Supplementary Material

Brief communication:

Do 1.0°C, 1.5°C or 2.0°C matter for the future evolution of Alpine glaciers?

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This Supplementary Material consist of three Figures and one Table.

S1 Supplementary figures

S1.1 Model evaluation

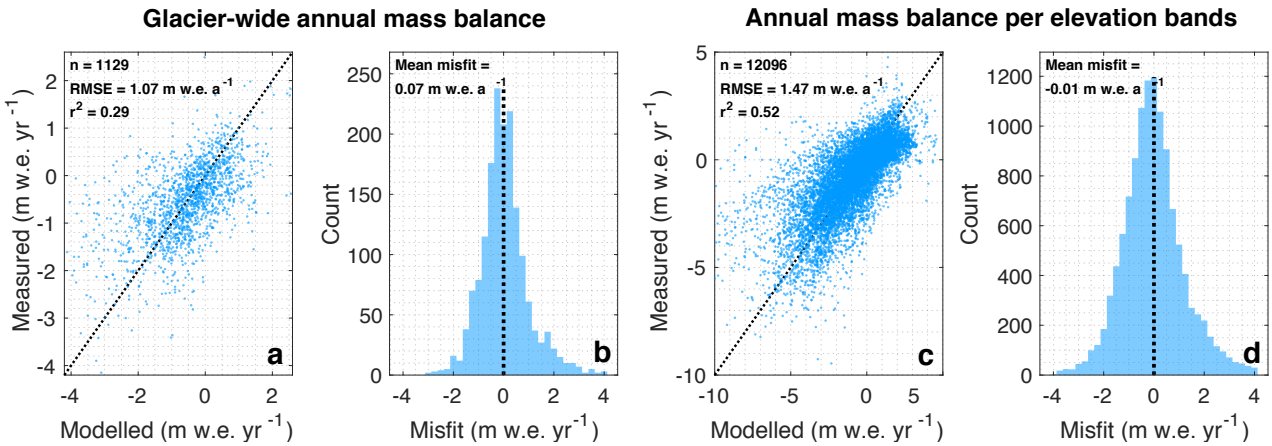

Figure S1: Evaluation of modelled glacier-wide annual mass balance with observations of 72 glaciers provided by the World Glacier Monitoring Service (WGMS, 2020). Panels (**a**) and (**b**) show the validation of glacier-wide annual mass balance. Panels (**c**) and (**d**) refer to annual mass balances per elevation band.

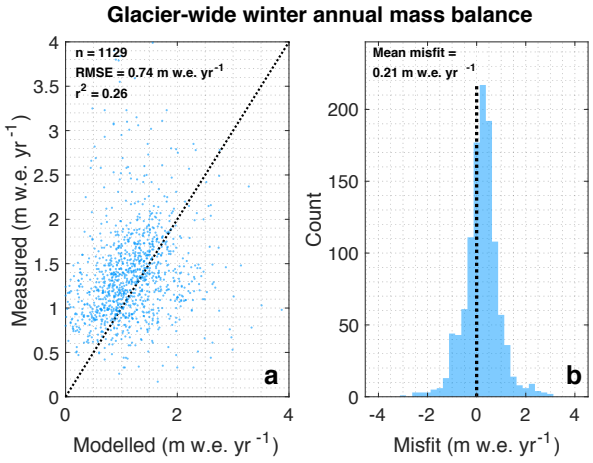

Figure S2: Evaluation of modelled glacier-wide winter mass balance with observations of 72 glaciers provided by the World Glacier Monitoring Service (WGMS, 2020).

