The impact of internal variability in ocean-induced melting on Totten Glacier

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How does Totten Glacier respond to constant & variable ocean forcing?

500 year simulations using ISSM with different ocean temperature forcing scenarios (PICOp parameterization):
1. Mean temperatures of 
   -1.15, -0.95, … 0.05 °C 
   (7 scenarios)
2. Mean temperatures as above, plus variability based on ocean model output (varying magnitude of variability; 84 scenarios)
1. Final grounding line stable close to present-day position for $T=-0.95°C$, otherwise advance or retreat.

2. Variability has stabilising effect on grounding line position for $T=-0.85°C$, but limited impact for simulations with large-scale advance or retreat.
Mean background temperature plays relatively more important role than variability in determining Totten’s response to ocean forcing.
Grounding line stability linked to pinning point at southern end of ice shelf
For variable ocean forcing simulations, nonlinear dynamics + ice shelf interaction with pinning point modify variance in ice discharge.