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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

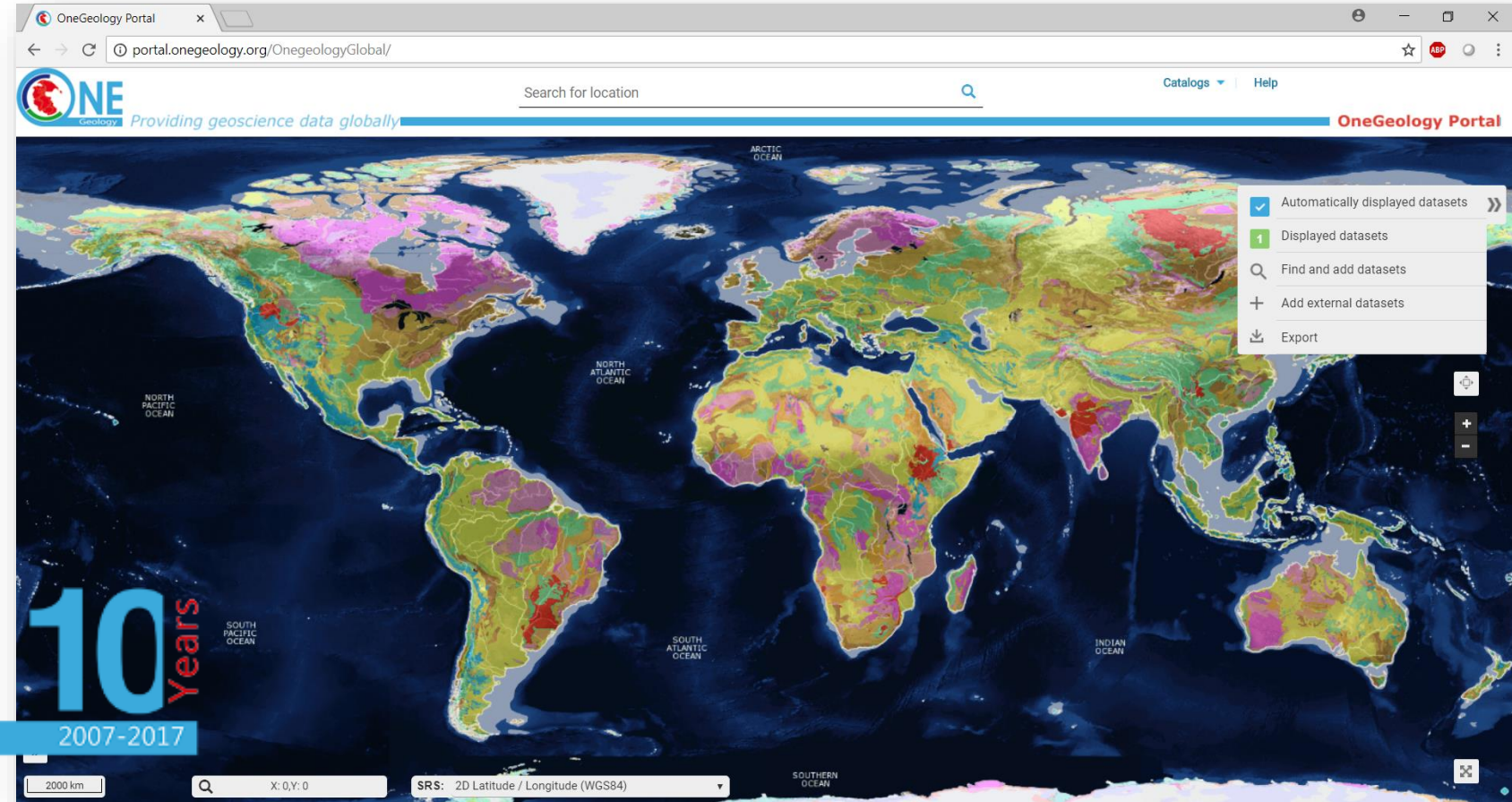
Mickaël BEAUFILS (BRGM) & Carina KEMP (GeoScience Australia)

