Supplementary Material for Choice of observation type affects Bayesian calibration of ice sheet model projections

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S1 Impact of a bias in dynamic thickness change observations

To examine the impact of a bias in the dynamic thickness change observations, we subtract 80 cm from the SERAC dynamic thickness change observations over 2007-2015 in the interior of the ice sheet. We define the ice sheet interior as as the SERAC locations where the magnitude of observed dynamic thickness change is <5 m. A shift of 80 cm in the dynamic thickness change observations corresponds to an 8 cm/yr bias in the rate of firn thickness change. Using this new set of observations, with the bias applied to the interior dynamic thickness change observations, we perform an additional Bayesian calibration using the same methodology outlined in the main text. The results are shown in Table S1 and Figure S1. Note that only the posterior statistics and probability distribution for the thickness change calibration differs; the other statistics and probability distributions that are shown in Table S1 and Figure S1 are identical to what is shown in the main text. These results are compared with the nominal thickness change calibration in the main text.

Table S1: Same as Table 2 in the main text but with the thickness change observations biased in the interior of the GrIS.

Calibration	MAP	median	Percentiles		$\mathbf{P}$(GMSL>50 mm)	$\mathbf{P}$(GMSL>100 mm)
			5%	95%		
Prior	-3.4	26.6	-60.3	213.3	38.8%	23.0%
Velocity	24.5	20.4	-23.9	64.5	14.2%	0.1%
Thickness	2.0	7.5	-31.3	57.5	8.2%	0.1%
Mass	35.1	33.8	-14.7	77.8	28.1%	0.6%
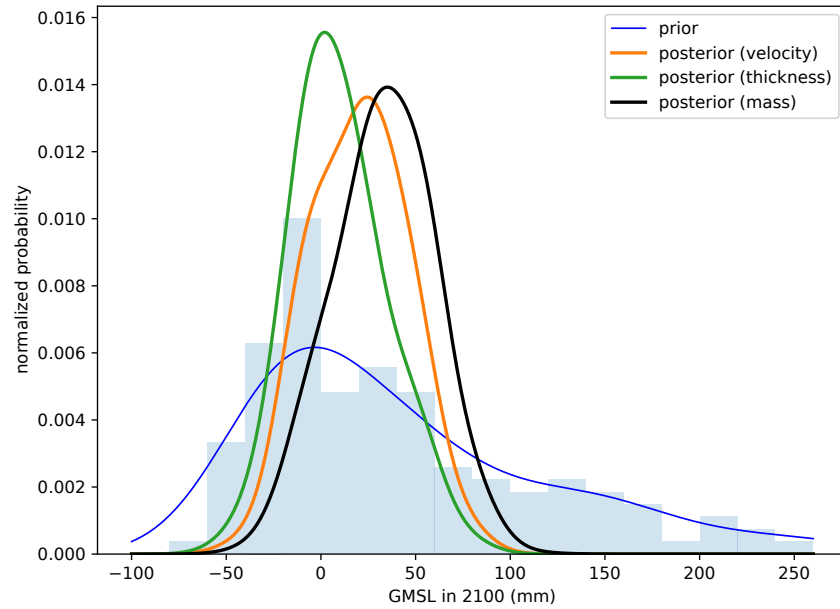
Figure S1: Same as Fig. 2 in the main text but with the thickness change observations biased in the interior of the GrIS.