

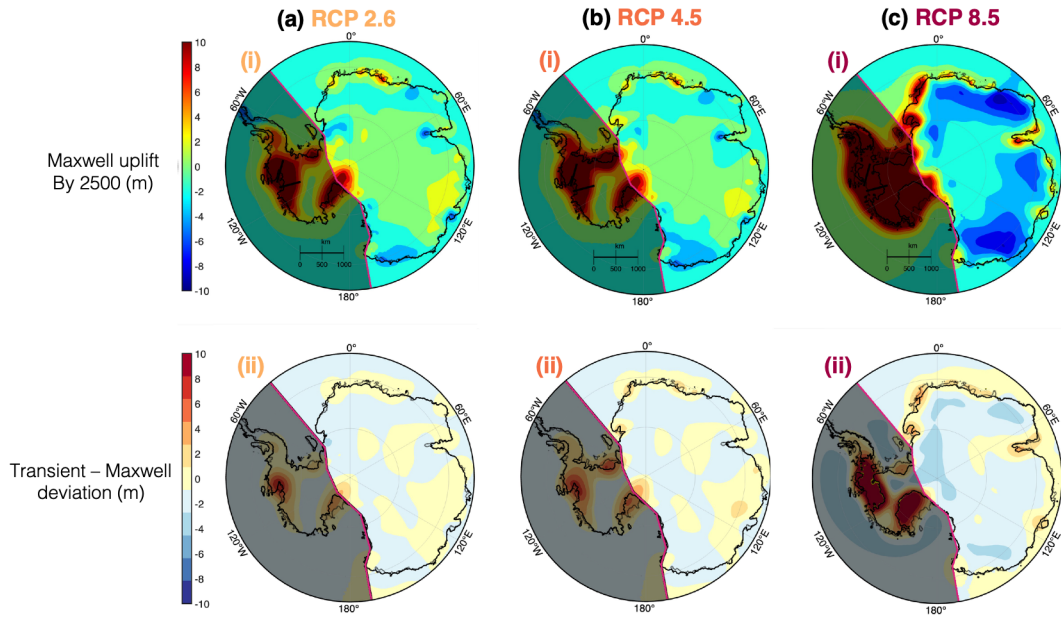


Figure S12. Bed uplift by 2500 in East Antarctica (a.i),(b.i),(c.i) Bedrock elevation change from 1950 to 2500 in the Maxwell simulations within East Antarctica for RCP 2.6 (a), RCP 4.5 (b), and RCP 8.5, without including MICI. **(a.ii),(b.ii),(c.ii)** Transient minus Maxwell bedrock elevation deviation at year 2500 for RCP 2.6 (a), RCP 4.5 (b), and RCP 8.5, without including MICI.

