Supplementary material for: Future water temperature of rivers in Switzerland under climate change investigated with physics-based models

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S1 Additional catchments details

In this section, details about hydrological gauging stations and automatic meteorological stations are presented (Tables S1 and S2, respectively). In addition, maps detailing each catchment (watershed and stream network, see Section S3, along with the locations of meteorological and hydrological stations) are presented in Figure S1.

S2 Land cover classes

Table S3, presents the translation used between CORINE land cover classes (European Environment Agency, 2013) and the classes available in the Alpine3D model. Note that the files defining the properties of soil and vegetation for each class are provided along with this article.

S3 Catchment and stream network delineation

Streamflow requires for each river a separation into individual reaches and the sub-watersheds associated with each reaches. In addition, only tow reaches are allowed to merge at each node of the network. The datasets provided by the FOEN (Swiss Federal Office of th 2013, 2020) do not fulfill the above requirements. The software TauDEM (Tarboton, 1997) is thus used in order to compute from the digital elevation model (DEM) the stream network and the associated watershed and sub-watersheds. A wrapper has been developed around TauDEM to force it to reproduce the stream network given as input. First, the stream network files

(Swiss Federal Office of the Environment, 2013, 2020) are modified manually in order to be compliant with the requirement mentioned above. Nodes with triple reach intersection are modified (one reach is moved a bit upstream or downstream in order to have two subsequent nodes). Reach split (when one upstream reach is split into two downstream reaches, which are presents in channelized area) are removed. The DEM is then dug along the stream network (using the GDAL toolkit). The Strahler order is used (higher order means deeper digging) to ensure water flow in the downhill direction. In the next step, the following TauDEM tools are applied (filenames are not shown, see TauDEM documentation for more details):

```
PitRemove -z  -fel
D8FlowDir -p  -sd8  -fel
AreaD8 -p -ad8
PeukerDouglas -fel  -ss
AreaD8 -p  -o  -ad8  -wg
```

At this point, a grid of network skeleton, showing for each pixel the sum of contributing area, is obtained. This grid is filtered to remove contributions below a defined threshold in order to limit the creation of too small reaches. Then, a first version of the network is obtained using the corrected skeleton grid as source grid in:

```
Streamnet -fel -p -ad8 -src  -ord -tree -coord -net -w -o
```

SQL commands are used on the network shapefile obtained to remove upstream reaches smaller than a given threshold. The corrected network grid is then used as a new skeleton grid for a second pass in the `Streamnet` function. All conversions required are performed with GDAL. Finally, awk and bash are used to check that the output files fulfill all requirements. Another script in python is used to crop the DEM, landuse, and watershed grids to the correct dimensions based on TauDEM output. All scripts are provided along with this article.

Figure S2 shows the stream network and watershed delineation obtained from this method compared to the data provided by the FOEN. A very good agreement is obtained, showing the robustness of this method.

Table S1. Details about gauging stations used in this study.

ID	Name	Elevation (m)	Easting (m)	Northing (m)	Discharge	Temperature	Provider
2034	Broye - Payerne, Caserne d'aviation	441	561660	187320	x	x	FOEN
2106	Birs - Münchenstein, Hofmatt	268	613570	263080	x	x	FOEN
2109	Lütschine - Gsteig	585	633130	168200	x	x	FOEN
2202	Ergolz - Liestal	305	622270	259750	x		FOEN
2269	Lonza - Blatten	1520	629130	140910	x	x	FOEN
2327	Dischmabach - Davos, Kriegsmatte	1668	786220	183370		x	FOEN
2355	Landwasser - Davos, Frauenkirch	1487	779640	181200	x		FOEN
2414	Rietholzbach - Mosnang, Rietholz	682	718840	248440	x	x	FOEN
2462	Inn - S-Chanf	1645	795800	165910	x	x	FOEN
2634	Kleine Emme - Emmen	430	663700	213630	x	x	FOEN
A024	Suze - Péry, Vigier Ciment	586	585610	225610	x	x	AWA
A017	Kander - Frutigen	777	616540	158320	x	x	AWA
ER1	Ergolz - Frenkendorf	275	621200	263420		x	Holdinger AG
ZH523	Eulach - Wülflingen	410	694120	262820	x	x	AWEL

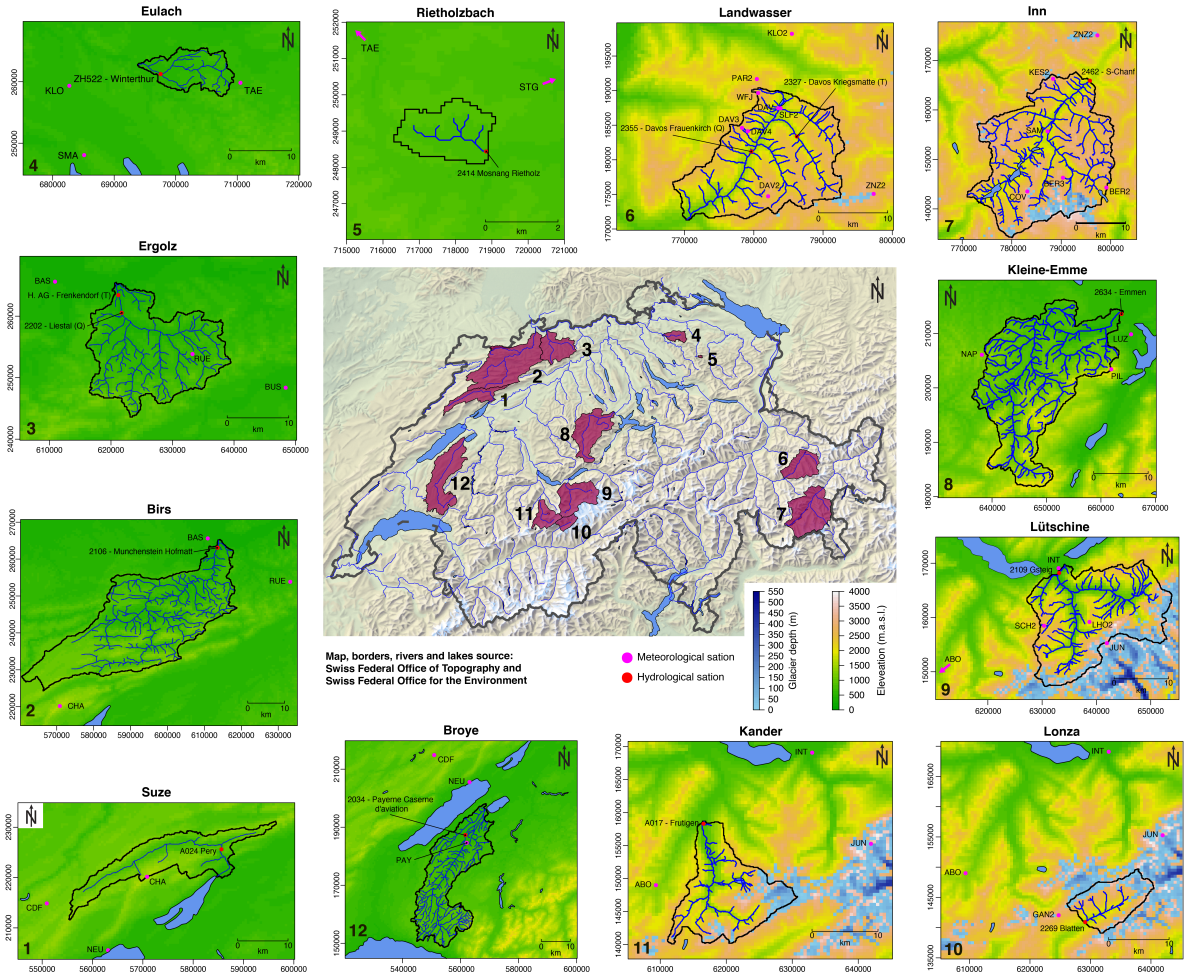

Figure S1. Catchment details showing position of meteorological and hydrological measurements stations, elevation, and glacier thickness for all studied catchments.

Table S2. Details about meteorological stations used in this study.

ID	Name	Elevation (m)	Easting (m)	Northing (m)	TA	PSUM	RH	VW	ISWR	Provider
ABO	Adelboden	1327	609350	149001	x	x	x	x	x	MCH
BAS	Basel / Binningen	316	610911	265601	x	x	x	x	x	MCH
BER2	Bernina:Motta Bianco	2447	799121	144312		x	x	x		IMIS
BER3	Bernina:Puoz Pass	2625	790343	146291	x		x	x		IMIS
CDF	La Chaux-de-Fonds	1017	550919	214861	x	x	x	x	x	MCH
CHA	Chasseral	1599	570847	220158	x	x	x		x	MCH
COV	Piz Corvatsch	3302	783151	143522	x	x	x	x	x	MCH
DAV	Davos	1594	783514	187458	x	x	x	x	x	MCH
DAV2	Davos:Bärentälli	2558	782062	174726	x	x	x	x		IMIS
DAV3	Davos:Hanengretji	2455	778292	184616	x	x	x	x		IMIS
DAV4	Davos:Frauentobel	2330	779125	184125	x	x	x	x		IMIS
GAN2	Gandegg:Schneestation	2710	624748	142041	x	x	x			IMIS
INT	Interlaken	577	633019	169093	x	x	x	x	x	MCH
JUN	Jungfraujoch	3580	641930	155275	x		x		x	MCH
KES2	Kesch:Porta d'Es-cha	2727	788351	166289	x	x		x		IMIS
KLO	Zürich / Kloten	426	682710	259339	x	x	x	x	x	MCH
KLO2	Klosters:Madrisa	2147	785499	198213	x	x	x	x		IMIS
LHO2	Lauberhorn:Russisprung	2150	638715	159182		x		x		IMIS
LUZ	Luzern	454	665540	209848	x	x	x	x	x	MCH
NAP	Napf	1404	638133	206079	x	x	x		x	MCH
NEU	Neuchâtel	485	563087	205560	x	x	x	x	x	MCH
PAR2	Parsenn:Kreuzweg	2290	780436	191675	x	x	x	x		IMIS
PAY	Payerne	490	562127	184612	x	x	x	x	x	MCH
PIL	Pilatus	2106	661910	203410					x	MCH
RUE	Rünenberg	611	633246	253846	x	x	x	x	x	MCH
SAM	Samedan	1709	787250	155685	x	x	x	x	x	MCH
SCH2	Schilthorn:Schneestation	2332	630363	158481	x	x	x	x		IMIS
SLF2	SLF:Fluelastrasse	1563	783879	187447	x		x	x		IMIS
SMA	Zürich / Fluntern	556	685117	248066	x	x	x	x	x	MCH
STG	St. Gallen	776	747865	254588	x	x	x	x	x	MCH
TAE	Aadorf / Tänikon	539	710515	259821	x	x	x	x	x	MCH
VIS	Visp	639	631149	128020	x	x	x	x	x	MCH
WFJ	Weissfluhjoch	2691	780615	189634	x	x	x	x	x	MCH
ZNZ2	Zernez:Puelschezza	2677	797312	175078	x	x	x	x		IMIS

Table S3. Translation between CORINE land cover (CLC) and Alpine3D land cover classes. Only CLC classes relevant to this study are shown.

CLC name	CLC number	A3D name	A3D number
Continuous urban fabric	111	Settlement	10200
Discontinuous urban fabric	112	Settlement	10200
Industrial or commercial units	121	Settlement	10200
Road and rail networks and associated land	122	Settlement	10200
Airports	124	Settlement	10200
Mineral extraction sites	131	Rock	11500
Dump sites	132	Settlement	10200
Construction sites	133	Settlement	10200
Green urban areas	141	Sub-alpine meadow	12400
Sport and leisure facilities	142	Settlement	10200
Non-irrigated arable land	211	Sub-alpine meadow	12400
Permanently irrigated land	212	Sub-alpine meadow	12400
Vineyards	221	Pasture	10700
Fruit trees and berry plantations	222	Pasture	10700
Pastures	231	Pasture	10700
Annual crops associated with permanent crops	241	Pasture	10700
Complex cultivation patterns	242	Pasture	10700
Land principally occupied by agriculture, with significant areas of natural vegetation	243	Pasture	10700
Agro-forestry areas	244	Mixed forest	10500
Broad-leaved forest	311	Mixed forest	10500
Coniferous forest	312	Coniferous forest	10300
Mixed forest	313	Mixed forest	10500
Natural grasslands	321	Sub-alpine meadow	12400
Moors and heathland	322	Bare soil vegetation	12600
Sclerophyllous vegetation	323	Mixed forest	10500
Transitional woodland-shrub	324	Mixed forest	10500
Bare rocks	332	Rock	11500
Sparsely vegetated areas	333	Bare soil vegetation	12600
Glaciers and perpetual snow	335	Bare ice	11400
Inland marshes	411	Wetland	12200
Peat bogs	412	Wetland	12200
Water courses	511	Water	10100
Water bodies	512	Water	10100

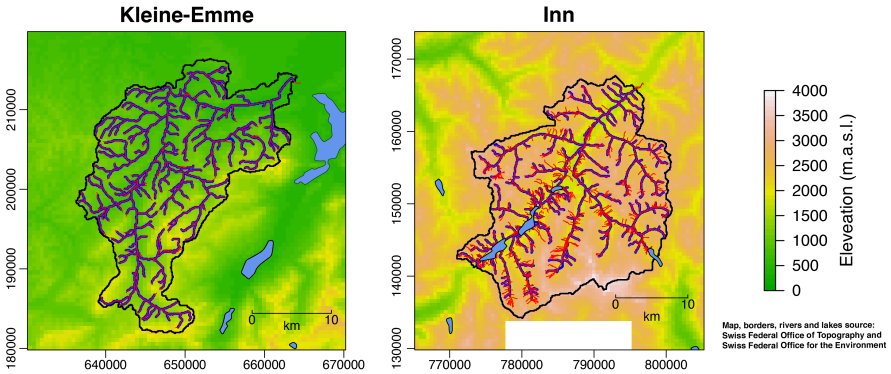

Figure S2. Stream network and watershed delineation (in blue) obtained from the method developed compared to the data provided by the FOEN (in red) (Swiss Federal Office of the Environment, 2013, 2020).

S4 Sensitivity analysis of calibration period length

Alpine3D (A3D) is run for the Broye and Lonza catchments for the period 2003-2018. Then, StreamFlow (SF) is calibrated using once the period 2003-2008, and then using the period 2013-2018. Finally, SF is run with these two sets of parameters, and with the parameters obtained using the calibration period 2012-2014 as mentioned in the main article, to assess the impact of the calibration period length on the model performances. Results are shown in Figure S3 and in Table S4. The validation performance is computed over the periods which were not used for calibration. For the Lonza catchment, there are no significant differences in the RMSE obtained for water temperature. For the Broye catchment, the RMSE is reduced when calibrating over longer time periods. However, this difference is not visible in the temperature. Since the application of different calibration period lengths was found to be of little importance, and to reduce the computational time needed for calibration, it has been decided to use the calibration and validation periods given in the main article, i.e. 2012-2014 and 2015-2018, which is considered justified. Note that calibration and validation periods used are similar or longer than those used in previous studies using SF (Gallice et al., 2015; Brauchli et al., 2017; Griessinger et al., 2019).

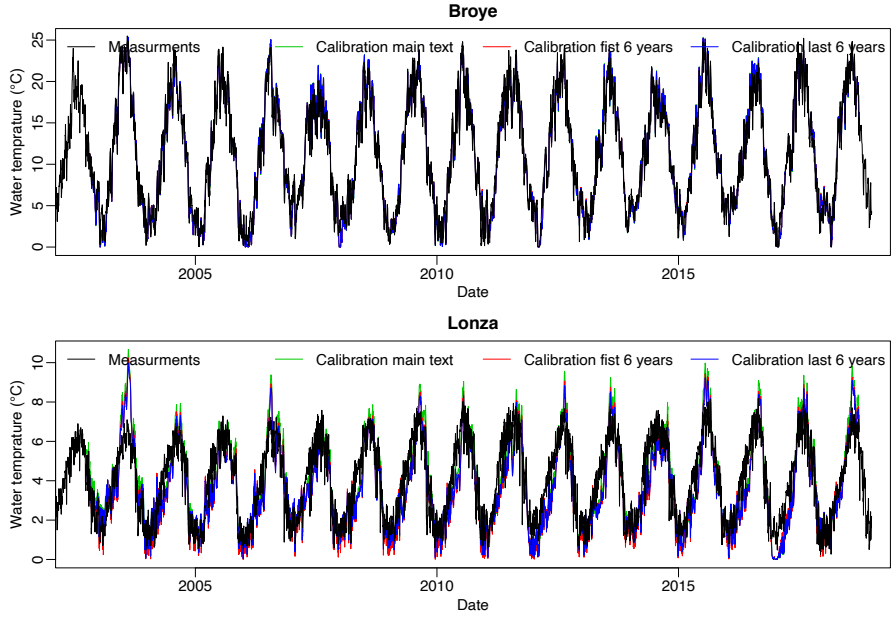

Figure S3. Broye and Lonza catchments.

Table S4. Performance of StreamFlow during the calibration period with different water routing schemes.

Calibration						
Catchment	**Main**		**Start**		**End**	
	KGE (-)	**RMSE (°C)**	**KGE (-)**	**RMSE (°C)**	**KGE (-)**	**RMSE (°C)**
Broye	0.75	1.04	0.70	1.14	0.76	1.06
Loza	0.92	0.88	0.91	0.98	0.92	0.95
Validation						
Catchment	**Main**		**Start**		**End**	
	KGE (-)	**RMSE (°C)**	**KGE (-)**	**RMSE (°C)**	**KGE (-)**	**RMSE (°C)**
Broye	0.65	1.21	0.71	0.92	0.76	0.91
Loza	0.82	1.08	0.87	1.07	0.88	1.02

S5 Inter-comparison of StreamFlow model setups

In this section we show the performance of SF over the calibration period using 2 different spatial resolutions (100 m and 500 m), 4 different water routing schemes, and 3 different methods to compute the water temperature in the ground before its infiltration into the river.

The computation time of the discretized routing approach is by many orders of magnitude slower than the lumped approach. As a consequence, this is tested only on a few catchments which are indicated in Table S5. Furthermore, the combined discretized and Muskingum-Cunge (MC) approach is so slow that it failed to finish the temperature calibration in the 24 h allowed as maximum run time on the CSCS supercomputer. Therefore, this combination could not be considered.

Table S5 shows the KGE and RMSE values obtained over the calibration and validation periods with the 3 retained water routing schemes at 500 m resolution for the selected catchments. Note that these simulations were run in an early phase of this study with a different set of meteorological stations, and consequently the results in the table might differ from the final calibration results shown in the main article (Section 4.1). The results for water temperature shown in Table S5 are the best results obtained across the 3 temperature schemes and 5 soil depths used for each individual catchment and routing scheme. The results for discharge are not improved using the discretized scheme, and with this mode the water temperature computed is completely wrong. The discrete approach is thus discarded for the rest of the analysis.

Table S5 also serves for assessing the difference between the lumped direct routing and the lumped MC approaches. We notice that the performances are very similar for the two routing schemes. Since the direct routing is significantly faster than the MC approach, the lumped direct routing is retained for this work.

Calibration performances at 100 m and 500 m resolution (using lumped direct routing) are inter-compared in Table S6. There is no clear difference between the results based on the two resolutions. Finally, the resolution of 100 m is chosen to ensure consistency among catchments since only the 100 m resolution is available for the Rietholzbach catchment (because A3D is run at 100 m resolution for this small catchment).

Table S5. Performance of SF during the calibration period with different water routing schemes.

Catchment	Lumped Direct		Lumped Discretized		MC Direct	
	KGE (-)	RMSE (°C)	KGE (-)	RMSE (°C)	KGE (-)	RMSE (°C)
Birs	0.80	1.23	0.815	4.894	0.827	1.28
Broye	0.70	1.04	0.70	5.70	0.69	1.14
Ergolz	0.99	0.90	0.89	4.42	0.89	0.90
Eulach	0.72	0.89	0.71	5.19	0.72	0.95
Inn	0.92	0.80	0.92	8.67	0.92	0.78
Kander	0.82	0.71	0.82	11.33	0.81	0.72
Lonza	0.86	0.88	0.84	9.15	0.82	0.81
Suze	0.83	2.24	0.81	8.66	0.83	2.20

Table S6. Performance of SF during the calibration period with different spatial resolutions.

Catchment	Lumped Direct @ 100m		Lumped direct @ 500m	
	KGE (-)	RMSE (°C)	KGE (-)	RMSE (°C)
Birs	0.83	1.26	0.80	1.23
Broye	0.68	1.12	0.70	1.04
Ergolz	0.87	1.07	0.99	0.90
Eulach	0.75	1.03	0.72	0.89
Inn	0.93	0.79	0.92	0.80
Kander	0.82	0.66	0.82	0.71
Loza	0.81	0.76	0.86	0.88
Suze	0.79	2.18	0.83	2.24

Finally, simulations for all catchments are run at 100 m resolution with the lumped direct routing scheme and with the 3 different methods available to compute the water temperature in the ground before infiltration into the river. Recall, 5 soil temperature depths are always used but only the best result is shown in Table S7. Although not being the best preforming in all catchments, the HSPF scheme is the most consistent across catchments. The two other schemes lead to large errors in certain catchments. Note that in the HSPF scheme, the soil temperature has a less important impact than in the two other schemes (soil temperature is only needed for heat conduction between water and river bed). The choice of a specific soil depth for the soil temperature to be used has an impact of only 0.1 °C on the water temperature RMSE if the HSPF scheme is used.

Table S7. Performance of SF during the calibration period with different sub-watershed temperature schemes. Energy balance calculation follows the approach of Comola et al. (2015), HSPF the approach of Bicknell et al. (1997), and soil temperature is computed by simply using soil temperature averaged over the sub-watershed for groundwater temperature.

Catchment	Energy balance RMSE (°C)	HSPF RMSE (°C)	Soil temperature RMSE (°C)
Birs	1.13	1.01	1.13
Broye	1.01	0.91	1.01
Ergolz	0.93	1.25	1.27
Eulach	0.91	1.15	1.04
Inn	0.91	1.02	0.92
Kander	1.06	0.69	1.05
Kleine Emme	1.88	1.08	1.79
Landwasser	1.35	0.91	1.33
Lonza	0.77	0.89	0.75
Lütschine	2.08	1.34	2.14
Rietholzbach	1.87	1.50	1.84
Suze	2.79	1.68	2.81

S6 Specific data and plots for calibration and validation

In this section, we present first the values obtained for each calibrated parameter (Table S8); see main article (Sections 3.2 and 4.1) and Gallice et al. (2016) for more details about the calibrated parameters. Then, two plots per catchment are shown, presenting the obtained time series during calibration and validation periods and the distribution of errors (Figures S6 to S27). Finally, the snow depth modelled at the position of the measurement stations is shown in Figures S28 to S31. Note that the measurement stations' real elevation might differ quite significantly from the pixel elevation, leading to difference in snow depth. Both elevations are indicated in the figures.

Table S8. Performance of SF during the calibration period with different sub-watershed temperature schemes. Energy balance calculation follows the approach of Comola et al. (2015), HSPF the approach of Bicknell et al. (1997), and soil temperature is computed by simply using soil temperature averaged over the sub-watershed for groundwater temperature.

Catchment	PSUM lapse rate (%/m)	Soil depth for temp. (m)	Max. infiltration rate (mm/day)	Upper res. τ (day)	Lower res. τ (day)	Frac. lost water (-)	HSPF smoothing (s)	HSPF offset (K/s)	Bed heat trans. coeff (W/m^{2}K)
Birs	2.00E-02	3.0	2.87E+00	2.39E+00	6.67E+02	2.75E-01	-2.33E+00	1.15E-07	2.99E+01
Broye	2.00E-02	0.5	5.05E-01	3.31E+00	7.35E+02	5.70E-02	-2.99E+00	1.21E-07	6.30E+01
Ergolz	2.00E-02	2.5	5.01E+00	1.71E+00	6.08E+02	1.56E-01	-1.16E+00	4.76E-06	5.63E+01
Eulach	1.00E-02	3.0	6.96E+00	1.81E+00	1.46E+03	3.20E-01	+9.79E-01	4.62E-06	3.85E+01
Inn	5.00E-02	3.0	2.11E+01	3.83E+00	8.32E+02	6.91E-02	-2.22E+00	1.49E-06	2.78E+01
Kander	2.00E-02	0.5	5.17E+00	6.69E+00	5.10E+02	8.85E-02	-2.96E-01	9.76E-07	2.15E+01
Kleine Emme	5.00E-02	2.5	1.23E+01	1.07E+00	5.72E+02	1.19E-01	-2.91E+00	1.22E-06	1.01E+01
Landwasser	5.00E-02	1.0	1.17E+01	5.97E+00	1.01E+02	7.57E-02	-2.47E+00	9.16E-07	2.68E+01
Lonza	5.00E-02	0.5	1.70E+00	4.90E+00	6.35E+02	1.35E-01	-7.52E-01	7.49E-07	7.27E+01
Lütschine	3.00E-02	1.0	4.48E+00	1.79E+00	1.66E+02	3.20E-02	-2.35E+00	1.05E-07	1.06E+00
Rietholzbach	5.00E-02	1.5	5.29E+00	1.85E+00	6.26E+02	5.57E-03	-2.47E+00	1.33E-06	4.55E+01
Suze	2.00E-02	4.5	4.58E+00	2.58E+00	1.26E+02	1.19E-01	-2.50E+00	1.09E-07	3.67E+01

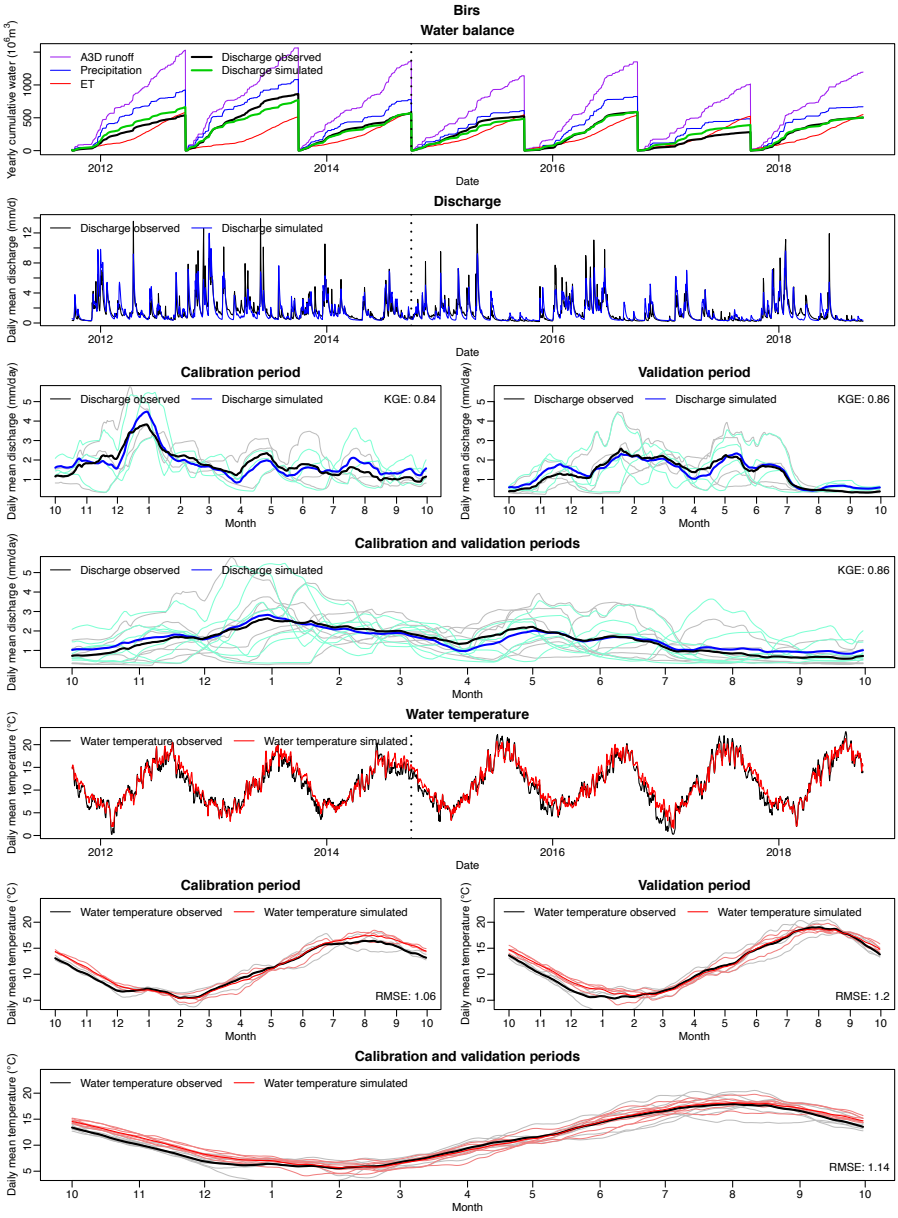

Figure S4. Calibration and validation results for the Birs catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

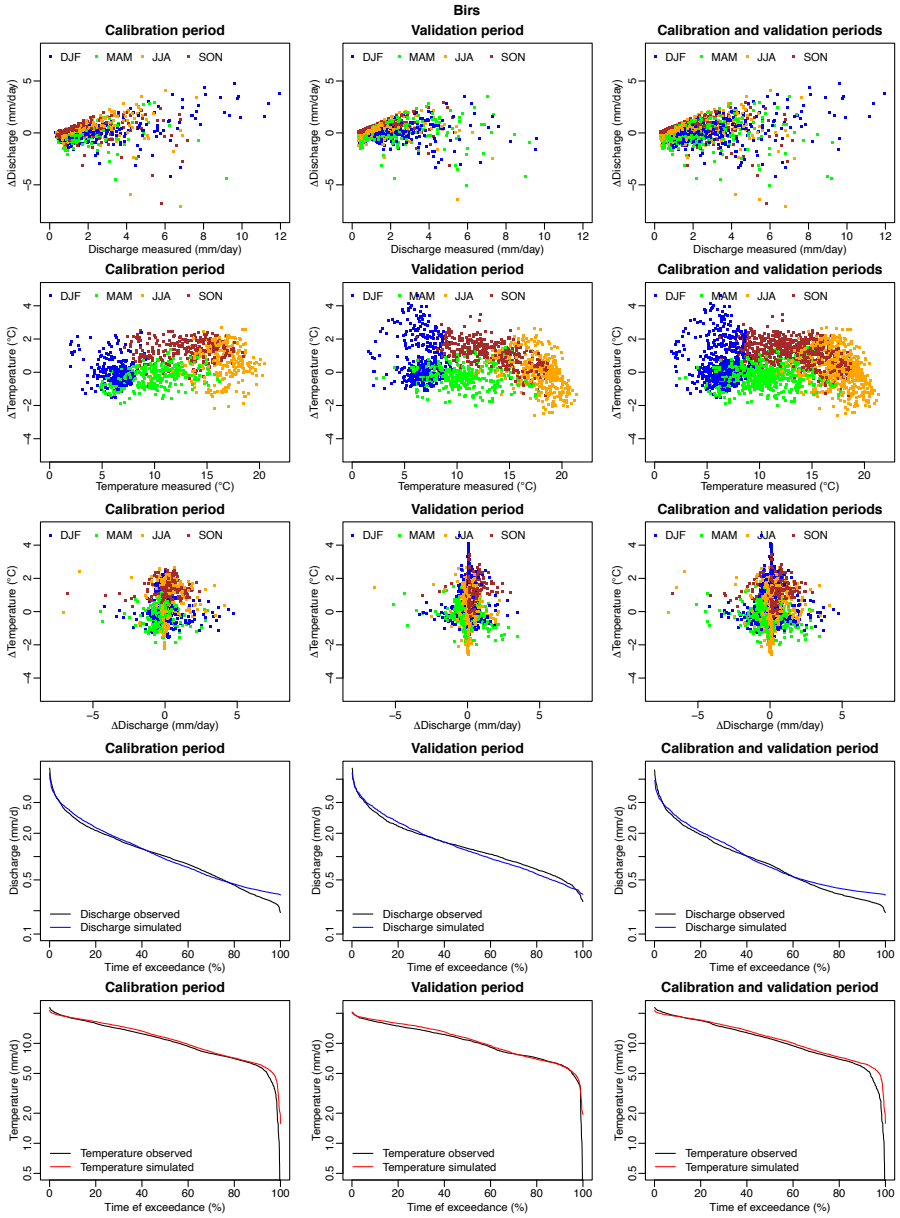

Figure S5. Errors during the calibration and validation periods for the Birs catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error plotted against raw water temperature value (colors indicate seasons). Row 3: Water temperature error versus relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

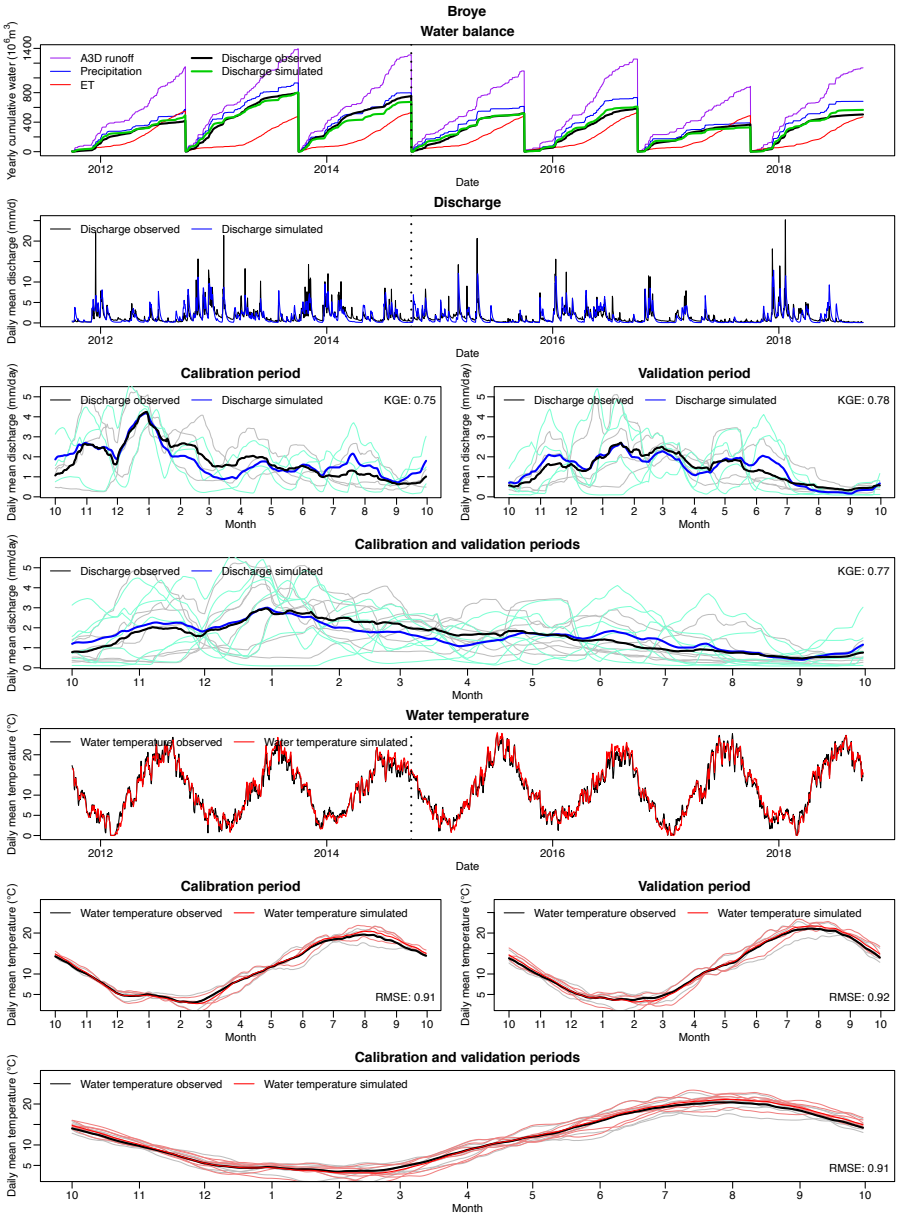

Figure S6. Calibration and validation results for the Broye catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

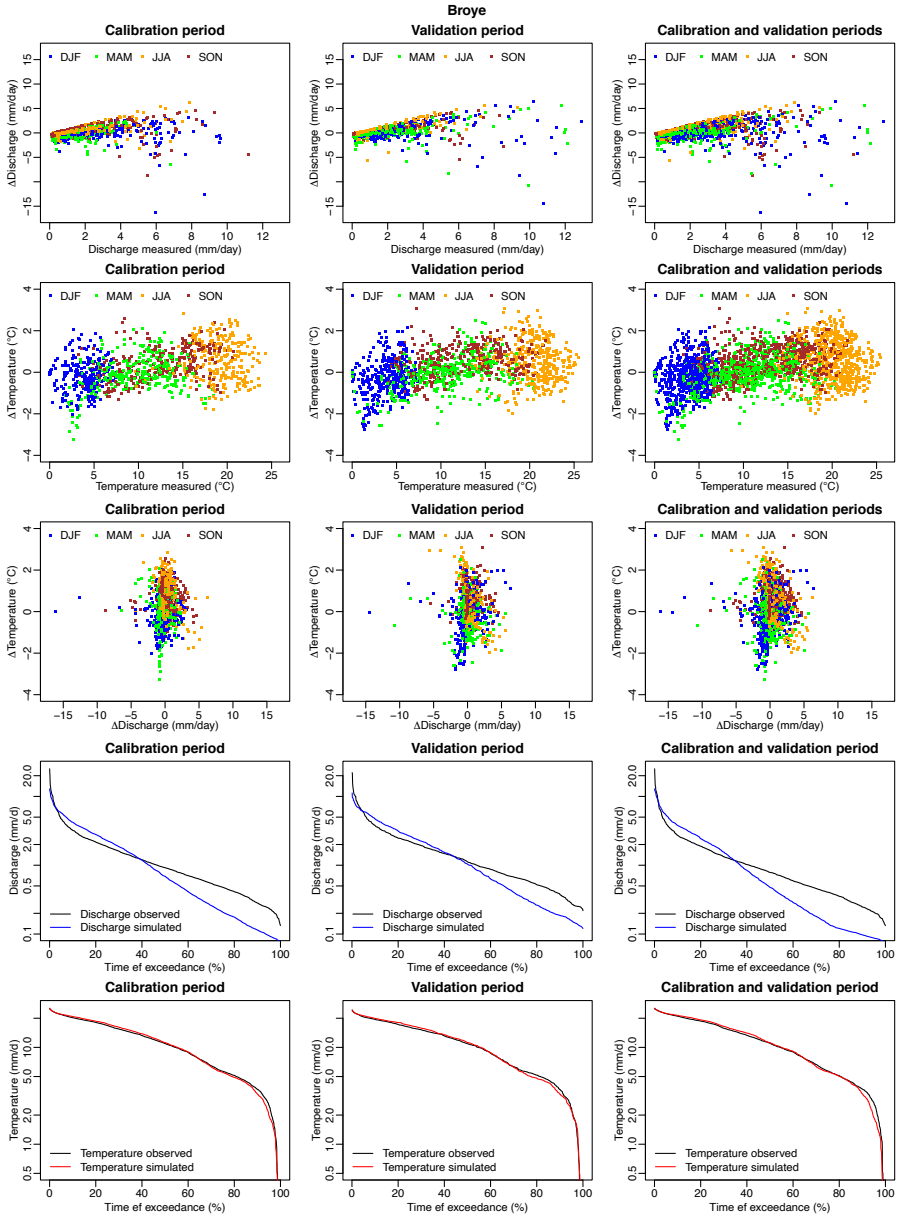

Figure S7. Errors during the calibration and validation periods for the Broye catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

