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Introduction to the Geoscience Domain Working Group

105th OGC Technical Committee
Palmerston North, New Zealand

Carina Kemp

6 December 2017

What is Geoscience?



Geoscience is the scientific study of planet Earth and its many different natural geologic systems. It includes the study and investigation of Earth's

- minerals,
 - soil,
 - water and
 - energy resources:
- How Earth's natural systems work today,
 - How they operated in the recent and ancient past, and
 - How we expect they may behave in the future.

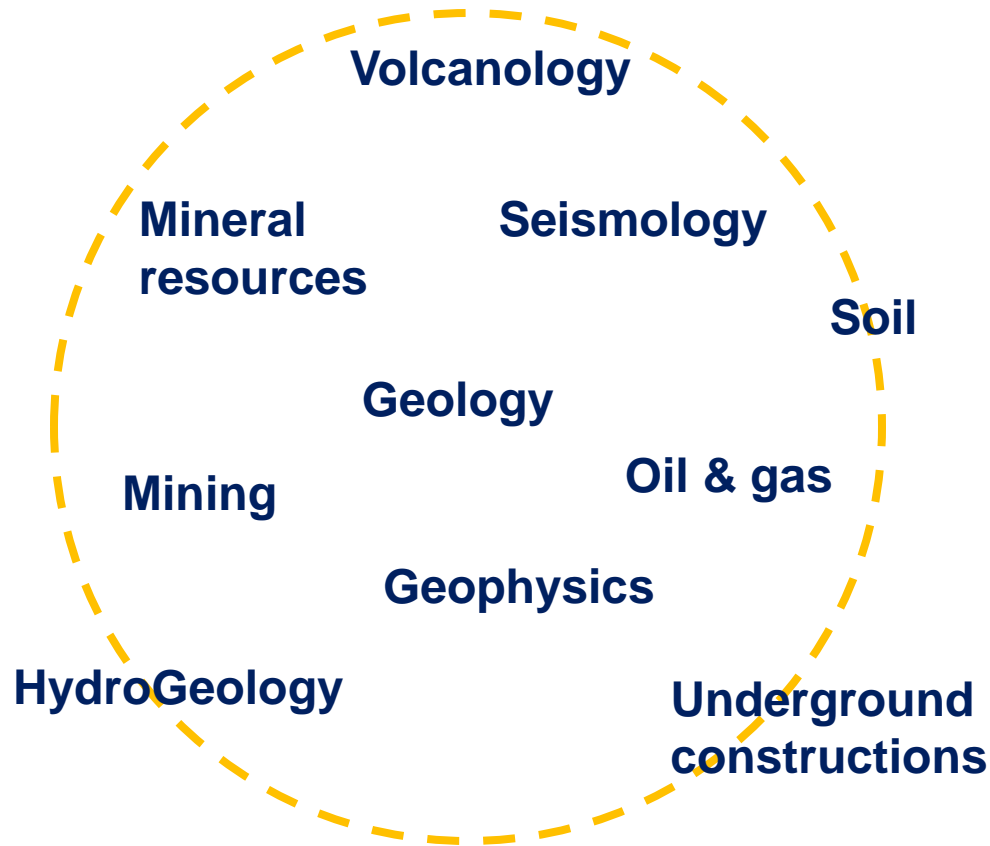
Geoscience is real-world science, relevant to everyone, everyday.

Geoscience DWG domain of activities: A mix of different disciplines around geology



A global Earth Science System.

from Delft TC presentation of GeoScienceDWG



Geoscience as a whole..



- The themes on the previous slide are deeply linked and need to be studied together to provide a **global Earth Science System**.
- Geoscience most of the time constitutes the scope of Geological Surveys:
(e.g. BRGM for France, BGS for the UK, NR-CAN for Canada, Geoscience Australia for Australia etc...).
- Geoscience must be **studied as a whole**.

Why form Geoscience DWG?

