

Supporting Information for “Hydroclimate variability in the equatorial western Indian Ocean for the last 250,000 years”

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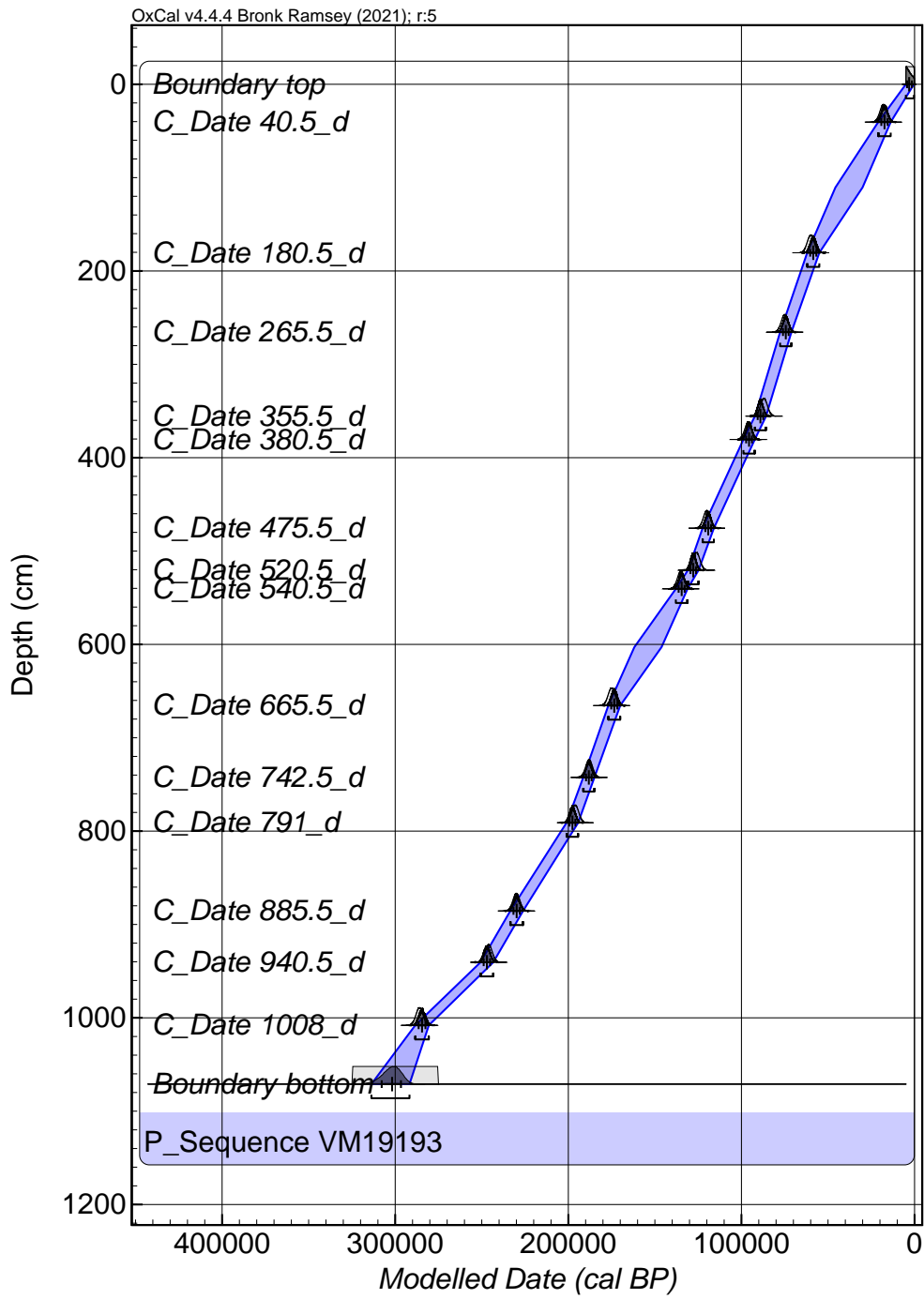


Figure S1. VM19-193 OxCal modelled age plotted against depth.

