

Supplementary Material

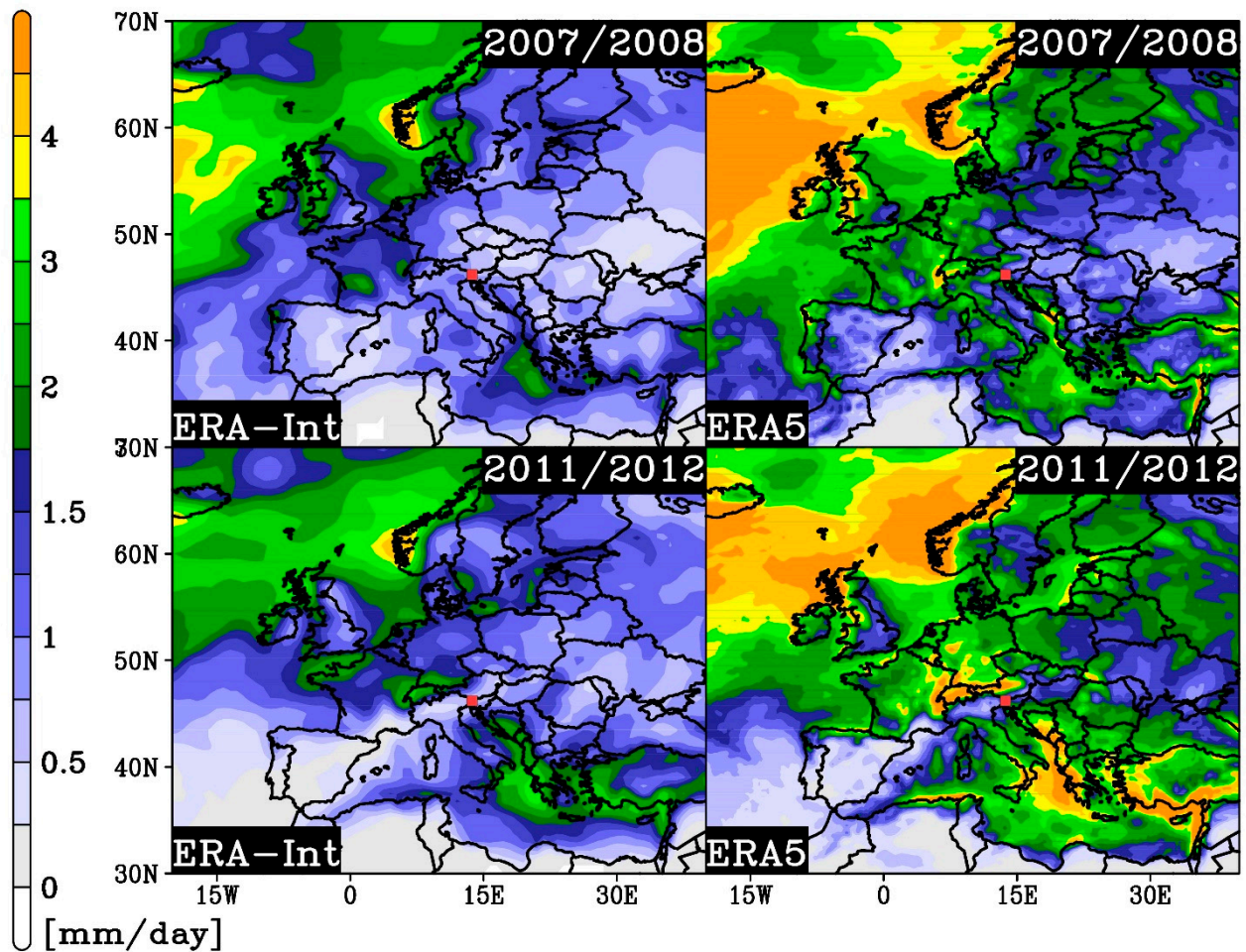


Figure S1. Seasonal precipitation based on the ERA-Interim (left column) and ERA5 datasets (right column) during winters (December-January-February) with relatively low snow accumulation (2007/2008 and 2011/2012 first row and second row, respectively). The red square depicts the region of interest. Units are mm/day.