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)



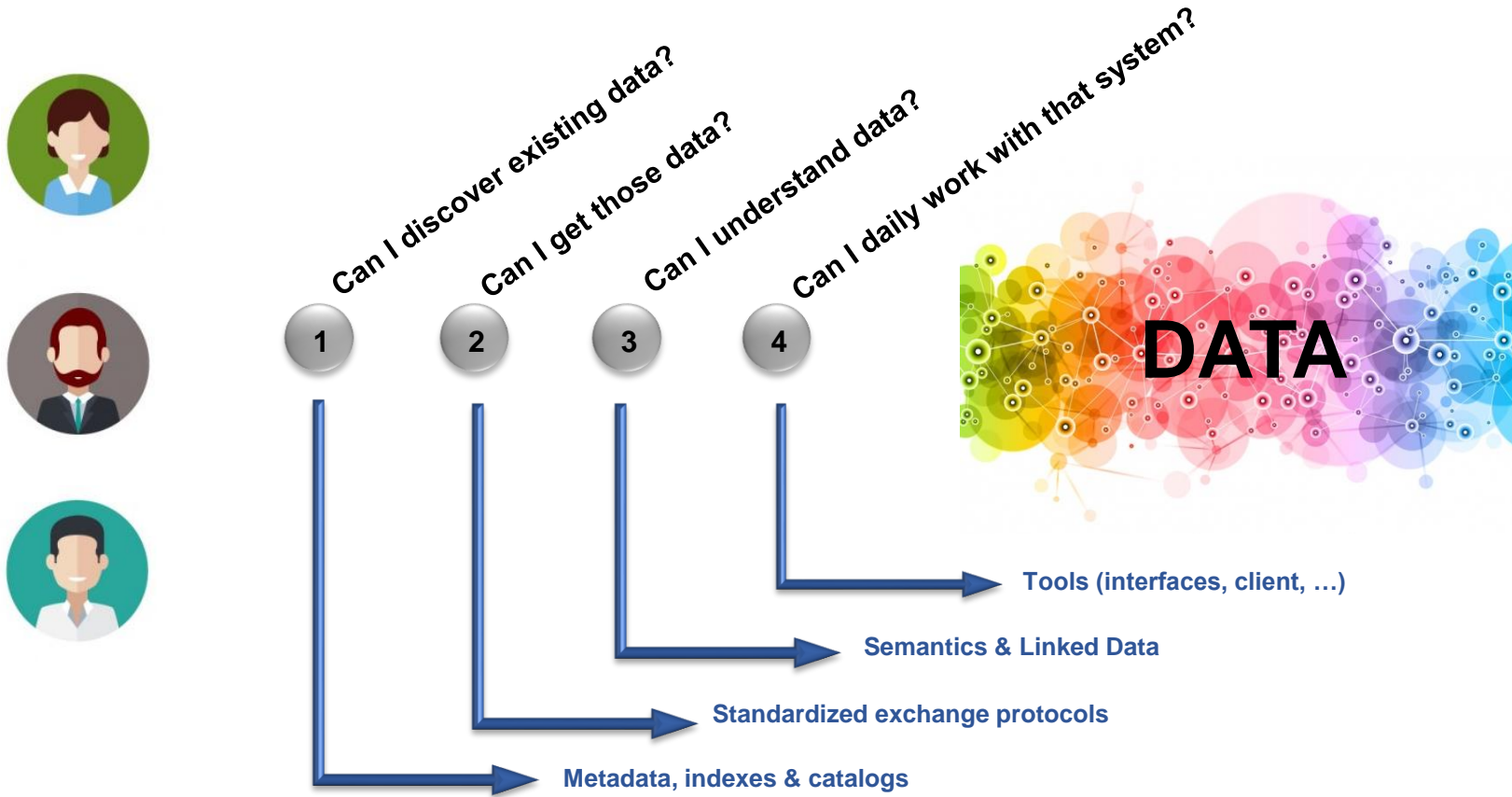
- 1 Can I discover existing data?
- 2 Can I get those data?
- 3 Can I understand data?
- 4 Can I daily work with that system?



