Simulating Greenland Surface Mass Balance in the NASA GISS ModelE2 GCM

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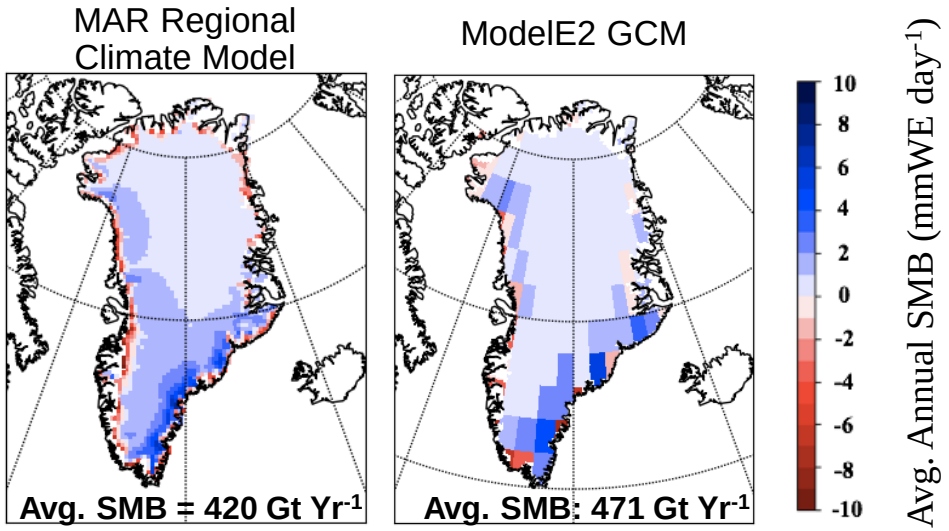
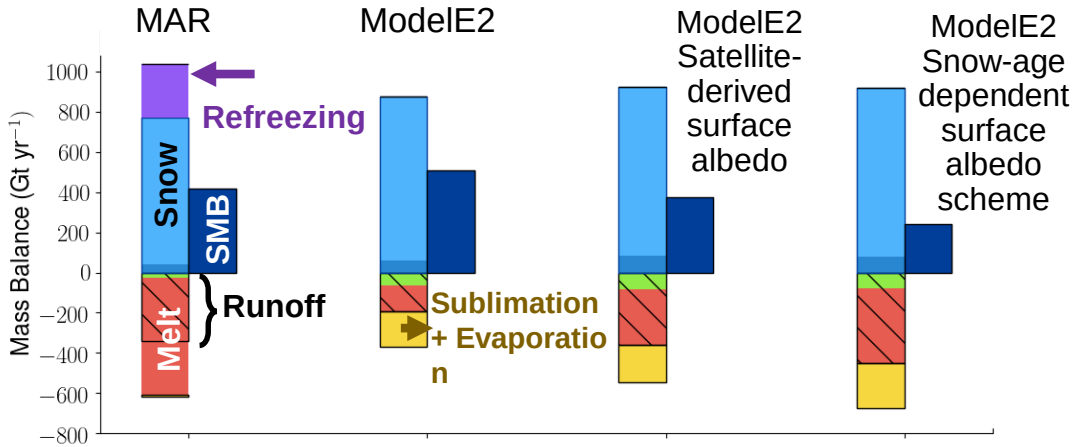
- Accurately simulating Greenland ice sheet surface mass balance (GrIS SMB) in General Circulation models (GCMs) is important for capturing sea level changes and ice sheet-climate feedbacks.
- The NASA GISS ModelE2 GCM effectively captures average GrIS SMB compared with regional climate model simulations, but there are differences in key components (including runoff, sublimation and refreezing).
- These differences could potentially influence the magnitude of future SMB change.
- Improvements to simulated surface albedo, surface roughness length and meltwater refreezing are key for improving simulation of these SMB components.





Reference: Alexander, P., LeGrande, A. N., Fischer, E., Tedesco, M., Fettweis, X., Kelley, M., Nowicki, S. M. J., and Schmidt, G. A. (2019). Simulated Greenland surface mass balance in the GISS ModelE2 GCM: Role of the ice sheet surface. *Journal of Geophysical Research: Earth Surface*, 124. https://doi.org/10.1029/2018JF004772