Supplement of

Fully coupled climate–ice-sheet ensemble indicates Greenland Ice Sheet contributed at least one quarter of Last Interglacial sea-level highstand

Christopher J. Larson et al.

Correspondence to: Christopher J. Larson (larsonc@sas.upenn.edu)

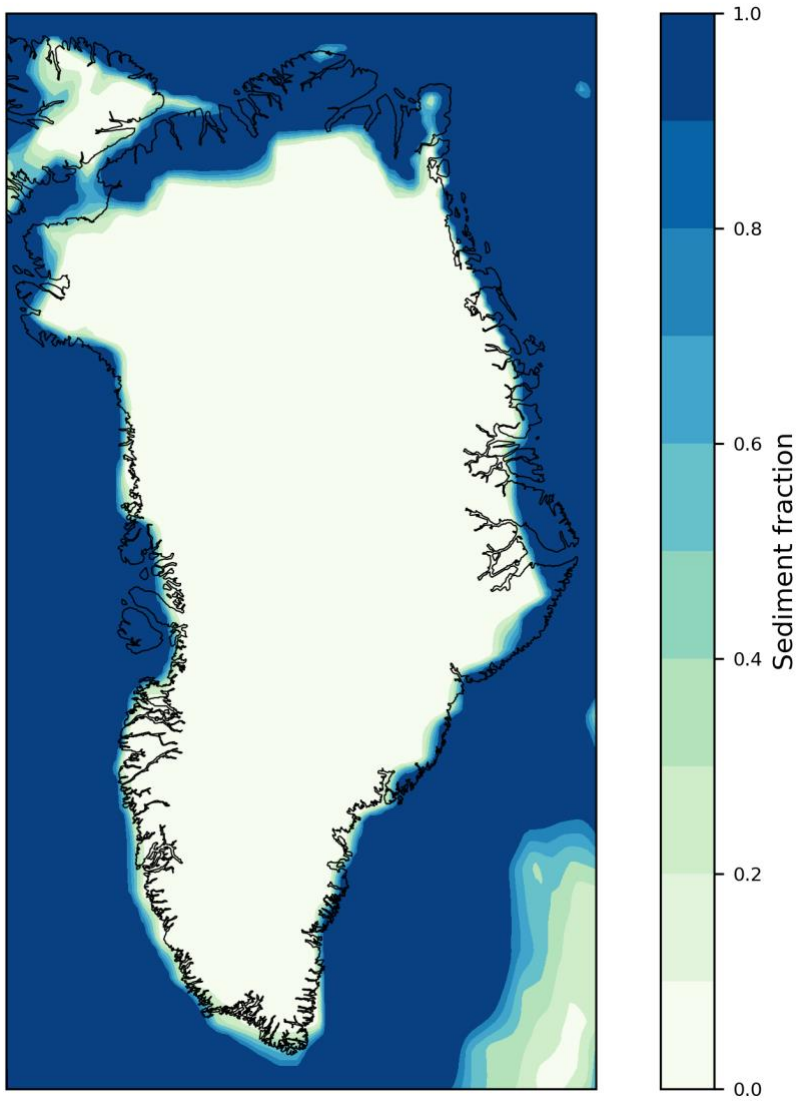


Figure S1. Sediment fraction of the Greenland Ice Sheet using sediment thickness from Laske et al. (2013).