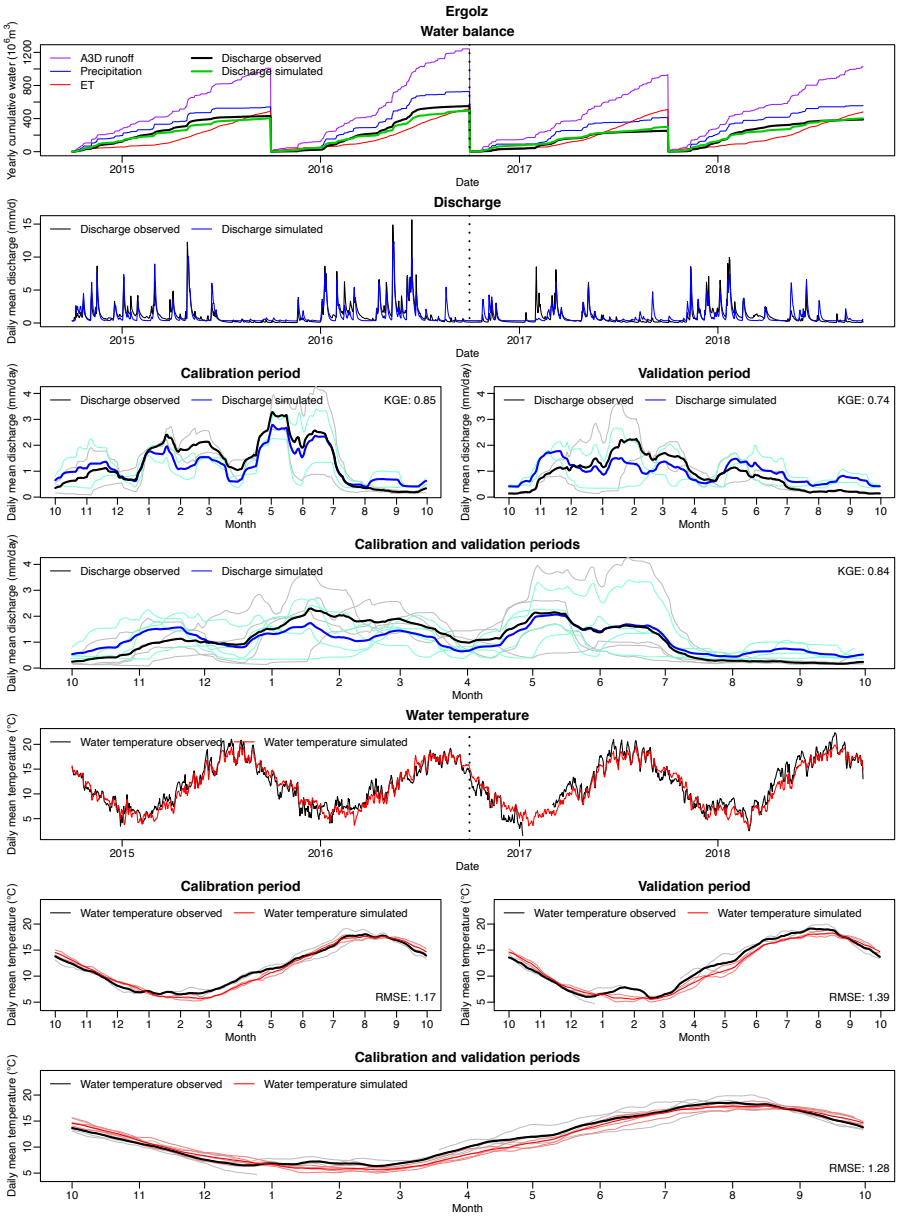

Figure S8. Calibration and validation results for the Ergolz catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

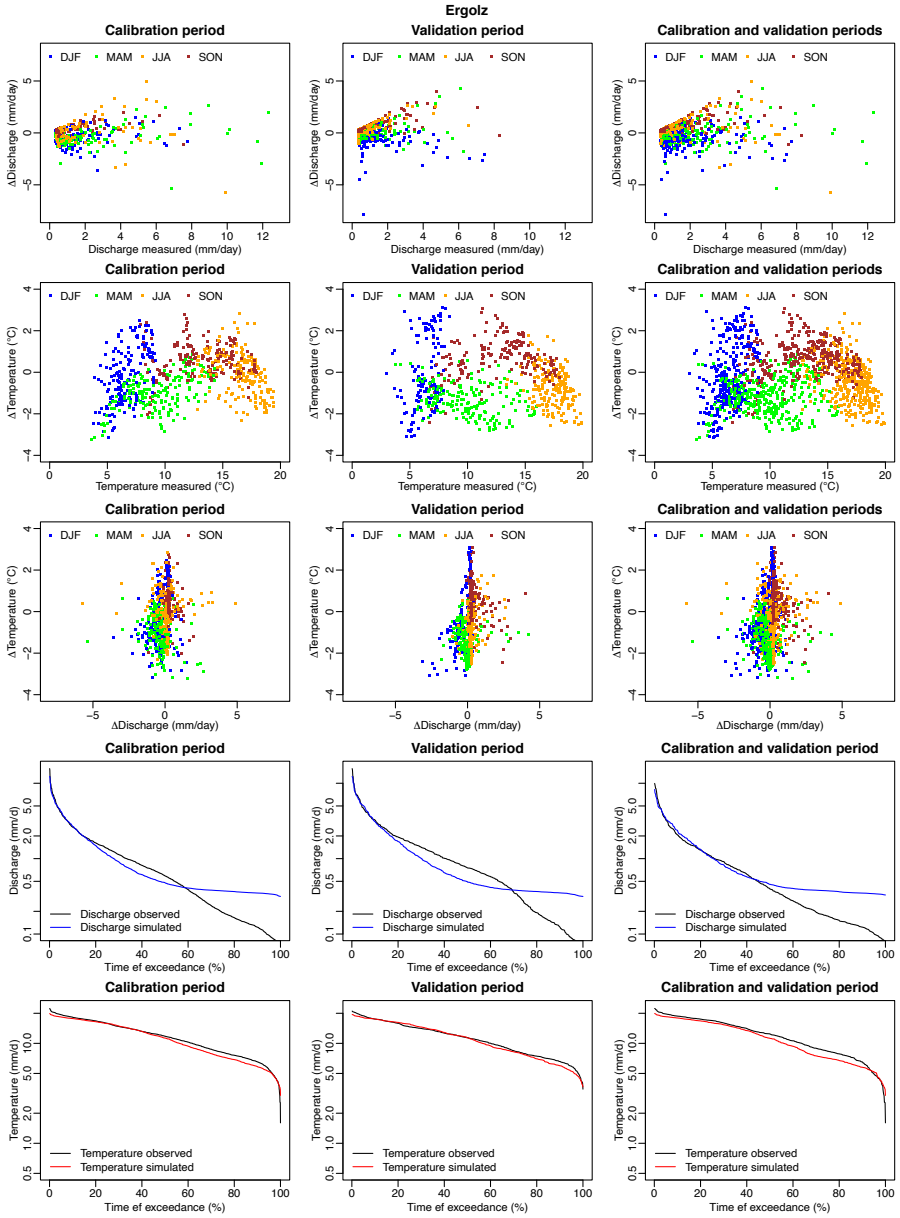

Figure S9. Errors during the calibration and validation periods for the Ergolz catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

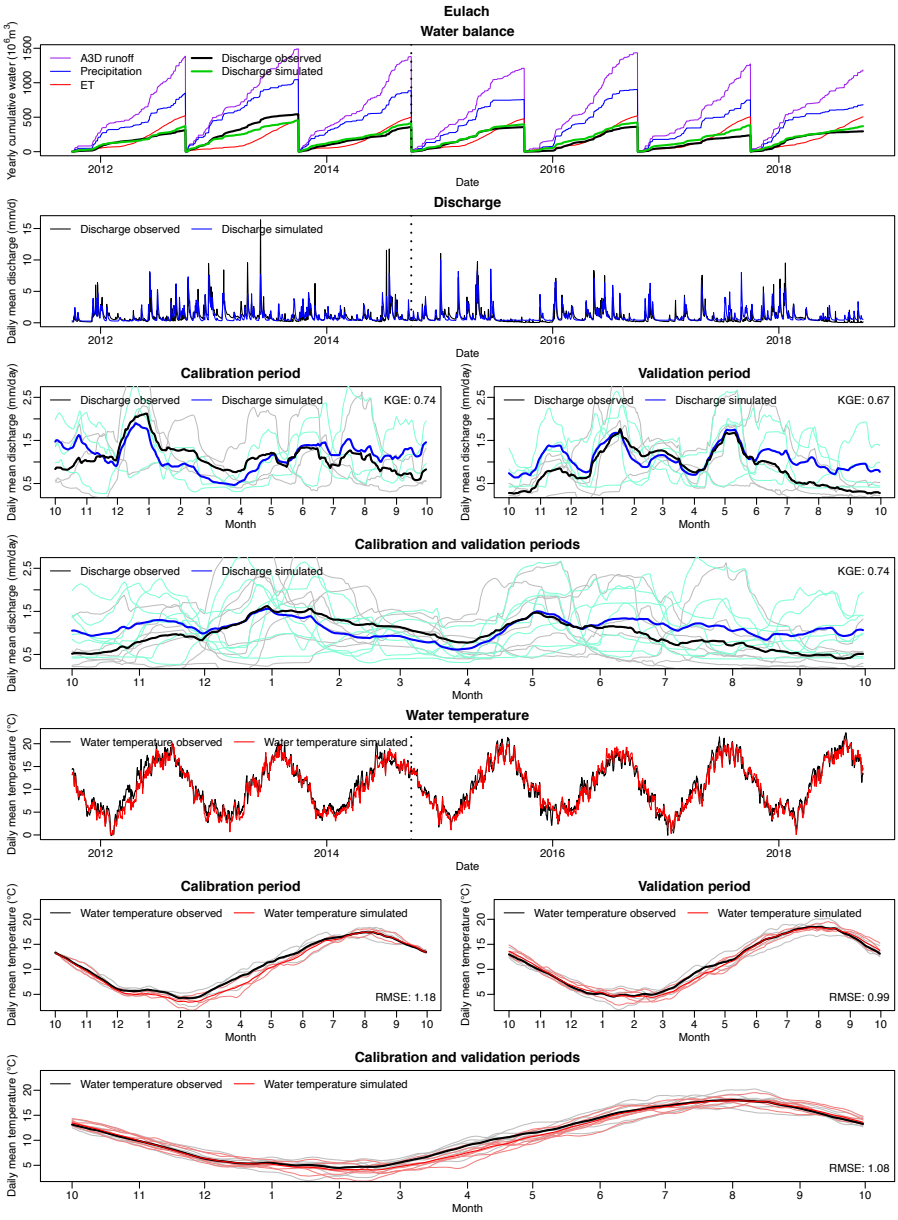

Figure S10. Calibration and validation results for the Eulach catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

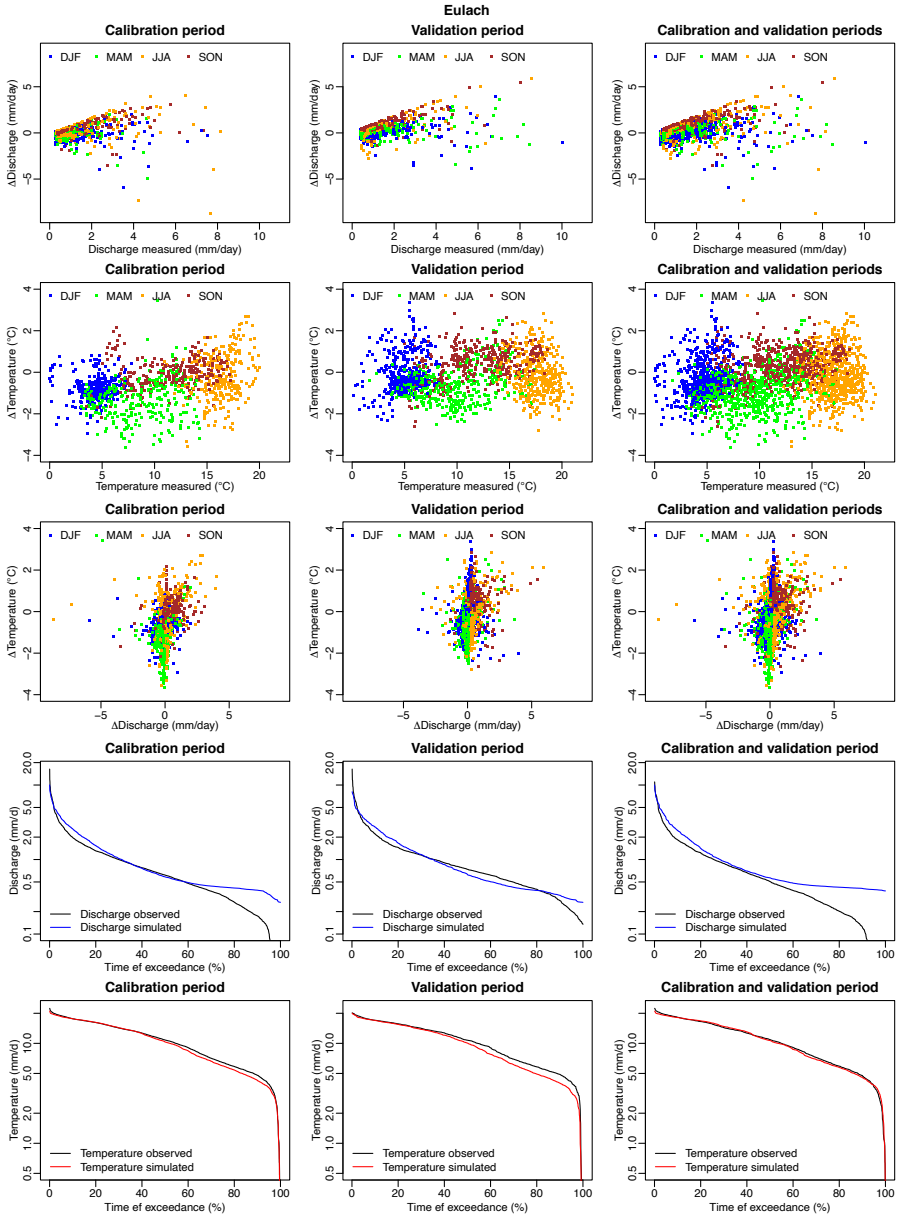

Figure S11. Errors during the calibration and validation periods for the Eulach catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

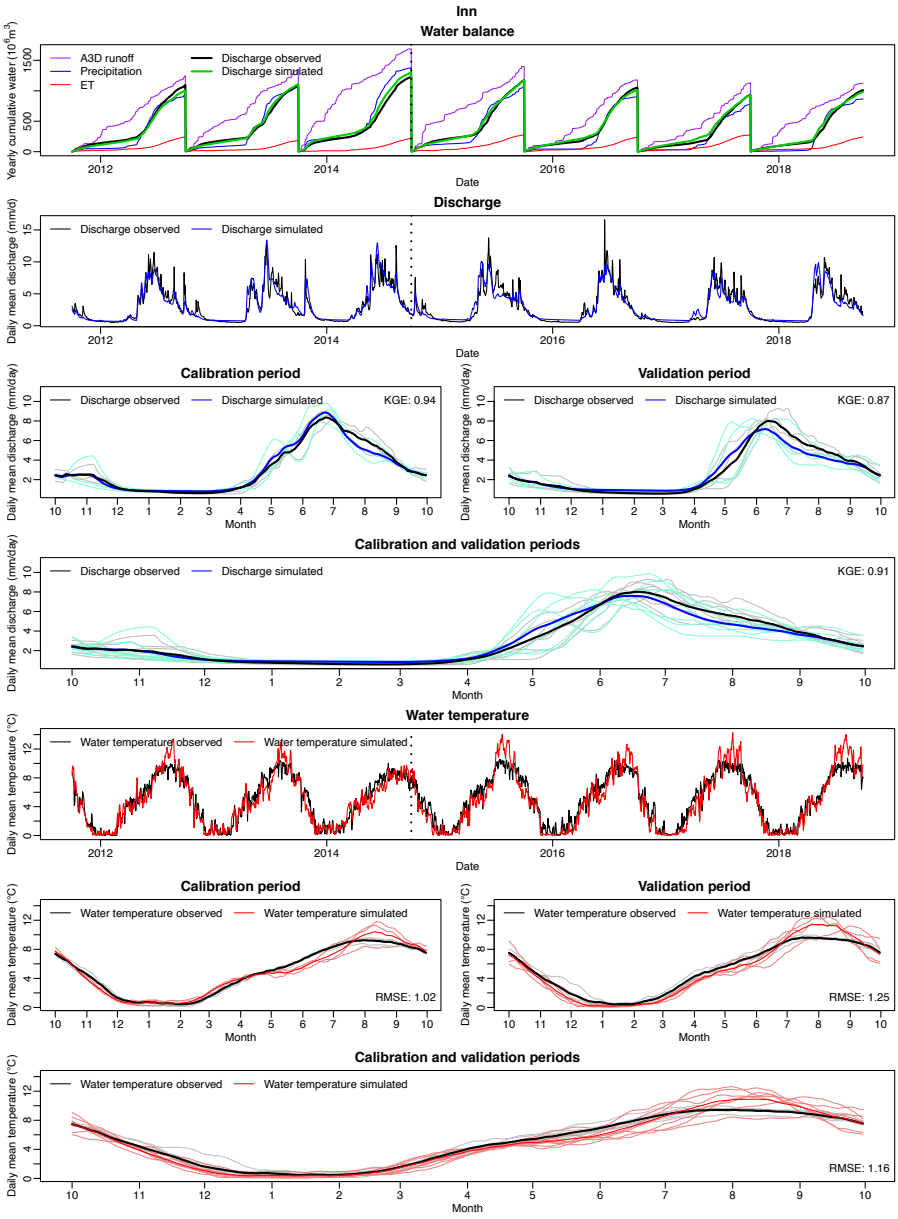

Figure S12. Calibration and validation results for the Inn catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

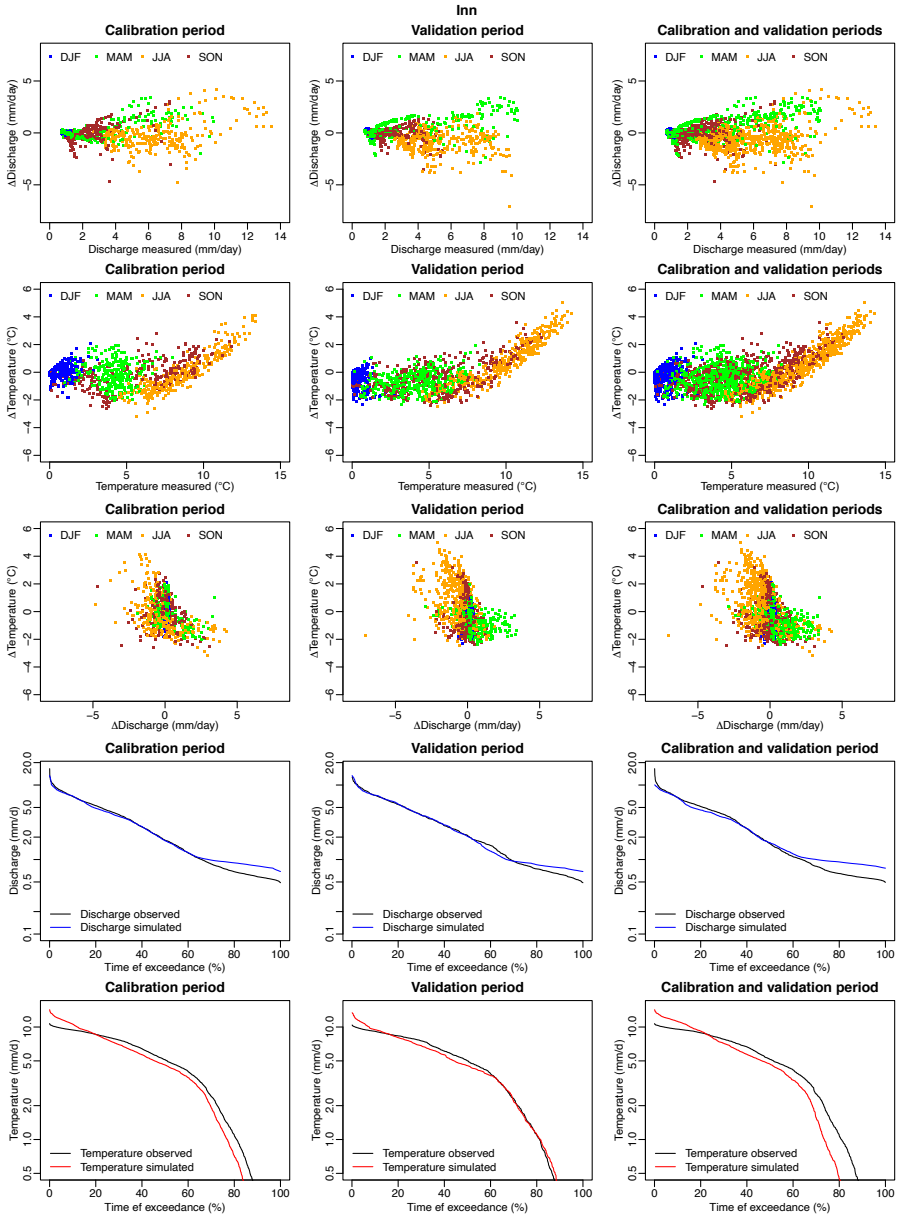

Figure S13. Errors during the calibration and validation periods for the Inn catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

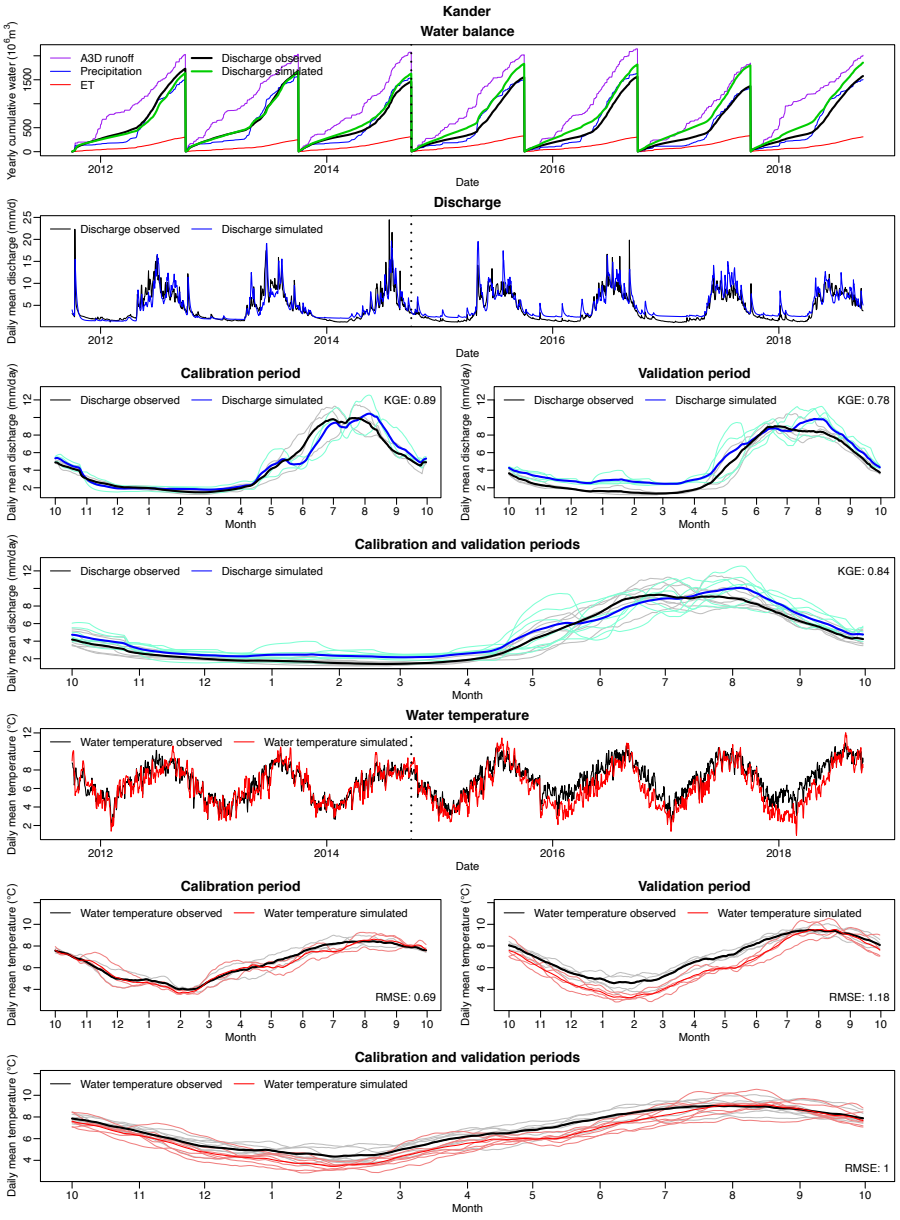

Figure S14. Calibration and validation results for the Kander catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

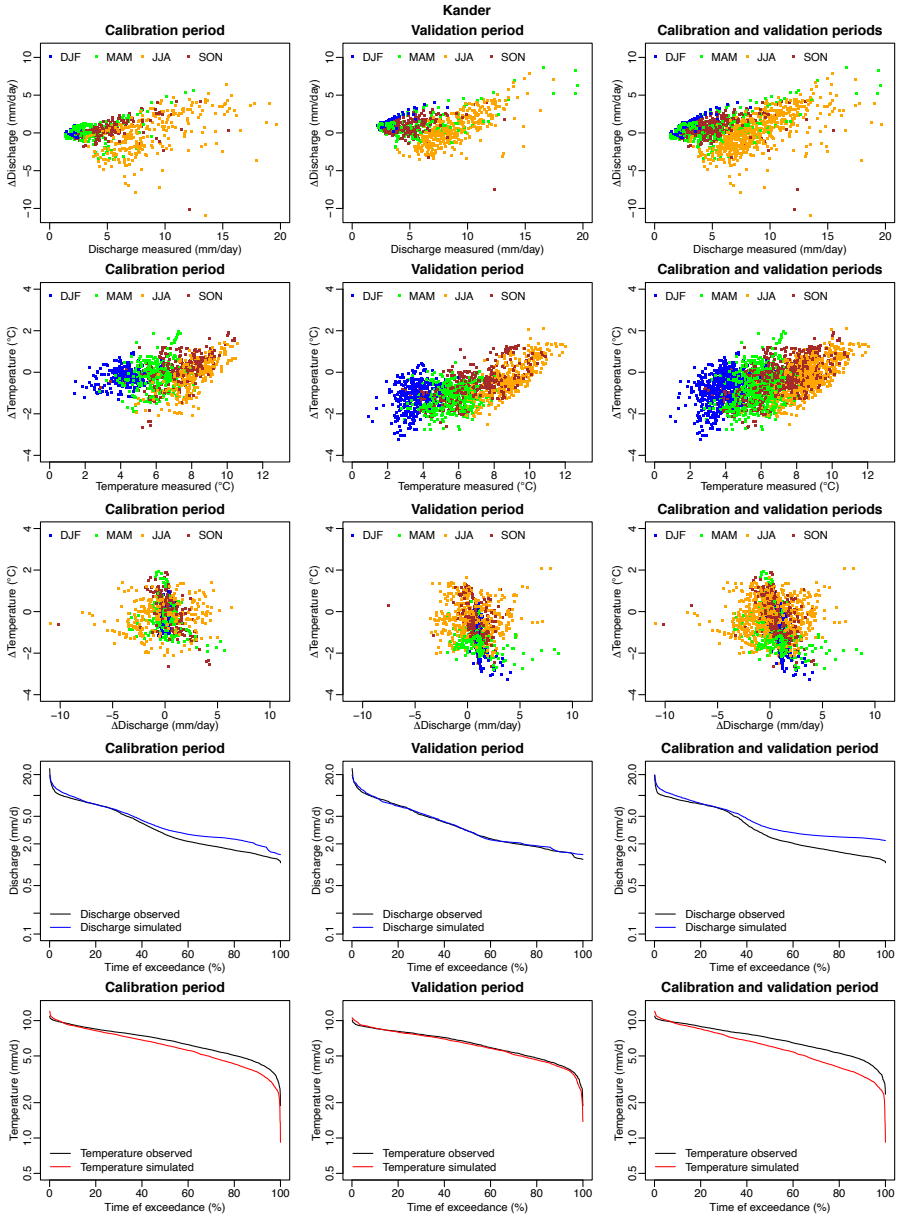

Figure S15. Errors during the calibration and validation periods for the Kander catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

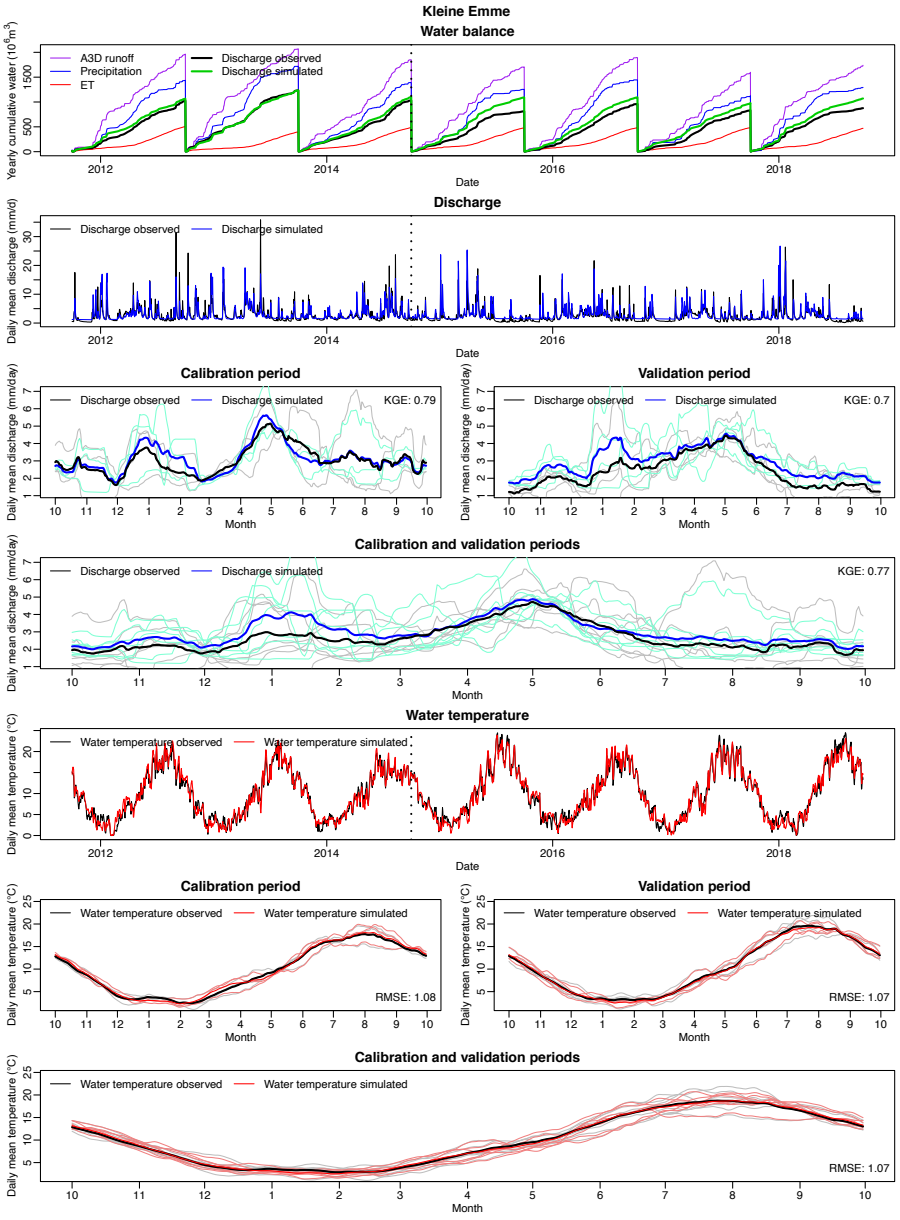

Figure S16. Calibration and validation results for the Kleine Emme catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

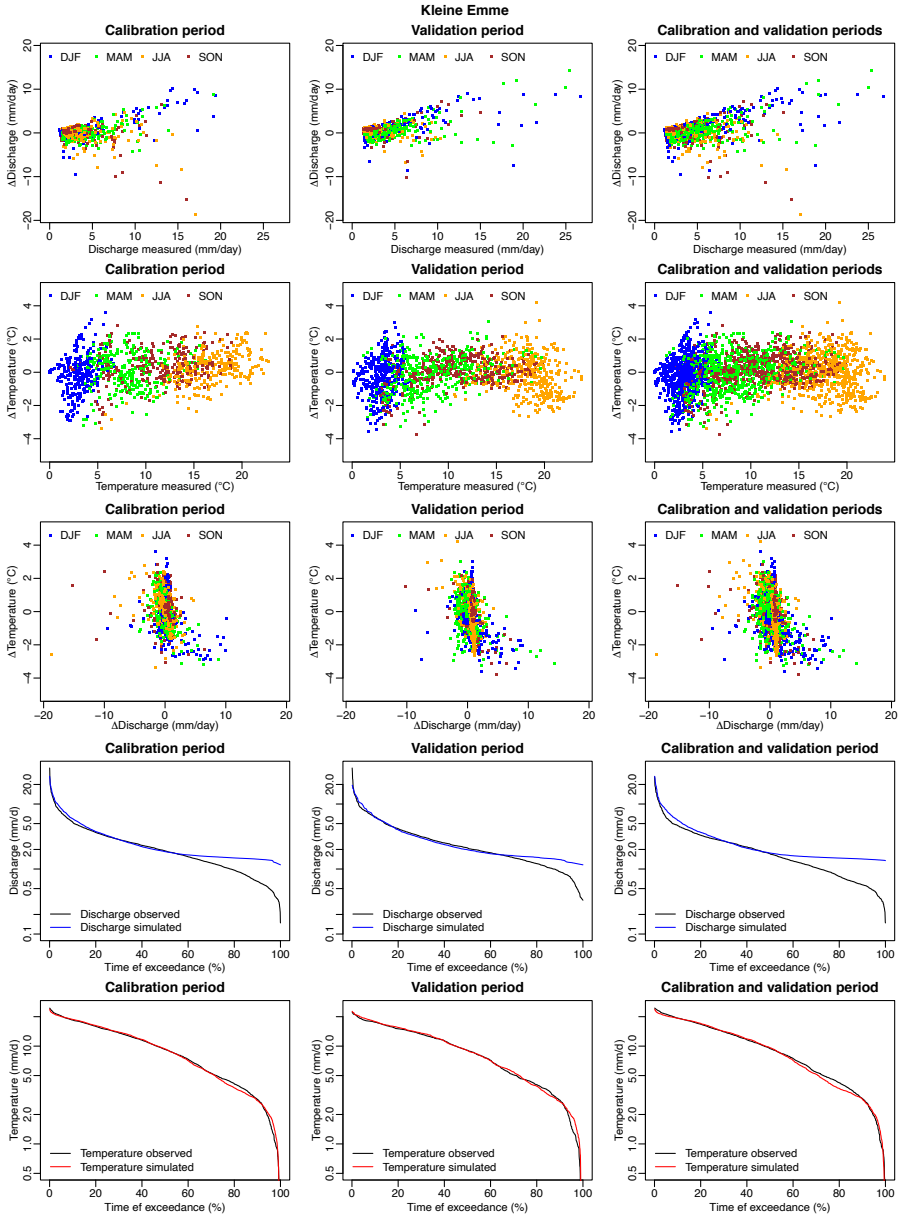

Figure S17. Errors during the calibration and validation periods for the Kleine Emme catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

