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Rolling Deck to Repository (R2R): A Controlled Vocabulary and Ontology Development Effort for Oceanographic Research Cruise Event Logging

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Data gathered aboard research vessels coordinated by the United States University-National Oceanographic Laboratory System (US-UNOLS) represent an important oceanographic data resource. The NSF-sponsored Rolling Deck to Repository (R2R) project aims to improve access to basic shipboard data and ultimately reduce the work required to provide that access. The central vision of R2R is to assist in transforming the academic fleet into an integrated global observing system.

One of the coordinated subprojects within the R2R project is the development of a shipboard scientific event logging system that incorporates best practice guidelines, controlled vocabularies, a cruise metadata schema, and a scientific event log. The event log application will use new and existing components to generate a digital text file with a fleet-wide agreed-upon format. A cruise event logging system enables researchers to record digitally all scientific events and assign a unique event identifier to each entry. Decades of work conducted within large coordinated ocean research programs (JGOFS, GLOBEC, WOCE and RIDGE) have shown that creation of a shipboard sampling event log can facilitate greatly the ingestion of these data into oceanographic data repositories and subsequent integration and synthesis of these data sets by investigators. An event logger application, based on ELOG (https://midas.psi.ch/elog/), has been developed and is being tested by collaborative teams of scientists at sea and by shoreside data managers.

An important aspect of the R2R project is the use of controlled vocabularies and ontologies to better support scientific sampling event logging during a research cruise. Where available, existing ontologies will be used; where needed, ontology development will be an inclusive process. An internationally-informed, consensus-driven effort to decide on R2R controlled vocabularies and to develop an associated event ontology will help to make oceanographic datasets acquired on research vessels and ocean observatories more inter-operable and expand knowledge about the observations. Our goal is to develop the R2R event ontology with the help of research communities including those represented by the European Union Eurofleet effort, the Marine Metadata Initiative, the global OceanSITES project, the Martha's Vineyard Coastal Observatory project and the Biological and Chemical Oceanography Data Management Office – all of which have practical experience managing instrument-related data and metadata for tracking timestamped events. Pertinent events include oceanographic instrument deployments, recoveries, calibrations, failures, etc. We will summarize progress to date and describe plans to establish a collaborative effort among international stakeholders to identify controlled vocabularies and develop a prototype ontology for the R2R event logger system by the end of 2011.