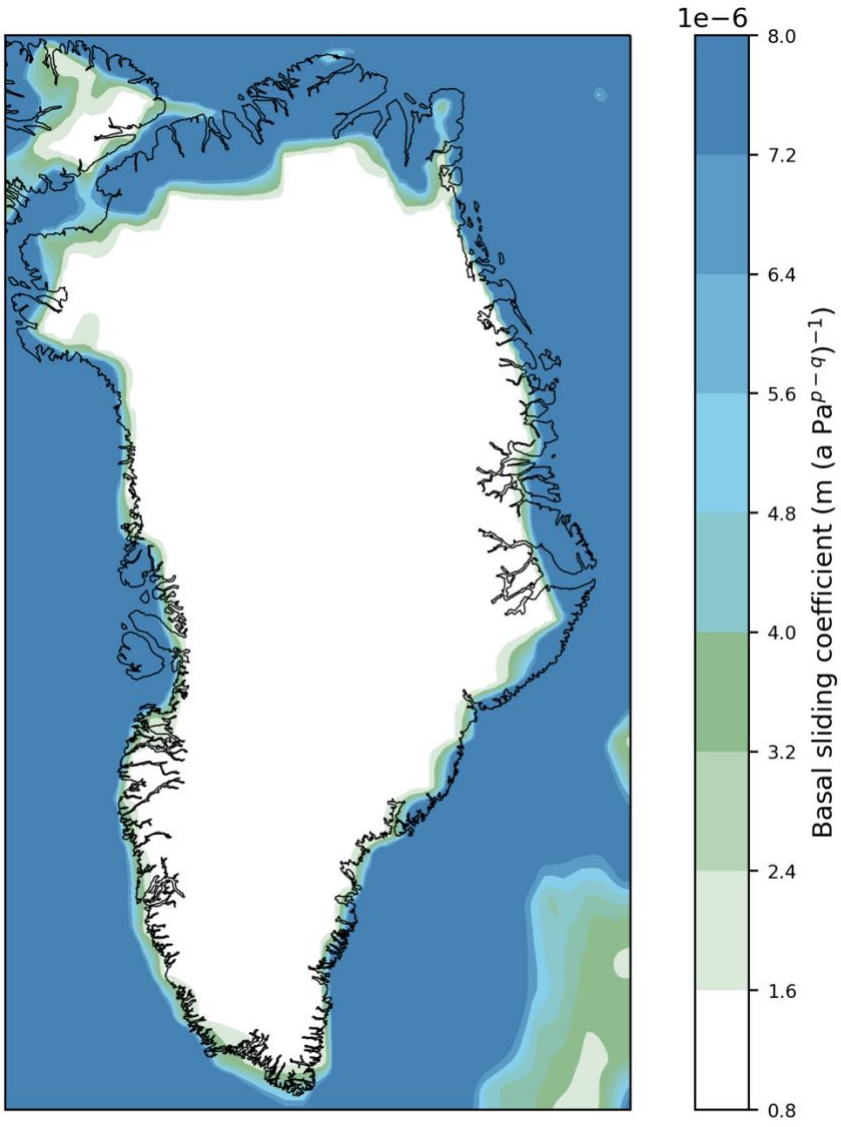


Figure S2. Basal sliding coefficient in the ice sheet model domain when $c_s^{rock} = 25$ m yr^{-1} Pa^{-1} and $c_s^{sed} = 250$ m yr^{-1} Pa^{-1}.

