

Role of global teleconnections and moisture sources in triggering extreme events in Indian Summer Monsoon realm: comparing a modern and 2K perspective

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We aim to develop comprehensive picture of late Holocene climate variability over the North-Eastern India to address the existing large spatial gaps in paleoclimate data coverage in Indian subcontinent. This region receives precipitation only from the Indian Summer Monsoon (ISM) and lies in the region sensitive to the impact of various teleconnections (e.g., El-Niño, North Atlantic oscillations and Indian Ocean Dipole). A multi-proxy approach involving elemental concentration, isotopic geochemistry ($\delta^{13}\text{C}_{\text{org}}$, $\delta^{15}\text{N}$), pollen as well as biomarker (n-alkane) investigations have been performed on short sediment cores (ca. 1.0 m long) retrieved from Shilloi Lake, Nagaland, NE India ($25^{\circ} 35' 44''\text{N}$, $94^{\circ} 47' 33''\text{E}$) to decipher climate vis-à-vis vegetation dynamics in the region.

The chronology of the core sediment is based on the eight ^{14}C dates derived from bulk organics, charcoal and organic fragments spanning over 2000 cal yr BP. The $\delta^{13}\text{C}_{\text{org}}$ values from the core sediments ranges from $-34\text{\textperthousand}$ to $-23\text{\textperthousand}$ with a sharp excursion of $\sim 8\text{\textperthousand}$ observed during 1000 cal yr BP. The grain size parameters (D[4,3]-De Brouckere Mean Diameter) also demonstrate enhanced ISM precipitation from 1000 cal yr BP. Furthermore, pollen and n-alkanes indices also provide evidences of vegetational shift corresponding to the changes in the rainfall variability. The present work will provide an improved picture of the ISM variability and helps to identify the possible teleconnections responsible for the changes in regional paleoclimate during the late Holocene.