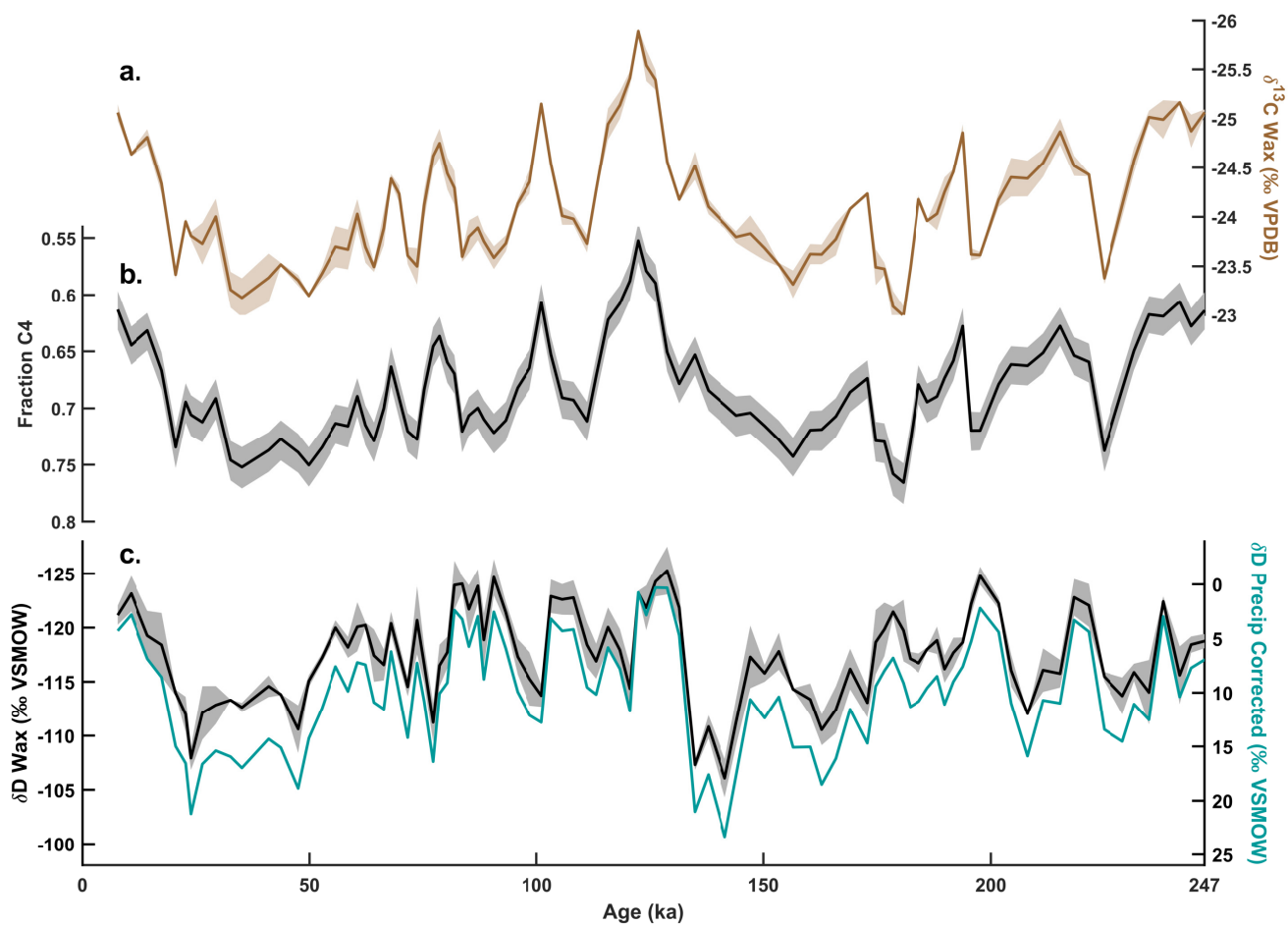


Figure S2. VM19-193 (a) $\delta^{13}\text{C}_{wax}$, (b) fraction of C_4 plants, (c) δD_{wax} of the C_{30} acid, and δD_{precip} after vegetation correction. Shading represents 1σ error.

