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Supplement of

Bathymetry-constrained warm-mode melt estimates derived from analysing oceanic gateways in Antarctica

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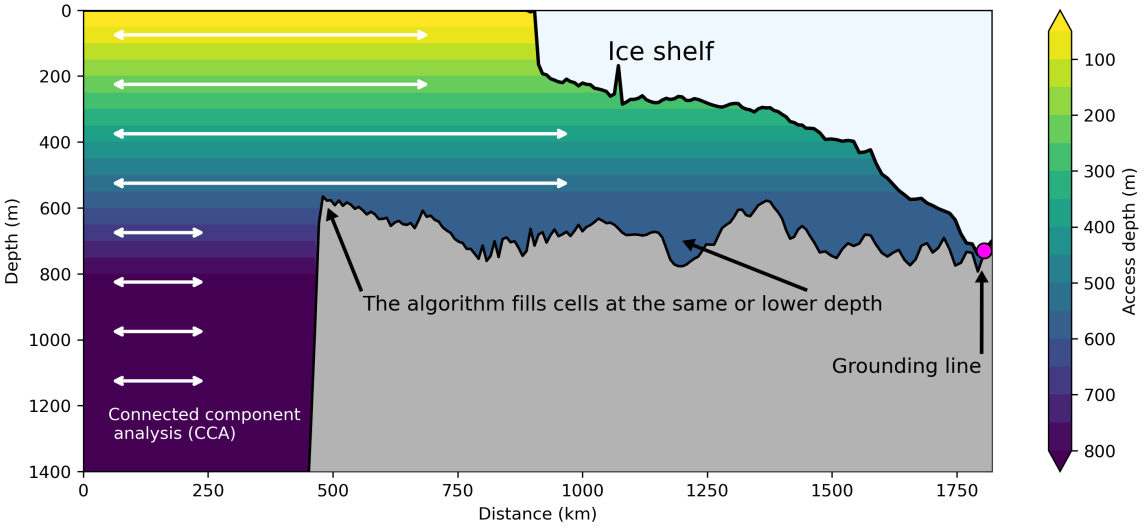

Figure S1. Illustration of connected component analysis.

References

Reese, R., Albrecht, T., Mengel, M., Asay-Davis, X., and Winkelmann, R.: Antarctic sub-shelf melt rates via PICO, The Cryosphere, 12, 1969–1985, https://doi.org/10.5194/tc-12-1969-2018, 2018.

Zwally, H. J., Giovinetto, M. B., Beckley, M. A., and Saba, J. L.: Antarctic and Greenland Drainage Systems, URL `http://imbie.org/imbie-3/drainage-basins/`, [Dataset], accessed 27 November 2018, 2012.

