



## OGC GeoScience DWG: a forum to enhance and organize geoscience data standardization

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# **OGC GeoScience DWG: a forum to enhance and organize geoscience data standardization**

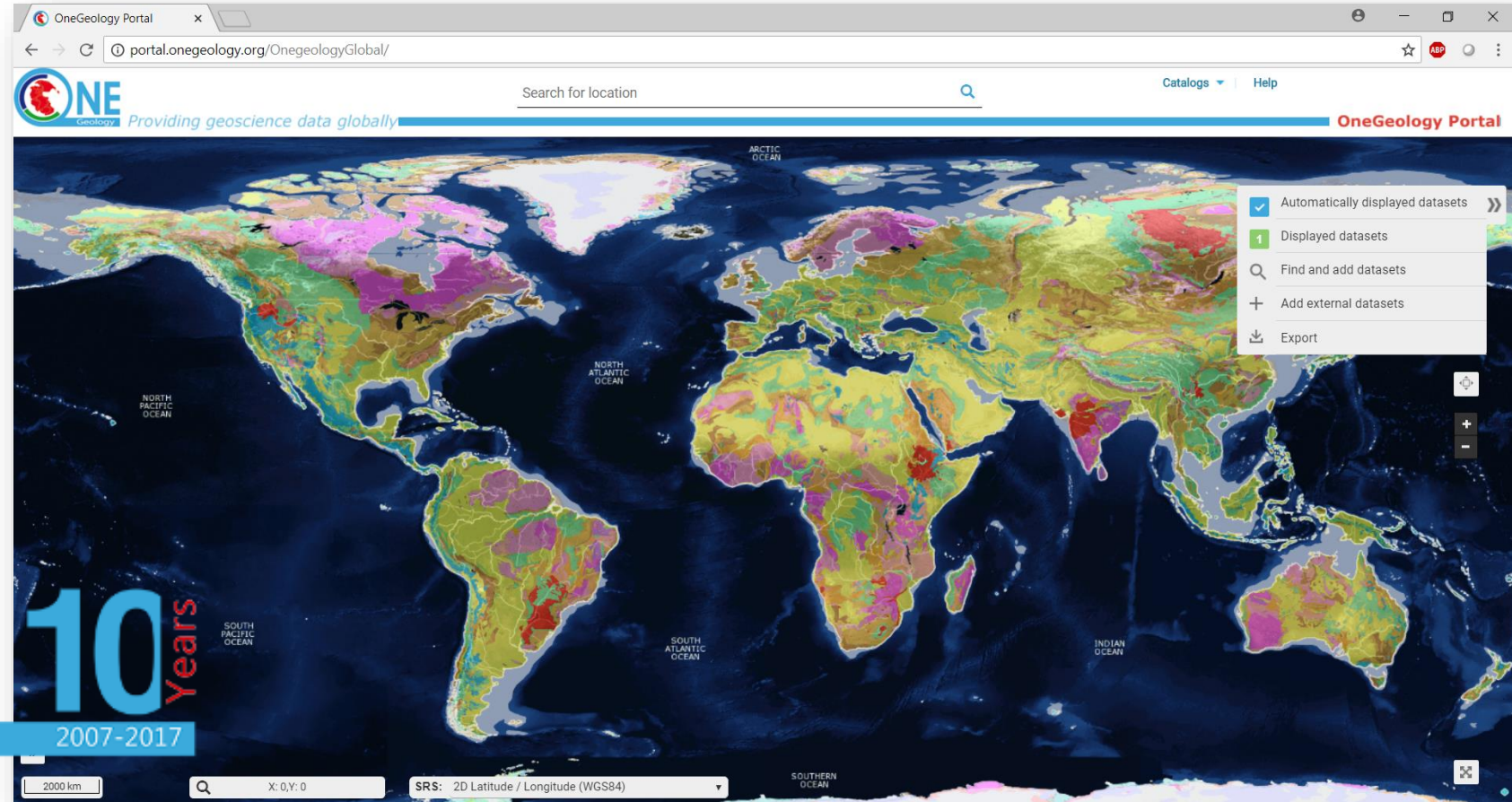
Mickaël BEAUFILS (BRGM) & Carina KEMP (GeoScience Australia)

RFG 2018 – Geo-Engineering and Earth Sciences: Integration Opportunities session  
Vancouver, Canada - 18 June 2018

