



## **Coupled Mg/Ca and clumped isotope measurements at IODP Site U1488 confirm absence of Plio-Pleistocene sea surface temperature cooling in the Western Pacific Warm Pool**

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The Western Pacific Warm Pool (WPWP) as a major source of heat and water vapor has a crucial influence on climate dynamics both in the tropics and globally. Yet, there is conflicting proxy evidence regarding the evolution of WPWP temperatures since the Miocene. On the one hand TEX<sub>86</sub> data suggest a gradual cooling by ~2°C (O'Brian et al., 2014, Zhang et al., 2014) from the Pliocene to today, while faunal (planktonic foraminifera) sea surface temperature estimates (Dowsett, 2007) and Mg/Ca data measured in planktonic foraminifera (Wara et al., 2005) on the other hand indicate the absence of any long-term temperature trends. It has been suggested that Mg/Ca temperatures could on these time scales be biased by long-term changes of the Mg/Ca ratio of seawater (Evans et al., 2016). To test the influence of the proposed seawater changes on Mg/Ca we combined data from two independent temperature proxies, Mg/Ca and clumped isotopes, measured on two species of planktonic foraminifera from IODP Site U1488 in the central WPWP. Our study finds good agreement between both proxies thereby verifying the validity of Mg/Ca records from the WPWP and confirming the absence of a Plio-Pleistocene cooling trend for the WPWP. This finding suggests that the persistent disagreement between foraminifer-based proxies such as Mg/Ca and biomarker data might be caused by different environmental parameters being recorded in the two archives.

### References:

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