Supplement of The Cryosphere, 14, 3071–3096, 2020
https://doi.org/10.5194/tc-14-3071-2020-supplement

The Cryosphere
Open Access

Supplement of

The future sea-level contribution of the Greenland ice sheet: a multi-model ensemble study of ISMIP6

Heiko Goelzer et al.

Correspondence to: Heiko Goelzer (heig@norceresearch.no)

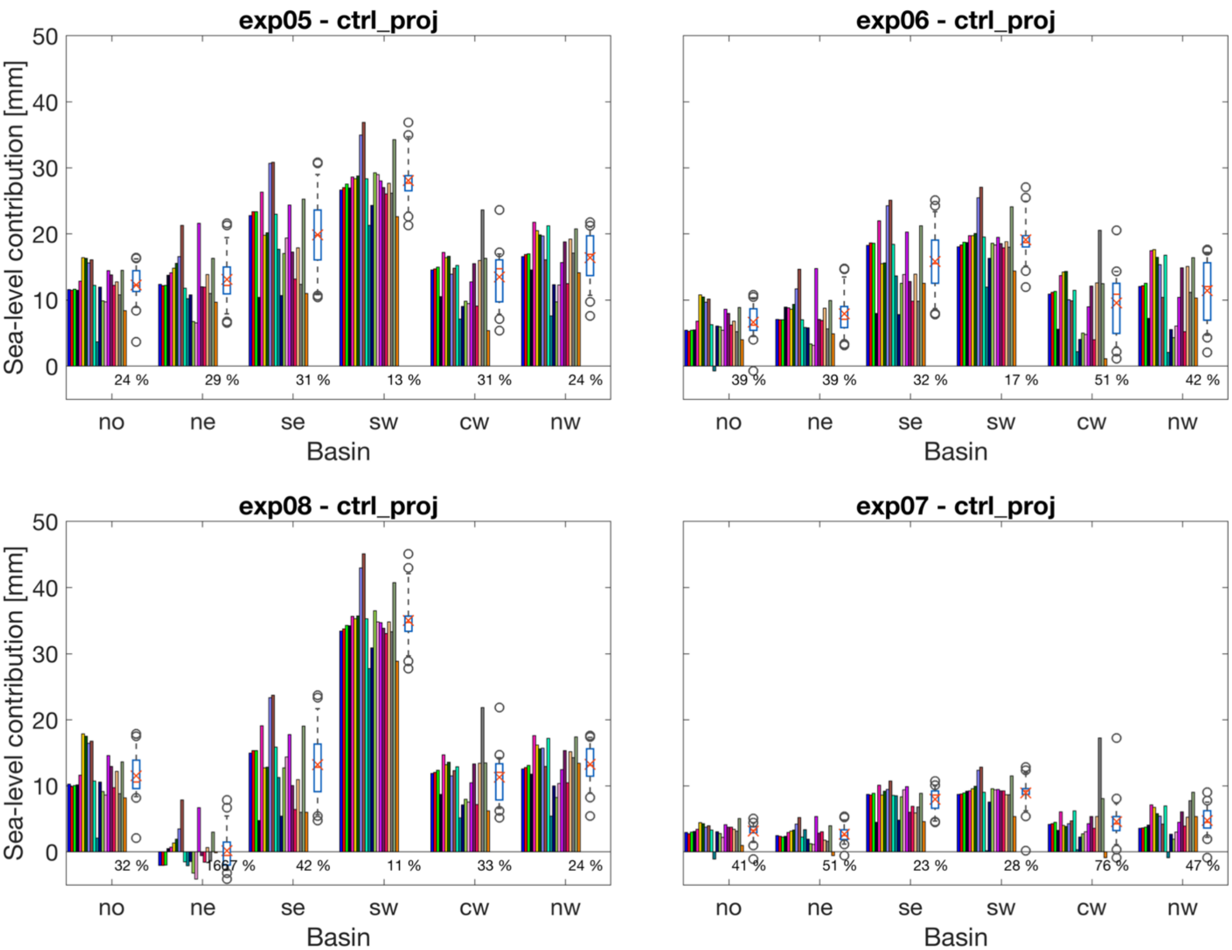

Figure S1 Regional analysis of ice sheet sea-level contribution for the three core GCMs under scenario RCP8.5 (a-c) and for MIROC5-RCP2.6 (d). Individual model results are given as bars with the same colour scheme as in figures 3-5 in the main text. The box plots show the ensemble median (red line), mean (red cross), interquartile range (box) and outliers. The ratio of standard deviation and mean is given in percent as an indicator of ice sheet model uncertainty in each basin.

