

Enhanced freshwater flux near Oman coast post LGM revealed analysing clumped isotopes on Globigerina bulloides and Orbulina Universa from ODP Hole 727B

PROSENJIT GHOSH¹, M PRAKASAM,² DIVYA MISHRA¹

¹Centre for Earth Sciences, Indian Institute of Science, Bangalore, India. pghosh@iisc.ac.in

²Wadia Institute of Himalayan Geology, Dehradun
geoprakash783@gmail.com

The quantification of tropical temperatures during the last glacial cycle (0-55 ky BP) is a controversial topic as different proxies seem to provide conflicting temperature estimates [1]. To obtain a complementary temperature (SST), $\delta^{18}\text{O}$ of seawater ($\delta^{18}\text{O}_w$) and salinity values of paleo seawater during the past 55 ka, we used sediment core (727B) from the south-western Arabian Sea. Here we separated *Globigerina bulloides* and *Orbulina Universa* and analysed them for stable and clumped isotope ratios [2]. Both these species were selected based on their large abundances in the sample and their similar growth temperature [3]; while *Globigerina bulloides* is a shallow dweller, *Orbulina Universa* are found in the intermediate water depth. The thermometry revealed temperature value of $\sim 20 \pm 2^\circ\text{C}$ during LGM and marine oxygen isotope stage 2 (MIS 2), while maximum temperature of $32 \pm 2^\circ\text{C}$ during MIS-3 (25-55 ky BP). The clumped isotope derived SST record registered variability of $\sim 17^\circ\text{C}$ during MIS 3 and MIS 2; with MIS 3 recording higher temperature than MIS 2 and Last Glacial Maximum. Freshwater flux to the costal Oman region was found enhanced post 20 ky suggesting strong monsoonal activity and strong upwelling.

[1] Corinne Sonzogni *et al.* (1998) *Quaternary Science Reviews*, **17**, 1185-1201. [2] Eiler. J. (2011) *Quaternary Science Reviews*, **30**, 3575-3588. [3] Lombard *et al.* (2011) *Biogeosciences*, **8**, 853-873.