The OMEX I Data Set CD-ROM

The first phase of the Ocean Margin Exchange experiment (OMEX I) ran from June 1993 until May 1996. The project studied processes at the continental margin off northern Norway, in the vicinity of the Goban Spur and off Iberia.

The OMEX I field work collected over 600 individual data sets during 47 research cruise legs involving the vessels from 9 European nations.

OMEX I data management services were provided by the British Oceanographic Data Centre. The data management operation collected over 95% of the data sets identified and built them into an integrated database that forms the core of the electronic publication.

The contents of the CD-ROM may be considered as a series of objects. Each object has a data or information content together with a mechanism for delivering these to the user.

The OMEX I Database

This is by far the most important object on the CD-ROM. It is a relational database that includes all of the data collected during the project with the exception of surface underway data, moored instrument data and a specialist air-sea flux data set.

The database includes over 100 Mbytes of data and is presented on the CD-ROM in three variants of Microsoft JET format together with an ASCII 'kit form' database designed to be compatible with any database management system.

A *Windows95* application program, the Database Explorer, has been developed that allows water bottle, non-biological benthic and sediment trap data to be retrieved through a powerful and flexible search engine. This software will be developed further to provide access to other data types and additional
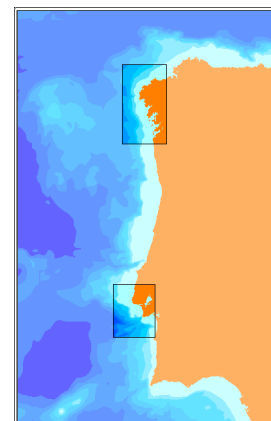
functionality. The updated product will be made available to OMEX I CD-ROM users.

The database may also
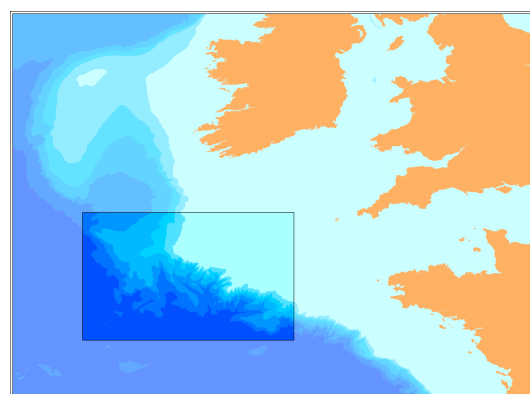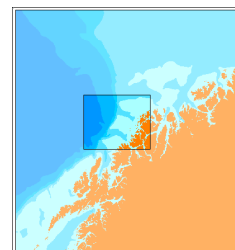
Field Areas Studied During OMEX I

be queried using Microsoft *Access* version 2.0 or later. A set of forms has been included that provide an interface to all data types held in the database.

The ASCII 'kit-form' database comprises one file per database table. All fields, including internal keys, are supplied to allow the database to be recreated with ease under any database system. Alternatively, conventional data processing applications may be written against these files.

The database is supported by extensive documentation in the *Acrobat* soft manual. This includes full descriptions of the data collection protocols, a description of the database structure and contents and instructions on the use of the Database Explorer software.

>1800	CTD and SeaSoar Profiles
>300	XBT Profiles
>5000	ADCP Profiles
>11000	Water and Air Samples (>400 Parameters Measured)
>250	Core Profiles (>200 Parameters Measured)
>400	Benthic Fauna Determinations
>300	Sediment Trap Samples (>50 Parameters Measured)
>30	Production Experiments
>30	Marine Snow Camera Profiles
>3000	Pelagic Fauna Determinations
>40	Radiometer Profiles
>10	Drifting Buoy and Trap Tracks

Contents of the OMEX I Database Object

OMEX Underway Data

Continuous measurements of sea surface data (temperature, salinity, attenuance, chlorophyll, nutrients, pCO_2, etc.), meteorology, navigation and bathymetry were made on 21 of the OMEX cruise legs at a frequency of between 30 seconds and 5 minutes.