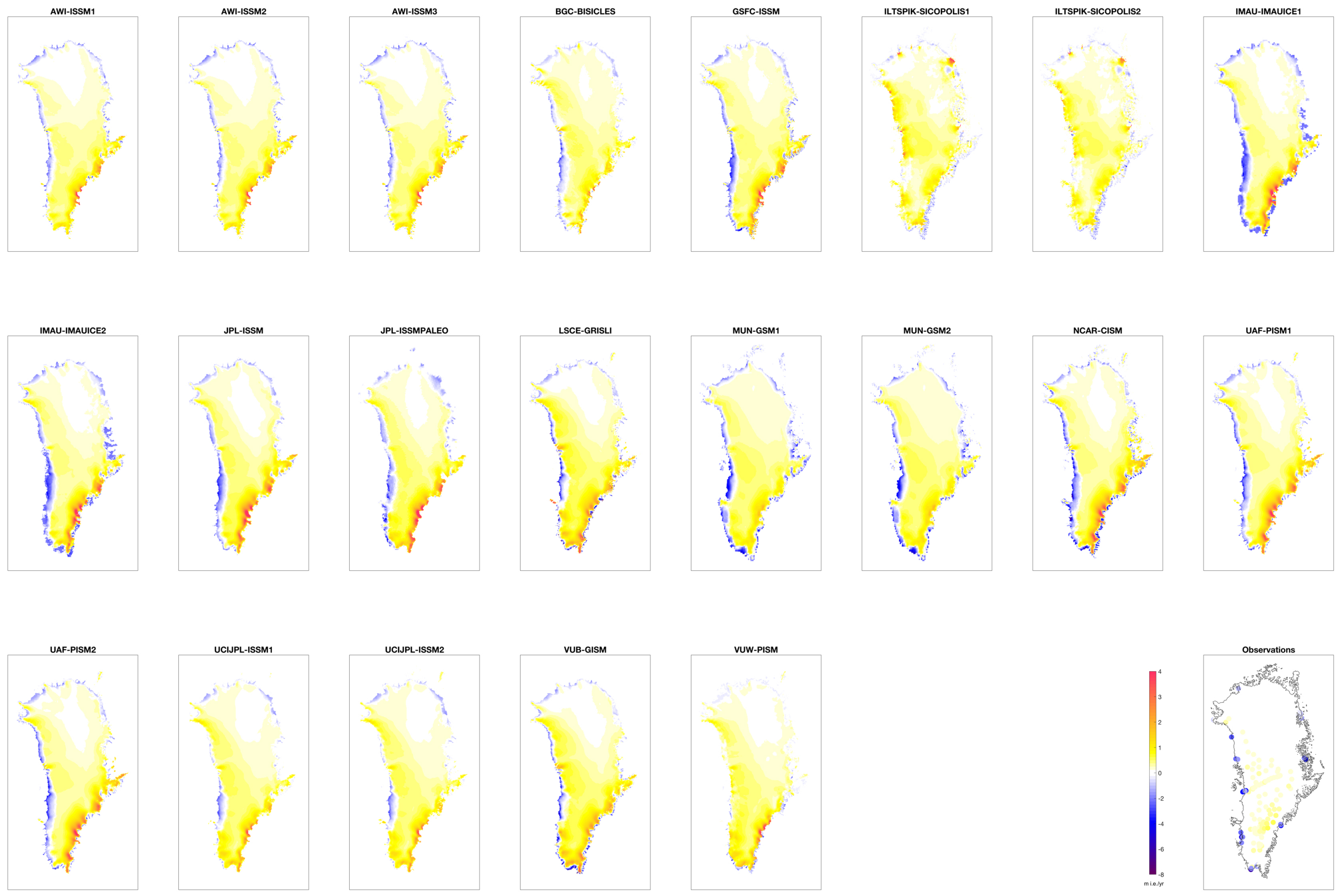

Figure S2 Initial surface mass balance forcing at year 2014, masked to the modelled ice mask. The lower right shows available observations (Machguth et al., 2016; Bales et al., 2009).

