CARBOOCEAN - the European motor for marine carbon cycle research

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http://www.carboocean.org

Data management

The CARBOOCEAN data portal

• was initiated between the Word Data Centre for Marine Environmental Sciences (WDC-MARE), the CarbonDioxide Information Analysis Center (CDIAC), and the Systèmes d'information Scientifiques pour la Mer at Institut français de recherche pour l´ exploitation de la mer (IFREMER-Sismer) as the first Distributed Networked Database (DND) for marine sciences

• plays the main role within CARBOOCEAN IP for disseminating the CARBOOCEAN data (e.g. within Global Monitoring for Environmental and Security, GMES) as well as giving access to historical data

• is a search engine like Google© which allows the user to search for parameters, principal investigators, methods, projects, regions, research vessels and cruises with the aim to disseminate CARBOOCEAN data and to give access to historical data from other projects

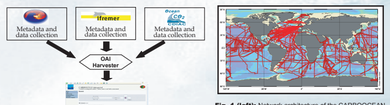

Fig. 1 (left): Network architecture of the CARBOOCEAN data portal (http://dataportal.carboocean.org)

Fig. 2 (above): Overview of data from underway CO_2 stations available using the CARBOOCEAN data portal (the dark red colors indicate historical data and the light red colors refer to data gathered within CARBOOCEAN Integrated Project (IP)

• hosts qualitiy-checked biogeochemical, physical and ecological data as well as historical data from former projects and other data bases, such as WOCE, GEOSECS, GLODAP, JGOFS, CARINA, CDIAC, CAVASSOO, in addition to incoming data from 7 voluntary observing ships (VOS) lines, 11 time series sites, and several research cruises

Project information

CARBOOCEAN

• aims at an accurate scientific assessment of the marine carbon sources and sinks with special focus on the Atlantic and Southern Oceans of -200 to +200 years from now

• will determine the ocean´s quantitative role for uptake of atmospheric carbon dioxide (CO_2), the most important manageable driving agent for climate change; since the ocean has the most significant overall potential as a sink for anthropogenic CO_2 the correct quantification of this sink is a fundamental necessary condition for all realistic prognostic climate simulations

• will create scientific knowledge which is essential to a quantitative risk-uncertainty judgement on the expected consequences of rising atmospheric CO_2 concentrations: It will be possible to guide the development of appropriate mitigation actions, such as management of CO_2 emission reductions within a global context (e.g. Kyoto Protocol, United Nations, 1997)

• consists of a consortium of the key European experts from Belgium, Denmark, France, Germany, Iceland, Morocco, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland, United Kingdom, and the USA

• is funded by the European Commission with 14.5 million € from 01.01.2005 for 5 years under contract 511176 and is coordinated by the University of Bergen & and the Bjerknes Centre for Climate Research through an International Project Office

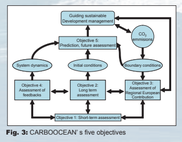

Fig. 3: CARBOOCEAN´s five objectives

1. Description of the CO_2 air-sea exchange on a seasonal-to-interannual scale for the Atlantic Ocean ocean and the Southern Ocean

2. Quantification of decadal-to-centennial large-scale Atlantic and Southern Ocean carbon inventory change

3. Quantification of the carbon sources and sinks at the European regional scale

4. Identification and understanding of biogeochemical feedback mechanisms which control marine carbon uptake and release

5. Integration of carbon observations into an integrated prognostic modelling framework

CarboSchools

Project CarboSchools

• was launched in June 2005 as a joint action of CARBOOCEAN and CarboEurope IP which deals with the assessment of the European terrestrial carbon balance

• is an educational initiative based on interdisciplinary school projects. The web site http://www.carboschools.org/ explains and encourages teacher-scientist partnerships and the development of school projects dealing with CARBOOEAN and CarboEurope topics

• provides you with a "Call for CarboSchools" to introduce the idea to the teachers, a "Teacher-scientists partner-ship guide" providing practical advice on how to implement school projects and articulate with curricula, a 40-page educational booklet "What we know, what we do not know and how we try to better understand global change"

• fosters partnerships between scientists, secondary school teachers and students. As the decision makers of tomorrow are young people are particularly affected by and concerned about the changes in the environment

Fig. 4+5: CarboSchools brochure (above)

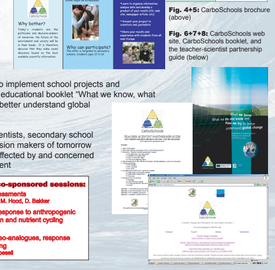

Fig. 6+7+8: CarboSchools web site, CarboSchools booklet, and the teacher-scientist partnership guide (below)

EGU CARBOOCEAN-related and co-sponsored sessions:

GS7 Ocean Carbon Source and Sink Assessments
Convenors: D. Wallace, R. Wanninkhof, C. Heinze, M. Hood, D. Bakker

BG3.01 Coastal biogeochemistry and its response to anthropogenic perturbations: inputs, gas exchange, carbon and nutrient cycling
Convenors: H. Thomas, A. Borges

BG6.02 Ocean acidification: chemistry, paleo-analogues, response of organisms and ecosystems, and modelling
Convenors: J.P. Gattuso, J. Kleypas, J. Orr, U. Riebesell

Bjerknes Centre For Climate Research