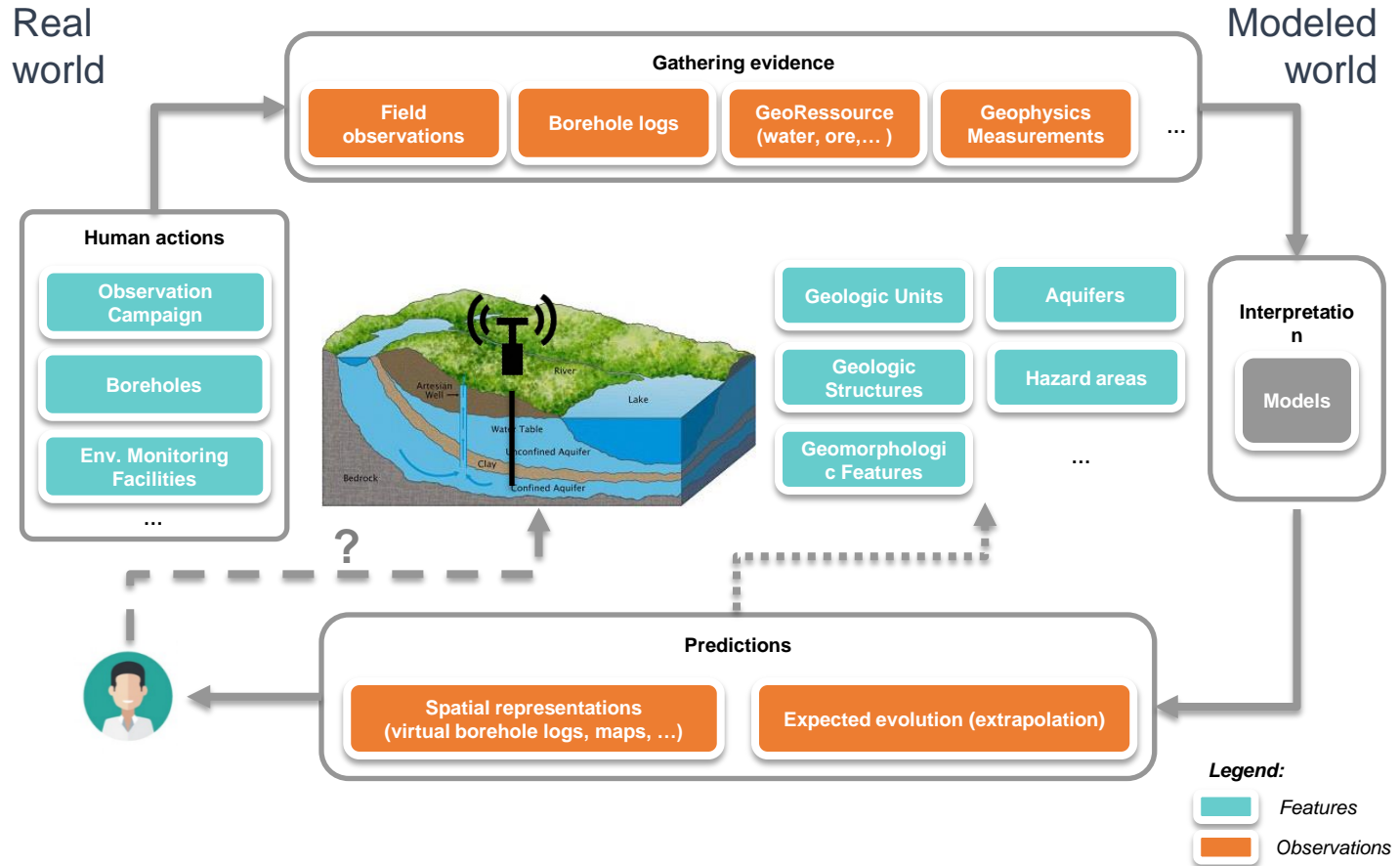


- Do we know where we are about standards for boreholes and 3D ?
 - for what users
 - for what purpose
- Do we (need to ?) agree on common standards ?
- Embrace different communities
 - Geo* (geology, geotechnics, oil and gas, mining, groundwater...)
 - Data providers (geological surveys, universities, contracting companies,...)
 - Users (engineering, municipalities,...)
 - Software vendors – ...
- Make sure we are able to interoperate with other communities (BIM,...) and benefit from generic 3D developments (OGC)

Understanding the subsurface



(from Beaufils & Grellet, INSPIRE 2017)



Enhancing Geoscience data interoperability



- From a user point of view



1

Can I discover existing data?

2

Can I get the data?

3

Can I understand data?