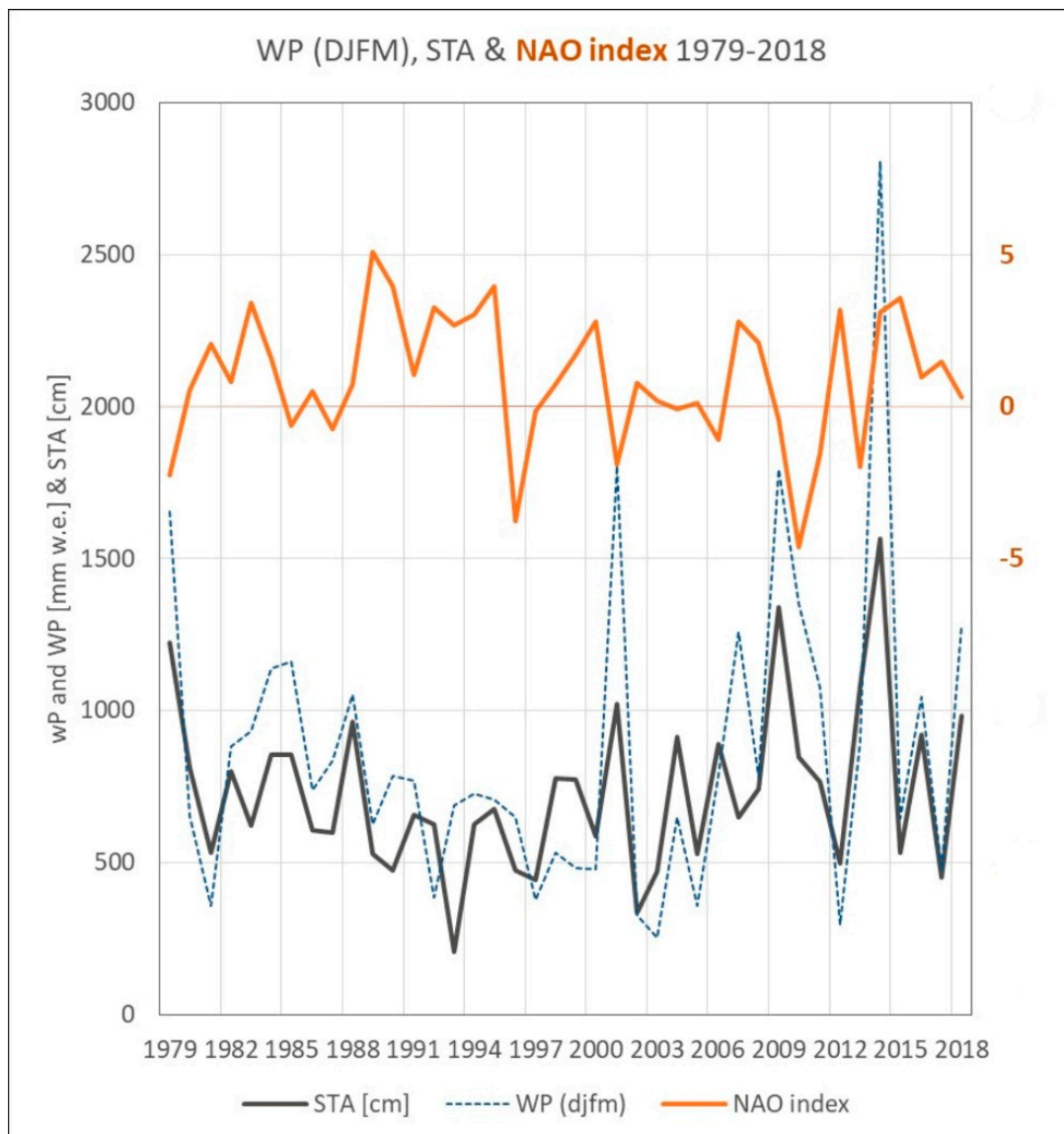


Figure S2. NAO index vs winter precipitation divided in winter Snow Total Accumulation (STA) and Winter (djfm) Precipitation (WP). STA is the sum of all single snowfalls manually measured on the ground between the second half of November and the end of April. Association between WP and NAO ($r_s = -0.30078$, $p = 0.05931$; $R^2 = 0.1754$) is statistically not significant.

Table 1. Area, volume change and mass balance of all ice bodies in the Italian Julian Alps for the period 2006-2018.**Supplementary Table 1.** Area, volume change and mass balance of all ice bodies in the Italian Julian Alps for the period 2006-2018.

