Case Studies on Big Data Visualisation

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Case Study: 3D Globes
We tested the implementation of a 3D virtual web-based globe using Cesium and WebGL, and compared it to a desktop based solution. The latter could realise more sophisticated functions, such as the use a flight path to automatically generate and download a high resolution movie, or edit 3D vector coordinates directly inside the 3D environment. The screen captures below indicate the diverse capabilities for two distinct terrains.

Case Study: INSPIRE Metadata
The INSPIRE Directive supports policies with likely impact on the environment requires the EU Member States to publish the relevant spatial data. All such data and services must be accompanied by metadata. Their pure amount challenges discoverability. The human brain excels in quick analysis of images and links. With more than 300,000 metadata records of largely unstructured data, a web of relationships emerges when visualised appropriately (example below).

Case Study: Modelling Inventory Database
In our digital age, model transparency, i.e. the access to models, platforms, frameworks and systems, together with their descriptions, related input and output data, impact assessments as well as related documentation of any kind, is one of the holy grails across all sciences.

Next Steps
We will continue to exploit the use of Big Data for spatio-temporal data visualisation, especially in support of (i) multi-disciplinary research and integrated modelling, (ii) model transparency, i.e. repeatability of experiments and reproducibility of scientific evidence, and (iii) science communication and the engagement of citizen in science.

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