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Geomorphological and geological characteristics of the mass-movement triggered by earthquakes

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We try to investigate predominant primary factor to the mass-movement triggered by earthquakes and its roles in the landform development by field work, aerial photo interpretation and geomorphological analysis by GIS for three disaster areas of 2008 Iwate-Miyagi Midland Earthquake (Ms 7.2), 2007 Noto Hanto Earthquake (Ms 6.9) and 2004 Mid Niigata Prefecture Earthquake(Ms 6.8).
It can be pointed out that the slope angle has generally great influence on the occurrence of mass-movement because of its strong positive correlation with the occurrence rate of the mass-movement for all the three areas. On the other hand, it was found that landform and geology have greater influence on mass-movement occurrence rather than seismic intensity itself in the area struck by Iwate-Miyagi Midland Eq.;the mass-movements concentrated at the foot area of the Quaternary volcano (Mt. Kurikoma) located northwest part of the Iwate-Miyagi region, while there were rather a few mass-movements in the area from the hillside to mountaintop of the volcano. This suggests that mass-movements triggered by earthquakes play an important rule for the dissection of the volcanoes and mountains .

Keywords: Mass-movement, Earthquake, Geomorphology, Geology, GIS, Slope angle