

Supplement of Weather Clim. Dynam., 7, 1189–1210, 2026
<https://doi.org/10.5194/wcd-7-1189-2026-supplement>
© Author(s) 2026. CC BY 4.0 License.



Supplement of

Curved atmospheric rivers and their moisture remnants: a new detection tool for Antarctica

Victoire Buffet et al.

Correspondence to: Victoire Buffet (victoire.buffet@univ-grenoble-alpes.fr)

The copyright of individual parts of the supplement might differ from the article licence.

Supplement

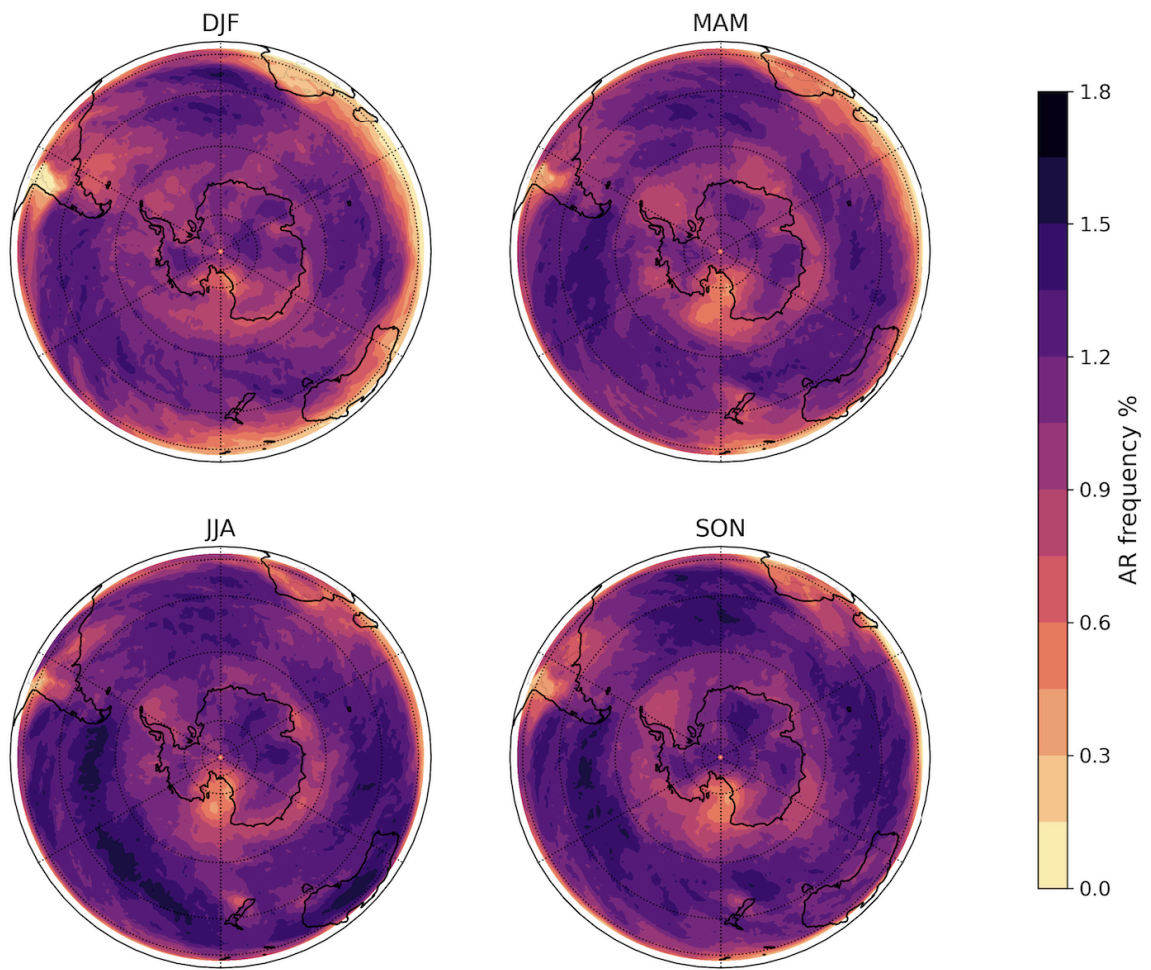


Fig. S1. Seasonal frequency of DARK ARs for all four austral seasons (DJF, MAM, JJA, SON).