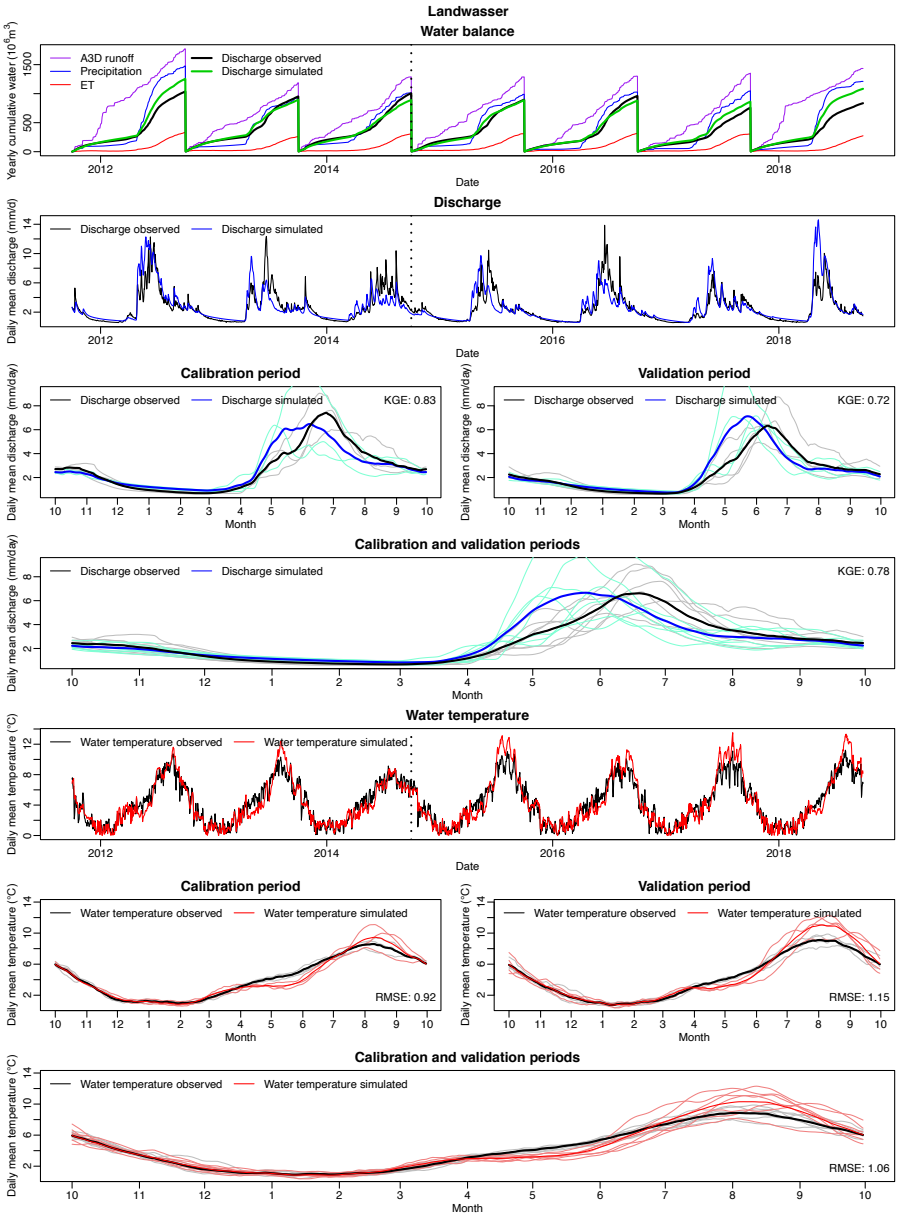

Figure S18. Calibration and validation results for the Landwassser catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

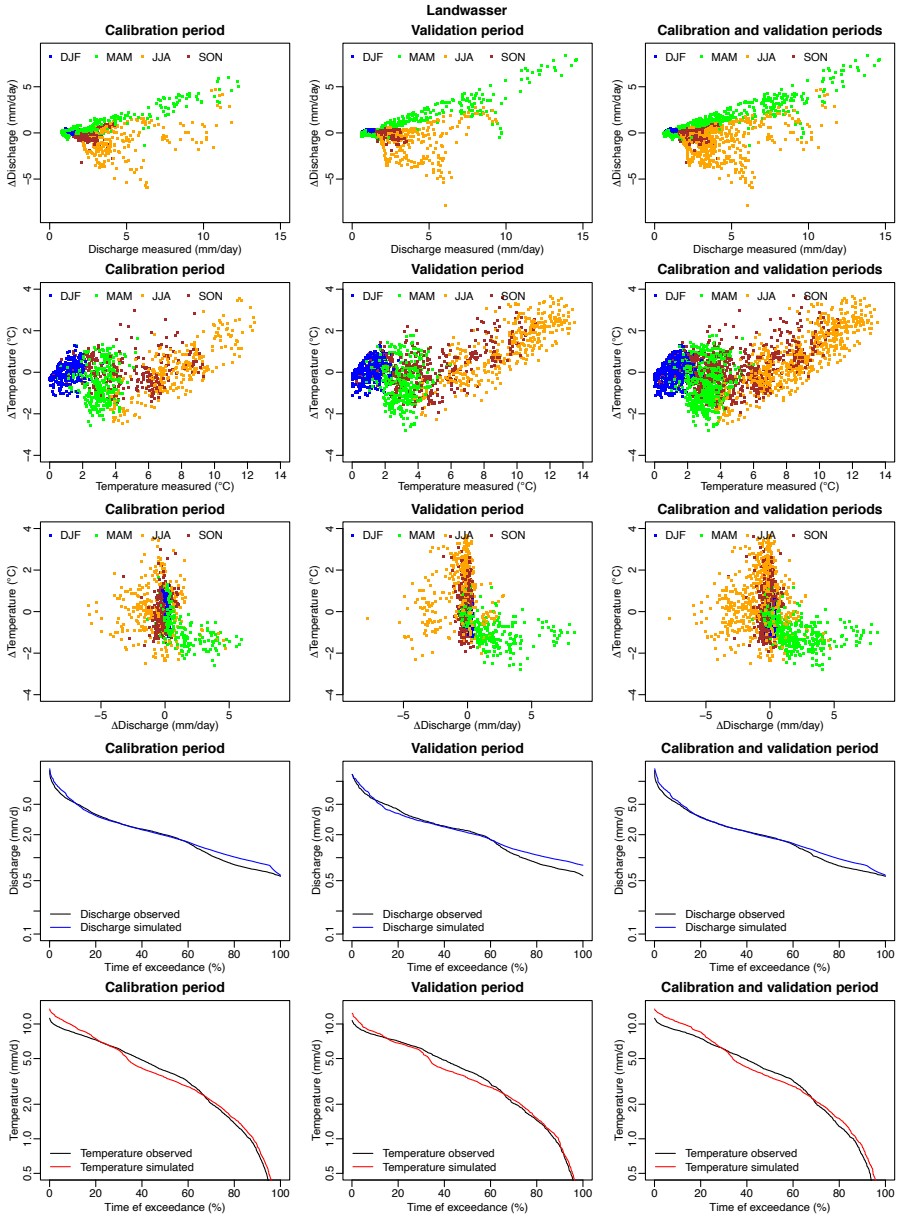

Figure S19. Errors during the calibration and validation periods for the Landwasser catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

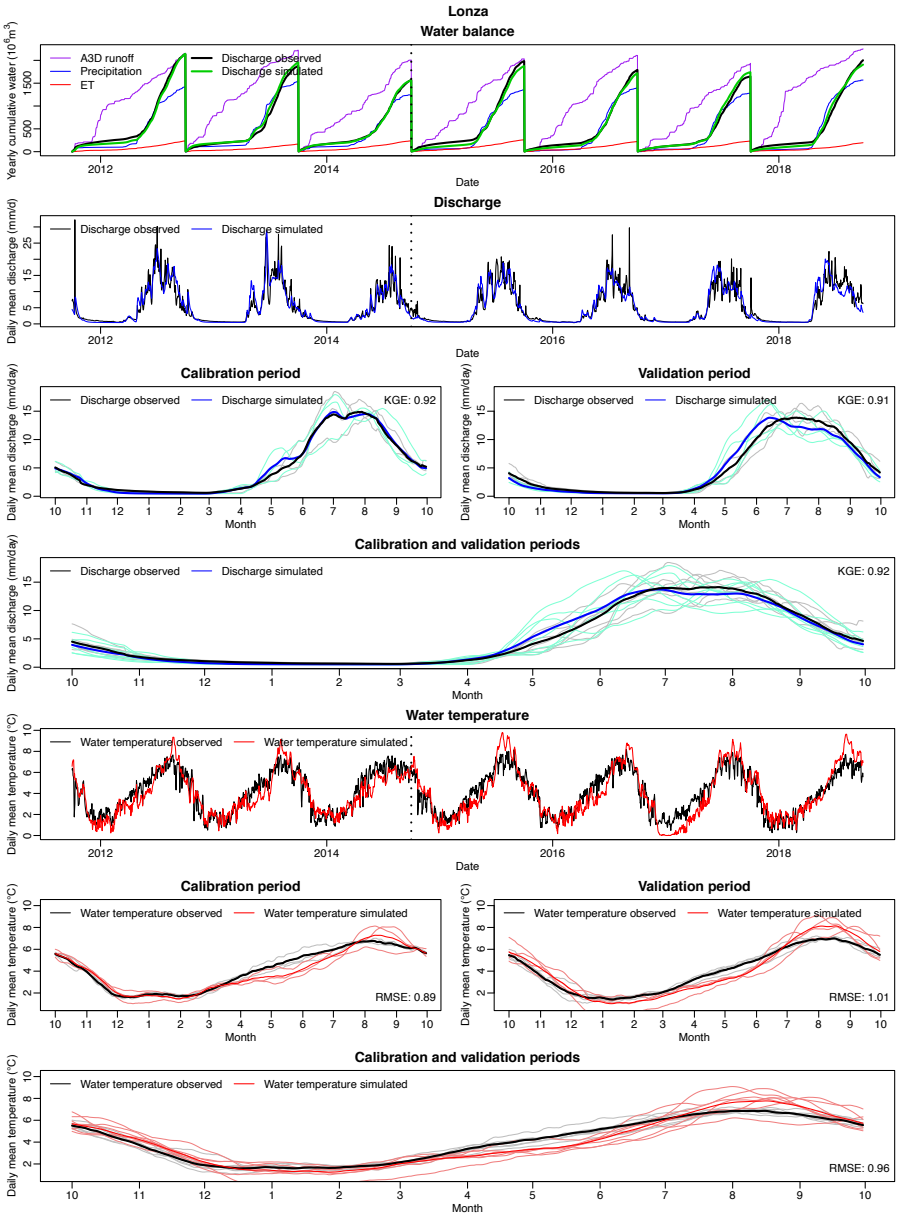

Figure S20. Calibration and validation results for the Lonza catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

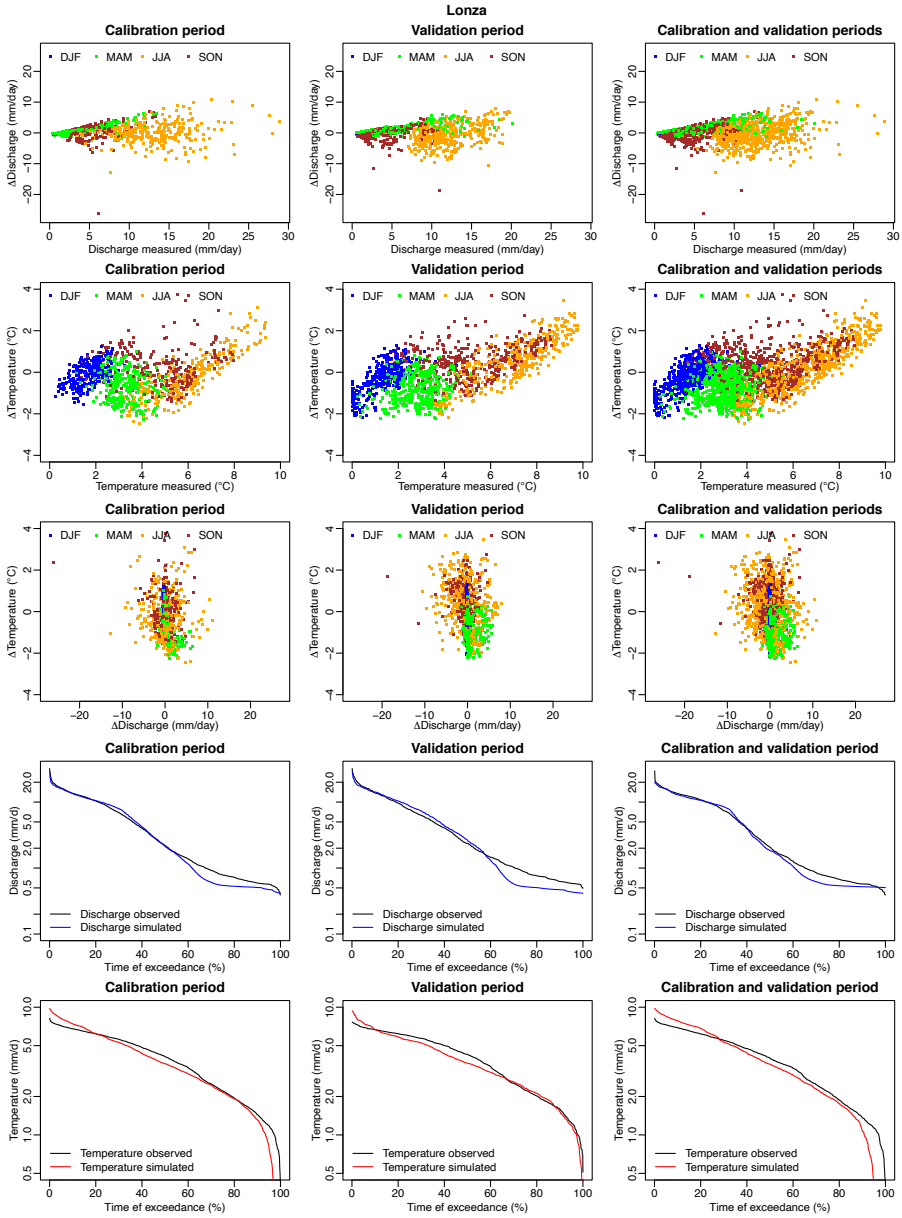

Figure S21. Errors during the calibration and validation periods for the Lonza catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

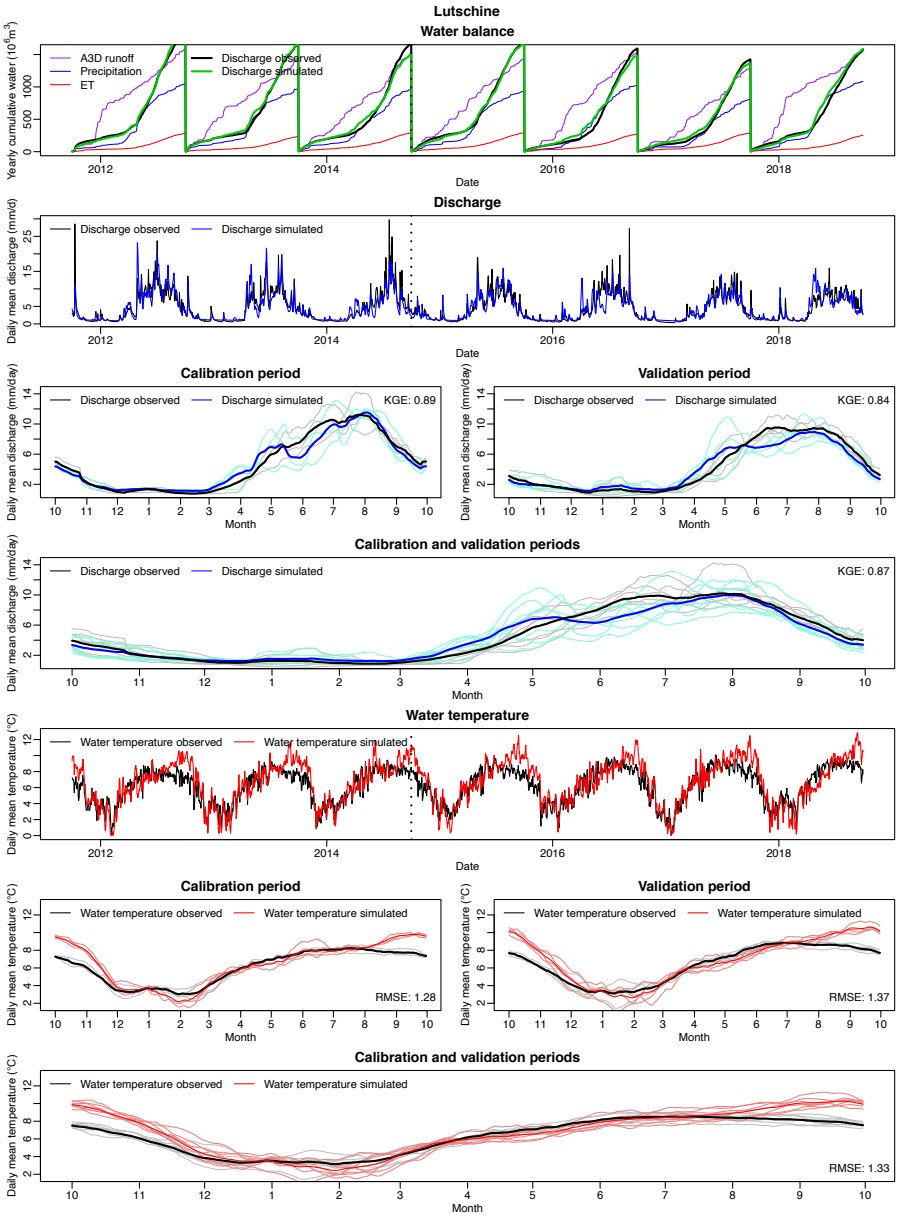

Figure S22. Calibration and validation results for the Lütschine catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

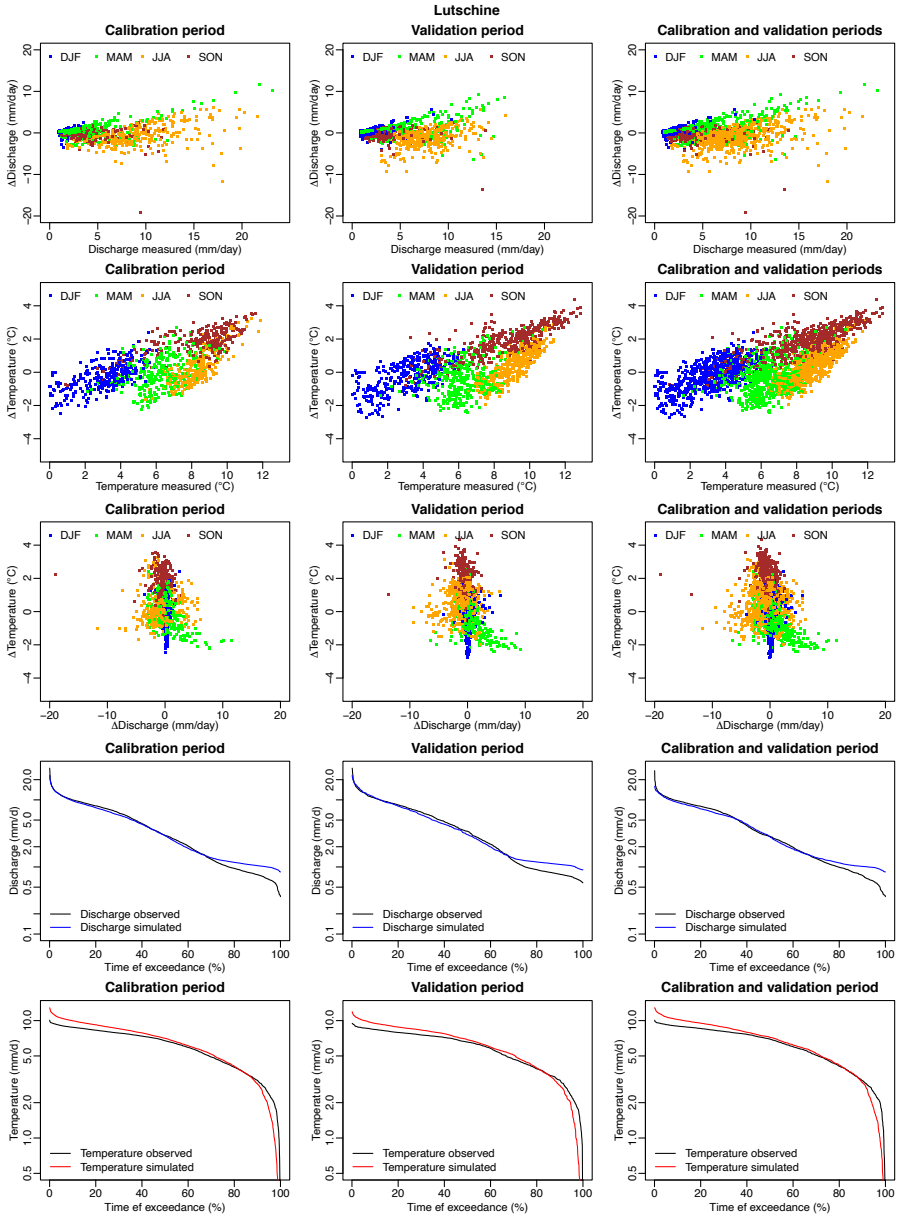

Figure S23. Errors during the calibration and validation periods for the Lütschine catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

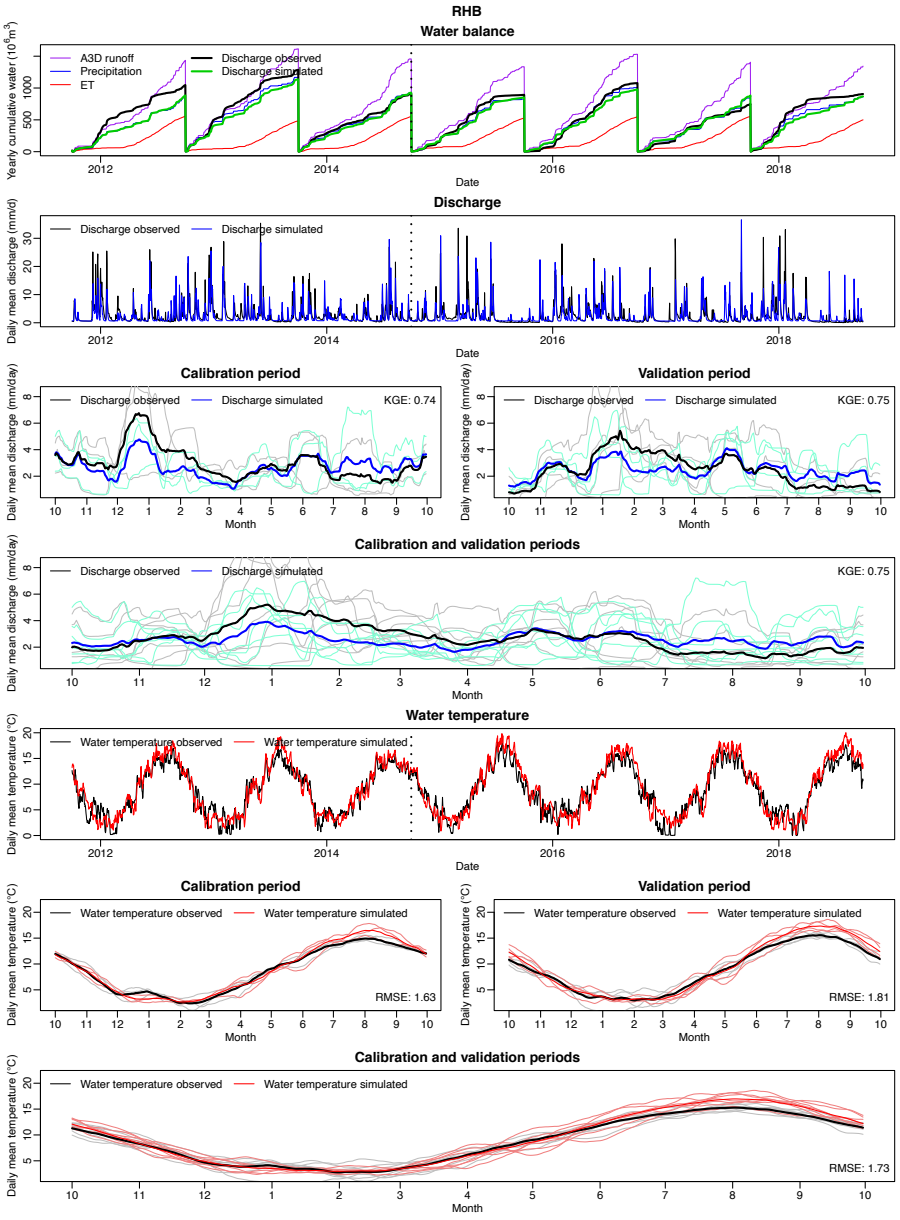

Figure S24. Calibration and validation results for the Rietholzbach catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Sum for each day of the year of the measured and simulated discharge over the calibration period (left) and validation period (right). Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

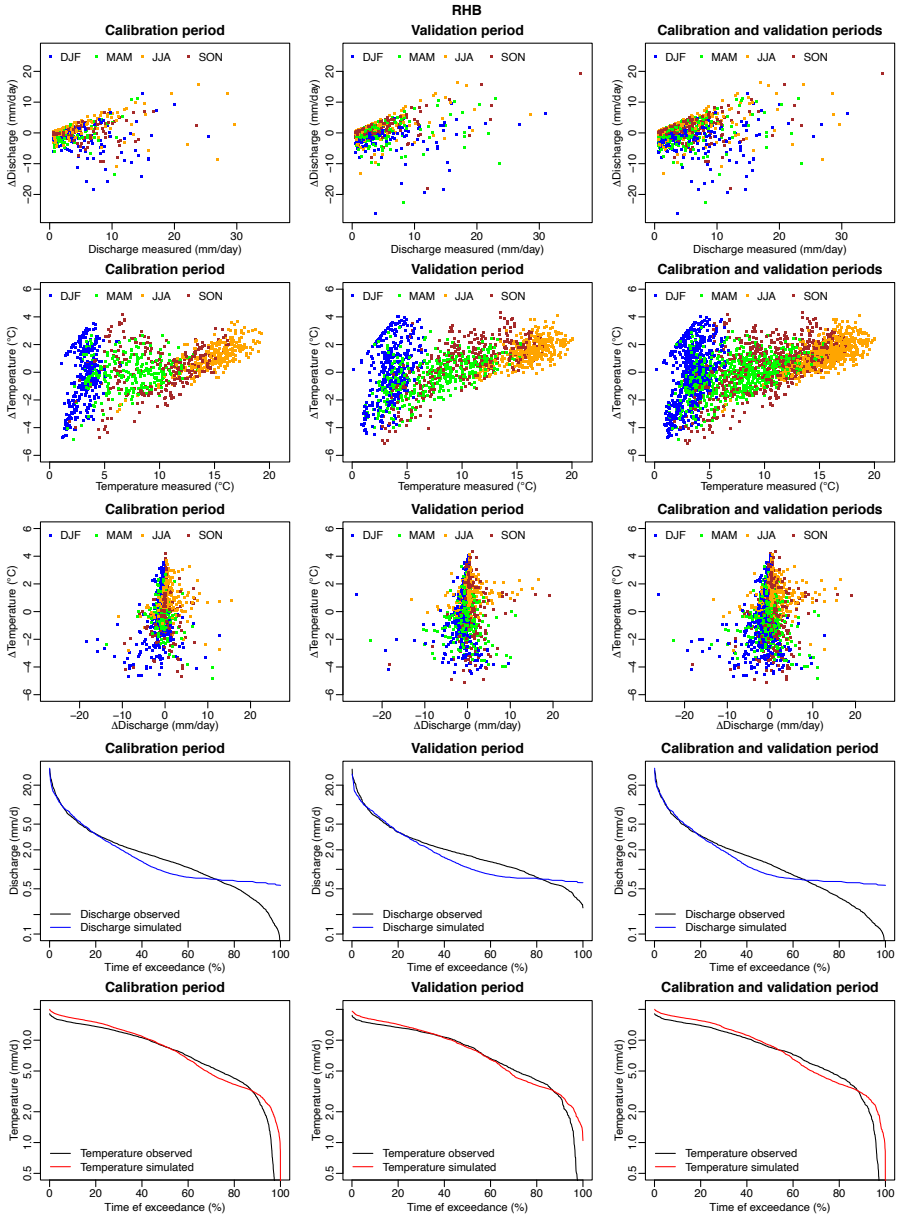

Figure S25. Errors during the calibration and validation periods for the Rietholzbach catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

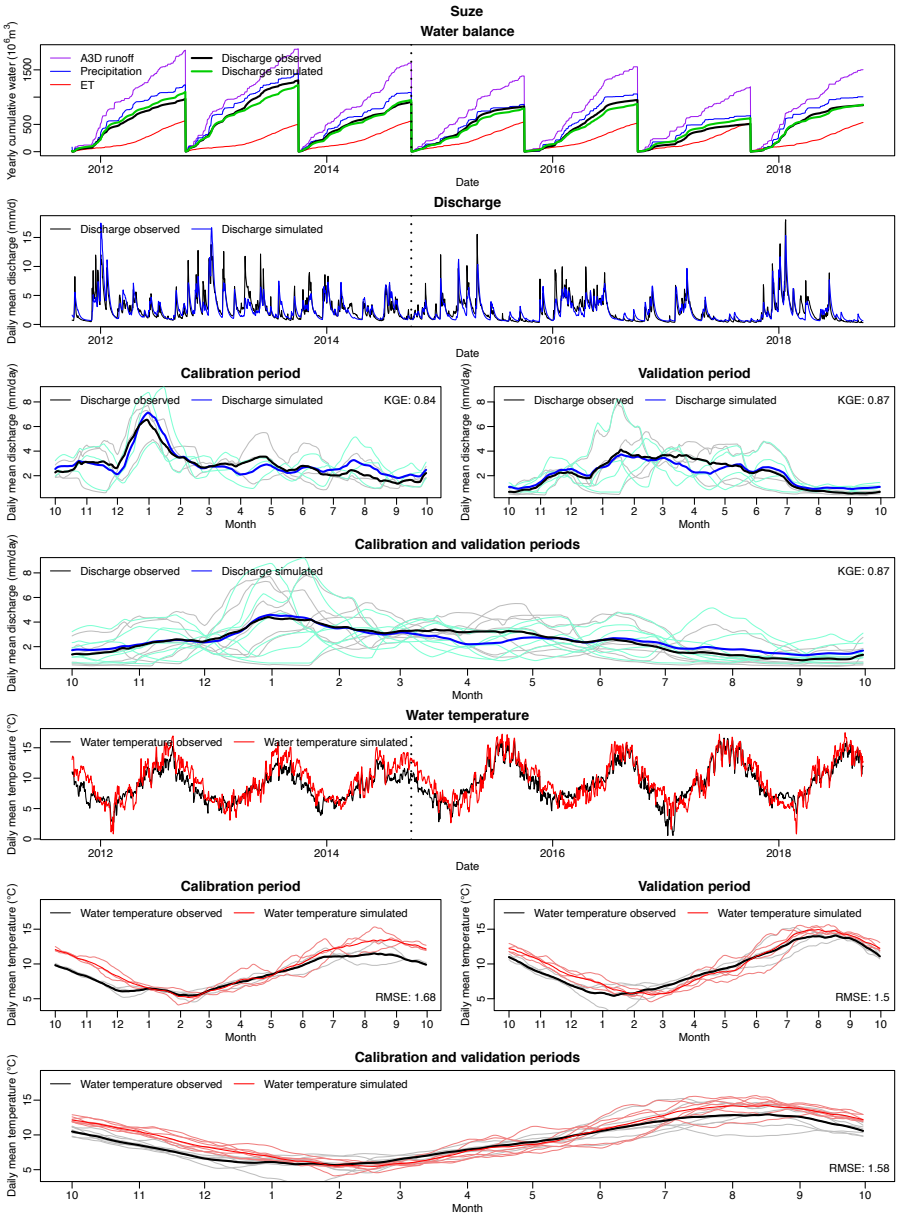

Figure S26. Calibration and validation results for the Suze catchment. Row 1: Cumulative sums of the various components of the hydrological water balance over the hydrological year. Row 2: Observed and simulated discharge. The dashed line indicates the limit between the calibration period (left) and the validation period (right). Row 3: Mean for each day of the year of the measured and simulated discharge with a circular 30 days moving average applied. Left is the calibration period and right the validation period. Thin light lines represent the individual years. The KGE over the period is indicated in the top right corner. Row 4: Same as Row 3 but for the calibration and validation periods. Rows 5-7: Same as Rows 2-4, but for water temperature. The RMSE is indicated in the bottom right corner.

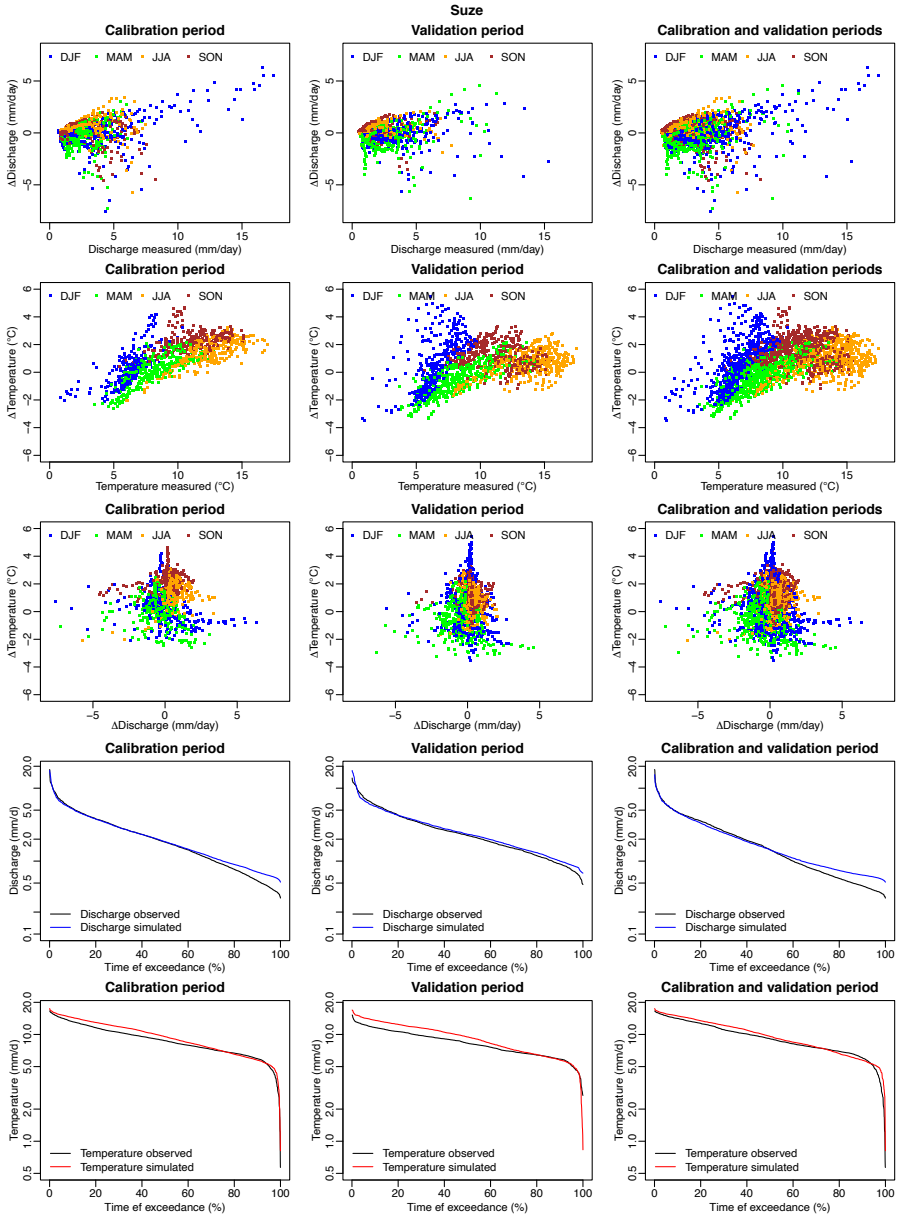

Figure S27. Errors during the calibration and validation periods for the Suze catchment. Left column: Calibration period. Center column: Validation period. Right column: Calibration and validation periods. Row 1: Discharge error versus the raw discharge value (colors indicate seasons). Row 2: Water temperature error versus raw water temperature value (colors indicate seasons). Row 3: Water temperature error plotted against relative discharge errors (colors indicate seasons). Row 4: Flow duration curve for discharge. Row 5: Flow duration curve for water temperature.

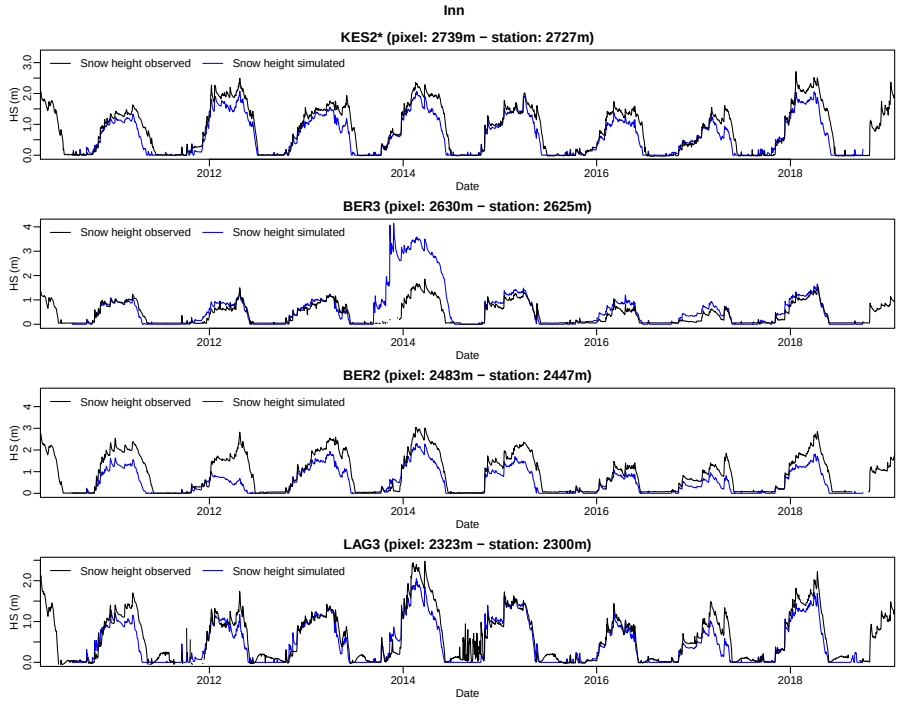

Figure S28. Snow depth measurements and simulated by A3D at the location of the measurement stations in the Inn catchment. Stations marked with an asterisk are used as forcing stations in A3D. The mean elevation of the pixel containing the station in A3D and the real elevation of the station are given in the title.

