



Recent innovations in using Web Map Services to display gridded and non-gridded ocean data

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The University of Reading has in developed techniques for fast visualisation of gridded data, such that they can be used in a WMS (web-map server) system. The aim is to provide data visualisation which is quick enough to be used interactively (e.g. on a website) even with very large underlying datasets. The two main tools which have come out of this effort are ncWMS (a WMS server for displaying NetCDF data) and its accompanying web client, Godiva2. This software is very widely used by oceanographic (and other) institutions and this presentation describes some of the most recent advances, together with plans for the future.

For the MyOcean View Service, the University of Reading has extended ncWMS to allow it to display in situ measurement data. This accesses a supporting system, Oceanotron, created by Ifremer, which performs spatial indexing to retrieve observations from a database. By incorporating Oceanotron into the widely-used ncWMS software, map images of such point data can be accessed in a manner consistent with open standards. Intelligent grouping of variables combined with use of the WMS standard GetFeatureInfo request allows the display of in-situ measurements in a way that makes it simple to investigate the parameters required, when each single point may contain a lot of information. By providing various request parameters, the vertical or time dimensions of the data can be selected on in a straightforward manner. Combined with extensions to Godiva, this allows for in-situ (e.g. buoy) data to be easily visualised and explored in a web browser, alongside other data sources such as model data.

Using these tools, Altamira has developed extended functionalities for ocean data visualization in operational portals. These include the visualization of multiple layers of data simultaneously, integration with authentication and authorization systems (in order to display different data depending on user rights, a key requirement for many operational systems) and the integration of layers for key areas of interest (AOIs) and Exclusive Economic Zones (EEZs).

These advances represent significant steps forward in combining, visualizing and exploring different kinds of ocean data in a single web environment.