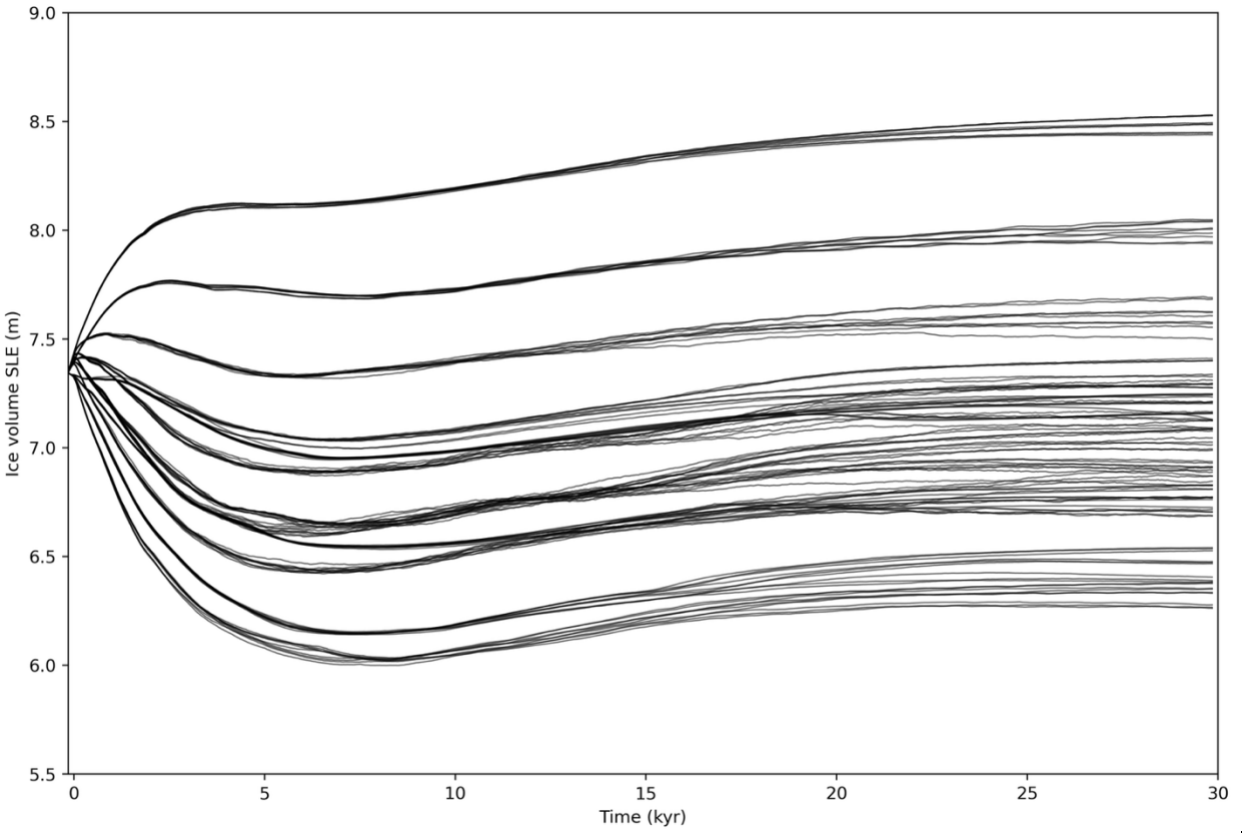


Figure S3. Greenland Ice Sheet volume (m SLE) for the present-day equilibrium ensemble, generated to obtain a present-day component for each simulation.

