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Palaeoceanographic insights on the glacial-interglacial hydrographic evolution of the Bay of Bengal during the last 500,000 years

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The tropical Indian Ocean is a key area because of the interplay between hydrographic responses to strength variations of the Indian Monsoon and advection of Southern Ocean waters through its thermocline. Yet, long-term (10^2 to 10^5years) evolution of this sector of the global ocean remains poorly documented.

Here we focus on glacial-interglacial evolution of this region and specifically on glacial terminations, which are profound reorganizations of the Earth's climate system through the last million years. We will present new palaeoceanographic results based on multi-species planktic foraminiferal (*Globigerinoides ruber*, *Trilobatus trilobus*, and *Neogloboquadina dutertrei*) δ^{13}C, δ^{18}O, Mg/Ca and other geochemical data from Integrated Ocean Drilling Program (IODP) Site U1443 (5˚23N, 90˚21E; 2,935 m water depth). This dataset documents the upper ocean hydrographic changes in the southernmost Bay of Bengal through the last half a million years. It allows us to portray: (i) the influence of the Indian Summer Monsoon through intensifications of freshwater riverine discharge from the surrounding borderlands; (ii) the evolution of the thermocline in response to monsoon-driven stratification of the upper water column; and (iii) the advection of Southern Ocean-derived water. We will discuss results from one or two key termination events to exemplify the amplitude of the hydrographic changes in the upper water column and their relationships with climate forcing.