

Summary:

This document contains pictures of the Dora del Nivolet catchment, (Fig. S1). Next the Fig. S2 illustrates the f_{SCA} timeseries for all the 27 study catchments. The Fig. S3 shows the amount of baseflow obtained applying the Duncan (2019) baseflow filter for all the 27 study sites. The Fig. S4 shows the winter baseflow and the total winter flow against the mean catchment's elevation. The Fig. S5 shows the average winter discharge against elevation. The last figure, Fig. S6, illustrates the annual baseflow against F_{SCA} . Finally, the Table S1 summarizes the results of the main quantities investigated in this study for all the study catchments.



Figure S1. A) Panoramic view of the Dora del Nivolet (DOR) catchment. © Google Earth B) Outlet point of the Dora del Nivolet catchment where streamwater samples are manually collected. C) Dora del Nivolet catchment during winter D) Rain and snowfall isotope sampler (preventing evaporation) installed on a pole 3.7 m high.

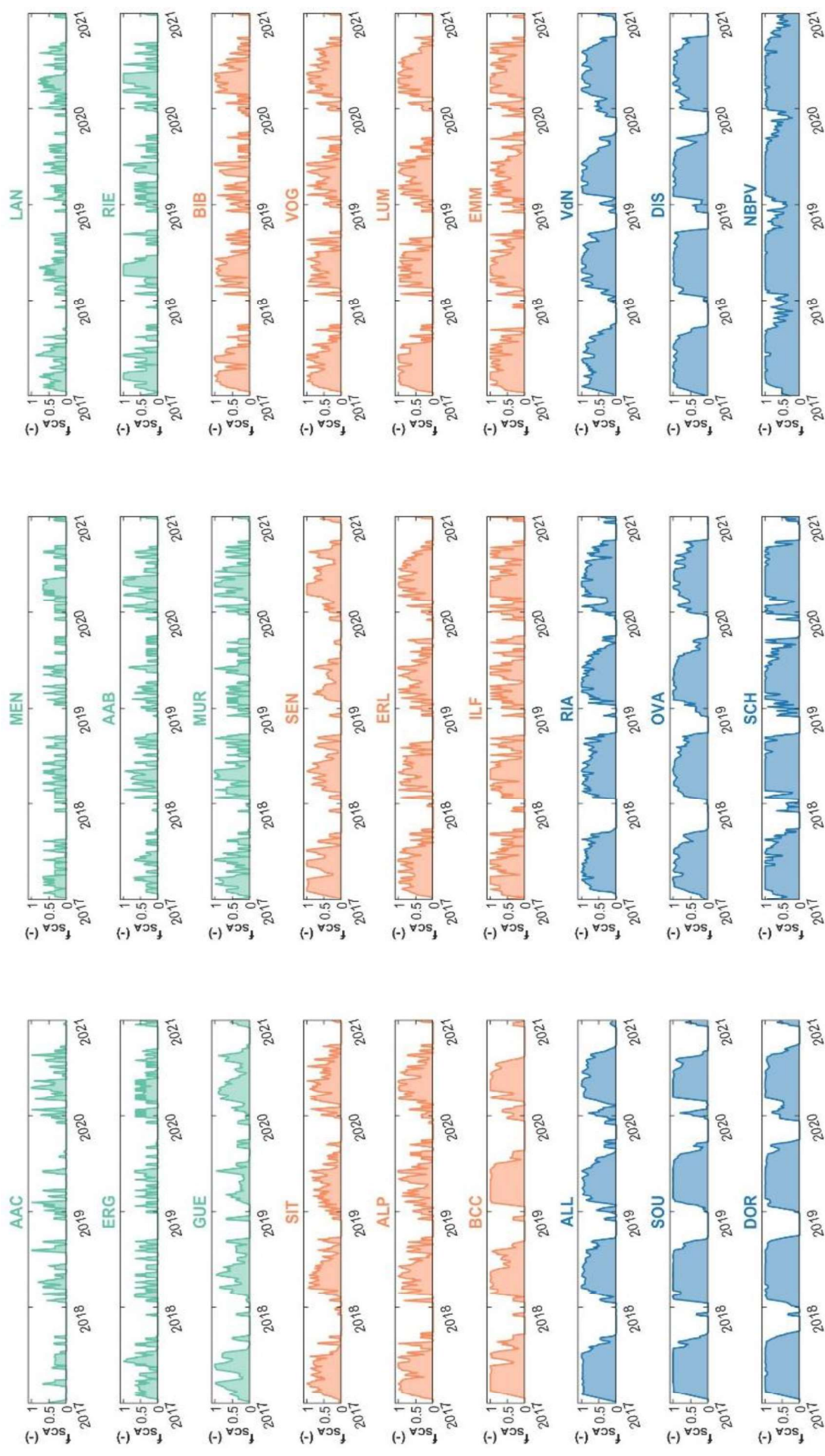


Figure S2. f_{SC4} timeseries for all the study sites.

