Issue on the Future of Ocean Biogeochemistry in a High-CO₂ World
is now posted online at:
http://tos.org/oceanography/issues/current.html

The articles are all open-access. The hard copies will be available in early January.

Special Issue Features
- Ocean Acidification: A Critical Emerging Problem for the Ocean Sciences By S.C. Doney, W.M. Balch, V.J. Fabry, and R.A. Feely
- An Accounting of the Observed Increase in Oceanic and Atmospheric CO₂ and an Outlook for the Future By P. Tans
- Observing Ocean Acidification from Space By D.K. Gledhill, R. Wanninkhof, and C.M. Eakin
- Ocean Acidification in the California Current System By C. Hauri, N. Gruber, G.-K. Plattner, S. Alin, R.A. Feely, B. Hales, and P.A. Wheeler
- Effect of Ocean Acidification on the Speciation of Metals in Seawater By F.J. Millero, R. Woosley, B. DiTrolio, and J. Waters
- Ocean Acidification and the Increasing Transparency of the Ocean to Low-Frequency Sound By P.G. Brewer and K. Hester
- Ocean Acidification in Deep Time By L.R. Kump, T.J. Bralower, and A. Ridgwell
- Coral Reefs and Ocean Acidification By J.A. Kleypas and K.K. Yates
Despite the direct and unambiguous connections, links between the carbon cycle and climate change in the 21st century are often misunderstood by the public. Moreover, the importance of natural sinks in modulating the atmospheric CO₂ growth rate is often overlooked. With support from NASA's New Investigator Program, Galen McKinley of University of Wisconsin - Madison has developed a website (http://carboncycle.aos.wisc.edu/) with the centerpiece being a java-based applet (http://carboncycle.aos.wisc.edu/index.php?page=carbon-budget-tool) to address this community outreach need.

The applet allows users to define trajectories through 2100 of carbon sources (fossil fuel and land use) and sinks (land and ocean), and then to click a "run" button to see how this modifies the atmospheric CO₂ concentration. A rough scaling to the global mean temperature impact (in C and F) based on mean IPCC AR4 results is also provided. The website offers basic information about the carbon cycle with a focus on explaining the processes represented in the applet. This project aims to provide a tool widely applicable to the outreach and education needs of the carbon cycle community.

Please send any comment to Galen McKinley at gamckinley@wisc.edu.