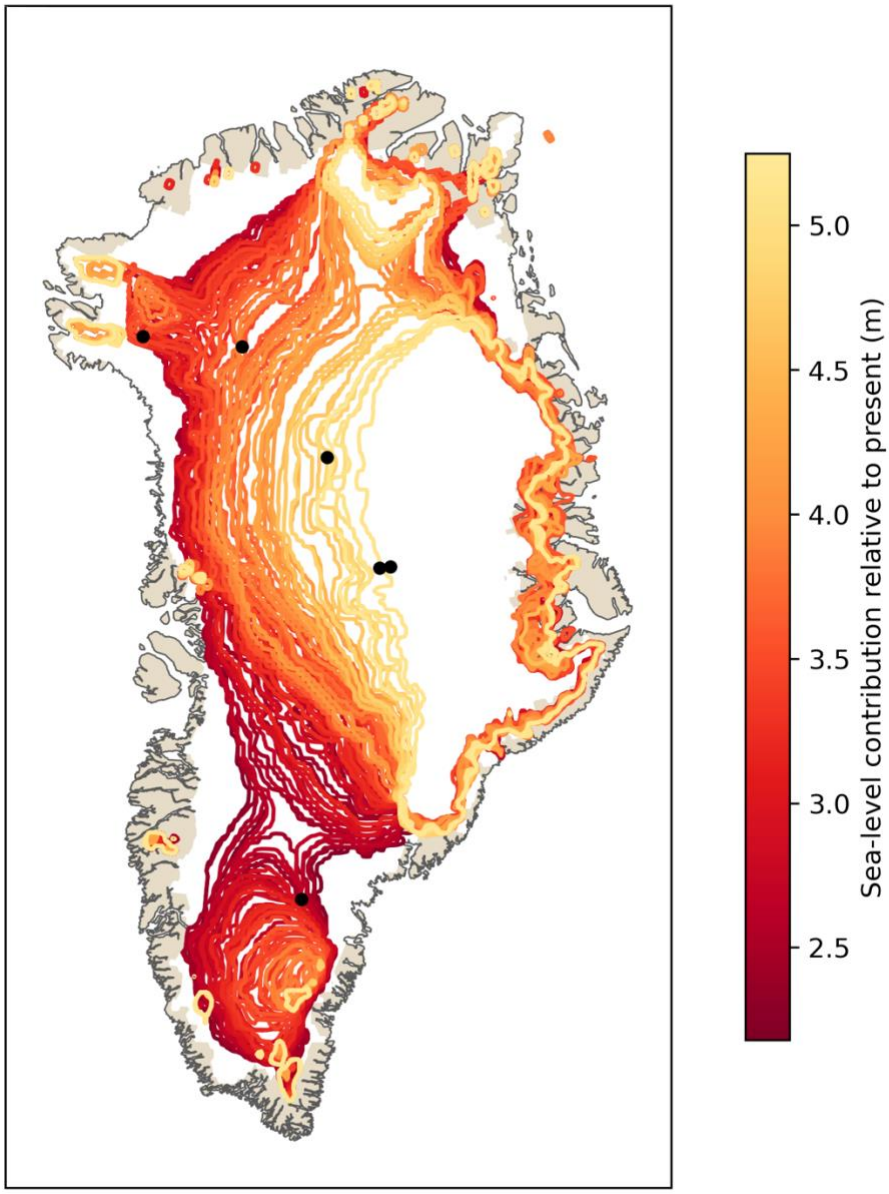


Figure S4. Minimum Greenland Ice Sheet margins during the Last Interglacial (130—115 ka) for the entire 108-member ensemble. The color of the margin corresponds to the amount of ice volume (m SLE) decrease from the corresponding present-day equilibrium simulation. Ice core locations are denoted by the black dots.

Parameter	Value	Mean GMT (°C)	Mean Greenland JJA (°C)	Mean minimum GrIS volume (m SLE)
Basal sliding (c)	10	13.14	-8.72	4.90
	50	13.16	-7.80	3.69
	100	13.16	-7.51	3.32
	150	13.17	-7.33	3.13
Ice-discharge timescale (t)	20	13.18	-6.81	2.54
	30	13.15	-8.11	4.01
	40	13.14	-8.60	4.73
Geothermal heat flux (q)	50	13.15	-8.28	4.25
	60	13.15	-7.86	3.78
	70	13.16	-7.38	3.24
Meltwater flux (s)	0	13.10	-7.65	3.60
	0.5	13.16	-7.99	3.92
	1	13.21	-7.88	3.77

Table S1. Mean global temperature, mean Greenland summer temperature, and mean minimum Greenland Ice Sheet volume for each model parameter value during 130—115 ka. Values represent ensemble means across simulations sharing the indicated parameter value.

