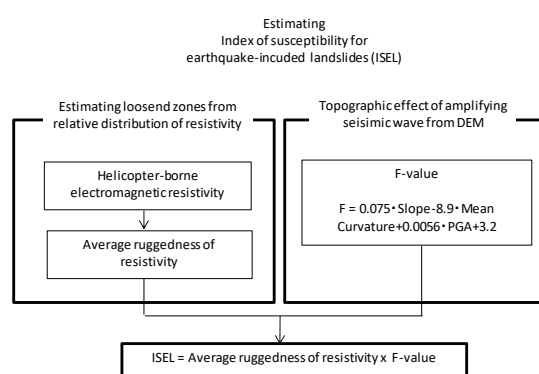


## A method for regionally mapping landslide susceptible slopes

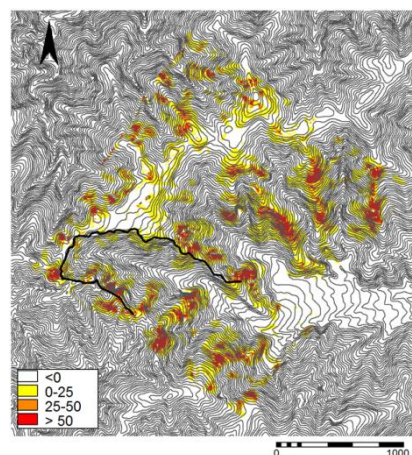
Atsuko Nonomura

Earthquake-induced deep-seated landslides prone to occur at gravitationally deformed and loosened slopes. These slopes need to be identified for landslide susceptibility mapping and landslide risk assessment. Subsurface geophysical investigations are quite useful for determining subsurface geological structures in regions where loosening has occurred.

In this study, a method was developed for regionally mapping of gravitationally deformed and loosened slopes as earthquake-induced deep-seated landslide susceptible zones by differentiating from sound bedrocks in flexural topped slopes by using the helicopter-borne electromagnetic resistivity data. The method was developed in a model area, the surroundings of the Kanagi-kuzure landslide, where slopes are deformed due to flexural toppling and where a deep-seated landslide occurred in the 1707 Hoei Nankai Trough earthquake. If the index we have presented here is to be established as a general tool for estimating landslide susceptibility, its application must be tested in areas of different lithology and topography. The relationship of the index to the severity of earthquake shaking requires further investigation, and its effectiveness as an indicator of the probability of landslide requires validation on the basis of data before and after earthquakes.



Flow of this study



The index of susceptibility for earthquake-induced deep-seated catastrophic landslides

### Related publications

1. Nonomura, A. and Hasegawa, S., 2013, Regional extraction of flexural-toppled slopes in epicentral regions of subduction earthquakes along the Nankai Trough using DEMs, *Environmental Earth Sciences*, 2013, 68. 139-149.
2. Nonomura, A., Hasegawa, S. et al., A method for regionally mapping gravitational deformed and loosened slopes using helicopter-borne electromagnetic resistivity data, 2016, *Natural Hazards*, 81, 123-144.
3. Nonomura, A., Hasegawa, S., Susceptibility of slopes to earthquake-induced landslides: a new index derived from helicopter-borne electromagnetic resistivity and digital elevation data sets, *Landslides*, Volume 14, Issue 6, pp 2155–2163, 2017