World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:9, No:10, 2015

Investigating the Nail Walls Performance in Jointed Rock Medium

Authors : Ibrahim Naeimifar, Omid Naeemifar

Abstract : Evaluation of the excavation-induced ground movements is an important design aspect of support systems in urban areas. Geological and geotechnical conditions of an excavation area have significant effects on excavation-induced ground movements and the related damage. This paper is aimed at studying the performance of excavation walls supported by nails in jointed rock medium. The performance of nailed walls is investigated based on evaluating the excavation-induced ground movements. For this purpose, a set of calibrated 2D finite element models is developed by taking into account the nail-rock-structure interactions, the anisotropic properties of jointed rock, and the staged construction process. The results of this paper highlight effects of different parameters such as joint inclinations, the anisotropy of rocks and nail inclinations on deformation parameters of excavation wall supported by nails.

Keywords : finite element, jointed rock, nailing, performance
Conference Title : ICCGE 2015 : International Conference on Civil and Geological Engineering
Conference Location : Paris, France
Conference Dates : October 29-30, 2015