



Regional distribution of landslides induced by the 2004 Chūetsu earthquake.

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The 2004 Chūetsu earthquake ($M_w=6.9$) triggered several thousands landslides in the epicentral area, mainly in the Higashiyama Hills. Following the work of Meunier et al. (2007)¹, we investigate the regional pattern of the landslides with regards to the seismological data. The landslide density (area of landsliding per unit area) is now computed along the radial direction starting from either the hypocenter or the rupture plane. We show that the landslide density correlates well with both Peak ground velocity and Peak ground acceleration maps provided by the USGS². The quality of the correlations is studied by a spatial residual analysis. The regional distribution of landsliding can thus be expressed as a function of the distance to either the hypocenter or the rupture plane. Both expressions includes a source term, an attenuation term and a term that accounts for the variation of the radiation pattern. This works brings new insights on landslide triggering by seismic waves and more particularly, the interaction between the form of the wave, its direction of propagation and the geometrical properties of the surface (orientation of the surface, orientation of the geological structure) it shakes.

¹ Regional patterns of earthquake-triggered landslides and their relation to ground motion, P. Meunier, N. Hovius, J. Haines, *Geophys. Res. Lett.*, 34, 2007.

² <http://earthquake.usgs.gov/earthquakes/shakemap/>