

Practice and prospect of 3D geological analysis technology in construction-related business. “About the approach of 3D geological analysis technology consortium”

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In recent years, trials of CIM(Construction Information Modeling/Management) have progressed, and cases of utilizing 3D geological models are increasing in construction projects. Construction related business is a collective term that summarizes surveying industry / geological survey industry / construction consultant, and it is responsible for prior investigation, planning, and design in the project of public works etc. Geotechnical engineers in the construction-related industry assume a role of building a 3D geological model of CIM.

Meanwhile, 3D geological models have been used for the purpose of visualization for consensus building and explanation improvement, secondary use such as numerical simulation and design drawing creation, geological structure study, research and so on before CIM proposal, and now on. However, the 3D geological model has no clear quality standards. Evaluation of quality is left to the experience and subjectivity of geotechnical engineers, judgment of customers using models, and the performance of 3D modeling tools.

Although the technique of constructing a 3D geological model is called 3D geological modeling or 3D geological analysis technology, the current situation is not a systematized technology. 3D data in CIM is shared throughout the project process of survey, design, construction and maintenance. It is an important issue that ensure reliability with high quality in 3D geological model.

In order to address these issues, we established the "3D Geological Analysis Technology Consortium" consisting of practitioners in by the "New Market Creation / Proposal Type Project" in the "Japan Geotechnical Consultants Association" March 2017.

In the activities of the consortium in 2017, "3D geological analysis technical manual" was prepared. We plan to upgrade version of technical manual and to engage in technology dissemination activity in the future.

In this presentation, we introduce the outcome of the consortium and report the practical situation and technical issues of 3D geological analysis technology based on the flow of practical work in the civil engineering / building field.

Keywords: 3D geological analysis technology, 3D geological model, CIM(Construction Information Modeling/Management)