

## ASSESSING THE ROLE OF OCEANIC FORCING IN WEST ANTARCTIC ICE SHEET RETREAT SINCE THE LAST GLACIAL MAXIMUM

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The West Antarctic Ice Sheet (WAIS) is one of the largest potential sources of future sea-level rise. For the last 40 years glaciers flowing into the Amundsen Sea have thinned at an accelerating rate resulting in greater destabilisation of the WAIS (Favier et al., 2014; Joughin et al., 2014; Mouginot et al., 2014). These changes may be driven by warming in the Amundsen Sea, however, data extending beyond the last few decades is lacking largely due to difficulties in recovering and calibrating temperature proxies in polar waters. This project uses a multiproxy approach to reconstruct palaeo ocean properties through time, including changes in temperature and biological productivity. Here we present down-core biomarker characterisations to consider changes in sea ice, phytoplankton productivity, and terrestrial (ice sheet) inputs. We also apply the TEX<sub>86</sub><sup>L</sup> index for reconstruction of palaeo ocean temperature. The TEX<sub>86</sub><sup>L</sup> index relates to specific sedimentary archaeal lipid signatures (glycerol dialkyl glycerol tetraethers; GDGT) which correspond to ambient water temperature of the upper 0-200m of the water column (Kim et al., 2010, 2012; Ho et al., 2014). Our new data show that GDGT relative abundance has varied significantly during the past c.13kyrs in accordance with the deglaciation. However, the recovery of the target lipids in the Amundsen Sea is complex and we discuss the implications this has for reconstructing palaeo-ocean temperature in this environment. This work will identify if past ice sheet retreat coincided with the presence of warm Circumpolar Deep Water and to determine if recent oceanographic conditions in the Amundsen Sea Embayment are unprecedented compared with palaeo reconstructions.

### References

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