

LATE QUATERNARY PALAEO-MONSOONAL HISTORY FROM THE WESTERN CONTINENTAL MARGIN OF INDIA: CONSISTENCY OF RESULTS FROM $\delta^{18}\text{O}$ AND CLAY MINERAL ANALYSES

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Abstract

The upper 293 cm of a 5.18 m long gravity core from the continental slope off Goa was analysed for organic carbon, coarse fraction, *Globorotalia menardii* abundance, oxygen isotopic composition ($\delta^{18}\text{O}$) of planktonic foraminifera, and clay mineralogy.

Chronology obtained from $\delta^{18}\text{O}$ variations in *Globigerinoides ruber* after identifying well known climatic events, is found to be consistent with the age-depth model based on the corrected ^{14}C dates of bulk sediment. $\delta^{18}\text{O}$ of *Gs. ruber*, *Gs. sacculifer* and *Gr. menardii* confirm the prevalence of aridity during the Last Glacial Maximum and Younger Dryas. The magnitudes of negative excursions during 15.3-13.2 ka and 11.7-11 ka, when compared with the global sea level curve, suggest wetter periods probably due to the intensification of southwest monsoon. During the Holocene wet phases are identified at 9, 6.2, 4.9, 2.7 and 2 ka whereas 9.7, 5.9, 4-3 ka correspond to dry phases. The identified isotopic events correlate very well with the clay mineral record, which shows an increase in kaolinite content along with the kaolinite to illite ratio, suggesting continental humidity during the above-mentioned wet periods, whereas dry periods are marked by the decrease in kaolinite with an increase in smectite, chlorite and smectite to illite ratios, suggesting continental aridity.

Keywords: Oxygen isotope, Foraminifera, Clay mineralogy, Southwest monsoon.