



A Common Metadata System for Marine Data Portals

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Processing and allocation of marine datasets depend on the nature of the data resulting from field campaigns, continuous monitoring and numerical modeling. Two research and development projects in northern Germany manage different types of marine data. Due to different data characteristics and institutional frameworks separate data portals are required. This paper describes the integration of distributed marine data in Germany.

The Marine Data Infrastructure of Germany (MDI-DE) supports public authorities in the German coastal zone with the implementation of European directives like INSPIRE or the Marine Strategy Framework Directive. This is carried out through setting up standardized web services within a network of participating coastal agencies and the installation of a common data portal (<http://www.mdi-de.org>), which integrates distributed marine data concerning coastal engineering, coastal water protection and nature conservation in an interoperable and harmonized manner for administrative and scientific purposes as well as for information of the general public.

The Coastal Observation System for Northern and Arctic Seas (COSYNA) aims at developing and testing analysis systems for the operational synoptic description of the environmental status of the North Sea and of Arctic coastal waters. This is done by establishing a network of monitoring facilities and the provision of its data in near-real-time. In situ measurements with poles, ferry boxes, and buoys, together with remote sensing measurements, and the data assimilation of these data into simulation results enables COSYNA to provide pre-operational 'products', that are beyond the present routinely applied techniques in observation and modelling. The data allocation in near-real-time requires thoroughly executed data validation, which is processed on the fly before data is passed on to the COSYNA portal (<http://kofserver2.hzg.de/codm/>).

Both projects apply OGC standards such as Web Mapping Service (WMS), Web Feature Service (WFS) and Sensor Observation Service (SOS), which ensures interoperability and extensibility. In addition, metadata as crucial components for searching and finding information in large data infrastructures is provided via the Catalogue Web Service (CS-W). MDI-DE and COSYNA rely on the metadata information system for marine metadata NOKIS, which reflects a metadata profile tailored for marine data according to the specifications of German coastal authorities.

In spite of this common software base, interoperability between the two data collections requires constant alignments of the diverse data processed by the two portals. While monitoring data in the MDI-DE is currently rather campaign-based, COSYNA has to fit constantly evolving time series into metadata sets. With all data following the same metadata profile, we now reach full interoperability between the different data collections. The distributed marine information system provides options to search, find and visualise the harmonised results from continuous monitoring, field campaigns, numerical modeling and other data in one web client.