



Supplement of

Comparing calving laws at Greenland's three largest ice shelves

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Sect. S1

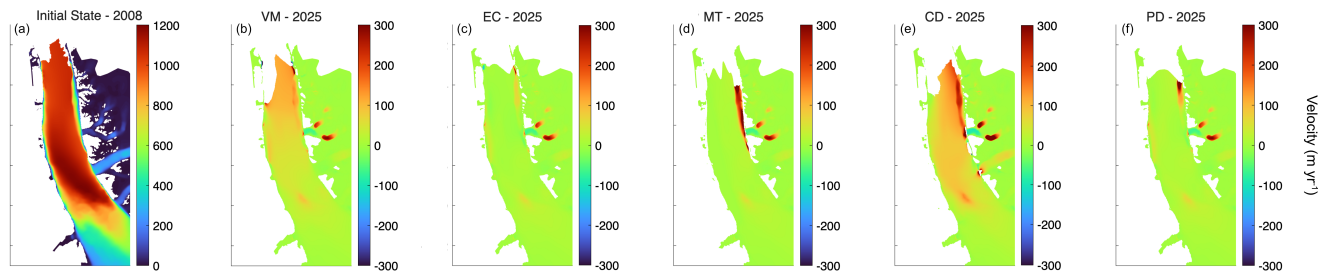


Figure S1. Comparison of ice velocities between the different calving laws at Petermann Glacier. (a) Initial velocities after model relaxation. Change in ice velocities during the calibration simulation for (b) VM, (c) EC, (d) MT, (e) CD and (f) PD.

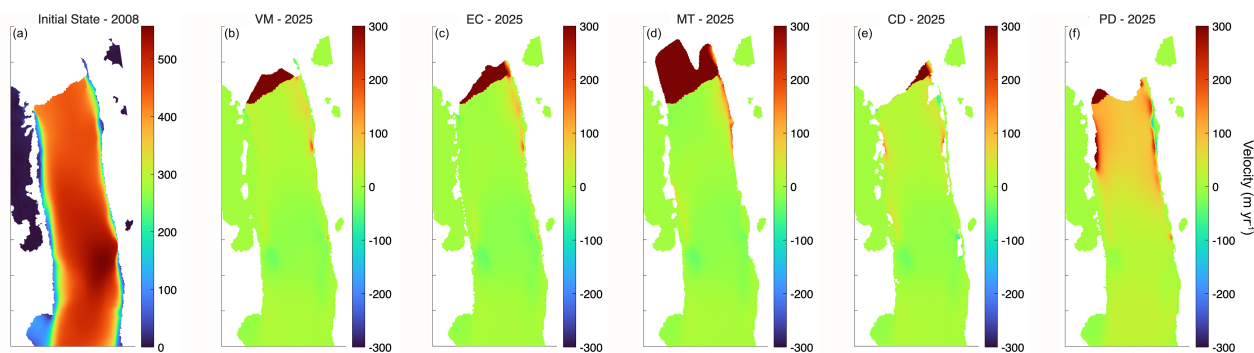


Figure S2. Comparison of ice velocities between the different calving laws at Ryder Glacier. (a) Initial velocities after model relaxation. Change in ice velocities during the calibration simulation for (b) VM, (c) EC, (d) MT, (e) CD and (f) PD.

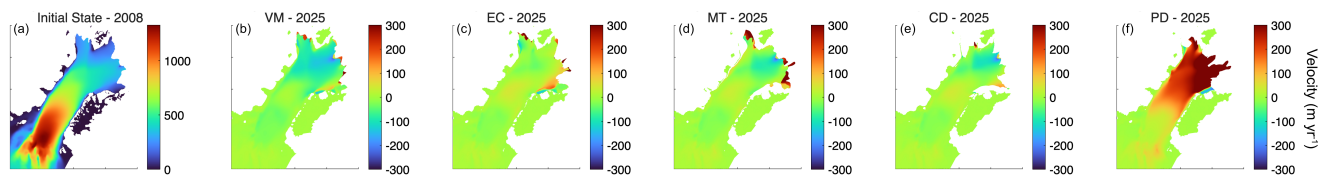


Figure S3. Comparison of ice velocities between the different calving laws at 79N. (a) Initial velocities after model relaxation. Change in ice velocities during the calibration simulation for (b) VM, (c) EC, (d) MT, (e) CD and (f) PD.

