

Geomorphological settings of the slope movements in the Matsushima Bay area induced by the 2011 Off-the Pacific Coast of

Daisuke Higaki^{1*}, Michio Shirasawa²

¹Hirosaki University, ²Yokoyama Geo-Spatial Information Laboratory Co.Ltd.

Slope movements such as rock failures and rock slides were concentrated in the hilly areas of Matsushima Bay in Miyagi Prefecture by the 2011 Off-the Pacific Coast of Tohoku Earthquake. Geomorphological settings of the slope movements have been studied by the GIS-based analysis and stereoscopic slope maps which was produced from the 2m-mesh DEM taken by the Geographical Survey Institute, Japan.

90% of the slope movements which has been detected by interpreting Google Earth images and field survey occurred on the slopes more than 40 degrees in slope gradient and 10m in relative height. Though the frequency of them increases in concordant with the gradient, it is highest in the class of 10-20m in relative height where the steep slopes of marine erosion both at recent and Holocene time have been formed. The time-sequential comparison of the settlement house numbers indicates that they have been increased near such steep slopes. Since the risk of landslide disasters induced by earthquakes has increased, further measures against the slope disasters are required.

Keywords: Landslides, Matsushima, the 2011 Off-the Pacific Coast of Tohoku Earthquake, stereoscopic slope map