

Figure S1 Percentage volume change at 2097, relative to the initial volume for Central Europe.

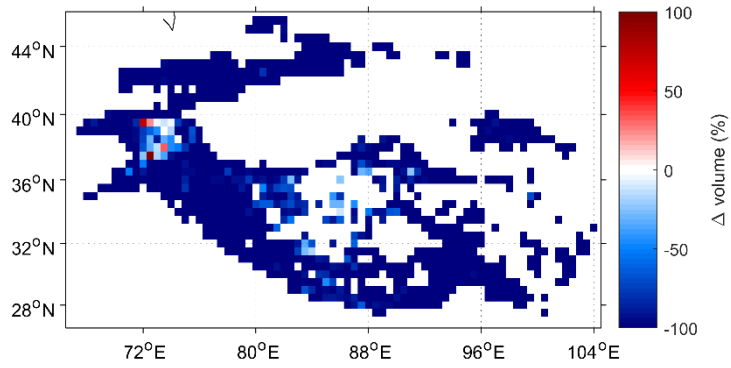


Figure S2 Percentage volume change at 2097, relative to the initial volume for Central Asia, East and West Asia.

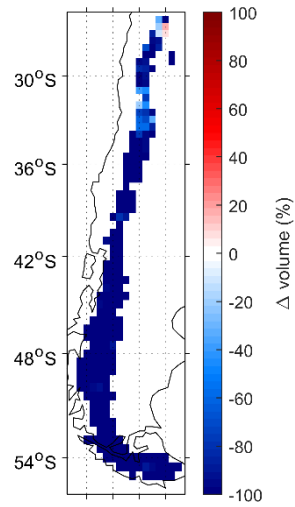


Figure S3 Percentage volume change at 2097, relative to the initial volume for the Central Andes.

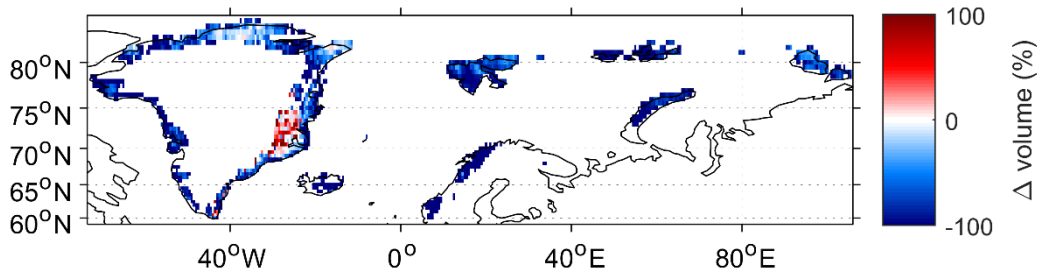


Figure S4 Percentage volume change at 2097, relative to the initial volume for Greenland, Iceland, Svalbard, Scandinavia and the Russian Arctic.

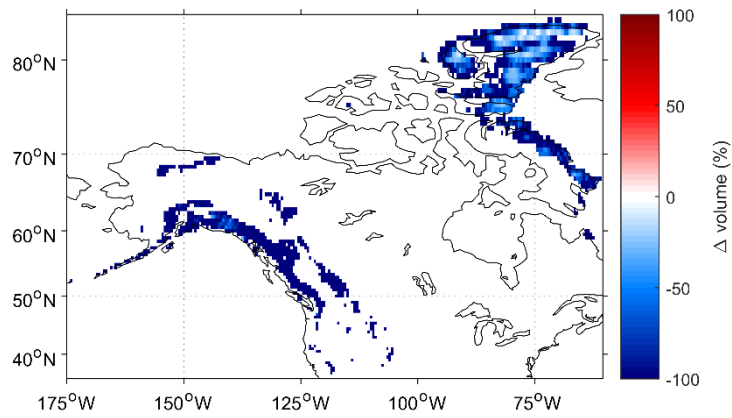


Figure S5 Percentage volume change at 2097, relative to the initial volume for Alaska, Western Canada + US, Arctic Canada North and South.

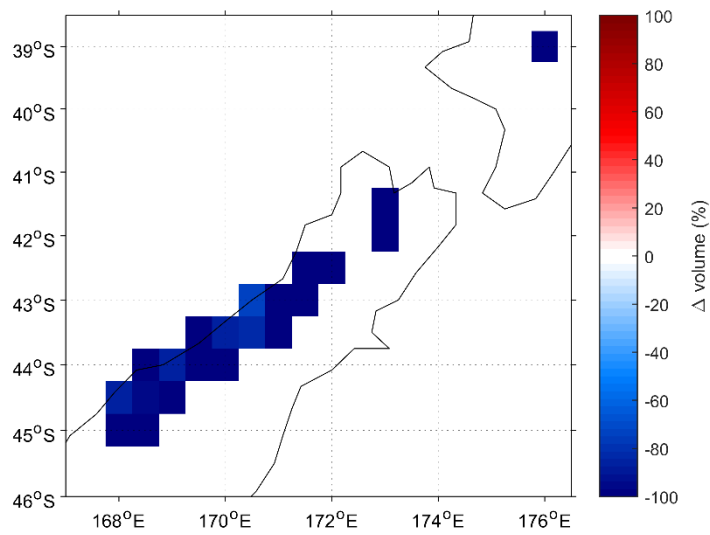


Figure S6 Percentage volume change at 2097, relative to the initial volume for New Zealand.

