

Characterization of the fracture zone on the basis of fracture spacing, case study at the Toki granite, central Japan

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In order to evaluate deep geological environment for geological disposal of high level radioactive waste, understanding of the geometry of water conducting features such as fractures is essential. The fracture zones have been divided based on the fracture intensity that has been obtained deep boreholes. But fracture intensity could be changeable in different portion of the rock body. The method to divide the fracture zones based on fracture spacing is studied. In this study, cumulative frequency curve of fracture spacing based on fifteen deep borehole with the total length of ca.12,000 meters was used. Cumulative frequency curve shows that half of fracture spacing is lower than 1m. Thus, fracture could exist in fracture zones. The fractures with the dip of middle to high angle are needed to divide into fracture zones based on the fracture spacing. In the future, we will establish the methodology to divides the fracture zones coupled with spatial distribution of fracture spaces.

Keywords: fracture zone, fracture spacing, Toki granite