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# Analysis of Glacial Deposits Instability in Zab Kouchak Basin

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## Abstract

Glacial activity has been existed in Zab Kouchak river Basin especially in western and northern highlands during glacial periods and digging of the glaciers are remained as circus and glacial valleys. Other glaciers works in the basin are being deposited glacial sediments on the slopes and river beds which cause mass movements. In the research was determined domains of glacial deposit by using topographical maps of 1:50000, Radar data of Aster Sensor, LISS III and Pancromatic images of IRS Satelitte and climatic data during 1365-1387. Weighted Sum analysis was carried out in order to determine zones of instability in Zab Kouchak Basin. Because of using different variables, we compared them and also coefficients were presented for each of the variables. The results showed that there is high instability in Zab Kouchak Basin. High and very high unstable domains are in conformity with slopes of cirques and valleys

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end up to cirques. Also the terraces on the edge of river valleys are unstable. Especially the terraces remained at altitude of 1600 meters in Silveh , Zivkeh and Mashkan villages near the upstream being formed of glacial deposits are the most unstable parts of the area. Fans and terraces of this river basin were exposed to drastic changes. The nature of the glacial deposits and their susceptibility to human economic activities have created hazardous conditions, so that Lands on the terraces are affected by landslides. Several falls have occurred in valleys of the edge roads during rainfall and materials and also sudden flood waters can threaten roads and bridges. Fish breeding centers and rural settlements along the river and on the loose glacial deposits are at risk of land instability.

**Keywords**: Weighted sum method, Glacial deposits, Instability, Piranshahr.

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