



*Supplement of*

## **PInc-PanTher estimates of Arctic permafrost soil carbon under the GeoMIP G6solar and G6sulfur experiments**

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**Table S1. CMIP6 ESMs initial permafrost soil and vegetation C stocks and their changes.** Values are calculated based on the CSoil and CVeg outputs (in Pg) of five CMIP6 ESMs, and are clipped to the extent of the circum-Arctic continuous permafrost zone. For the changes in CSoil and CVeg between 2020 and 2100, '-' indicates net C loss and '+' indicates net C gain. MPI-ESM1-2-HR does not report CSoil but is likely similar as MPI-ESM1-2-LR.

initial C stocks	CESM2-WACCM	CNRM-ESM2-1	IPSL-CM6A-LR	MPI-ESM1-2-LR	UKESM1-0-LL
CSoil in 2020	1058	475	67	156	274
CVeg in 2020	68	65	24	32	53
<b>CSoil change (2020–2100)</b>					
SSP5-8.5	-20	+36	+15	+9	+21
SSP2-4.5	-6	+32	+17	+9	+21
G6solar	-4	+48	+17	+12	+26
G6sulfur	-3	+45	+16	+11	+25
<b>CVeg change (2020–2100)</b>					
SSP5-8.5	+47	+64	+59	+16	+43
SSP2-4.5	+27	+38	+43	+13	+33
G6solar	+34	+59	+47	+15	+36
G6sulfur	+33	+57	+40	+14	+36