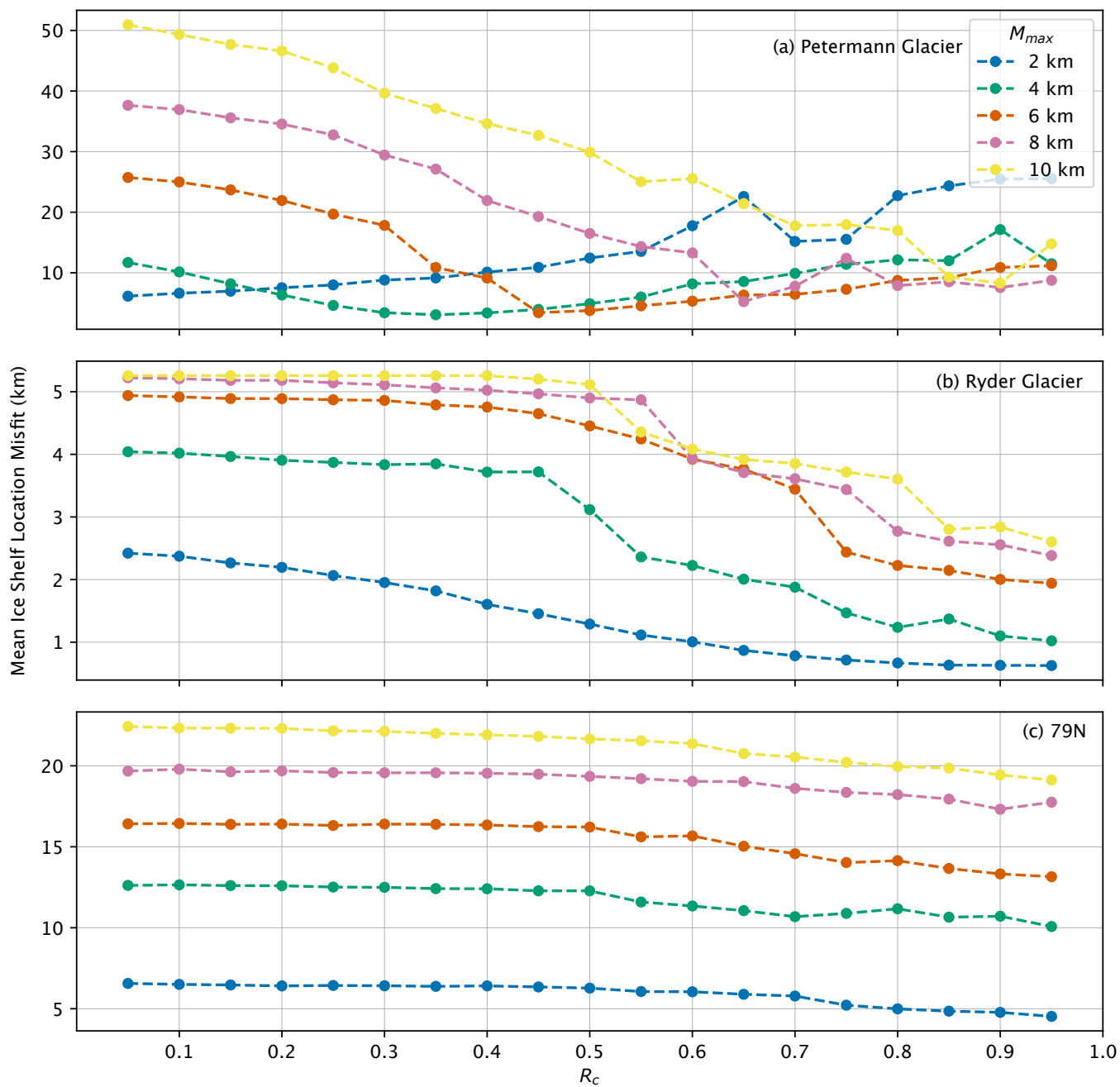


Figure S4. Ice shelf location misfits for all values of \dot{M}_{max} and R_c tested for the PD at (a) Petermann, (b) Ryder and (c) 79N.

