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Sediment provenance and Indian summer monsoon variability in the Mahanadi Basin of the Bay of Bengal during the last 200 ka

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To trace the sediment provenance change in response to the Indian monsoon variability, clay mineral compositions of fine-grained sediments and detrital Nd/Sr isotopes (εNd and $^{87}Sr/^{86}Sr$) of bulk sediments were measured at IODP Site U1445 located in the Mahanadi Basin of the northwestern Bay of Bengal. AMS ^{14}C dates and the correlation between $\delta^{18}O$ values of *G. ruber* and the SPECMAP determine the age of studied interval that covers the two glacial-interglacial cycles (MIS 1 to 7). εNd values and $^{87}Sr/^{86}Sr$ ratios of detrital particles range -19 to -14 and 0.731 to 0.753, respectively. εNd values was almost constant during 200 ka whereas $^{87}Sr/^{86}Sr$ ratios are relatively higher in the interglacial period than glacial period. The clay mineral compositions consist of illite (46-73%), smectite (3-34%), kaolinite (10-20%), and chlorite (7-16%). High smectite and low illite and chlorite contents occur during the interglacial period, and *vice versa*. Based on Nd/Sr isotopes and clay mineral compositions, the sediments from the Ganges-Brahmaputra and Mahanadi Rivers have been deposited at IODP Site U1445 in the Mahanadi Basin. However, the temporal change of high smectite/(illite+chlorite) ratios during the interglacial period are likely to reflect the different weathering pattern by the Indian summer monsoon, indicating more weathering by stronger Indian summer monsoon during the interglacial period. Thus, IODP Site U1445 records the potential information on sediment provenance and weathering history of the source regions through the Indian monsoon variability.