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GeoViQua: Making quality easy for the Global Earth Observation System of System

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GeoViQua is the short name for Quality aware VIsualisation for the Global Earth Observation system of systems, a 7th Framework Program research project funded by the European Commission. The consortium is composed by universities (Universitat Autònoma de Barcelona, ES; University of Reading, UK; Aston University UK), research centres (Center Reseach in Ecology and Forestry Applications, ES; Fraunhofer Institut Graphische Datenverarbeitung, DE; Institute of Methodology for Environmental Analysis, IT; Laboratoire des Sciences du Climat et de l'Environnement, FR), private sector (52 north, DE; Science and Technology Corporation, NL), and the European Space Agency.

Currently the GEOSS Common Infrastructure provides a clearinghouse and a portal that allow discover and visualize the data in an integrated way but no much attention is paid on express and report the quality of the data. GeoViQua objectives and tasks are structured in three main research and development packages: well-defined data quality indicators, quality-enabled search and visualisation of quality tools. The result of these packages will be software components and recommendations that will be implemented and integrated with the current GEOSS common infrastructure so they can be accessed by the existing standard based geo-portal but also in the mass market "Google-like" map tools and generic 3D viewers, as well as on mobile devices. The design and development of GeoViQua components is undertaken in collaboration and coordination with the relevant GEO committees, the GEOSS Architecture Implementation Pilots led by the Open Geospatial Consortium and other relevant standards committees.

Data quality information can be extracted from metadata parameters provided by the producer, from provenance information, from the comparison with reference data, from validation with in-situ sensors and from expert user comments. Many of these aspects will be studied with the aim of formalising the quality indicators and provenance in line with the Quality Assurance for Earth Observation (QA4EO) framework and taken forward into the standardisation process. A final goal is to represent the quality of the data in a "GEO label" that will be an easy to read and compare stamp that will accompany the data and will increase user trust in GEO products quality.

Another important aspect is to enhance search functions by using quality indicators information and ranging the search results by quality indicator value. Also, components will be developed to visualise data and its associated quality information on GEO portals using different strategies.

Several pilot case studies ranging from local to global scales and concerning many key Societal Benefit Areas and the Communities of Practices in GEO involved in them will be used to guide and validate the GeoViQua developments. Agriculture, Climate, Land use, Carbon Cycle, Air Quality, Fishery Management and Remote Sensing production chain are the currently foreseen use cases.

Research activities start in February 2011 and will last 3 years.