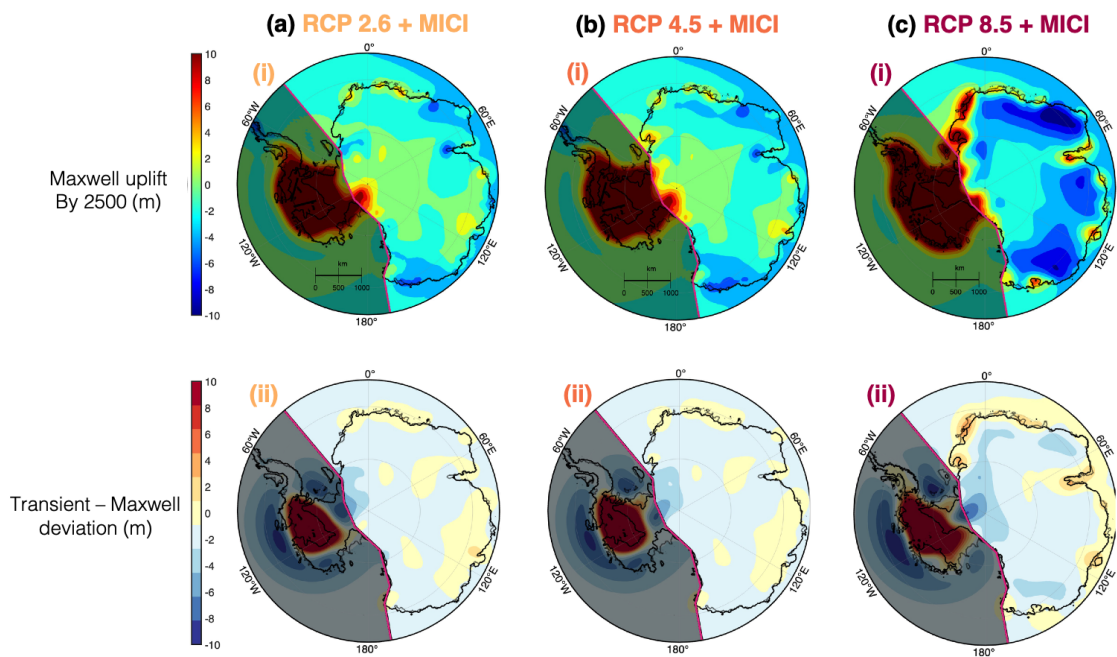


Figure S13. Bed uplift by 2500 in East Antarctica (a.i),(b.i),(c.i) Bedrock elevation change from 1950 to 2500 in the Maxwell simulations within East Antarctica for RCP 2.6 (a), RCP 4.5 (b), and RCP 8.5, including MICI. **(a.ii),(b.ii),(c.ii)** Transient minus Maxwell bedrock elevation deviation at year 2500 for RCP 2.6 (a), RCP 4.5 (b), and RCP 8.5, including MICI.

