SEVENTH FRAMEWORK PROGRAMME

IQmulus

A High-volume Fusion and Analysis Platform for Geospatial Point Clouds, Coverages and Volumetric Data Sets

THE PROJECT

IQmulus is a 4-year Integrating Project (IP) partially funded by the European Commission under the Grant Agreement FP7-ICT-2011-318787. It is positioned in the Intelligent Information Management within the ICT 2011.4.4 Challenge 4: Technologies for Digital Content and Languages. IQmulus started on November 1, 2012, and will finish on October 31, 2016.

THE CONSORTIUM

The IQmulus consortium is made up of 12 partners from 7 European countries, representing university teams for basic research in geospatial information processing, applied research institutes, an SME from the GIS industry as well as national and regional organizations such as mapping agencies.

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IQmulus

IQmulus leverages the information hidden in large heterogeneous geospatial data sets and makes them a practical choice to support reliable decision making

A High-volume Fusion and Analysis Platform for Geospatial Point Clouds, Coverages and Volumetric Data Sets

IQMULUS

IQmulus stands for **A High-volume Fusion and Analysis Platform for Geospatial Point Clouds, Coverages and Volumetric Data Sets.** It develops a platform that provides the needed functionalities to integrate latest research results in data processing and visualization to tackle important real-life challenges in geospatial applications.

New emerging data acquisition techniques provide fast and efficient means for multidimensional spatial data collection. All these systems provide large volumes of »raw« data such as point clouds and digital images, often enriched with other sensor data.

Given the wide choice of different available sensors and the massive amounts of data thus obtained, combined with the intent to provide useful knowledge in an appropriate period of time, the platform thus has to be scalable in processing and storage, and capable of handling the four aspects of **variety, volume, velocity and analytics** that are commonly associated with the term **Big Data**.

GEOSPATIAL DATA PROCESSING - FAST AND SCALABLE

IQmulus makes use of modern Cloud Computing infrastructure to process large-volume geospatial data in a fast and scalable manner. For this, a private Cloud has been built up, providing resilient and flexible on-demand pooling of computing resources.

The IQmulus system consists of the components:

- a distributed Cloud-based data storage with centralized access
- a highly scalable processing Cloud
- a user interface based on domain-specific languages that allow users from the geospatial domain to harness the possibilities of Cloud-based data processing
- a high-performance 3D visualization running on Desktop computers as well as in the Web browser.

FROM SHOWCASES TO APPLICATIONS

The following three showcases have been selected for treatment as sample applications:

The **Land Showcase**, where an hydrologist or geo-morphologist supporting decision makers in civil protection wants to analyze data measured during critical events to prepare better prediction and monitoring of floods and landslides.

The **Marine Showcase**, where an expert needs to create a seamless land/underwater elevation model by the integration of land and underwater data sources to obtain a data product that can also be used in further marine analysis and processing tasks.

The **Urban Showcase**, where – given a new data set – a cartography expert is tasked with the update of an existing 3D catalogue of urban topographic objects, such as the detection of buildings for monitoring and cadastral updating or individual tree extraction from urban Laser Mobile Mapping Systems (LMMS) data.