

GEOLOGICAL AND HIDROGEOLOGICAL CONTROL OF A LARGE LANDSLIDE

FERRER, M., GARCÍA, J.C. and TRIGUEROS, J. Instituto Tecnológico Geominero de España, Madrid, Spain.

The paper stands out the definitive importance of the knowledge of detailed geological and hidrogeological characteristics to understand the geomechanical behaviour of a natural slope affected by a large landslide. A large historical landslide has been affecting catastrophically during centuries the village of Benamejí, in Córdoba (Andalucía). The movement affects a natural gentle slope 1000 m long between the village and the river in the bottom of the valley. The periodic backward movements of the upper tension crack, 400 m long, have worn down streets and houses of the village. For years, different studies, investigations and works have been carried out in order to stabilize the slope, without any satisfactory result due to the complex characteristics of the site and the lack of detailed and adecuated geological investigations. Last important movement, in August 1997, was the trigger for the decision of a detailed geological, hidrogeological and geotechnical investigation, including boreholes and laboratory and in situ hidrological and mechanical tests. The final objective is the design of definitive corrective measures based on the knowledge of the behaviour of the landslide and the influence and control of the different geological materials and tectonic structures, distribution of water levels, flows, acuifers, hidrological parameters, etc. The geological, hidrogeological and geotechnical models have been prepared, and the corresponding stability analysis modelling the behavior of the terrain have been performed with adecuated mathematical methods.