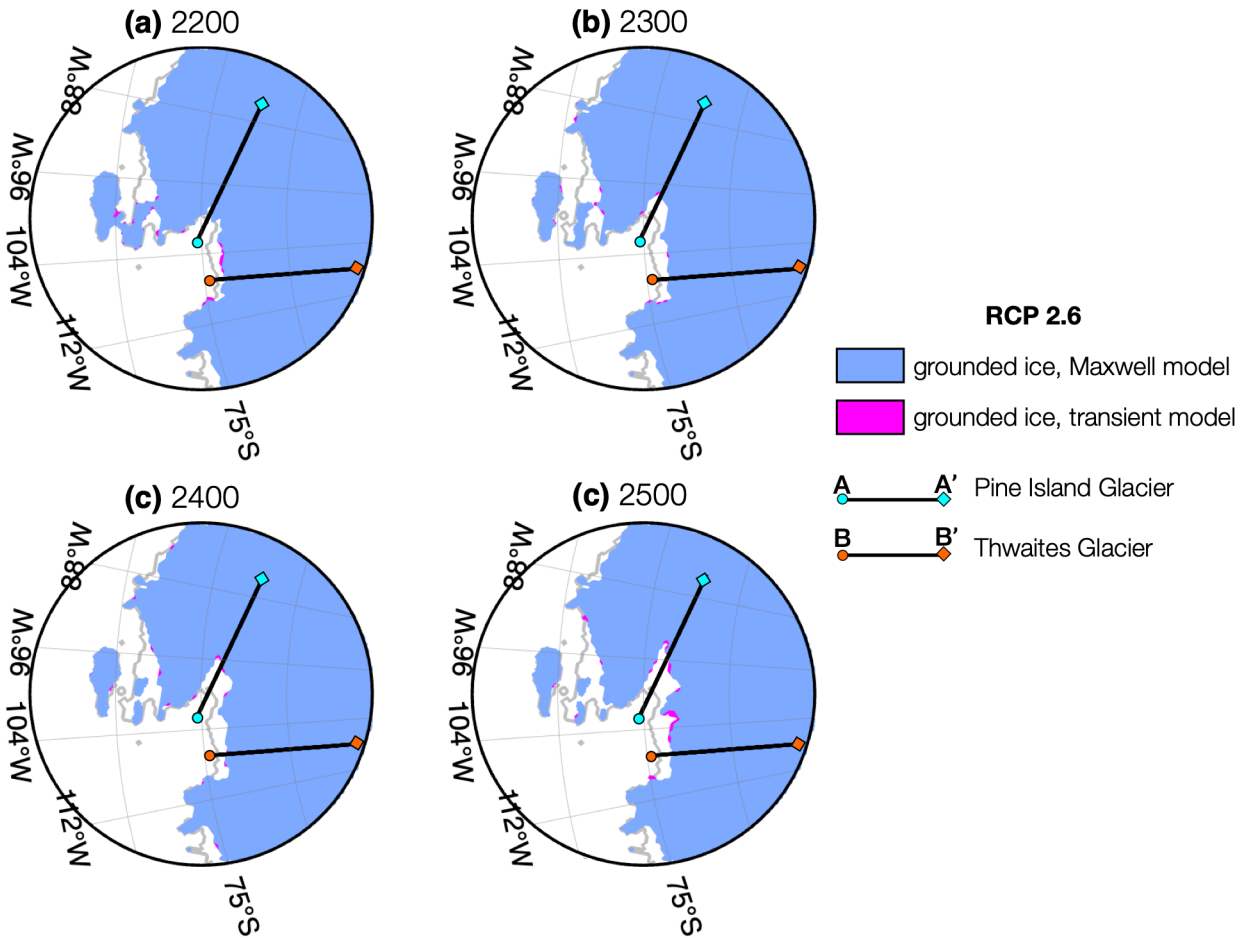


Figure S17. 2D Grounding line extent, RCP 2.6 Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 2.6 without MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.

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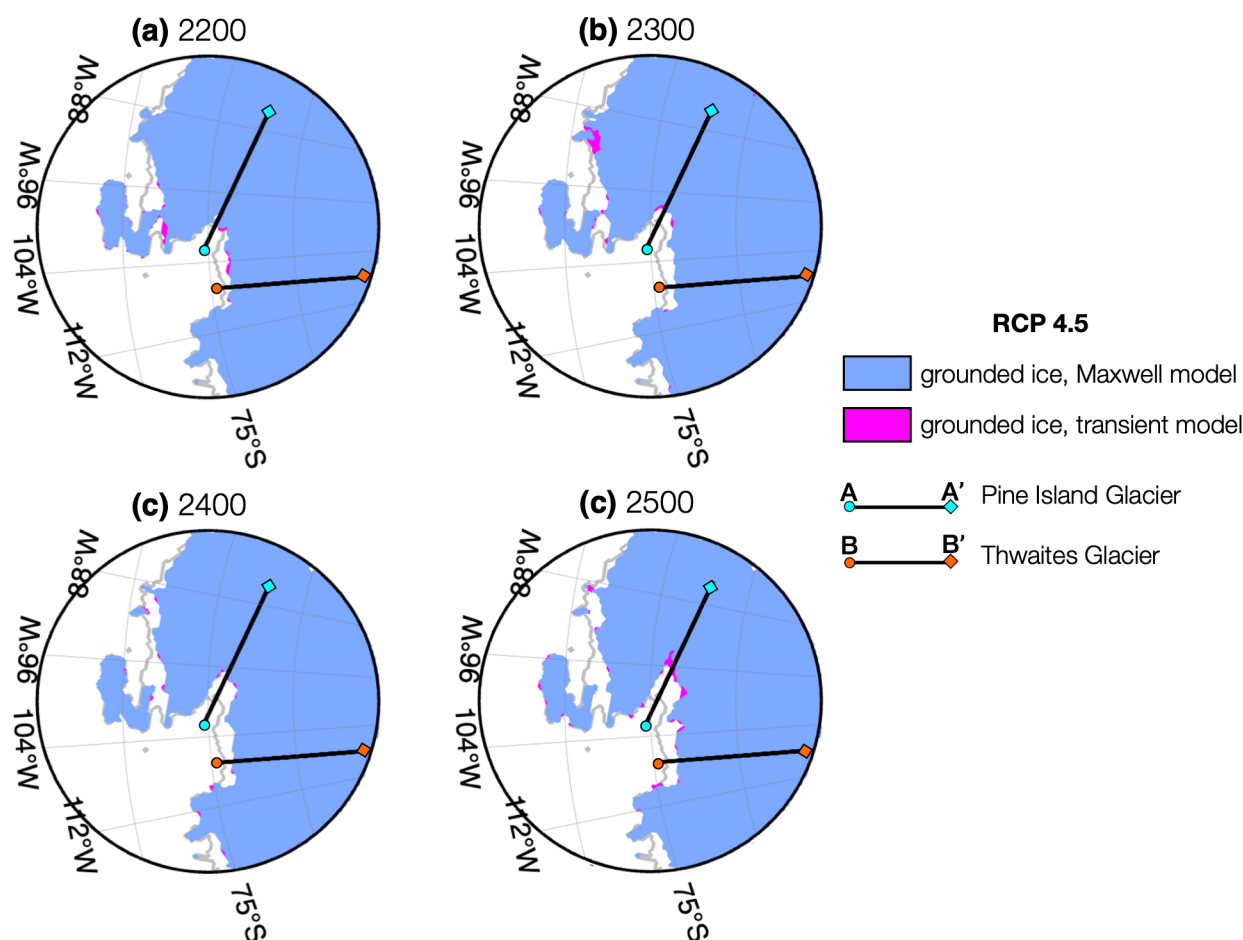