# The Earth



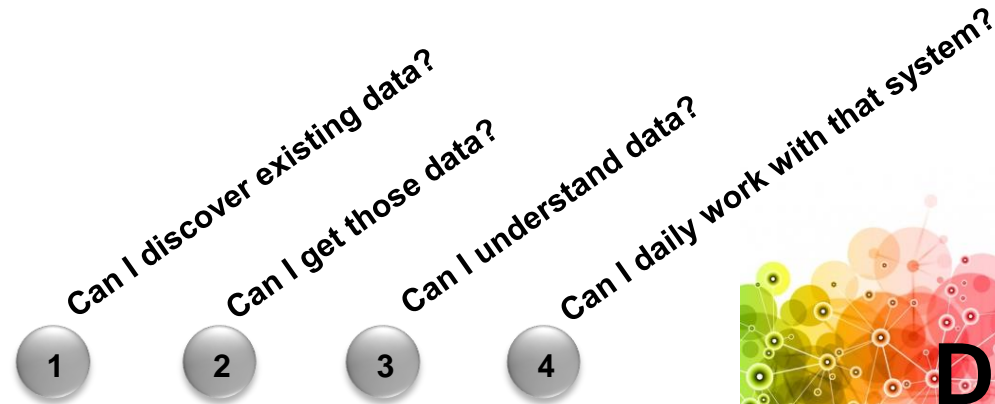
- OneGeology: celebrating 10 years of interoperability in the geoscience



# Four levels of interoperability



- The needs (from an user point of view)

