



## **European developments in GIS standards for met/ocean data**

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We review a number of developments in GIS standards for interoperability of met/ocean data. The timeliness and synergy of these projects indicates a renewed interest in establishing a broad interoperability agenda for the earth system, spurred on by emerging standards for geographic information and services.

A WMO (World Meteorological Organisation) expert team with contributors from 5 European countries has been developing a meteorological community profile of the metadata standard ISO 19115. The team is also working on a feature catalogue under ISO 19110 which describes as feature types and coverages, the content of WMO bulletins and forecasts which are distributed in real time around the world. This work is part of WMO's FWIS development (Framework for a WMO Information System).

MarineXML is an EU-funded project that has investigated the potential for marine data interoperability using XML and GML technologies. The project will inform European marine data harmonisation under INSPIRE through the forthcoming MOTIIVE project. It has also collaborated with IOC and IHO on establishing standards-based registries ('feature-type catalogues') for marine data models.

Conceptual models and a GML application schema (the Climate Science Modelling Language, CSML) for a range of met/ocean data types have been developed by the UK project, NERC DataGrid (and reviewed by MarineXML). They are being trialled in a prototype deployment across the heterogeneous curated archives of the British Atmospheric Data Centre and British Oceanographic Data Centre. The data model provides an abstraction layer to facilitate delivery through services such as the Open Geospatial Consortium GIS web services.

Finally, COST-719 is an action in the ESF (European Science Foundation) framework aimed at enhancing and broadening the potential of GIS in the fields of climatology and meteorology. One of its Working Groups is concerned with storage and exchange standards for such data. Focus is especially on monitoring developments within WMO-CBS and the OGC consortium, but also on ambitions within the EU. As an example of the latter, the consequences of the INSPIRE directive are carefully investigated for the meteorological realm.