Abstract

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Field Testing of Blast – Induced Ground Excitation Due to Explosion in Rock Mass

This paper presents results of an experimental investigation to study the effect of blast wave propagation in rock mass due to explosions. The aim of this study is to observe the dynamic response of rock mass under blasting vibrations and the effect of different geological conditions of rock mass on the wave propagation of the explosion. A series of field experiments were conducted including different variables such as, charge weight, horizontal charge–target distance and target location below the ground surface. The main results show that the geological conditions of rock mass such as, joints, fractures, cracks and cavities have a direct effect on blast wave propagation and the value of pressure on rock mass due to explosion. The effect of rock joints on blast wave propagation can be used to assess the quality of rock mass and hence can be utilized to protect underground structures from blast-induced damage.