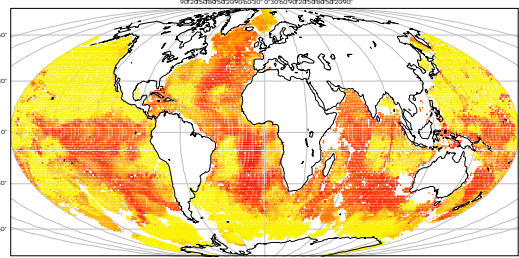


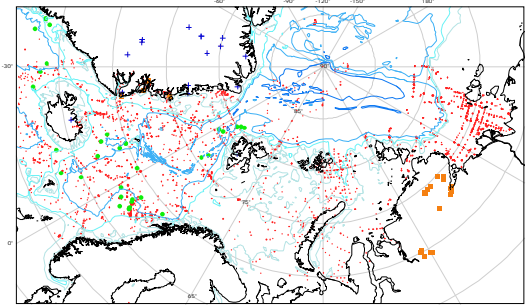
## Visualization

For the visualization of data, tools are provided, which can be used either with a direct link to the import clients or as stand-alone applications. The tools are easy to use.

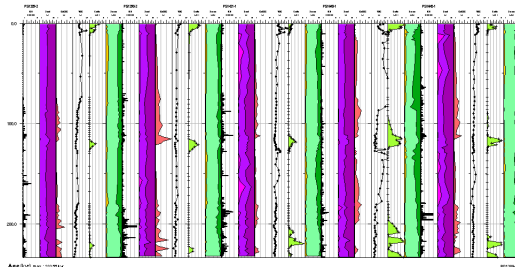


Scale: 1:170000000 at Latitude 0°

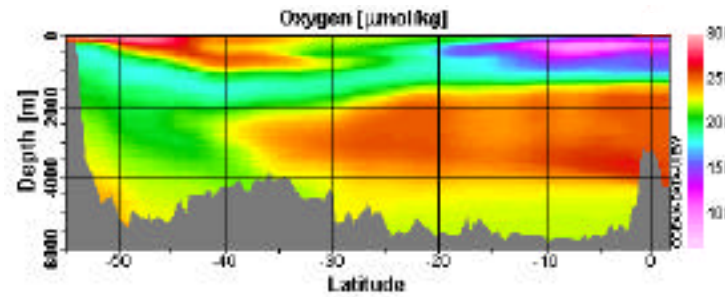
**PanMap** is a software tool for visualizing vector and point data on maps. Points (e.g. sampling sites) can be labeled with data and dots can be colored according to values. Maps can be configured using different projections and styles. As general sources of topography, GEBCO, GTOPO30 and World Vector Shoreline are provided. Any other required topography in vector format can be converted; for digitizing printed maps PanTool can be used.



**PanPlot** allows the user to plot up to 60 data series versus space/time or in ternary or phase diagrams. Scales and graphical features can be modified and any selection of parameters can be chosen from the data matrix, which can directly be retrieved and transferred from the database to PanPlot. For documentation/description of e.g. logs or profiles, the software can also plot R/G/B colors and bitmaps.



**Ocean Data View** is a software package for the visualization of oceanographic data. The package can be used to create and manage large sets of proxy and (pale)oceanographic data locally and provides tools for easy exploration and the graphical display of data as property/property plots, color sections and color distributions on isosurfaces.



## Project Data Management

PANGAEA can be used for data management in any project related to geological or environmental science to collect and share data, to make data available to the community via the Internet and to store data in a long-term operated archive. The costs of using the system are dependent on the size of the project and the type and amount of data to be collected. The system is operated by the institutes AWI and MARUM, providing technical infrastructure and system management. The responsibility for collecting the data, quality control and import lies with the project. The operators support the project and its data manager in handling, archiving and publishing the data.

(Projects and Institutes using PANGAEA for data management are listed on <http://www.pangaea.de/Projects>)

### Operated by

Alfred Wegener Institute for Polar and Marine Research (AWI), 27515 Bremerhaven  
<http://www.awi-bremerhaven.de>  
Center for Marine Environmental Sciences (MARUM), University, 28334 Bremen, Germany  
<http://www.marum.de>

### Funded by

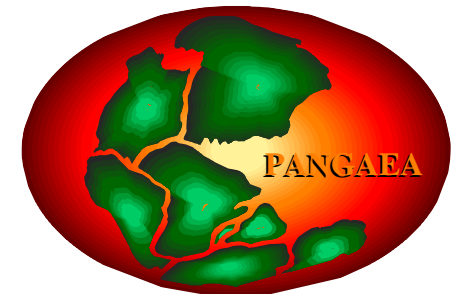
Bundesminister für Bildung und Forschung  
Deutsche Forschungsgemeinschaft  
The European Commission, DG XII, Science, Research and Development