Sector	Name	ID*	Area in 2006 (m ²)	Area in 2018 (m ²)	Area diff.(2006-2018)	Mass balance (m w.e.)**	Volume change (m ³)***
3d	Canin East	J3	171.4	242.0	70.6	1.16	319.4
3d	Canin East	J3	3178.8	4979.5	1800.7	2.25	11905.9
3d	Canin East	J3	2786.4	4662.7	1876.3	1.20	6405.9
3d	Canin East GIP	J3	11310.0	15914.0	4604.0	2.57	43198.4
3d	Canin West 1	J1	1263.9	1692.6	428.7	1.12	2136.2
3d	Canin West 1	J1	944.1	6931.8	5987.7	6.69	29044.2
3d	Canin West 1	J1	893.7	2142.4	1248.8	1.06	2553.8
3d	Canin West 1	J1	3155.5	5751.5	2596.0	2.88	15941.3
3d	Canin West 1	J1	19532.5	21917.8	2385.3	0.90	26358.0
3d	Canin West 2	J2	1501.4	1417.7	-83.7	0.34	582.7
3d	Canin West 2	J2	1398.8	2855.3	1456.6	2.80	7635.5
3d	Canin West 2	J2	1390.2	1669.1	278.9	0.90	1985.2
3d	Canin West 2	J2	15853.1	18934.2	3081.2	2.41	53882.4
3b	Carnizza-Riofreddo	J14	15356.6	17538.1	2181.5	0.64	14068.1
3c	Cergnala	J9	145.7	844.0	698.2	3.52	2478.4
3c	Cergnala	J9	1487.7	2459.6	971.9	2.25	6040.0
3c	Cergnala	J9	285.7	357.4	71.8	1.19	520.7
3c	Cergnala	J9	4077.7	7144.5	3066.8	3.69	27905.3
3a	Montasio East	J11	35319.0	35969.3	650.3	1.26	57780.5
3a	Montasio Minor	J12	3797.4	3177.0	-620.4	0.76	3009.0
3a	Montasio West	J10	66095.8	65724.2	-371.6	0.13	11114.6
3d	Prestreljenik	J7	230.8	324.1	93.3	3.25	1194.1
3d	Prestreljenik	J7	15874.3	22552.2	6677.9	1.03	31106.2
3d	Prestreljenik	J7	2745.0	3488.8	743.8	3.24	12207.8
3d	Prestreljenik	J7	1201.6	1965.0	763.4	1.65	3226.6
3d	Prevala	J8	15236.1	17239.4	2003.3	2.92	58148.3
3b	Studence	J13	8464.7	9296.7	832.0	0.35	4901.7
3d	Torre Gilberti	J6	386.9	627.2	240.3	1.38	987.5
3d	Torre Gilberti	J6	2606.2	3200.3	594.1	1.29	4728.6
3d	Ursic	J5	1961.9	4729.3	2767.4	4.27	17552.9
3d	Ursic	J5	495.1	2052.9	1557.8	2.79	4763.5
3d	Ursic	J5	146.0	6093.0	5947.0	4.08	14806.4
3d	Vasto	J4	758.6	746.5	-12.1	1.19	1051.5
SUM			240052.6	294640.3	54587.7	2.04	479540.7

*Identifier equal to the one used in the paper Colucci, R.R., Žebre, M., 2016. Late Holocene evolution of glaciers in the southeastern Alps. Journal of Maps, 12/1, p. 289-299. DOI: 10.1080/17445647.2016.1203216.

**Mass balance was calculated based on the intersect area between 2006 and 2018, and using a density of 791 kg m⁻³.

***Volume change was calculated using the union glacier area at 2006 and 2018.

For the location of sectors refer to Figure 3: 3a - Montasio, 3b - Carnizza-Riofreddo - Studence, 3c - Cergnala, 3d - Canin

Note that mass balance for Canin East GIP in this table (2.57 m w.e.) slightly differs from the one in Figure 5 of the main manuscript (2.79 m w.e.) due to different area (common vs. intersect) used in calculations.

Mean mass balance (all bodies)	2.04
Mean mass balance (Canin sector)	2.22
Mean mass balance (Montasio sector)	0.71
Mean mass balance (Carnizza-Riofreddo-Studence sector)	0.50
Mean mass balance (Cergnala sector)	2.66
Difference between Canin sector and Canin East GIP	0.34
Volume (all bodies)	479541