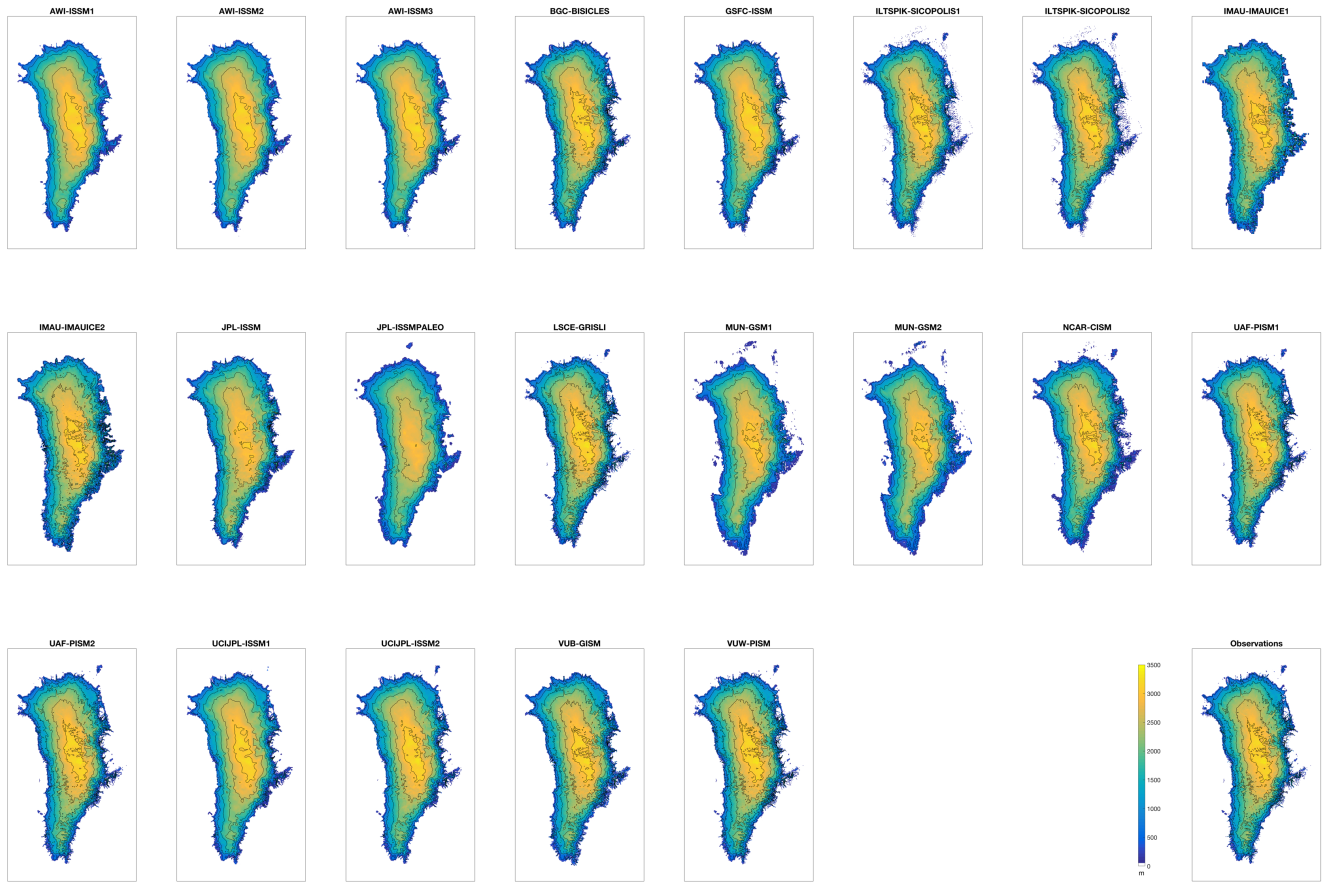

Figure S3 Initial ice thickness at year 2014. The data are masked to the ice mask of each individual model. Contour lines every 500 m. Observations in the lower right are from Morlighem et al. (2017).