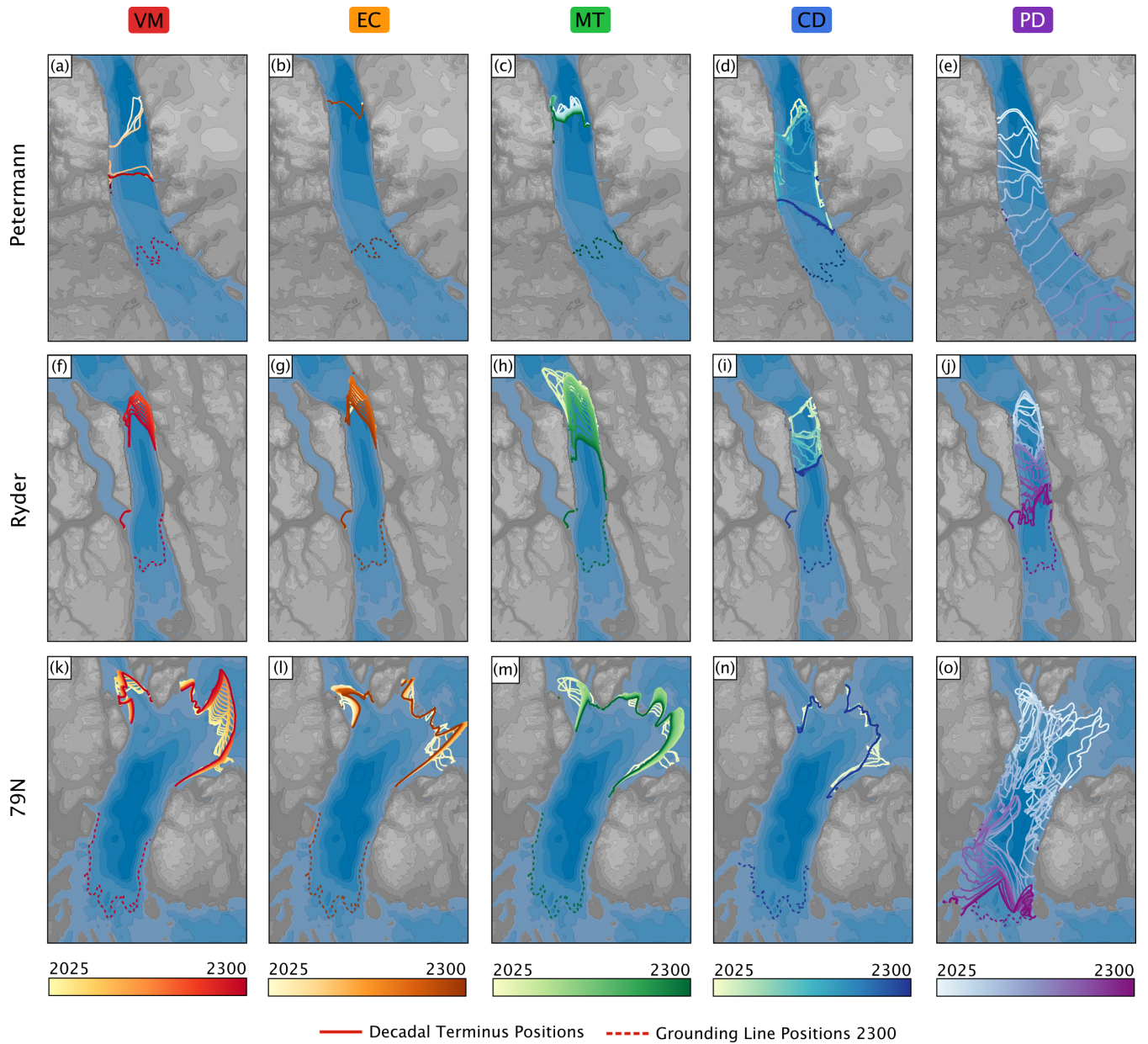


Figure S5. Evolution of the three remaining Greenlandic floating ice shelves from 2025 to 2300 under the *control* scenario using the five different calving laws. Terminus positions at the end of every 10 years, and including 2300, are shown with solid lines while the grounding line position in 2300 is shown with a dashed line.

