

عنوان مقاله:

Earthquake-induced rock fall hazard zonation of Varzegha-Ahar region in northwest Iran: a comparison of quantitative and qualitative approaches

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نویسندگان:

Mohammadreza MahdaviFar - *IIEES*

Faradjollah Askari - *IIEES*

Parham Memarian - *IIEES*

Seyed Majid Seyedimorad - *University of Tehran*

خلاصه مقاله:

In this study three earthquake-induced rock fall hazard maps of the regions affected by Varzeghan-Ahar earthquake doublet are presented. On August 11th 2012 an earthquake doublet ($M_w = 6.5$ and, $M_w = 6.3$) struck Varzeghan, Ahar and Heris regions (located in Azerbaijan-e-Sharghi province of Iran). Most of the landslides triggered by the earthquakes were rock falls and disrupted rock slides. Several rock fall zones, some with more than 150 rock falls were recorded, the farthest one approximately 45 kilometers away from the earthquake epicenters. A landslide inventory map of the region was prepared. Three methods of Information Value (IV), Logistic Regression (LR), and Analytical Hierarchy Process (AHP) were used for earthquake-induced rock fall hazard zonation. The results from each method were then compared using Receiver Operating Characteristics (ROC) curve. The area under ROC curve (AUC) was 0.927, 0.90, and 0.898 for LR, IV, and, AHP models, respectively. The most accurate rock fall hazard zonation map of the study area resulted from LR method, and IV method is, to a small extent, more accurate than AHP.

کلمات کلیدی:

Landslide Hazard Zonation, rock fall, Earthquake-induced landslides, Varzeghan-Ahar earthquake, Logistic regression, information value, Analytical hierarchy process

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