This flyer is available on <http://www.pangaea.de/info>

# PANGAEA

## Network for Geological and Environmental Data

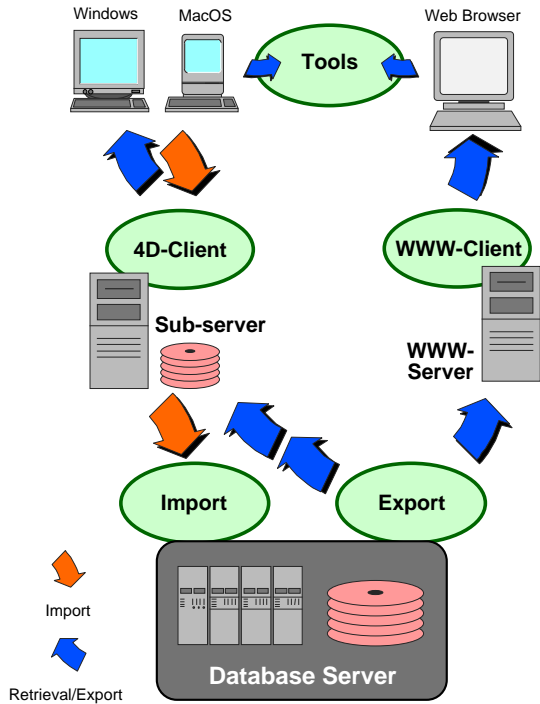


<http://www.pangaea.de>  
[info@pangaea.de](mailto:info@pangaea.de)



## The Network

PANGAEA is an information system, aimed at archiving, publishing and distributing data from research on climate variability, the solid earth and the marine environment. Data are stored with meta-information in a relational database.



PANGAEA is designed as a network which uses client/server technology through the Internet. The 4D-clients for import/export are connected to the central database server via local sub-servers with mirrored metadata for faster retrieval and navigation. Tools are directly linked for quick visualization of data. The client for export on the web is a Java applet with retrieval and configuration functionality for any combination of metadata and data. Unpublished data can be password protected.

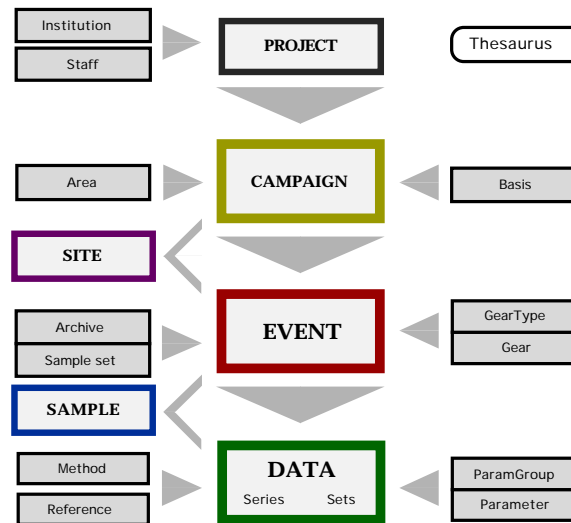
### Hardware/software

Database and Web-server: SUN E10000 (22 processors, 16 GB RAM, 250 GB hard disk capacity), database management software: SYBASE, client/server software for import: 4th Dimension (ACI), WWW-client software: JAVA, Internet connection: ATM 144 MBit. Tools (freeware): PanMap, PanPlot, PanTool, PaleoTools, ODV (<http://www.pangaea.de/Software>)

## Data Model

The challenge of managing the heterogenic and dynamic data of environmental and geoscientific research was met through a flexible data model which reflects a strictly generalized 'world' of scientific data.

Within a PROJECT, different CAMPAIGNS may be carried out for investigations. At a number of SITES, samples are taken or measurements are made (EVENT). At distinct points/intervals, the medium to be investigated (e.g. sediment, water, ice) is sub-sampled or measured for different requirements (SAMPLE). From the analysis of each sampling point analytical DATA may result. To improve consistency, additional tables are used to fill the main fields with predefined metadata. New parameters can be defined at any time. Most of the information is optional; mandatory are the label and the position of an event.



### Geocode

Each single value is quality flagged and georeferenced in space (latitude, longitude, elevation) and/or time (date/time or kyr BP); this format allows the extraction of any subset of data from the inventory. Data series (one parameter/event) can be stored with any required description (reference, PI, method, quality). The import configuration of a data set (several parameters/events) is kept in the system and new sets can be defined, which will later be used for efficient retrieval and export.

## Access

Access to data is realized in different gateways which can be used depending on the requirements of the user or on the objectives of a project. Owing to the strict encapsulation of the system's components, any individual view on information in PANGAEA can be realized.

(1) The **4D-Client** is mostly used by a project's data manager for the administration of project related data, the import of metadata and analytical data and for comprehensive retrievals with export to the visualization tools. It is also used for final quality control.

(2) The **Advanced Retrieval** is a JAVA WWW-client with full access to all tables of the data model and can be used to retrieve and extract any required combination of metadata/data on the Internet. In order to learn how to use the data model and the retrieval tool a tutorial is provided.



(3) One example of a specific view on parts of the metadata is **PanCore**, which is a search engine for the inventory of marine geological samples. A search with the simple web interface, e.g., on a specific core type in a defined area results in a list of core labels, with metadata and the e-mail address of the responsible curator.

(4) In case data sets need to be published with the related reference or as parameter-specific lists, the **Direct Download Interface (DDI)** is the best choice. The DDI enables the data manager to define retrieval and output configuration for a specific data set and to start the retrieval by using a link on a web page. The DDI is the easiest way of downloading data from PANGAEA to the user's local PC just by a mouse click.

(examples on [http://www.pangaea.de/Projects/SFB313/...](http://www.pangaea.de/Projects/SFB313/))

(5) **PangaVista** (under construction) will be a universal search engine for any information and data in PANGAEA. A given keyword from a thesaurus will result in a list of related metadata including the links to the data.