

## **Effect of Model Dimension in Numerical Simulation on Assessment of Water Inflow to Tunnel in Discontinues Rock**

**Authors :** Hadi Farhadian, Homayoon Katibeh

**Abstract :** Groundwater inflow to the tunnels is one of the most important problems in tunneling operation. The objective of this study is the investigation of model dimension effects on tunnel inflow assessment in discontinuous rock masses using numerical modeling. In the numerical simulation, the model dimension has an important role in prediction of water inflow rate. When the model dimension is very small, due to low distance to the tunnel border, the model boundary conditions affect the estimated amount of groundwater flow into the tunnel and results show a very high inflow to tunnel. Hence, in this study, the two-dimensional universal distinct element code (UDEC) used and the impact of different model parameters, such as tunnel radius, joint spacing, horizontal and vertical model domain extent has been evaluated. Results show that the model domain extent is a function of the most significant parameters, which are tunnel radius and joint spacing.

**Keywords :** water inflow, tunnel, discontinues rock, numerical simulation

**Conference Title :** ICCERE 2015 : International Conference on Civil and Earth Resources Engineering

**Conference Location :** Venice, Italy

**Conference Dates :** April 13-14, 2015