Characterizing Geographical Features of the Landslide caused by The Mid Niigata Prefecture Earthquake

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The 2004 Mid Niigata Prefecture Earthquake occurred on October 23, 2004. The damaged area is a hilly mountainous area underlain by Uonuma group consisting of young weak sedimentary rocks formed in the tertiary period. The landslide hazards have been very widely distributed in the area, and many landslides occurred in the earthquake. In this research, we performed detailed characterization of the geographical features in this area, in order to clarify the relation of the landslide geographical features and geology. Therefore, we built the three-dimensional geologic model of Higashiyama hill country, and geographical features of landslide were analyzed using GRASS-GIS.

The following procedures were adopted to estimate the three-dimensional geologic structure.
(1)Building of logical model of geologic structure (Shiono et al., 1998).
(2)Generation of data to estimate geological boundary surfaces using Georiginer (Kajiyama et al., 2005).
(3)Estimation of the three-dimensional form of boundary surface by Horizon2000 (Shiono et al., 2001)
(4)Visualization of the three-dimensional geologic model using GIS (Masumoto et al. 2000).

The following procedures were adopted to analyze the geographical features of landslide.
(1)Digitizing of landslide landform.
(2)Digitizing the geological map and extraction of the strike & dip information.
(3)Re-classification of the geographical features.
(4)Analysis of the landslide geographical features.