

Climatic versus tectonic forcing of Himalayan erosion

Dirk Scherler, Jan. 14th 2014

Erosion in the Himalaya is responsible for one of the greatest mass redistributions on Earth, and has fueled models of feedback loops between climate and tectonics. Although the general trends of erosion across the Himalaya are reasonably well known, the relative importance of factors controlling erosion is less well constrained. I will present new ^{10}Be -derived catchment-averaged erosion rates from the Yamuna catchment in the Garhwal Himalaya, northern India, to argue for a dominant tectonic control of Late Holocene erosion in this part of the Himalaya.

I will then have a look at a prominent valley fill that documents past imbalances between river capacity and sediment supply that are not easily explained by tectonics. Palaeo-erosion rates from terrace sediments provide insights into how erosion rates have varied with time and how changes in climatic conditions might have affected erosion in the past.

If time allows I will say a few words about ongoing work, where I look at erosion rates on a regional scale and compare available erosion rate records from the Himalaya and Eastern Tibet.