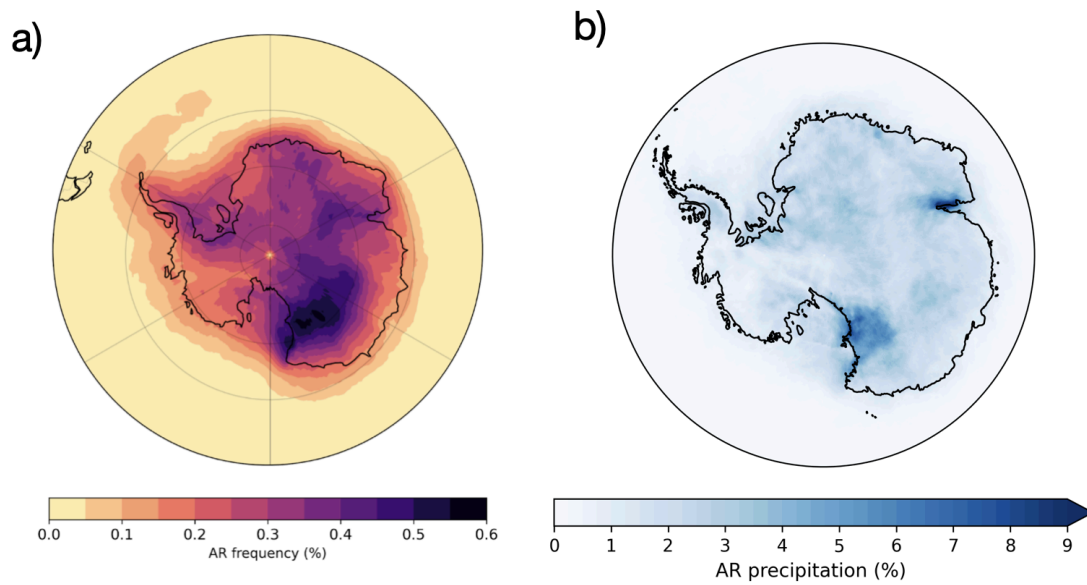


Fig. S2. (a) Frequency of DARK AR-children (similar to **Fig. 3**). (b) Share of total precipitation attributed to DARK AR-children (similar to **Fig. 5**).