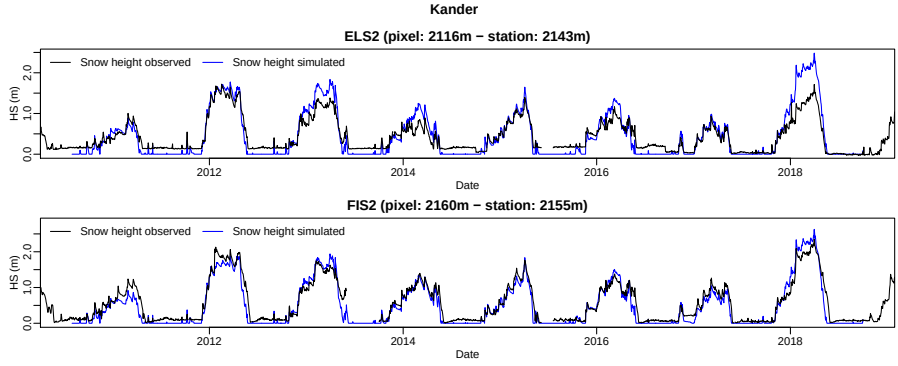

Figure S29. Snow depth measurements and simulated by A3D at the location of the measurement stations in the Kander catchment. Stations marked with an asterisk are used as forcing stations in A3D. The mean elevation of the pixel containing the station in A3D and the real elevation of the station are given in the title.

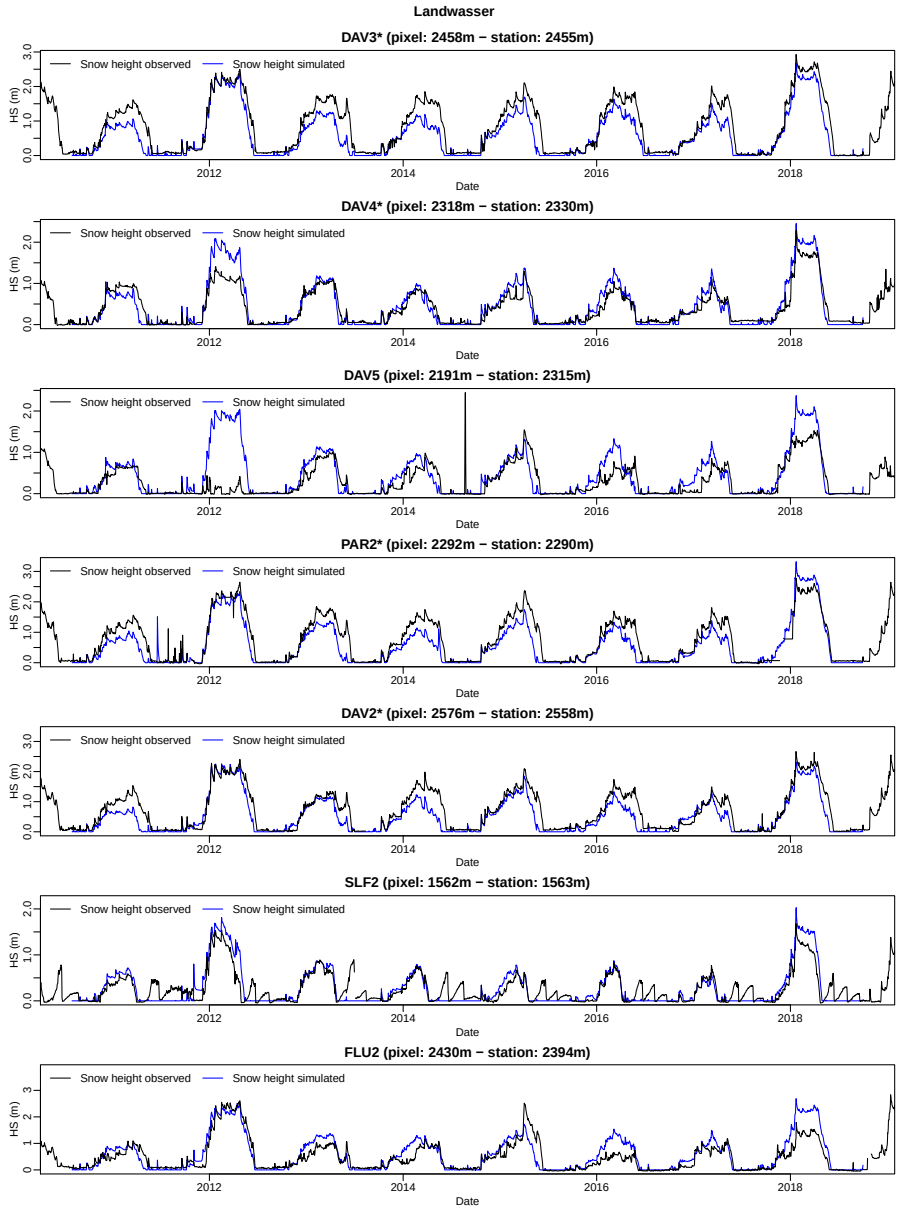

Figure S30. Snow depth measurements and simulated by A3D at the location of the measurement stations in the Landwasser catchment. Stations marked with an asterisk are used as forcing stations in A3D. The mean elevation of the pixel containing the station in A3D and the real elevation of the station are given in the title.

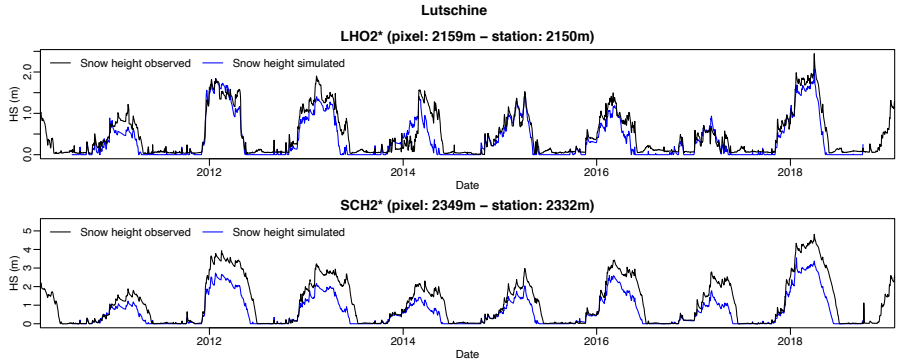

Figure S31. Snow depth measurements and simulated by A3D at the location of the measurement stations in the Lütschine catchment. Stations marked with an asterisk are used as forcing stations in A3D. The mean elevation of the pixel containing the station in A3D and the real elevation of the station are given in the title.

S7 Additional validation plots for alpine catchments

In this section, energy fluxes are shown, similar to Figure 3 in Section 4.1.2 in the main article. Either the outlet reach is shown (Figures S34 and S36), or some upstream reaches close to springs (Figures S32,S33, S35, and S37). For upstream reaches, the reach number is given in the figure caption and this reach can then be identified with the textfiles and shapefiles provided along with the paper. Note that the oscillations observed on the last row of the plots of upstream reaches are caused when dividing by discharge which may be close to zero during winter time.

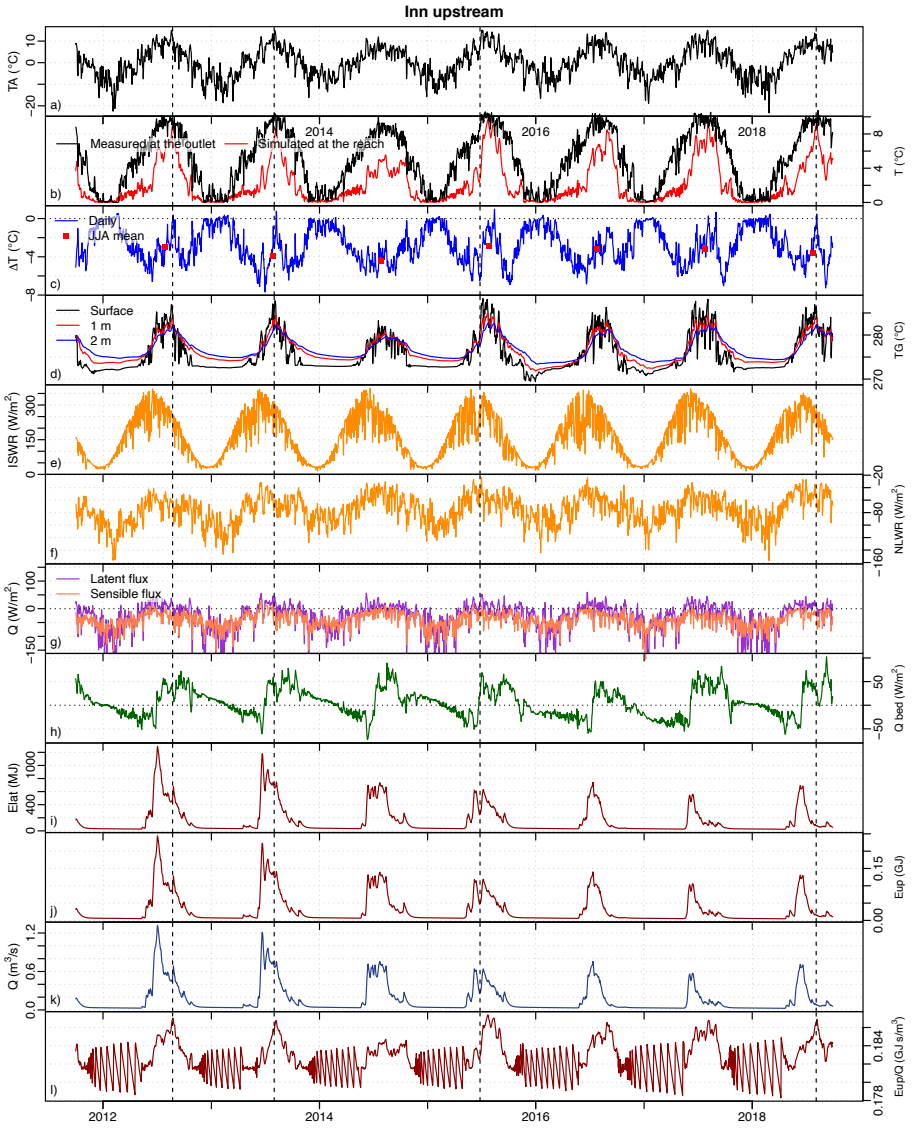

Figure S32. Energy fluxes and other relevant variables at the upstream reach 157 of the Inn catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature at the reach (black) and simulated water temperature at the outlet (red), c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

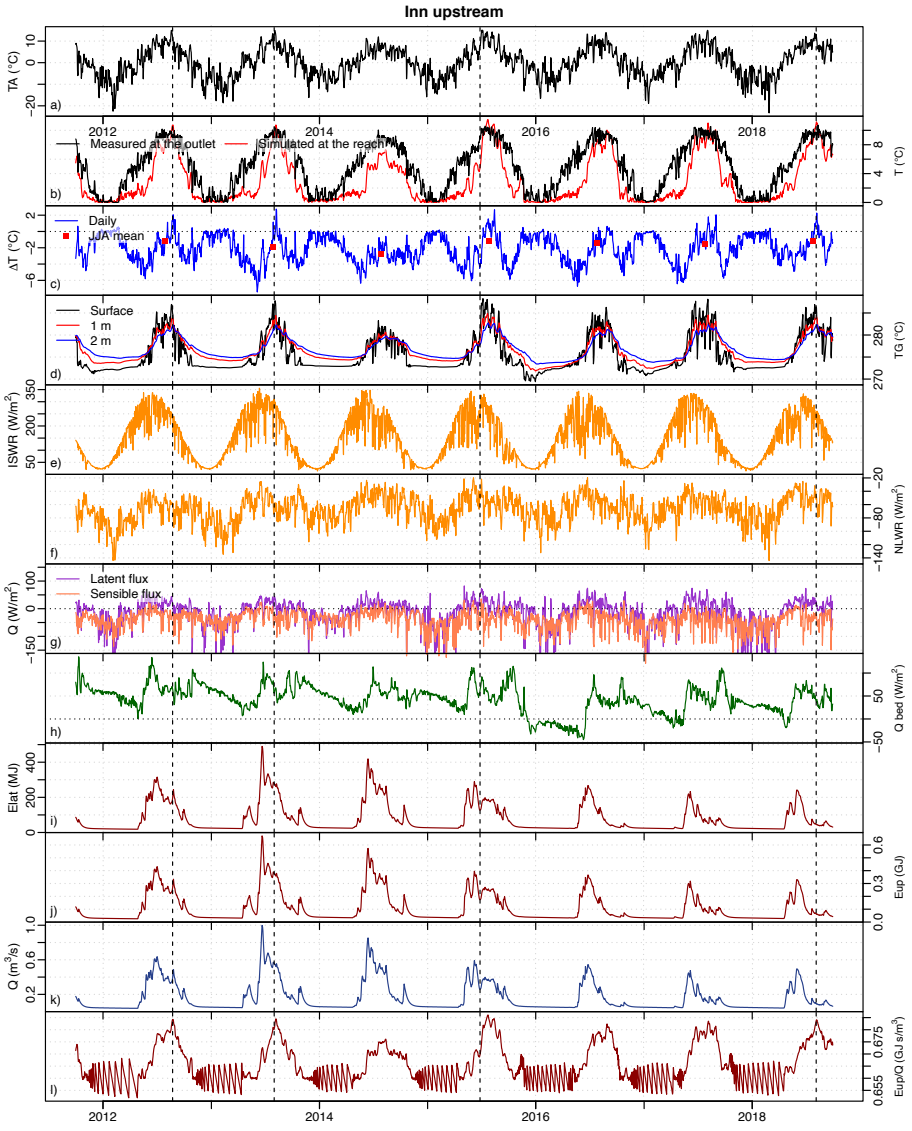

Figure S33. Energy fluxes and other relevant variables at the upstream reach 262 of the Inn catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature at the reach (black) and simulated water temperature at the outlet (red), c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

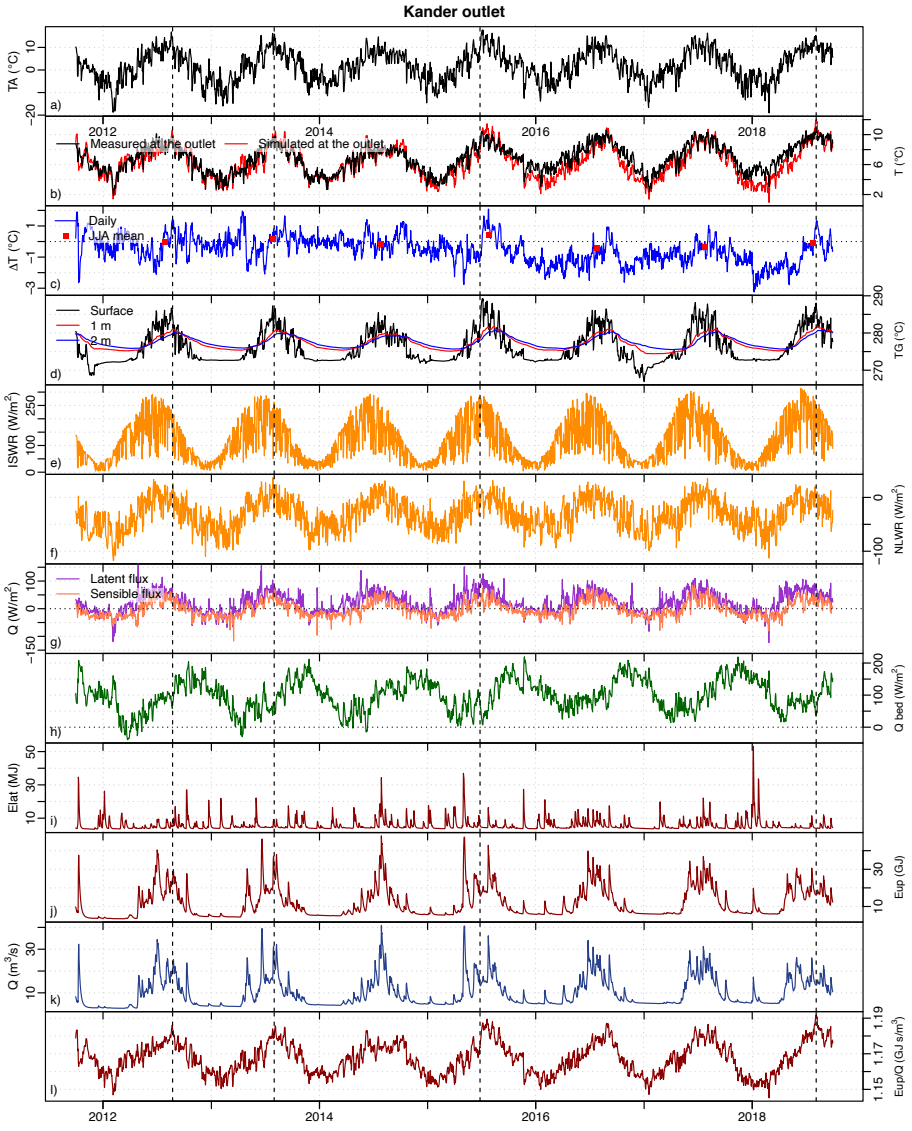

Figure S34. Energy fluxes and other relevant variables at the outlet reach of the Kander catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature (black) and simulated water temperature (red) both at the outlet, c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

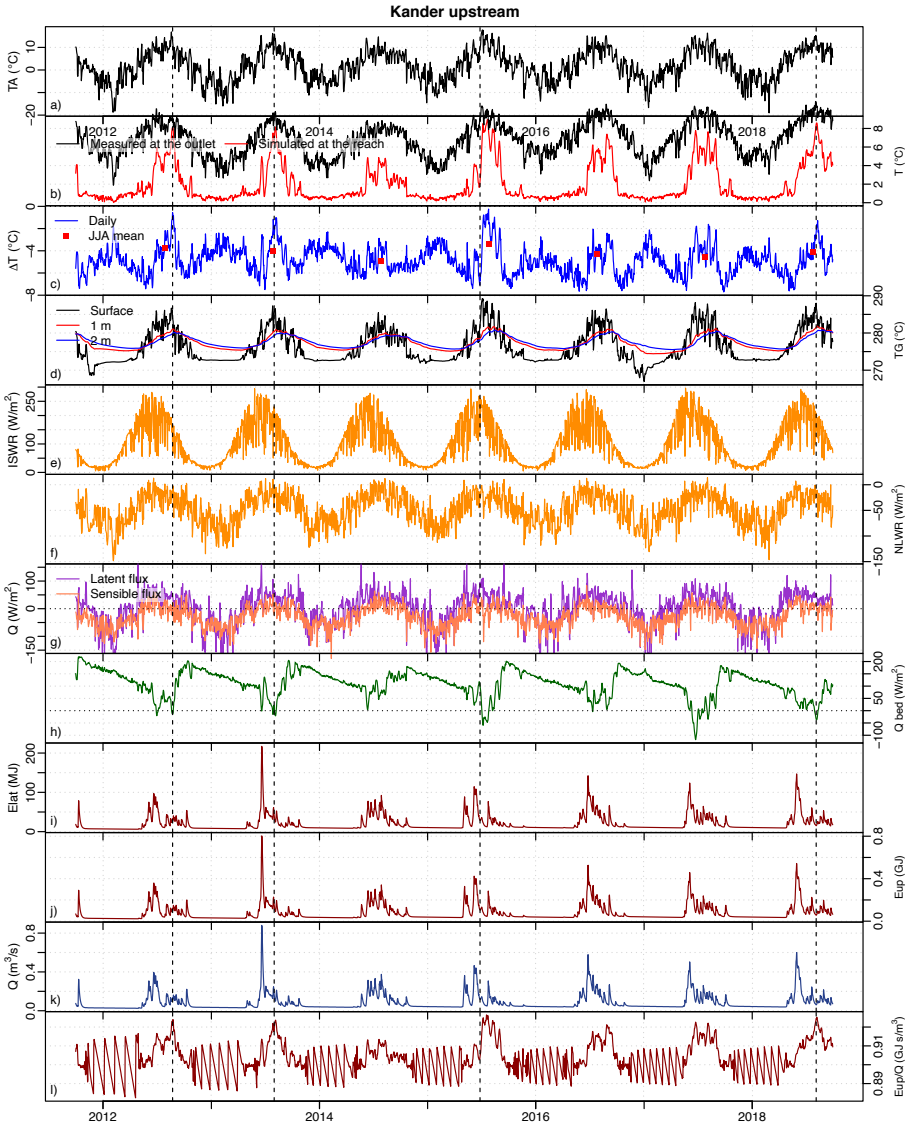

Figure S35. Energy fluxes and other relevant variables at the upstream reach 4 of the Kander catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature at the reach (black) and simulated water temperature at the outlet (red), c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

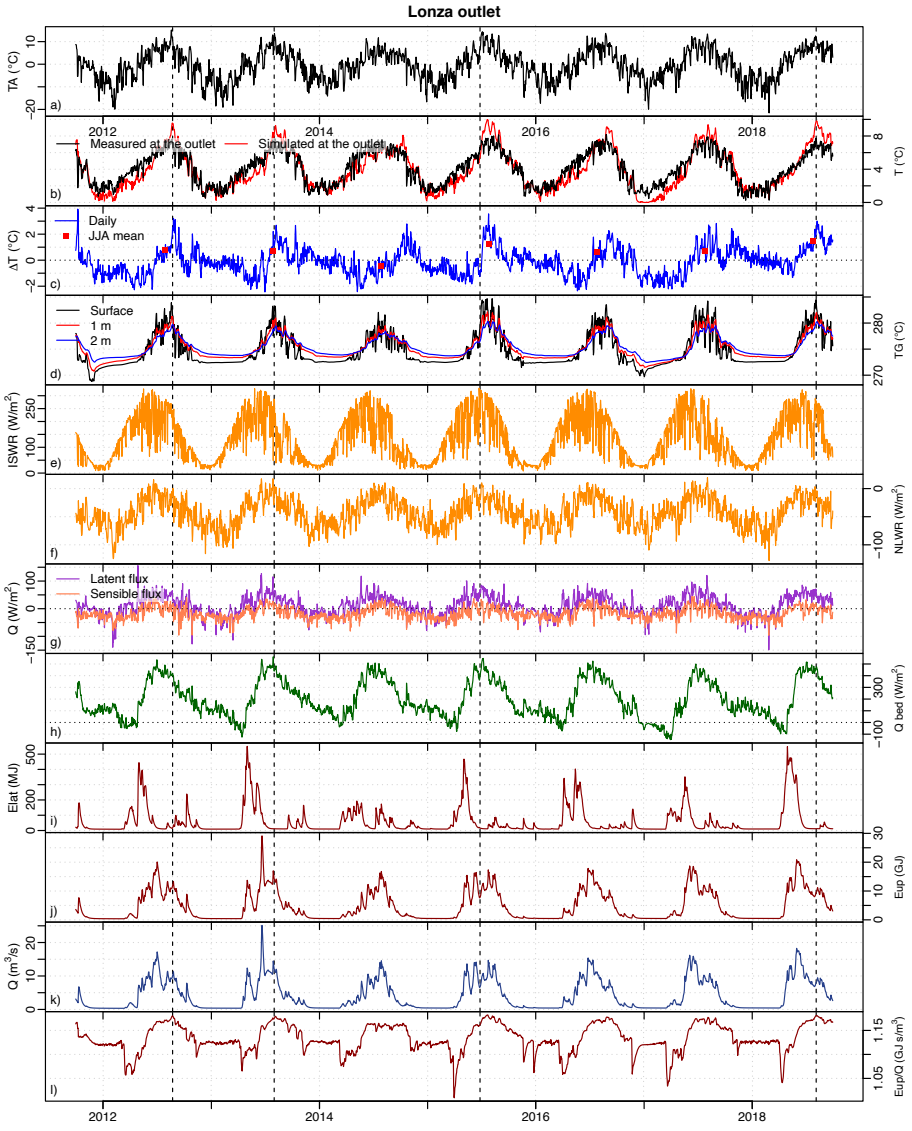

Figure S36. Energy fluxes and other relevant variables at the outlet reach of the Lonza catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature (black) and simulated water temperature (red) both at the outlet, c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

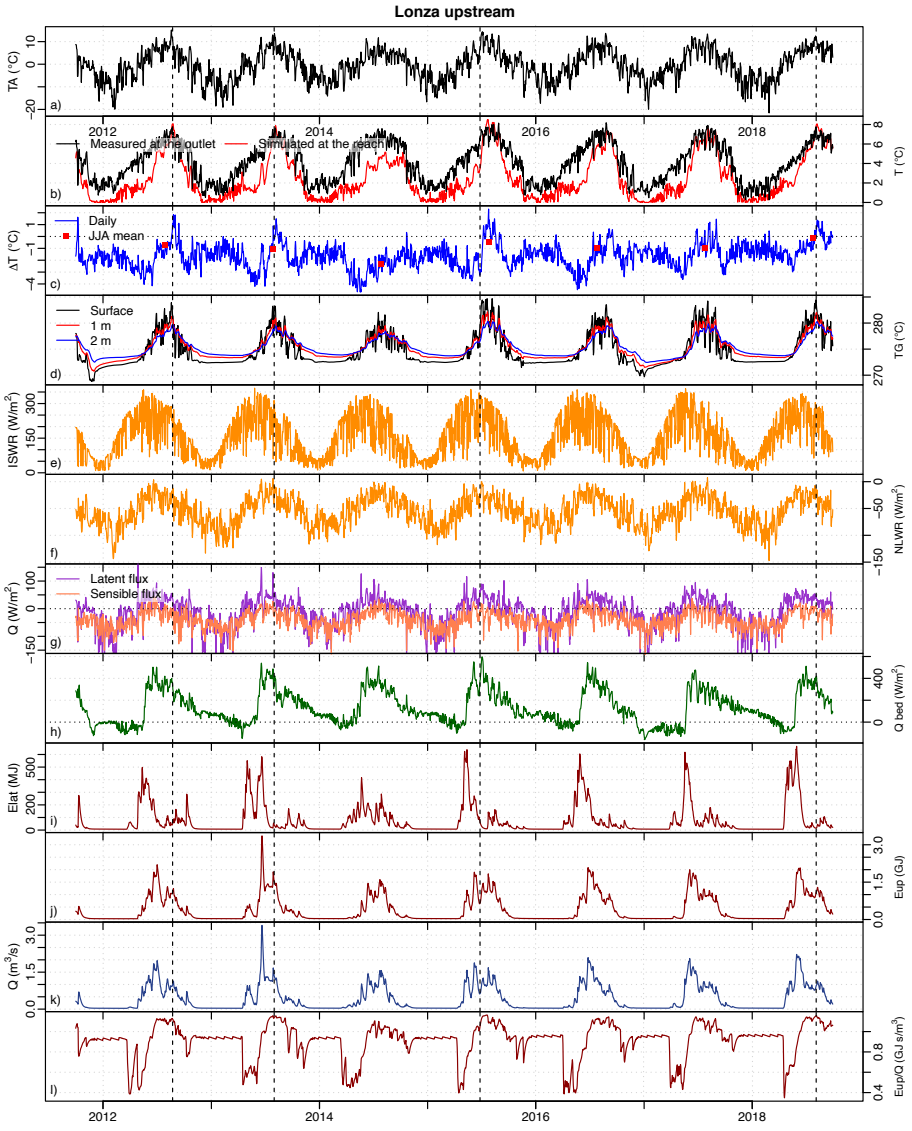

Figure S37. Energy fluxes and other relevant variables at the upstream reach 45 of the Lonza catchment. The vertical dashed lines mark some warm events discussed in the main article (Section 4.1.2). a) Air temperature, b) measured water temperature at the reach (black) and simulated water temperature at the outlet (red), c) difference between simulated and measured water temperature (blue line), and mean over the difference over the summer season (red squares), d) temperature of the soil surface and at 1 m and 2 m depth, e) incoming shortwave radiation, f) net longwave radiation, g) latent heat flux (purple) and sensible heat flux (orange), positive means energy gain for the river, h) conductive heat flux between the bed and the river, positive means energy gain for the river, i) energy advected by water from the soil reservoirs, j) energy advected from upstream reaches, k) discharge, l) energy advected from upstream reaches normalized by discharge.

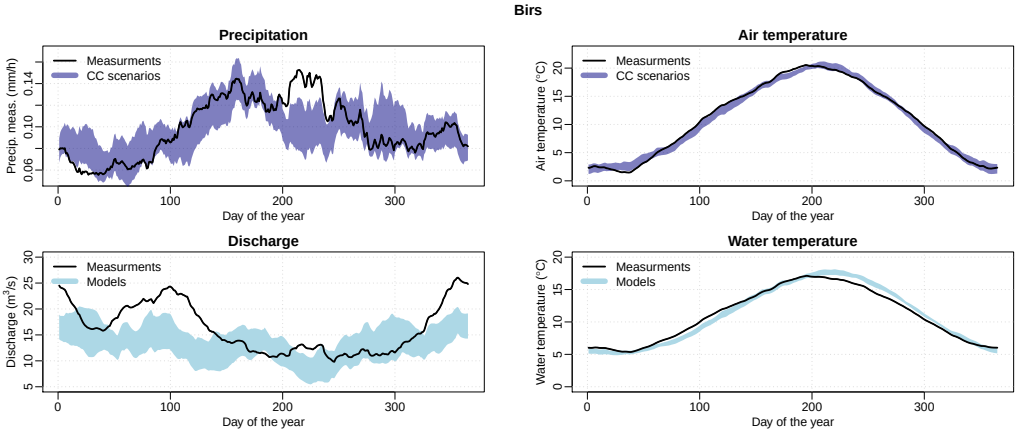

Figure S38. Comparison between model runs forced with CC scenarios (all 21 CC scenarios) and measurements for the period 2005-2015 in the Birs catchment. Measurements from the MCH station BAS are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from CC scenarios. Top right: Measured air temperature and mean air temperature over the catchment from CC scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

S8 Additional validation plots for climate change scenarios validation

This section presents the output of the simulations over the periods 2005-2015 along with a comparison to measurements for each catchment (except the Ergolz where not enough historical measurements are available) in Figures S38 to S48. Then, plots similar to Figure 4 in the main article (Section 4.3) are shown but for the Broye catchment (Figure S49).

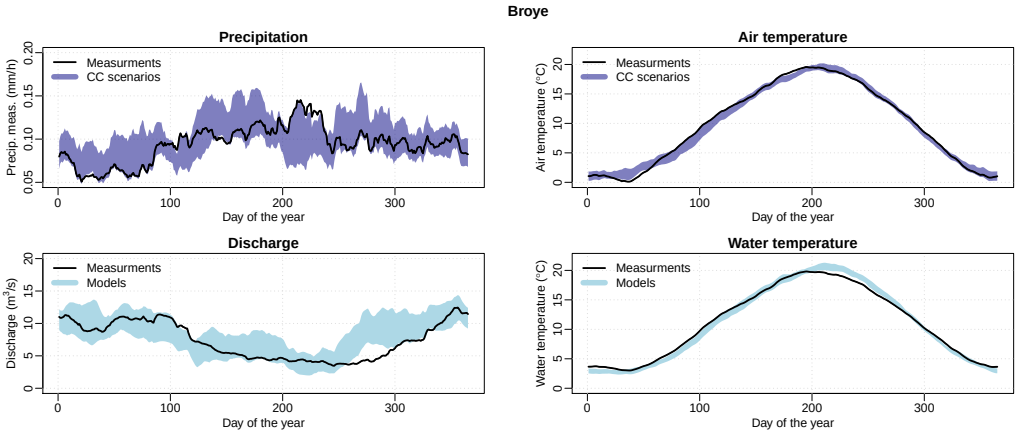

Figure S39. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Broye catchment. Measurements from the MCH station PAY are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

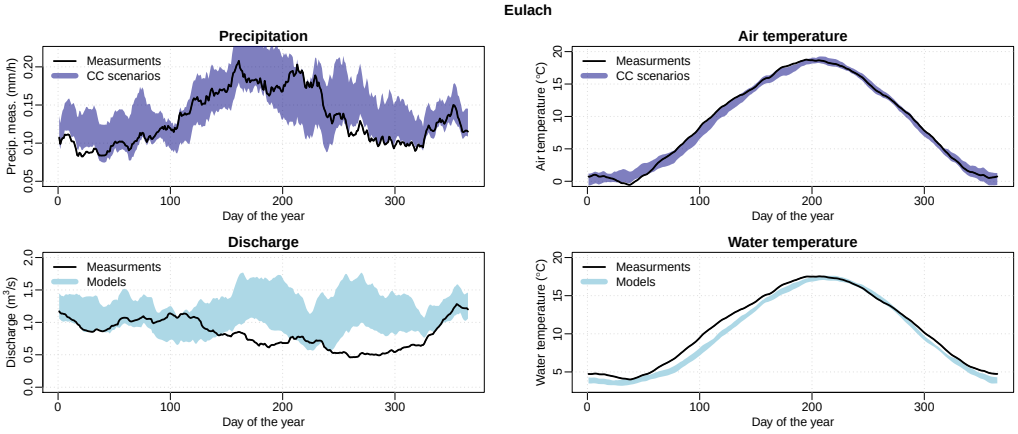

Figure S40. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Eulach catchment. Measurements from the MCH station TAE are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

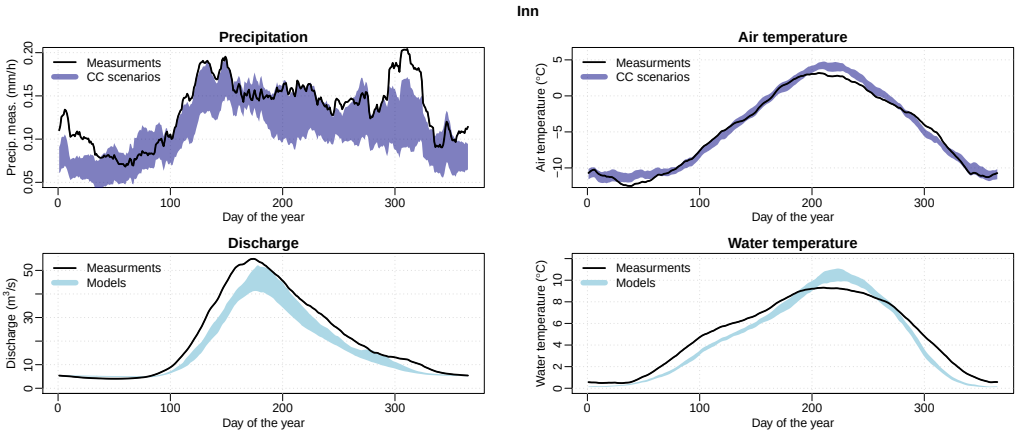

Figure S41. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Inn catchment. Measurements from the MCH station COV are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

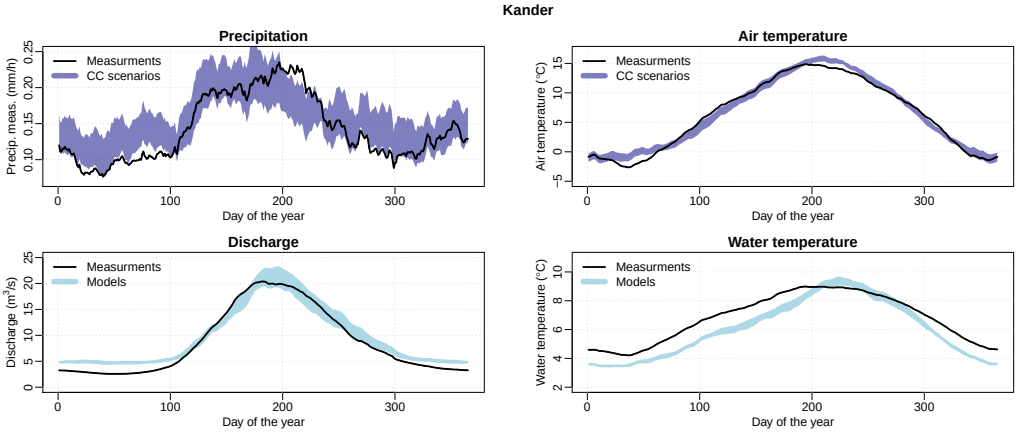

Figure S42. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Kander catchment. Measurements from the MCH station ABO are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

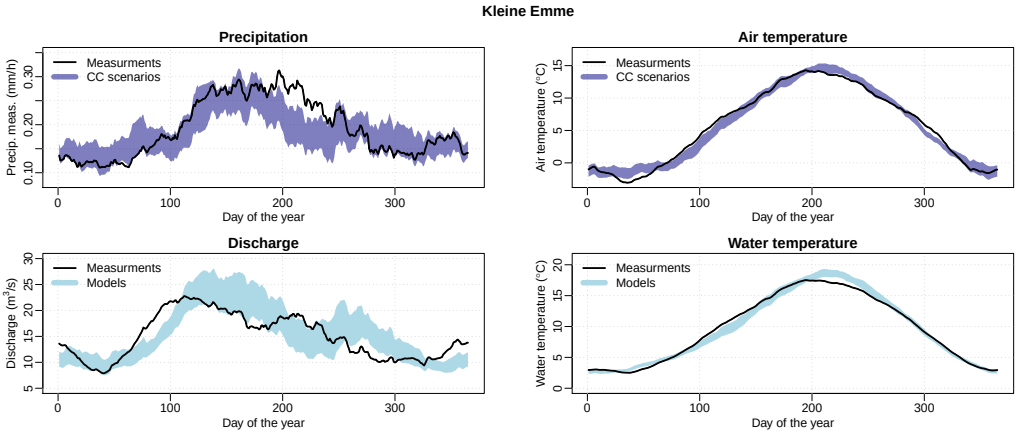

Figure S43. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Kleine Emme catchment. Measurements from the MCH station NAP are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

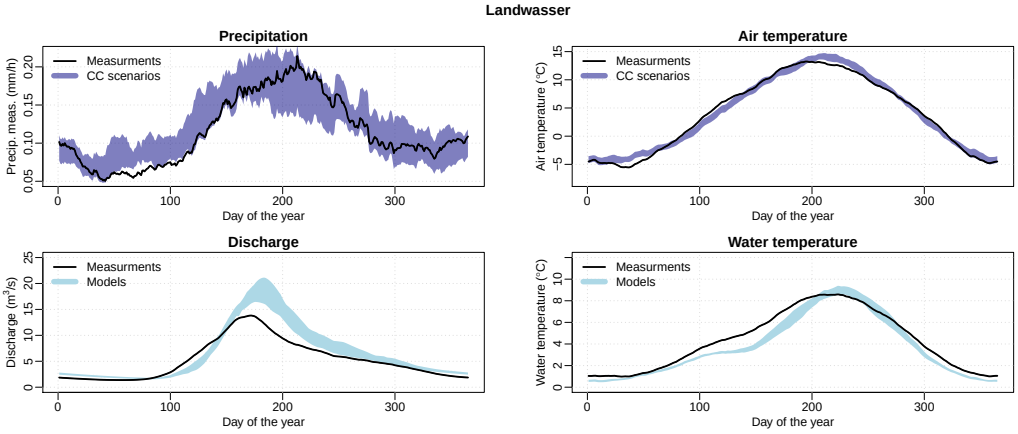

Figure S44. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Landwasser catchment. Measurements from the MCH station DAV are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

