

Gravitational Slope Deformation in the Hiyoso District in the Central Kii Mountains

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In order to know the history of gravitational slope deformation, we investigated the deposits in ridge-top linear depressions formed by gravitational deformation in the Hiyoso district in the middle Kii Mountains. In the south area from this district, four huge deep-seated catastrophic landslides (Ui, Akatani-E, Akatani and Nagatono) occurred in 2011 by Typhoon Talas (Chigira, Tsou et al. 2013). Gravitational deformation is important for topographic precursors of deep-seated catastrophic landslides (Chigira, Tsou et al. 2013). This area is underlain by Jurassic-lower Miocene accretionary complexes. The strata belong to the Miyama Formation and the Hanazono Formation in the northern Zone of Shimanto Belt (Kurimoto, Kimura et al. 2015) .

We investigated the deposits at the two sites (HY1 and HY2). HY1 is correspond to the ridge-top linear depressions and HY2 is the almost flat plane formed under the down-facing scalps. We sampled the deposits by the penetration sampler made by Chigira and investigated the tephras and 14C ages of the humus soils. To identify the tephras in the deposits, the refractive index and the shape of the volcanic glass shards and heavy mineral assemblage were studied. The refractive index was measured by using thermal immersion method (RIMS).

As a result, we found three tephras, which could be correlated to regional key tephras. The newest tephra is the Kikai-Ah (K-Ah) and the middle one is Aira-Tn (AT). From the refractive index and the shape of the volcanic glass shards, we found that the oldest tephra near the base of the deposits might correspond to SI or Kj-P1 deposited 50 ka, suggesting that the gravitational deformation started at this age.

Chigira, M., et al. (2013). "Topographic precursors and geological structures of deep-seated catastrophic landslides caused by Typhoon Talas." *Geomorphology* 201: 479-493.

Kurimoto, C., et al. (2015). "Geology and radiolarian fossils of the Upper Cretaceous Hanazono Formation in the Koyasan area, northwestern part of Kii Peninsula, South west Japan." *BULLETIN OF THE GEOLOGICAL SURVEY OF JAPAN* 66(3-4): 41-79.

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