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**



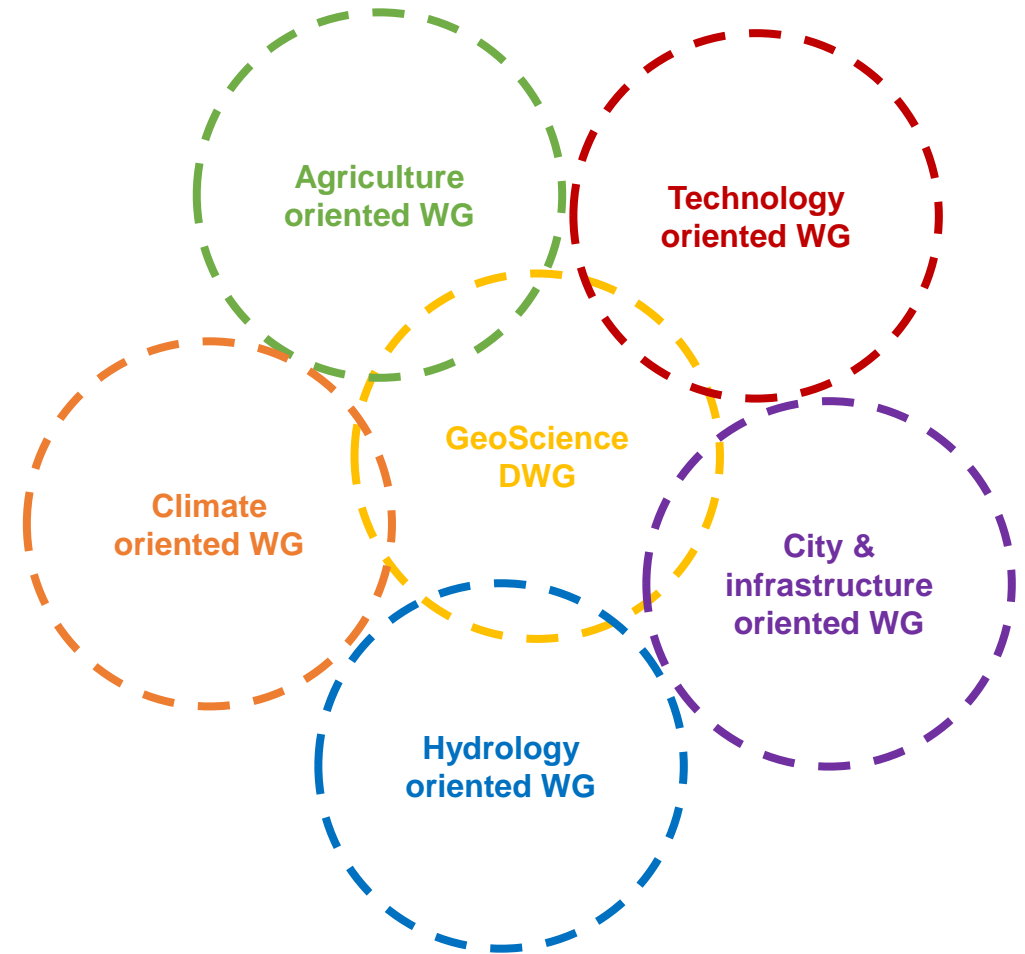