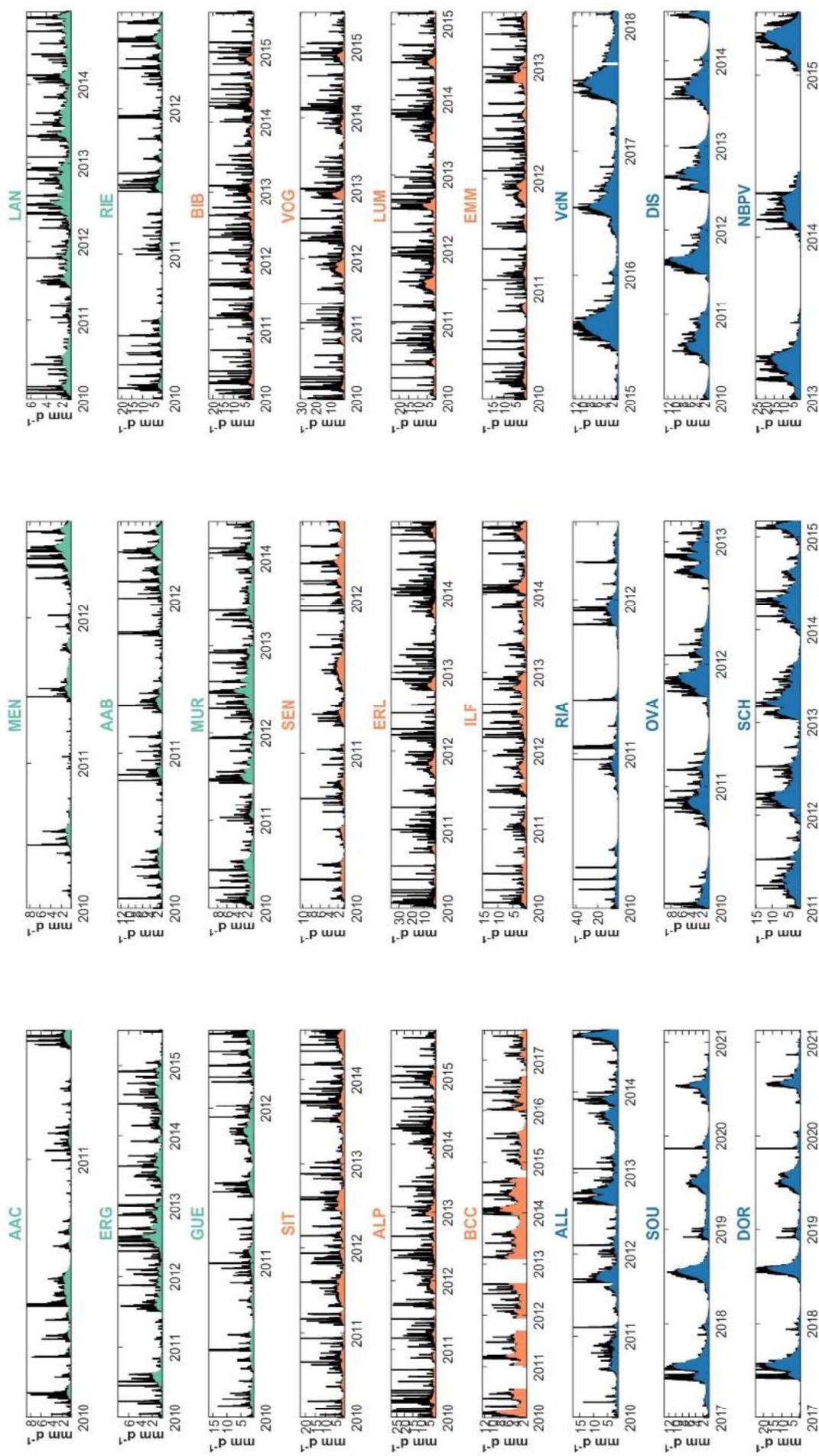


Figure S3. Baseflow separation using the Duncan (2019) filter for all the study sites.

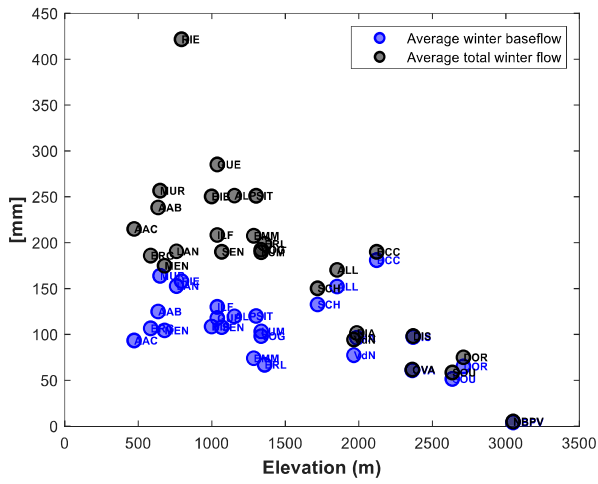


Figure S4. Winter baseflow and total winter flow against elevation.

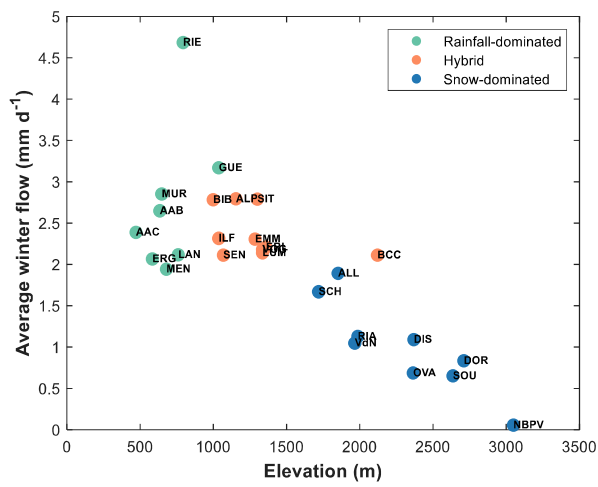


Figure S5. Average winter discharge against elevation.

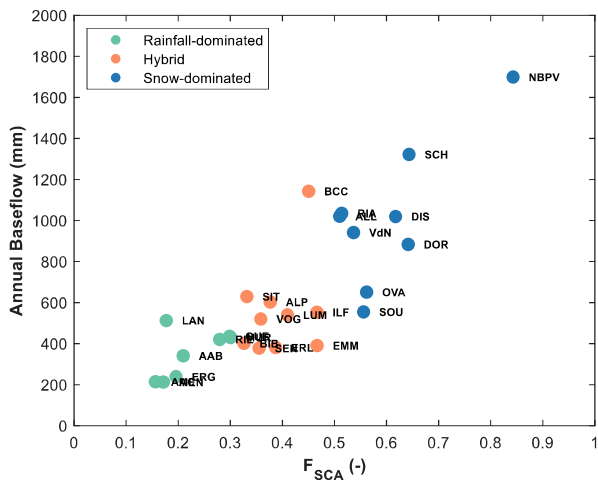


Figure S6. Annual baseflow against F_{SCA}

Table S1. Summary of catchments characteristics. CH: Switzerland, ITA: Italy, R: rainfall-dominated, H: hybrid, S: snow-dominated.