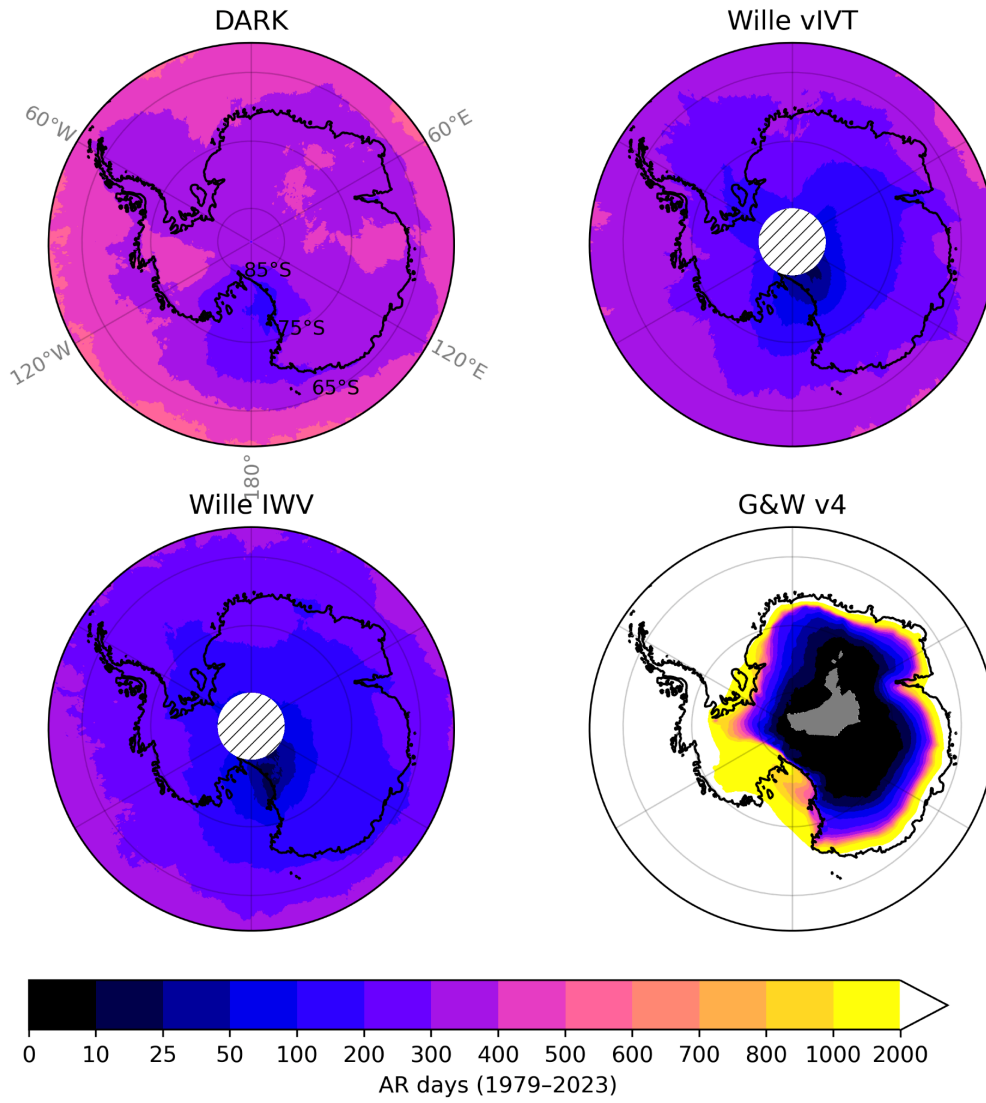


Fig. S3. Number of AR days across the 1979–2023 period for all ARDTs.

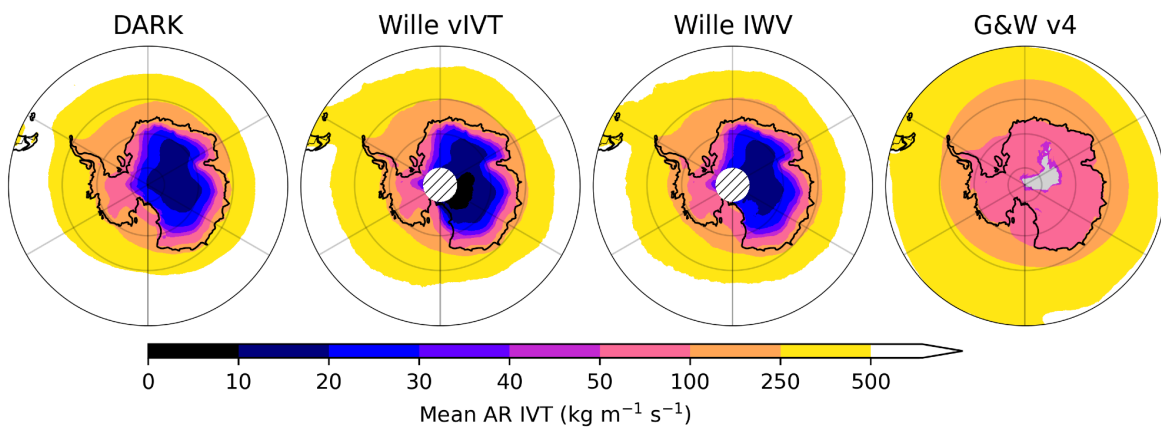


Fig. S4. Mean AR IVT for all ARDTs.

