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One Landslide forecasting method using ground ruptures model and strong seismic records

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According to the assessment report of Taiwan earthquake (Ms.7.1 Sep. 21.1999) and Wenchuan earthquake (Ms.8.0, May 21.2008), there were vast ground rupture and strong ground motion to be observed in the above two events, and a great number of a landslides had also been found over a broad area,which damaged and destroyed homes and other structures, blocked roads, disrupted pipelines, and caused other serious damage like barrier lakes. So, it is very important to analysis the distribution and characteristics of landslides under earthquake dynamic loads and forecast what areas may be susceptible to landsliding in future earthquakes. Landslide disaster characteristics including frequency, distribution, and geometries etc in Taiwan and Wenchuan earthquake are summarized at first, and then the correlation between landslide spatial distribution and ground rupture, and strong earthquake motion are explored by using of statistics analysis respectively. Lastly, a landslide disaster forecasting model is built up. The model includes viscoplastic behaviors of soil and rock under seismic dynamic load, and takes into account directly the landslide spatial distribution related to earthquake intensity and ground rupture through a statistical model. A Prediction was made and compared to the results in Wenchuan earthquake.