



Characterization and modelling of naturally fractured granites in the Redang Island, Terengganu, Malaysia

Askury Abd Kadir (1), Mohd Razlan Abdul Rahman (2), Choong Chee Meng (1), Fathiyah Jamaludin (1), and Jasmi Ab Talib (1)

(1) Universiti Teknologi Petronas, Bandar Seri Iskandar, Tronoh, Perak, Malaysia, (2) Weatherford solution Sdn. Bhd., Level 25, G Tower, Kuala Lumpur (mohdrazlan.abdulrahman@ap.weatherford.com)

The Redang Island is situated in the east coast of Peninsular Malaysia, in the state of Terengganu. Geologically, it is mainly composed of medium- to coarse-grained biotite-hornblend granite and overlain by sedimentary and metamorphic rocks. The close-spaced fractured pattern gave an indicator for the active tectonic, which create a fractured basement in Anding Utara that situated 200km SE of the study area. The main primary objective is to characterize the fracture orientation, fracture density as well as to create the static DFN model based on the surface outcrops. A systematic and accurate data collection is crucial for a proper statistical analysis of fracture parameters for fracture modeling. A total of five scan-lines at different length was captured to represent the area. The mode I (extension) and mode II (sheared) fractures are identified during the data acquisition. Hence, the maximum stresses (α_1) were interpreted from rose diagram and stereoplots, which are trending towards NE-SW and ENE-WSW. The regional stresses obtained is almost identical to FMI data from the Malay Basin (Anding). Hence, this study suggests that the fracture networking are genetically correlated between fractured basement in the Malay Basin and the Redang Island. Therefore, it can become a good analogue for in-depth studies for better understanding of fracture reservoir.