The data are presented on the CD-ROM in a fully documented binary format. A *Windows95* application, the Underway Explorer, forms the primary interface to the data. This allows the display of up to six parameters on a stacked time series plot. The data may be simultaneously displayed as a spreadsheet grid that may be exported as ASCII or transferred to other applications over the clipboard.

The data are given spatial context by a map of the cruise track overlain on GEBCO-97 bathymetry which indicates the subset of the data that have been selected.

The *Acrobat* soft manual provides full descriptions of the protocols used to collect the data, a specification of the format used to store the data and instructions for using the Underway Explorer software.

Moored Instrument Data

The data from moored current meters, thermistor chains and benthic landers are presented on the CD-ROM as a series of ASCII files indexed by a simple spreadsheet inventory.

The data set includes 38 conventional time

Underway Explorer : Bathymetry & Cruise Track (BG9522)
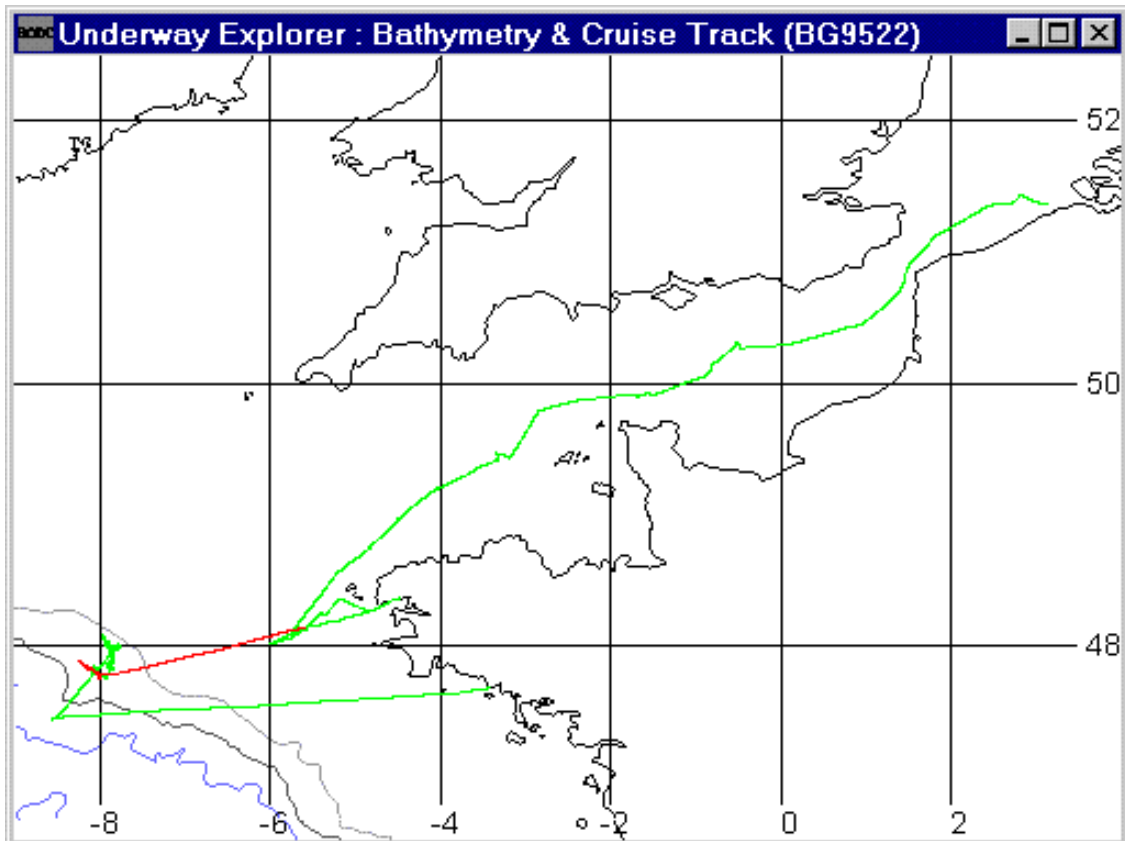
series and over 250 high frequency bursts of three-dimensional current measurements.

