Monsoon Variability and Oxygen Isotope Stratigraphy for the Last 54 Cal Ka: Record from Marginal Andaman Sea (North East Indian Ocean)

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We here report data for the reconstruction of high resolution chronology and late Quaternary paleoclimate of sediments from two sediment cores collected from the Andaman Sea. The data include; AMS 14C , planktic foraminiferal 8180 stratigraphy and relative abundance of planktic foraminiferal monsoonal proxies such as Globigerina bulloides, Globigerina falconensis, Globigerinita glutinata (Summer Monsoon), Globigerinoides ruber, Neogloboquadrina dutertrei, Globigerinoides sacculifer (Winter Monsoon), productivity proxies total planktic foraminifera (TPF), calcium carbonate (CaCO3%) and organic carbon (Corg). The results provide the first planktic foraminiferal evidence for monsoon variability from the Andaman Sea and it reveals the coherence of Indian monsoon with north Atlantic climatic events. The δ 18O record of *G. ruber* shows significant oscillations from last glacial to Holocene. The relatively large $\Delta \delta 180 \sim 2.1\%$ suggests substantial changes in Andaman Sea surface hydrography, monsoon and glacial climate which is comparable with other records from Indian Ocean. According to the G. ruber oxygen isotope records, glacial Andaman Sea was characterized by about 1 psu higher salinity than present. The average sedimentation rate of 14.89 cm/ka is obtained for Andaman Basin which is calculated by considering published and unpublished age data of five deep sea cores recovered from greater than 2000 m water depths at north to south. Seasonal monsoonal variability is separately investigated by using summer/winter monsoon foraminiferal proxies along with CaCO3 and Corg records. While the early deglaciation periods are characterized by intense summer monsoon, glacial periods are apparently dominated by intense winter monsoon. Our records suggests that the summer monsoon intensified just after the Heinrich event 1 (HE1) followed by slight weakening during Younger Dryas (YD). The summer monsoon then regained the strength and peaked during last glacial-interglacial transition (11.5 to 10.5 ka) which coincides with the highest summer insolation at 30°N. Summer monsoon was relatively weaker during late Holocene, YD, Heinrich events (HE4HE1), Late Glacial (19-16 ka) and Last Glacial Maximum (LGM), but weakest during middle Holocene (6–4.5 ka). The winter monsoon intensified during early LGM and continued uprising to late glacial time. The enhanced productivity during last glacial-Holocene transition may reflect the contribution from summer monsoon whereas LGM productivity was the result of intensification of winter monsoon.