Observing System Monitoring Center: a comprehensive global ocean observing system for climate

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Overview

Information gleaned from a comprehensive global ocean observing system for climate may enable a clearer understanding of climate variability. The Observing System Monitoring Center (OSMC) project assists managers and scientists in monitoring a real-time, global, in-situ ocean observing system by providing tools to evaluate the adequacy of the system in supporting operational state estimation, forecasting and research, as well as the means to identify shortcomings in the system more immediately. The OSMC project is charged with the development and maintenance of a centralized management of reports from a variety of global ocean platforms. NGDC contributes guidance in spatial database design and management for the near real-time data of the OSMC project, as well as creation, deployment and maintenance of Web-accessible tools for monitoring and visualization. Tools include interactive maps displaying ocean platform and observation data distribution, summary tables, and quality assessment of the ingested data. Future plans involve utilizing open source and standards protocols in the implementation of “web service” portals to access data and metadata contained in the OSMC database. These protocols may include SWE/SOS (Sensor Web Enablement/Sensor Observation Services), OGCF/WS (Open Geospatial Consortium Web Feature Service) and OPeNDAP (Open-source Project for a Network Data Access Protocol).

Spatial Database: A sound database design enables developers to load data from near real-time data streams and to subsequently query the data effectively and efficiently for use in Web applications that data managers and scientists may access. The use of an Oracle Spatial database provides powerful tools for spatial queries and analysis.

Quality Assessment: The Rich Inventory parameter time series monitors basic statistics for attributes in the OSMC database which may serve to demonstrate either expected or unexpected outcomes. This assists data managers in Quality Control, as well as data discovery and trend spotting.

Future plans: the use of open source and standards protocols (e.g. Climate Science Modeling Language or CSML) in the implementation of web service portals will broaden access to data and metadata contained in the OSMC database.