Observation-based research toward mitigation of earthquake-induced landslides –expansion of slope seismology -

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The Headquarters for Earthquake Research Promotion (2018) made an announcement that the possibility of the Nankai Trough giant earthquake occurrence within next 30 years is going up to 70-80 %. Inland earthquakes also are considered to occur with higher frequency in the period of 50 years before the Nankai earthquake (Hori and Oike, 1997). Previous such earthquakes caused huge landslide disasters (Chigira, 1998; 2005), however we are not prepared for the future earthquakes due to lack of understanding of their generation mechanisms.

Studies were performed for earthquake-induced landslides from geological, geographical, geotechnical and numerical simulation approaches. Evaluation for the risks and countermeasures were mainly based on peak ground acceleration (PGA). On the other hand, observations of the ground motion and ground water pressure in the slope during earthquake are insufficient, which result in the fact that we do not fully understand the detailed mechanisms of earthquake-induced landslides. In this presentation, we introduce the results of our observation in the slopes of various types and discuss what is necessary to understand the generation mechanism of earthquake-induced landslide.

