

HEADING TOWARDS INTEGRATION OF 3D DATA FOR MUNICIPALITIES – GEOCIM TRIAL FOR LIBEREC CITY

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With growing demand for underground use in urban development, the lack of knowledge about an underground arises as a significant problem in some areas – typically cities with long history. The development and usage of a 3D modelling with ongoing cooperation between the City of Liberec and the Czech Geological Survey led to a pioneering project on “geological” near-surface city information model of small testing area within Liberec city centre.

The general idea of the project was to establish urban underground 3D data exchange between geological surveys and cities which will be supported by development of 2D and 3D data visualization and exchange platform. Such model should give full power to the municipalities to display all underground data provided by the geological survey and work with them on daily basis. 3D model of a city should comprise all available archive data, together with new interpretation of such data. It should also feature important engineering networks, such as sewage system, water and gas pipelines or historic underground structures. Revealing the conflicting natural and man-made elements helps to make city management and urban planning safer.

Data available in archive of the Czech Geological Survey (boreholes, geological maps etc.), Museum of Northern Bohemia (underground works etc.) and the City of Liberec (data from urban planning depart-

ment) were pre-processed and integrated together with modelled geological structure based on geological expertise and modern history findings. The 3D geological model was built in MOVE software with high stress on near-surface in order to show possible spatial interactions of man-made structures with water level, tectonic faults and other potentially problematic objects.

In order to allow the local municipality to use the 3D model a QGIS-based environment was used to prepare a license-free 3D environment with a possibility to obtain subsurface data directly at a specific point. These data are derived from the meshed 3D model into planar point-based grid, which can be easily opened by urban planners in GIS software.

In scope of these topics in cooperation with colleagues from Norwegian geological survey – supported by the Norway Grants – promotional video on this topic was made to raise public awareness and knowledge on underground.