

# **Design and Development of the Countrywide Hydrogeological 3D Database of Saxony**

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## **Abstract**

In the scope of several projects, a 3D database storing the hydrogeological bodies was realised for the Saxonian State Authority for Environment, Agriculture and Geology. The two main targets of the projects are:

1. Feasible and consistent storage of geometry and attributes of hydrogeological bodies of the whole federal state of Saxony, Germany.
2. Fast analysis and visualisation by creating axis parallel cross sections including comprehensive tools for data query.

Target 1 was succeeded by implementing a complex workflow containing the modelling using any 3D modelling software by external contractors, the comprehensive error checking procedures, and import to the central database.

To succeed target 2, an ArcGIS-Extension for visualization of 3D data and factual data was created.

The information system consists of separated databases for 3D-, GIS- and factual data. The 3D data will be stored in a regular raster (location) and real elevation. This data model allows the topological correct storage and best performance to construct axis parallel cross sections. Furthermore it is quite simple and therefore appropriate for import from and export to other 3D models.

Especially the links between 3D-, GIS- and factual data assures the consistent data storage.

The system was installed in 2010. Further functions and modules are currently being developed, e.g. an interface to 3D modelling systems (here: GOCAD) and 3D visualisation software (here: GEOCANDO).

The presentation will explain the basic concept of the data model and the currently developed functions.