Figure S18. 2D Grounding line extent, RCP 4.5 Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 4.5 without MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.

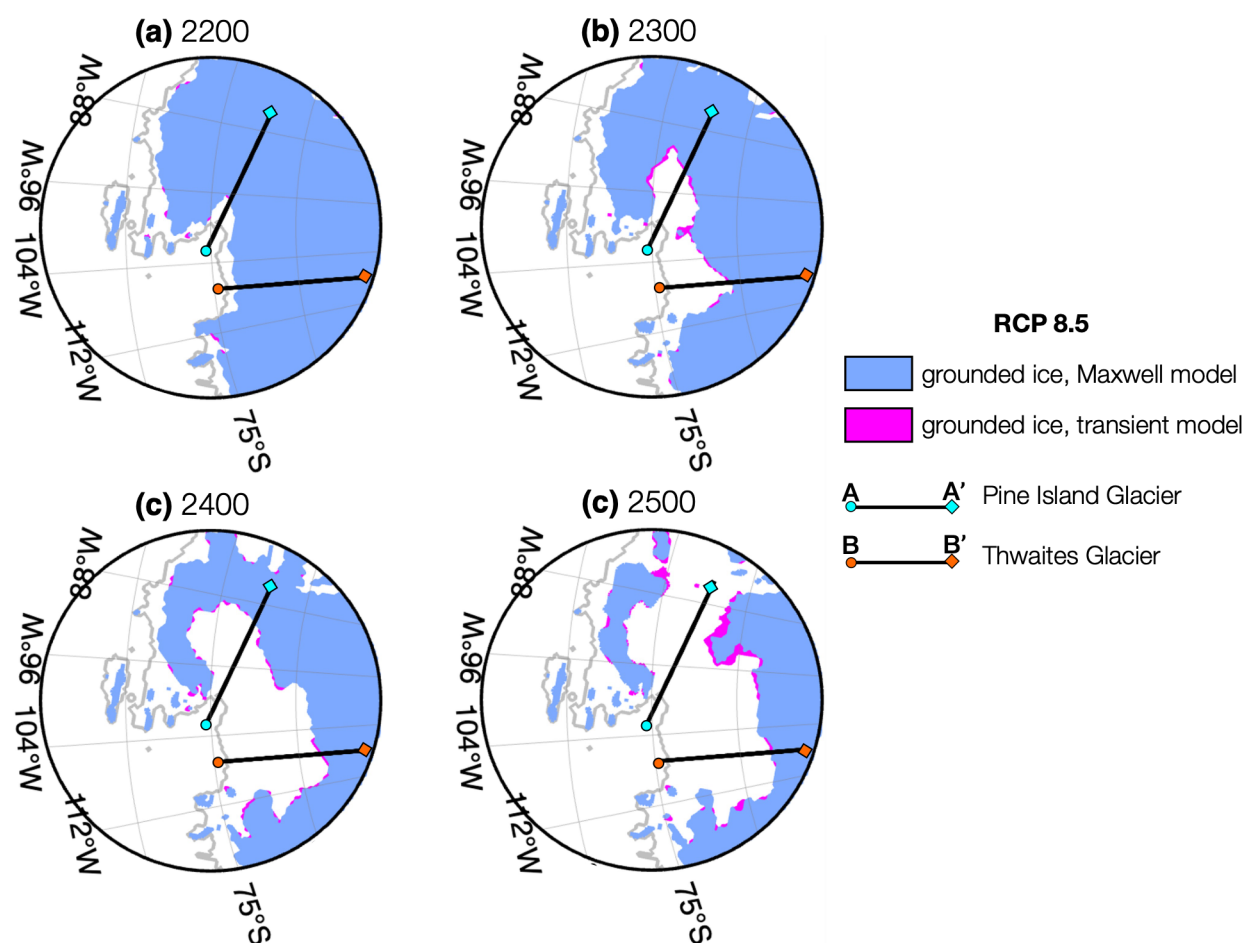


Figure S19. 2D Grounding line extent, RCP 8.5 Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 8.5 without MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.