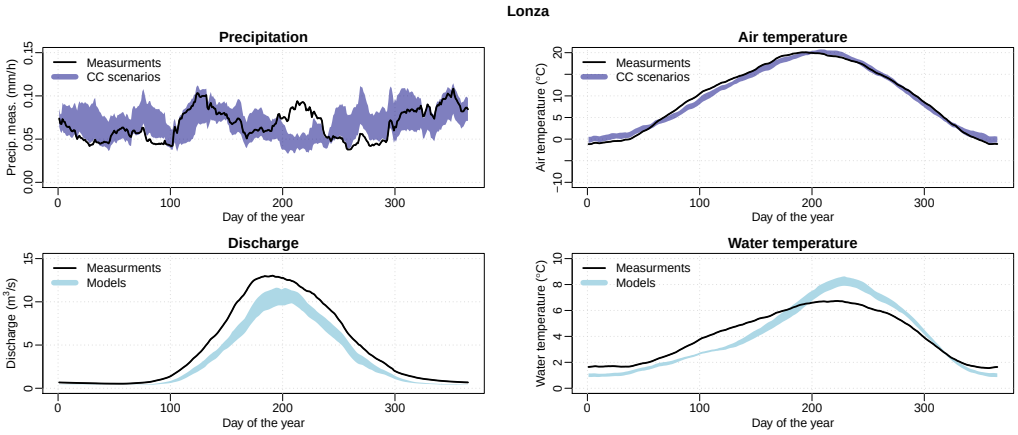

Figure S45. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Lonza catchment. Measurements from the MCH station VIS are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

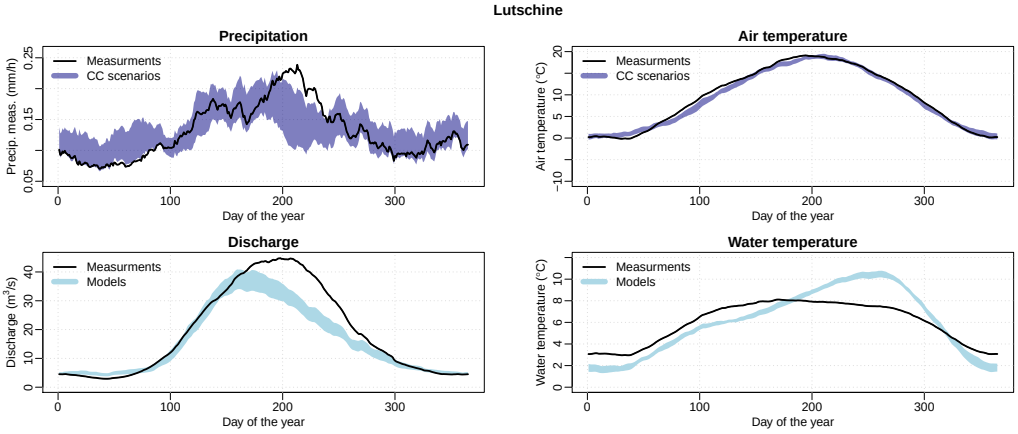

Figure S46. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Lutschine catchment. Measurements from the MCH station INT are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

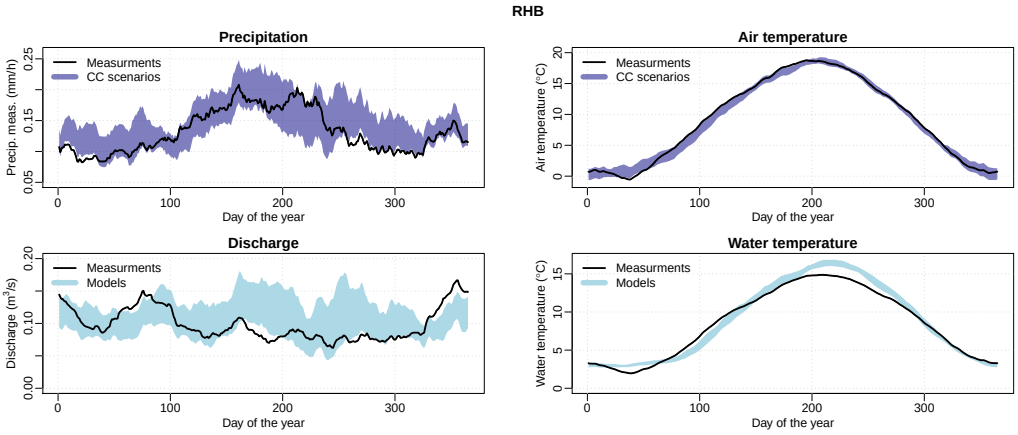

Figure S47. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Rietholzbach catchment. Measurements from the MCH station TAE are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

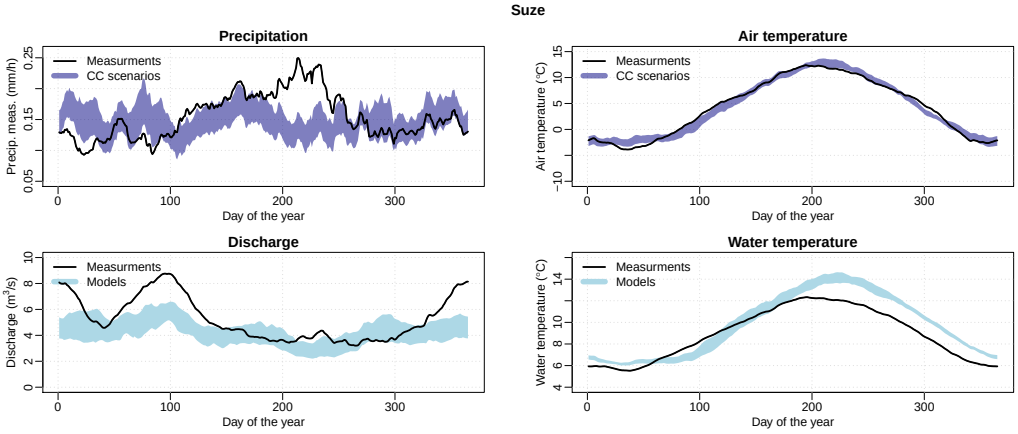

Figure S48. Comparison between model runs forced with climate change scenarios (all 21 climate change scenarios) and measurements for the period 2005-2015 in the Suze catchment. Measurements from the MCH station CHA are used (see Table S2). Top left: Measured precipitation and mean precipitation over the catchment from climate change scenarios. Top right: Measured air temperature and mean air temperature over the catchment from climate change scenarios. Bottom left: Measured and modelled discharge. Bottom right: Measured and modelled water temperature.

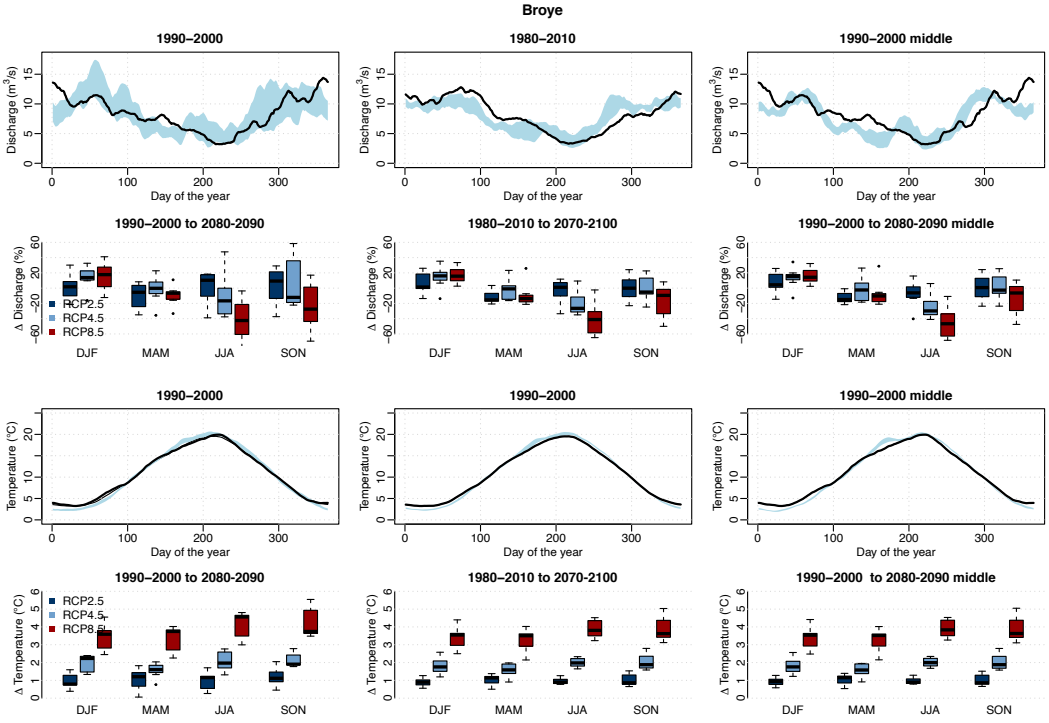

Figure S49. Impact of the version of the downscaled time series applied to the Broye catchment. Left: time series downscaled over 10 years periods and running the model over 10 years. Middle: time series downscaled over 30 years periods and running the model over 30 years. Right: time series downscaled over 30 years and running the model for the 10 years in the middle of the period. Row 1: Discharge over historical periods (1990-2000 or 1980-2010) for all 21 CC scenarios compared to measurements over the same period. Row 2: Change in discharge between end of the century periods (2080-2090 or 2070-2100) and historical periods grouped by RCP. Rows 3-4: Same as first two rows but for water temperature.

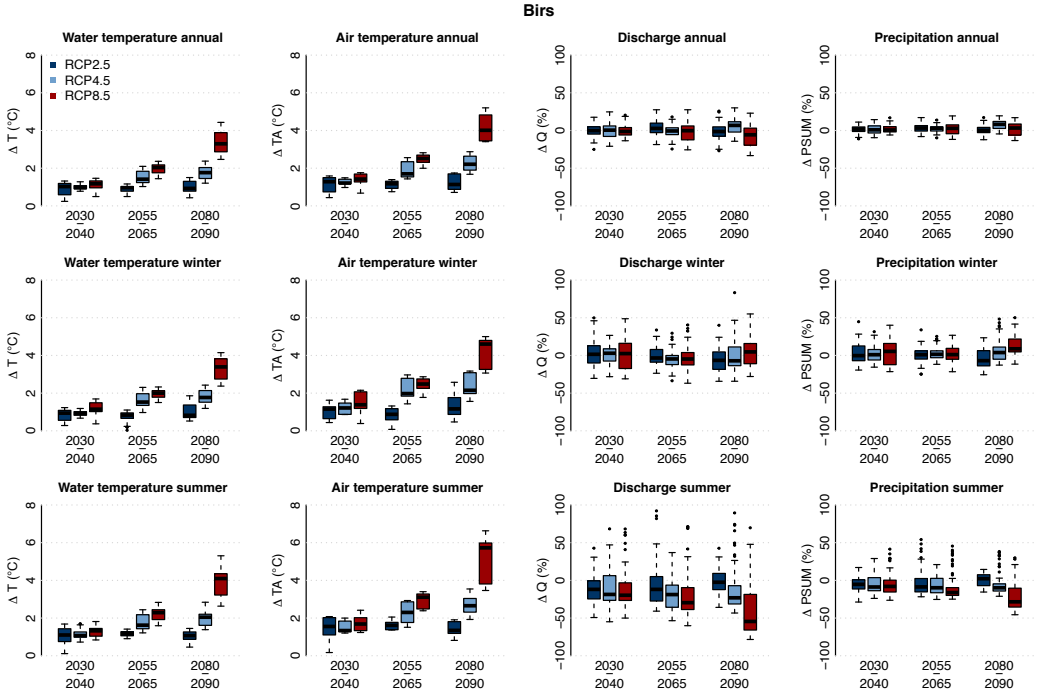

Figure S50. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Birs and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

S9 Additional figures and tables completing the 'Climate change simulations - Results and discussion' section

In this section, figures similar to Figures 5 and 10 in the main article (Section 5) are shown in Figures S50 to S61 presenting the annual and seasonal changes in water and air temperature, discharge, and precipitation in each simulated catchment. As in the main article, only winter and summer are shown for the Swiss Plateau catchments (since the two other seasons are similar to winter), and the four seasons are shown for the alpine catchments. Then, tables detailing the change in water temperature (Table S9), air temperature (Table S10), discharge (Table S11), and precipitation (Table S12) are shown for each time period and RCP and each catchment along with the median for the Swiss Plateau and alpine catchments. Figures similar to Figure 11 in the main article (Section 5.2) showing the annual and seasonal changes in snow water equivalent, ice water equivalent of glaciers (including snow on top of glacier pixels), solid precipitation, and surface soil temperature in alpine catchments are shown in Figures S62 to S66, and a figure showing the evolution of the soil surface temperature in the Swiss Plateau catchments is shown in Figure S67. Finally, figures similar to Figure 12 in the main article (Section 5.2) showing the evolution of the annual cycle of discharge and water temperature for each time period and RCP for the Kander, Landwasser, Lonza, and Lütschine catchments are shown in Figures S68 to S71, respectively.

Table S9. Change of annual and seasonal mean water temperature for 3 periods and 3 RCPs compared to the reference period 1990-2000. The median value of all years and scenarios is indicated along with the range of the values.

Catchment	Season	Δ Water temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Swiss Plateau	Annual	+1.0 [-0.0,+1.7]	+1.0 [+0.5,+1.6]	+1.2 [+0.3,+1.7]	+1.0 [+0.3,+1.5]	+1.5 [+0.8,+2.4]	+2.1 [+1.2,+2.8]	+0.9 [+0.1,+1.9]	+1.8 [+0.8,+2.9]	+3.5 [+2.1,+5.3]
	DJF	+0.7 [-0.6,+1.6]	+0.8 [-0.2,+1.8]	+1.1 [-0.1,+2.2]	+0.7 [-0.5,+1.3]	+1.4 [+0.1,+2.9]	+1.8 [+0.2,+3.0]	+0.8 [-0.2,+2.3]	+1.7 [+0.2,+2.9]	+3.2 [+0.8,+5.0]
	MAM	+0.8 [-0.3,+2.2]	+1.0 [+0.1,+2.3]	+1.0 [+0.3,+1.9]	+0.8 [-0.2,+1.7]	+1.4 [+0.2,+3.3]	+1.8 [+0.9,+3.5]	+1.0 [-0.4,+2.5]	+1.6 [+0.4,+3.8]	+3.3 [+2.0,+5.8]
	JJA	+1.3 [-0.0,+2.3]	+1.2 [+0.6,+2.4]	+1.4 [+0.6,+2.6]	+1.3 [+0.7,+2.1]	+1.8 [+1.0,+3.2]	+2.4 [+1.3,+3.9]	+1.2 [+0.3,+2.1]	+2.1 [+1.0,+3.4]	+4.1 [+2.6,+7.2]
	SON	+0.9 [+0.1,+2.1]	+1.0 [+0.1,+1.7]	+1.1 [+0.1,+2.2]	+0.9 [+0.3,+1.9]	+1.3 [+0.3,+2.8]	+2.1 [+1.0,+3.5]	+0.9 [-0.1,+2.3]	+1.7 [+0.7,+2.8]	+3.3 [+1.7,+5.4]
Birs	Annual	+1.0 [+0.2,+1.3]	+1.0 [+0.8,+1.3]	+1.2 [+0.5,+1.5]	+1.0 [+0.5,+1.2]	+1.4 [+1.0,+2.1]	+2.0 [+1.4,+2.4]	+0.9 [+0.4,+1.5]	+1.8 [+1.2,+2.4]	+3.3 [+2.5,+4.4]
	DJF	+0.9 [+0.3,+1.2]	+0.9 [+0.7,+1.2]	+1.1 [+0.4,+1.7]	+0.8 [+0.0,+1.1]	+1.5 [+1.0,+2.3]	+2.0 [+1.5,+2.3]	+0.8 [+0.5,+1.9]	+1.8 [+1.2,+2.4]	+3.4 [+2.4,+4.1]
	MAM	+0.7 [+0.2,+1.3]	+0.8 [+0.4,+1.4]	+0.9 [+0.3,+1.2]	+0.7 [+0.3,+1.0]	+1.3 [+0.3,+2.1]	+1.7 [+1.0,+2.2]	+0.9 [-0.1,+1.2]	+1.4 [+0.6,+1.9]	+3.0 [+2.0,+3.6]
	JJA	+1.1 [+0.1,+1.7]	+1.1 [+0.7,+1.7]	+1.3 [+0.8,+1.8]	+1.2 [+0.9,+1.4]	+1.6 [+1.2,+2.4]	+2.3 [+1.6,+2.8]	+1.1 [+0.5,+1.4]	+2.0 [+1.4,+2.8]	+4.1 [+2.6,+5.3]
	SON	+0.9 [+0.3,+1.8]	+1.0 [+0.5,+1.4]	+1.2 [+0.4,+1.9]	+1.0 [+0.5,+1.6]	+1.4 [+0.6,+2.4]	+2.1 [+1.2,+2.9]	+0.9 [+0.1,+1.8]	+1.7 [+0.9,+2.5]	+3.2 [+2.2,+4.9]
Broye	Annual	+1.1 [+0.0,+1.6]	+1.1 [+0.7,+1.4]	+1.2 [+0.5,+1.7]	+1.0 [+0.5,+1.3]	+1.5 [+0.9,+2.3]	+2.2 [+1.4,+2.6]	+1.0 [+0.3,+1.7]	+1.8 [+1.1,+2.5]	+3.6 [+2.6,+4.7]
	DJF	+0.8 [-0.6,+1.6]	+0.9 [-0.2,+1.6]	+1.2 [+0.1,+2.2]	+0.8 [-0.5,+1.3]	+1.6 [+0.6,+2.9]	+2.0 [+1.1,+3.0]	+1.0 [-0.2,+2.3]	+1.8 [+0.8,+2.9]	+3.3 [+1.9,+5.0]
	MAM	+0.7 [+0.2,+1.5]	+0.9 [+0.1,+1.7]	+0.8 [+0.3,+1.2]	+0.7 [+0.3,+1.1]	+1.3 [+0.3,+2.3]	+1.7 [+0.9,+2.5]	+0.9 [-0.3,+1.3]	+1.5 [+0.5,+2.2]	+3.3 [+2.0,+3.9]
	JJA	+1.4 [+0.0,+2.1]	+1.4 [+1.0,+2.0]	+1.5 [+1.1,+2.1]	+1.4 [+1.2,+1.8]	+2.0 [+1.5,+2.7]	+2.7 [+2.0,+3.4]	+1.2 [+0.6,+1.8]	+2.3 [+1.7,+3.2]	+4.9 [+3.0,+5.9]
	SON	+0.8 [+0.3,+2.1]	+1.1 [+0.4,+1.6]	+1.2 [+0.3,+2.2]	+1.0 [+0.4,+1.8]	+1.5 [+0.6,+2.8]	+2.2 [+1.3,+3.3]	+0.9 [+0.0,+2.1]	+1.9 [+1.1,+2.8]	+3.5 [+2.4,+5.4]
Ergolz	Annual	+1.0 [+0.2,+1.3]	+1.0 [+0.7,+1.2]	+1.1 [+0.5,+1.4]	+0.9 [+0.5,+1.2]	+1.3 [+0.9,+2.1]	+1.9 [+1.4,+2.4]	+0.9 [+0.4,+1.5]	+1.7 [+1.1,+2.3]	+3.2 [+2.3,+4.4]
	DJF	+0.7 [+0.1,+1.3]	+0.9 [+0.5,+1.2]	+1.1 [+0.3,+1.7]	+0.7 [+0.0,+1.1]	+1.5 [+0.8,+2.4]	+1.8 [+1.3,+2.4]	+0.8 [+0.3,+1.9]	+1.8 [+1.0,+2.4]	+3.2 [+1.9,+4.2]
	MAM	+0.8 [+0.1,+1.3]	+0.9 [+0.4,+1.4]	+0.9 [+0.4,+1.2]	+0.7 [+0.3,+1.1]	+1.3 [+0.5,+2.0]	+1.7 [+1.2,+2.2]	+0.9 [+0.0,+1.2]	+1.5 [+0.7,+1.9]	+3.1 [+2.2,+3.7]
	JJA	+1.1 [+0.1,+1.5]	+1.1 [+0.7,+1.6]	+1.3 [+0.8,+1.8]	+1.1 [+0.9,+1.5]	+1.6 [+1.1,+2.3]	+2.2 [+1.7,+2.6]	+1.1 [+0.5,+1.5]	+2.0 [+1.3,+2.6]	+4.0 [+2.6,+5.0]
	SON	+0.9 [+0.2,+1.8]	+1.0 [+0.4,+1.4]	+1.1 [+0.3,+2.0]	+0.9 [+0.4,+1.7]	+1.3 [+0.5,+2.5]	+2.0 [+1.1,+2.9]	+0.8 [+0.1,+1.9]	+1.6 [+0.9,+2.4]	+3.2 [+2.1,+4.8]
Eulach	Annual	+1.0 [-0.0,+1.4]	+1.0 [+0.6,+1.2]	+1.0 [+0.3,+1.6]	+1.0 [+0.4,+1.3]	+1.4 [+0.8,+2.3]	+1.9 [+1.2,+2.6]	+0.9 [+0.3,+1.6]	+1.6 [+1.0,+2.4]	+3.2 [+2.4,+4.6]
	DJF	+0.8 [+0.0,+1.4]	+0.9 [+0.1,+1.5]	+1.1 [-0.0,+2.0]	+0.8 [-0.0,+1.2]	+1.5 [+0.4,+2.7]	+1.8 [+0.7,+2.7]	+0.8 [+0.1,+2.0]	+1.8 [+0.6,+2.5]	+3.4 [+1.6,+4.6]
	MAM	+0.9 [-0.3,+1.2]	+1.0 [+0.3,+1.4]	+1.0 [+0.4,+1.5]	+0.8 [+0.1,+1.4]	+1.3 [+0.3,+2.1]	+1.7 [+1.2,+2.4]	+1.0 [-0.0,+1.4]	+1.5 [+0.6,+2.1]	+3.3 [+2.2,+4.0]
	JJA	+1.1 [-0.0,+1.6]	+1.1 [+0.6,+1.6]	+1.2 [+0.7,+1.9]	+1.0 [+0.7,+1.6]	+1.5 [+1.0,+2.4]	+2.0 [+1.4,+2.6]	+1.2 [+0.4,+1.6]	+2.0 [+1.3,+2.9]	+3.6 [+2.7,+5.1]
	SON	+0.9 [+0.2,+1.8]	+1.0 [+0.5,+1.4]	+1.2 [+0.2,+1.9]	+0.9 [+0.3,+1.7]	+1.4 [+0.5,+2.6]	+2.0 [+1.1,+3.1]	+0.9 [+0.1,+2.0]	+1.7 [+0.9,+2.7]	+3.2 [+2.2,+4.9]

Catchment	Season	Δ Water temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kleine Emme	Annual	+1.1 [+0.3,+1.7]	+1.2 [+0.7,+1.5]	+1.3 [+0.7,+1.7]	+1.0 [+0.7,+1.5]	+1.7 [+1.0,+2.4]	+2.4 [+1.6,+2.8]	+1.1 [+0.4,+1.9]	+2.0 [+1.3,+2.9]	+4.2 [+2.8,+5.3]
	DJF	+0.6 [+0.1,+1.0]	+0.7 [+0.4,+1.2]	+0.9 [+0.2,+1.5]	+0.6 [+0.1,+1.0]	+1.3 [+0.7,+2.4]	+1.6 [+0.9,+2.4]	+0.7 [+0.3,+2.1]	+1.5 [+0.7,+2.5]	+2.9 [+1.6,+4.4]
	MAM	+1.0 [+0.3,+2.2]	+1.4 [+0.2,+2.3]	+1.3 [+0.4,+1.9]	+1.1 [+0.6,+1.7]	+2.2 [+0.5,+3.3]	+2.6 [+1.5,+3.5]	+1.5 [-0.2,+2.5]	+2.2 [+0.7,+3.8]	+4.7 [+3.0,+5.8]
	JJA	+1.6 [+0.2,+2.3]	+1.6 [+1.2,+2.4]	+1.7 [+1.3,+2.6]	+1.7 [+1.2,+2.1]	+2.4 [+1.7,+3.2]	+3.0 [+2.3,+3.9]	+1.6 [+0.7,+2.1]	+2.6 [+1.8,+3.4]	+5.1 [+3.7,+7.2]
	SON	+0.7 [+0.2,+2.0]	+1.0 [+0.1,+1.5]	+1.1 [+0.2,+1.9]	+0.9 [+0.4,+1.9]	+1.3 [+0.3,+2.7]	+2.1 [+1.0,+3.5]	+0.8 [-0.1,+2.3]	+1.7 [+1.0,+2.8]	+3.4 [+2.4,+5.3]
RHB	Annual	+1.0 [+0.3,+1.5]	+1.1 [+0.5,+1.6]	+1.1 [+0.5,+1.6]	+1.0 [+0.5,+1.4]	+1.4 [+0.8,+2.4]	+2.1 [+1.4,+2.7]	+0.9 [+0.3,+1.8]	+1.7 [+1.0,+2.6]	+3.6 [+2.2,+5.0]
	DJF	+0.6 [-0.1,+1.2]	+0.7 [+0.0,+1.8]	+0.8 [-0.1,+1.8]	+0.6 [+0.0,+1.1]	+1.3 [+0.1,+2.7]	+1.5 [+0.2,+2.7]	+0.7 [-0.0,+2.3]	+1.4 [+0.2,+2.9]	+2.8 [+0.8,+4.7]
	MAM	+0.9 [+0.2,+1.9]	+1.2 [+0.1,+2.2]	+1.0 [+0.4,+1.7]	+0.9 [+0.3,+1.5]	+1.5 [+0.2,+2.9]	+2.0 [+1.2,+3.1]	+1.1 [-0.1,+1.8]	+1.9 [+0.5,+2.7]	+3.7 [+2.3,+4.5]
	JJA	+1.4 [+0.1,+1.9]	+1.3 [+0.7,+2.1]	+1.5 [+1.1,+2.2]	+1.4 [+1.1,+2.0]	+1.9 [+1.6,+2.7]	+2.5 [+2.1,+3.1]	+1.3 [+0.6,+1.7]	+2.4 [+1.8,+3.2]	+4.8 [+3.4,+6.0]
	SON	+0.8 [+0.1,+2.0]	+0.8 [+0.2,+1.7]	+1.0 [+0.1,+1.8]	+0.8 [+0.3,+1.7]	+1.3 [+0.4,+2.6]	+1.9 [+1.2,+3.3]	+0.7 [+0.1,+2.2]	+1.7 [+0.9,+2.7]	+3.4 [+1.9,+5.2]
Suze	Annual	+0.9 [+0.1,+1.4]	+1.1 [+0.5,+1.4]	+1.1 [+0.5,+1.5]	+0.9 [+0.3,+1.2]	+1.5 [+0.8,+2.1]	+2.1 [+1.2,+2.5]	+0.9 [+0.1,+1.6]	+1.7 [+0.8,+2.5]	+3.3 [+2.1,+4.4]
	DJF	+0.7 [+0.0,+1.3]	+0.8 [+0.0,+1.3]	+1.1 [+0.0,+1.6]	+0.7 [-0.2,+1.2]	+1.4 [+0.3,+2.4]	+1.9 [+0.7,+2.5]	+0.9 [-0.0,+1.7]	+1.6 [+0.2,+2.5]	+3.0 [+1.4,+4.2]
	MAM	+0.9 [+0.0,+1.7]	+1.1 [+0.3,+2.3]	+1.0 [+0.3,+1.9]	+0.8 [-0.2,+1.5]	+1.5 [+0.4,+2.7]	+2.0 [+0.9,+3.0]	+1.0 [-0.4,+2.0]	+1.5 [+0.4,+2.8]	+3.3 [+2.1,+4.7]
	JJA	+1.2 [+0.0,+1.8]	+1.3 [+0.8,+1.8]	+1.3 [+0.6,+1.8]	+1.1 [+0.8,+1.4]	+1.8 [+1.1,+2.7]	+2.3 [+1.3,+3.0]	+1.0 [+0.3,+1.5]	+2.0 [+1.0,+3.0]	+4.2 [+2.6,+5.4]
	SON	+0.9 [+0.2,+1.6]	+1.0 [+0.4,+1.3]	+1.0 [+0.4,+1.7]	+0.9 [+0.3,+1.5]	+1.3 [+0.5,+2.3]	+2.0 [+1.1,+2.7]	+0.8 [+0.3,+1.6]	+1.6 [+0.7,+2.5]	+3.2 [+1.7,+4.7]
Alpine	Annual	+0.7 [+0.1,+1.6]	+0.8 [+0.3,+1.4]	+0.9 [+0.4,+1.7]	+0.8 [+0.3,+1.5]	+1.3 [+0.4,+2.4]	+1.8 [+0.8,+3.1]	+0.9 [-0.0,+1.8]	+1.6 [+0.5,+2.8]	+3.2 [+1.4,+5.3]
	DJF	+0.3 [-0.4,+1.3]	+0.4 [-0.3,+1.2]	+0.4 [-0.3,+1.6]	+0.3 [-0.2,+1.0]	+0.6 [-0.3,+2.1]	+0.7 [-0.1,+2.4]	+0.4 [-0.7,+1.8]	+0.6 [-0.2,+2.2]	+1.3 [+0.1,+4.3]
	MAM	+0.4 [-0.0,+1.5]	+0.6 [+0.0,+1.5]	+0.5 [-0.1,+1.4]	+0.4 [-0.2,+1.3]	+1.0 [-0.3,+2.5]	+1.4 [+0.2,+3.4]	+0.6 [-0.3,+1.8]	+1.1 [-0.3,+3.0]	+2.7 [+0.9,+5.9]
	JJA	+1.4 [+0.3,+3.4]	+1.6 [+0.6,+3.3]	+1.7 [+0.5,+3.5]	+1.6 [+0.4,+3.2]	+2.5 [+0.8,+4.9]	+3.3 [+1.1,+5.8]	+1.6 [+0.3,+3.6]	+3.0 [+0.8,+5.2]	+6.0 [+2.1,+9.2]
	SON	+0.6 [-0.2,+1.8]	+0.7 [-0.1,+1.3]	+0.8 [+0.0,+1.8]	+0.7 [+0.1,+1.7]	+1.1 [+0.0,+2.4]	+1.7 [+0.6,+3.1]	+0.7 [-0.2,+2.0]	+1.4 [+0.4,+2.9]	+2.9 [+1.3,+5.5]
Inn	Annual	+0.8 [+0.3,+1.3]	+0.9 [+0.5,+1.3]	+0.8 [+0.6,+1.4]	+0.8 [+0.5,+1.2]	+1.3 [+0.7,+2.1]	+1.8 [+0.9,+2.6]	+0.8 [+0.2,+1.3]	+1.5 [+0.5,+2.3]	+3.1 [+2.1,+4.6]
	DJF	+0.2 [-0.1,+0.5]	+0.2 [-0.0,+0.6]	+0.2 [-0.1,+0.7]	+0.2 [+0.0,+0.5]	+0.3 [+0.1,+0.6]	+0.4 [-0.1,+0.8]	+0.2 [-0.1,+0.6]	+0.3 [-0.1,+0.7]	+0.6 [+0.1,+1.7]
	MAM	+0.4 [-0.0,+1.1]	+0.5 [+0.0,+1.1]	+0.5 [-0.1,+1.1]	+0.4 [-0.0,+0.7]	+1.0 [-0.0,+1.9]	+1.4 [+0.2,+2.8]	+0.5 [-0.3,+1.1]	+1.1 [-0.3,+2.1]	+2.9 [+1.1,+5.1]
	JJA	+1.9 [+0.4,+3.4]	+2.1 [+1.2,+3.3]	+2.1 [+1.2,+3.5]	+2.0 [+1.1,+2.8]	+3.2 [+1.7,+4.9]	+3.9 [+1.8,+5.8]	+2.0 [+0.4,+3.6]	+3.5 [+1.0,+5.2]	+6.7 [+4.0,+9.2]
	SON	+0.5 [+0.0,+1.5]	+0.6 [+0.1,+1.1]	+0.7 [+0.2,+1.4]	+0.6 [+0.1,+1.5]	+0.9 [+0.2,+1.7]	+1.3 [+0.8,+2.7]	+0.5 [-0.0,+1.7]	+1.1 [+0.6,+2.2]	+2.3 [+1.6,+4.1]

Catchment	Season	△ Water temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kander	Annual	+0.6 [+0.3,+0.9]	+0.7 [+0.3,+0.9]	+0.7 [+0.4,+1.1]	+0.7 [+0.3,+1.2]	+1.2 [+0.5,+1.8]	+1.6 [+0.8,+2.5]	+0.7 [+0.3,+1.4]	+1.4 [+0.7,+2.4]	+2.9 [+1.4,+4.3]
	DJF	+0.3 [-0.0,+0.5]	+0.4 [-0.2,+0.6]	+0.4 [+0.1,+0.8]	+0.3 [+0.1,+0.6]	+0.6 [+0.1,+1.2]	+0.8 [+0.2,+1.3]	+0.4 [+0.0,+0.9]	+0.7 [+0.2,+1.2]	+1.5 [+0.2,+2.6]
	MAM	+0.4 [-0.0,+1.0]	+0.6 [+0.1,+1.0]	+0.5 [+0.1,+1.0]	+0.4 [-0.2,+0.9]	+1.0 [+0.1,+1.7]	+1.3 [+0.4,+2.2]	+0.7 [-0.0,+1.2]	+1.1 [+0.3,+2.1]	+2.5 [+1.2,+4.3]
	JJA	+1.1 [+0.3,+1.8]	+1.3 [+0.8,+1.6]	+1.2 [+0.8,+2.2]	+1.3 [+0.6,+2.6]	+2.2 [+1.0,+3.4]	+2.8 [+1.5,+4.6]	+1.3 [+0.4,+2.6]	+2.7 [+1.1,+4.6]	+5.5 [+2.3,+7.5]
	SON	+0.4 [-0.0,+1.1]	+0.6 [-0.1,+0.8]	+0.7 [+0.2,+1.1]	+0.5 [+0.2,+1.1]	+0.8 [+0.0,+1.6]	+1.4 [+0.6,+2.4]	+0.6 [-0.2,+1.4]	+1.1 [+0.4,+1.9]	+2.1 [+1.5,+4.0]
Landwasser	Annual	+1.0 [+0.3,+1.6]	+1.1 [+0.6,+1.4]	+1.2 [+0.6,+1.7]	+1.0 [+0.6,+1.5]	+1.7 [+0.5,+2.4]	+2.2 [+1.1,+3.1]	+1.1 [+0.2,+1.8]	+1.9 [+0.9,+2.8]	+3.9 [+2.3,+5.3]
	DJF	+0.4 [-0.2,+0.7]	+0.4 [-0.3,+0.8]	+0.4 [-0.3,+1.0]	+0.3 [-0.1,+0.6]	+0.6 [-0.2,+1.4]	+0.8 [-0.1,+1.3]	+0.4 [-0.4,+1.2]	+0.7 [-0.2,+1.4]	+1.4 [+0.6,+2.7]
	MAM	+0.6 [+0.0,+1.5]	+0.8 [+0.2,+1.5]	+0.7 [+0.2,+1.4]	+0.7 [+0.2,+1.3]	+1.3 [-0.3,+2.5]	+1.8 [+0.5,+3.4]	+0.9 [-0.3,+1.8]	+1.5 [+0.1,+3.0]	+3.5 [+1.4,+5.9]
	JJA	+2.0 [+0.6,+3.0]	+2.3 [+1.5,+3.0]	+2.4 [+1.7,+3.1]	+2.2 [+1.5,+3.2]	+3.4 [+1.6,+4.7]	+4.2 [+2.4,+5.2]	+2.2 [+0.5,+3.3]	+3.8 [+1.8,+4.9]	+7.3 [+4.1,+8.8]
	SON	+0.7 [+0.2,+1.8]	+0.9 [+0.2,+1.3]	+1.0 [+0.3,+1.7]	+0.9 [+0.4,+1.6]	+1.3 [+0.5,+2.1]	+2.1 [+1.2,+3.1]	+0.9 [+0.1,+2.0]	+1.5 [+1.1,+2.6]	+3.2 [+2.4,+4.9]
Lonza	Annual	+0.8 [+0.1,+1.2]	+0.8 [+0.5,+1.1]	+0.9 [+0.6,+1.3]	+0.8 [+0.4,+1.3]	+1.3 [+0.4,+1.9]	+1.8 [+0.8,+2.6]	+0.9 [-0.0,+1.4]	+1.5 [+0.8,+2.5]	+3.1 [+1.6,+4.8]
	DJF	+0.3 [-0.4,+0.9]	+0.3 [-0.0,+0.9]	+0.4 [-0.1,+0.8]	+0.3 [-0.2,+1.0]	+0.5 [-0.3,+1.1]	+0.6 [-0.1,+1.4]	+0.3 [-0.7,+0.9]	+0.6 [-0.1,+1.3]	+0.9 [+0.2,+2.0]
	MAM	+0.5 [+0.1,+1.1]	+0.6 [+0.1,+1.1]	+0.6 [+0.1,+1.1]	+0.5 [+0.2,+0.9]	+1.0 [+0.1,+2.0]	+1.4 [+0.4,+2.4]	+0.7 [-0.1,+1.1]	+1.1 [+0.3,+2.2]	+2.7 [+1.1,+4.8]
	JJA	+1.6 [+0.4,+2.3]	+1.8 [+1.0,+2.4]	+1.8 [+1.1,+2.7]	+1.6 [+1.2,+2.7]	+2.7 [+1.3,+3.9]	+3.5 [+1.8,+4.8]	+1.6 [+0.3,+3.1]	+3.1 [+1.4,+5.2]	+6.2 [+3.0,+9.1]
	SON	+0.5 [-0.2,+1.4]	+0.6 [+0.2,+1.1]	+0.7 [+0.0,+1.3]	+0.6 [+0.1,+1.4]	+0.9 [+0.3,+1.7]	+1.4 [+0.6,+2.4]	+0.6 [-0.2,+1.5]	+1.2 [+0.4,+2.0]	+2.3 [+1.3,+4.0]
Lutschine	Annual	+0.7 [+0.3,+1.2]	+0.8 [+0.6,+1.1]	+0.9 [+0.4,+1.4]	+0.8 [+0.5,+1.2]	+1.3 [+0.7,+2.0]	+1.7 [+1.1,+2.3]	+0.8 [+0.4,+1.6]	+1.6 [+0.9,+2.4]	+3.3 [+1.9,+4.7]
	DJF	+0.5 [+0.1,+1.3]	+0.6 [+0.2,+1.2]	+0.8 [+0.1,+1.6]	+0.5 [-0.0,+1.0]	+1.1 [+0.5,+2.1]	+1.4 [+0.7,+2.4]	+0.6 [+0.2,+1.8]	+1.3 [+0.5,+2.2]	+2.7 [+1.4,+4.3]
	MAM	+0.3 [+0.1,+0.7]	+0.5 [+0.0,+0.9]	+0.5 [-0.0,+0.9]	+0.4 [+0.0,+0.8]	+0.8 [+0.2,+1.6]	+1.1 [+0.6,+1.8]	+0.6 [+0.1,+1.2]	+0.9 [+0.2,+1.6]	+2.1 [+0.9,+3.3]
	JJA	+1.0 [+0.4,+1.3]	+1.0 [+0.6,+1.5]	+1.1 [+0.5,+1.4]	+1.2 [+0.4,+1.7]	+1.7 [+0.8,+2.4]	+2.0 [+1.1,+3.1]	+1.3 [+0.4,+2.0]	+2.0 [+0.8,+4.1]	+4.4 [+2.1,+7.3]
	SON	+1.0 [+0.2,+1.7]	+1.1 [+0.6,+1.3]	+1.2 [+0.4,+1.8]	+1.1 [+0.4,+1.7]	+1.5 [+0.8,+2.4]	+2.3 [+1.3,+3.1]	+1.1 [+0.2,+2.0]	+1.9 [+1.2,+2.9]	+3.7 [+2.4,+5.5]

Table S10. Change of annual and seasonal mean air temperature for 3 periods and 3 RCPs compared to the reference period 1990-2000. The median value of all years and scenarios is indicated along with the range of the values.