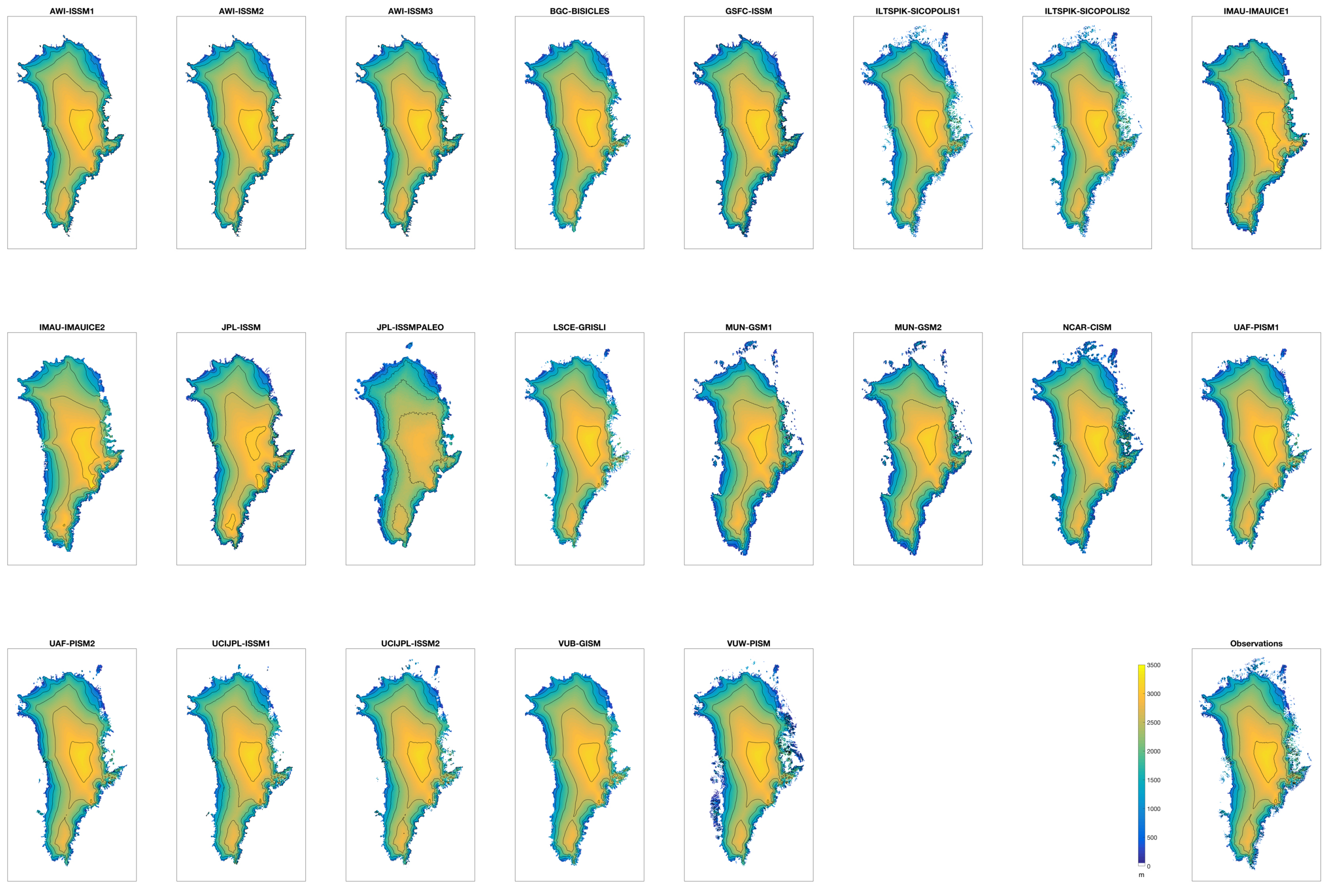

Figure S4 Initial surface elevation at year 2014, with contour intervals every 500 m. The data are masked to the modelled ice sheet mask. Observations in the lower right are from Morlighem et al. (2017).