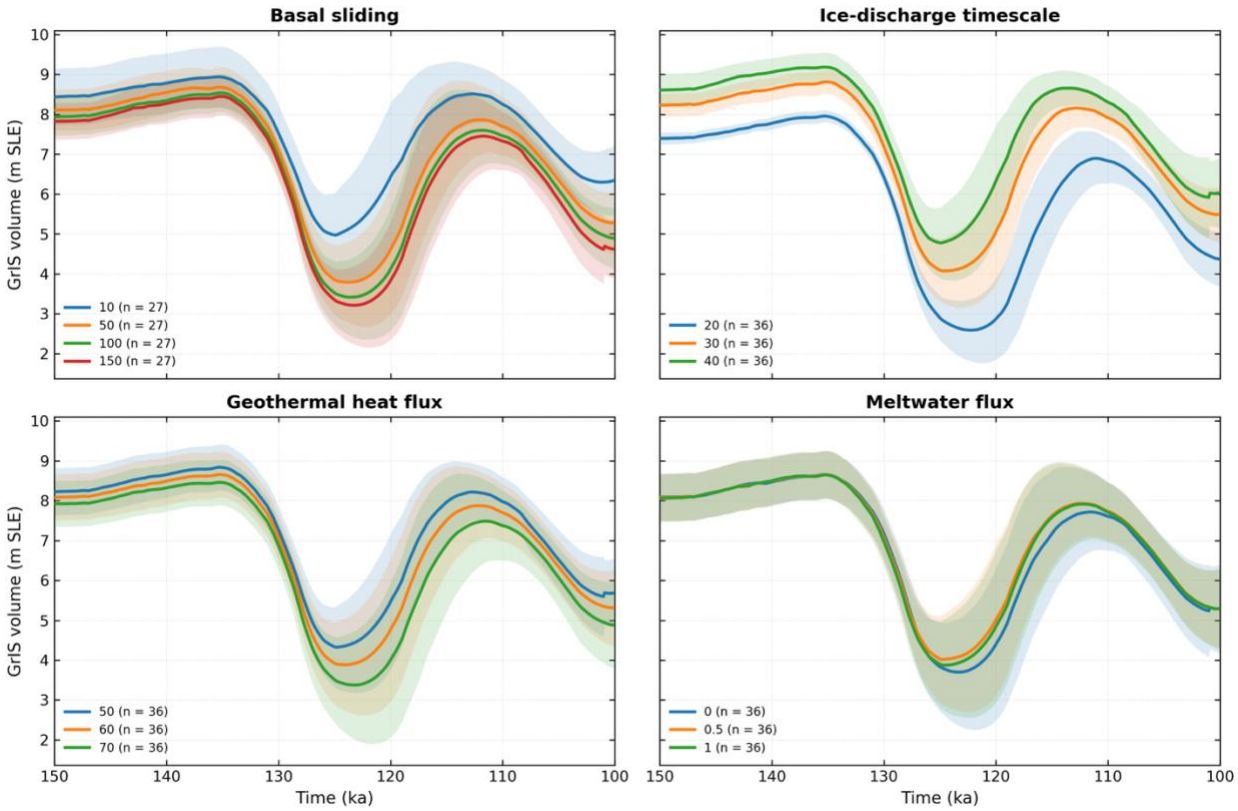


Figure S5. Parameter-grouped time-series analysis for each tested parameter and its effect on Greenland Ice Sheet volume between 150—100 ka. Each line represents an average of all runs that used that value for the parameter, with shading to depict ± 1 standard deviation.

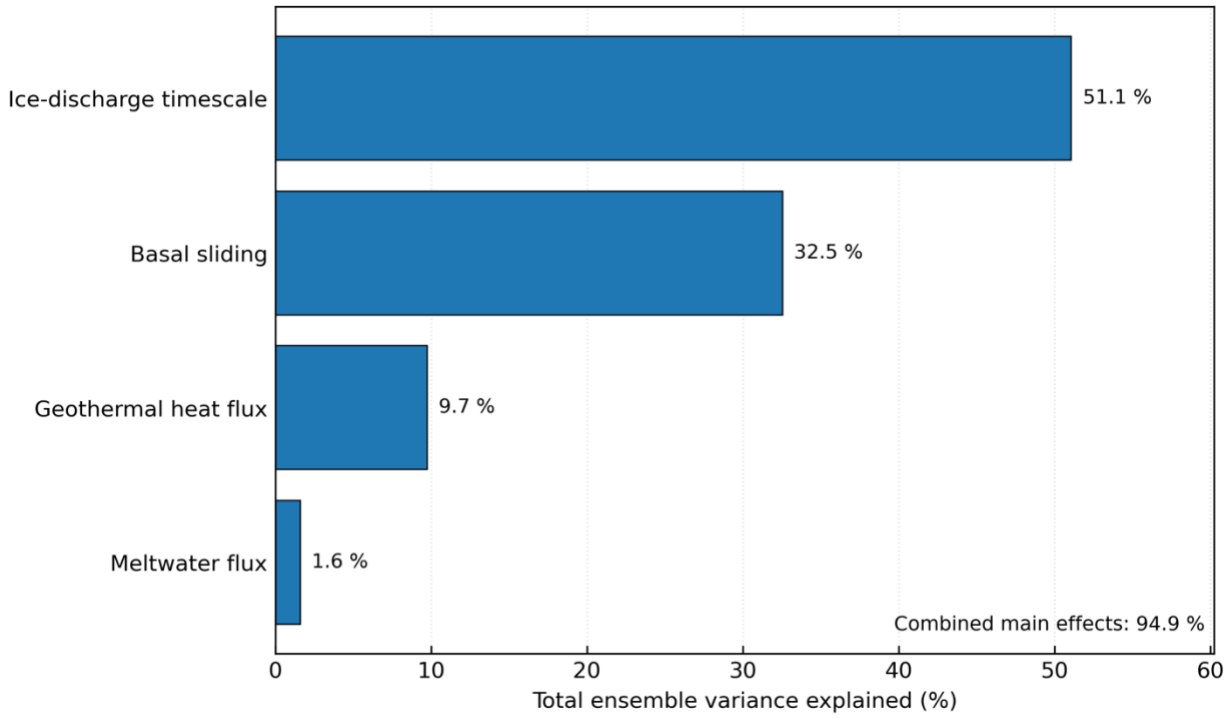


Figure S6. Single parameter variance-based sensitivity analysis for each tested parameter and its effect on minimum Greenland Ice Sheet volume between 150—100 ka.