



## Quantifying ages of river terraces and basin wide denudation rates in Pamir

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The Pamir is located at the western edge of the Indian indenter and results from the India-Asia collision. The Pamir also lies at the transition between zones dominated either by the Westerlies or the Indian Summer Monsoon. The ongoing tectonic deformation together with the climatic gradients from the two prevailing atmospheric circulation systems provide a natural laboratory to study surface processes and their rates. To determine and quantify the interaction between tectonics and the drainage system in the Tajik Pamir we use cosmogenic nuclide based techniques.

We measured  $^{10}\text{Be}$  and  $^{26}\text{Al}$  concentrations of modern fluvial sediments sampled from drainage system of Pamirs. Depth profiles enable to determine exposure ages of fluvial terraces, while the modern river sediments reveal basin-wide erosion rates.

However, accurate measurement results depend on the quality of the sample preparation. The samples from Pamir contain a high amount of various feldspars that are very difficult to separate from quartz using standard procedures such as magnetic or density separation. Unclean samples cause uncertainties in chemical procedures, especially in the case of combined  $^{10}\text{Be}$  and  $^{26}\text{Al}$  analysis. We developed a feldspar flotation in addition to our sample preparation procedure that allowed an almost complete separation of the quartz, up to 95%. Several depth profiles were analyzed to determine the exposure age of fluvial terraces. The first results of one terrace along the southern Panj River east of Langar, and one along the Shakh dara River are promising. The AMS results demonstrated that the depth profiles are consistent, with  $^{10}\text{Be}$  and  $^{26}\text{Al}$  concentrations decreasing with depth. The results of both fluvial terraces show similar denudation rates 0.5mm/yr., while exposure age analysis yields 3.5 ka for the Langar and 19 ka Shakh dara terrace. Further analyses are ongoing. These ages are validated by OSL dates at or nearby the same sites.  $^{10}\text{Be}$  denudation rates on modern river samples refine the picture produced by one of us (see Fuchs et al., same session).