Vegetation historical background of the 3013 landslides in Izu Oshima Island

*Hiromu Daimaru[1], Wataru Murakami[1]

1.Forestry and Forest Products Research Institute

2013 Typhoon Wipha triggered huge shallow landslides on the upper slope of Motomachi town and killed 39 people in Izu Oshima Island, south of Tokyo. We examined effect of historical vegetation change on the occurrence of the landslide. The landslide has occurred on a west facing slope which was covered by ca. 40 old evergreen broad-leaved forest dominated by *Ilex crenata* and *Eurya japonica* with five to six meters height. The forest has relatively smooth crown surface due to strong westerly wind in winter and storm perod. Many clumps of evergreen broad-leaved trees suggest that past fuelwood production has significantly affected the formation of the forest. The forest in Izu Oshima has provided fuel wood for salt production until 18th century when the salt production was prohibited due to destructive exploitation. Production and export of fuel wood to Tokyo has continued until 20 century and ceased in 1970th when fossil fuel.
Reconstruction of past vegetation surface by photogrammetry of aerial photographs taken in 1975 indicates that tree heights increased by about two times between 1975 and 2013 in many sites. The tree growth, however, did not directly lead increase in slope stability because invasion of tree root was strongly restricted by the underlying loess layers those are relatively hard. On the other hand, the growth of trees may have brought about decrease in slope stability, because biomass weight in the sliding block and oscillation by strong wind will be increased.

Keywords: shallow landslide, debris flow, forest

