

Landsliding phenomenon under abnormal weather conditions: a case study

WANG, Gonghui^{1*} ; SUEMINE, Akira¹ ; MATSUURA, Sumio¹ ; ARAIBA, Kiminori²

¹Disaster Prevention Research Institute, Kyoto University, ²National Research Institute of Fire and Disaster

To examine the initiation and movement mechanisms of landslides occurring during abnormal weather conditions, we have been monitoring a landslide on Nisenotani area in Miyazaki Prefecture, Japan. The monitoring items include the weather conditions (rainfall and air pressure), moisture content of surficial soil layers, groundwater table, and displacements (by means of borehole wire extensometer, surficial extensometer, and total station). Cracks appeared on the slope after a heavy rainfall and borehole investigation revealed that this landslide is a large compound one, consisted of several sub-blocks. Our dense monitoring is performed on a small block of the toe part, and our results showed that: (1) landsliding was initiated by a heavy rainfall, but was not less affected by small rainfall; (2) landsliding varies with air-tide; (3) lower part of the sliding sub-block had been continuously compressed; (4) the sliding surface and the compressed soil layer had been effectively identified by means of a surface-wave technique.

Keywords: Abnormal weather, air pressure, Rainfall, landsliding, groundwater table