Marine radiocarbon reservoir age simulations for the past 50,000 years revisited

Manuscript submitted for publication in Communications Earth & Environment, November 2025

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Supplementary Figures S1 – S3

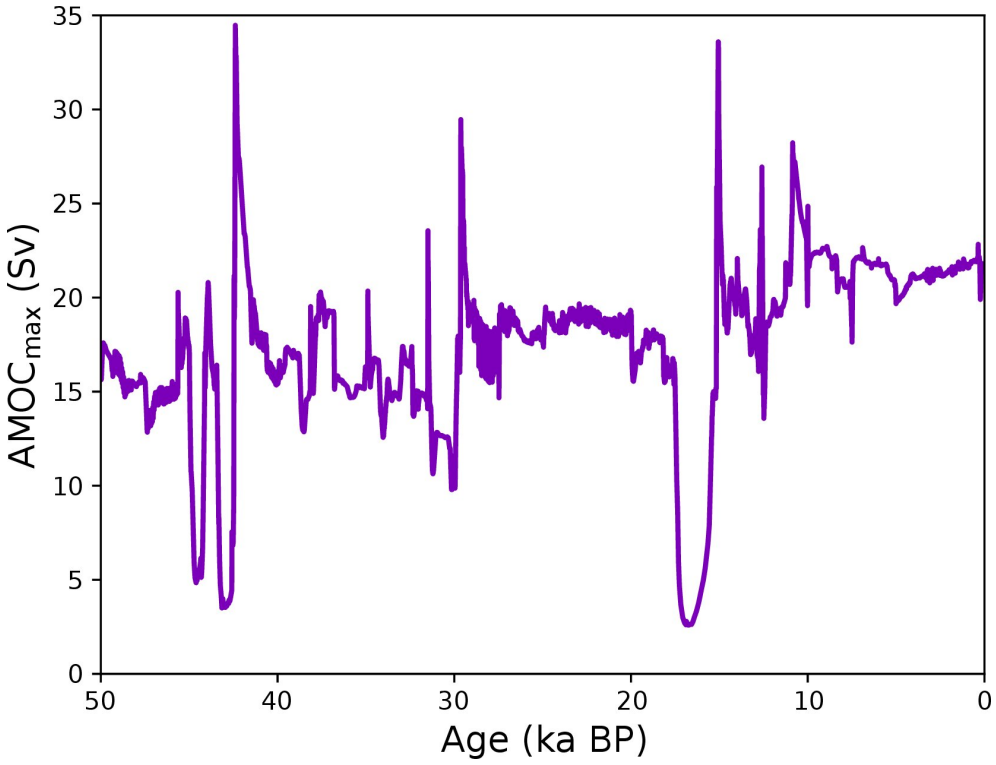

Figure S1. Time series of the meridional overturning circulation in the Atlantic (AMOC). Shown is the maximum of the meridional streamfunction northward of 30°S below 700 m simulated by CLIMBER-X in this study. The long-term average is 17 Sv with a standard deviation of 4 Sv. Most of the AMOC oscillations are unrelated to real Heinrich or Dansgaard-Oeschger events. Except for Heinrich event H1 (15.0 - 7.5 ka BP), these events are not captured by the PaleoMIST reconstruction which has a temporal resolution of 2500 years while CLIMBER-X considers interpolated values in between.

