



A Novel Approach based on GPS/GNSS Surveying to Monitor Excessive Active Landslide: A Case Study of Intepe Landslide

Deniz Güngördü (1), R Cuneyt Erenoğlu (1), Özgün Akcay (1), and Oya Erenoğlu (2)

(1) Department of Geomatics Engineering, Canakkale Onsekiz Mart University, Canakkale, Turkey (denizgungordu@comu.edu.tr, ceren@comu.edu.tr, akcay@comu.edu.tr), (2) Department of Geological Engineering, Canakkale Onsekiz Mart University, Canakkale, Turkey (o_turkdonmez@comu.edu.tr)

Landslide is the down-slope of soil, rock and organic material under the influence of gravity and they leave deep scars in the topography and occur quite fast in a short time, are one of the most dangerous types of natural disasters. Geology, geotechnics and geodesy sciences had implemented many kind of technique which is many usefully and early warning systems with increasing of technologically events for monitoring. In last decades, the Global Positioning System (GPS/GNSS) technology has shown that it is capable to monitor sub-centimeter landslide deformations. In this study, it is imposed to represent the area under investigation by a number of GPS/GNSS sites in order to monitor the landslide phenomena. After the landslide occurred in February 2015 in Intepe, Canakkale (NW Turkey), some sites are used to define a stable reference frame and remaining stations are the monitoring points situated in the deformation area. In this way, these sites were surveyed for 6 days using rapid-static GPS/GNSS technique. Then, a series of deformation analysis was performed between consecutive days. Finally, the determination of the significant movement of these sites was done relatively to the reference ones, e.g. the movement was 3.5 cm per a day averagely. This paper therefore highlights an investigation of landslide motions to discover the characteristics of mass movement for the excessive active landslide.

Keywords: GPS/GNSS, landslide, deformation monitoring, Intepe, Turkey