# Sediment movement on landslide slopes and river channel after the 2018 Hokkaido Eastern Iburi Earthquake

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The Hokkaido Eastern Iburi Earthquake that occurred before dawn on September 6, 2018 caused shallow landslides in more than 6,000 locations, mainly in Atsuma Town and Abira Town, Hokkaido, Japan. Most of the sediment and driftwood produced from the collapsed area remain in the basin, and it is thought that sediment movement occurs at the time of flooding, but the magnitude, frequency and spatial distribution of the movement is not clear. The surface soil in areas where many shallow landslides occur is mainly covered with volcanic ejecta, and the constituent materials of the produced sediment are relatively fine grains. Therefore, if the landslide sediment flows out to the downstream area, it may affect the turbidity of running water and changes in water quality. In this study, we focused on the surface erosion of the landslide slope and the landslides deposited on the river channel in the Habiu River catchment (0.38 $km^2$) of the Atsuma River system where shallow landslides occurred frequently due to the Hokkaido Eastern Iburi earthquake, and clarified the sediment movement for two years after the earthquake. The sediment movement of the catchment was grasped from the field survey and topographical analysis. Using the laser profiler data taken immediately after the earthquake (2018) and the elevation data acquired using the UAV in 2020, the amount of change in elevation values on the slope and in the river channel was calculated from the difference analysis between the two periods. From the field survey, it was confirmed that a large amount of landslide sediment and driftwood produced during the earthquake were deposited in the river channel. In addition, from the differential analysis of the elevation data of the two periods, the landslide slope was eroded as a whole, while the eroded area and the deposited area were mixed in the river channel within a range of several tens of centimeters. Even after the earthquake, the newly produced sediment from the landslide slope was supplied to the river channel, and it was considered that sediment movement occurred in the river channel at the time of flooding. On the other hand, as for the landslide slope, the south-facing slope was more eroded than the north-facing slope, and the gully was also well developed. The progress of such gully erosion could be confirmed from the field survey. The predominant erosion on the south-facing slopes may be due to the effects of freezing, thawing and snowmelt in winter season due to differences in the amount of solar radiation.

Keywords: the 2018 Hokkaido Eastern Iburi Earthquake, shallow landslide, sediment movement, slope-channel coupling, volcanic area

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