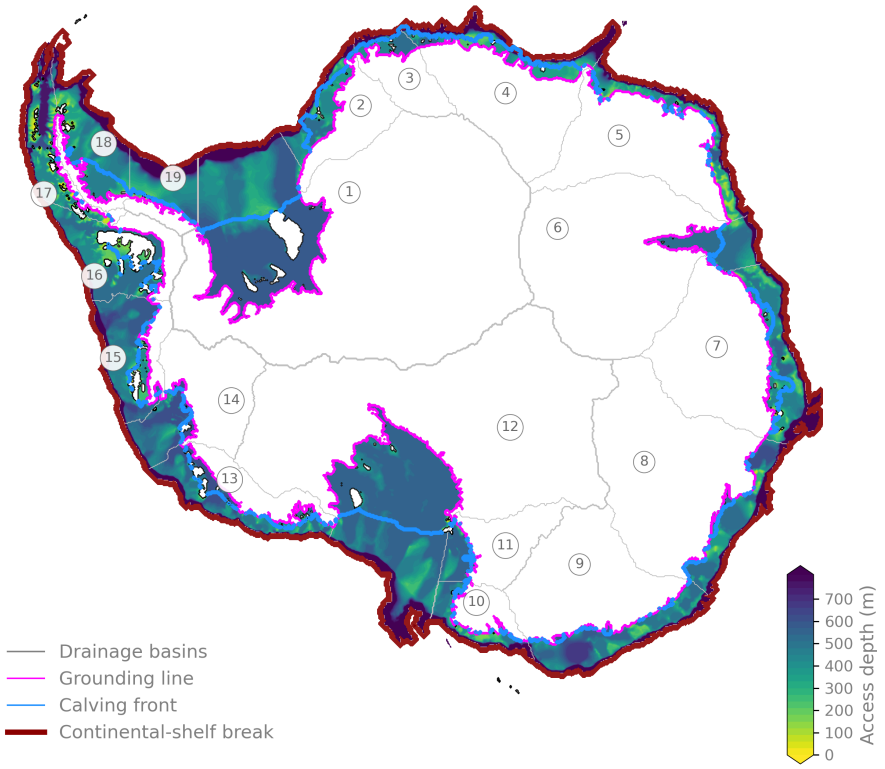

Figure S2. 2D field of access depth around Antarctica. The drainage basins (grey outlines) are based on Zwally et al. (2012), consolidated as in Reese et al. (2018) and adjusted based on the access depth analysis.

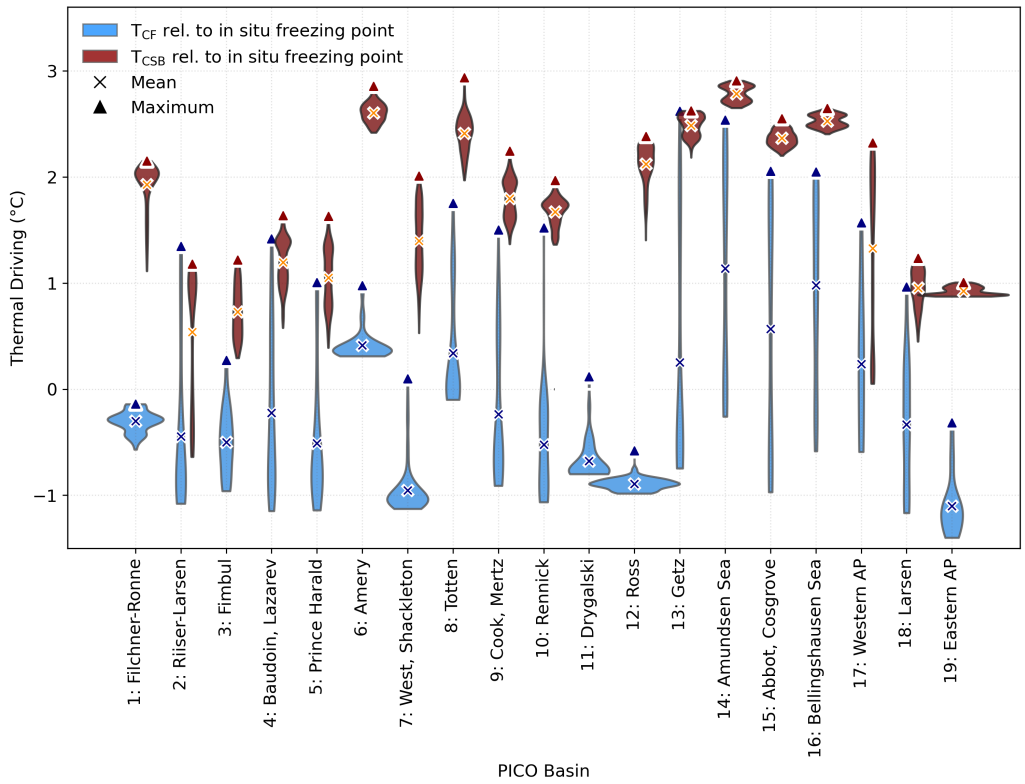

Figure S3. Thermal driving of extracted temperatures. Shown are the temperatures along the calving front (blue) and continental-shelf break (red) relative to the in-situ freezing point, i.e. the pressure-melting point (using the deepest point of the grounding line for reference).