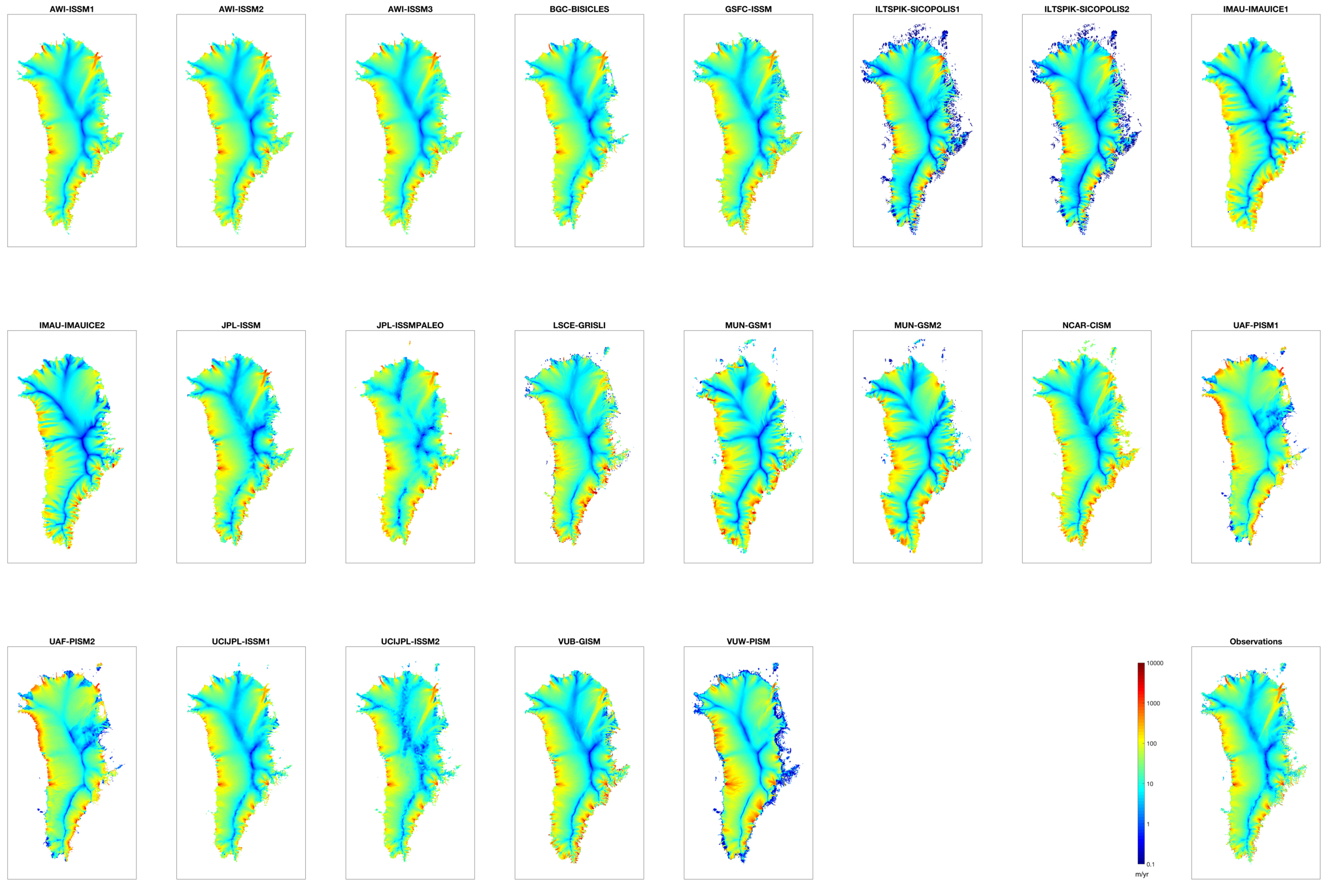

Figure S5 Initial vertically averaged horizontal velocity magnitude. The data are masked to the ice mask of each individual model. Observations in the lower right are from Joughin et al. (2016).

