NEAR SURFACE 3D-MODELLING IN URBAN AREAS – APPROACHES AND OUTCOMES

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For the last 15-20 years, 3D geological modeling has been gaining increasing importance in the geological services. In the meantime for almost all federal states in Germany, so-called state models are available, which can be linked to geological overview maps at scales of 1:200,000 - 1:500,000 in terms of their level of detail. While these models were initially mainly stratigraphic models (modeling of layer boundaries), volume models have increasingly been created over the last few years, which are usually related to a specific topic and/or project. Thus, especially the deep geothermal potential was considered. In the further evolution of geological 3D modeling, medium-depth and near-surface issues were then also taken up in greater detail with the help of parameterized volume models (e.g. groundwater, geothermal energy and subsoil, the latter especially in urban areas).
Since 2016, one of the focal points of the 3D modeling work at the HLNUG has also been in urban areas, where an integrated approach is now being pursued instead of isolated geological modeling, as has been practiced up to this point (and still ist practiced mostly). The overall objective here is focused on the creation of digital 3D information systems for cross-institutional integration and browser-based functional visualization and provision of different kinds of 2D/3D data. As a result, important geological information on the approx. upper 100 m will be made available in a simpler and better-performing way for municipal duties and workflows given in government agencies. The aim is to improve interoperability with existing production environments for 3D city models and to make them available via existing portals (e.g. geoportals) so that they can be viewed together with other 2D/3D data (e.g. groundwater, technical infrastructure such as gas and water supplies and sewers).
Within the scope of the presentation, approaches for modeling, parameterization and the interpolation of parameters in the 3D volume for the near-surface area of the cities Darmstadt and Kassel as well as first results will be presented.