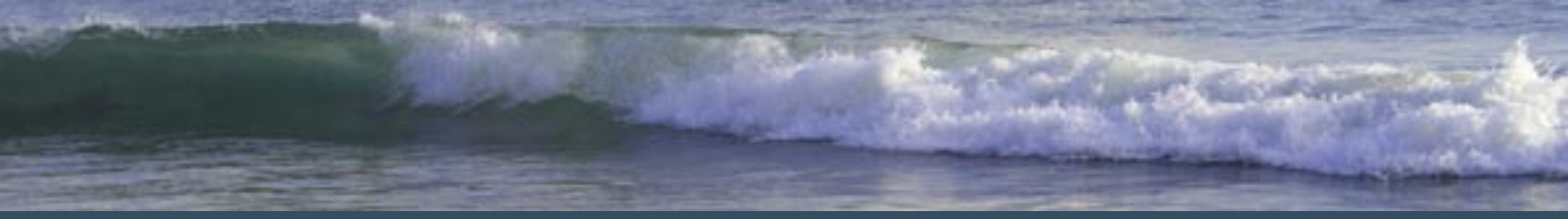


EUR-OCEANS: A European response to climate change and its impact on the oceans

Background

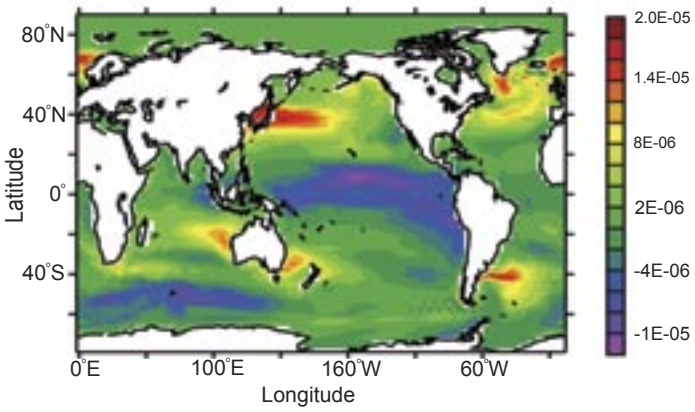
The earth's climate is changing and there is strong evidence that much of the change is attributable to human activities. Models indicate that expected levels of greenhouse gas emission - currently the highest in the last 650,000 years - will continue to warm the planet at a non-linear rate. Rising temperatures have a significant effect on precipitation and water cycles, ice and glacier formation, biodiversity, crop production and ultimately human health.

The oceans, which cover more than 70% of the earth's surface, play a fundamental and complex role in climate regulation. Rising global temperatures, have lead to increased inputs of fresh water from melting polar ice, which threaten to change the world's ocean currents that marine organisms rely on for food and transport. High concentrations of atmospheric CO_2 are also causing acidification of seawater, with detrimental effects on corals and other skeleton and shell-forming marine organisms.

One of Europe's responses to this challenge, at a scientific level, is to develop better and more effective overall scientific coordination, and a strategic re-structuring of scientific resources. The EUR-OCEANS network has a plan of action to help achieve this goal.

What is EUR-OCEANS?

EUR-OCEANS (European Network of Excellence for Ocean Ecosystems Analysis) is a network of excellence co-funded by the Sixth Framework Programme of the European Community. The network links 66 research institutions and universities from 25 countries. Its activities started in January 2005, and are intended to run until December 2008.



Air-sea flux of Carbon (micromol-C $cm^{-2}s^{-1}$)

Simulated map of the air-sea flux of carbon dioxide (CO_2). Image provided by: Fortunat Joos, University of Bern. The simulation was carried out with the "NCAR-CSM1.4-carbon" model at the University of Bern.

EUR-OCEANS is organized around a Joint Programme of Activities made up of:

• Integrating Activities: Including sharing of research facilities and databases, coordination of observation systems, integration of ocean and earth models and the promotion of mobility and communication within the network.

• Jointly Executed Research (JER): Aimed at developing computer models capable of assessing and forecasting the impacts of climate and human forcing on ocean ecosystems. Research modules include the identification and quantification of processes affecting ecosystems end-to-end, the development of models of biogeochemical fluxes and their impact on pelagic ecosystems, and the implementation of an ecosystem approach to the management of marine resources.

• Spreading of Excellence: Including a European programme of doctoral and post-doctoral training, speading of excellence to policymakers, end-users and to the European public.

EUR-OCEANS is managed by a General Assembly, where all partners are represented and the major decisions of the network are approved, and by a Steering Committee and an Executive Committee, in charge of the day-to-day management and direction.

How is EUR-OCEANS implemented?

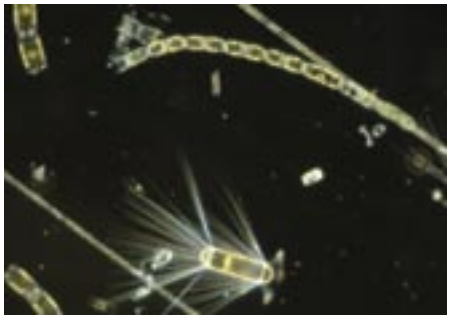
The Network's research programme is implemented by its partners within seven systems, characterising the major European marine ecosystems and areas of great climate impact and sensitivity:

- Arctic and Nordic Seas
- Baltic Sea
- Mediterranean Sea
- North Atlantic Ocean
- North Atlantic shelves
- Southern Ocean
- Eastern Boundary Currents (NW Africa, Benguela and Humboldt Currents)

EUR-OCEANS organises scientific workshops to generate knowledge and annual Network meetings to share this knowledge. In 2008 there will be a major scientific conference to place the research-based knowledge developed by EUR-OCEANS in context. Activities towards spreading of excellence ensure that the network remains focused on policy and management needs at European and global level.

Sardine Catch - South Africa. Photograph: Marine and Costal Management, South Africa.

EUR-OCEANS also provides a coordinated European input to two major international programmes on climate change impacts in the marine ecosystem: GLOBEC (Global Ocean Ecosystem Dynamics, www.globec.org) and IMBER (Integrated Marine Biogeochemistry and Ecosystem Research, www.imber.info).



Marine Diatoms - Corethron , Odontella. Photograph: Julian Priddle, British Antartic Survey.

Action Points

EUR-OCEANS favours a progressive and lasting integration of national and European research programmes and facilities, leading to the establishment of a multi-site Institute for European Research on Ocean Ecosystems under Anthropogenic and Natural Forcings (EUR-OCEANS Institute).

The EUR-OCEANS Institute will integrate centres of excellence in the fields of climate change, pelagic ecosystems, biogeochemistry and the ecosystem approach to the management of marine resources, addressing institutional and disciplinary fragmentation.

EUR-OCEANS will provide a unified European response to the challenges of climate change in the marine environment, developing European capabilities and competitiveness.

For further information about EUR-OCEANS please contact: Paul Treguer, Scientific Director (paul.treguer@univ-brest.fr), or Caroline Gernez, Executive Director (caroline.gernez@univ-brest.fr), IUEM, Brest, France. Website: www.eur-oceans.eu

Fact Sheet by: EUR-OCEANS Knowledge Transfer Unit, hosted by the GLOBEC IPO at Plymouth Marine Laboratory. For further information contact, Jessica Heard: jessh@pml.ac.uk or visit the Website: www.eur-oceans.org/KTU