



## **Suspended sediment flux characteristics in the central Pamirs**

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In contrast to the Himalayas and the Hindu-Kush, where the Indian Summer Monsoon provides most precipitation, the Pamirs' main precipitation input is provided by the westerly winds in winter and spring. In combination with low temperatures, precipitation falls as snow and is stored as snow cover until summer. Snowmelt then causes high surface runoff and, as a result, high suspended sediment loads.

This work focuses on the interrelation of precipitation, river discharge, and suspended sediment load in the central Pamirs, Tajikistan. The representative river catchments for this area, for the Gunt and Shakh dara rivers, as well as surrounding watersheds were chosen as study area for this approach. Area-normalized discharge and sediment load in-situ data show a linear relationship in bi-logarithmic plotting with a very similar slope for all tested watersheds. Since hydrometeorological in-situ data is limited to a few years, hydrological model output and remote sensing data are utilized to provide recent information and to refine the results. Investigations include the topographic features of each watershed using a GIS. A model for modern erosion rates shall be derived from the results, which can contribute to the discussion about the forcing factors of orogenic denudation and erosion.

Generally, if precipitation is provided as rain, a few strong storm events trigger the discharge that is responsible for the majority of sediment transport. Here however, with precipitation provided as snow and stored in a snow cover over several months, the snowmelt causes the main discharge event. Due to this, the importance of the actual amount of precipitation within a year is vastly reduced, but the temperature becomes the main determinant. Even though the catchment areas of the upper Gunt and Shakh dara rivers are characterized by arid climate, they have high discharge amounts and high sediment loads during the melting period.