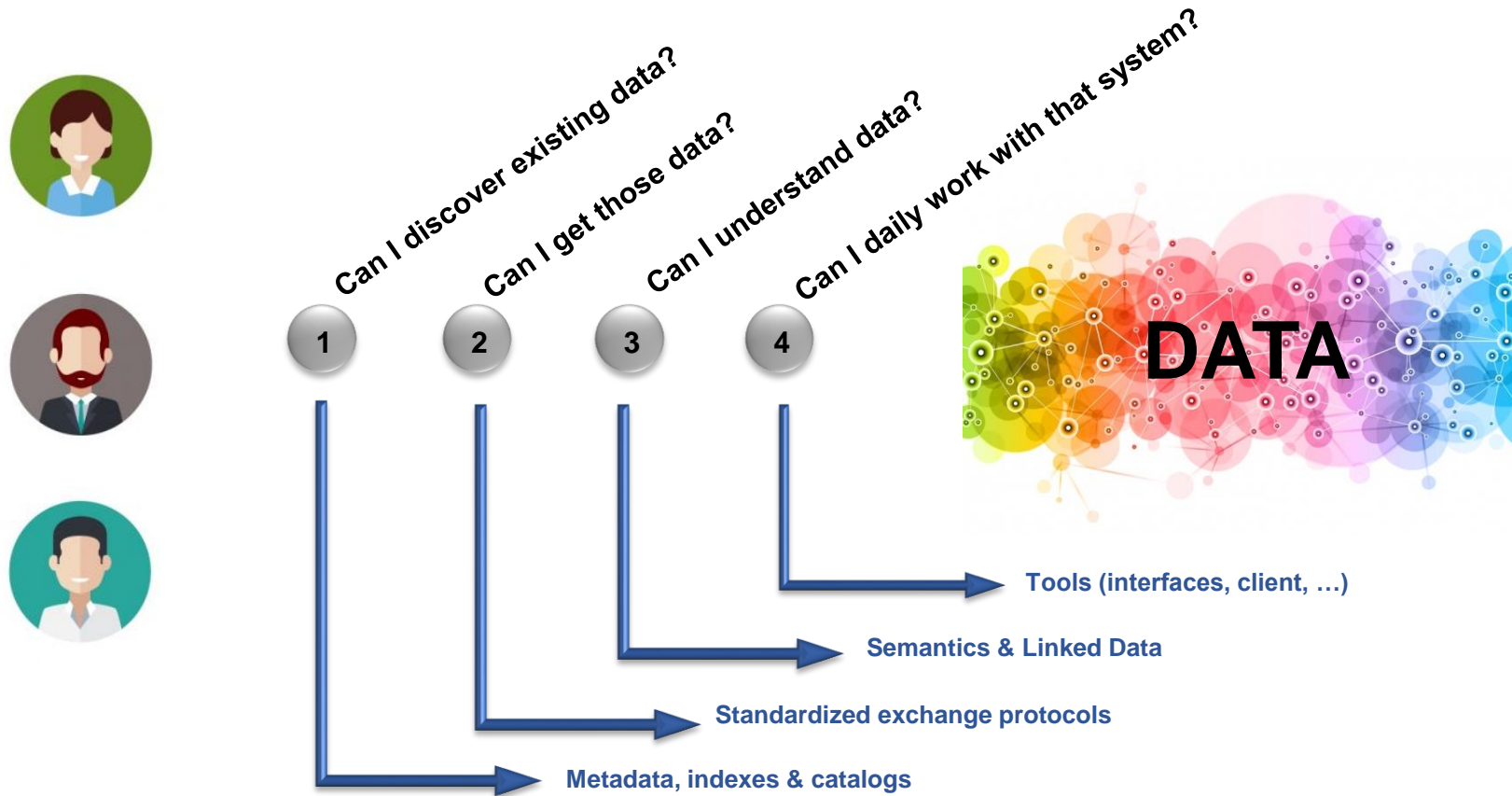




# Four levels of interoperability



- The answers (from an IT point of view)



