S1 Variables

Table S1. List of model parameters. Sources for reference values: a: standard PCR-GLOBWB setup; b: Magnusson et al. (2014); c: Van Tiel et al. (2018).

1: Variables		Value	Units
Symbol	**Variable**	**Value**	**Units**
T	Daily average temperature		°C
M	Melt rate		m day^{-1}
k	Day of the year since 21st of March		-
P	Total precipitation		m day^{-1}
P_{snowfall}	Snowfall		m day^{-1}
Q	Glacial water release		m day^{-1}
S	Glacial water storage		m
SWE	Snow water equivalent		m
2: Parameters			
Symbol	**Parameter**	**Value**	**Units**
T_{thresh}	Threshold temperature above which melt occurs	0	°C
DDF	Degree-day factor	0.0025[a]	m°C^{-1}day^{-1}
DDF$_{\text{max}}$	Maximum degree-day factor, on 21st of June (NH)	0.0039[b] or calibrated	m°C^{-1}day^{-1}
DDF$_{\text{min}}$	Minimum degree-day factor, on 22nd of December (NH)	0.0005[b] or calibrated	m°C^{-1}day^{-1}
m_{m}	Parameter controlling the transition between melt and no melt	0.5[b]	°C
T_{snowfall}	Temperature below which all precipitation is snow	1[b]	°C
m_{p}	Parameter determining the range where snow and rainfall co-occur	1.24[b]	°C
C_{ice}	Glacier correction factor	calibrated	-
K_{min}	Tuning parameter	0.2[c]	day^{-1}
K_{range}	Tuning parameter	0.5[c]	day^{-1}
A_{g}	Tuning parameter	0.003[c]	m^{-1}

S2 SWE Stations
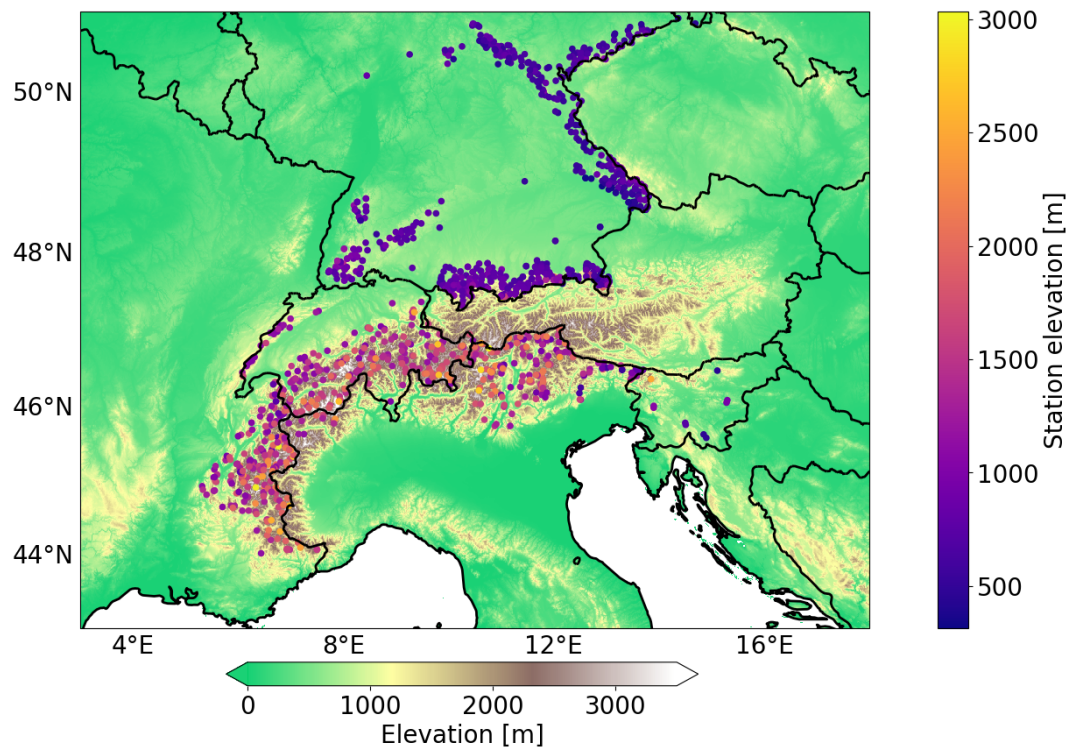
Figure S1. Location of the snow stations from Fontrodona-Bach et al. (2023) included in the analysis.

References

Fontrodona-Bach, A., Schaefli, B., Woods, R., Teuling, A. J., and Larsen, J. R.: NH-SWE: Northern Hemisphere Snow Water Equivalent dataset based on in situ snow depth time series, Earth System Science Data, 15, 2577–2599, https://doi.org/10.5194/essd-15-2577-2023, 2023.

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