Reflection on Geomatics Master Thesis

Final version (P5)

EXPLORING THE USE OF THE SEMANTIC WEB FOR DISCOVERING, RETRIEVING AND PROCESSING DATA FROM SENSOR OBSERVATION SERVICES

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Motivation

Developments such as smart cities, the Internet of Things (IoT) and the Infrastructure for Spatial Information in Europe (INSPIRE) are causing a growing amount of observation data to be produced. The Open Geospatial Consortium (OGC) has developed Sensor Web Enablement (SWE) standards for modelling and publishing this data online. However, their use is currently limited to geo information specialists, who have knowledge about which data services are available and how to access them. With the use of the semantic web, online processes can automatically find and understand observation metadata. This opens up the SWE services to a larger user audience. Therefore, this thesis has designed a conceptual system architecture that uses the semantic web to improve sensor data discovery as well as the integration and aggregation of sensor data from multiple sources.

Position in the field of geomatics

Geomatics is concerned with the “acquisition, analysis, management and visualisation of geographic data with the aim of gaining knowledge and a better understanding of the built and natural environments” (http://geomatics.tudelft.nl/). Sensor data plays an important role in this, as it is being used for academic studies, policy making and increasingly more in applications for smart devices. The internet enables geographic data to be instantly transferred across the planet. Geo Web Technologies is therefore one of the core courses of the geomatics curriculum. My thesis is concerned with new developments in web technologies and their added value for the geoweb. However, the research also builds on skills developed in other geomatics courses, such as: Geo datasets, Database Management Systems, GIS & Cartography and Python programming.

Process and planning

I have started working on the thesis in September 2015. The first quarter of the academic year 2015/2016 I decided to use the sensor web/geoweb as my area of research (P1). In the second quarter I defined my research question, which resulted in a research plan (P2). In the third and fourth quarter I have executed my research plan and finished the first draft of the thesis report (P4). After editing the thesis, the final version has been presented at P5. I am satisfied with the progress during the thesis. The interaction with my supervisors has been very productive.