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## Technical standards developments in global Geoscience: OneGeology WWW interoperability 8 years on

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OneGeology ([www.onegeology.org](http://www.onegeology.org)) is the initiative of 121 of the world's Geological Survey Organisations (GSO) that first started to serve highly interoperable datasets as OGC (Open Geospatial Consortium) web services in 2008. Since then OneGeology has been a leader in enabling access to geological online data always promoting the use of truly global and interoperable interchange standards, such as GeoSciML, developed by the IUGS-CGI in collaboration with the OGC.

Starting with basic geological map data, the scope of datasets now encouraged to be available from the web portal ([portal.onegeology.org](http://portal.onegeology.org)) extends to 126 Geoscience thematic areas (at any offered scale) covering most of the topics likely to be available in digital form and suitable for digital data exchange:

Geology, Bedrock, Superficial deposits, Surface geology, Borehole, Geochronology, Radiometry, Absolute age, Stratigraphy, Biostratigraphy, Chronostratigraphy, Structural geology, Tectonics, Neotectonics, Structure, Fault, Fold, Petrology, Lithology, Igneous rock, Metamorphic rock, Sedimentary rock, Mineralogy, Geochemistry, Hydrogeochemistry, Lithogeochemistry, Organic geochemistry, Pedology, Soil, Permafrost, Sedimentology, Deposition, Erosion, Marine submersion, Mudflow, Geomorphology, Geoheritage, Conservation, Geological trail, Geopark, Geosite, Geotourism, Preservation, Artificial ground, Marine Geology, Seafloor type, Shallow gas, Bathymetry, Miscellaneous, Education, Mathematical geology, Popular geology, Harmonized geology, Harmonized age, Harmonized genesis, Harmonized data, Harmonized structure, Geophysics, Gravimetry, Geomagnetism, Paleomagnetism, Geoelectricity, Radioactivity, Seismology, Geothermics, Economic Geology, Exploration, Mining, Metals, Minerals, Energy, Coal, Peat, Oil, Oil shale, Gas, Ore, Metallic ore, Engineering geology, Geotechnics, Rock mechanics, Soil mechanics, Land heave, Land subsidence, Environmental geology, Geologic hazards, Avalanche, Cavity caving, Collapse of metastable sediments, Earthquake, Flood, Landslide, Mud and debris flow, Off-shore landslides and collapses, Quick clay, Rockfall, Tsunami, Volcanism, Pollution, Acid drainage, Groundwater pollution, Diffuse pollution, Point-source pollution, Reclamation, Soil pollution, Climate change, Emission of climate gas, Global warming, Methane exhalation, Sea level rise, Carbon capture and storage, Waste, Medical geology, Airborne dust exposure, Arsenic exposure, Asbestos exposure, Heavy metal exposure, Radon exposure, Hydrogeology, Aquifer, Groundwater, Groundwater abstraction, Groundwater level, Infiltration, Spring, Water quality, Water well, Groundwater body.

Such data services will truly allow OneGeology to fulfil its potential to be 'Providing geoscience data globally' for many types of Geoscience.

The types and functionality of the offered OGC web services has also expanded from Web Map Services (WMS V1.3– intelligent images of the data) to Web Feature Services (WFS V2.0 – interoperably queryable full complex datasets with geometries and many properties) and currently now to Web Coverage Services (WCS v2.0– full grid/raster/model data query and download) which are good for visualising model outputs, grids, rasters, and 2D slices of 3D and 4D data.

The use of the WWW for interoperable geoscience data exchange will be discussed within the latest in OneGeology progress.