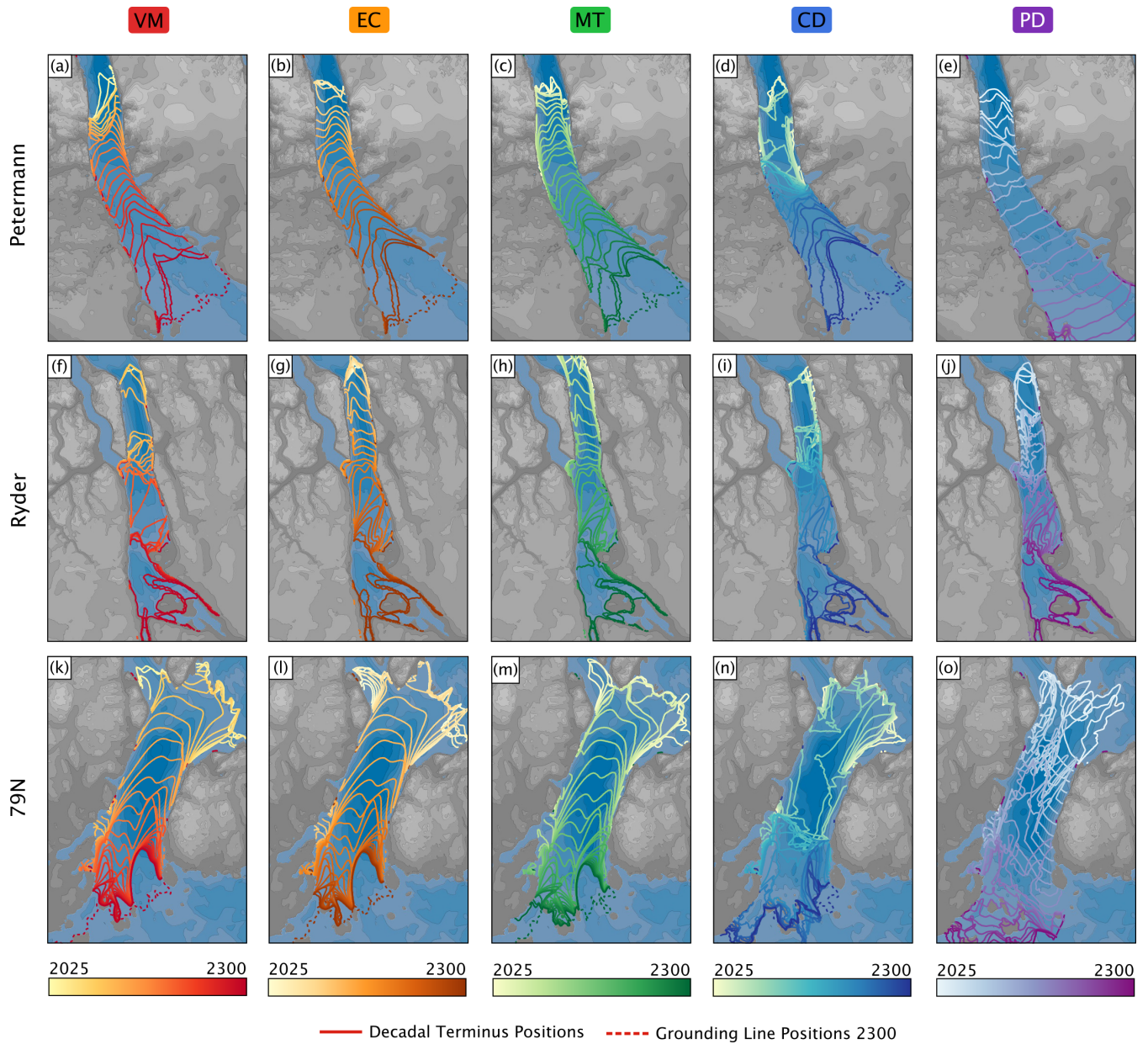


Figure S6. Evolution of the three remaining Greenlandic floating ice shelves from 2025 to 2300 under the *smb8.5* scenario using the five different calving laws. Terminus positions at the end of every 10 years, and including 2300, are shown with solid lines while the grounding line position in 2300 is shown with a dashed line.

