



Controls of earthquake-triggered landslides on riverine sediment and organic carbon export in the Central Himalaya

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In April 2015, the Gorkha earthquake (Mw 7.8) hit central Nepal, causing a large number of landslides in the steep valleys of the Higher Himalaya [1]. Following the earthquake, we acquired daily suspended sediment samples during 3 monsoon seasons (2015-2017) in the Narayani River. In addition, a similar time-series had already been acquired at the same location in 2010 providing a pre-earthquake reference point. The Narayani River is one of the major outlets of the Central Himalaya and its eastern part was heavily affected by the earthquake providing a broader scale test of the impact of the earthquake on biogeochemical cycles. Combining suspended sediment load data with total organic carbon (TOC) as well as its stable and radiocarbon isotopic compositions, we try to assess the influence of these earthquake-triggered landslides on the export of organic carbon.

First results show that total sediment fluxes remained below the 40-year average during the weak 2015 monsoon immediately following the earthquake. In contrast, the stronger monsoon in 2016 was characterized by sediment concentrations that largely exceed the pre-earthquake average. We interpret this exceptional sediment load as a potential consequence of the earthquake-triggered landslides in the Upper Himalaya. Bulk radiocarbon data of the exported organic carbon during monsoon 2015 show relatively young ages suggesting an important input of fresh or poorly-altered soil organic matter. New data from TOC concentrations and radiocarbon measurements from monsoon seasons before and after the earthquake will provide more information about the sources of organic carbon exported in the Narayani River and its eventual changes due to the earthquake-triggered landslides.

[1] Roback, K. et al., 2017 - *Geomorphology* 301, 121–138