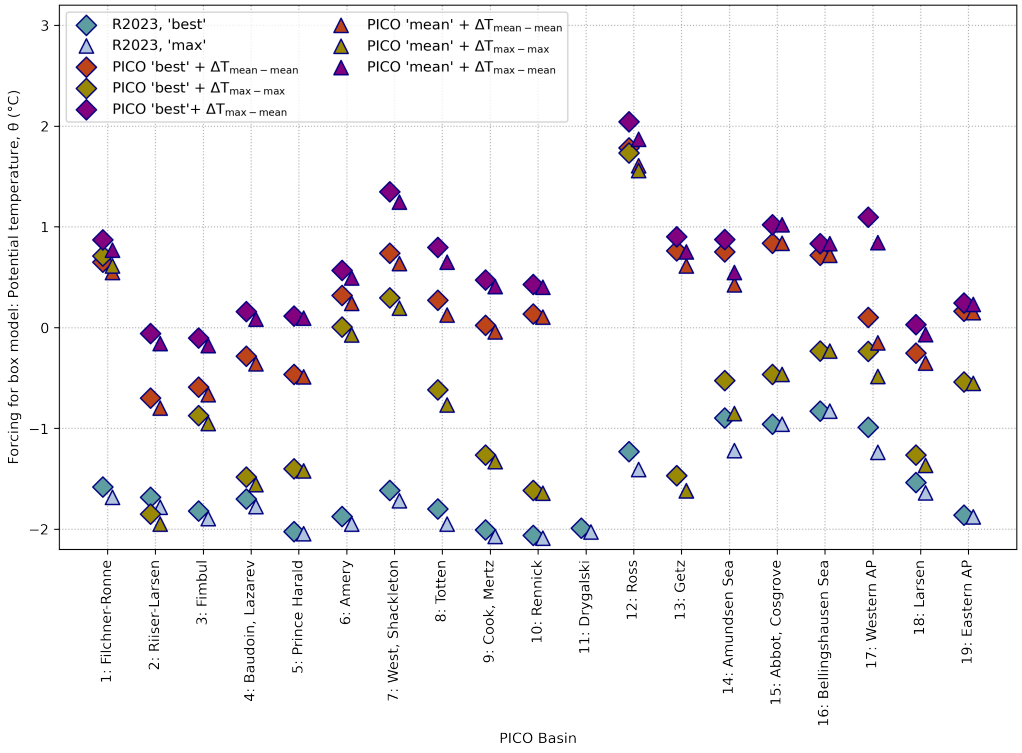

Figure S4. Overview on PICO forcing. Actual forcing input into the PICO box model.

