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Metadata Objects for Linking the Environmental Sciences (MOLES)

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MOLES is an information model that provides a framework to support interdisciplinary contextual metadata describing instruments, observation platforms, activities, calibrations and other aspects of the environment associated with observations and simulations. MOLES has been designed as a bridge between discovery metadata - the conventional stuff of catalogues - and the sort of metadata which scientists traditionally store alongside data within files (and more rarely, databases) - "header files" and the like. MOLES can also be thought of as both a metadata structure in it's own right, and a framework for describing and recording the relationships between aspects of the context described in other more metadata formats (such as SensorML and the upcoming Metafor Common Information Model).

MOLES was originally conceived of during the first NERC DataGrid project, in 2002, and is now at V3 in 2009. V3 differs from previous versions in many significant ways:
1) it has been designed in ISO 19103 compliant UML, and an XML schema implementation is delivered via an automated implementation of the ISO19118/19136 model driven architecture.
2) it is designed to operate in Web2.0 environment with both an atom serialisation and an OGC Web Feature Service (WFS) friendly XML serialisation.
3) it leverages the OGC observations and measurements specification, complements a range of GML application schema (in particular GeoSciML and CSML), and supports export of a subset of information in ISO 19115/19139 compliance.

A software implementation exploiting MOLES V3 is under development. This will be seeded with hundreds of enties available from the MOLES V2 service currently deployed in the STFC Centre for Environmental Data Archival.