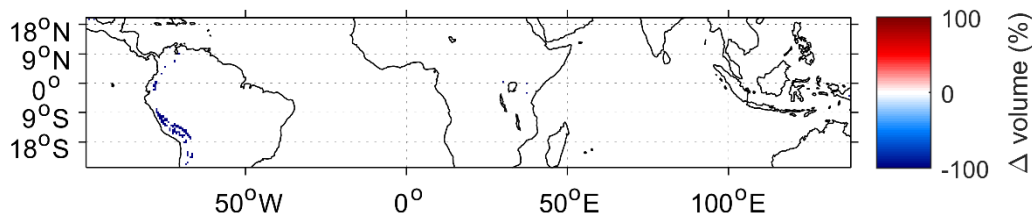


Figure S7 Percentage volume change at 2097, relative to the initial volume for the Low Latitudes

	$\alpha_{vis,snow}$	$\alpha_{nir,snow}$	$\alpha_{vis,ice}$	$\alpha_{nir,ice}$	$\gamma_{temp}$ (°K km <sup>-1</sup> )	$\gamma_{precip}$ (%/100m)	$\gamma_{wind}$
Alaska	0.88	0.65	0.56	0.27	8.16	16.46	1.32
	0.95	0.72	0.41	0.19	7.96	14.71	1.07
	0.96	0.76	0.48	0.24	9.11	11.10	1.28
	0.93	0.71	0.65	0.23	7.83	7.80	1.08
Western Canada and US	0.97	0.64	0.45	0.26	9.35	7.87	2.29
	0.99	0.79	0.32	0.16	7.67	7.11	2.19
	0.89	0.67	0.49	0.37	8.44	8.22	1.87
Arctic Canada North	0.96	0.70	0.49	0.12	4.22	7.35	1.10
	0.98	0.68	0.53	0.23	6.53	6.91	1.46
	0.93	0.71	0.65	0.23	7.83	7.80	1.08
Arctic Canada South	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.89	0.67	0.49	0.37	8.44	8.22	1.87
	0.91	0.73	0.67	0.56	5.32	8.57	1.55
Greenland	0.95	0.72	0.41	0.19	7.96	14.71	1.07
	0.93	0.71	0.65	0.23	7.83	7.80	1.08
	0.93	0.60	0.58	0.10	8.97	22.26	1.10
	0.91	0.65	0.64	0.44	5.74	12.56	1.01
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.79	0.63	0.61	0.30	5.75	22.57	1.07
Svalbard	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.94	0.74	0.69	0.50	8.13	19.39	1.40
Scandinavia	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.93	0.71	0.65	0.23	7.83	7.80	1.08
	0.96	0.76	0.48	0.24	9.11	11.10	1.28
	0.95	0.72	0.41	0.19	7.96	14.71	1.07
North Asia	0.94	0.74	0.69	0.50	8.13	19.39	1.40
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.96	0.74	0.67	0.30	9.17	24.59	1.68
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
	0.99	0.74	0.64	0.24	7.38	21.88	1.46
Central Europe	0.83	0.63	0.59	0.35	5.79	7.24	1.83
	0.77	0.58	0.58	0.13	4.19	10.34	1.19