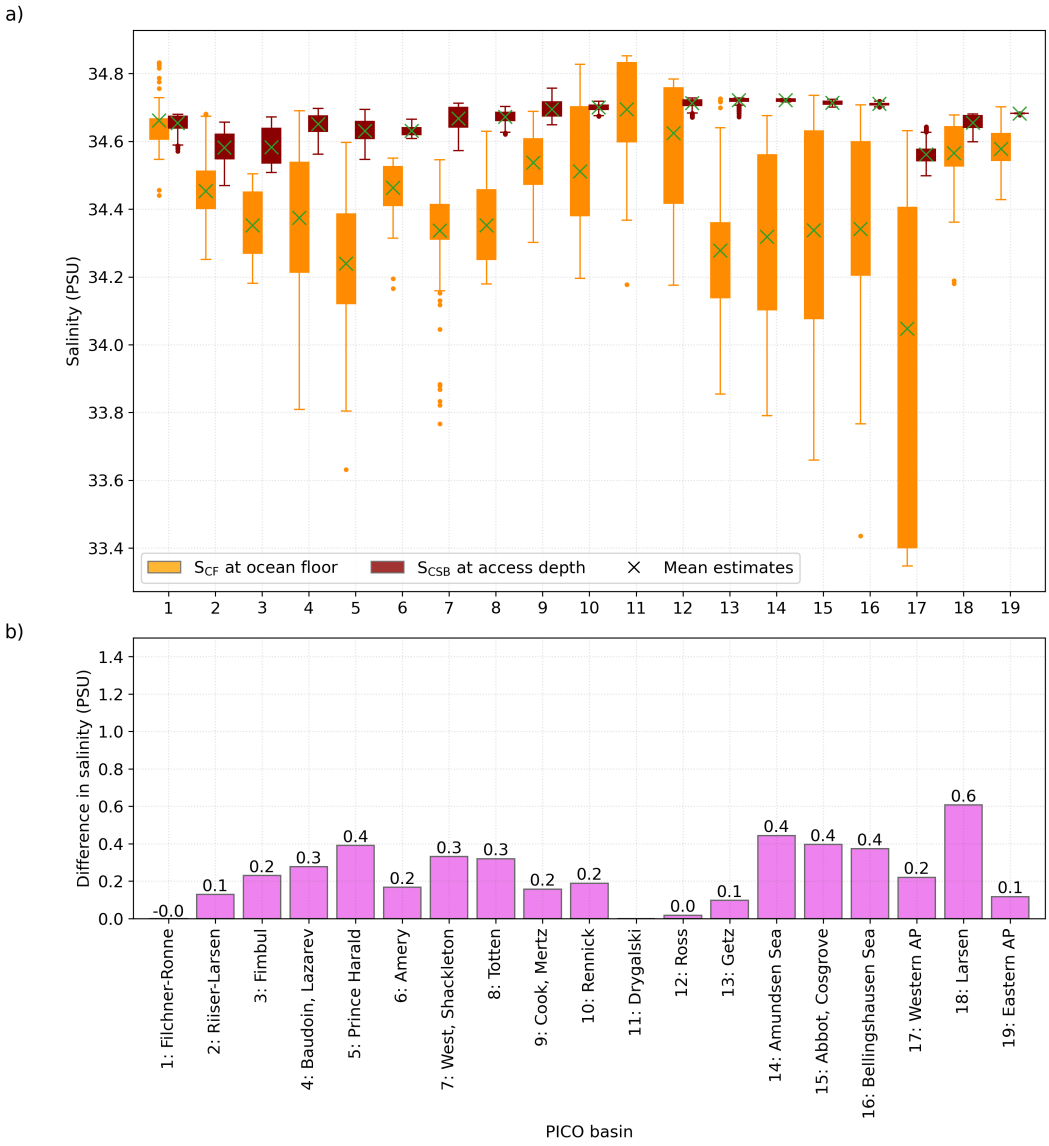

Figure S5. Extracted salinity estimates. a) Distributions of salinity values along the calving front (orange) and the continental-shelf break (darkred). The boxes span from the respective first quartile to the third quartile of the underlying distribution, while the whiskers extend from the box to the farthest data point lying within 1.5 times the inter-quartile range from the box. **b)** The difference between the two averages along these positions.

