Geophysical Research Abstracts, Vol. 7, 02971, 2005
SRef-ID: 1607-7962/gra/EGU05-A-02971

Determination and Application of Weight of Landslide Related Factors using Artificial Neural Network and GIS in the Kangneung of Korea

S. Lee(1), M. Lee (2)

(1) Korea Institute of Geology, Mining & Materials (KIGAM) (leesaro@kigam.re.kr / Fax: 82-2-861-9714 / Phone: 82-42-868-3057 (2) Yonsei University, Korea

The purpose of this study is the determination of weight of landslide related factors using artificial neural network in Kangneung area where many landslides have occurred in 2002 by Typhon Rusa. As the basic analysis tool, a Geographic Information System (GIS) was used. Landslide locations and landslide-related factors such as slope, aspect, and curvature from topographic map, topographic type, soil texture, soil material, soil drainage and effective thickness from soil map, wood type, wood diameter, wood age, and wood density from forest map, lithology from geological map, land cover from Landsat TM satellite image and lineament from KOMSAT 1 satellite image were used for determination of relative weight for the each factors. For assignment of training area, there are 3 cases; (1) landslide occurred area and slope is 0 degree, (2) landslide occurred area and lowest probability area by frequency ratio method, and (3) highest probability area and lowest probability area by frequency ratio method. As the result, the slope factor showed higher weight in 1.5-2.5 times than other factors. Then, the determinated weights applied to landslide susceptibility analysis using overlay method. The results of the landslide susceptibility analysis, with and without weights, were confirmed from comparison with the landslide location data. The comparison result with weighting was better than the results without weighting.