



The hummocky debris landscape in the Chapursan valley (Karakoram)

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A remarkable hummocky debris landscape has been deposited downstream of the Yishkuk glacier in the upper Chapursan valley (Karakoram-North-side). It extends between an altitude of 3500 m and 3200 m over a horizontal distance of about 10 km from the Yishkuk glacier tongue until the settlement of Spinje. The individual debris hummocks measure up to 10 m in height and are composed of a sandy-gravelly matrix, in which boulders with a long axis of several meters are embedded. The toma-like debris landscape is not only deposited on the valley floor, but also covers the surfaces of the adjacent sediment cones. According to local legends and reports of early travelers, one of the largest settlement concentrations of Hunza has been located in this valley section in the past. This settlement, called Yishkuk, supposed to have been completely destroyed by floods and debris flows in the mid of the 19th century. In former observations, the hummocky moraine landscape has been mainly interpreted as a result of a glacier lake outburst. However, the debris hummocks are very untypical for sediments deposited by glacier lake outbursts. Geomorphological field investigations as well as interviews with the local inhabitants have been carried out, in order to solve the development of the sediment associations. The results showed that a complex geomorphological process regime consisting mainly of a glacier advance and secondarily of glacier lake outbursts and ice avalanches. The Kit-ke-Jerav and Yishkuk glaciers experienced extraordinary glacier fluctuations in historical and recent times. The research work focuses the problem of convergent forms of hummocky debris landscapes in high mountain regions and the question of their gradual or catastrophic genesis.