World Data Center for Marine Environmental Sciences (WDC-MARE) - Long-term archive and data management

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Increasing amounts of analytical data in geosciences and an increasing cooperation of various scientific disciplines makes it necessary to establish efficient data information systems. Such a system should be able to handle all kinds of geoscience data. WDC-MARE/PANGAEA contains measured and calculated numerical data, alphanumerical data, images and any other data types. Among others, parameter groups like geochemistry of rocks, sediments, water (e.g. CTD), compositional data of sediments like grain size, particle association, fossil distributions, physical properties etc. are available. All data sets are georeferenced (latitude, longitude, and depth/elevation/age) and include information about the source (publication), investigator(s), research area, and parameters inclusive pertaining analytical/calculation methods.

The World Data Center for Marine Environmental Sciences (WDC-MARE) was founded in 2000 and is member of the ISCU World Data Center system. As an operating platform for WDC-MARE PANGAEA is used, which is an information system for processing, long-term storage, and publication of georeferenced data related to earth science fields. Essential services supplied by WDC-MARE/PANGAEA are project data management and the distribution of visualization and analysing software. Organization of data management includes quality check and publication of data and the dissemination of metadata according to international standards (e.g. IOS 019115). The challenge of managing the heterogeneous and dynamic data of environmental and geosciences was met in the PANGAEA system through a flexible data model which reflects the information processing steps in the earth science fields and can handle any related analytical data. The web-based clients include a simple search engine (PangaVista) and a sophisticated data mining tool (ART). Analysing and visualization

of metainformation and analytical data is supported by a number of software tools. The PANGAEA (www.pangaea.de) and the WDC-MARE (www.wdc-mare.org) are operating on a long term basis. The institutional frame is supplied by MARUM in cooperation with the Alfred Wegener Institute (AWI), Bremerhaven.