

Landslide motion detected by GPS-based control stations network(GEONET)

Hiroshi Koshimizu[1]; Yohta Kumaki[1]

[1] GSI

GPS-based control stations network(GEONET) covers most of the Japan area with the average spacing of about 20km, and has been monitoring wide-area crustal deformation of all over Japan by continuous operation for ten years. As a result, we recognized the existence of GPS-based control stations whose motion are obviously different from usual plate motion. Judging from geomorphic and geologic data, some of them shows present landsliding. Analyzed GPS data from the long-term continuous operations makes it possible to estimate the direction and velocity of landslide motion and their time variations. Moreover, we have detected a noteworthy case that the time variation of estimated velocity are approximately proportional to the time variation of precipitation observed near the GPS-based control station. This case indicates that long-term GPS analyzed data makes it possible to estimate the relation between groundwater level fluctuation and the time variation of landslide slip rate. We conclude that GPS data are useful not only for imminent prediction, but also for long-term landslide disaster assessment.