

## Streamwater $\delta D$ and $\delta^{18}O$ values in the Sutlej valley, NW India

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The Himalaya is the principal water source for the river systems of India. Overall, runoff in the Himalaya is heavily influenced by snow and glacial meltwater, and monsoon-derived precipitation. The moisture supply in this region originating from the Indian Summer Monsoon (ISM) and the northern hemisphere Westerlies changes gradually from east to west along the orogen, with the Westerlies becoming particularly important west of 78°E.

Due to the lack of a spatially distributed network of meteorological stations and continuous rainfall records, the relative influence of the ISM and Westerly-derived precipitation on the hydrological budget of the Himalaya is not well-constrained. A better understanding of the origin of moisture sources in this region is pivotal, however, to better understand the behavior of glacial systems and changes in the surface-process system impacting the environment, particularly in light of the expected impacts of Global Change. Here, we use a combination of hydrogen and oxygen-isotope analysis of stream waters from the Sutlej Valley of western India (78°E) to determine water sources and flow paths. Combined with the analysis of  $\delta D$  values of leaf waxes from modern river sediments this will help to understand the organic matter transport and sources of the Sutlej catchment. Our preliminary results show that water sources can be distinguished using water stable isotope ratios, with more negative values for  $\delta^{18}O$  and  $\delta D$  with increasing altitude. Both isotopic values show a smaller range in the main river compared with the tributaries.

The  $\delta^{18}O$  values range between -16.0 and -13.8 ‰ for the samples from the main stem, and between -15.2 and -5.9 ‰ for the tributaries.  $\delta D$  values range between -116.5 and -91.8 ‰ for samples from the main stem and -107.0 and -40.1 ‰ in tributaries.