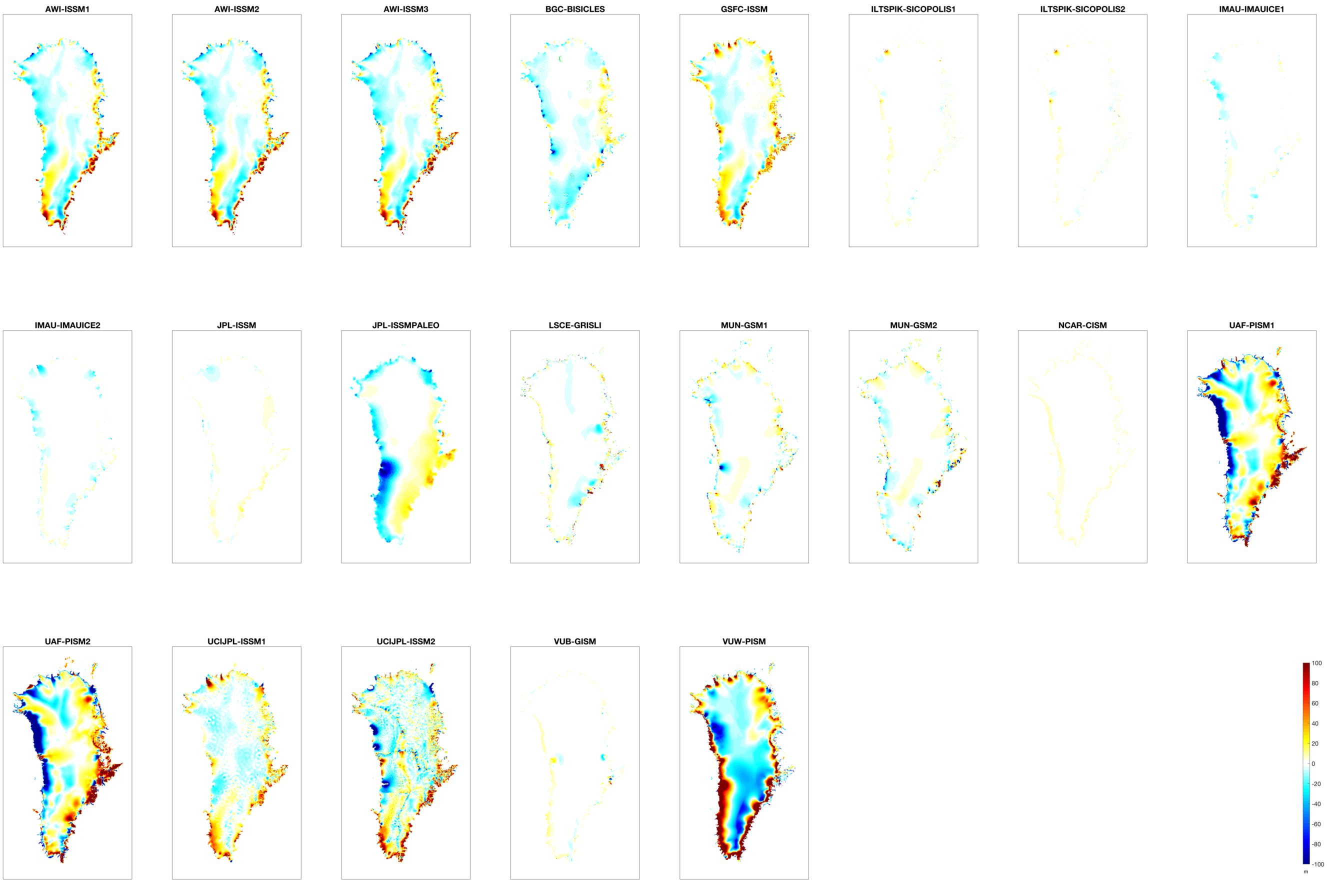

Figure S6 Ice thickness change in experiment ctrl_proj at year 2100.