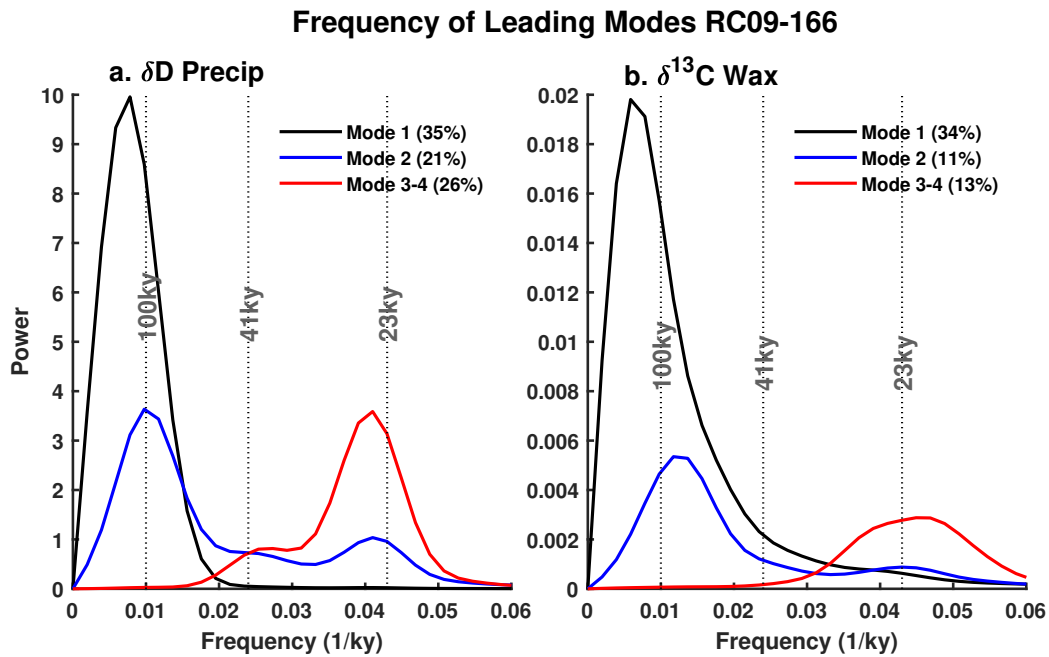


Figure S3. Smoothed periodograms of leading modes from the singular spectrum analyses for RC09-166 leaf wax data from the Gulf of Aden (Tierney et al., 2017). The δD_{precip} values were calculated using the same vegetation correction methodology described in the main text. (a) δD_{precip} and (b) $\delta^{13}C_{wax}$. The 23-, 41-, and 100-ky orbital frequencies are marked with dotted lines in each panel. Modes in quadrature – modes that have similar but out-of-phase EOFs and the same frequency (Ghil et al., 2002) – are combined and listed as pairs. Explained variance for each mode are listed in parentheses. The RC09-166 data was re-sampled to an even time step of 2ky and the SSA was performed following the same methodology described in the main text.

