NERC EMBRACES OGC

INTEROPERABILITY IS KEY TO THE UK'S NATURAL ENVIRONMENT RESEARCH COUNCIL

NERC's goal is "to deliver the scientific evidence needed for governments, business and society to respond urgently to the increasing pressures on natural resources and global climate". Data is a critical part of this evidence, and NERC coordinates a network of operational thematic data centres.

Increasingly, a 'whole Earth systems' approach to the natural environment requires data to be integrated across discipline boundaries, requiring a new approach to data management based on emerging 'horizontal' (non-domain-specific) standards, and taking advantage of developments in internet-based information architectures.

NERC has been at the forefront of applying OGC standards to environmental information management. The NERC DataGrid project has adopted a Spatial Data Infrastructure (SDI)-like architecture and technical solutions based on OGC specifications to provide integrated access to data across several of its data centres. In the geosciences, NERC, through its research centre, the British Geological Survey, is playing a leading role in the development of the GML-based application schema, GeoSciML, and is coordinating the pioneering OneGeology project, which depends on OGC standards. GML is the OGC's OpenGIS Geography Markup Language (GML) Encoding Standard.

In the climate sciences (atmosphere and ocean), it has championed the use of OGC standards internationally. NERC is a key contributor to the OGC Geo-interface for Air, Land, Environment, Ocean NetCDF (GALEON) Interoperability Experiment [1], including the contribution of a Web Coverage Service (WCS) client to the open-source toolkit OWSLib. It has also developed the Climate Science Modelling Language (CSML) and contributed to the development of the Observations and Measurements model [2]. Advanced applications in visualisation and virtual globes, e.g. for Antarctic and marine data, are highly visible, including the January OGC Website of the Month [3].

OGC standards have played an important role in NERC collaborations. For instance, the DEWS (Delivering Environmental Web Services) project used OGC standards to integrate MetOffice weather forecasts with data from the National Health Service to facilitate prediction of COPD (Chronic Obstructive Pulmonary Disease). An Australian collaboration, AUKEGGS (Australian-UK collaboration on Exploitation of Grid and Geospatial Standards) [4], which includes NERC as a core partner, explored synergies between geospatial standards and Grid computing.

NERC is active in the ongoing development of OGC standards – through recent change requests to GML and WCS (OpenGIS® Web Coverage Service Interface Standard), and participating in O&M (OpenGIS® Observations and Measurements Encoding Standard), WCS and GML Revision and Standards Working Groups. NERC undertook a review of the European Space Agency (ESA) Heterogeneous Missions Accessibility specifications on behalf of the British National Space Centre.

NERC expertise on geospatial standards is contributing to the development of global-scale infrastructures. At the invitation of the European Commission, NERC experts are helping develop technical Implementing Rules for the Infrastructure for Spatial Information in Europe (INSPIRE) [5]. NERC has also participated in the GEOSS (Global Earth Observation System of Systems) Architecture Implementation Pilot (on climate change).

The activities described above help provide opportunities and incentives for those involved in environmental research - an inherently multidisciplinary field serving governments, business and society - to work cooperatively toward a shared goal: widespread deployment of standards-based, network-accessible geospatial resources.

Links:
[1] http://www.opengeospatial.org/projects/initiatives/galeonie
[2] http://www.opengeospatial.org/standards/om
[3] http://www.opengeospatial.org/pressroom/newsletters/200801/#C4
[4] https://www.seegrid.csiro.au/twiki/bin/view/AUKEGGS/WebHome
[5] http://inspire.jrc.ec.europa.eu/

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