5TH EUROPEAN MEETING ON 3D GEOLOGIC MODELLING

THE ROLE OF 3D GEOLOGY IN SPATIAL PLANNING

G. MARTELET

BRGM - « Subsurface Imagery and Modelling »
Scientific Programme Director

Bern - Switzerland
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BACKGROUND

**RGF** French national geological program

- **Vosges – Rhine graben** demonstrator – 2013
- **Pyrenees** – final conference in spring 2019
- **On going 2018 + ... > 5 years**

- **French Alps**
  - geoscience knowledge, from the lithosphere to the surface and **applied geology**

- **Paris basin**
  - focus on high resolution subsurface 3D modelling and link with sub-urban planning

→ **RENEWED CHALLENGES FOR GEOMODELLING !**
3D Geological modelling in BRGM

- 50 years of experience: continuous production of multi-purpose 3D geological models
- Development of geomodelling and geostatistical solutions:
  - GDM Suite (basin modelling / geostatistics)
  - GeoModeller (complex geology / geophysics)

- TODAY: commercial desktop solutions
- TOMORROW (?)
  → modular combination of “bricks” of both softwares (and others), into a common Geomodelling platform
  → transition from desktop tools to information systems, consistent with other BRGM thematic platforms (risk, water, …) – and with international standards for external links

→ TOWARDS MORE MODULARITY
In Transition

Gaining modularity

→ Implementing existing software functionalities into independent (Web-)services:
  
  o **SCUDDD**
    
    3D model database storage / interrogation
    
    → Implemented using GDM / Geomodeller libraries
    
    → Follows interoperability standards
  
  o **Visual Karsys (ISSKA-BRGM collaboration)**
    
    Web 3D geometrical modeler allowing to derive hydrogeological conceptual models in karstic environment
    
    → Implemented using GMLIB library, reproducing the core of 3DGeomodeller implicit modelling

✓ Karsys – BRGM poster + démo: Malard et al., Visual KARSYS – a web service for modelling karst aquifers

→ Opens “INFINITE” PERSPECTIVES
Towards a continuous natural / anthropic description of the subsurface

→ Interaction between geology and human infrastructures
  Joint modelling of Point cloud data and traditional geological model

→ Standardization efforts and data management
  - BRGM is co-chairing the joint OGC / CGI-IUGS GeoScience DWG
  - Promotes and implements those standards in several collaborative projects: EPOS, OneGeology, GeoERA
  - Reuses and extends OGC works and standards to fit geotechnical community requirements

→ Digital twin and BIM
  - Demand of standards for geotechnical data from the construction community
  - Big data producer and consumer
  - Opportunities to share common practices and data models between geological surveys and industry

✓ Wednesday 22: François Robida, Digital twin: buzz word or paradigm change for geological modeling?
✓ Friday 24: Mickaël Beaufils, Geotechnical data standardization for BIM: From MINnD UC8-GT to IDBE Geotech
HAVE A FRUITFUL WORKSHOP!