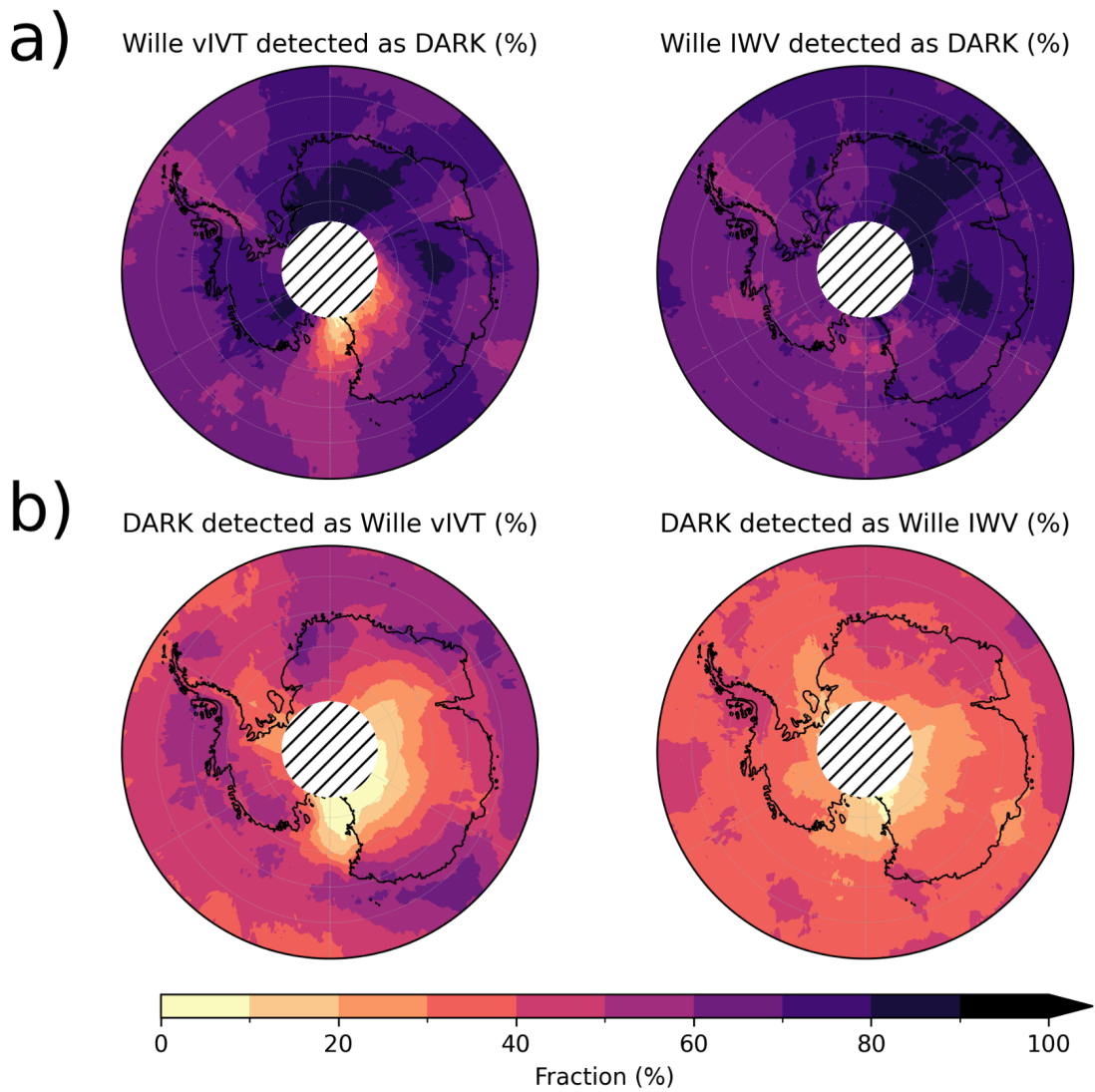


Fig. S5. Co-detection fractions between the DARK and Wille vIVT (left) and Wille IWV (right) catalogues. Panels show, for each grid point, the percentage of detections in one catalogue that have a corresponding detection in the other within a $\pm 2^\circ$ latitude \times $\pm 5^\circ$ longitude neighbourhood. (a) Wille detections identified as DARK. (b) DARK detections identified as Wille. The area poleward of 83° S is masked (hatched) to avoid edge effects introduced by the $\pm 2^\circ$ latitude neighbourhood near the pole.