4

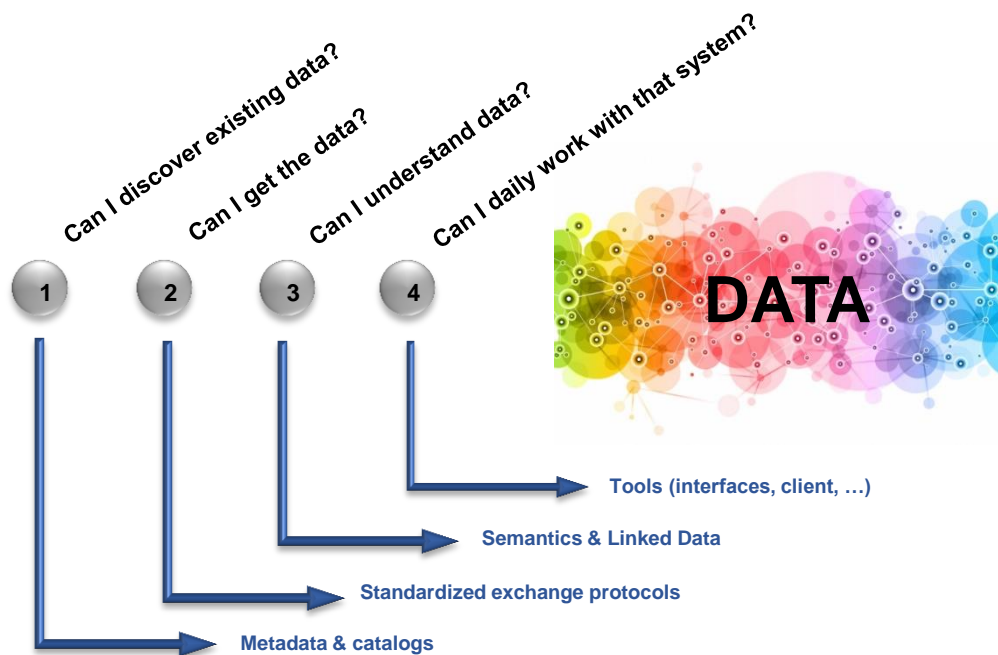
Can I daily work with that system?



Enhancing Geoscience data interoperability



- Responses to the needs



Geoscience DWG Purpose



- to provide an open forum for work on geoscience data interoperability and access.
 - encourage collaborative development among participants representing many organizations and communities,
 - ensure appropriate liaisons to other relevant working groups, both inside and outside OGC.

International Union of Geological Sciences (IUGS)



- The GeoScience DWG is a joint OGC and CGI-IUGS working group
- The **Commission for the Management and Application of Geoscience Information (CGI)** is a working subcommittee of the **International Union of Geological Sciences (IUGS)**. Its main mission is to enable the global exchange of knowledge about geoscience information and systems. It includes several Working Groups:
 - the **GeoSciML and EarthResourceML** aims to develop and test relevant and timely geological information standards. The ultimate objective of the working groups are to enable seamless web integration of selected information hosted at different locations in varied formats,
 - the **Geoscience Terminology Working Group** focuses on semantics and aims to establish a common multilingual core vocabulary by developing and expanding the Multilingual Thesaurus of Geoscience.



OGC[®]

Geoscience DWG Key goals



from Delft TC presentation of GeoScienceDWG

- Foster technical solutions which support interoperable concepts, data definitions, formats and services for publishing, search, and exchange of geoscientific information.
- Ensure thematic/semantic coherence within the Geoscience domains and the Geoscience related ones: Geology, Hydrogeology, Mineral Resources, Surface Hydrology, Soil ...
- Define proper interfaces with other related Domains eg City and Infrastructure
- Support proper exchange with Risk monitoring, prevention and management activities
- Focus industry and research organizations (incl. RDA – Research Data Alliance) attention on the value added of interoperable approaches
- Identify and work with a select set of partners in this area, and initiate demonstration projects to develop and publicize best practices in this area.
 - Boreholes
 - 3D/4D Subsurface Model Discovery
- Establish a workable approach to managing standards for geoscience spatial features, their temporal aspects, related metadata, and other business information.

