



Responsible Land Governance: Towards an Evidence Based Approach

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Spatio-Temporal Datacubes - an Enabling Paradigm for Flexible, Standards-Based Infrastructures

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Abstract

The data deluge we face does not only overwhelm us with sheer data volume, but also with an increasing variety of spatio-temporal datasets. Combining the millions of datasets into few “datacubes has the potential of getting insights from dissecting datasets and joining them with other datasets, ultimately allowing to “ask any question, any time”, enabling to “build your own product on the go”. Datacubes refer to spatio-temporal datasets such as 1-D sensor timeseries, 2-D satellite imagery, 3-D x/y/t image timeseries and x/y/z geophysical voxel data, as well as 4-D x/y/z/t weather data.

We introduce the OGC/ISO “Big Geo Datacube” paradigm, known as coverages, encompassing regular and irregular grids, point clouds, and general meshes. The corresponding Web Coverage Service (WCS) is an OGC core standards. Modular WCS allows flexible, scalable implementations ranging seamlessly from simple download and extraction to high-end analytics. Conformance is testable down to the level of single pixels, establishing rigorous interoperability. Cloud-based WCS datacubes of 250 TB underline usefulness for operational services.

We present coverage data and services in OGC, ISO, and EU-INSPIRE. The tutorial is supported through real-life examples which participants with an Internet laptop can recapitulate and modify.

Key Words:

Big Data, coverage, WCS, WCPS, standard