S1.2 Model results until 2300

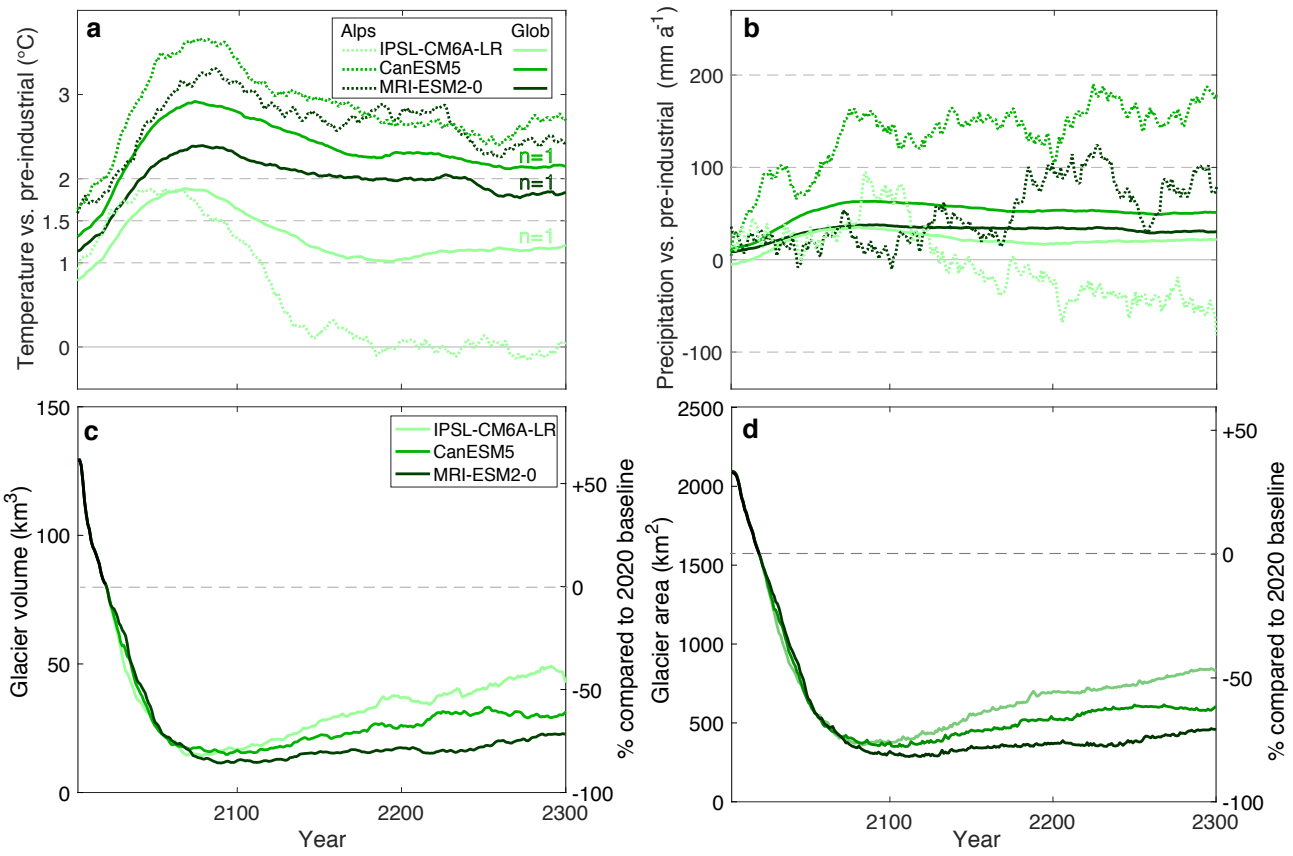

Figure S3: Modelled glacier evolution until 2300. Changes in global ("Glob", solid) and Alpine ("Alps", dotted) (**a**) average air temperatures and (**b**) precipitation totals, compared to the pre-industrial (1851-1900) baseline. Series are smoothed with a 30-year running mean. Modelled evolution of total glacier (**c**) volume, and (**d**) area based on three individual GCM members.

S2 Supplementary Table

S2.1 Glacier specific volume evolution

Table S1: Overview of the glacier volume change between 2020 and 2100 for glaciers with and area >10 km^2 at the RGI inventory year (given as "Area??). Volume changes are given w.r.t. the 2020 ice volume.

glacier name	country	Area (km^2)	+1.0°C	+1.5°C	+2.0°C
Grosser Aletschgletscher	CH	82.2	-45±12 %	-64±11 %	-78±11 %
Gornergletscher	CH	56.4	-10±18 %	-36±14 %	-57±15 %
Fiescherglетscher	CH	31.3	-43±19 %	-71±14 %	-84±8 %
Mer de Glace	FR	24.2	-13±17 %	-28±12 %	-48±16 %
Unteraargletscher	CH	23.8	-42±14 %	-60±10 %	-74±9 %
Oberaletschgletscher	CH	19.3	-41±14 %	-61±11 %	-75±10 %
Unterer Grindelwaldgletscher	CH	18.8	-43±17 %	-60±10 %	-74±9 %
Pasterze	AT	17.7	-22±16 %	-40±11 %	-63±18 %
Glacier de Corbassière	CH	16.7	-23±23 %	-55±19 %	-75±15 %
Kaunertaler Gletscher	AT	16.6	-93±8 %	-99±2 %	-100±0 %
Rhonegletscher	CH	15.8	-55±24 %	-79±11 %	-91±7 %
Vadret da Morteratsch	CH	15.8	-24±29 %	-51±13 %	-69±13 %
Zmuttgletscher	CH	15.4	-22±17 %	-52±18 %	-75±13 %
Triftgletscher	CH	14.8	-51±26 %	-82±15 %	-94±6 %
Findelgletscher	CH	14.3	-76±20 %	-94±6 %	-99±2 %
Glacier de Zinal	CH	14.2	-27±21 %	-57±19 %	-80±14 %
Glacier d'Argentière	FR	13.8	-68±16 %	-82±7 %	-91±5 %
Kanderfirn	CH	13.2	-54±19 %	-79±13 %	-91±7 %
Gauligletscher	CH	12.7	-56±17 %	-78±9 %	-89±6 %
Hüfifirn	CH	12.2	-88±14 %	-99±2 %	-100±0 %
Glacier d'Otemma	CH	11.6	-82±10 %	-93±5 %	-97±2 %
Glacier des Bossons	FR	11.4	5±16 %	-6±9 %	-19±13 %
Ghiacciaio dei Forni	IT	11.3	-99±2 %	-100±0 %	-100±0 %
Glacier du Miage	IT	11.0	2±21 %	-13±12 %	-28±14 %
Glacier du Mont Miné	CH	10.5	-57±23 %	-87±14 %	-96±5 %
Ghiacciaio del Lys	IT	10.4	21±38 %	-9±29 %	-51±30 %
Vedretta del Mandrone	IT	10.1	-100±0 %	-100±0 %	-100±0 %

Supplementary References

WGMS: Fluctuations of glaciers database, https://doi.org/10.5904/wgms-fog-2020-08, 2020.