

DYNAMIC PERSPECTIVES



Virtual reality enables the visualisation of complex geological structures. It provides experts and laypeople alike direct access to geological information and allows them to observe and interpret geological phenomena virtually on site. In the near future, it will also be possible to visualise dynamic processes in a virtual environment.

DEEP.KBB GmbH

In-depth know-how

DEEP.KBB provides engineering and geoscience services for underground energy storage facilities and for brine and salt extraction. As a full-service provider, we cover the entire range, including consulting, planning, construction and operation. We draw on extensive expertise in all specialist areas, such as deep drilling and completion technology, geology, rock mechanics and reservoir engineering. This makes us your expert partner for more than just underground storage. Whatever your underground projects, drilling and reservoir engineering jobs: we're there for you.



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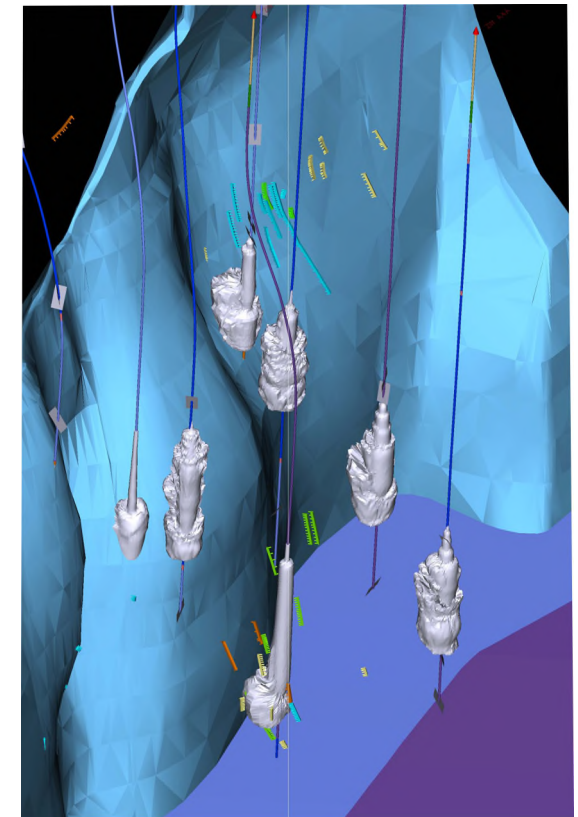
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GEOLOGICAL 3D MODELLING



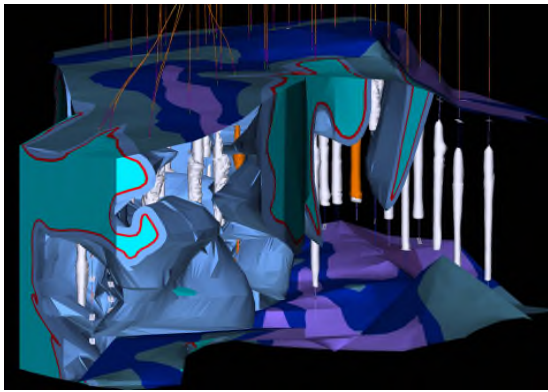
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ALL GOOD THINGS COME IN THREES

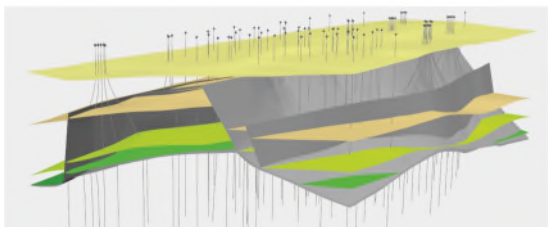
Geological formations are spatial structures. Therefore they can only be effectively interpreted and visualised in all their complexity in three dimensions. This is why geological 3D modelling has become a standard tool for the analysis of underground geological structures.

In particular, the complex folds found in many salt domes, but also small-scale fault block clod patterns in other rock sequences, are often difficult to represent adequately using traditional cross sections or geological profiles.



THE INVISIBLE MADE VISIBLE - AND PREDICTABLE

Modern 3D modelling software makes it possible to spatially depict rock formation conditions precisely and unequivocally. For example, we can spatially visualise rock salt and potash salt deposits along with their overburden layers. Digital 3D geological models provide a planning tool with high forecasting accuracy.

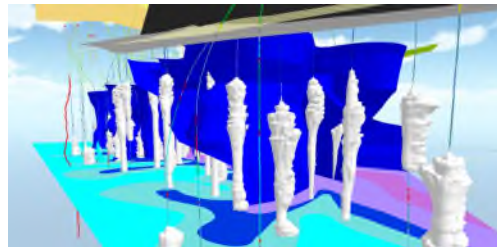


MORE THAN THE SUM OF ITS PARTS

Detailed exploration of the internal structure of a salt deposit is only possible from boreholes. The aim of the exploration is to record the geometry, spatial position and material composition of the various salt units and their surrounding rock. The range of established geological exploration methods includes:

- Geophysical open hole logging
- Bromide content in halite
- Petrographic and structural geological evaluations of oriented drill cores
- Georadar measurement [GPR measurement]

The results of all these investigations are brought together in the digital geological 3D model. Intermediate steps such as the interpretation of borehole measurements or the creation stratigraphic columns take place before the actual visualisation in space.

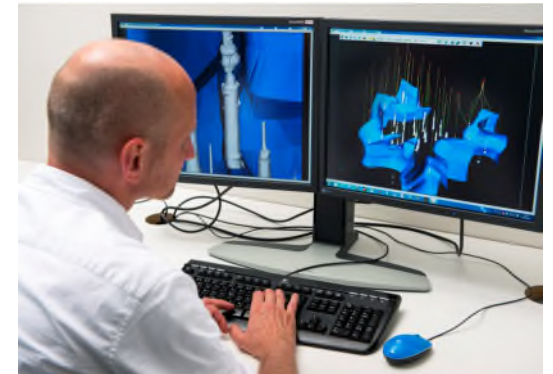


DATA AND VISUALISATION IN PARALLEL

A 3D geological model can be continuously updated alongside an ongoing drilling project, the latest data can be continuously fed into the model and the modelling status adapted to the knowledge gained. In these cases, we design the geological investigation programme so that the data collected on site is precisely tailored in type, format, scope and level of detail for incorporation into the model.

DIGITAL ACCESS TO ALL DATA

Sometimes only historical, decades-old data sets are available for a location. Before modelling can start, the required data needs to be researched and standardised. We also support operators here by procuring missing documents from geological archives, digitising analogue documents and creating a database that represents the entire state of knowledge about the site.



WIDE RANGE OF APPLICATIONS

Digital 3D geological models of saline structures and their overburden layers are key in many applications:

- Site, resource and potential assessments
- Evaluation of safety pillars and pillar distances
- Integrity assessments
- Planning for the decommissioning and abandonment of storage facilities
- Geological forecasts, preliminary profiles, vertical sections and discipline-specific queries
- Basis for geomechanical and discipline-specific queries
- Core element of 3D data management in solution mining and storage operations