Evaluating the effects of Quaternary glaciers on the lack of civilization and main urban habitation in Aspas plain

A. Amirahmadi. A. Maghsodi. T. Ahmadi
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Extended abstract
1-introduction
Environmental change issue, as one of the environmental problems, has attracted scientist’ attention. Geomorphology is one of the sciences that trace the environmental changes based on geomorphological evidences. Evidences represent that, in earth history, climatic setting of every region has often changed and therefore geographical and geomorphological conditions have altered. Since the formation of civilization focuses especially cities depend on morphologic setting of regions, great flat plains with low and smooth surfaces are favorable places for habitation but plains in mountainous regions, as Aspas plain, don’t provide appropriate situation because of the lack of favorable geographical parameters.

2-Theoretical Bases
Geographical thought in the nineteenth century was considered, and the base has evolved. According to this theory, the course of civilization begins its simplest form, and ultimately leads to urban civilization. In all transition periods, the geographical environment is considered. In the context of evolutionary theory, in addition to features of the fourth period (Quaternary) Plain Aspas climate constraints, geomorphic and topographic distribution and accumulation in human settlements have been effective.

3-Discussion
Aspas plain, in north of Fars province, lies 45 km of Eghlid county and is located between 30° 17’ and 30° 40’ N latitude and 52° 15’ and 52° 54’ W longitude. In spite of appropriate climatic and topographic situations, greatness, fertility and enough surface water, rural and urban regions are not developed so and even there is not any urban focus. There are only some villages linearly in the center of plain. Therefore
the assumption of coldness of weather and glacier activity can account for the limitation of habitation in mentioned plain. This study, also, aims to find the reasons of habitation problem of Aspas Plain by evaluating and comparing the climatic and geomorphological characteristics in present and quaternary periods.

In this study, topographic maps at a scale of 1:50 000 and Geological maps at a scale of 1:100 000 were used for the identification of glaciers effect as well as permanent snow line. Rainfall statistics of Abadeh, Eghlid, Eyzadkhast, Sadeh, Samirom, Hana, Dorodzan and Kaftar stations were used for preparing Iso-precipitation lines. Granulometric technique and morphoscophy operation were done on sediments to determine the type and percentage of deposits, and therefore the type and percentage of sediments in terms of their glacial, eolian and fluvial origin. Consequently, geomorphologic, climatic, human and experimental evidences were utilized for identification of glacial remnants.

4-Coclusion
Sinusoidal form of topographic contours in topographicl maps reveals the previous glacial activity of study area. These surfaces often have been formed by the movement of ice sheets along with mountainous glacier tongues. Determination of permanent snow line by Wright method revealed that mean annual temperature is zero centigrade in the altitude of 2600 meter above sea level. The evaluation of recorded cyclical temperatures shows that the previous and present temperature difference is 9.86 degrees C. in the middle and 9 degrees C in the heights of study area. The mean annual 5 degrees C line was not recognized in the old iso-term map. The highest iso-term was 3 degrees C. in the middle of plain. This means that the lowest point of plain had been located above the equilibrium line of water and ice. Therefore the surface of the plain had been appeared as an icy domain in most of the year. Field evidences represent that there is just one talweg in the plain that has acted in stead of fluvial flows in icy surfaces. The existence of 255 small and large cirques shows that cirques had operated as one of the important feeding resources of ice sheets of study area in cold glacial periods. Granulometric and morphoscopic tests were obtained for the confirmation for the valuation of glacial operation and effects of the study area. Performed operations on samples of sediment confirmed the activity of glaciers in study area so that the results of granulometry reveal that most of samples are glacial deposits. Also, morphoscopic operations show that most of samples comprise a high percentage (57%) of sediments that have formed by glacial activity. Spatial distribution of villages, which follow the form and movement of glacial tongues (linear in the center of Aspas plain), as well as the antique hills confirm the glacial activity.

5-suggestions
The movement of ice on surfaces, like the movement of water, has 2 different states. Concentratative movement of ice that is called glacier, transport morain deposits with special grading and usually results in the formation of till and morain sheets with the high capacity of reservation of groundwater resources. Unconcentratative movement of ice wich is product of sheet movement of glaciers, forms an undulate surface composed of a layer of sand, with a thickness of more than 10 centimeters that does not have important effect in the formation of
groundwater resources. The second type of ice movement has formed in Aspas plain and therefore, except in small parts of alluvial fans in south of plain, there are not considerable groundwater resources. So, considering the lack of coldness of catchment in comparison to old time, we suggest the controlling of surface water for rural and urban development.

**Key words:** glacial effects, quaternary, Aspas plain, civilization, urban habitation

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