Turning Interoperability Operational with GST

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GST – Geosciences in space and time is being developed and implemented as hub to facilitate the exchange of spatially and temporally indexed multi-dimensional geoscience data and corresponding geomodels amongst partners. It originates from TUBAF's contribution to the EU project "ProMine" and its perspective extensions are TUBAF's contribution to the actual EU project "GeoMol". As of today, it provides basic components of a geodata infrastructure as required to establish interoperability with respect to geosciences. Generally, interoperability means the facilitation of cross-border and cross-sector information exchange, taking into account legal, organisational, semantic and technical aspects, cf. Interoperability Solutions for European Public Administrations (ISA), cf. http://ec.europa.eu/isa/. Practical interoperability for partners of a joint geoscience project, say European Geological Surveys acting in a border region, means in particular provision of IT technology to exchange spatially and maybe additionally temporally indexed multi-dimensional geoscience data and corresponding models, i.e. the objects composing geomodels capturing the geometry, topology, and various geoscience contents. Geodata Infrastructure (GDI) and interoperability are objectives of several inititatives, e.g. INSPIRE, OneGeology-Europe, and most recently EGDI-SCOPE to name just the most prominent ones. Then there are quite a few markup languages (ML) related to geographical or geological information like GeoSciML, EarthResourceML, BoreholeML, ResqML for reservoir characterization, earth and reservoir models, and many others featuring geoscience information. Several Web Services are focused on geographical or geoscience information. The Open Geospatial Consortium (OGC) promotes specifications of a Web Feature Service (WFS), a Web Map Service (WMS), a Web Coverage Serverice (WCS), a Web 3D Service (W3DS), and many more. It will be clarified how GST is related to these initiatives, especially how it complies with existing or developing standards or quasi-standards and how it applies and extents services towards interoperability in the Earth sciences.