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OGC working groups, standards and activities for geoscience

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The Open Geospatial Consortium (OGC) is an international organization committed to develop and promote open standards for the global geospatial community. OGC membership includes more than 500 organizations that come from across government, commercial organizations, NGOs, academic, and research institutes. OGC activities address both semantic and technological standardization in a wide variety of domains including: Geosciences & Environment; Smart Cities, IoT & Sensor Webs, mobile tech, 3D & Built Environment, Emergency Response & Disaster Management, Energy & Utilities, and many more.

As for the geoscience topic, three major groups and standards can be mentioned:

The GeoScience Domain Working Group (DWG) is a forum to discuss, organize and harmonize geoscience related standards. In this context, Geoscience encompasses several scientific domains which all aim to provide a better understanding and representation of the Earth: Geology, Geomechanics, Geophysics, Geotechnics, Hydrogeology, Mineralogy, Seismology or Volcanology.

GeoScience Markup Language (GeoSciML) is a data model and data transfer standard for geological data. It formalizes the description of geological features commonly portrayed in geological maps, cross sections, geological reports and databases. It provides geological surveys, and other geoscience data providers, a common vocabulary for the electronic dissemination of geoscientific information.

GroundWater Markup Language 2 (GroundWaterML 2 or GWML2) is a data exchange standard for the ground-water domain. As part of the WaterML 2.0 standard and linked to GeoSciML, it introduces some concepts such as hydrogeological units, fluid bodies, voids, flow and well.

Recent or current work of the geoscience community concern both harmonization between existing standards and/or proposing alternative encodings for them. This paper presents the current status and activities of those standards and groups, especially two on-going Interoperability Experiments (IE):

The Borehole IE that targets a common conceptual model for borehole which are currently defined inconsistently in more than one OGC standard.

The Environmental Linked Features IE that test existing OGC and W3C standards with the goal of establishing a best practice for exposing linked data with modern web search technology.