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Effect of geology on the landslides by the Iwate-Miyagi Inland earthquake in the upper reach of Ichihazamagawa River

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We studied on the stratigraphy and geological structure by field survey and interpretation of airborne LiDAR DEM for the upper reach of Ichihazama River, where many landslides occurred by the 2008 Iwate-Miyagi Inland Earthquake. The Quaternary Kitagawa Tuff with high density and many cooling joints acts as caprock which was underlined by the Tertiary soft and low density sedimentary rock (Onomatsuzawa Formation).

In the northern part of the study area (north of the mouth of Kawaragoya-zawa River), ancient mountain landform was buried by the Kitagawa Tuff and the base level of the caprock was significantly high, which presumably brought about many large deep-seated landslides by the earthquake. Most of the deep-seated landslides by the 2008 earthquake have occurred on the steep slopes along the rivers and no large landslide occurred on geological dip slope, which has prevailed in Aratozawa and Koei Areas. The roughness of the caprock basal plane has affected on the motion of mountain slope to the characteristic features of the landslide.

Keywords: Iwate-Miyagi Inland Earthquake, landslide, caprock, GIS