



## **Extensions to Traditional Spatial Data Infrastructures: Integration of Social Media, Synchronization of Datasets, and Data on the Go in GeoPackages**

Ingo Simonis

OGC, Kriftel, Germany (isimonis@opengeospatial.org)

Traditional Spatial Data Infrastructures focus on aspects such as description and discovery of geospatial data, integration of these data into processing workflows, and representation of fusion or other data analysis results. Though lots of interoperability agreements still need to be worked out to achieve a satisfying level of interoperability within large scale initiatives such as INSPIRE, new technologies, use cases and requirements are constantly emerging from the user community. This paper focuses on three aspects that came up recently: The integration of social media data into SDIs, synchronization aspects between datasets used by field workers in shared resources environments, and the generation and maintenance of data for mixed mode online/offline situations that can be easily packed, delivered, modified, and synchronized with reference data sets.

The work described in this paper results from the latest testbed executed by the Open Geospatial Consortium, OGC. The testbed is part of the interoperability program (IP), which constitutes a significant part of the OGC standards development process. The IP has a number of instruments to enhance geospatial standards and technologies, such as Testbeds, Pilot Projects, Interoperability Experiments, and Interoperability Expert Services. These activities are designed to encourage rapid development, testing, validation, demonstration and adoption of open, consensus based standards and best practices. The latest global activity, testbed-11, aims at exploring new technologies and architectural approaches to enrich and extend traditional spatial data infrastructures with data from Social Media, improved data synchronization, and the capability to take data to the field in new synchronized data containers called GeoPackages.

Social media sources are a valuable supplement to providing up to date information in distributed environments. Following an uncoordinated crowdsourcing approach, social media data can be both overwhelming in volume and questionable in its accuracy and legitimacy. Testbed-11 explores how best to make use of such sources of information and how to deal with immanent issues with data from platforms such as OpenStreetMap, Twitter, tumblr, flickr, Snapchat, Facebook, Instagram, YouTube, Vimeo, Panoramio, Pinterest, Picasa or storyful.

Further important aspects highlighted here are the synchronization of data and the capability to take complex data sets of any size on mobile devices to the field – and keeping them in sync with reference data stores. In particular in emergency management situations, it is crucial to ensure properly synchronized data sets across different types of data stores and applications. Often data is taken to the field on mobile devices, where it gets updated or annotated. Though bandwidth permanently improves, requirements on data quality and complexity grow in parallel. Intermittent connectivity is paired with high security requirements that have to be fulfilled. This paper discusses the latest approaches using synchronization services and synchronized GeoPackages, the new container format for geospatial data.