

## The spatial-temporal patterns of Indian monsoonal variations during the past 80 kyr recorded in NGHP-02 Hole 19B, western Bay of Bengal: Implications from chemical and mineral properties

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Detailed reconstruction of Indian summer monsoons is necessary to better understand the late Quaternary climate history of the Bay of Bengal and Indian peninsula. We established a chronostratigraphy for a sediment core from Hole 19B in the western Bay of Bengal, extending to approximately 80 kyr BP, and examined major and trace element compositions and clay mineral components of the sediments. Lower lithogenic matter flux, higher  $\delta^{18}\text{O}$  values, and weaker weathering in the sediment source area during marine isotope stages (MIS) 2 and 4 compared to MIS 1, 3, and 5 are explained by increased Indian summer monsoonal precipitation and river discharge around the western Bay of Bengal. Chemical components indicate a felsic sediment source, suggesting the Precambrian gneissic complex of the eastern Indian peninsula as the dominant sediment source at this site since 80 kyr. Trace element ratios indicate increased sediment contributions from mafic rocks during MIS 2 and 4. We interpret these results as reflecting the changing influences of the eastern and western branches of the Indian summer monsoon, and a greater decrease in rainfall in the eastern and northeastern parts of the Indian peninsula than in the western part during MIS 2 and 4.

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