

Seismic response of a huge movement mass at the upper reaches of Aratozawa reservoir

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The 2008 Iwate-Miyagi nairiku earthquake induced a huge landslide at the upper reaches of Aratozawa reservoir. The movement of a huge mass that is 600m*500m in size reached to about 340m in distance. We performed aftershock observations in the Aratozawa area using a broad-band strong-motion seismometer. We detected transient long-period signals on horizontal seismograms excited by tilt motion of the base of the seismometers at a site of MBL in the huge mass. The direction of tilt motion is nearly in agreement with that of the mass movement, and also the permanent tilts are of an order of 10^{-6} to 10^{-5} degree up toward the direction of mass movement. These tilt motion can be well explained by the process of movement and stop of the huge mass. Site amplification characteristics for MBL showed a significant peak at around 1 Hz, suggesting a resonant vibration of the huge mass due to an incidence of seismic waves. The results obtained in this study indicate an instability of the huge mass that has experienced a large landslide.