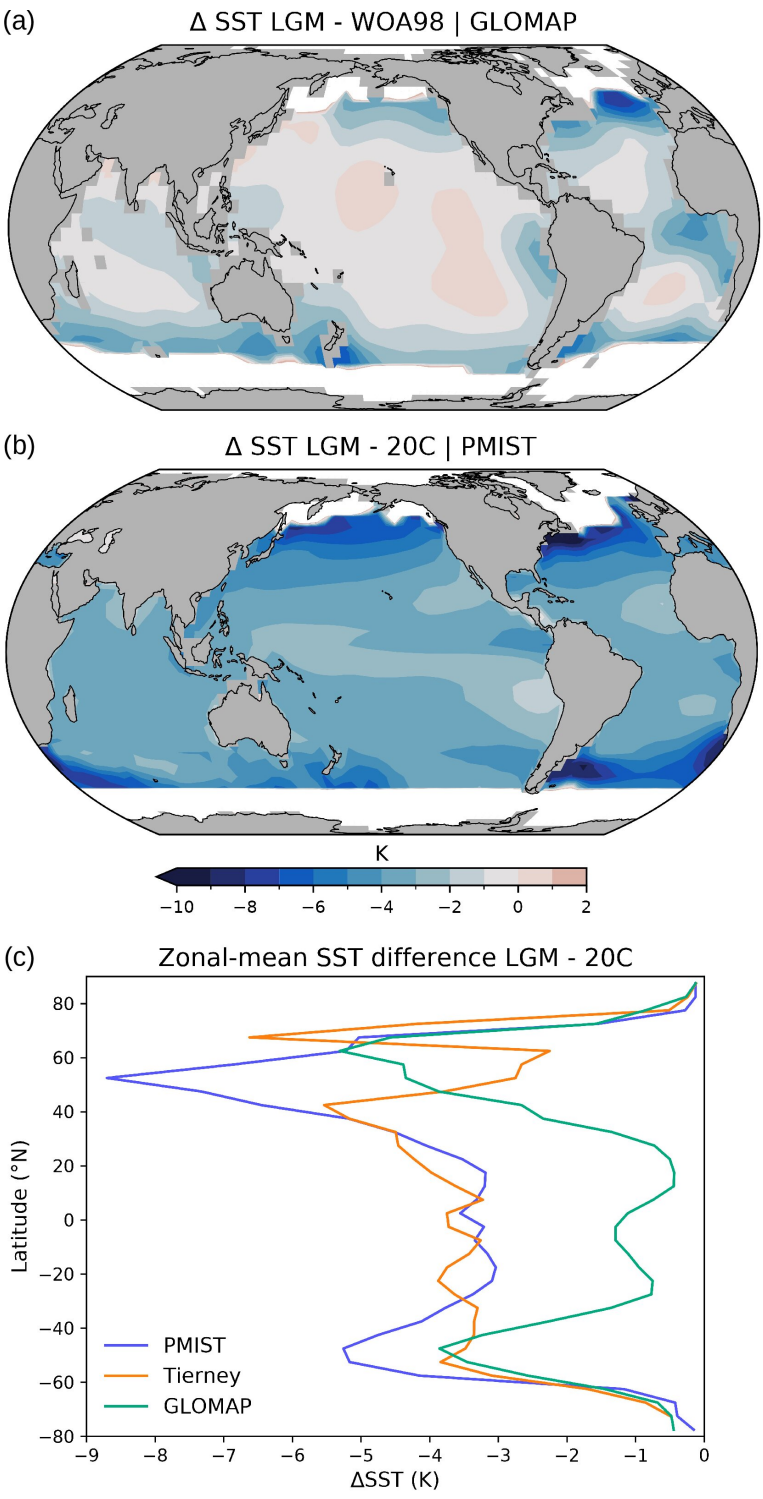

Figure S2. Annual-mean sea surface temperature differences (ΔSST) between the Last Glacial Maximum (LGM, 19 - 23 ka BP) and the 20th century (20C). (a): GLOMAP reconstruction (Paul et al., 2021), reference temperatures are from World Ocean Atlas 1998 (WOA 1998; Levitus, 2012). (b): This study. White areas in the top and middle panel indicate the annual-mean maximum sea ice extent at the LGM. (c): Zonally averaged ΔSST values, blue curve: this study. Different to the original publication considering the reference period 0 - 4 cal ka BP, ΔSST values by Tierney et al. (2020) have been recalculated relative to WOA 1998 for direct comparison with GLOMAP values. SST and sea ice reconstructions have been remapped to the spatial resolution of CLIMBER-X.

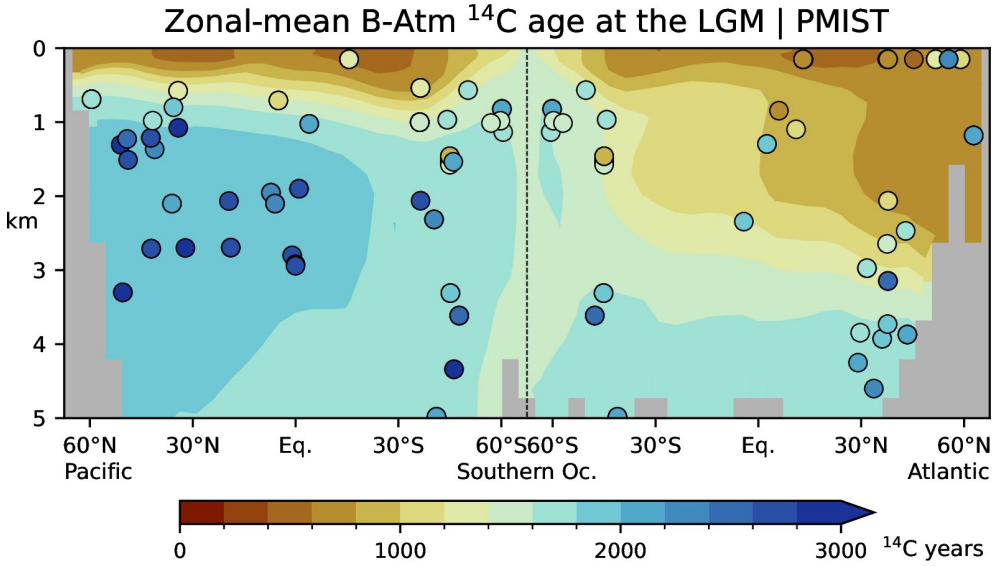

Figure S3. Simulated and reconstructed benthic-atmospheric ^{14}C ages during the Last Glacial Maximum. Shown are values in the Atlantic and Pacific. Shaded areas are zonal-mean results averaged over 19.0 - 21.8 ka BP (this study). Dots are observations between 19.0 and 21.8 ka (compiled by Skinner et al., 2023; see further references therein).

Supplementary References

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