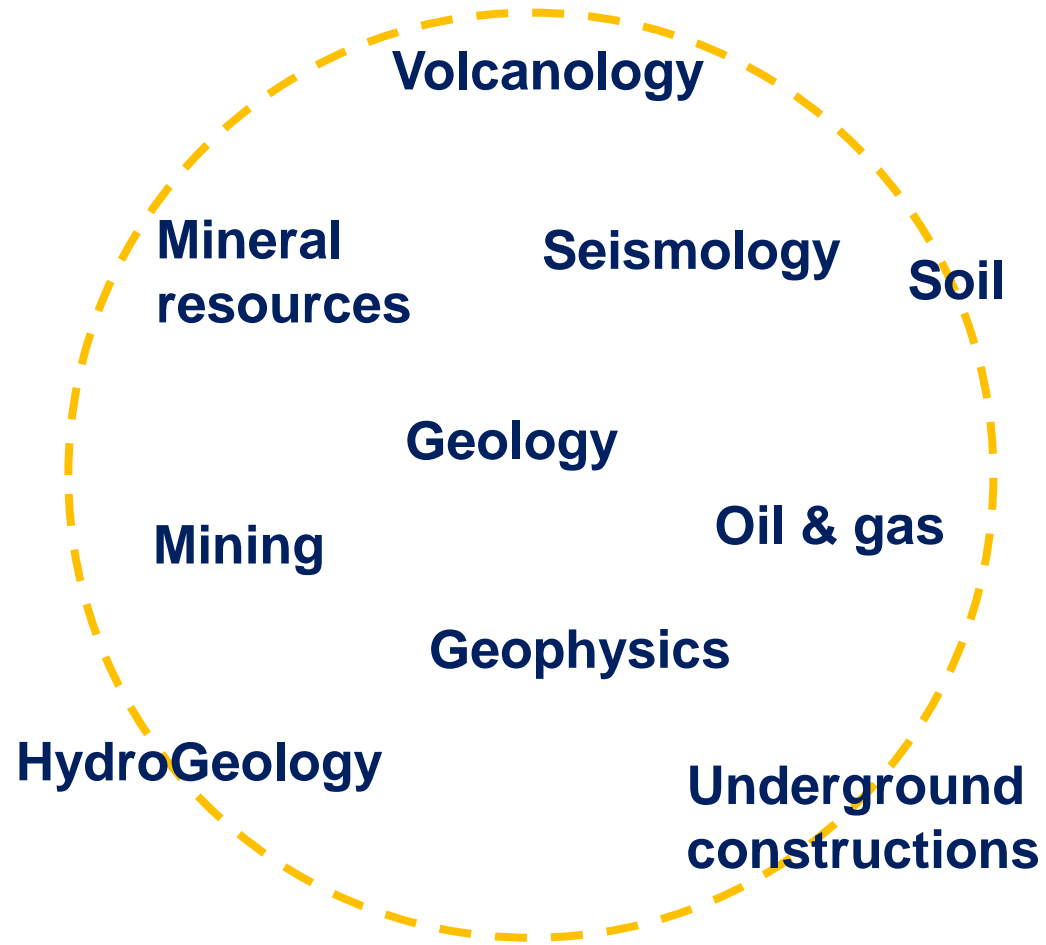
Geospatial Data Standardization



