



## **Definition of an ISO 19115 metadata profile for SeaDataNet II Cruise Summary Reports and its XML encoding**

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SeaDataNet implements a distributed pan-European infrastructure for Ocean and Marine Data Management whose nodes are maintained by 40 national oceanographic and marine data centers from 35 countries riparian to all European seas. A unique portal makes possible distributed discovery, visualization and access of the available sea data across all the member nodes.

Geographic metadata play an important role in such an infrastructure, enabling an efficient documentation and discovery of the resources of interest. In particular:

- Common Data Index (CDI) metadata describe the sea datasets, including identification information (e.g. product title, interested area), evaluation information (e.g. data resolution, constraints) and distribution information (e.g. download endpoint, download protocol);
- Cruise Summary Reports (CSR) metadata describe cruises and field experiments at sea, including identification information (e.g. cruise title, name of the ship), acquisition information (e.g. utilized instruments, number of samples taken)

In the context of the second phase of SeaDataNet (SeaDataNet 2 EU FP7 project, grant agreement 283607, started on October 1st, 2011 for a duration of 4 years) a major target is the setting, adoption and promotion of common international standards, to the benefit of outreach and interoperability with the international initiatives and communities (e.g. OGC, INSPIRE, GEOSS, ...).

A standardization effort conducted by CNR with the support of MARIS, IFREMER, STFC, BODC and ENEA has led to the creation of a ISO 19115 metadata profile of CDI and its XML encoding based on ISO 19139. The CDI profile is now in its stable version and it's being implemented and adopted by the SeaDataNet community tools and software.

The effort has then continued to produce an ISO based metadata model and its XML encoding also for CSR.

The metadata elements included in the CSR profile belong to different models:

- ISO 19115: E.g. cruise identification information, including title and area of interest; metadata responsible party information
- ISO 19115-2: E.g. acquisition information, including date of sampling, instruments used
- SeaDataNet: E.g. SeaDataNet community specific, including EDMO and EDMERP code lists

Two main guidelines have been followed in the metadata model drafting:

- All the obligations and constraints required by both the ISO standards and INSPIRE directive had to be satisfied. These include the presence of specific elements with given cardinality (e.g. mandatory metadata date stamp, mandatory lineage information)
- All the content information of legacy CSR format had to be supported by the new metadata model.

An XML encoding of the CSR profile has been defined as well. Based on the ISO 19139 XML schema and constraints, it adds the new elements specific of the SeaDataNet community. The associated Schematron rules are used to enforce constraints not enforceable just with the Schema and to validate elements content against the SeaDataNet code lists vocabularies.