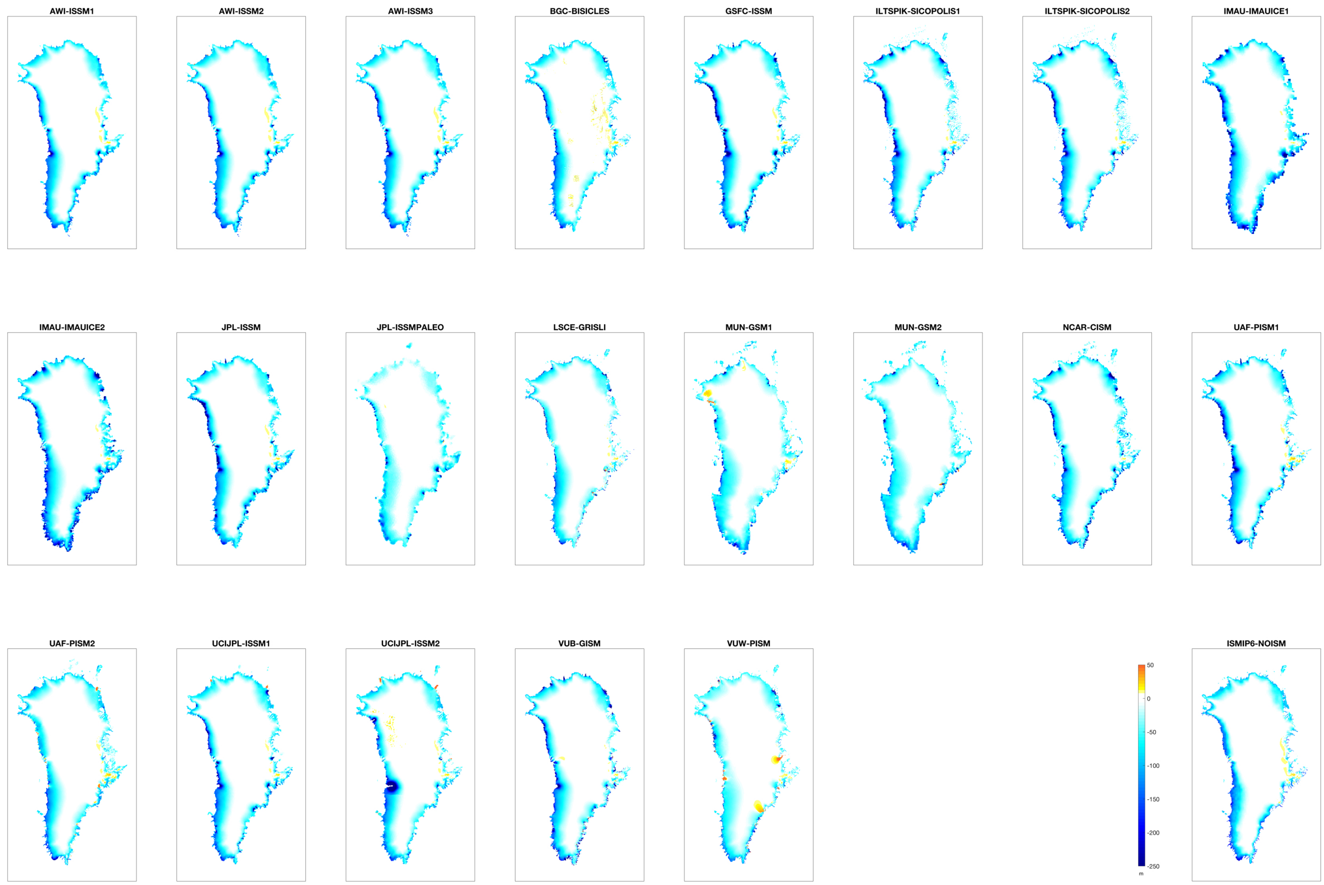

Figure S7 Ice thickness change (exp05 – ctrl_proj) at year 2100 for MIROC5-RCP8.5. The lower right shows the result of NOISM.

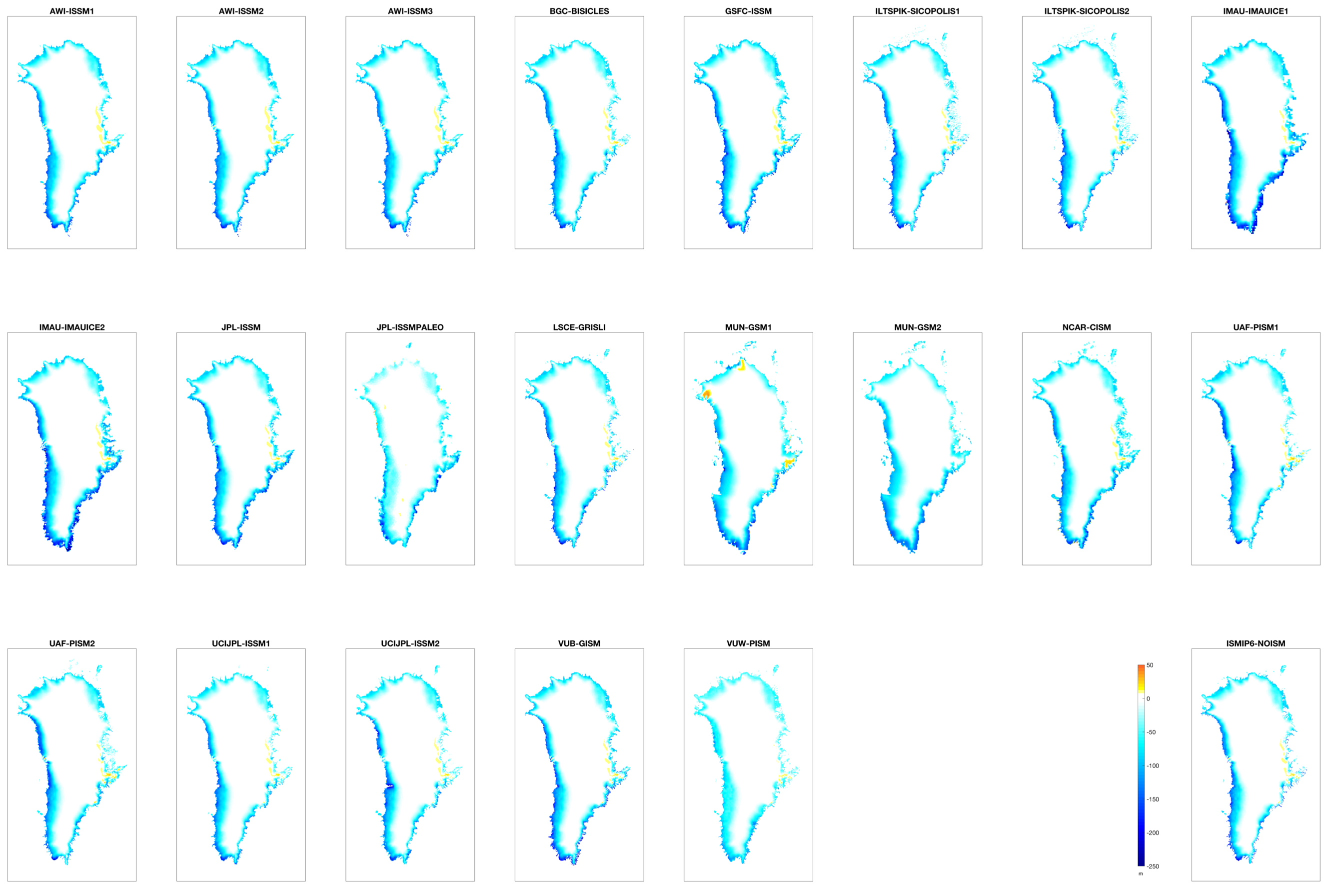

Figure S8 Integrated SMB anomaly (exp05 – ctrl_proj) at year 2100 for MIROC5-RCP8.5. The lower right shows the result of NOISM, i.e. the integrated SMB anomaly over the observed ice sheet geometry.

