

Observation results of the Deformation induced effect due to the shaft excavation in Granite area

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Excavation of the Mizunami Underground Research Laboratory (MIU) in Gifu Pref., began in 2003. The long-term monitoring of the groundwater pressure of the rock has been conducted in order to understand the changes in the geological environment resulting from the shaft excavation activities.

Several steeply dipping faults that cross the MIU construction site were identified from the previous study. One fault with strike of NNW, in particular, is considered to behave as a hydraulic barrier to the groundwater flow. In 2008, a borehole was drilled from gallery at GL-300m of the shaft. Several monitoring boreholes are located in the vicinity of the inferred NNW trending fault. The data from groundwater pressure monitoring at multiple depth intervals during the drilling activities show unique responses which seems to the deformation-induced effects.

In this study, we report the possible application of using these hydraulic responses for characterizing the hydrogeological structures of the site.

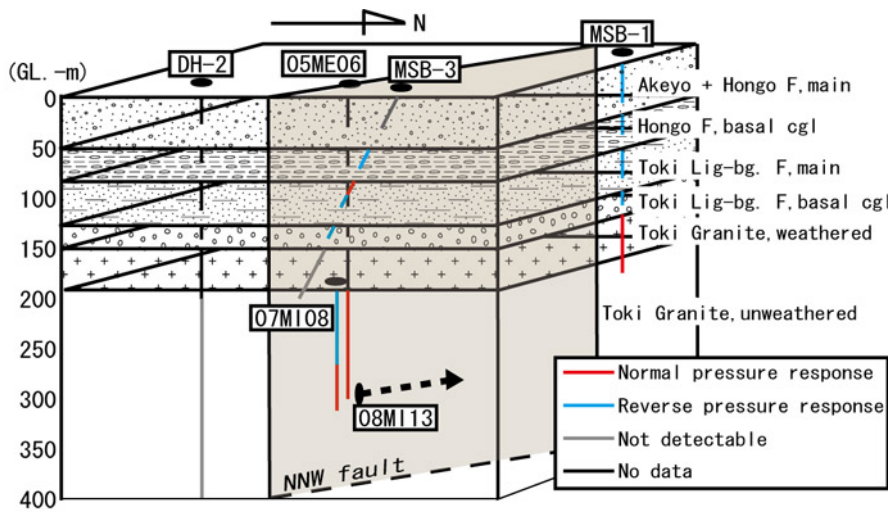


Fig.1 Geomety of observation boreholes and each water pressure response