Catchment	Season	Δ Air temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Swiss Plateau	Annual	+1.3 [+0.4,+1.7]	+1.3 [+0.9,+1.8]	+1.4 [+0.6,+2.0]	+1.2 [+0.8,+1.6]	+1.9 [+1.4,+2.8]	+2.6 [+2.0,+3.3]	+1.2 [+0.7,+2.1]	+2.3 [+1.7,+3.1]	+4.5 [+3.1,+5.8]
	DJF	+1.1 [+0.1,+1.8]	+1.2 [+0.7,+2.6]	+1.7 [+0.3,+2.5]	+1.0 [+0.0,+1.8]	+2.3 [+1.4,+3.7]	+2.6 [+1.7,+3.9]	+1.3 [+0.3,+3.0]	+2.4 [+1.5,+4.0]	+4.6 [+2.9,+5.8]
	MAM	+0.9 [+0.3,+2.0]	+1.1 [+0.2,+2.2]	+1.0 [+0.5,+1.5]	+0.8 [+0.2,+1.5]	+1.4 [+0.2,+2.8]	+2.0 [+1.3,+3.1]	+1.1 [-0.1,+1.8]	+2.0 [+0.5,+3.0]	+3.7 [+2.5,+5.2]
	JJA	+1.6 [+0.1,+2.4]	+1.4 [+1.0,+2.2]	+1.7 [+1.2,+2.7]	+1.6 [+1.3,+2.6]	+2.2 [+1.4,+3.2]	+3.1 [+2.2,+3.7]	+1.4 [+0.7,+2.2]	+2.7 [+1.9,+3.7]	+5.5 [+3.4,+7.2]
	SON	+1.0 [+0.5,+2.2]	+1.2 [+0.3,+2.0]	+1.6 [+0.3,+2.3]	+1.2 [+0.5,+2.1]	+1.8 [+0.8,+3.1]	+2.5 [+1.6,+4.0]	+1.3 [-0.2,+2.5]	+2.2 [+1.2,+3.5]	+4.1 [+2.7,+5.9]
Birs	Annual	+1.3 [+0.4,+1.6]	+1.2 [+1.0,+1.5]	+1.4 [+0.7,+1.8]	+1.2 [+0.8,+1.4]	+1.7 [+1.4,+2.6]	+2.5 [+2.0,+2.8]	+1.1 [+0.7,+1.7]	+2.2 [+1.7,+2.9]	+4.0 [+3.4,+5.2]
	DJF	+1.2 [+0.4,+1.6]	+1.2 [+0.9,+1.7]	+1.4 [+0.4,+2.2]	+0.9 [+0.1,+1.3]	+2.0 [+1.4,+3.0]	+2.5 [+1.8,+2.9]	+1.2 [+0.5,+2.6]	+2.1 [+1.6,+3.2]	+4.6 [+3.1,+5.0]
	MAM	+0.8 [+0.3,+1.7]	+1.0 [+0.3,+1.7]	+0.8 [+0.7,+1.3]	+0.8 [+0.3,+1.2]	+1.3 [+0.2,+2.4]	+1.9 [+1.4,+2.6]	+0.9 [-0.0,+1.2]	+2.0 [+0.5,+2.2]	+3.4 [+2.8,+4.0]
	JJA	+1.6 [+0.2,+2.1]	+1.3 [+1.2,+2.0]	+1.7 [+1.2,+2.4]	+1.6 [+1.4,+2.1]	+2.3 [+1.5,+2.9]	+3.1 [+2.4,+3.4]	+1.3 [+0.8,+1.9]	+2.7 [+1.9,+3.5]	+5.7 [+3.5,+6.6]
	SON	+1.0 [+0.6,+2.2]	+1.3 [+0.5,+1.7]	+1.6 [+0.4,+2.2]	+1.2 [+0.8,+2.0]	+1.8 [+0.9,+2.9]	+2.5 [+1.7,+3.5]	+1.3 [-0.1,+2.2]	+2.2 [+1.3,+3.2]	+4.1 [+3.0,+5.5]
Broye	Annual	+1.3 [+0.4,+1.6]	+1.3 [+0.9,+1.5]	+1.4 [+0.7,+1.7]	+1.2 [+0.8,+1.3]	+1.7 [+1.5,+2.5]	+2.5 [+2.0,+2.8]	+1.1 [+0.7,+1.8]	+2.2 [+1.7,+2.8]	+4.0 [+3.3,+5.1]
	DJF	+1.1 [+0.4,+1.5]	+1.2 [+0.8,+1.7]	+1.5 [+0.5,+2.0]	+0.9 [+0.1,+1.4]	+2.0 [+1.5,+2.8]	+2.4 [+1.7,+3.0]	+1.3 [+0.4,+2.4]	+2.1 [+1.5,+3.1]	+4.6 [+3.0,+4.9]
	MAM	+0.9 [+0.3,+1.7]	+1.1 [+0.4,+1.8]	+0.9 [+0.7,+1.2]	+0.8 [+0.3,+1.2]	+1.3 [+0.3,+2.4]	+2.0 [+1.5,+2.7]	+1.0 [-0.1,+1.3]	+1.9 [+0.6,+2.3]	+3.5 [+2.8,+4.1]
	JJA	+1.5 [+0.2,+2.0]	+1.5 [+1.3,+1.9]	+1.6 [+1.3,+2.3]	+1.6 [+1.3,+2.0]	+2.2 [+1.5,+2.8]	+3.0 [+2.4,+3.4]	+1.3 [+0.8,+2.0]	+2.6 [+1.9,+3.4]	+5.6 [+3.4,+6.3]
	SON	+1.0 [+0.5,+2.1]	+1.2 [+0.5,+1.7]	+1.6 [+0.3,+2.2]	+1.2 [+0.6,+1.9]	+1.8 [+0.9,+2.9]	+2.4 [+1.7,+3.6]	+1.3 [-0.1,+2.2]	+2.2 [+1.3,+3.2]	+4.0 [+2.9,+5.4]
Ergolz	Annual	+1.3 [+0.4,+1.7]	+1.3 [+0.9,+1.6]	+1.4 [+0.6,+1.8]	+1.2 [+0.8,+1.5]	+1.8 [+1.4,+2.7]	+2.5 [+2.0,+3.0]	+1.1 [+0.7,+1.9]	+2.2 [+1.7,+2.9]	+4.1 [+3.3,+5.4]
	DJF	+1.3 [+0.5,+1.7]	+1.4 [+1.0,+1.9]	+1.7 [+0.3,+2.3]	+1.1 [+0.0,+1.5]	+2.3 [+1.6,+3.3]	+2.7 [+1.8,+3.0]	+1.3 [+0.7,+2.8]	+2.5 [+1.7,+3.4]	+4.9 [+3.2,+5.2]
	MAM	+0.8 [+0.3,+1.7]	+1.0 [+0.2,+1.8]	+0.9 [+0.6,+1.3]	+0.8 [+0.2,+1.2]	+1.3 [+0.2,+2.4]	+1.8 [+1.4,+2.6]	+0.9 [-0.0,+1.3]	+2.0 [+0.5,+2.2]	+3.4 [+2.6,+4.1]
	JJA	+1.6 [+0.2,+2.1]	+1.3 [+1.1,+2.0]	+1.6 [+1.3,+2.5]	+1.6 [+1.4,+2.1]	+2.2 [+1.5,+3.0]	+3.1 [+2.4,+3.3]	+1.4 [+0.8,+1.9]	+2.6 [+2.0,+3.7]	+5.7 [+3.5,+6.7]
	SON	+1.0 [+0.5,+2.1]	+1.3 [+0.5,+1.8]	+1.7 [+0.3,+2.3]	+1.0 [+0.8,+2.1]	+1.9 [+0.9,+3.1]	+2.4 [+1.6,+3.8]	+1.2 [-0.2,+2.2]	+2.2 [+1.3,+3.3]	+4.0 [+2.9,+5.7]
Eulach	Annual	+1.2 [+0.4,+1.6]	+1.3 [+0.9,+1.5]	+1.4 [+0.6,+1.8]	+1.1 [+0.8,+1.5]	+1.8 [+1.4,+2.7]	+2.4 [+2.0,+3.0]	+1.1 [+0.7,+1.9]	+2.1 [+1.7,+2.8]	+4.0 [+3.1,+5.3]
	DJF	+1.3 [+0.4,+1.5]	+1.4 [+1.0,+2.1]	+1.8 [+0.4,+2.3]	+1.1 [+0.1,+1.7]	+2.3 [+1.7,+3.5]	+2.6 [+1.9,+3.2]	+1.4 [+0.7,+2.8]	+2.7 [+1.7,+3.5]	+4.9 [+3.3,+5.3]
	MAM	+0.9 [+0.3,+1.7]	+1.1 [+0.2,+1.8]	+0.9 [+0.5,+1.3]	+0.8 [+0.2,+1.2]	+1.2 [+0.2,+2.4]	+1.8 [+1.3,+2.7]	+0.9 [-0.0,+1.3]	+2.0 [+0.5,+2.2]	+3.4 [+2.5,+4.0]
	JJA	+1.6 [+0.1,+2.0]	+1.3 [+1.0,+1.9]	+1.5 [+1.2,+2.3]	+1.4 [+1.3,+2.0]	+1.9 [+1.4,+2.8]	+2.8 [+2.2,+3.1]	+1.3 [+0.7,+1.8]	+2.5 [+1.9,+3.3]	+5.2 [+3.4,+6.2]
	SON	+0.9 [+0.5,+2.1]	+1.3 [+0.5,+1.7]	+1.7 [+0.3,+2.1]	+1.0 [+0.7,+2.0]	+1.8 [+0.8,+3.0]	+2.4 [+1.6,+3.7]	+1.2 [-0.1,+2.2]	+2.2 [+1.2,+3.2]	+3.9 [+2.7,+5.5]

Catchment	Season	Δ Air temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kleine Emme	Annual	+1.3 [+0.5,+1.7]	+1.4 [+1.0,+1.7]	+1.5 [+0.8,+2.0]	+1.3 [+0.8,+1.6]	+1.9 [+1.5,+2.8]	+2.8 [+2.1,+3.3]	+1.2 [+0.7,+2.1]	+2.4 [+1.8,+3.1]	+4.7 [+3.6,+5.8]
	DJF	+1.1 [+0.2,+1.5]	+1.2 [+1.0,+1.9]	+1.7 [+0.6,+2.4]	+1.0 [+0.1,+1.6]	+2.3 [+1.6,+3.3]	+2.7 [+1.8,+3.4]	+1.7 [+0.7,+2.8]	+2.4 [+1.7,+3.6]	+4.9 [+3.3,+5.7]
	MAM	+1.1 [+0.3,+2.0]	+1.4 [+0.4,+2.2]	+1.2 [+0.9,+1.5]	+1.1 [+0.5,+1.5]	+1.8 [+0.2,+2.8]	+2.4 [+1.5,+3.0]	+1.3 [-0.1,+1.8]	+2.4 [+0.5,+3.0]	+4.4 [+3.1,+5.2]
	JJA	+1.8 [+0.2,+2.4]	+1.4 [+1.3,+2.2]	+1.7 [+1.3,+2.7]	+1.7 [+1.5,+2.6]	+2.7 [+1.9,+3.2]	+3.2 [+2.5,+3.7]	+1.4 [+0.9,+2.2]	+2.9 [+2.1,+3.4]	+5.5 [+4.0,+7.2]
	SON	+1.0 [+0.6,+2.1]	+1.2 [+0.3,+1.7]	+1.6 [+0.3,+2.0]	+1.2 [+0.5,+2.1]	+1.8 [+0.8,+2.9]	+2.7 [+1.7,+4.0]	+1.3 [-0.2,+2.5]	+2.3 [+1.3,+3.5]	+4.2 [+3.2,+5.7]
RHB	Annual	+1.3 [+0.6,+1.7]	+1.4 [+1.0,+1.8]	+1.6 [+0.7,+1.9]	+1.3 [+0.9,+1.6]	+2.0 [+1.6,+2.8]	+2.8 [+2.3,+3.2]	+1.2 [+0.8,+2.0]	+2.3 [+1.9,+3.1]	+4.5 [+3.5,+5.8]
	DJF	+1.3 [+0.1,+1.8]	+1.4 [+1.2,+2.6]	+2.0 [+0.6,+2.5]	+1.2 [+0.3,+1.8]	+2.5 [+2.2,+3.7]	+3.0 [+2.2,+3.9]	+1.7 [+0.6,+3.0]	+2.6 [+2.1,+4.0]	+5.5 [+3.7,+5.8]
	MAM	+1.0 [+0.3,+1.9]	+1.4 [+0.2,+2.1]	+1.1 [+0.7,+1.5]	+0.9 [+0.3,+1.4]	+1.4 [+0.2,+2.8]	+2.1 [+1.6,+3.1]	+1.1 [+0.0,+1.6]	+2.2 [+0.5,+2.7]	+4.0 [+2.9,+4.8]
	JJA	+1.8 [+0.1,+2.2]	+1.4 [+1.0,+2.1]	+1.7 [+1.3,+2.6]	+1.5 [+1.4,+2.3]	+2.1 [+1.7,+3.1]	+3.0 [+2.4,+3.3]	+1.4 [+0.8,+2.0]	+2.7 [+2.1,+3.5]	+5.6 [+3.9,+6.8]
	SON	+1.0 [+0.6,+2.2]	+1.2 [+0.5,+2.0]	+1.7 [+0.3,+2.1]	+1.1 [+0.7,+2.0]	+1.8 [+0.9,+3.0]	+2.7 [+1.7,+4.0]	+1.3 [-0.2,+2.4]	+2.5 [+1.3,+3.4]	+4.3 [+2.9,+5.9]
Suze	Annual	+1.3 [+0.5,+1.5]	+1.3 [+1.0,+1.5]	+1.4 [+0.8,+1.8]	+1.2 [+0.8,+1.4]	+1.7 [+1.5,+2.4]	+2.5 [+2.1,+2.9]	+1.2 [+0.7,+1.7]	+2.2 [+1.7,+3.0]	+4.0 [+3.5,+5.0]
	DJF	+1.1 [+0.4,+1.5]	+1.1 [+0.7,+1.6]	+1.4 [+0.5,+2.0]	+0.9 [+0.1,+1.2]	+1.9 [+1.4,+2.7]	+2.3 [+1.7,+2.9]	+1.2 [+0.3,+2.4]	+2.0 [+1.5,+3.3]	+4.2 [+2.9,+5.2]
	MAM	+0.9 [+0.3,+1.7]	+1.0 [+0.4,+1.8]	+0.9 [+0.7,+1.3]	+0.8 [+0.3,+1.3]	+1.4 [+0.3,+2.6]	+2.0 [+1.5,+2.9]	+1.0 [-0.1,+1.3]	+1.9 [+0.6,+2.4]	+3.7 [+2.9,+4.3]
	JJA	+1.6 [+0.2,+2.1]	+1.7 [+1.3,+2.0]	+1.7 [+1.3,+2.4]	+1.6 [+1.4,+2.1]	+2.4 [+1.6,+2.9]	+3.2 [+2.4,+3.5]	+1.4 [+0.8,+2.1]	+2.8 [+2.0,+3.6]	+5.9 [+3.6,+6.5]
	SON	+1.1 [+0.6,+2.2]	+1.2 [+0.5,+1.7]	+1.5 [+0.4,+2.1]	+1.2 [+0.7,+1.9]	+1.8 [+0.9,+2.8]	+2.5 [+1.7,+3.4]	+1.3 [-0.0,+2.2]	+2.3 [+1.3,+3.1]	+4.1 [+3.0,+5.3]
Alpine	Annual	+1.4 [+0.5,+2.1]	+1.5 [+1.1,+2.0]	+1.7 [+0.9,+2.5]	+1.5 [+0.7,+2.2]	+2.3 [+1.3,+3.3]	+3.1 [+2.0,+4.1]	+1.4 [+0.5,+2.7]	+2.7 [+1.7,+3.7]	+5.1 [+3.4,+6.8]
	DJF	+1.2 [+0.1,+1.5]	+1.1 [+0.6,+1.9]	+1.4 [+0.5,+2.9]	+0.9 [+0.0,+1.6]	+1.8 [+1.3,+3.3]	+2.5 [+1.6,+3.2]	+1.2 [+0.3,+3.0]	+2.2 [+1.4,+3.3]	+4.3 [+3.1,+6.2]
	MAM	+1.2 [+0.2,+2.8]	+1.7 [+0.8,+2.7]	+1.5 [+0.7,+2.3]	+1.4 [+0.6,+2.3]	+2.5 [+0.2,+3.6]	+3.2 [+1.6,+4.6]	+1.7 [-0.1,+2.4]	+2.7 [+0.4,+4.3]	+5.1 [+3.3,+7.8]
	JJA	+1.8 [+0.3,+2.9]	+1.9 [+1.3,+3.2]	+2.1 [+1.2,+3.4]	+1.8 [+1.4,+3.4]	+2.8 [+1.7,+4.7]	+3.6 [+2.3,+5.3]	+1.8 [+0.8,+3.1]	+3.2 [+2.0,+5.0]	+5.9 [+3.7,+9.0]
	SON	+1.1 [+0.6,+2.3]	+1.5 [+0.1,+1.8]	+1.6 [+0.2,+2.1]	+1.3 [+0.4,+2.1]	+1.8 [+0.8,+2.9]	+3.1 [+1.7,+4.3]	+1.4 [-0.4,+2.8]	+2.4 [+1.3,+3.5]	+4.6 [+3.1,+6.1]
Inn	Annual	+1.6 [+0.5,+2.1]	+1.7 [+1.2,+2.0]	+1.8 [+1.2,+2.5]	+1.5 [+0.9,+2.2]	+2.5 [+1.6,+3.3]	+3.4 [+2.2,+4.1]	+1.7 [+0.6,+2.7]	+3.0 [+1.9,+3.7]	+5.4 [+3.9,+6.8]
	DJF	+1.3 [+0.3,+1.5]	+1.1 [+0.9,+1.9]	+1.4 [+0.8,+2.9]	+1.0 [+0.3,+1.6]	+1.8 [+1.3,+3.3]	+2.6 [+1.8,+3.2]	+1.1 [+0.3,+3.0]	+2.2 [+1.7,+3.2]	+4.2 [+3.5,+6.2]
	MAM	+1.5 [+0.2,+2.8]	+1.9 [+1.1,+2.7]	+1.8 [+1.0,+2.3]	+1.4 [+0.8,+2.3]	+2.7 [+0.4,+3.6]	+3.8 [+1.6,+4.6]	+2.0 [-0.1,+2.4]	+3.3 [+0.5,+4.0]	+5.8 [+3.6,+7.7]
	JJA	+2.1 [+0.4,+2.9]	+2.1 [+1.4,+3.2]	+2.4 [+1.5,+3.4]	+1.8 [+1.6,+3.4]	+2.9 [+2.2,+4.7]	+3.7 [+2.6,+5.3]	+1.9 [+0.8,+3.1]	+3.3 [+2.1,+5.0]	+6.1 [+4.2,+9.0]
	SON	+1.2 [+0.7,+2.3]	+1.5 [+0.1,+1.8]	+1.8 [+0.2,+2.1]	+1.5 [+0.4,+2.1]	+2.0 [+0.8,+2.9]	+3.4 [+2.0,+4.3]	+1.4 [-0.4,+2.8]	+2.5 [+1.3,+3.5]	+5.0 [+3.5,+6.1]

Catchment	Season	△ Air temperature (°C)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kander	Annual	+1.3 [+0.5,+1.8]	+1.6 [+1.2,+1.7]	+1.6 [+1.0,+2.2]	+1.4 [+0.7,+1.9]	+2.1 [+1.3,+3.0]	+3.1 [+2.1,+3.6]	+1.4 [+0.5,+2.4]	+2.6 [+1.7,+3.3]	+4.9 [+3.5,+6.2]
	DJF	+1.1 [+0.2,+1.3]	+1.1 [+0.6,+1.7]	+1.4 [+0.5,+2.5]	+0.9 [+0.1,+1.5]	+1.6 [+1.3,+3.1]	+2.5 [+1.7,+3.1]	+1.2 [+0.4,+2.8]	+2.1 [+1.5,+3.2]	+4.3 [+3.1,+5.8]
	MAM	+1.4 [+0.4,+2.7]	+1.7 [+1.1,+2.7]	+1.5 [+0.8,+2.2]	+1.3 [+0.7,+2.2]	+2.6 [+0.4,+3.3]	+3.1 [+1.8,+4.2]	+1.8 [-0.0,+2.4]	+2.9 [+0.7,+3.8]	+5.3 [+3.5,+6.6]
	JJA	+1.5 [+0.4,+2.4]	+1.8 [+1.4,+2.4]	+1.8 [+1.2,+2.6]	+1.7 [+1.5,+2.7]	+2.9 [+1.8,+3.2]	+3.4 [+2.4,+3.7]	+1.6 [+0.8,+2.4]	+3.0 [+2.0,+3.6]	+5.6 [+3.7,+6.9]
	SON	+1.1 [+0.6,+2.0]	+1.4 [+0.3,+1.6]	+1.5 [+0.3,+1.9]	+1.3 [+0.6,+2.0]	+1.6 [+0.8,+2.8]	+2.9 [+1.9,+4.0]	+1.4 [-0.1,+2.6]	+2.1 [+1.4,+3.3]	+4.5 [+3.2,+5.6]
Landwasser	Annual	+1.4 [+0.6,+1.9]	+1.7 [+1.3,+1.8]	+1.7 [+1.0,+2.3]	+1.6 [+0.8,+1.9]	+2.2 [+1.4,+3.0]	+3.2 [+2.2,+3.6]	+1.5 [+0.6,+2.5]	+2.7 [+1.8,+3.4]	+5.1 [+3.8,+6.3]
	DJF	+1.2 [+0.1,+1.4]	+1.1 [+0.9,+1.9]	+1.4 [+0.6,+2.7]	+0.9 [+0.0,+1.5]	+1.7 [+1.3,+3.2]	+2.5 [+1.7,+3.1]	+1.3 [+0.3,+3.0]	+2.2 [+1.7,+3.3]	+4.3 [+3.2,+5.8]
	MAM	+1.3 [+0.4,+2.4]	+1.7 [+1.1,+2.6]	+1.5 [+1.0,+2.0]	+1.4 [+0.6,+1.8]	+2.6 [+0.2,+3.3]	+3.3 [+1.8,+4.0]	+1.7 [-0.1,+2.1]	+2.8 [+0.4,+3.6]	+5.5 [+3.6,+6.6]
	JJA	+1.8 [+0.3,+2.6]	+1.8 [+1.4,+2.8]	+2.3 [+1.5,+2.7]	+1.9 [+1.6,+3.1]	+3.0 [+2.0,+3.9]	+3.7 [+2.6,+4.4]	+2.0 [+0.9,+2.8]	+3.3 [+2.2,+4.3]	+6.3 [+4.2,+8.1]
	SON	+1.1 [+0.7,+2.2]	+1.5 [+0.2,+1.7]	+1.6 [+0.2,+1.9]	+1.4 [+0.5,+2.1]	+1.8 [+0.9,+2.9]	+3.2 [+1.9,+4.1]	+1.6 [-0.3,+2.7]	+2.4 [+1.3,+3.4]	+4.6 [+3.4,+5.8]
Lonza	Annual	+1.5 [+0.6,+2.0]	+1.7 [+1.3,+1.9]	+1.7 [+1.1,+2.4]	+1.5 [+0.8,+2.1]	+2.3 [+1.4,+3.3]	+3.2 [+2.2,+4.0]	+1.6 [+0.5,+2.7]	+2.8 [+1.8,+3.7]	+5.3 [+3.7,+6.7]
	DJF	+1.2 [+0.3,+1.4]	+1.1 [+0.8,+1.7]	+1.3 [+0.5,+2.5]	+0.8 [+0.1,+1.5]	+1.6 [+1.3,+3.0]	+2.5 [+1.6,+3.0]	+1.0 [+0.3,+2.8]	+2.2 [+1.4,+3.1]	+4.1 [+3.3,+5.9]
	MAM	+1.5 [+0.4,+2.7]	+1.8 [+1.0,+2.6]	+1.7 [+0.7,+2.3]	+1.4 [+0.8,+2.3]	+2.5 [+0.5,+3.6]	+3.5 [+1.8,+4.6]	+1.9 [-0.1,+2.4]	+3.1 [+0.7,+4.3]	+6.0 [+3.6,+7.8]
	JJA	+1.9 [+0.5,+2.8]	+2.2 [+1.5,+3.0]	+2.3 [+1.2,+3.0]	+1.9 [+1.6,+3.2]	+3.1 [+1.9,+3.7]	+4.0 [+2.5,+4.6]	+1.9 [+0.8,+3.1]	+3.6 [+2.1,+4.2]	+6.2 [+3.9,+7.4]
	SON	+1.1 [+0.7,+2.1]	+1.5 [+0.3,+1.7]	+1.7 [+0.3,+2.0]	+1.4 [+0.5,+2.0]	+1.8 [+0.8,+2.9]	+3.2 [+1.9,+4.2]	+1.5 [-0.2,+2.8]	+2.3 [+1.5,+3.4]	+4.7 [+3.3,+5.9]
Lutschine	Annual	+1.2 [+0.5,+1.6]	+1.4 [+1.1,+1.6]	+1.5 [+0.9,+2.0]	+1.3 [+0.7,+1.5]	+1.9 [+1.3,+2.7]	+2.8 [+2.0,+3.2]	+1.2 [+0.6,+2.1]	+2.4 [+1.7,+3.1]	+4.5 [+3.4,+5.6]
	DJF	+1.1 [+0.2,+1.4]	+1.1 [+0.7,+1.8]	+1.4 [+0.5,+2.4]	+1.0 [+0.1,+1.5]	+1.8 [+1.5,+3.2]	+2.5 [+1.7,+3.2]	+1.4 [+0.5,+2.7]	+2.2 [+1.6,+3.3]	+4.5 [+3.1,+5.6]
	MAM	+1.2 [+0.4,+2.2]	+1.4 [+0.8,+2.3]	+1.3 [+0.9,+1.7]	+1.2 [+0.7,+1.5]	+2.1 [+0.3,+2.8]	+2.7 [+1.7,+3.2]	+1.4 [-0.0,+1.8]	+2.3 [+0.6,+3.1]	+4.7 [+3.3,+5.2]
	JJA	+1.6 [+0.3,+2.2]	+1.5 [+1.3,+2.1]	+1.6 [+1.2,+2.3]	+1.6 [+1.4,+2.4]	+2.6 [+1.7,+2.9]	+3.2 [+2.3,+3.3]	+1.5 [+0.9,+2.1]	+2.8 [+2.0,+3.3]	+5.6 [+3.7,+6.4]
	SON	+1.0 [+0.6,+2.1]	+1.2 [+0.3,+1.6]	+1.5 [+0.3,+1.9]	+1.2 [+0.6,+2.0]	+1.7 [+0.8,+2.8]	+2.6 [+1.7,+3.8]	+1.2 [-0.1,+2.4]	+2.1 [+1.3,+3.3]	+4.2 [+3.1,+5.4]

Table S11. Change of annual and seasonal mean discharge for 3 periods and 3 RCPs compared to the reference period 1990-2000. The median value of all years and scenarios is indicated along with the range of the values.

Catchment	Season	Δ Discharge (%)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Swiss Plateau	Annual	-2.0 [-30.7,+23.5]	-2.7 [-28.2,+27.9]	-1.9 [-26.2,+21.7]	-0.5 [-21.8,+27.5]	-4.2 [-31.5,+20.8]	-5.4 [-33.0,+31.5]	-3.0 [-32.7,+26.1]	+0.9 [-27.4,+32.8]	-9.7 [-45.0,+28.8]
	DJF	+0.1 [-39.3,+67.9]	+0.6 [-39.7,+73.8]	+0.8 [-39.8,+101.8]	-4.6 [-46.8,+54.7]	-5.7 [-47.2,+54.6]	-5.2 [-45.2,+79.3]	-7.3 [-55.6,+57.7]	-4.4 [-45.8,+93.1]	+3.3 [-44.3,+103.3]
	MAM	+2.8 [-48.9,+94.5]	-6.4 [-49.5,+79.1]	+5.3 [-58.6,+124.3]	+3.5 [-39.7,+119.1]	-4.7 [-59.2,+83.4]	+1.4 [-65.8,+158.3]	+0.9 [-50.9,+215.9]	+4.6 [-53.7,+152.3]	-7.3 [-66.4,+85.0]
	JJA	-12.4 [-81.8,+79.6]	-15.7 [-76.9,+93.4]	-16.8 [-68.5,+338.5]	-10.0 [-69.5,+317.1]	-21.3 [-84.2,+76.1]	-28.0 [-84.3,+230.8]	-5.2 [-65.5,+114.8]	-18.1 [-81.3,+278.7]	-42.4 [-94.3,+140.1]
	SON	-1.8 [-34.5,+88.9]	+9.4 [-31.2,+78.8]	-1.3 [-40.2,+69.6]	+5.3 [-32.9,+83.2]	+8.9 [-52.1,+95.3]	+0.8 [-43.9,+111.7]	+1.9 [-35.6,+55.7]	+14.5 [-35.5,+135.4]	-0.3 [-63.3,+67.1]
Birs	Annual	-0.1 [-25.1,+17.6]	+0.5 [-20.9,+24.7]	-1.3 [-13.6,+20.4]	+2.8 [-18.6,+27.5]	-0.6 [-24.5,+18.0]	-0.2 [-25.6,+27.5]	-1.4 [-26.9,+25.8]	+6.8 [-14.3,+30.0]	-5.7 [-33.3,+23.0]
	DJF	+1.5 [-30.4,+49.8]	+2.9 [-28.2,+26.6]	+2.5 [-31.0,+48.7]	-3.4 [-23.6,+33.8]	-4.7 [-33.6,+29.5]	-4.7 [-36.9,+40.5]	-6.5 [-34.3,+40.0]	-7.1 [-34.2,+83.3]	+4.7 [-28.0,+55.0]
	MAM	+6.5 [-43.3,+72.2]	-5.9 [-46.7,+57.7]	+10.5 [-37.1,+63.7]	+7.8 [-37.1,+47.6]	+1.5 [-48.6,+82.7]	+11.1 [-54.8,+64.3]	+4.5 [-44.4,+56.9]	+15.8 [-48.7,+58.9]	+1.4 [-55.1,+72.7]
	JJA	-12.0 [-49.3,+42.7]	-18.6 [-54.9,+68.3]	-19.7 [-50.0,+124.2]	-12.0 [-40.9,+150.3]	-18.8 [-53.5,+36.9]	-29.6 [-60.1,+120.4]	-2.5 [-35.8,+42.6]	-23.1 [-43.3,+89.5]	-54.5 [-78.4,+69.7]
	SON	-1.7 [-27.0,+77.9]	+10.7 [-18.3,+78.8]	-5.2 [-31.5,+58.5]	+7.2 [-23.9,+83.2]	+7.7 [-36.9,+84.0]	+0.2 [-31.4,+91.9]	-0.2 [-31.5,+41.7]	+17.3 [-19.4,+135.4]	+1.0 [-41.6,+49.8]
Broye	Annual	-3.3 [-19.4,+21.0]	-3.5 [-21.4,+19.4]	-1.9 [-21.0,+21.7]	-0.5 [-16.6,+22.0]	-3.4 [-31.5,+10.4]	-7.9 [-33.0,+19.7]	-3.9 [-26.1,+25.5]	+3.4 [-27.4,+32.8]	-11.0 [-45.0,+25.6]
	DJF	-1.7 [-31.9,+67.9]	+1.4 [-32.2,+27.6]	-0.0 [-34.5,+63.9]	-2.9 [-25.7,+49.2]	-7.3 [-35.0,+22.6]	-7.5 [-33.1,+41.5]	-6.2 [-36.2,+36.0]	-4.7 [-35.3,+71.8]	-0.1 [-36.9,+73.2]
	MAM	+0.8 [-48.9,+94.5]	-12.4 [-45.1,+51.8]	+14.1 [-25.9,+124.3]	+4.8 [-35.4,+119.1]	-2.4 [-44.8,+65.5]	+5.2 [-65.8,+158.3]	+7.4 [-47.0,+215.9]	+18.4 [-46.5,+152.3]	-1.3 [-64.1,+85.0]
	JJA	-22.9 [-81.8,+79.6]	-26.9 [-76.9,+93.4]	-28.9 [-68.5,+338.5]	-26.7 [-69.5,+317.1]	-34.4 [-84.2,+76.1]	-46.3 [-84.3,+230.8]	-3.3 [-65.5,+114.8]	-39.0 [-81.3,+278.7]	-75.9 [-94.3,+140.1]
	SON	-1.1 [-29.4,+61.6]	+10.8 [-23.5,+56.8]	-7.2 [-40.2,+69.6]	+4.6 [-32.9,+75.8]	+8.6 [-52.1,+65.3]	-7.7 [-43.9,+87.5]	+3.1 [-35.6,+48.2]	+12.7 [-23.7,+119.6]	-8.9 [-63.3,+39.5]
Ergolz	Annual	-1.6 [-30.7,+23.5]	-0.7 [-19.4,+27.9]	+0.7 [-16.1,+18.5]	+0.9 [-21.8,+25.7]	-1.2 [-23.1,+20.8]	-2.1 [-26.0,+31.5]	-3.1 [-32.7,+26.1]	+4.7 [-15.1,+21.6]	-9.4 [-38.3,+24.4]
	DJF	-2.4 [-27.9,+61.3]	-4.4 [-36.2,+24.8]	-5.2 [-36.0,+34.4]	-6.2 [-32.3,+31.4]	-8.2 [-47.2,+30.4]	-8.0 [-43.3,+44.6]	-14.9 [-50.7,+51.0]	-10.2 [-45.8,+83.9]	-1.8 [-29.3,+51.3]
	MAM	+15.9 [-34.8,+87.7]	-0.4 [-34.5,+79.1]	+13.7 [-37.9,+53.5]	+9.1 [-37.0,+48.1]	+4.0 [-26.8,+83.4]	+14.0 [-35.9,+93.6]	+4.0 [-25.3,+48.0]	+17.9 [-25.2,+59.4]	+10.6 [-37.8,+79.7]
	JJA	-11.6 [-50.7,+31.4]	-10.6 [-48.1,+55.2]	-15.6 [-48.2,+88.4]	-11.7 [-50.9,+77.6]	-15.5 [-49.7,+12.0]	-18.8 [-57.5,+80.4]	-4.6 [-39.8,+48.0]	-17.0 [-53.7,+53.5]	-42.2 [-82.2,+20.8]
	SON	-2.3 [-34.5,+79.3]	+8.4 [-21.9,+62.6]	-1.8 [-31.4,+49.5]	-0.7 [-28.6,+68.8]	+6.1 [-43.8,+75.1]	-2.0 [-29.3,+109.7]	+0.3 [-32.1,+55.7]	+13.5 [-34.8,+85.3]	-3.6 [-39.7,+46.1]
Eulach	Annual	-3.5 [-23.3,+18.3]	-1.8 [-27.7,+23.6]	-1.6 [-24.9,+14.4]	-4.1 [-18.6,+12.9]	-5.2 [-21.5,+17.1]	-5.4 [-22.4,+24.6]	-5.9 [-27.2,+16.2]	-0.5 [-13.3,+17.0]	-8.0 [-38.2,+28.8]
	DJF	-7.6 [-37.3,+63.3]	-13.2 [-39.7,+18.1]	-13.4 [-39.8,+34.1]	-14.3 [-46.8,+18.3]	-11.4 [-41.6,+27.5]	-16.3 [-39.6,+39.6]	-19.0 [-55.6,+27.5]	-11.2 [-40.3,+29.8]	-2.0 [-41.2,+43.9]
	MAM	+10.8 [-41.1,+56.1]	+0.9 [-35.8,+39.4]	+10.7 [-33.6,+51.3]	+9.7 [-29.2,+47.5]	+1.5 [-29.1,+55.8]	+10.1 [-26.4,+75.0]	+3.3 [-18.1,+35.7]	+10.5 [-20.7,+53.7]	+0.2 [-36.0,+81.2]
	JJA	-10.4 [-32.6,+24.2]	-8.3 [-33.0,+24.7]	-11.2 [-44.2,+56.1]	-3.9 [-39.3,+42.2]	-17.8 [-36.0,-1.2]	-18.7 [-42.6,+34.6]	-4.9 [-29.5,+19.8]	-9.6 [-39.2,+33.3]	-26.4 [-77.0,+1.3]
	SON	-6.4 [-31.9,+88.9]	+7.7 [-25.6,+60.7]	-0.1 [-34.4,+45.8]	-3.3 [-28.2,+73.6]	+7.5 [-45.7,+95.3]	-0.3 [-26.2,+111.7]	+0.3 [-28.1,+44.3]	+9.0 [-35.5,+104.4]	-0.7 [-42.2,+61.1]

