

The analysis of relation between scale and topography on landslides induced by earthquake

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The scale and volumes of deep-seated catastrophic landslide are often very large. And the damage by deep-seated catastrophic landslide is also often much. To reduce these hazards requires to estimate the place that deep-seated catastrophic landslides occur. On landslide induced by earthquake, Uchida et al.(2004) showed that the formula consisting of topographic features and seismic motion is useful to extract the small landslide. Takezawa et al.(2013) selected slope relief as scale of slope. And this article indicated that landslide susceptibility was confirmed by using slope relief. In addition, Sammori et al.(2012) suggested that landslides induced by Iwate-Miyagi Inland earthquake were controlled by not only topography, but also geology and the distance between landslides and earthquake fault. However few studies investigated the effect of geology, the positional relation with landslide and earthquake fault, and topography on the scale and density of landslide induced by earthquake, especially the difference between deep-seated catastrophic landslide and shallow landslide. From the above in this study we measured the density of landslides, landslide area, the ratio of landslide area, slope angle, and slope relief in the area divided with the distance from earthquake fault, positional relation between landslides and the earthquake fault and geological feature.

We select Iwate-Miyagi Inland earthquake as the research area. We divided the research area at intervals of 1km from the earthquake fault, positional relation between landslides and earthquake fault, and the difference of geological feature. Then we measured the area, slope relief and slope of landslides. At result the density of landslide area in the divided area where the distance from earthquake fault is 1~10km, and that is on earthquake fault, is much more than other area.

Keywords: landslide induced by earthquake, Iwate-Miyagi Inland earthquake