Spatial Data Visualization

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Summary

- Exploitation Platform needs
- OGC current standards
- Visualization samples
- Discussion points
Introduction and needs

• **Definition:**
  *Visualization Services allow users and computer to view spatial dataset*

• **Exploitation Platform visualization needs:**
  - **Spatial product data:** a simple image representing the actual product (e.g. SAR data, density maps)
  - **Spatial Timeseries:** spatial data spanning over a period of time used both to generate "movies" (e.g. GIF, MPEG, MKV videos) or to display measurement in a specific instant
  - **Gridded data:** local measurements, meshes & surfaces with or without timeseries support
  - **Data series:** local measurements spanning over a specific area
  - **Visualization correlations:** correlation images between actual data & models
OGC current standards

- The current specification most widely used are:
  - **OGC 06-042** OpenGIS® Web Map Service (WMS) Implementation Specification 1.3.0
  - **OGC 07-057r7** OpenGIS® Web Map Tile Service (WMTS) 1.0.0
- Mainly implemented to retrieve EO browse, quick-look images, previews and density maps
- Usually images displayed and plotted over a world map (both 2D and 3d visualization)
- There’s the need to either extend these standards or to add new ones to support Exploitation Platforms needs
Visualization samples (1/3)

Aquifer deformation (white circle)
Visualization samples (2/3)
Visualization samples (3/3)
Discussion points

- Which kind of data visualization to be supported
- WMS time information extension needed for timeseries generation
- The need of having a single URL pointing to the spatial data (e.g. not possible with WMTS standard)
- Both WMS / WMTS standards do not cover use cases of plotting data that is not a map (e.g. histograms, scattering diagrams and so on)
- Complex URLs need usually client applications to requests / build and display spatial data