Catchment	Season	Δ Discharge (%)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kleine Emme	Annual	-0.6 [-20.4,+12.0]	-3.2 [-19.9,+15.3]	-3.1 [-14.6,+14.5]	-1.5 [-15.3,+18.2]	-7.2 [-23.3,+6.3]	-5.6 [-22.4,+18.7]	-2.8 [-16.9,+10.2]	-2.8 [-20.4,+13.9]	-11.8 [-36.1,+9.7]
	DJF	+4.9 [-17.0,+48.4]	+9.6 [-15.5,+73.8]	+9.1 [-12.0,+58.1]	+5.4 [-8.6,+31.2]	+8.3 [-12.7,+48.3]	+11.4 [-18.3,+71.9]	+4.8 [-17.8,+29.6]	+15.6 [-7.7,+61.0]	+23.0 [-4.8,+80.9]
	MAM	-4.0 [-23.6,+22.4]	-6.1 [-28.9,+16.2]	-5.5 [-25.7,+27.3]	-2.5 [-24.0,+27.4]	-15.0 [-36.7,+11.1]	-9.8 [-35.0,+23.0]	-8.2 [-30.9,+15.5]	-11.6 [-40.2,+33.2]	-25.9 [-52.3,+25.8]
	JJA	-10.6 [-32.2,+10.9]	-13.2 [-28.0,+13.6]	-15.7 [-33.0,+33.6]	-8.4 [-35.5,+36.7]	-20.4 [-42.3,-3.1]	-24.5 [-41.3,+20.8]	-9.2 [-26.1,+13.0]	-15.3 [-34.9,+18.8]	-34.6 [-70.3,+6.8]
	SON	+0.6 [-20.2,+42.1]	+7.9 [-31.2,+47.3]	+0.8 [-22.2,+38.8]	+7.4 [-19.1,+34.6]	+12.0 [-26.6,+48.4]	+7.7 [-27.3,+68.5]	+5.0 [-22.0,+35.3]	+10.2 [-18.9,+68.2]	+2.7 [-36.1,+67.1]
RHB	Annual	-4.9 [-22.1,+14.0]	-4.8 [-28.2,+26.1]	-2.7 [-26.2,+10.1]	-2.9 [-18.9,+13.6]	-6.9 [-22.2,+15.4]	-7.3 [-23.7,+24.0]	-5.7 [-24.0,+11.0]	-3.4 [-16.3,+13.1]	-11.9 [-40.9,+25.7]
	DJF	-6.9 [-39.3,+62.7]	-12.5 [-33.0,+47.7]	-9.9 [-38.3,+73.8]	-14.4 [-28.8,+35.5]	-12.8 [-38.9,+35.8]	-14.7 [-45.2,+79.3]	-15.2 [-47.0,+37.2]	-13.1 [-40.8,+57.5]	-5.1 [-44.3,+103.3]
	MAM	+7.3 [-44.3,+64.2]	-10.0 [-47.3,+44.6]	+3.8 [-58.6,+35.1]	+4.1 [-39.2,+37.3]	-1.7 [-51.7,+53.9]	+4.5 [-46.8,+75.0]	-2.8 [-41.2,+29.2]	-0.0 [-48.4,+41.9]	-12.2 [-55.1,+65.0]
	JJA	-14.9 [-35.3,+18.0]	-13.4 [-41.3,+11.8]	-16.3 [-48.8,+42.7]	-6.4 [-43.6,+41.3]	-24.4 [-37.0,-3.4]	-27.7 [-47.1,+21.8]	-9.0 [-33.3,+17.4]	-17.9 [-45.9,+25.2]	-35.5 [-80.4,-4.0]
	SON	-1.9 [-33.3,+59.2]	+11.2 [-26.3,+58.2]	+1.3 [-29.6,+48.9]	+3.2 [-23.7,+69.7]	+11.5 [-44.9,+63.1]	-0.1 [-23.1,+105.9]	+3.2 [-27.9,+41.5]	+13.0 [-33.2,+72.2]	+0.9 [-33.5,+61.2]
Suze	Annual	-1.2 [-16.8,+14.1]	-2.7 [-18.1,+14.9]	-1.6 [-16.3,+21.5]	+1.9 [-11.7,+22.0]	-1.9 [-22.9,+12.4]	-5.4 [-28.6,+15.5]	-0.8 [-19.3,+22.5]	+5.2 [-16.3,+28.2]	-8.1 [-37.8,+13.1]
	DJF	+8.2 [-20.2,+63.6]	+11.8 [-22.2,+63.0]	+10.0 [-32.5,+101.8]	+2.8 [-14.8,+54.7]	+0.0 [-28.3,+54.6]	+5.6 [-20.2,+65.0]	+4.9 [-35.7,+57.7]	+3.3 [-24.8,+93.1]	+12.6 [-19.1,+83.0]
	MAM	-7.8 [-46.8,+29.2]	-12.6 [-49.5,+18.5]	-5.7 [-48.6,+39.2]	-2.3 [-39.7,+39.5]	-10.4 [-59.2,+27.9]	-8.9 [-56.8,+34.4]	-5.8 [-50.9,+42.7]	-2.2 [-53.7,+33.8]	-15.6 [-66.4,+26.7]
	JJA	-10.1 [-45.2,+41.5]	-21.9 [-57.3,+76.3]	-18.7 [-41.9,+99.6]	-16.4 [-43.6,+129.3]	-22.5 [-67.2,+54.1]	-32.5 [-61.3,+103.2]	-0.5 [-27.5,+34.7]	-22.1 [-49.1,+97.5]	-53.2 [-75.3,+75.7]
	SON	-0.8 [-27.6,+36.1]	+9.7 [-19.7,+68.6]	-6.5 [-36.6,+48.8]	+9.4 [-20.4,+61.5]	+9.1 [-40.5,+47.7]	+1.2 [-40.2,+76.4]	+0.6 [-29.5,+41.6]	+18.3 [-18.4,+125.2]	+0.5 [-41.8,+47.5]
Alpine	Annual	+6.6 [-21.3,+43.5]	+6.9 [-15.3,+54.4]	+4.9 [-20.5,+48.5]	+4.9 [-19.6,+66.7]	+1.3 [-22.6,+50.0]	+4.9 [-29.6,+67.7]	+2.0 [-20.3,+41.9]	+3.9 [-20.9,+75.2]	-1.9 [-35.2,+78.5]
	DJF	+8.5 [-15.3,+75.2]	+10.6 [-16.1,+111.0]	+9.6 [-22.7,+141.2]	+7.8 [-17.2,+39.6]	+13.0 [-17.4,+148.0]	+18.1 [-24.3,+196.3]	+6.8 [-20.1,+117.7]	+17.4 [-25.2,+158.8]	+41.3 [-35.4,+659.2]
	MAM	+15.5 [-18.6,+87.1]	+19.5 [-11.0,+97.3]	+17.3 [-11.5,+69.8]	+18.5 [-6.9,+78.4]	+16.3 [-22.3,+120.5]	+25.1 [-19.5,+133.1]	+13.0 [-13.8,+71.3]	+23.1 [-18.1,+121.3]	+24.9 [-22.7,+185.8]
	JJA	-5.5 [-43.4,+32.6]	-6.5 [-42.5,+55.7]	-6.9 [-40.7,+53.9]	-8.6 [-43.8,+76.4]	-15.8 [-59.1,+42.2]	-18.3 [-62.2,+49.0]	-11.9 [-41.3,+35.7]	-16.0 [-66.6,+71.1]	-42.8 [-81.9,+14.4]
	SON	+11.9 [-24.6,+96.0]	+9.8 [-20.5,+67.1]	+5.1 [-25.7,+77.5]	+11.0 [-18.5,+88.6]	+12.7 [-27.5,+114.4]	+21.2 [-34.6,+165.9]	+7.5 [-26.5,+114.0]	+11.6 [-30.7,+153.2]	+21.6 [-49.0,+339.5]
Inn	Annual	+7.4 [-21.1,+27.5]	+6.1 [-9.0,+31.1]	+4.8 [-13.6,+37.6]	+6.6 [-18.3,+30.6]	-2.7 [-17.9,+32.7]	+2.4 [-21.8,+39.2]	+3.2 [-15.7,+37.3]	+1.7 [-15.0,+31.7]	-7.5 [-29.6,+26.5]
	DJF	+5.5 [-8.5,+15.4]	+3.5 [-3.9,+16.2]	+2.7 [-6.6,+32.0]	+3.5 [-8.7,+12.0]	-0.2 [-8.4,+32.7]	+5.3 [-13.1,+48.0]	+2.2 [-8.9,+27.8]	+3.6 [-9.4,+48.4]	+13.2 [-18.1,+140.7]
	MAM	+18.3 [-11.2,+87.1]	+29.0 [+2.6,+77.9]	+30.1 [-4.5,+64.2]	+26.3 [-6.9,+68.5]	+27.3 [-3.2,+80.6]	+31.7 [-4.6,+89.9]	+23.1 [-4.2,+55.4]	+33.6 [+2.3,+91.0]	+32.9 [-22.5,+76.2]
	JJA	-10.7 [-43.4,+23.7]	-16.4 [-34.6,+17.8]	-14.8 [-39.6,+32.9]	-11.2 [-36.7,+27.7]	-28.6 [-49.4,+0.5]	-28.5 [-62.2,+25.6]	-15.8 [-39.8,+23.8]	-31.1 [-58.3,+28.1]	-52.6 [-73.1,-8.4]
	SON	+15.2 [-19.5,+74.6]	+8.6 [-7.6,+49.9]	+3.6 [-18.7,+58.4]	+10.9 [-14.6,+80.1]	+5.8 [-16.3,+92.1]	+18.2 [-15.2,+96.5]	+8.7 [-16.4,+70.2]	+8.7 [-19.1,+84.2]	+22.1 [-29.9,+143.7]

Catchment	Season	Δ Discharge (%)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kander	Annual	+7.6 [-10.7,+20.3]	+7.8 [-8.6,+25.6]	+6.5 [-8.9,+25.8]	+6.0 [-7.5,+34.1]	+2.6 [-14.6,+23.9]	+5.2 [-15.0,+33.8]	+3.3 [-10.4,+17.2]	+5.2 [-18.2,+31.0]	+1.1 [-21.1,+29.9]
	DJF	+7.9 [-10.7,+45.7]	+10.3 [-6.7,+61.2]	+9.6 [-4.1,+91.7]	+6.6 [-5.2,+25.8]	+11.9 [-2.6,+52.8]	+14.1 [-4.2,+91.6]	+6.3 [-6.9,+59.7]	+12.9 [-7.8,+55.1]	+28.8 [-2.6,+173.3]
	MAM	+15.5 [-6.7,+37.3]	+14.9 [+1.0,+52.9]	+15.5 [-3.3,+43.7]	+18.1 [-0.0,+40.5]	+13.1 [-5.1,+48.9]	+23.7 [-0.8,+46.9]	+14.5 [-6.3,+43.6]	+19.2 [-2.7,+51.6]	+23.3 [-5.8,+55.7]
	JJA	-2.7 [-17.8,+17.4]	+0.3 [-27.3,+28.0]	-2.8 [-22.8,+34.5]	-6.0 [-39.5,+38.8]	-11.9 [-49.2,+20.4]	-13.8 [-57.3,+27.8]	-8.3 [-35.5,+13.8]	-12.2 [-57.5,+24.7]	-38.9 [-66.0,+2.5]
	SON	+12.8 [-14.1,+37.6]	+12.8 [-7.1,+33.6]	+7.2 [-8.5,+26.0]	+9.6 [-4.1,+33.2]	+13.4 [-5.0,+42.1]	+20.2 [-3.9,+47.7]	+8.9 [-7.1,+29.5]	+12.8 [-3.6,+53.6]	+17.8 [-9.3,+66.7]
Landwasser	Annual	-2.2 [-19.3,+14.9]	-2.7 [-15.3,+19.3]	-2.5 [-20.5,+15.4]	-2.3 [-19.6,+9.1]	-5.6 [-22.6,+12.6]	-5.8 [-29.6,+22.5]	-3.7 [-20.3,+8.3]	-4.3 [-20.9,+10.6]	-14.9 [-35.2,+21.6]
	DJF	+2.1 [-14.9,+19.3]	+3.0 [-16.1,+24.6]	+1.8 [-22.7,+30.7]	+2.7 [-17.2,+16.8]	+4.5 [-17.4,+19.2]	+2.7 [-24.3,+32.7]	+3.4 [-20.1,+17.9]	+5.1 [-25.2,+34.7]	+17.1 [-35.4,+79.8]
	MAM	+12.5 [-15.8,+41.8]	+18.0 [-6.9,+54.6]	+14.3 [-1.7,+38.0]	+10.8 [-1.8,+30.5]	+13.4 [-8.2,+64.5]	+20.5 [-9.9,+57.5]	+7.2 [-10.1,+28.5]	+18.7 [-12.1,+69.3]	+15.7 [-22.7,+98.3]
	JJA	-15.1 [-37.2,+0.9]	-20.5 [-42.5,+19.8]	-17.3 [-40.7,+8.5]	-15.5 [-43.8,+6.0]	-27.4 [-59.1,+3.2]	-31.1 [-60.5,+4.5]	-18.2 [-41.3,+7.8]	-28.8 [-54.1,+5.5]	-53.0 [-73.7,-16.0]
	SON	-1.1 [-16.7,+28.4]	-1.6 [-20.5,+27.8]	-8.0 [-25.7,+34.0]	-0.8 [-18.5,+24.0]	-1.1 [-27.5,+23.8]	-0.8 [-34.6,+49.0]	+0.9 [-26.5,+24.3]	-3.7 [-30.7,+29.0]	-13.4 [-49.0,+43.1]
Lonza	Annual	+21.1 [-9.8,+43.5]	+20.3 [-2.2,+54.4]	+19.3 [-2.8,+48.5]	+17.6 [-3.1,+66.7]	+19.1 [-8.3,+50.0]	+24.7 [-11.8,+67.7]	+16.5 [-3.6,+41.9]	+22.5 [-15.3,+75.2]	+22.6 [-17.0,+78.5]
	DJF	+15.3 [-0.8,+75.2]	+17.3 [+6.4,+81.1]	+16.6 [+5.2,+141.2]	+17.0 [+5.8,+39.6]	+26.1 [+10.4,+148.0]	+38.9 [+17.0,+196.3]	+15.9 [+1.1,+117.7]	+33.0 [+11.6,+158.8]	+107.4 [+18.8,+659.2]
	MAM	+35.7 [+8.9,+84.2]	+44.0 [+22.0,+97.3]	+43.0 [+12.4,+69.8]	+37.5 [+17.0,+78.4]	+58.1 [+9.2,+120.5]	+75.7 [+36.0,+133.1]	+43.6 [+1.6,+71.3]	+71.0 [+15.4,+121.3]	+106.3 [+30.3,+185.8]
	JJA	+8.2 [-21.0,+32.6]	+9.0 [-23.9,+55.7]	+8.7 [-19.6,+53.9]	+6.5 [-21.7,+76.4]	+0.8 [-45.8,+42.2]	-5.9 [-61.6,+49.0]	+1.2 [-27.6,+35.7]	-1.4 [-66.6,+71.1]	-35.0 [-81.9,+14.4]
	SON	+27.7 [-4.1,+96.0]	+31.6 [-1.8,+67.1]	+24.5 [-20.8,+77.5]	+35.1 [-15.9,+88.6]	+36.8 [-8.3,+114.4]	+74.1 [+26.1,+165.9]	+29.8 [-13.7,+114.0]	+49.4 [+0.7,+153.2]	+86.9 [+40.7,+339.5]
Lutschine	Annual	+3.1 [-21.3,+14.0]	+3.2 [-11.9,+21.2]	+2.2 [-10.8,+14.7]	+0.0 [-8.1,+20.4]	-0.2 [-13.0,+19.4]	+4.4 [-10.8,+29.1]	-2.8 [-11.3,+15.4]	+3.4 [-13.3,+23.8]	+0.1 [-19.1,+23.4]
	DJF	+14.6 [-15.3,+65.3]	+23.1 [-8.0,+111.0]	+17.4 [-7.2,+124.0]	+10.8 [-8.8,+35.8]	+30.0 [+3.5,+77.0]	+37.6 [+7.1,+155.4]	+11.7 [-15.7,+67.3]	+37.9 [+5.7,+93.5]	+99.4 [+31.0,+250.4]
	MAM	+6.8 [-18.6,+24.0]	+5.8 [-11.0,+32.0]	+5.5 [-11.5,+19.9]	+5.9 [-6.5,+21.1]	+1.2 [-22.3,+33.8]	+7.8 [-19.5,+23.0]	+0.1 [-13.8,+26.6]	+3.9 [-18.1,+30.8]	+6.5 [-16.5,+28.5]
	JJA	-4.2 [-27.2,+11.0]	-5.0 [-24.9,+12.5]	-6.9 [-21.6,+25.3]	-10.3 [-24.9,+26.3]	-10.4 [-28.6,+15.6]	-9.4 [-30.8,+31.5]	-12.2 [-26.0,+6.6]	-10.7 [-39.8,+26.7]	-32.1 [-57.5,+3.3]
	SON	+9.1 [-24.6,+48.6]	+7.9 [-9.2,+40.6]	+1.9 [-19.0,+26.0]	+7.8 [-16.6,+34.6]	+12.9 [-10.7,+49.8]	+18.6 [-11.1,+78.3]	+5.6 [-10.2,+35.5]	+12.6 [-9.2,+60.6]	+24.7 [-12.7,+96.3]

Table S12. Change of annual and seasonal mean precipitation for 3 periods and 3 RCPs compared to the reference period 1990-2000. The median value all years and scenarios is indicated along with the range of the values.

		△ Precipitation (%)								
Catchment	**Season**	**2030-2040**			**2055-2065**			**2080-2090**		
		RCP2.6	**RCP4.5**	**RCP 8.5**	**RCP2.6**	**RCP4.5**	**RCP 8.5**	**RCP2.6**	**RCP4.5**	**RCP 8.5**
Swiss Plateau	Annual	+0.8 [-16.8,+15.0]	+0.4 [-17.2,+17.5]	+0.7 [-15.9,+17.2]	+1.4 [-11.0,+17.1]	+0.4 [-14.1,+14.8]	+0.4 [-18.8,+21.1]	-0.5 [-16.7,+17.2]	+4.9 [-11.8,+22.1]	-0.4 [-24.6,+27.9]
	DJF	-0.8 [-29.7,+66.6]	-0.5 [-22.3,+41.2]	+1.1 [-27.2,+51.4]	-2.4 [-33.5,+46.7]	-1.0 [-22.6,+34.4]	-1.9 [-27.0,+33.1]	-9.0 [-42.2,+29.0]	+1.3 [-19.8,+58.2]	+7.0 [-19.2,+64.9]
	MAM	+8.7 [-25.9,+40.5]	+1.9 [-23.2,+31.0]	+10.2 [-20.4,+35.5]	+9.2 [-20.5,+34.9]	+4.2 [-19.2,+44.9]	+11.1 [-21.6,+45.9]	+7.2 [-18.4,+27.5]	+11.4 [-13.2,+35.5]	+8.7 [-18.4,+56.7]
	JJA	-5.8 [-36.8,+19.0]	-8.4 [-29.0,+33.1]	-8.9 [-28.0,+43.5]	-5.3 [-28.8,+56.2]	-10.7 [-34.5,+29.7]	-16.6 [-34.4,+47.1]	-0.3 [-24.8,+21.8]	-9.5 [-29.1,+47.9]	-24.8 [-56.8,+34.7]
	SON	-0.2 [-27.3,+43.5]	+7.5 [-19.9,+40.5]	-1.6 [-31.1,+33.0]	+2.7 [-30.0,+46.6]	+4.2 [-39.0,+48.9]	+1.4 [-29.7,+79.9]	-0.5 [-25.1,+35.2]	+10.8 [-33.1,+61.2]	+2.4 [-32.7,+42.7]
Birs	Annual	+1.9 [-11.1,+11.2]	+0.9 [-9.5,+14.4]	+0.7 [-6.0,+16.9]	+3.3 [-8.1,+17.1]	+3.1 [-9.7,+13.9]	+2.9 [-11.8,+19.3]	+0.2 [-12.2,+17.2]	+8.2 [-4.5,+19.5]	+3.3 [-13.3,+17.0]
	DJF	-0.3 [-19.4,+44.8]	+1.0 [-15.6,+31.5]	+5.4 [-21.5,+40.1]	+1.0 [-24.9,+33.9]	+1.5 [-11.8,+25.3]	+1.1 [-21.6,+26.8]	-6.9 [-25.6,+23.4]	+3.8 [-12.8,+48.3]	+8.8 [-11.5,+50.1]
	MAM	+12.2 [-14.9,+32.0]	+0.2 [-13.6,+22.2]	+10.3 [-13.6,+33.5]	+8.4 [-11.6,+30.7]	+6.1 [-15.8,+38.6]	+16.9 [-14.5,+36.4]	+6.3 [-10.3,+22.1]	+15.6 [-1.7,+34.8]	+12.4 [-8.9,+45.7]
	JJA	-5.3 [-28.8,+17.1]	-8.8 [-23.9,+29.0]	-8.0 [-26.4,+41.5]	-8.7 [-21.8,+54.2]	-9.8 [-25.3,+20.9]	-16.2 [-24.9,+45.5]	+2.2 [-15.5,+14.5]	-9.8 [-21.1,+38.3]	-28.4 [-45.6,+29.9]
	SON	+1.9 [-17.3,+26.3]	+8.3 [-13.1,+35.7]	-3.4 [-24.1,+33.0]	+4.2 [-16.9,+38.0]	+3.7 [-26.1,+40.4]	+1.2 [-21.2,+57.4]	-0.8 [-24.2,+34.5]	+14.8 [-20.6,+61.2]	+4.2 [-21.8,+26.7]
Broye	Annual	-0.3 [-11.3,+12.8]	-0.5 [-13.4,+10.2]	+1.0 [-9.2,+13.7]	+1.6 [-9.7,+14.1]	+0.8 [-14.1,+10.8]	+0.7 [-18.8,+15.2]	-0.8 [-9.7,+14.2]	+7.0 [-11.8,+21.5]	-2.3 [-19.6,+21.2]
	DJF	+0.6 [-26.0,+59.2]	+2.2 [-19.0,+32.5]	+4.5 [-26.2,+48.5]	+1.4 [-23.4,+44.6]	+0.9 [-17.8,+30.3]	+2.4 [-24.1,+33.1]	-6.7 [-24.4,+26.9]	+3.0 [-16.5,+58.2]	+5.8 [-19.2,+58.4]
	MAM	+5.0 [-13.9,+38.4]	-0.3 [-18.6,+18.2]	+10.8 [-10.3,+32.8]	+6.3 [-15.2,+29.0]	+3.3 [-19.2,+34.5]	+8.8 [-21.6,+31.6]	+7.8 [-11.9,+27.5]	+13.0 [-12.7,+33.3]	+9.0 [-18.4,+35.0]
	JJA	-8.4 [-36.8,+12.6]	-10.5 [-28.7,+20.3]	-10.8 [-24.0,+43.5]	-9.5 [-28.8,+50.1]	-10.3 [-34.5,+23.2]	-19.5 [-34.4,+37.2]	-0.4 [-22.9,+15.8]	-13.2 [-27.7,+41.8]	-37.4 [-54.5,+33.1]
	SON	+0.1 [-21.5,+26.9]	+7.3 [-18.3,+28.8]	-6.2 [-31.1,+32.4]	+2.4 [-24.4,+36.7]	+5.5 [-34.8,+33.3]	-3.2 [-29.7,+62.9]	-0.6 [-25.1,+28.4]	+13.2 [-20.5,+58.9]	+3.0 [-32.7,+26.1]
Ergolz	Annual	+1.1 [-16.8,+15.0]	+1.8 [-8.8,+16.3]	+2.0 [-6.9,+14.3]	+2.0 [-11.0,+15.2]	+2.3 [-10.4,+14.8]	+3.1 [-13.5,+21.1]	-0.1 [-16.7,+16.5]	+6.8 [-3.7,+15.0]	+1.4 [-20.5,+20.3]
	DJF	-1.4 [-21.4,+38.8]	-3.7 [-22.3,+24.8]	+3.2 [-25.2,+33.9]	-2.2 [-31.8,+19.4]	-1.1 [-19.1,+21.9]	-2.4 [-23.0,+29.1]	-11.5 [-37.9,+27.6]	+1.2 [-18.2,+47.9]	+5.4 [-16.1,+52.0]
	MAM	+12.3 [-19.8,+39.4]	+5.3 [-20.5,+31.0]	+11.2 [-20.4,+35.5]	+9.7 [-20.5,+31.9]	+9.8 [-13.9,+44.9]	+16.6 [-15.2,+44.3]	+6.2 [-9.0,+22.2]	+18.6 [-0.8,+35.1]	+15.3 [-14.3,+55.4]
	JJA	-5.7 [-29.0,+19.0]	-5.4 [-25.8,+23.9]	-8.5 [-27.1,+31.2]	-6.7 [-25.4,+35.1]	-8.5 [-25.2,+10.5]	-10.4 [-29.5,+34.0]	+2.3 [-24.8,+21.8]	-8.6 [-24.2,+29.4]	-23.5 [-55.8,+15.8]
	SON	-0.1 [-23.5,+43.5]	+7.9 [-13.3,+40.5]	-2.5 [-26.6,+31.6]	+0.1 [-20.9,+44.5]	+4.4 [-25.7,+48.9]	+1.9 [-23.0,+70.3]	-0.8 [-24.7,+30.8]	+11.3 [-27.1,+57.6]	+3.8 [-18.0,+37.7]
Eulach	Annual	-1.0 [-11.7,+13.3]	+0.7 [-14.1,+17.5]	+1.1 [-13.6,+13.8]	-0.7 [-9.4,+10.3]	-0.5 [-9.5,+14.4]	-0.6 [-13.9,+20.4]	-2.3 [-14.6,+12.1]	+3.6 [-6.2,+15.2]	-0.4 [-24.6,+27.9]
	DJF	-4.2 [-22.8,+45.1]	-4.5 [-20.4,+22.0]	-3.7 [-27.0,+46.5]	-9.1 [-33.5,+21.0]	-3.5 [-22.6,+26.7]	-6.6 [-23.8,+27.2]	-12.4 [-41.5,+15.7]	-3.1 [-19.0,+22.9]	+5.7 [-18.0,+64.9]
	MAM	+10.2 [-24.6,+40.5]	+2.8 [-23.2,+24.1]	+10.1 [-19.4,+28.4]	+10.7 [-18.0,+33.7]	+4.3 [-15.6,+41.2]	+11.4 [-11.8,+45.9]	+7.7 [-12.2,+19.2]	+9.3 [-9.1,+34.0]	+6.8 [-15.0,+56.7]
	JJA	-5.4 [-20.9,+13.6]	-4.8 [-19.3,+14.1]	-7.0 [-28.0,+32.3]	-0.7 [-22.9,+29.3]	-9.7 [-19.3,+2.7]	-14.7 [-26.1,+22.8]	-0.1 [-18.4,+13.4]	-6.4 [-26.8,+24.1]	-17.2 [-54.4,+4.0]
	SON	-4.1 [-27.1,+42.1]	+4.7 [-18.4,+39.9]	-1.1 [-29.7,+31.2]	-1.0 [-26.2,+46.6]	+3.5 [-38.4,+47.5]	+0.0 [-19.1,+79.9]	-1.4 [-23.3,+27.2]	+6.0 [-33.1,+56.4]	-1.2 [-25.6,+40.6]

Catchment	Season	△ Precipitation (%)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kleine Emme	Annual	+1.7 [-13.4,+11.4]	-0.2 [-13.7,+12.8]	-0.5 [-9.9,+13.0]	+0.3 [-10.6,+13.3]	-2.1 [-14.0,+8.1]	-1.9 [-14.4,+17.1]	+0.3 [-11.9,+10.7]	+1.3 [-11.6,+15.3]	-2.5 [-21.1,+16.3]
	DJF	+2.7 [-29.7,+38.7]	+0.6 [-16.0,+41.2]	+0.2 [-16.2,+51.4]	-2.0 [-21.5,+26.0]	-2.1 [-20.5,+34.4]	-6.8 [-24.6,+31.3]	-6.8 [-27.4,+13.9]	+2.0 [-14.1,+20.8]	+11.3 [-12.3,+52.2]
	MAM	+8.2 [-14.8,+33.9]	+3.2 [-18.5,+18.9]	+10.3 [-9.8,+28.5]	+9.8 [-19.3,+34.2]	+1.6 [-14.0,+28.5]	+11.6 [-8.9,+34.2]	+8.0 [-5.7,+17.4]	+4.6 [-13.2,+35.5]	+0.6 [-12.7,+37.6]
	JJA	-6.7 [-24.1,+7.3]	-12.0 [-21.6,+13.4]	-13.0 [-27.0,+24.1]	-6.1 [-27.5,+31.3]	-14.6 [-30.2,+0.6]	-18.3 [-33.6,+18.5]	-6.0 [-21.4,+9.5]	-10.2 [-25.7,+17.1]	-22.7 [-56.8,+8.7]
	SON	+0.8 [-27.3,+32.0]	+6.3 [-19.9,+31.5]	+2.8 [-22.5,+21.9]	+6.1 [-30.0,+29.0]	+8.9 [-36.3,+41.1]	+6.1 [-27.1,+43.2]	+2.3 [-24.8,+35.2]	+6.6 [-27.1,+39.4]	+1.2 [-22.8,+27.2]
RHB	Annual	-1.2 [-14.2,+11.7]	-0.1 [-17.2,+16.3]	+0.7 [-15.9,+9.9]	+0.3 [-9.8,+10.6]	-0.8 [-10.1,+12.1]	-1.4 [-12.3,+19.6]	-2.4 [-12.9,+9.4]	+1.9 [-9.2,+12.4]	-2.1 [-23.0,+23.5]
	DJF	-4.1 [-29.6,+43.4]	-5.5 [-20.4,+18.5]	-4.6 [-27.2,+36.5]	-10.0 [-32.4,+16.2]	-6.4 [-21.6,+22.0]	-9.3 [-27.0,+24.3]	-12.9 [-42.2,+12.1]	-4.5 [-19.8,+18.7]	+2.9 [-18.1,+50.7]
	MAM	+10.4 [-25.9,+38.4]	+3.3 [-21.7,+23.5]	+10.3 [-16.3,+25.7]	+13.1 [-14.0,+34.9]	+6.7 [-14.9,+39.1]	+10.1 [-9.6,+44.2]	+8.1 [-11.4,+16.9]	+5.5 [-11.4,+34.2]	+3.8 [-13.8,+51.6]
	JJA	-6.4 [-20.9,+14.2]	-5.8 [-21.3,+8.2]	-8.5 [-27.4,+28.7]	-1.4 [-22.5,+31.0]	-11.2 [-18.6,+1.6]	-14.6 [-24.9,+17.9]	-2.0 [-20.5,+13.4]	-7.8 [-29.1,+20.9]	-15.9 [-52.4,+2.9]
	SON	-1.7 [-26.0,+41.5]	+6.9 [-19.0,+39.6]	-0.9 [-26.4,+30.0]	-2.0 [-26.1,+45.6]	+2.9 [-39.0,+44.6]	+0.5 [-18.6,+72.7]	-1.3 [-23.3,+26.6]	+7.9 [-31.9,+56.1]	-2.9 [-20.2,+42.7]
Suze	Annual	+1.4 [-10.5,+10.6]	+0.1 [-10.2,+11.5]	+1.1 [-9.4,+17.2]	+3.0 [-6.5,+16.8]	+2.1 [-10.9,+13.0]	+0.8 [-15.2,+15.5]	+1.7 [-10.6,+17.1]	+7.8 [-7.5,+22.1]	+1.0 [-13.7,+17.2]
	DJF	+1.4 [-18.0,+66.6]	+5.8 [-12.4,+34.5]	+8.2 [-22.2,+45.9]	+1.2 [-19.2,+46.7]	+3.3 [-10.8,+33.5]	+4.3 [-18.7,+28.8]	-2.9 [-22.6,+29.0]	+4.7 [-9.6,+48.8]	+8.6 [-8.1,+48.9]
	MAM	+6.3 [-13.1,+31.6]	-1.3 [-13.6,+16.8]	+5.2 [-15.0,+35.4]	+8.8 [-14.5,+29.8]	+3.7 [-17.2,+35.2]	+8.6 [-16.8,+35.5]	+6.9 [-18.4,+25.6]	+12.1 [-9.0,+32.7]	+9.7 [-8.6,+39.2]
	JJA	-4.2 [-24.6,+18.3]	-12.0 [-29.0,+33.1]	-10.9 [-24.6,+42.4]	-8.9 [-25.5,+56.2]	-11.4 [-32.0,+29.7]	-18.4 [-32.5,+47.1]	+2.7 [-13.4,+15.6]	-10.5 [-26.7,+47.9]	-29.5 [-49.7,+34.7]
	SON	+1.4 [-16.4,+16.9]	+9.7 [-13.2,+29.9]	-4.0 [-26.8,+29.8]	+8.7 [-17.3,+35.7]	+5.4 [-32.2,+31.7]	+1.1 [-25.6,+47.5]	+0.7 [-20.9,+31.0]	+15.1 [-18.1,+60.7]	+6.3 [-23.6,+20.9]
Alpine	Annual	+2.7 [-21.2,+22.7]	+2.1 [-15.9,+20.5]	+0.5 [-18.7,+32.2]	+3.6 [-15.5,+27.4]	-0.5 [-17.2,+20.4]	+0.8 [-20.4,+32.1]	+0.8 [-17.2,+27.9]	+1.7 [-16.2,+30.3]	-1.2 [-24.0,+28.3]
	DJF	+6.2 [-38.2,+71.7]	+8.7 [-17.4,+58.8]	+0.5 [-28.3,+56.3]	+1.7 [-25.3,+43.5]	+2.8 [-25.7,+49.4]	+0.7 [-27.3,+46.0]	-3.3 [-29.3,+78.8]	+6.1 [-17.6,+66.3]	+13.4 [-27.7,+79.6]
	MAM	+5.9 [-24.0,+61.2]	+2.2 [-27.1,+31.5]	+9.6 [-24.9,+42.6]	+10.3 [-24.8,+48.3]	+4.2 [-34.2,+38.6]	+9.2 [-26.8,+51.5]	+7.3 [-15.0,+43.0]	+4.6 [-19.5,+45.5]	+3.9 [-16.9,+44.6]
	JJA	-7.4 [-28.2,+20.7]	-10.1 [-36.8,+29.4]	-16.8 [-36.0,+28.9]	-9.0 [-34.6,+64.4]	-15.5 [-39.4,+21.3]	-12.9 [-31.3,+56.0]	-3.8 [-28.4,+13.1]	-10.5 [-37.9,+33.9]	-22.1 [-53.3,+34.5]
	SON	+5.6 [-32.5,+55.3]	+9.5 [-23.5,+56.5]	+4.1 [-28.7,+81.5]	+9.3 [-31.2,+55.5]	+7.2 [-39.6,+56.2]	+5.8 [-32.1,+64.5]	+3.7 [-38.0,+47.3]	+6.2 [-37.5,+59.6]	-1.5 [-39.4,+43.1]
Inn	Annual	+8.0 [-18.7,+22.7]	+6.0 [-9.1,+20.2]	+2.9 [-12.0,+32.2]	+10.0 [-15.5,+27.4]	+3.0 [-13.9,+20.4]	+7.5 [-14.5,+32.1]	+7.1 [-9.6,+27.9]	+7.1 [-7.0,+30.3]	+2.2 [-21.2,+28.3]
	DJF	+15.6 [-26.7,+54.8]	+22.3 [-17.4,+58.8]	+14.2 [-22.9,+56.3]	+11.5 [-17.3,+40.8]	+12.5 [-5.1,+49.4]	+10.9 [-8.4,+46.0]	+11.4 [-9.7,+78.8]	+21.1 [-0.2,+66.3]	+35.6 [-15.8,+79.6]
	MAM	+6.7 [-24.0,+61.2]	+3.4 [-27.1,+31.5]	+12.8 [-24.9,+42.6]	+14.4 [-24.8,+48.3]	+6.7 [-10.9,+32.1]	+13.1 [-21.7,+48.2]	+6.2 [-13.0,+43.0]	+6.6 [-14.5,+45.5]	+9.3 [-16.9,+43.6]
	JJA	-6.2 [-22.1,+20.7]	-7.7 [-20.8,+29.4]	-16.3 [-34.1,+26.6]	-4.9 [-23.9,+42.6]	-15.6 [-34.8,+9.3]	-8.9 [-25.7,+56.0]	-0.6 [-28.4,+11.3]	-6.8 [-26.1,+32.1]	-18.9 [-37.6,+32.6]
	SON	+12.8 [-30.7,+55.3]	+12.0 [-20.3,+56.5]	+7.1 [-20.6,+81.5]	+17.1 [-12.3,+50.4]	+6.4 [-21.9,+56.2]	+10.5 [-20.3,+54.6]	+9.3 [-38.0,+47.3]	+7.9 [-23.9,+59.6]	-2.0 [-33.3,+43.1]

