



Lake sediment records of late Holocene monsoon variability in western Nepal (preliminary results)

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In Nepal, high altitude paleoclimatological and limnological studies face many logistical challenges due to remoteness, accessibility, and altitude of potential lake sampling sites. Therefore, paleolimnological investigations in the Nepalese Himalaya remain scarce, and most of our understanding of past Indian Summer Monsoon (ISM) variability relies on a low-density network of speleothems and ice cores. Here we report preliminary new data from three high-altitude lakes in the Nepal Himalaya. In order to improve our understanding of climate variability in western Nepal during the late Holocene three lakes were investigated and sampled in autumn 2014: Rara Lake, Mugu District; Phoksundo Lake, Dolpa District; Dhumba Lake, Mustang District. The sediment cores are being studied using a multi-proxy approach combining radiocarbon, ^{210}Pb and ^{137}Cs chronologies, physical properties (Geotek multi-sensor core logger), grain size (Malvern Mastersizer 3000) inorganic geochemistry (major and selected trace elements by ICP-AES and ITRAX XRF core scanning), bulk organic geochemistry (C, N concentrations and stable isotopes) and hydrogen isotopic composition of leaf wax long-chain n-alkanes ($\delta\text{D}_{\text{wax}}$). These sediment records will provide important new insights into the late-Holocene variability of the Indian Summer Monsoon in Nepal, including the recent latitudinal shift of the rainbelt due to climate change in the 20th and 21st centuries.