

# AGU **FALL MEETING**

San Francisco | 15–19 December 2014

An Integrated Landslide-Runout Model for the Assessment of Typhoon-Induced Landslide Hazard and Early Warning Practice

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**Abstract:**

The study proposes an integrated landslide-runout model, *iLIR-w* (Integrated Landslide Initiation prediction and landslide Runout simulation at Watershed level), to assess landslide hazard affected by typhoon. For rainfall-induced landslides, many landslide model have focused on the prediction of landslide locations, but few have incorporated the prediction of landslide timing and landslide runouts in one single modeling framework. *iLIR-w* combines an integrated landslide model for predicting shallow landslides and a watershed-scale runout simulation to simulate the coupled processes related to landslide hazard. The study developed the model in a watershed in southern Taiwan, by using landslide inventories prepared after eight historical typhoon events (2001-2008). The study then tested *iLIR-w* by incorporating typhoon rainfall forecasts from the Taiwan Cooperative Precipitation Ensemble Forecast Experiment (TAPEX) to practice landslide hazard early warning of 6 h, 12 h, 24 h, 48 h before the arrival of Typhoon Morakot which seriously damaged Southern Taiwan in 2009. The model performs reasonably well in the prediction of landslide locations, timing and runouts. Therefore, the model is expected to be useful for landslide hazard prevention, and can be applied to other watersheds with similar environment, assuming that reliable model parameters are available.

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