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Hunting down the late Miocene-early Pliocene biogenic bloom in the Tasman Sea: an integrated study at IODP Site U1506

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The latest Miocene-early Pliocene biogenic bloom is a poorly understood paleoceanographic event that has been traditionally related to increased primary productivity; and associated changes in the marine carbon cycle. In order to identify this event in the Tasman Sea, we carried out an integrated study at IODP Site U1506. First, we have constructed an age model based on an integrated approach (i.e. biostratigraphy, astrocyclostratigraphic tuning). This permits the identification of the precise position as well as the duration of the biogenic bloom in the Tasman Sea but also the calculation of sedimentation rates across the study interval. In this framework, we generated quantitative micropaleontological records (benthic and planktic foraminifera and calcareous nannofossils) and a low-resolution carbon and oxygen stable isotope records on *Cibicidoides mundulus* and *Trilobatus sacculifer* across an interval spanning from 233.50 to 81.75 m CSF-A (Tortonian, late Miocene to Zanclean, early Pliocene). Quantitative assemblage work and statistical analyses on the resulting dataset point to increased export productivity in the lower part of the interval (between CNM15 and CNM18, Backman et al., 2012), as inferred from benthic foraminiferal assemblages dominated by taxa (e.g. *Uvigerina* and *Ehrenbergina*) that have been reported to be common across the biogenic bloom in the Indian Ocean (Dickens and Owen, 1999). The paleoecological analysis of these assemblages suggests eutrophic conditions at the seafloor and low oxygen concentration of bottom waters.

Reference

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