Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09951, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09951
EGU General Assembly 2008

Web Processing Service based interoperable, automated, interpolation

M. Williams, D. Cornford, L. Bastin and B. Ingram

Knowledge Engineering Group, Aston University, United Kingdom (williamw@aston.ac.uk)

The Open Geospatial Consortium's (OGC) Sensor Web Enablement (SWE) initiative consists of numerous XML specifications for describing sensor observations, and several Web Service specifications for communicating this data. Within this framework, sensor data and metadata can be readily exchanged in an interoperable form. A common operation that the observations will undergo is some form of interpolation. Usually interpolation and other geostatistical processes are performed by a specialist desktop application. This paper introduces INTAMAP (INTeroperability and Automated MAPping: http://www.intamap.org) - a project which seeks to provide an automated interpolation service that can be consumed and understood by everyone. Several challenges are addressed including a new XML schema to enable the description of complex uncertainties - UncertML.

INTAMAP uses the interoperable framework provided by the OGC's Web Processing Service (WPS) specification as a backbone. This framework supplies a formal structure that enables the description of any geostatistical process through its inputs and outputs. INTAMAP complements this specification with several SWE languages including SensorML, Observations & Measurements and SWE Common and also supports GML. For the results produced by INTAMAP to contain any real value, they must be able to describe the inherent, and additional, uncertainties introduced by the interpolation process. UncertML is an XML schema that is capable of describing a range of uncertainty characteristics (http://www.intamap.org/uncertml). We show how the combination of UncertML, WPS and the SWE framework provides an interoperable, automated, interpolation service.