

LANDSLIDE MONITORING BASED USING GEOMATICS TECHNIQUES

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GEODETIC MONITORING OF A LANDSLIDE USING CONVENTIONAL SURVEYS AND GPS TECHNIQUES

Abstract

Many landslides occurred along Amman-Jerash-Irbid Highway in Jordan during its construction in 1991 and 1992. Geological and geotechnical studies were carried out at that time to analyze the problem. This work presents geodetic monitoring of a major landslide on the highway, 6 km to the north of Amman. The importance of this study comes from the need to protect and guarantee the continuity of a major, active highway, which connects the North of the Kingdom to its capital Amman and passes through an unstable and landslide-prone area. The monitoring of landslides in this area was carried out using Global Positioning System (GPS) and Conventional survey methods before and after rainy season over the period of 2007-2012. The observations adjustment and the deformation analysis were executed. This enabled us to determine a value of 0.333 m/year as an average movement of the landslide-prone area. The obtained results are compared to results of an ulterior work conducted over the period 2002-2007.

Key words: RTK GPS, Field surveying, deformation measurements, landslides, DTM, Orthophoto.