# What is the OGC GeoScience DWG ?



- The joint Domain Working group (DWG) between OGC and CGI-IUGS



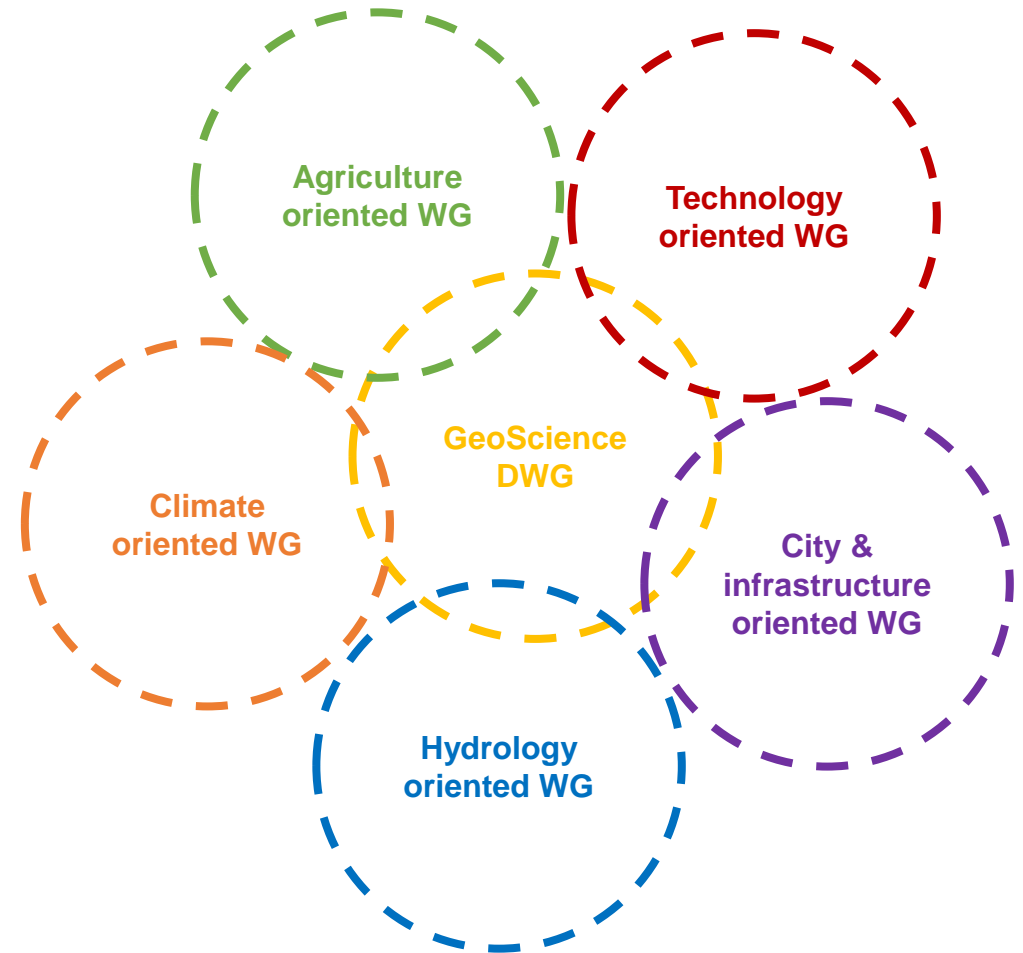
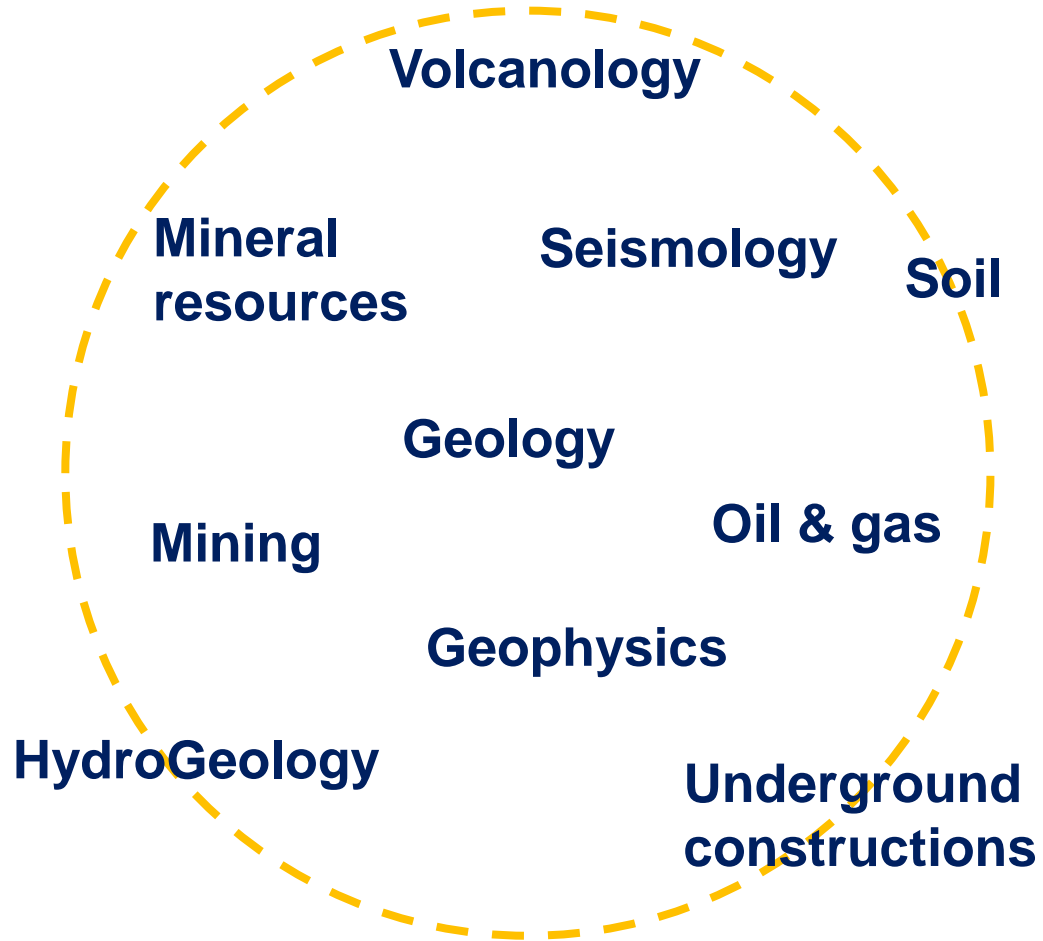
Geospatial Data Standardization



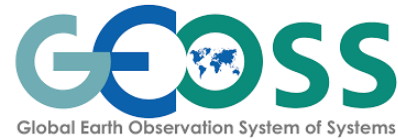
Geoscience Data Community

- Officially created in September 2017
- One goal: leveraging geoscience data interoperability
- Co-chairs: Mickaël Beaufils (BRGM) & Carina Kemp (Geoscience Australia)

