



Development of a new software for analyzing 3-D fracture network

Jeong-Gi Um, Young-Hwan Noh, and Yosoon Choi

Pukyong National University, Department of Energy Resources Engineering, Busan, Korea, Republic Of (jum@pknu.ac.kr)

A new software is presented to analyze fracture network in 3-D. Recently, we completed the software package based on information given in EGU2013. The software consists of several modules that play roles in management of borehole data, stochastic modelling of fracture network, construction of analysis domain, visualization of fracture geometry in 3-D, calculation of equivalent pipes and production of cross-section diagrams. Intel Parallel Studio XE 2013, Visual Studio.NET 2010 and the open source VTK library were utilized as development tools to efficiently implement the modules and the graphical user interface of the software. A case study was performed to analyze 3-D fracture network system at the Upper Devonian Grosmont Formation in Alberta, Canada. The results have suggested that the developed software is effective in modelling and visualizing 3-D fracture network system, and can provide useful information to tackle the geomechanical problems related to strength, deformability and hydraulic behaviours of the fractured rock masses. This presentation describes the concept and details of the development and implementation of the software.