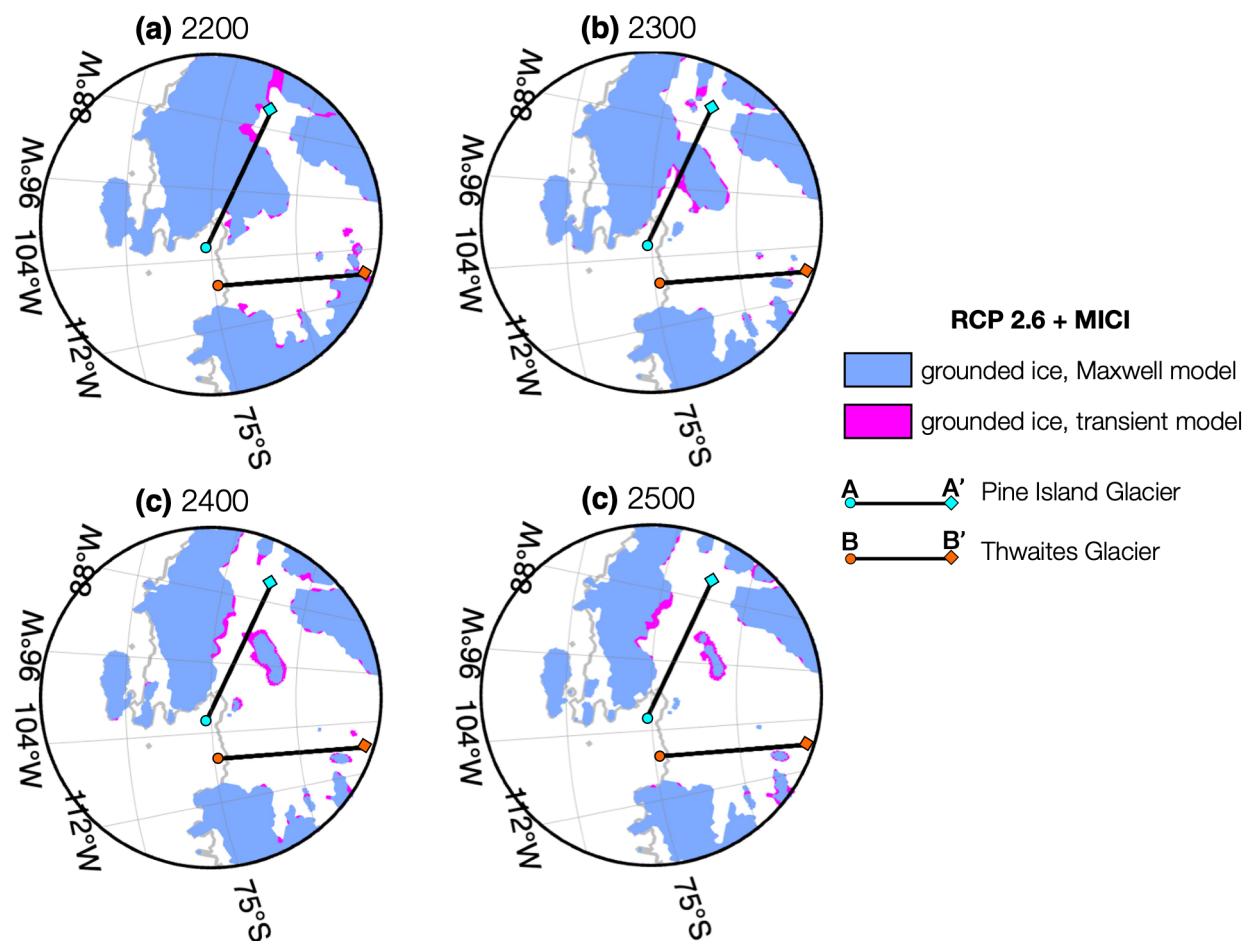


Figure S20. 2D Grounding line extent, RCP 2.6 with MICI Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 2.6, including MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.

