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An influence of roadway on occurrence of slope failure and debris flow of the Izu-Oshima Typhoon Wipha (1326) disaster

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Vast slope collapse took place and debris flows struck the Motomachi-town foot of western slope of the Izu-Oshima Island on early morning 16, Oct. 2013. Field survey on the collapsed slope by *TMU Group for Izu-Oshima Typhoon Wipha (1326) Disaster Survey* was carried out 4 to 6, Dec. 2013.

One of the major concerns of the authors was an influence of roadway built after 1986 eruption on occurrence of 2013 slope collapse. Results of the survey are summarized as follows, (a) Collapse points originated from downslope side of the roadway (type-A collapse) were located on ridges and adjacent to collapse points originated from upslope side of the roadway (type-B collapse). (b) A large amount of debris of fallen tree which would have been transported by mud flow on the road was observed around the type-A collapse points. (c) A 1-0.5 m thick surface soil mass with tree and its dense roots was peeled from base of the retaining wall at the other small collapse. An appearance of the base of the retaining wall at the small collapse is similar with base of the retaining wall at type-A collapse.

Taking account into these results (a) to (c), it is inferred that type-A collapse would have occurred according to the following scenario, (1) rainwater and mud flow from type-B collapse flowed on the roadway, (2) around the curve on the ridge, rainwater/muddy water fell down from road surface to retaining wall and (3) surface soil mass (1-0.5 m thick) with dense tree roots and trunks was saturated by water and peeled from base of the retaining wall. Consequently, we conclude that the roadway was not a primary factor but secondary factor of the slope collapse, which expanded collapse area in this case.

Keywords: slope failure, Izu-Oshima, Typhoon Wipha (1326), roadway