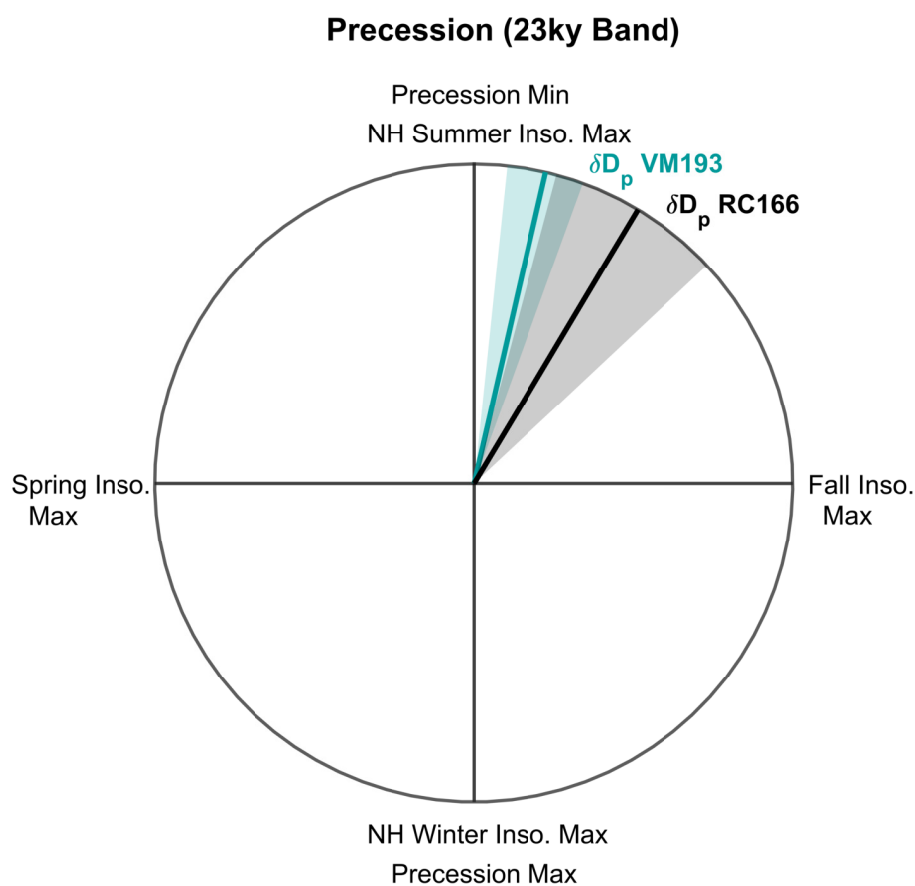


Figure S4. Comparison of phase relationships of δD_{precip} from VM19-193 (this study, blue line, Windler et al., 2022) and from RC09-166 (Tierney et al., 2017, black line) relative to ETP at the precession band.

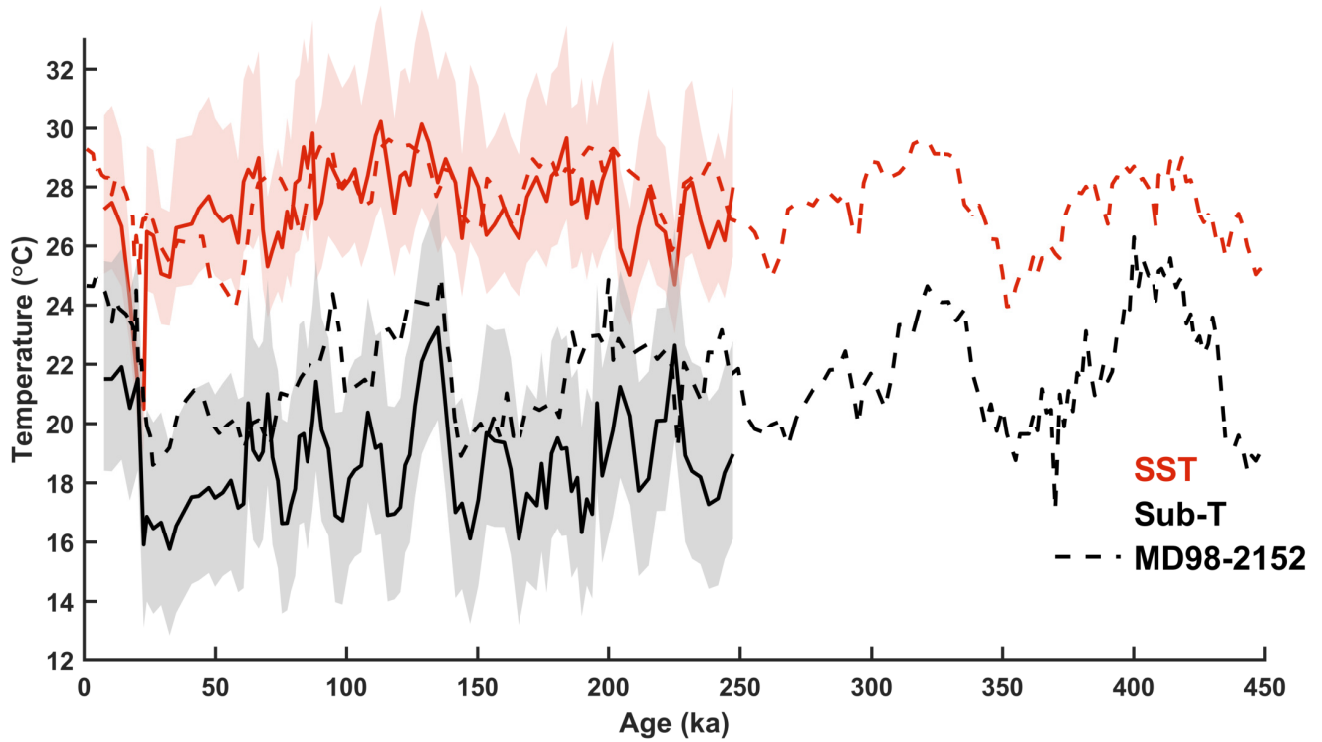


Figure S5. East (MD98-2152) and west (VM19-193) Indian Ocean temperature comparison. The VM19-193 data (solid lines) is from this study and the MD98-2152 data (dashed lines) is from Windler et al. (2019). Shading represents 1σ error around the VM19-193 records. SST is shown in red and Sub-T is shown in black