



Supplement of

Emulating the expansion of Antarctic perennial firn aquifers in the 21st century

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Supplementary materials

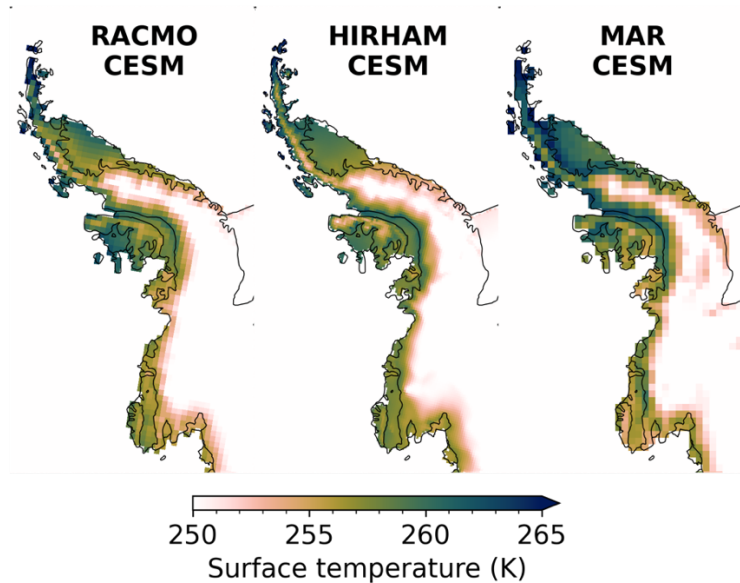


Figure S1. Annual average surface temperature over the historical period (1980-2014) for RACMO-CESM, HIRHAM-CESM and MAR-CESM over the Antarctic Peninsula and Ellsworth Land.

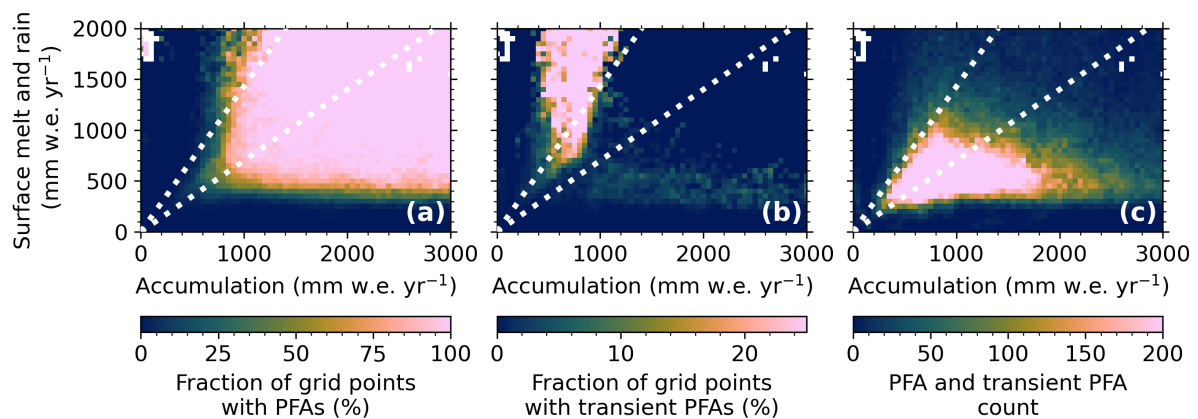


Figure S2. Percentage of (a) perennial firn aquifer (PFA) occurrence and (b) transient PFA occurrence, and (c) total amount of PFA and transient PFA occurrence from all HIRHAM simulations, as a function of annual surface melt and rainfall (y-axis) and snow accumulation (x-axis). The grid cells are grouped in melt and accumulation bins of 50 mm mm w.e. yr⁻¹. The dotted lines indicate the 0.7 and 1.7 melt-over-accumulation (MoA) thresholds.

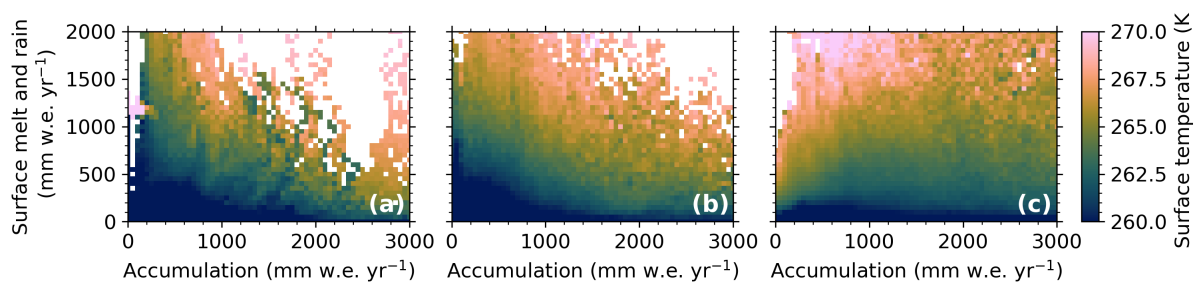


Figure S3. Annual average surface temperature as a function of annual surface melt and rainfall (y-axis) and snow accumulation (x-axis) for all (a) RACMO, (b) MAR and (c) HIRHAM simulations.

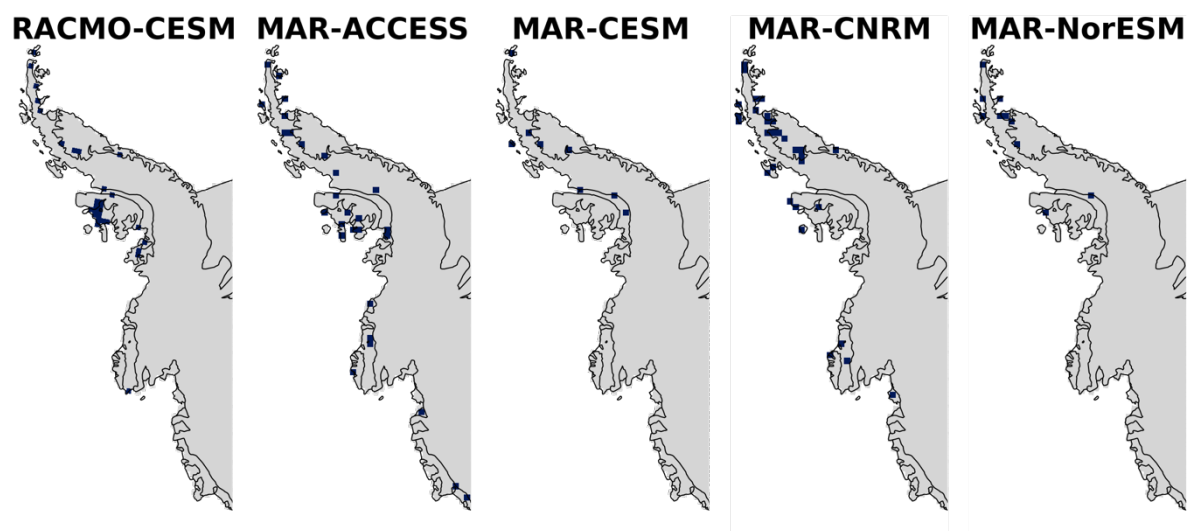


Figure S4. Locations with transient PFAs under SSP5-8.5 for RACMO and MAR are found in the Antarctic Peninsula, Ellsworth Land and Marie Byrd Land only and are indicates in blue.