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Title:	Hydroclimatic variability in Northeast India during the last two millennia: Sedimentological and geochemical record from Shilloi Lake, Nagaland
Authors:	Ankit, Yadav (/jspui/browse?type=author&value=Ankit%2C+Yadav) Mishra, Praveen K. (/jspui/browse?type=author&value=Mishra%2C+Praveen+K.) Mehta, Bulbul (/jspui/browse?type=author&value=Mehta%2C+Bulbul) Anoop, Ambili (/jspui/browse?type=author&value=Anoop%2C+Ambili)
Keywords:	Lake sediments End-member mixing analysis
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Abstract:	The evolution of the monsoonal climate in the Indian Himalayan region remains poorly understood due to the sparse coverage of paleoclimatic datasets. In the present paper, elemental concentrations and grain size parameters are measured for a radiocarbon-dated sediment core retrieved from Shilloi Lake (Nagaland, India) to understand climate variability over north-eastern India during the past two thousand years. The end-member modeling of grain-size distribution along with the elemental composition and ratios (Mg/Al, Sr/Al, Ti/Al) are used to identify changes in clastic input and authigenic carbonate precipitation as well as lake level changes. In addition, the REE distribution pattern and elemental ratios (U/Th, Europium anomaly – Eu*) are evaluated to understand provenance and redox conditions. We identify two main hydrological events: (i) wet conditions during ~1900 to ~1000 cal yrs. BP characterised by high clastic sediment input (as indicated by increased Mg, Al, Mg/Al) and dominant contribution of fine-grained sediments as represented by end member (EM) 1 in zone 1, and (ii) an increase in aridity as signified by decreasing detrital content and increased coarse-grained sediments (EM3) in zone 2 (~1000 cal yrs. BP to present). The regional comparison of paleoclimatic records from NE Himalaya and central India shows an opposing trend in precipitation patterns. However, a synthesis of hydrological proxy records from the tropical Pacific region does not point to an active role of ENSO in the study region. Comparative analysis of modern precipitation data and paleo-records shows that the opposing behaviour resembles an “active-break” pattern that produces an east-west precipitation dipole in central and northeast India.
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