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Long term stability of the slope using tephrochronology in Mt. Wanitsuka , Miyazaki Prefecture

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On September 2005, Typhoon No.14 had stricken Japan and caused deep-seated landslide at Mt. Wanitsuka in Miyazaki prefecture. This particular event would give a clue that a similar collapses might have been occurred at Mt.Wanitsuka in early period. However, deep-seated landslide occurs less often and requires relatively longer time to understand its history. In this study, long-term stability of the slope was determined using the tephrochronology and the result is used to predict the likely occurrence period of a large scale collapses in the future. Using Kikai-Akahoya tephra (ejected 7300 years BP) as the key bed, we dug 53 sites and determined whether the tephra layer was observable in the soil profiles or not. Based on the soil profiles study, 78 soil samples were collected by auger to examine the deposition of tephra. The tephra layers, were identified for the ridge crest with a slope angle less than 30 degrees, and deep-seated landslide were identified and they were extracted using by high resolution DEM (Digital Elevation Model) obtained from airborne laser scanner after collapse. The ridge that have a wide range were detected at tephra layers whereas the narrow width ridge was not detected in this area. It, therefore, can be assumed that the wide ridge area was stable during long-term period, whereas the narrow ridge area was relating unstable.