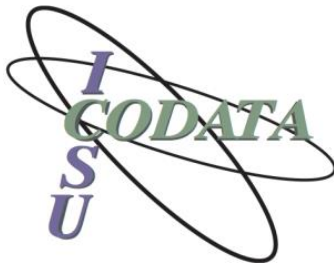
# GeoScience DWG perimeter



# Ensure proper connections with other groups



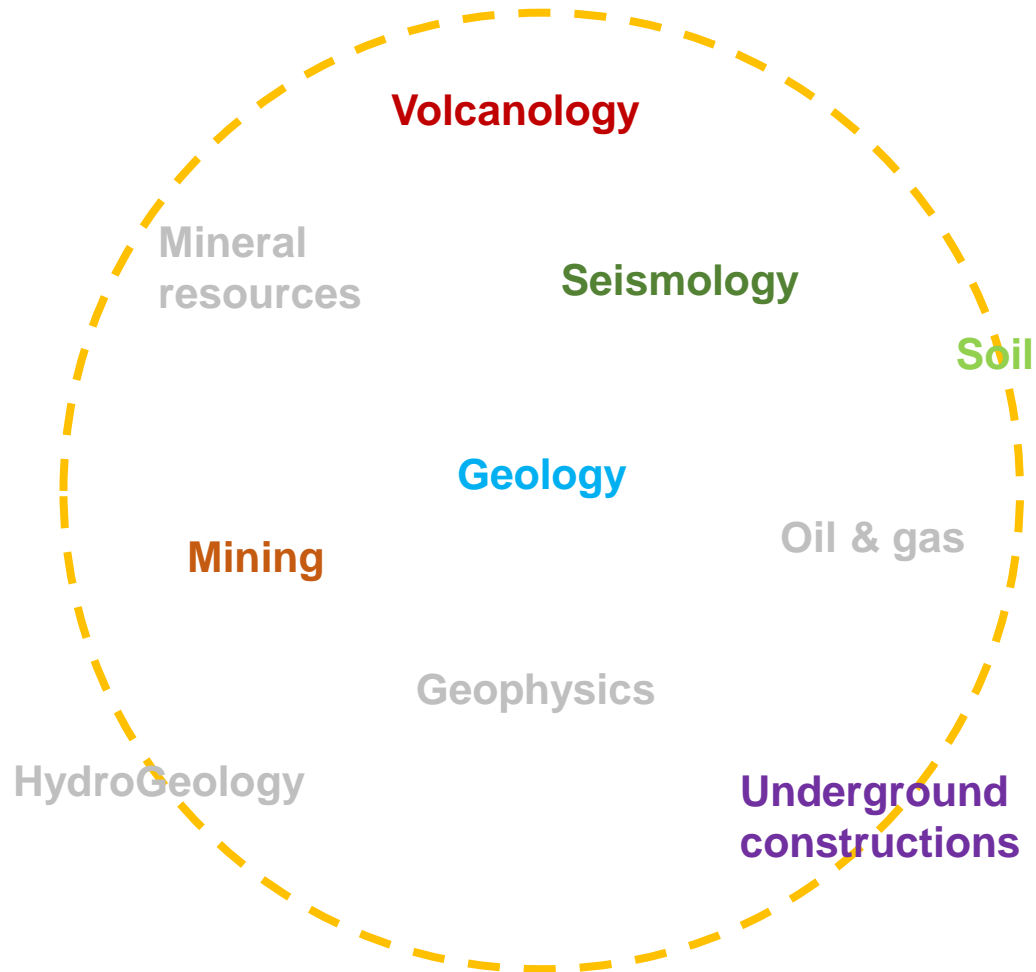
Earth, Space, and Environmental Sciences  
Interest Group



... and many others






# Connect people interested in the geoscience topic



## Exploring GeoScienceDWG horizons

(Presentation session from March 2018 - Orleans TC)

- BIM and Geomodelling (Mickaël Beaufils - BRGM)
- LIDAR and Geomodelling (Thomas Dewez - BRGM)
- Seismology (Aurelien Dupont - EMSC) 
- Volcanology (Jean-Marie Saurel – IPGP) 
- Mining (Andrew Scott - GMSG) 
- Soil (Josh Liebermann - Tumbling Walls LLC)
- AstroGeoScience (Mark Hunter - USGS)

# Harmonize geoscience data expression and facilitate usage



- **Two starting activities to mention:**
- **Borehole Interoperability Experiment** targeting a common Borehole conceptual model
  - Borehole is a core concept in geoscience
  - Several existing standards
  - Cross-countries initiatives on the run to push standard usage (EPOS, ...)
- **3D-4D model discovery Interoperability Experiment** targeting definition of metadata for 3D-4D models
  - 3D-4D model standardization is not so advanced
    - “No consensus of 3D-4D model definition”
  - Have to make 3D-4D models at least findable
  - Cross-countries initiatives on the run to push standard usage (EPOS, OneGeology, ...)