Geoscience DWG Activity

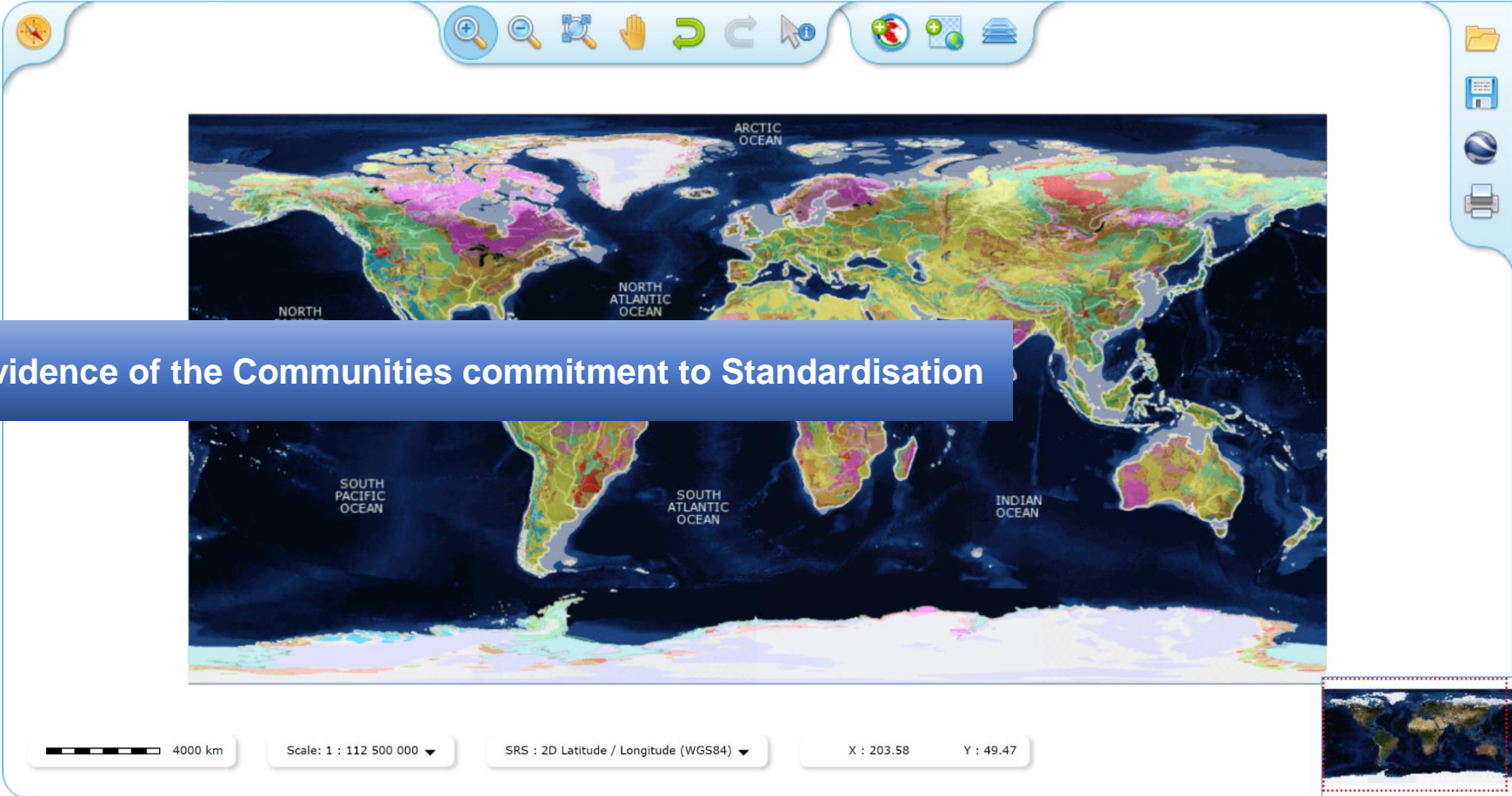


Past Events

- **June 2016: OGC TC Dublin - Ad-hoc meeting**
 - 3D [GeoScience](#) and boreholes
- **March 2017: OGC TC Delft - ESS DWG session**
 - Proposal of creation of the [GeoScience](#) DWG (F.Robida, on behalf of the proposers)
- **September 2017: OGC TC Southampton - [GeoScience](#) DWG session**
- **December 2017: OGC TC Palmerston North - [GeoScience](#) DWG session**

Upcoming Events

- **March 2018: OGC TC Orleans - [GeoScience](#) DWG session**
 - Hosted by BRGM (The French Geological Survey)



The screenshot displays the OneGeology Portal interface. At the top, there is a navigation bar with links for 'Catalogues', 'Vocabularies', 'Help', and 'About', along with a flag icon and a checkbox for 'Automatically display layers depending on scale and location'. Below this is a toolbar with various icons for map navigation and layer management. The main area features a global geological map with color-coded regions. A blue banner is overlaid on the map with the text 'Evidence of the Communities commitment to Standardisation'. At the bottom, there are controls for scale (1:112,500,000), SRS (2D Latitude / Longitude (WGS84)), and coordinates (X: 203.58, Y: 49.47). A scale bar indicates 4000 km. A small inset map is visible in the bottom right corner.

Evidence of the Communities commitment to Standardisation



Let's have geoscience data standardisation!