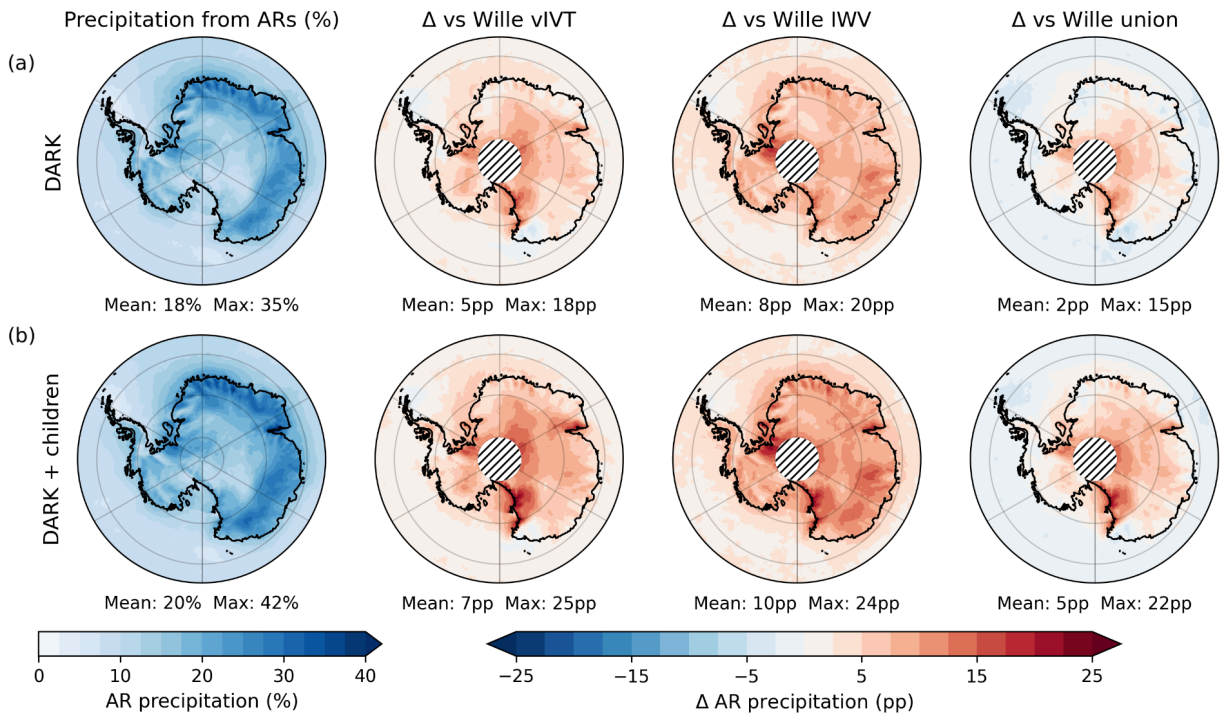


Fig. S6. Same as Fig. 5, but including the difference in AR-attributed precipitation relative to the combined Wille vIVT + IWV (“Wille union”) scheme. Antarctic land-only mean and maximum values are reported below each panel. Hatched white areas south of 85° S mark regions excluded from the Wille schemes.

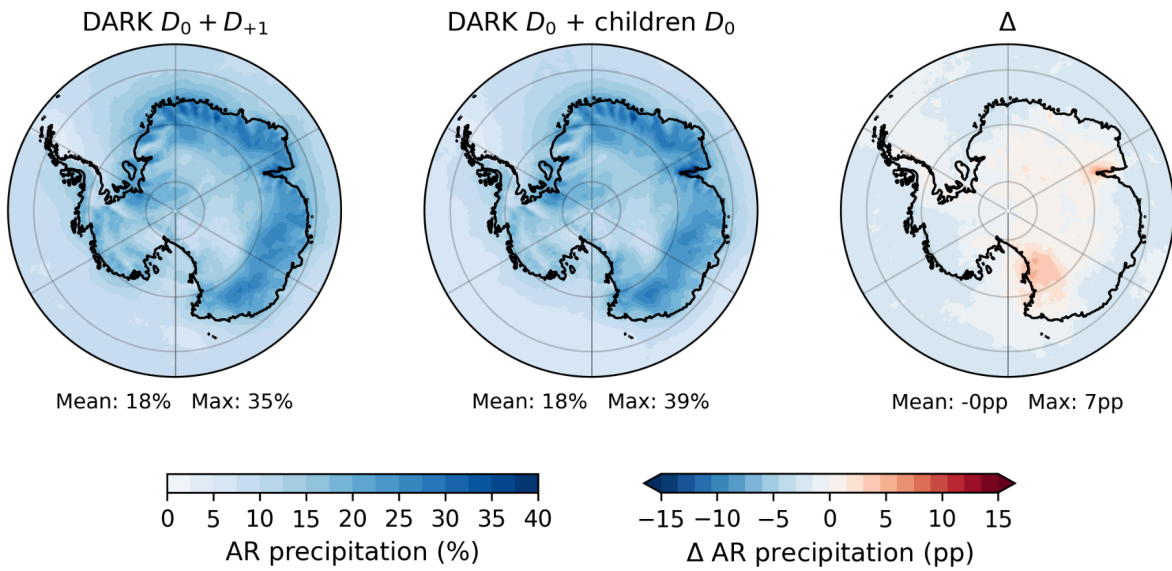


Fig. S7. Share of total precipitation attributed to (left) DARK ARs, including precipitation occurring on the day of landfall (D_0) and the following day (D_{+1}); (middle) DARK ARs and their children considering only the day of landfall (D_0); and (right) their difference (middle – left).