The Users' Guide provides documentation on data collection protocols and storage format.

Air-Sea Flux Data

Instrument packages deployed on three OMEX cruises made simultaneous measurements of micro-meteorology, aerosol and bubble spectra.

These have been packaged onto the CD-ROM as a self-contained data set. The data are presented in either spreadsheet (*Excel* and ASCII) form or in the originator's bubble spectrum format.

The data are supported by protocol descriptions and format definitions in the *Acrobat* manual.

GEBCO-97 Bathymetry

Digital bathymetry of the OMEX I study area centred on the Goban Spur has been taken from the GEBCO-97 Digital Atlas and includesDXF and ASCII formats.

The accompanying text in the Users' Guide includes a contour map and 3D view of the sea floor elevation.

OMEX Images

A selection of image data is presented on the CD-ROM. These include satellite images, Kasten core X-ray photographs, scanning electron micrographs of suspended particulate matter and sea bed photographs.

The images may be accessed through the *Acrobat* soft manual. The Adobe reader software includes tools to allow the images to be printed or copied into other applications.
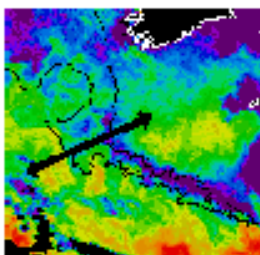
Satellite Image
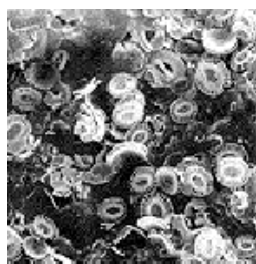
Scanning Electron Micrograph

OMEX Hydrographic Atlas

A digital atlas of data from the Goban Spur area was prepared jointly by Southampton Oceanographic Centre and Plymouth Marine Laboratory. The atlas was initially made available through the World Wide Web but has been included on the CD-ROM for user convenience and to provide a safe archive.

The atlas includes contoured sections of temperature, salinity, nutrients and oxygen along the OMEX Goban Spur section. Contoured time series for a number of
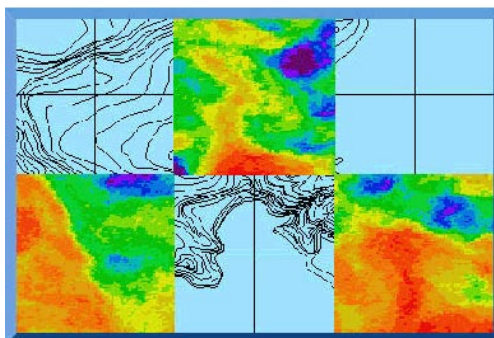
frequently visited stations are also present.

The atlas is presented as part of the *Acrobat* Users' Guide. Images may be printed or copied to other applications with ease.

NIOO Databases

Two databases containing benthic data extracted from the literature by the Netherlands Institute of Ecology are presented on the CD-ROM.

The databases are included in Microsoft JET format, readable using *Access*, and as ASCII table dumps. A wide range of biological, chemical and geological parameters are included from several hundred stations around the world.

Biogeochemical Models

The source code and example data files for three biogeochemical models developed during OMEX are included on the CD-ROM.

Two of these are benthic models developed the Netherlands Institute for Ecology to predict pore water chemistry and solid phase tracer profiles.

The third is a water column biogeochemical model developed by University of Wales, Bangor.

The models are accompanied by documentation on their use and guidelines on how they may be developed further.

The STABLE II lander contributed to the moored instrument data set

RRS Discovery was one of the research vessels that provided the OMEX I underway and database data sets