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An idea on geomorphic evolution in Balkhash lake basin, Kazakhstan

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In this paper, a geomorphic evolution for understanding the natural environment in Balkhash basin will be outlined. This project aims to study and clarify the historical interaction between human activities and natural systems in the semi-arid region of Central Eurasia. The project attempts to clarify historical changes, the rise and fall of nomadic groups and countries, their removal, changes in subsistence, the use of natural resources, and climate change through the analysis of historical documents and archaeological investigations as well as various natural proxies such as ice cores, lake sediment samples, tree rings and wind-blown deposits.
A geomorphic evolution is made through the analysis based on satellite data in Balkhash basin. The results are as follows. High mountains exist east-west in the south of Balkhash basin. River currents from high mountains with many glaciers flow to the north. The Ili-river which gathered these river currents flows to the west and it becomes a main water source for the lake-Balkhash. It flows to the west through on the old river trace to the north in Baknas, a strange delta landform made by both wind and stream. This landform is estimated to be an old one in the times when a lot of small lakes existed. Because the old Ili-lake were in the position of the present dam lake at that time, the Ili-river didn't flow into Balkhash basin. A drowned dune is found in a lakefront. This landform means a dune formed when a lake was parched, then it submerged. The present lake-Balkhsh was formed when the Ili-river was flowing into the basin and a lot of small lakes were connected. A low-angle reverse fault is estimated in a west marginal-part in the basin. A flow channel continued to move to the west because of the depression caused by fault movement.

Keywords: geomorphic evolution, environment, Lake balkhash