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Neotectonic, morphoclimatic and anthropogenic agents in Appearance and Genesis of alluvial fans (Case study: Garmsar alluvial fan)

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Extended Abstract

1- Introduction

Alluvial fans are common feature in the hillside of mountain, where that sudden change in slope river bed lead to reduce the flow rate and sediments are left according to size. The most appropriate place for the creation of alluvial fans is located output of the mountains and arrival of water network into plain, vast plains and even in the centers of plains in adjacent terminal basins. In this research was tried to investigate the effective factors on creation of Garmsar alluvial fan.

2- Material and method

In this research, first has been collected required data through library research, documents relating to the subject. Then was determined territory of Hablerod basin and Garmsar alluvial fan by 1:50000 topographic maps and satellite image. Information of lithology was extracted of 1:100000 and 1:250000 geological maps. The study of temperature and precipitation has been made based on meteorological data from synoptic stations of Garmsar, Firouzkoh and Pluviometer of Namrood and Simindasht.

The study of sediment and debit rates was performed based on estimation of the sediment and debit stations of Firouzkoh (Hablerood), Namrood, Simindasht (Hablerood), Simindasht (Dalichay), Bonkoh (Hablerood) and Gorsafid. Also the study of neotectonic condition by the 1:50000 topographic maps, based on four indicators of the sinousity geomorphologic Mountain Front (Smf), the valley floor width to height ratio (Vf), the curve Hypsometry (Hc), the asymmetric basin waterways (AF). In order to quicken in the research process was used of Arc GIS software and field survey for Ensure of (human actions).

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3- Discussion

The factors affected on creation of Garmsar alluvial fan can be divided into two parts of essentials and basic. The morphology and sediment are essential factors and the climate and hydrology are basic parameters. In Hablerod basin, slope (by the addition of runoff rate, faster delivery of erosion materials to downstream) is one of the important factors that create and transport alluvial materials and sediment, in the creation and extention of Garmsar alluvial fan. Hablerod basin is considered large watersheds, so this area is one of the factors in the creation of Garmsar alluvial fan. Garmsar fault with movement and precession of path Hablerod role plays role in locating on this fan. 22.84% of the Hablerod basin rocks are with low resistance or sensitive, 55.98 percent of rocks have the moderate strength and 21.18 percent of rocks have high strength. Therefore the type of basin rock is also one of the factors in sediment creation. Most basin debit rate occurred in months Mars and April.

4- Conclusion

The various factors affect on the creation and extension of Garmsar alluvial fan. These factors can be divided into two categories: basic and essential factors. The morphology and sediment are essential factors, the climate, hydrology and human are basic factors in creation of Garmsar alluvial fan. Also basin poor lithology causes to weather more rapidly and increases the sedimentation. Basin climate with Temperature and precipitation affects on types of weathering, causing floods and etc. Basin hydrology with transport and deposition of sediment material is effective on creation Garmsar alluvial fan. On the one hand in recent years, the man efforts have increased sediment and on the other hand, by construct dam on the Hablerod have reduced sedimentation in the Garmsar alluvial fan.

Key Word: River Process, Garmsar Alluvial fan, Neotectonic, Anthropogenic Geomorphology

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