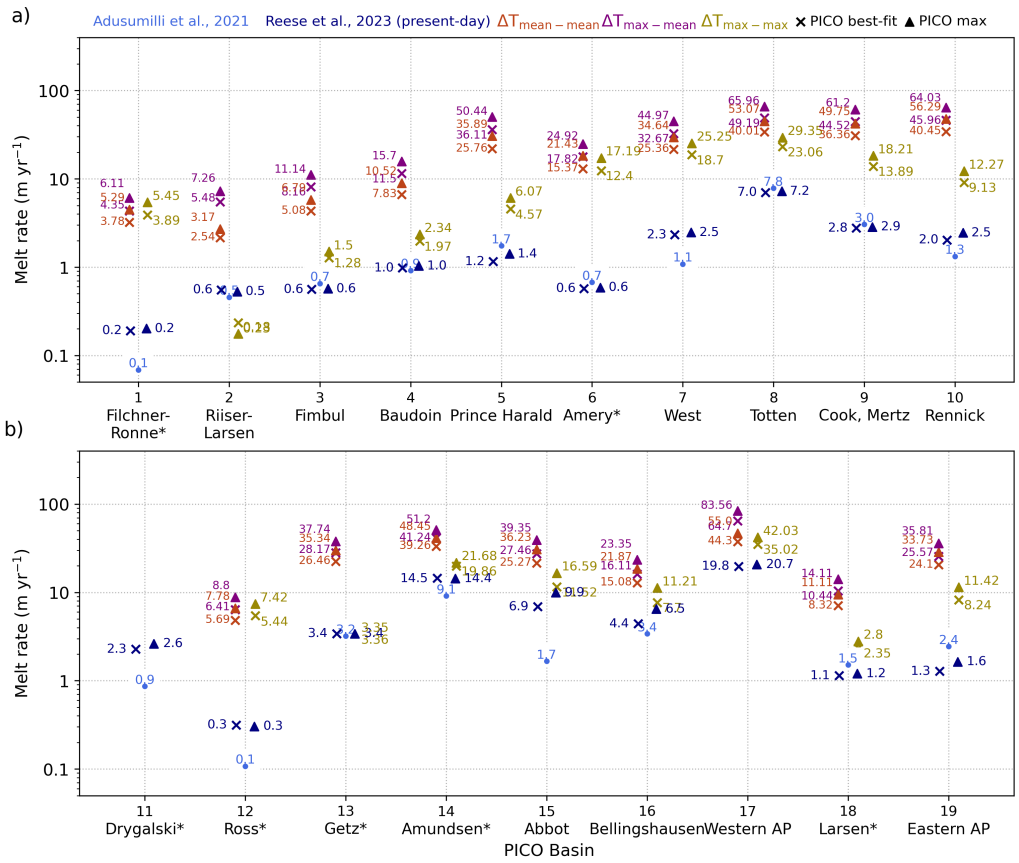

Figure S6. PICO melt rates. Same as in Fig. 5 but given in m yr^{-1}, not Gt yr^{-1}.

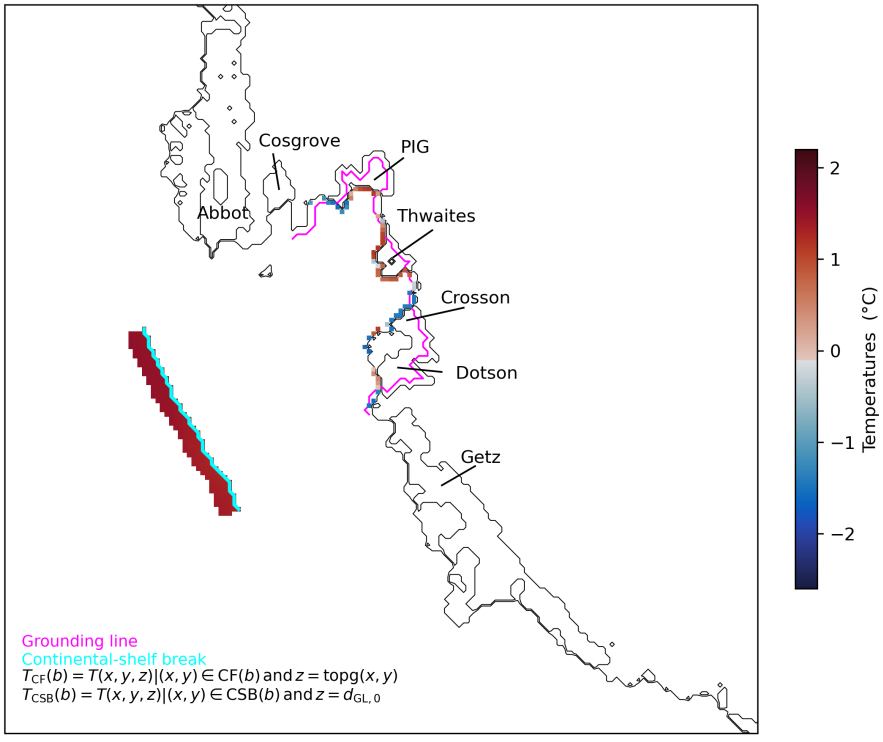

Figure S7. Spatial map of extracted CF and CSB temperatures in the Amundsen Sea region.