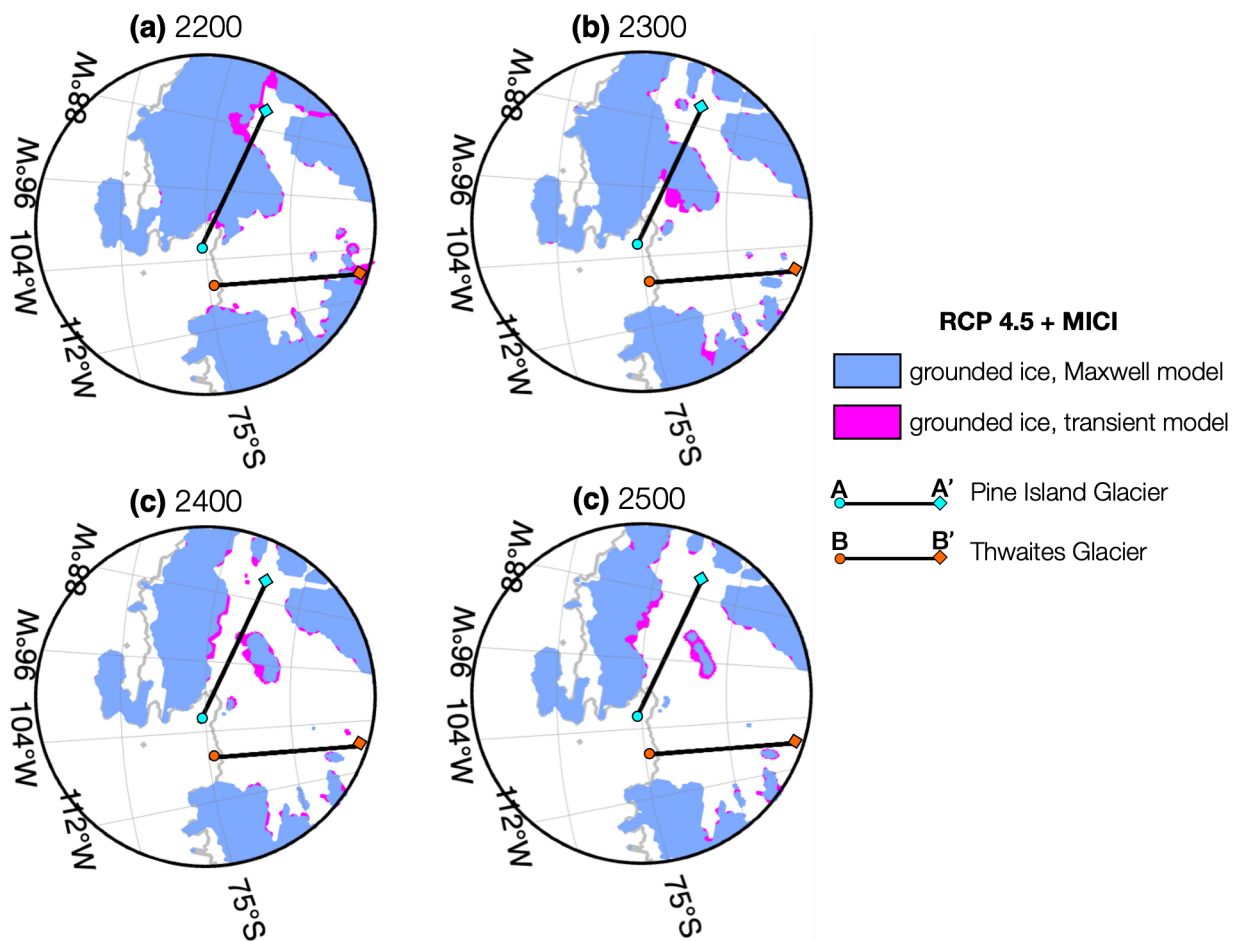


Figure S21. 2D Grounding line extent, RCP 4.5 with MICI Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 4.5, including MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.

