



Subsurface Data Visualization with UBER's deck.gl library

Dorit Kerschke (1), Alexander Lindemann (1,2), Jan Sohre (2), Judith Sippel (1), and Joachim Wächter (1)

(1) Helmholtz Centre Potsdam – GFZ German Research Centre for Geosciences, Potsdam, Germany

(dorit.kerschke@gfz-potsdam.de), (2) University of Potsdam – Institute of Computer Science, Potsdam, Germany

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 geoportals 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.