

SSS011-06

Room: 303

Time: May 28 10:15-10:30

New Role of Broadband Seismic Network in Landslide Monitoring

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Natural disasters caused by landslides have increased significantly due to heavy rainfalls associated with global warming. To mitigate the potential hazard of landslides, how to monitor them becomes more important than ever. On August 8, 2009, Typhoon Morakot caused a lot of landslides and then killed 653 residents in Taiwan. Careful analyses of broadband seismic data in Taiwan and Japan show landslides were characterized by extremely long period seismic signals (20-50 sec). In total, 51 large landslides could be identified on August 8. The most fatal landslide earthquake was located at Hsiaolin village, where 474 people were buried. The inversion modelling of the long period seismic waveform shows that the seismic source was well represented by downhill sliding of the large landslide. Thus, real-time warning for reducing potential disasters by landslides can be conducted by seismic monitoring in the future.

Keywords: Landslid, Shalin, Single force, Broad band Seismometer, Typhoon, Rayleigh wave