

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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WAVES (Web-Accessible Visualization and Extraction System) website launched

CDIAC has developed a web based tool for extracting and plotting ocean carbon hydrographical data held at CDIAC. The data set includes total CO₂ & alkalinity, as well as temperature, salinity, oxygen, nutrients, CFCs and carbon isotopes, as well as the latitude longitude, depth, etc. The dataset contains data from 1972 up until the end of 1999. Simple X-Y plots can be generated instantly, and data can be downloaded either to the screen or in netCDF and text formatted files.

The most important idea of WAVES is to combine the full data search using all parameters with complete metadata information on each cruise. WAVES gets metadata information from Mercury. So far only discrete data is available through WAVES, but work is planned to include underway database soon.

The web address is <http://cdiac3.ornl.gov/waves/>. For more information contact Alex Kozyra (kozyra@ornl.gov)

Ocean carbon scientists in the news - P16N shows increased acidification

Early results from recent repeat hydrography on line P16N have reported on the doubled edged sword of the uptake of CO₂ by the global oceans. The Pacific has been observed to be warmer and more acidic (pH decrease of 0.025 units since the early 1990s), with potentially devastating effects on plankton and the entire oceanic food chain. Chris Sabine (PMEL) and Joanie Kleypas (NCAR) are quoted in an article in the Seattle Post. Read the article at: http://seattlepi.nwsourc.com/local/265052_acid31.html

Two projects on the optimisation of observation networks to deduce ocean CO₂ fluxes

Joellen Russell et al. are currently carrying out a NOAA funded project to revise the surface pCO₂ observational requirements to quantify air-sea fluxes in each of the oceans basins to within

± 0.1 PgC. The project will take into account an increased database of pCO₂ measurements and the effects of the biases due to seasonal availability of data. The key tool for the project will be the GFDL Earth System Model. Using the observations and model, the group will determine the regions which are likely to respond to both natural and anthropogenic climate variability.

Russell et al. have identified International linkages to IGBP, WCRP, IHDP, CarboOcean, PICES and the IOC, and will contribute to the efforts of the IOCCP in planning the strategy for measuring ocean pCO₂. For more information, contact Joellen Russell (jrussell@geo.arizona.edu)

On the other side of the air-sea interface, IOCCP are facilitating plans to design an experiment to evaluate the utility of installing high precision continuous atmospheric CO₂ sensors aboard ships carrying out underway ocean surface pCO₂ measurements. Several options for instrumentation currently exist, varying in price, data quality and level of autonomy, and there are currently several modelling tools available capable of assimilating data from such platforms, which will give an estimate of the error reduction in the calculated air-sea CO₂ fluxes. The project will be global in its scope, but will focus on the Southern Ocean to determine the best combination of land and ship based atmospheric measurements of atmospheric CO₂, given the logistical constraints of ship availability.

New time series web page on the IOCCP site

Nick Bates and Chris Sabine have led the development of an updated table of time series stations currently or soon to be measuring surface and/or interior carbon. This information is available at: <http://www.ioc.unesco.org/ioccp/TStable.htm>

The table is not yet complete, with some missing entries, and certainly some stations missing altogether. If you are a PI on a time series station measuring ocean carbon and would be prepared to be listed on the site, please contact Roger Dargaville (r.dargaville@unesco.org).

Alex Kozyr will also be creating a map to go with the table, similar to the maps for the hydrography and underway pCO₂ networks.

Ocean Carbon and the International Polar Year

As the International Polar Year approaches, there is a need to compile information about on-going and planned ocean carbon research in the polar areas. Building on information collected during the November International Repeat Hydrography and Carbon workshop, the regular inventories of the IOCCP, and compiled information from SOLAS and IMBER, we have developed an initial compilation of on-going or planned field programs for the Arctic and Antarctic regions. Many of these projects are not affiliated with or funded by the International Polar Year program, and many are multi-disciplinary programs that deal with a broad range of issues. In partnership with the research programs, the IOCCP will continue to develop this compilation and create a web-site database for this information. We would like to ask the community to please look over this initial compilation and provide us with corrections or additions (send comments to Maria Hood: m.hood@unesco.org). The programs covered in this initial inventory include:

I. Arctic

Baffin Bay / Davis Straights Hydrographic Sections

Barrow Straights Hydrographic Sections
MERICA program / Hudson Bay
Joint Western Arctic Climate Study (JWACS)/ Canadian Archipelago
Study of Environmental Arctic Change (SEARCH)
International Pan-Arctic Shelf-Basin Exchange Study (SBE)
Ocean-Atmosphere-Sea Ice-Snowpack (OASIS)
AR7W Hydrographic Section
75N Hydrographic Section
OWS Mike Hydrographic Program
Nuke Arctica VOS line
North Sea VOS line
St. Laurent and Laurier VOS lines

II. Antarctic

Post-WOCE Hydrographic Sections (approx. 40 lines)
OISO Hydrographic Program
Astrolabe VOS Line
Drake Passage VOS Line
CANOPO and Argau Program (hydrography and VOS)
SCACE Project
SAZ-SENSE Project
Synoptic Antarctic Shelf-Slope Interactions Study (SASSI)
CLIVAR SR3 Line
Climate of Antarctica and Southern Ocean Program (CASO)