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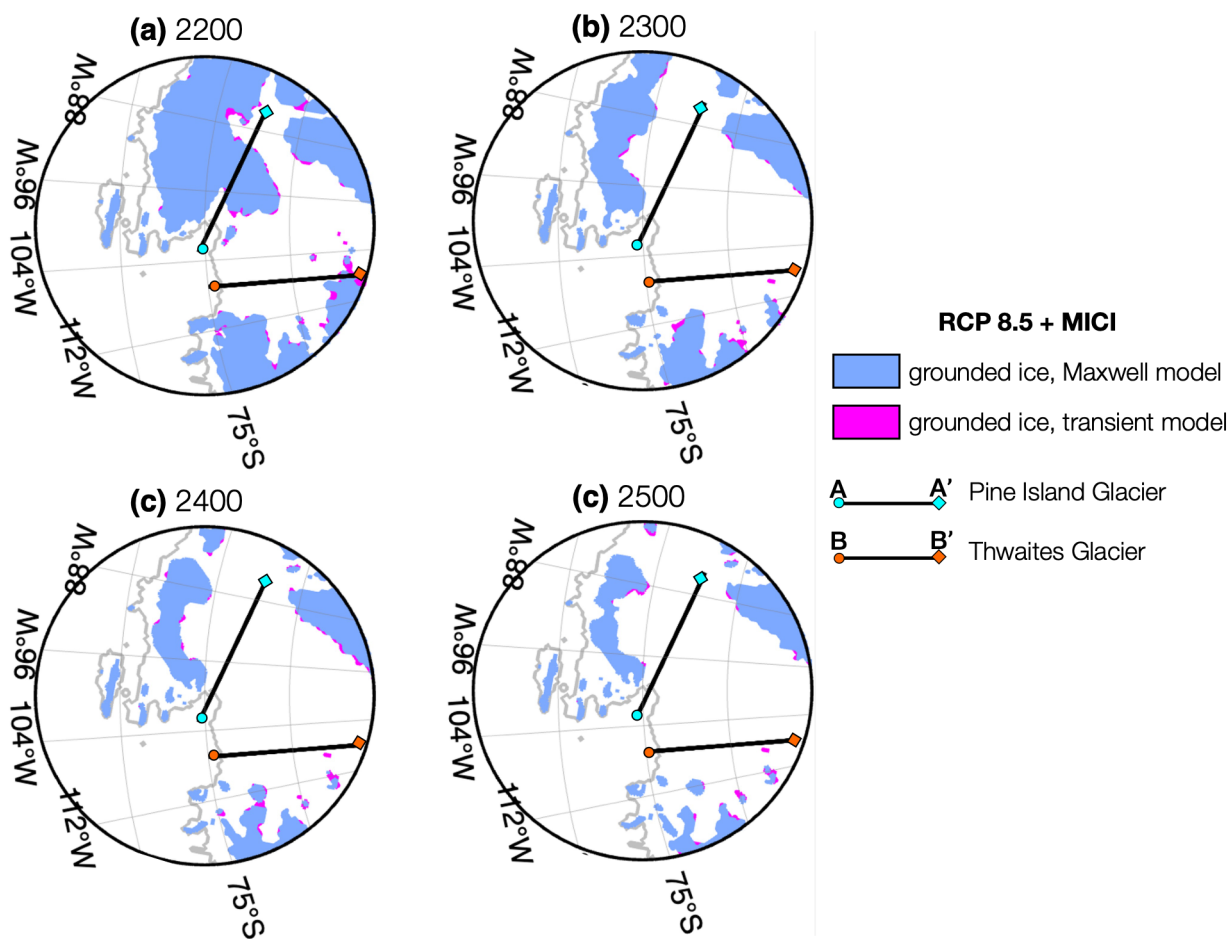


Figure S22. 2D Grounding line extent, RCP 8.5 with MICI Filled contours of grounded ice extent in Maxwell (blue) and transient (magenta) models in the Amundsen Sea Embayment at **(a)** year 2200, **(b)** year 2300, **(c)** year 2400, and **(d)** year 2500, under RCP 8.5, including MICI. The Maxwell model contours are plotted on top of the transient model contours, meaning that anywhere there is magenta fill visible, the transient grounding line extends further than that of the Maxwell model. Initial grounded ice extent outlined in light gray.