

## Prediction of landslide-affected area by using landslide maps

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Landslide map, which shows distribution and topography of landslides based on aerial photograph interpretation, is a useful tool for not only landslide susceptibility mapping but collecting regional data of landslide movement. The present study aims to obtain significant information for the regional prediction of landslide-affected areas from landslide maps.

We selected three study areas (Hachimantai, Hakone, and Nagano) where recent large-scale landslides (Sumikawa, Sounzan, and Jizukiyama landslides, respectively) damaged human lives and infrastructures. Landslide maps issued by NIED (National Research Institute for Earth Science and Disaster Prevention) were used for the measurement of following topographic attributes of landslides: (a) size of source area,  $A_s$ , (b) size of entire landslide area,  $A$ , (c) slope of source area,  $H_s/L_s$ , and (d) equivalent coefficient of friction,  $H/L$ .

Following results are obtained:

(1) expansion ratio of landslide mass ( $A/A_s$ ) for the recent landslide exceeded the maximum expansion ratio for old landslides in landslide maps,

(2) equivalent coefficient of friction ( $H/L$ ) had very weak inverse correlation with size of source area ( $A_s$ ) for old landslides in landslide maps,

(3) equivalent coefficient of friction ( $H/L$ ) was positively correlated with slope of source area ( $H_s/L_s$ ), and

(4) the recent landslide were plotted on the lower-limits of the  $H_s/L_s$  -  $H/L$  plots for old landslides.

The lower-limit of  $H_s/L_s$  -  $H/L$  plots must provide an effective regional prediction of landslide-affected area by using landslide maps.