



Statistical modeling of landslide hazard using GIS, a case study Jajroud, Iran

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Abstract

The Jajroud drainage basin, located on the northeast of Tehran, is one of the areas in the Iran that is prone to occurrence a lot of landslides, rock falls and mudflows and other related phenomena. Landslides are one of the natural hazards in this area that cause high damage in urban and villages area, agriculture fields and roads. The necessity of hazard microzonation for landslides is the first step in environmental management for such areas. In this study, location and width of 150 landslides was distinguished, measurement and finally mapped in 1:5000 scale using aerial photos and field observation. After determining affecting factors in landslides, several maps were prepared for each factor. Then some factor such as lithology, slope, land use, distance form faults, DEM and rainfall were investigated and analyzed in one logistic regression model and finally zonation map was in GIS environment. Results of this method (between 0 and 1) classified in 5 classes that are very low, low, medium, high and very high classes. About 22% of this area is located in very high damage zone. We conclude that the logistic regression model is a suitable method for prediction for landslide occurrence in this area.

Key word: Jajroud, landslide, zonation, and logistic regression.