

Parallel Workshop C

PANGAEA/SEPAN - AN INFORMATION SYSTEM FOR OCEAN DATA

Michael Diepenbroek, Hannes Grobe, Manfred Reinke

Alfred Wegener Institute for Polar and Marine Research

27515 Bremerhaven,

German.

Keywords: database, oceanography, marine geology, marine biology, data retrieval, public access, visualisation.

Through joint national and international efforts an information system was developed during the last years to store the variety of geological and environmental data in a consistent form, and to provide access on data essential for the scientific community involved in Global Change research. Based on the discussions and recommendations of scientists from institutes contributing to marine sciences, the information system PANGAEA (PaleoNetwork for Geological and Environmental Data) was developed at the Alfred Wegener Institute for Polar and Marine Research (AWI) funded by the German Ministry of Education, Science, Research and Technology (BMBF). PANGAEA provides a new powerful scientific tool, which is innovative and unique so far. The first PANGAEA subsystem SEPAN (Sediment and Paleoclimate Data Network) is operational since 1996 and is used within a growing network of research institutes in Germany for marine data.

The PANGAEA/SEPAN-data management comprises the collection of analytical data including all related meta-information, data set error checking and publication with long-term banking of data in consistent formats. Retrieval, downloading, and visualisation functionality is included as well as support for working groups in data handling. The efficiency of handling, sharing and integrating data is supported by an easy to use graphical interface which also offers complex search and access functionality.

Problems arising from the great variety of parameters, methods, calibrations, and interpretations in the field of marine research are solved through a flexible and simple data model. The structure of the data model reflects the standard processing steps for ocean data. Different projects are working in selected areas or on different cruises to take samples or to measure environmental parameter. From each site analytical data are produced. Lists including standardised meta-information (e.g. references, definition of parameter or method) are connected to the main data fields. Any site oriented data of a specific scientific field can be imported just by defining the required parameters and using their ID in the header of the data set. The user is able to extract data sets for specific requirements in nearly any combination of metadata and analytical data via comprehensive retrievals. Data can be exported as text or plotted with one of the graphic tools as maps or as plots versus time or depth. All data sets are copyright protected within a hierarchical protection system and are referenced to the related publication.

A PANGAEA subsystem like SEPAN uses client/server technology through the Intranet/Internet. The main server, located in a computer center, is connected through the Internet with the different external institutes/projects. To improve access speed, all meta-information is mirrored on local servers. Only on request of analytical data the main server is accessed through the Internet. Using the PANGAEA proprietary software gives full access to the functionality of the system; read only access on published data is provided through the WorldWideWeb. Tests of the client/server connection through the Internet have shown that this system can be used throughout whole Europe.