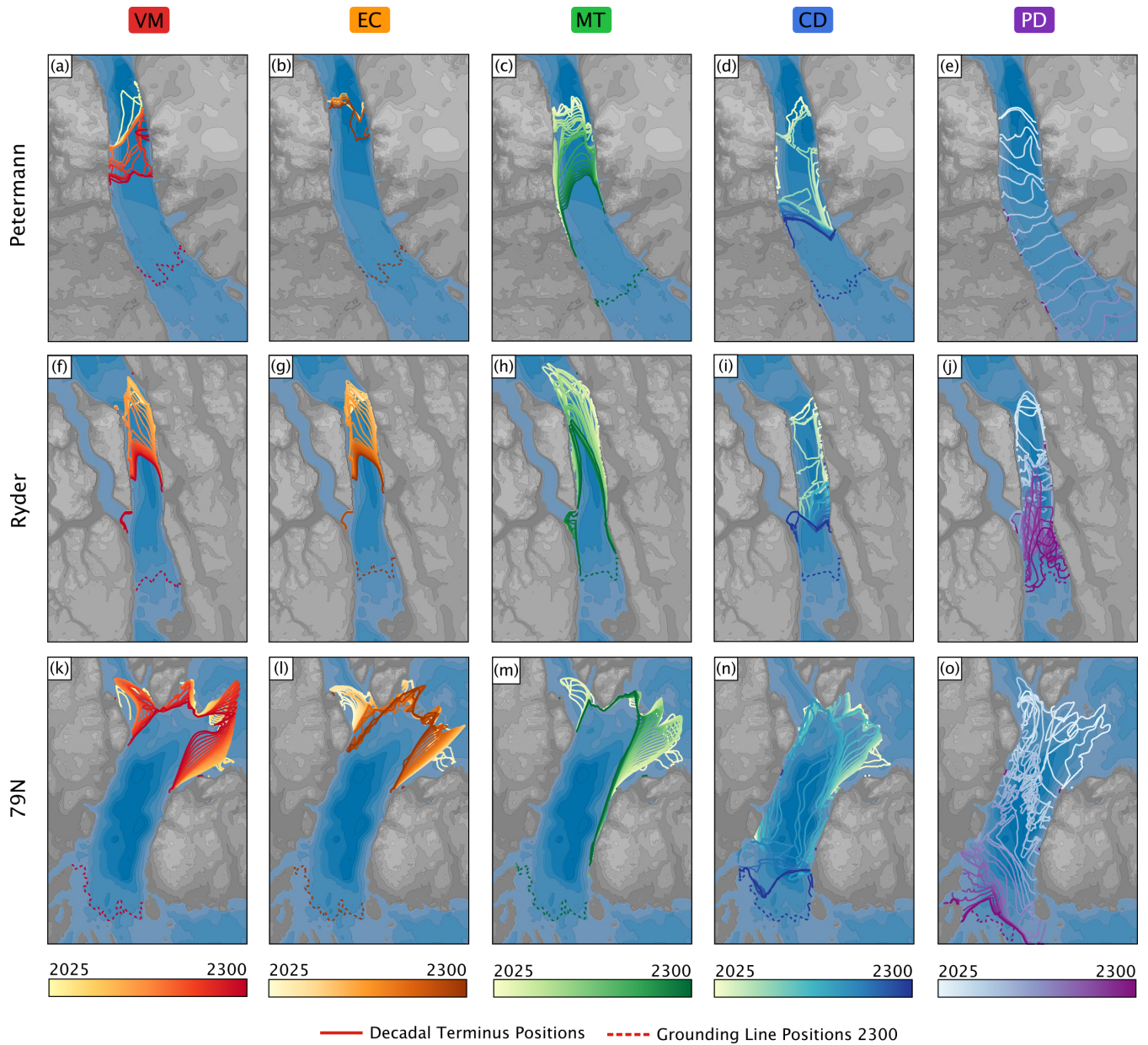


Figure S7. Evolution of the three remaining Greenlandic floating ice shelves from 2025 to 2300 under the *oceanGL* scenario using the five different calving laws. Terminus positions at the end of every 10 years, and including 2300, are shown with