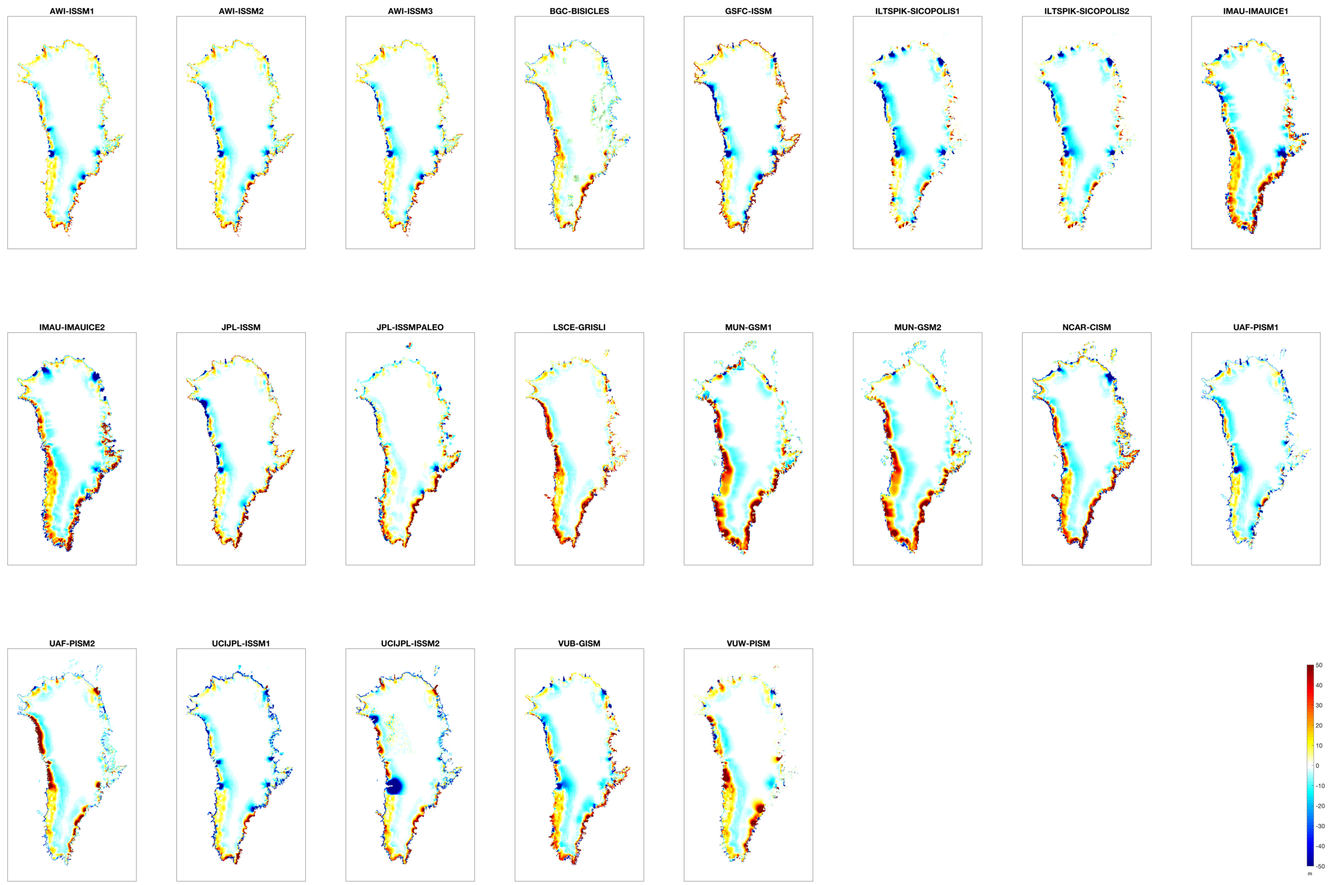

Figure S9 Dynamic ice thickness change at year 2100 for experiment MIROC5-RCP8.5. This diagnostic is calculated as the residual between the time-integrated SMB anomaly and the difference in modelled ice thickness change (exp05 – ctrl_proj). Positive values indicate dynamic thickening, where less ice is lost compared to what the time-integrated SMB anomaly alone would predict.