Subsurface Data Visualization with UBER’s deck.gl library

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The efficient and easy visualization of subsurface data sets obtained from field studies and scientific observatories or by geological 3D/4D-modeling is an important contribution to web-based geportals as they can facilitate the integrated analysis and evaluation of scientific data. However, in most cases 3D subsurface visualization strongly depends on proprietary and stand-alone software solutions. Yet, for the fast visual exploratory data analysis, especially in multinational research projects, web-based solutions offer a more flexible alternative. Integrated in interoperable data management platforms, this can facilitate the utilization, exchange, and re-use of scientific data.

In a new approach, UBER’s framework deck.gl (http://uber.github.io/deck.gl) has been tested for the visualization of subsurface data sets. Deck.gl is a WebGL overlay suite for React providing a set of highly performant data visualization overlays for large data sets. Deck.gl allows impressive visual results with limited effort through the composition of existing layers, while offering a complete architecture for packaging advanced WebGL based visualizations as reusable JavaScript layers. Although initially envisaged for the visualization of ‘traditional’ geospatial information, a projection below the Earth’s surface has been added, allowing for resource efficient display of subsurface information.