# Stay connected and even propose enhancements to technologies / solutions



- Environmental Linked Features IE (ELFIE)
- ‘Demonstrate the use of existing and pending OGC standards for the encoding of **environmental observation data** in an integrated dataset of features linked according to **ReSTful** and **Linked Data** principles.’

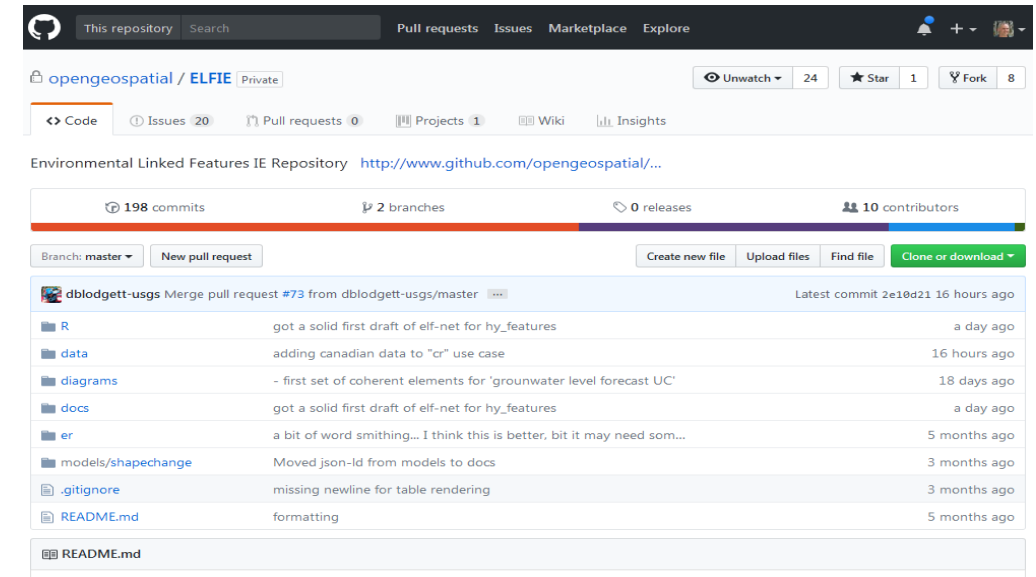
- Initiators:

- U.S. Geological Survey (US)
- Land Information New Zealand (NZ)
- BRGM (FR)

- Participants

- Tumbling Walls and Dewberry (US)
- Meta-linkage (AU)
- INSPIRE (EU)
- Natural Resources Canada (CA)
- Manaaki Whenua and Horizons Regional Council (NZ)

From: <https://github.com/opengeospatial/ELFIE>



# Initiative to mention relative to geo-engineering



- **Geoscience data standardization applied to Building Information Modeling for Underground Infrastructure**



- **MINnD UC8 project (<http://minnd.fr/en>)**
  - **Assessment / enhancement of existing standards for:**
    - **Description of tunnel and its equipment (IFC Tunnel)**
    - **Description of underground infrastructure environment and relationship with the construction (OGC standards: Observations & Measurements, GeoSciML, GroundWaterML, ...)**
      - **Observations data (including boreholes, tests, lab analysis, geophysics)**
      - **Geological, hydrogeological and geotechnical models**
      - **Impact on surrounding constructions**
      - **Impact on environment (pollution)**
      - **Risk assessment**
- **Integrated Digital Building Environment (IDBE group)**



# Summary

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- **Benefits from interoperability / standardization**
  - At least, getting data
  - Being able to use data, combine data
  - A necessity for big projects
  - Facilitate application / database maintenance, reduce duplication
  - **Having more time to do something else!**
- **GeoScienceDWG: the place to build standards for geoscience**



# Interest in going further with us?



- **RFG 2018:**
  - **RS17: Geoscience Information Technology for the Next Generation**
  - **Wednesday June 20 (8h30 – 17h00) – Room 118**
- **Borehole IE kickoff**
  - **Thursday June 27 (visioconference, link to be provided soon)**
- **Keep in touch with the group**
  - <https://lists.opengeospatial.org/mailman/listinfo/geoscience.dwg>
- **More information about the group**
  - [http://external.opengeospatial.org/twiki\\_public/GeoScienceDWG/WebHome](http://external.opengeospatial.org/twiki_public/GeoScienceDWG/WebHome)

# Thanks for your attention



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