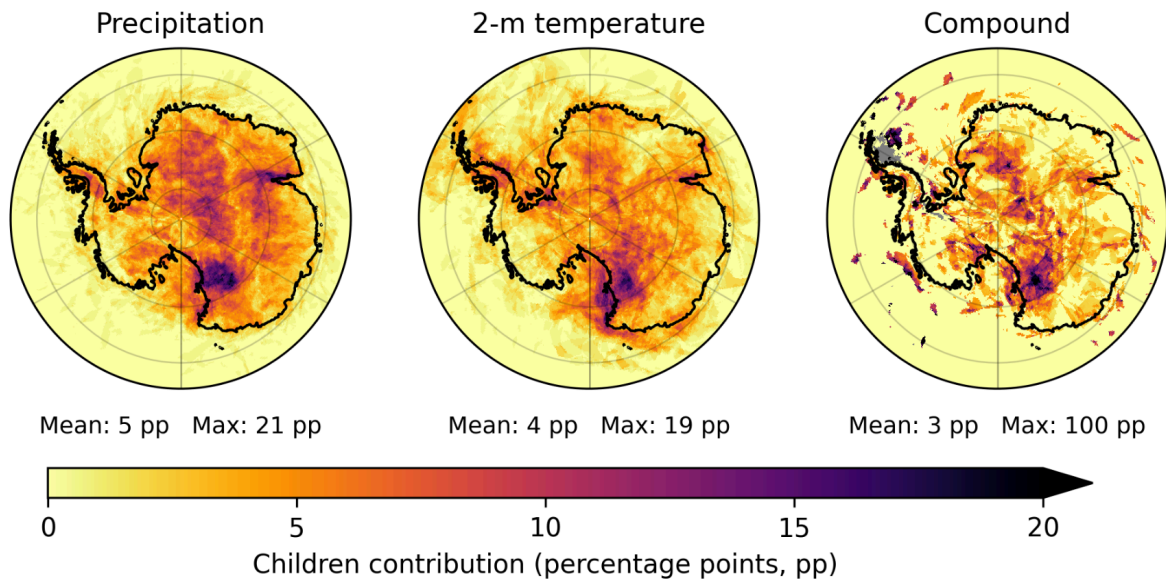


Fig. S8. Contribution of AR children to the fraction of 99th-percentile anomaly days associated with DARK ARs and their children (displayed in Fig. 7b, d and Fig. 8d).

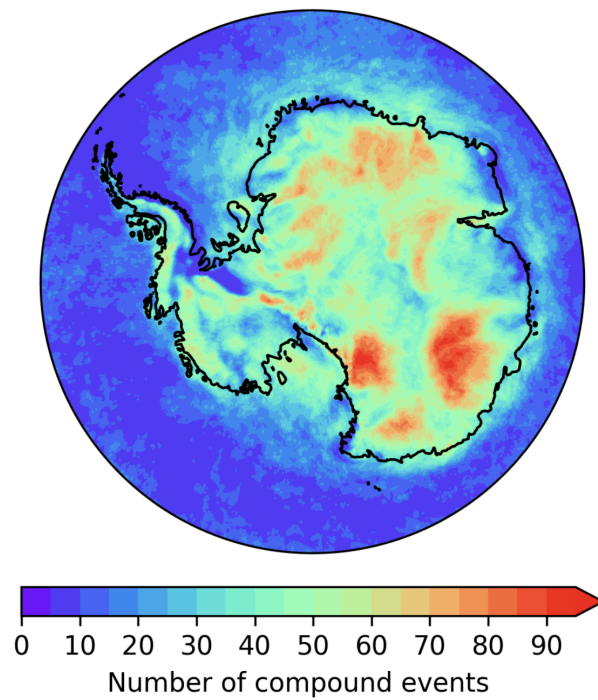


Fig. S9. Number of compound precipitation–temperature extreme events (Sect. 2.4) across Antarctica.