	0.86	0.69	0.68	0.32	4.35	8.51	1.02
	0.89	0.66	0.29	0.20	9.50	7.21	1.11
	0.90	0.58	0.53	0.25	8.85	7.90	3.64
	0.98	0.73	0.63	0.29	9.71	14.56	2.81
	0.87	0.62	0.61	0.21	9.75	7.67	2.19
	0.88	0.62	0.18	0.12	9.70	13.38	2.92
	0.98	0.69	0.60	0.35	9.76	23.50	2.62
Caucasus and Middle East	0.90	0.71	0.53	0.28	8.29	5.03	3.32
	0.85	0.63	0.59	0.41	9.79	5.72	2.98
	0.74	0.55	0.54	0.30	9.30	6.31	2.05
Central Asia	0.94	0.74	0.69	0.50	8.13	19.39	1.40
	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.96	0.74	0.67	0.30	9.17	24.59	1.68
	0.99	0.74	0.64	0.24	7.38	21.88	1.46
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
South Asia West	0.99	0.73	0.60	0.30	4.05	23.95	1.69
	0.99	0.74	0.64	0.24	7.38	21.88	1.46
	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.96	0.74	0.67	0.30	9.17	24.59	1.68
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
	0.94	0.78	0.60	0.23	5.88	19.24	1.75
	0.89	0.71	0.61	0.50	5.93	23.79	1.63
South Asia East	0.91	0.73	0.67	0.56	5.32	8.57	1.55
	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
Low Latitudes	0.94	0.74	0.69	0.50	8.13	19.39	1.40
	0.96	0.74	0.67	0.30	9.17	24.59	1.68
	0.94	0.77	0.68	0.53	8.30	16.34	2.15
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.99	0.74	0.64	0.24	7.38	21.88	1.46
Southern Andes	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
	0.93	0.71	0.65	0.23	7.83	7.80	1.08
	0.94	0.74	0.69	0.50	8.13	19.39	1.40
	0.91	0.65	0.64	0.44	5.74	12.56	1.01
New Zealand	0.94	0.74	0.69	0.50	8.13	19.39	1.40
	0.88	0.72	0.64	0.52	8.22	22.92	1.19
	0.95	0.76	0.54	0.35	9.01	13.93	1.02
	0.99	0.74	0.64	0.24	7.38	21.88	1.46
	0.96	0.74	0.67	0.30	9.17	24.59	1.68

Table S1 Equally plausible parameter sets for each RGI6 region.

	This study $\Delta V$ % 2097-2011	Huss & Hock (2015) $\Delta V$ % 2100-2010	This study minus Huss & Hock (2015)
Alaska	-89±2	-58±14	-30
Western Canada and US	-100±0	-95±5	-5
Arctic Canada North	-47±3	-30±12	-9
Arctic Canada South	-74±8	-52±14	-22
Greenland	-31±5	-52±13	20
Iceland	-98±3	-62±18	-36
Svalbard	-68±16	-82±18	14
Scandinavia	-98±3	-96±4	-2
Russian Arctic	-79±10	-70±19	-7
North Asia	-71±5	-81±7	10
Central Europe	-99±0	-98±2	-1
Caucasus and Middle East	-100±0	-96±3	-4
Central Asia	-80±7	-88±7	8
South Asia West	-98±1	-87±9	-11
South Asia East	-95±2	-92±5	-3
Low Latitudes	-100±0	-98±0	-2
Southern Andes	-98±1	-44±14	-54
New Zealand	-88±5	-82±8	4

Table S2 Comparison of percentage volume change relative to initial volume, from this study with Huss and Hock (2015)

	This study SLE mm 2097-2011	Huss & Hock (2015) SLE mm 2100-2010	Radic et al.,(2014) SLE mm 2100- 2006	This study minus Huss & Hock (2015)	This study minus Radic et al.,(2014)
Alaska	44.6±1.1	24.9±6.3	25.4	23.1	22.6
Western Canada and US	2.8±0.0	2.2±0.1	2.6	0.7	0.3
Arctic Canada North	35.8±3.0	19.7±7.8	42.2	15.1	-7.4
Arctic Canada South	18.1±2.1	9.9±2.8	15.0	10.1	5.0
Greenland	20.1±4.4	17.7±4.6	20.4	9.1	6.4
Iceland	9.3±0.3	4.7±1.7	4.9	5.4	5.2
Svalbard	17.0±4.6	13.9±3.1	15.8	5.0	3.1
Scandinavia	0.6±0.0	0.3±0.0	0.5	0.4	0.2
Russian Arctic	33.3±4.8	18.1±5.5	28.3	18.0	7.8
North Asia	0.3±0.0	0.2±0.0	0.6	0.1	-0.3
Central Europe	0.3±0.0	0.3±0.0	0.3	0.0	0.0
Caucasus and Middle East	0.2±0.0	0.1±0.0	0.2	0.1	0.0
Central Asia	8.0±0.7	9.2±1.1	11.9	-0.7	-3.4
South Asia West	8.1±0.1	6.2±1.0	7.1	2.5	1.6

South Asia East	1.9±0.0	2.4±0.7	3.5	-0.4	-1.4
Low Latitudes	0.2±0.0	0.2±0.0	0.5	0.0	-0.3
Southern Andes	14.4±0.1	5.8±1.8	8.5	9.7	7.0
New Zealand	0.1±0.0	0.1±0.0	0.1	0.0	0.0
Global	215.2±21.3	135.9±13.0	187.9	98.3	46.4

Table S3 Comparison of volume losses for this study with (Huss and Hock 2015, Radic et al. 2014). Volume loss is expressed in terms of sea level equivalent (mm)

Huss, M. & R. Hock (2015) A new model for global glacier change and sea-level rise. *Frontiers in Earth Science*, 3.

Radic, V., A. Bliss, A. C. Beedlow, R. Hock, E. Miles & J. G. Cogley (2014) Regional and global projections of twenty-first century glacier mass changes in response to climate scenarios from global climate models. *Climate Dynamics*, 42, 37-58.