solid lines while the grounding line position in 2300 is shown with a dashed line.

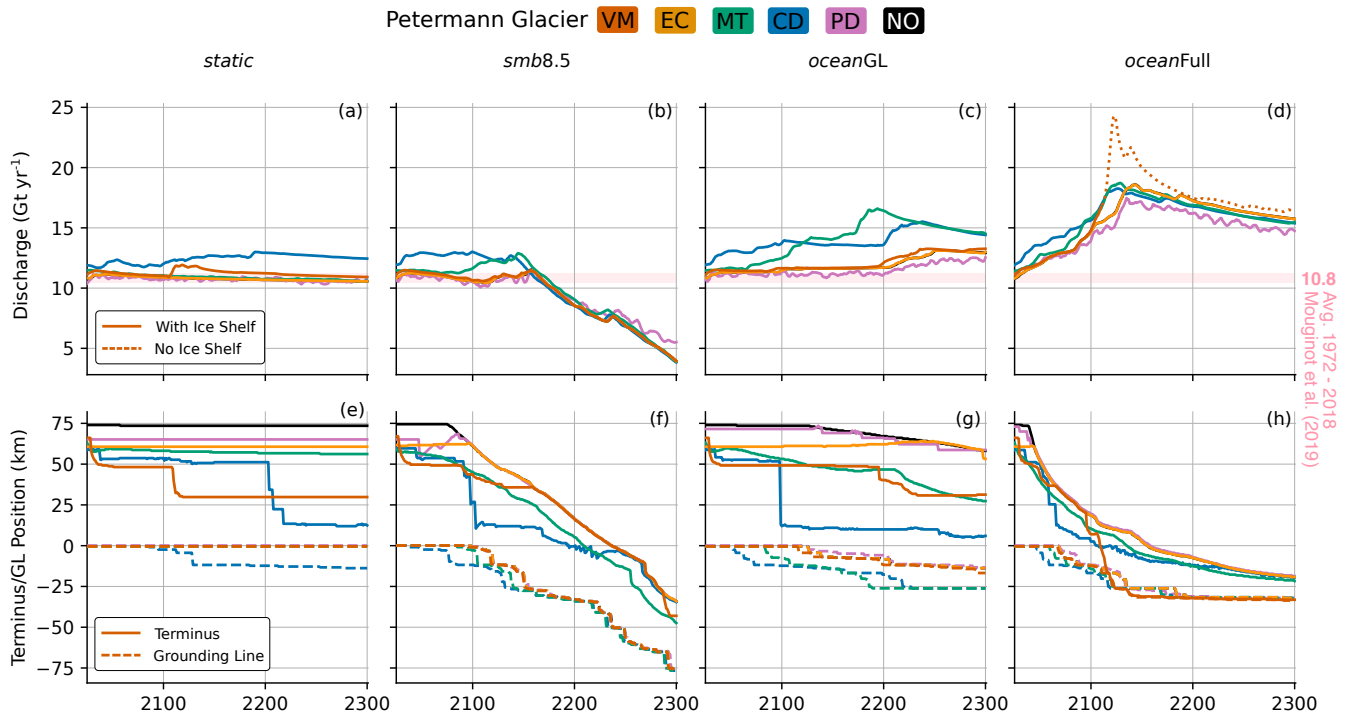


Figure S8. Same plot as Fig. 7, but the PD law has calibration values of $r_c = 1$ and $\dot{M}_{\max} = 2$ km/yr, inline with values used at Ryder and 79N glaciers.