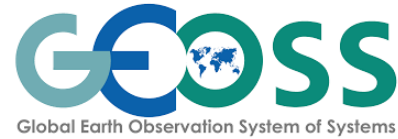
Geoscience Data Community

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

GeoScience DWG perimeter



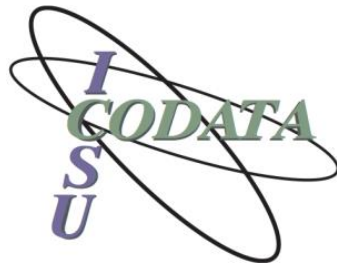
Ensure proper connections with other groups



AuScope
AN ORGANISATION FOR A NATIONAL
EARTH SCIENCE INFRASTRUCTURE PROGRAM

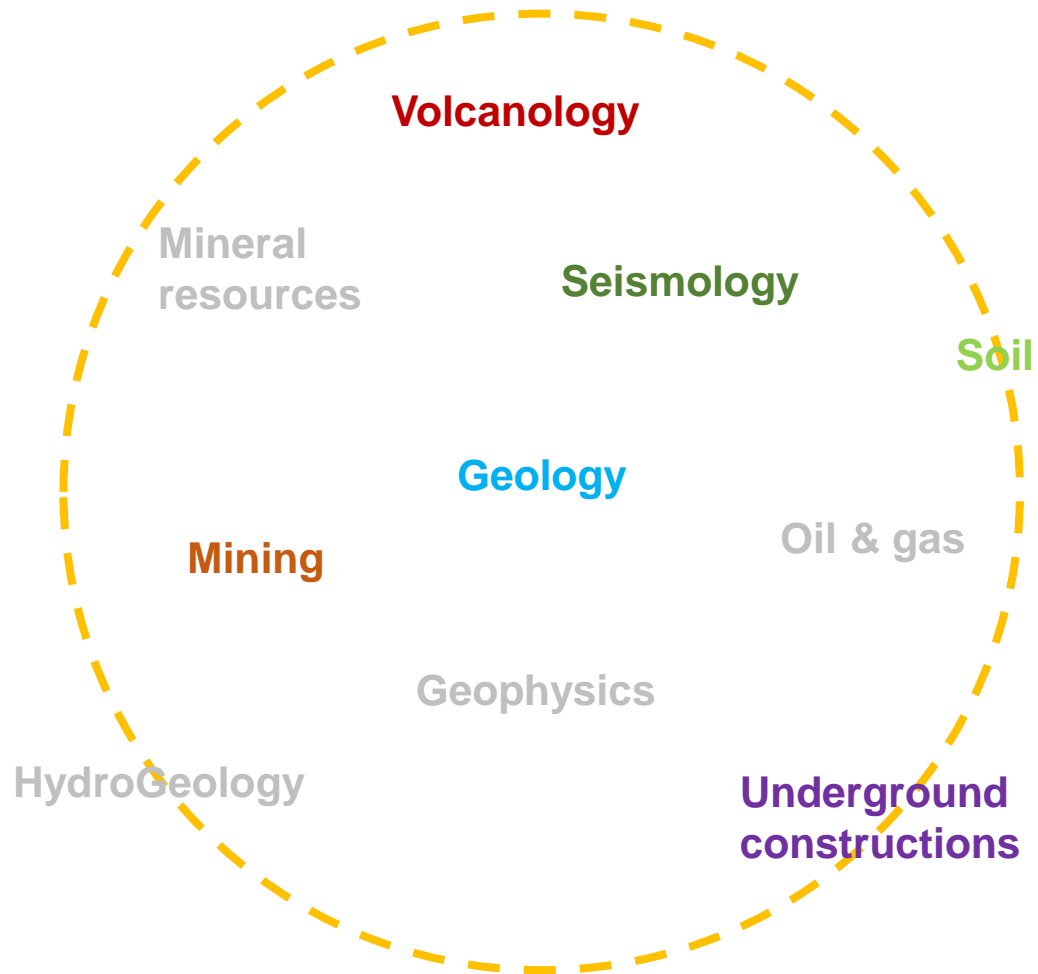


**Earth, Space, and Environmental Sciences
Interest Group**






... 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>

The screenshot shows the GitHub repository page for 'opengeospatial / ELFIE'. The repository is private and has 24 watchers, 1 star, and 8 forks. It contains 198 commits, 2 branches, 0 releases, and 10 contributors. The current branch is 'master'. A recent pull request #73 from 'dblodgett-usgs' is highlighted, with the latest commit '2e10d21' made 16 hours ago. The commit history shows several updates to the 'R' and 'data' folders, as well as changes to 'diagrams', 'docs', 'er', and 'models/shapechange'.

Commit	Message	Time
dblodgett-usgs Merge pull request #73 from dblodgett-usgs/master	Latest commit 2e10d21 16 hours ago	
R	got a solid first draft of elf-net for hy_features	a day ago
data	adding canadian data to "cr" use case	16 hours ago
diagrams	- first set of coherent elements for 'grounwater level forecast UC'	18 days ago
docs	got a solid first draft of elf-net for hy_features	a day ago
er	a bit of word smithing... I think this is better, bit it may need som...	5 months ago
models/shapechange	Moved json-ld from models to docs	3 months ago
.gitignore	missing newline for table rendering	3 months ago
README.md	formatting	5 months ago

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



- **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

Thanks for your attention



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