# Evidence of tropical Pacific forcing in the western Indian Ocean coccolithophore productivity record

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We present a new coccolithophore productivity reconstruction that covers the last two glacial-interglacial cycles in sediment core GeoB12613-1, which was retrieved from the western tropical Indian Ocean, an area that mainly derives its warm and oligotrophic surface waters from the eastern Indian Ocean. Our results were compared to the record from an upwelling region off the southern tip of Sumatra (SO139-74KL; Andruleit *et al*., 2008), which allowed us to determine the productivity and water-column dynamics between the eastern and the western Indian Ocean regions. *Florisphaera profunda* index and estimated primary productivity (EPP) records from GeoB12613-1 and SO139-74KL show the same long-term trend in paleoproductivity over the studied time period (i.e., strengthening of stratification and reduced productivity towards the Holocene). We observed a similar orbital cyclicity at the precession and also at the obliquity band. Moreover, the strong similarity in the EPP trend at a different period of time and the opposing pattern in the water-column stratification proxy *F. profunda* index suggest the possible existence of an Indian Ocean dipole (IOD) that is analogous to the present day and thus operated on a longer time scale. This is in contrast to the current view of the IOD, which is based only on the Holocene timescales.

## References

Andruleit, H., Luckge, A., Wiedicke, M. & Stager, S. 2008. Late Quaternary development of the Java upwelling system (eastern Indian Ocean) as revealed by coccolithophore. *Marine Micropaleontology*, **69**(1): 3–15.