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# EPOS needs for Borehole

99th OGC Technical Committee – 3D Geoscience borehole ad-hoc meeting  
Dublin, Ireland  
Sylvain Grellet - BRGM  
22 June 2016

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# EPOS in a nutshell



- **European Plate Observing System**

- [www.epos-eu.org](http://www.epos-eu.org)
- European research infrastructure on solid earth science
  
- Integrates the existing and future advanced European facilities into a single, distributed, sustainable infrastructure



Several PetaBytes of solid Earth Science data will be available

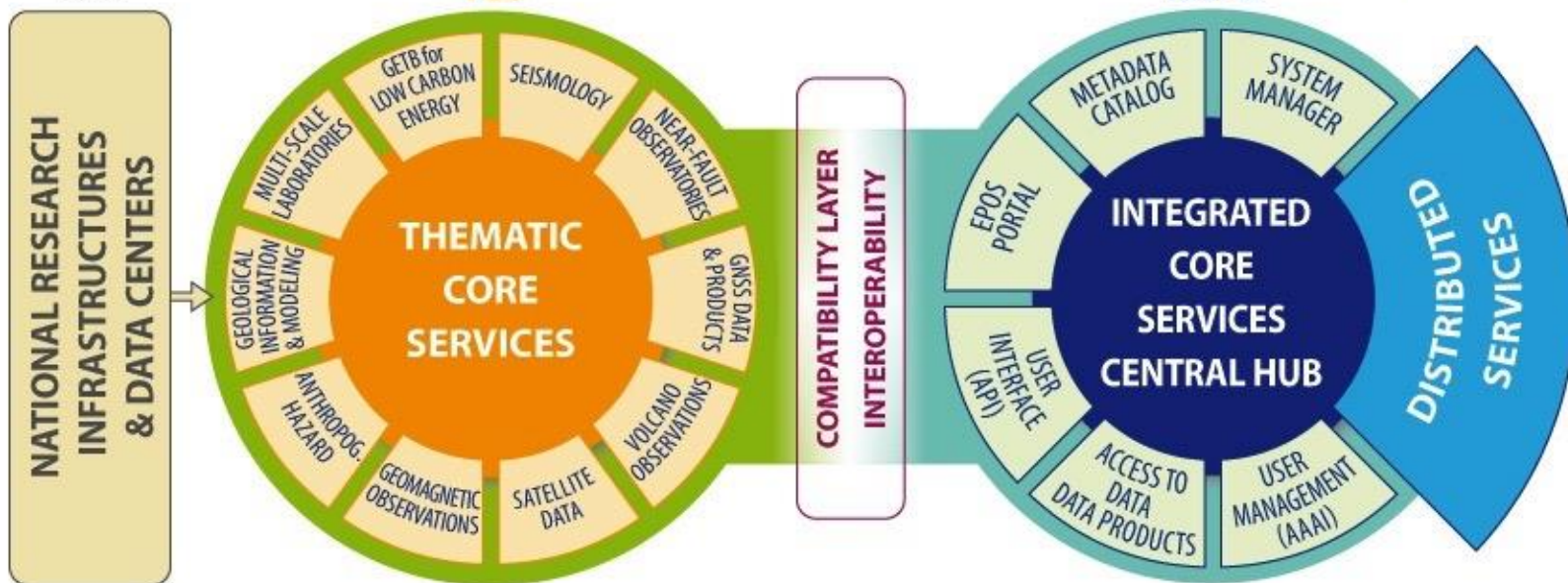
Several thousands of users expected to access the infrastructure

# EPOS in a nutshell



Community-specific integration

Novel e-infrastructure



Data generation  
Data collection  
Responsible of sustainability and operation

Data curation  
Metadata  
Registration  
Community Services  
Standardization

Interoperability  
Brokering

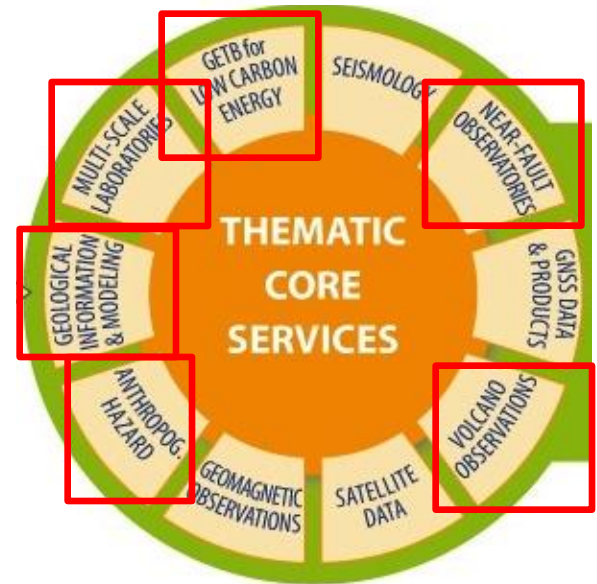


Metadata registry  
Processing  
Aggregation  
Integrated analyses  
Visualization

# Borehole in EPOS



- Core notion for Thematic Core Service ‘Geological information and modelling’
- But also of interest for other TCSs
  - Near fault observatories,
  - Volcano observation,
  - Anthropogenic Hazards,
  - Multiscale Laboratories,
  - Geo-Energy,
  - ...



# Borehole in EPOS



- Information content needed
  - “Global Borehole Index”
    - Summary borehole information
      - ⇒ GeoSciML4 Borehole View + couple fields
    - + link to richer structured information flows

«FeatureType» BoreholeView
«property»
+ identifier: CharacterString
+ name: CharacterString [0..1]
+ description: CharacterString [0..1]
+ purpose: CharacterString [0..1]
+ status: CharacterString [0..1]
+ drillingMethod: CharacterString [0..1]
+ operator: CharacterString [0..1]
+ driller: CharacterString [0..1]
+ drillStartDate: CharacterString [0..1]
+ drillEndDate: CharacterString [0..1]
+ startPoint: CharacterString [0..1]
+ inclinationType: CharacterString [0..1]
+ boreholeMaterialCustodian: CharacterString [0..1]
+ boreholeLength_m: Number [0..1]
+ elevation_m: Number [0..1]
+ elevation_srs: CharacterString [0..1]
+ positionalAccuracy: CharacterString [0..1]
+ source: CharacterString [0..1]
+ parentBorehole_uri: CharacterString [0..1]
+ metadata_uri: CharacterString [0..1]
+ genericSymbolizer: CharacterString [0..1]
+ shape: GM_Object
+ any: lax [0..*]



# Borehole in EPOS



- Information content needed
  - Structured information flows
    - Detailed borehole description (position, depth, contractor, technical construction)
    - Geophysical logs
    - Geological descriptions
    - Rock geochemistry, Pore gas chemistry
    - Geotechnical information
    - Access to physical drill cores
    - Ground water level, chemistry
    - Other sensing information acquired : dilatometers, strainmeters, pressure, ...

# IT approach

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- Rationale
  - Not re-invent the wheel, try to re-use / extend pre-existing initiatives..
- Initiatives identified so far
  - GroundWaterML2
  - GeoSciML
  - BoreholeML
  - Energistics WITSML
  - Observations & Measurements & SWE
  - POSC Caesar, PPDM

⇒ This ad'hoc meeting