ID	Catchment Name	Nation	Area GEE (km ²)	Area (published) (km ²)	Average Slope (°)	F_{yw} (-)	F_{qd} (-)	F_{bf} (-)	WFI (-)	F_{SCA} (-)	Q_{tune}/Q_{DJF} (-)	hydro-climatic regime (this paper)	hydro-climatic regime (Staudinger et al., 2017)
AAB	Aabach	CH	46.07	49.00	5.73	0.22	0.41	0.71	0.14	0.21	0.33	R	R
AAC	Aach	CH	47.25	50.00	4.02	0.10	1.00	0.73	0.15	0.16	0.22	R	R
ALL	Allenbach	CH	28.71	28.80	25.48	0.11	0.64	0.84	0.24	0.51	1.51	S	S
ALP	Alp	CH	46.59	46.50	16.50	0.35	0.61	0.69	0.06	0.38	0.50	H	H
BCC	Bridge Creek Catchment	ITA	0.14	0.14	22.88	0.11	0.00	0.87	0.23	0.45	0.62	H	-
BIB	Biber	CH	31.83	31.60	12.43	0.39	0.61	0.65	0.06	0.32	0.39	H	R
DJS	Dischnabach	CH	42.75	43.20	26.28	0.10	0.56	0.89	0.19	0.62	4.51	S	S
DOR	Dora	ITA	16.99	-	19.37	0.16	0.24	0.85	0.06	0.64	6.32	S	-
EMM	Emme	CH	124.03	127.00	19.71	0.32	0.53	0.60	0.01	0.47	0.33	H	H
ERG	Ergolz	CH	260.47	261.20	13.86	0.14	0.50	0.75	0.05	0.20	0.21	R	R
ERL	Erlenbach	CH	0.74	0.70	13.53	0.49	0.74	0.50	0.01	0.39	0.84	H	H
GUE	Guerbe	CH	55.23	55.40	16.84	0.18	0.80	0.71	0.07	0.29	0.62	R	H
ILF	Ilfis	CH	186.94	187.90	19.36	0.12	0.69	0.77	0.12	0.47	0.37	H	H
LAN	Langeten	CH	59.76	60.30	10.08	0.07	0.98	0.87	0.40	0.18	0.29	R	R
LUM	Lümpenenbach	CH	1.20	0.90	12.49	0.33	0.90	0.66	0.08	0.41	0.80	H	H
MEN	Mentue	CH	105.02	105.00	6.19	0.26	0.93	0.79	0.18	0.17	0.16	R	R
MUR	Murg	CH	79.92	76.80	10.52	0.13	0.62	0.77	0.19	0.30	0.23	R	R
NBPV	Noce Bianco at Pian Venezia	ITA	8.39	8.40	23.27	0.34	0.24	0.70	0.00	0.84	65.82	S	-
OVA	Ova da Cluozza	CH	26.87	26.90	32.73	0.14	0.41	0.85	0.21	0.56	3.74	S	S
RIA	Riale di Calneggia	CH	23.85	23.90	32.93	0.22	0.43	0.84	0.11	0.51	2.16	S	S
RIE	Rietholzbach	CH	3.18	3.20	13.23	0.20	0.21	0.68	0.07	0.28	0.30	R	R

SCH	Schaenen	CH	107.61	107.90	28.78	0.18	0.62	0.85	0.20	0.64	1.54	S
SEN	Sense	CH	350.24	351.20	15.35	0.29	0.50	0.75	0.24	0.36	0.42	H
SIT	Sitter	CH	74.23	88.20	22.15	0.19	0.54	0.68	0.07	0.33	0.44	H
SOU	Source	ITA	0.16	-	25.74	0.10	0.00	0.82	0.01	0.56	3.81	S
VdN	Vallon de Nant	CH	13.55	13.50	34.00	0.08	0.49	0.84	0.04	0.54	2.85	S
VOG	Vogelbach	CH	1.57	1.60	18.42	0.31	0.48	0.66	0.07	0.36	0.94	H