Catchment	Season	Δ Precipitation (%)								
		2030-2040			2055-2065			2080-2090		
		RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5	RCP2.6	RCP4.5	RCP 8.5
Kander	Annual	+0.1 [-16.4,+10.9]	-0.1 [-15.9,+13.3]	-0.8 [-13.7,+12.4]	+0.8 [-10.4,+16.4]	-3.0 [-17.2,+9.5]	-1.2 [-15.2,+16.7]	+0.5 [-10.5,+12.3]	+0.2 [-12.3,+16.7]	-3.0 [-18.7,+12.6]
	DJF	+3.5 [-36.8,+62.2]	+7.3 [-17.1,+38.3]	+0.2 [-28.3,+48.1]	-1.0 [-25.3,+31.1]	-3.6 [-25.2,+31.2]	-5.2 [-24.1,+29.4]	-6.6 [-21.2,+38.0]	+2.3 [-9.0,+25.2]	+11.6 [-17.6,+61.4]
	MAM	+3.2 [-13.0,+27.3]	-0.4 [-23.7,+15.0]	+8.8 [-14.6,+27.7]	+7.2 [-13.1,+27.5]	+1.5 [-29.8,+27.1]	+7.3 [-17.7,+34.8]	+7.6 [-12.6,+24.3]	+3.6 [-14.2,+25.1]	-0.1 [-13.4,+37.2]
	JJA	-5.1 [-23.8,+7.1]	-10.3 [-33.8,+15.1]	-13.7 [-29.2,+25.8]	-9.2 [-28.8,+38.5]	-15.2 [-35.4,+14.4]	-12.8 [-30.3,+28.5]	-3.4 [-17.5,+12.3]	-11.8 [-29.1,+21.6]	-23.3 [-46.3,+19.2]
	SON	+4.8 [-28.6,+39.5]	+7.7 [-20.2,+31.6]	+1.2 [-23.3,+18.2]	+8.2 [-31.2,+25.8]	+5.3 [-39.6,+43.4]	+6.2 [-28.9,+54.0]	+3.2 [-28.3,+35.3]	+6.0 [-37.5,+44.2]	-0.4 [-27.3,+22.4]
Landwasser	Annual	-0.3 [-18.8,+14.6]	-0.1 [-8.9,+20.5]	-0.4 [-18.7,+13.9]	-0.2 [-11.9,+10.4]	-2.3 [-16.5,+13.9]	-2.0 [-20.4,+24.1]	-1.8 [-17.2,+10.9]	-0.6 [-16.2,+13.8]	-5.5 [-24.0,+21.6]
	DJF	-1.1 [-38.2,+43.2]	+3.3 [-12.0,+36.1]	-3.1 [-22.5,+52.0]	-4.1 [-21.2,+18.4]	-6.0 [-19.2,+34.0]	-6.4 [-27.3,+36.3]	-11.1 [-29.3,+16.2]	-1.3 [-17.6,+31.5]	+0.1 [-27.7,+72.8]
	MAM	+8.9 [-12.4,+27.3]	+5.5 [-20.6,+24.7]	+12.3 [-14.4,+32.3]	+8.8 [-8.2,+33.5]	+11.5 [-34.2,+38.6]	+9.7 [-26.8,+39.9]	+6.0 [-15.0,+28.7]	+4.7 [-19.5,+41.5]	+3.4 [-11.0,+34.7]
	JJA	-11.0 [-28.2,+10.6]	-12.4 [-23.0,+19.2]	-20.1 [-31.7,+23.9]	-12.5 [-30.4,+21.5]	-16.5 [-36.3,-4.0]	-13.8 [-31.3,+17.6]	-7.4 [-25.5,+9.0]	-11.3 [-37.8,+18.7]	-24.3 [-53.3,+0.5]
	SON	-1.0 [-29.3,+29.4]	+7.4 [-17.2,+35.3]	+3.5 [-21.1,+29.0]	+4.9 [-21.4,+32.1]	+13.1 [-32.7,+56.2]	-0.6 [-31.1,+56.6]	+2.0 [-31.0,+42.5]	+1.6 [-37.2,+40.6]	-3.0 [-39.4,+19.4]
Lonza	Annual	+3.1 [-17.3,+13.1]	+4.1 [-15.1,+18.7]	+1.7 [-12.2,+16.1]	+6.7 [-9.5,+23.6]	+0.4 [-16.4,+16.6]	+2.7 [-12.6,+18.7]	+2.8 [-6.3,+17.6]	+3.0 [-8.8,+24.0]	-0.5 [-13.6,+25.4]
	DJF	+9.7 [-28.4,+71.7]	+12.1 [-16.1,+47.1]	+0.5 [-19.8,+52.4]	+9.3 [-18.8,+43.5]	+6.6 [-16.2,+39.7]	+1.5 [-20.3,+38.6]	+2.8 [-16.9,+64.0]	+8.4 [-5.3,+37.1]	+19.8 [-9.6,+69.5]
	MAM	+4.2 [-17.0,+27.9]	+0.9 [-24.6,+15.8]	+9.1 [-14.2,+34.2]	+10.4 [-17.0,+27.8]	+3.1 [-19.7,+31.9]	+6.3 [-11.1,+40.7]	+8.8 [-11.1,+35.3]	+4.2 [-16.6,+27.3]	+4.8 [-10.6,+44.6]
	JJA	-8.5 [-23.4,+9.6]	-9.4 [-36.8,+18.5]	-14.4 [-36.0,+28.9]	-10.3 [-34.6,+64.4]	-15.7 [-39.4,+21.3]	-12.5 [-29.0,+38.9]	-3.9 [-20.5,+13.1]	-10.8 [-37.9,+33.9]	-21.5 [-43.9,+34.5]
	SON	+4.6 [-23.8,+44.2]	+8.2 [-23.5,+36.6]	+3.7 [-28.7,+28.9]	+10.1 [-30.0,+55.5]	+6.5 [-37.9,+42.2]	+9.3 [-26.8,+49.0]	+4.5 [-27.0,+39.0]	+11.0 [-22.7,+31.5]	-0.8 [-20.3,+31.4]
Lutschine	Annual	+2.6 [-21.2,+14.0]	+0.5 [-15.3,+15.4]	+0.5 [-12.7,+12.1]	+2.7 [-9.4,+16.4]	-3.1 [-16.8,+14.9]	-0.4 [-13.8,+18.6]	-0.5 [-9.8,+13.7]	+0.3 [-12.0,+15.4]	-1.6 [-18.8,+13.5]
	DJF	+4.4 [-35.7,+53.7]	+5.2 [-16.6,+39.6]	-0.3 [-21.0,+54.3]	+0.4 [-19.4,+30.6]	-2.7 [-25.7,+36.8]	-2.5 [-23.7,+26.8]	-7.5 [-17.9,+41.0]	+2.6 [-12.2,+24.2]	+8.4 [-18.1,+57.8]
	MAM	+6.7 [-6.3,+28.5]	+1.9 [-23.3,+19.8]	+9.2 [-16.5,+27.4]	+9.9 [-9.6,+31.7]	+5.4 [-32.8,+29.5]	+10.6 [-25.2,+51.5]	+6.1 [-8.6,+24.9]	+5.0 [-13.8,+33.1]	+6.0 [-13.6,+35.4]
	JJA	-5.6 [-19.3,+3.8]	-13.0 [-24.9,+7.3]	-16.5 [-28.0,+22.7]	-7.1 [-27.2,+29.5]	-15.8 [-34.1,+6.1]	-14.5 [-31.2,+29.2]	-2.7 [-16.2,+7.7]	-12.2 [-25.5,+15.5]	-20.5 [-52.6,+12.8]
	SON	+7.2 [-32.5,+39.2]	+9.9 [-17.4,+35.4]	+3.6 [-20.6,+26.5]	+9.3 [-27.5,+32.9]	+4.2 [-39.0,+46.3]	+7.7 [-32.1,+64.5]	+1.2 [-26.5,+43.6]	+6.2 [-33.3,+37.2]	-1.5 [-23.4,+26.0]

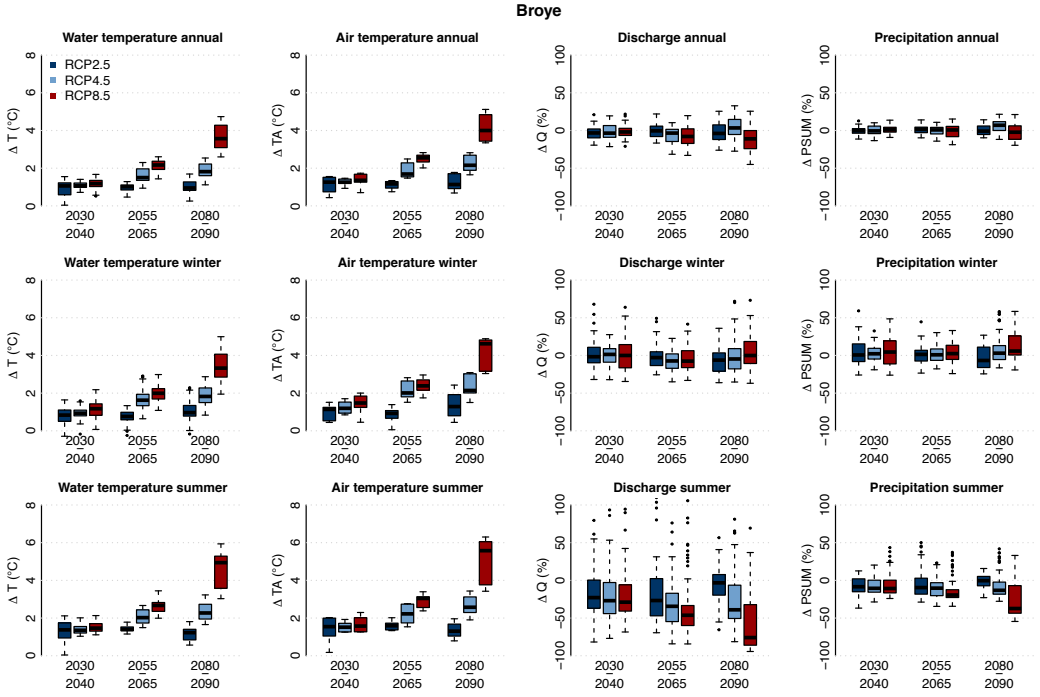

Figure S51. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Broye and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

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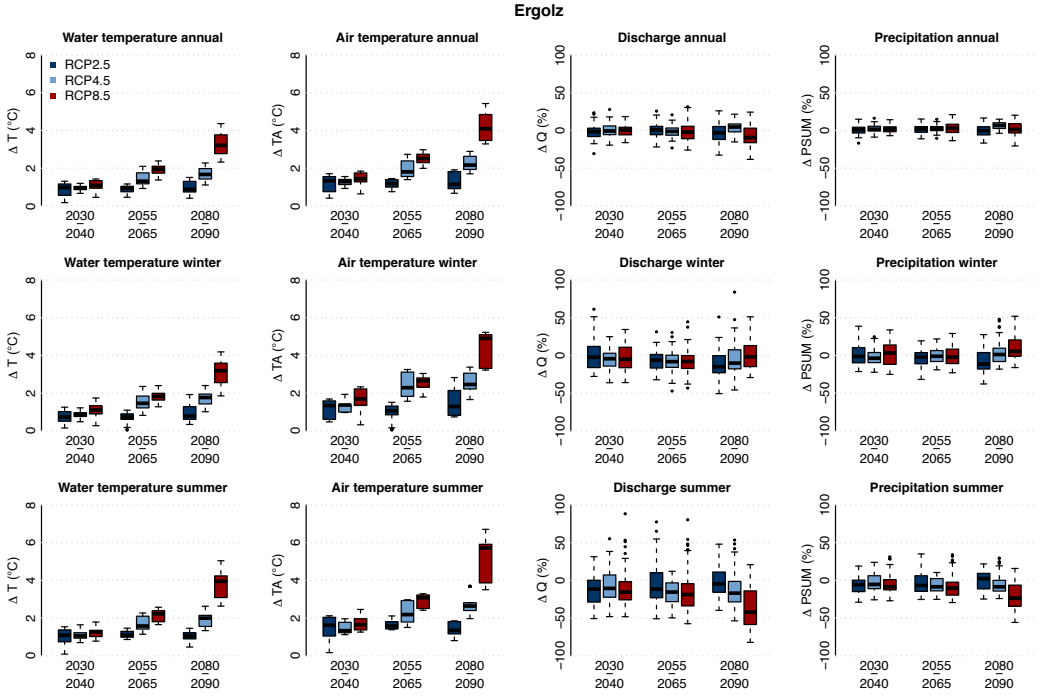

Figure S52. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Ergolz and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

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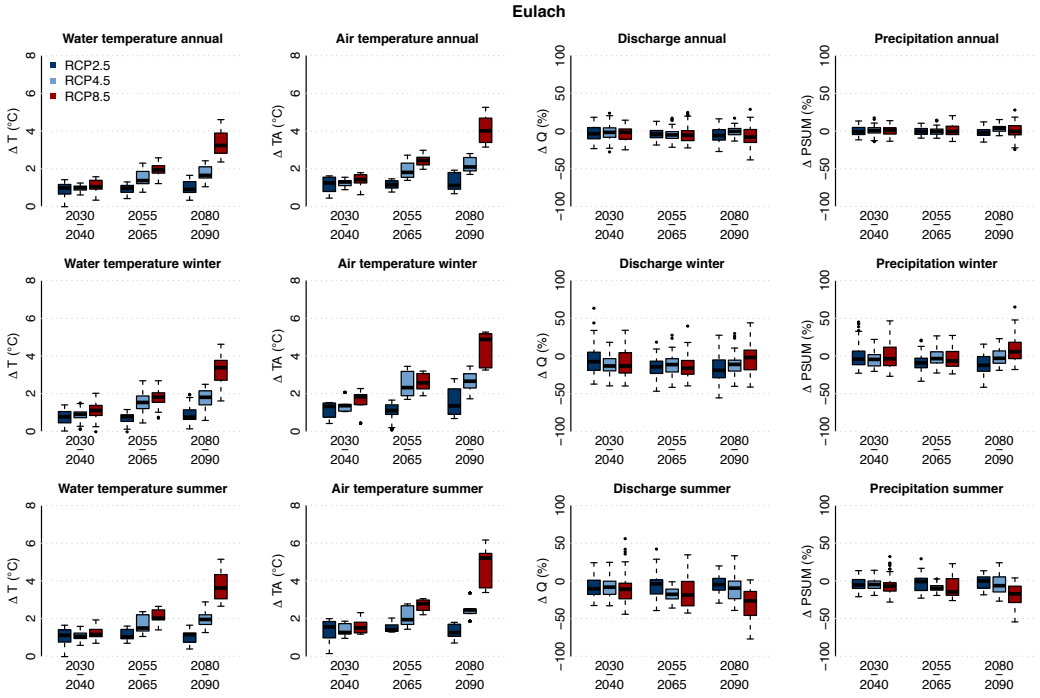

Figure S53. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Eulach and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

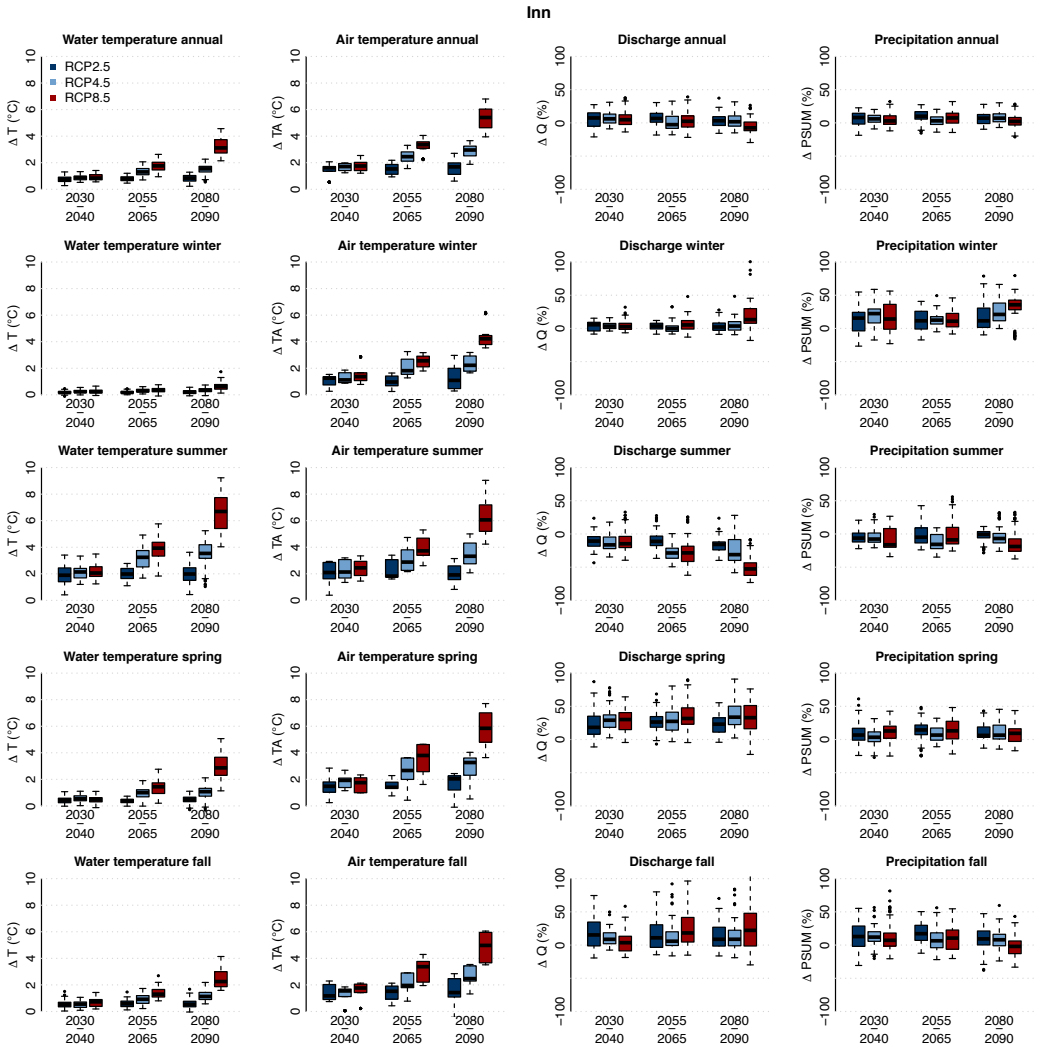

Figure S54. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Inn and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

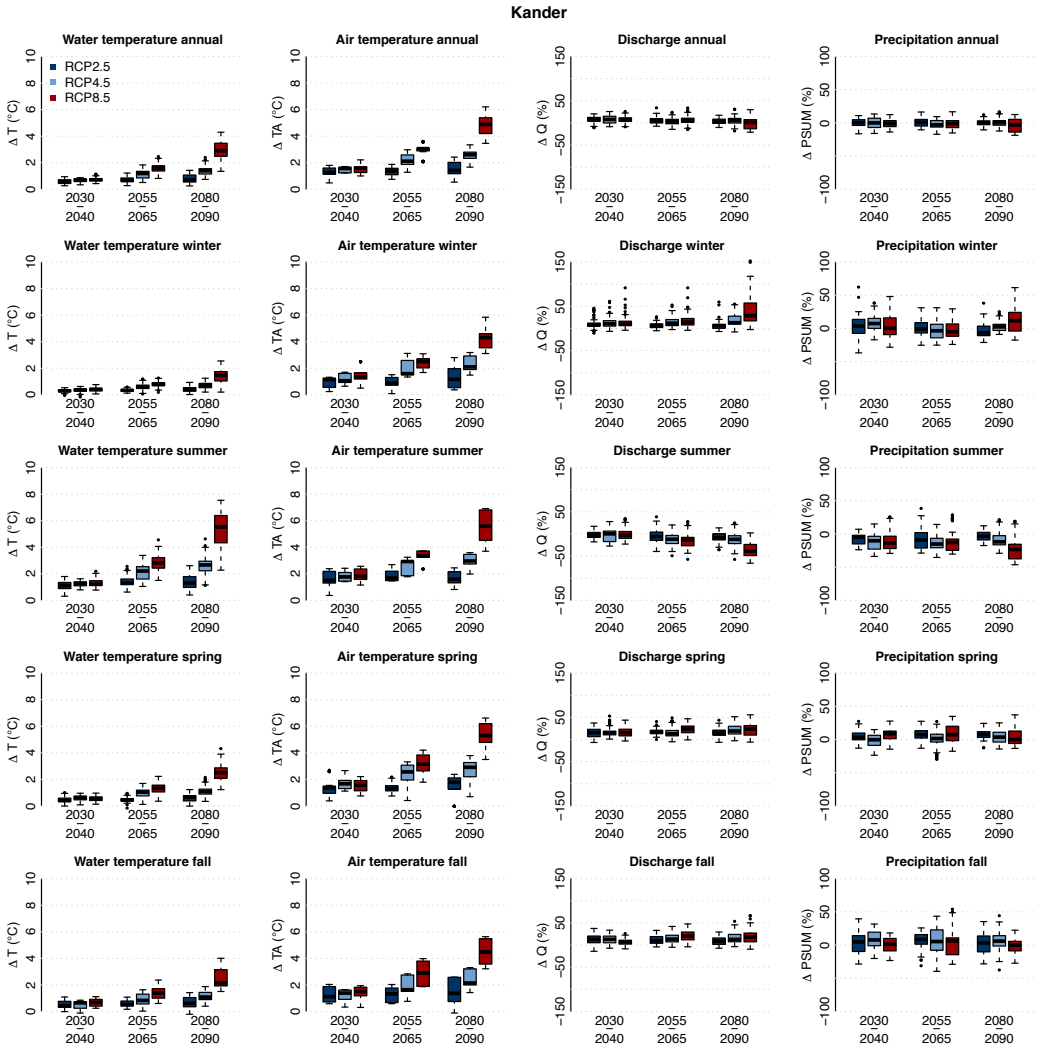

Figure S55. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Kander and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

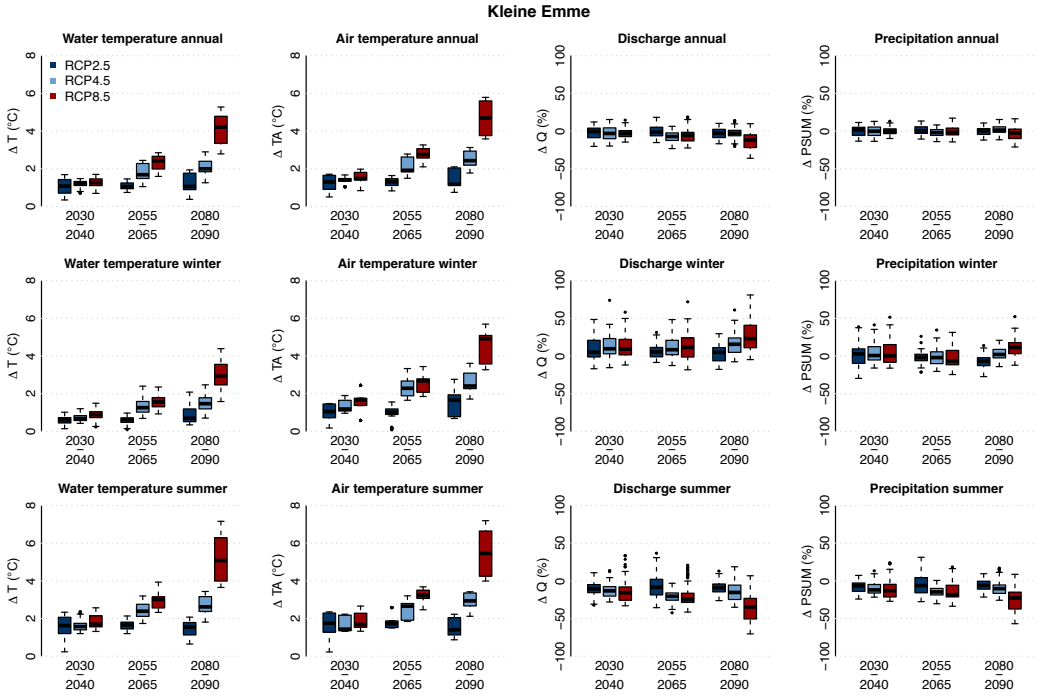

Figure S56. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Kleine Emme and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

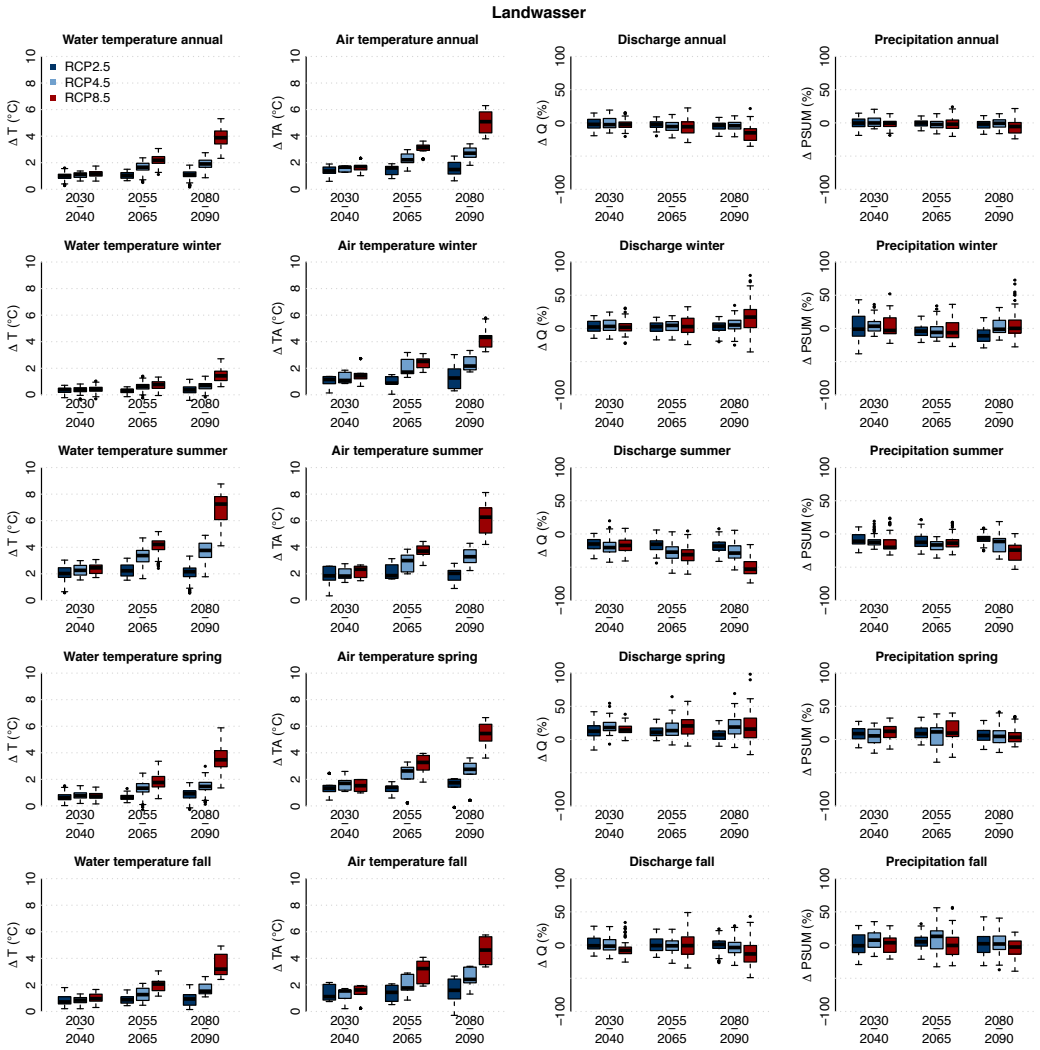

Figure S57. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Landwasser and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

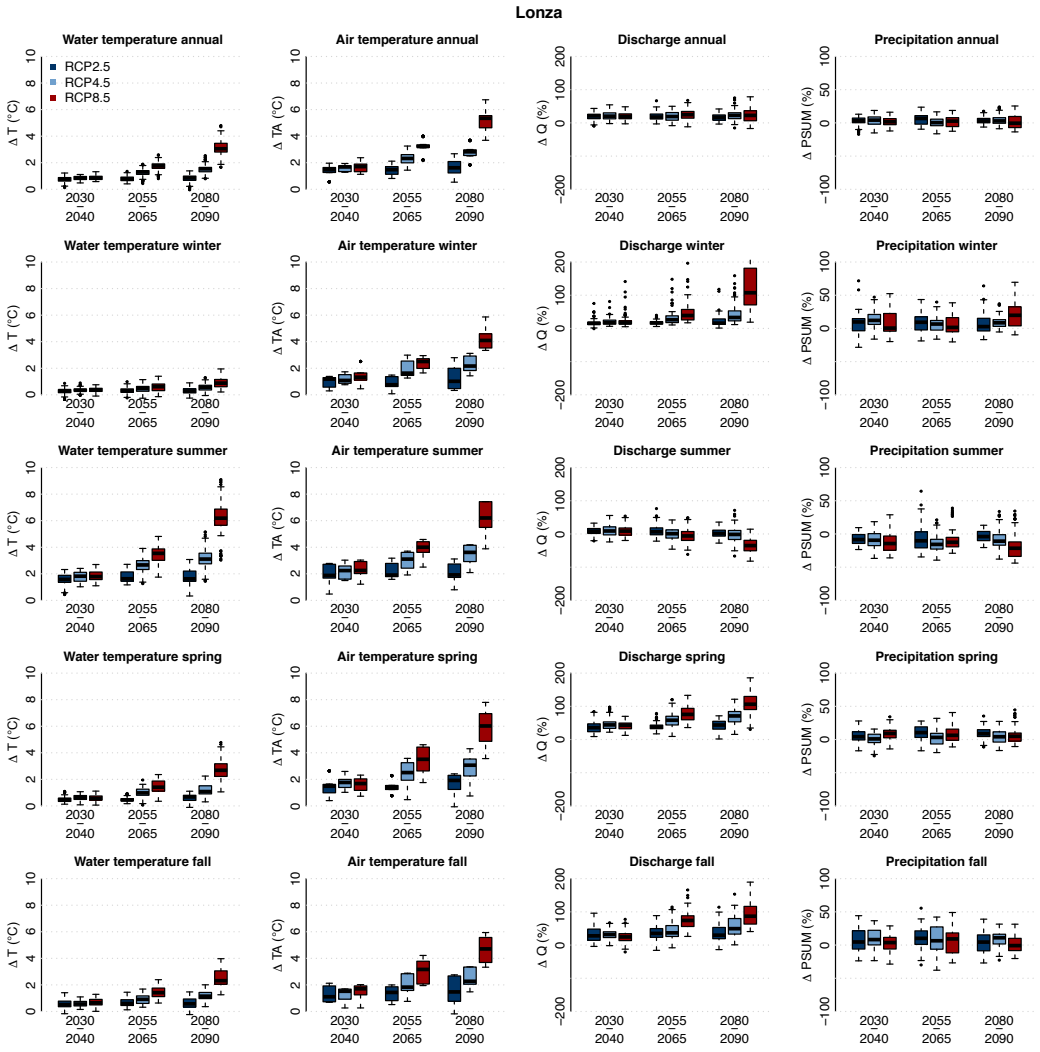

Figure S58. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Lonza and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

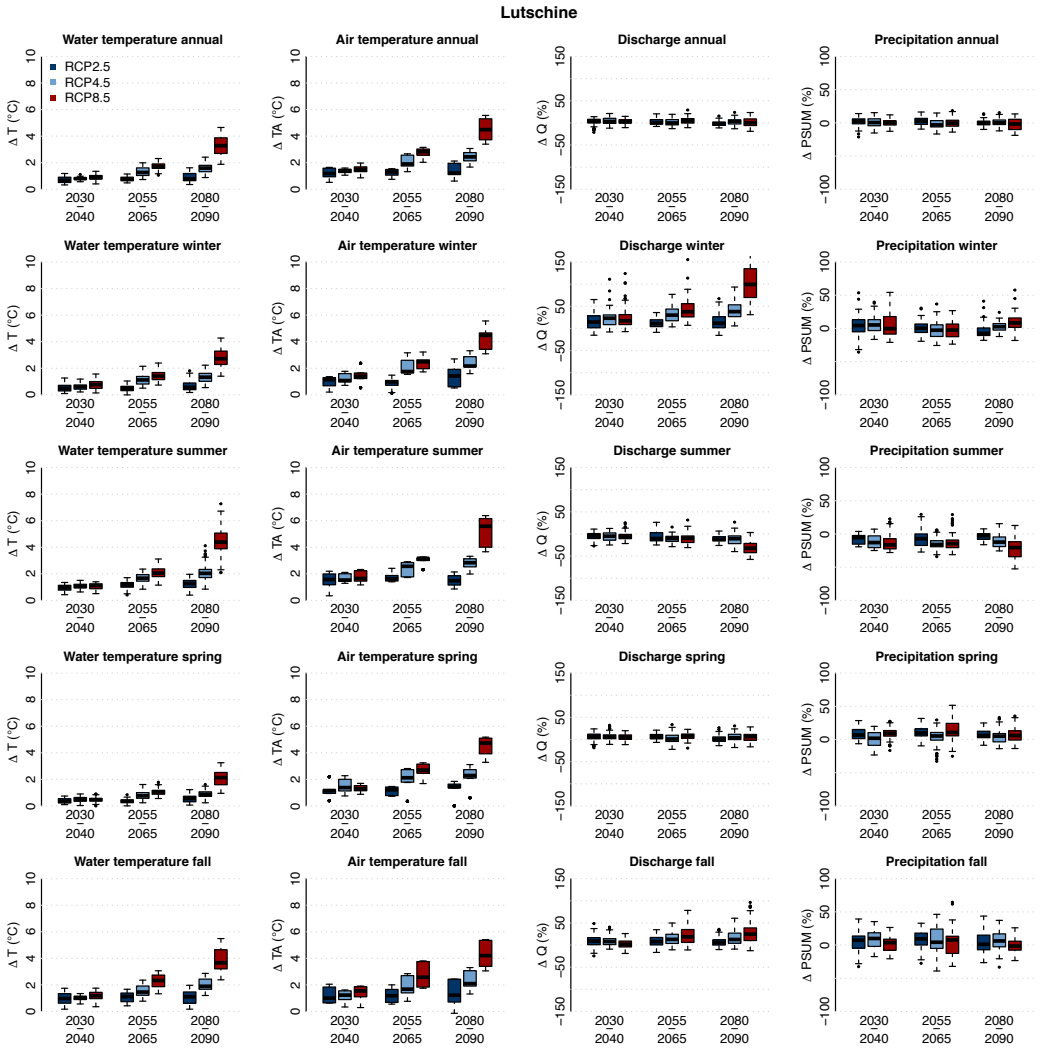

Figure S59. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Lütschine and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

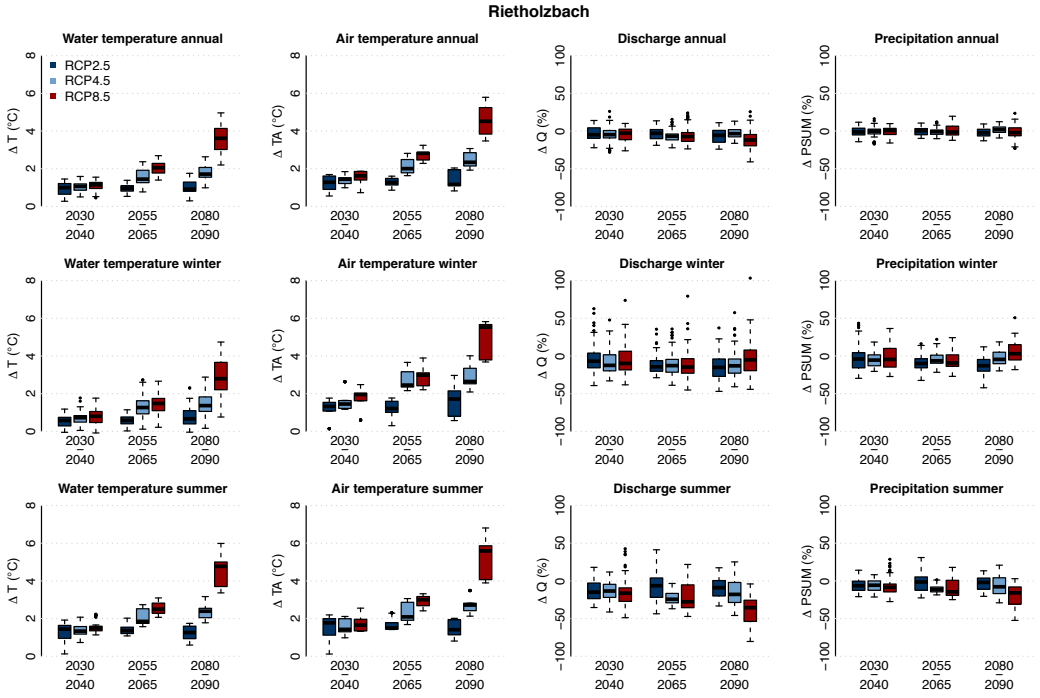

Figure S60. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Rietholzbach and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

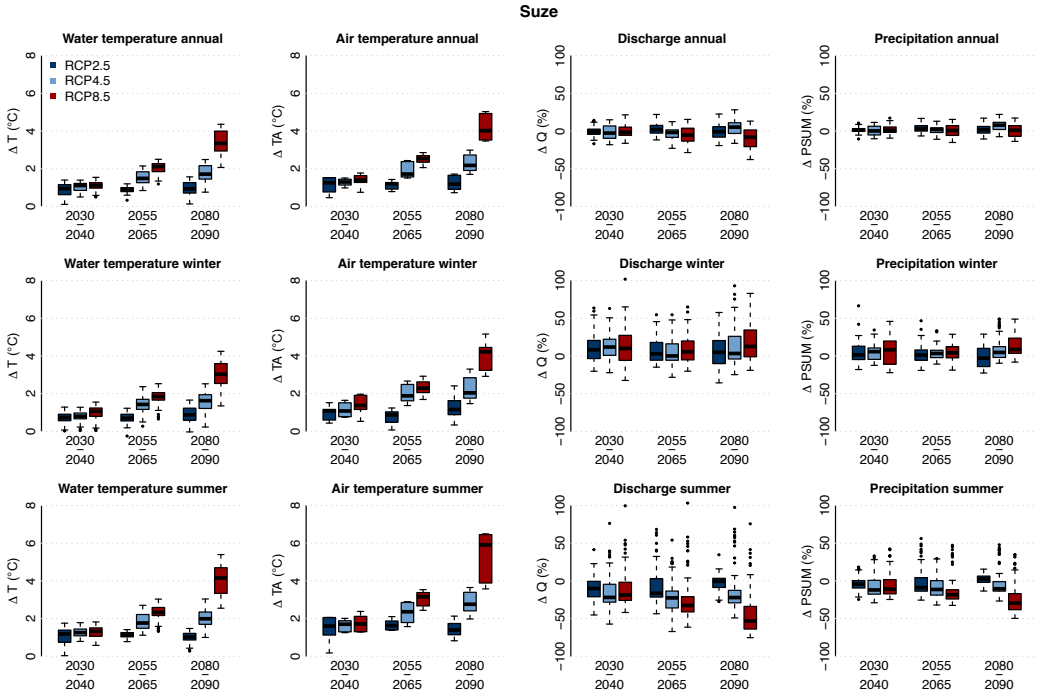

Figure S61. Change in water temperature, air temperature, discharge, and precipitation (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Suze and the 3 RCPs. Row 1 shows the annual changes, row 2 the winter seasonal changes, and row 3 the summer seasonal changes.

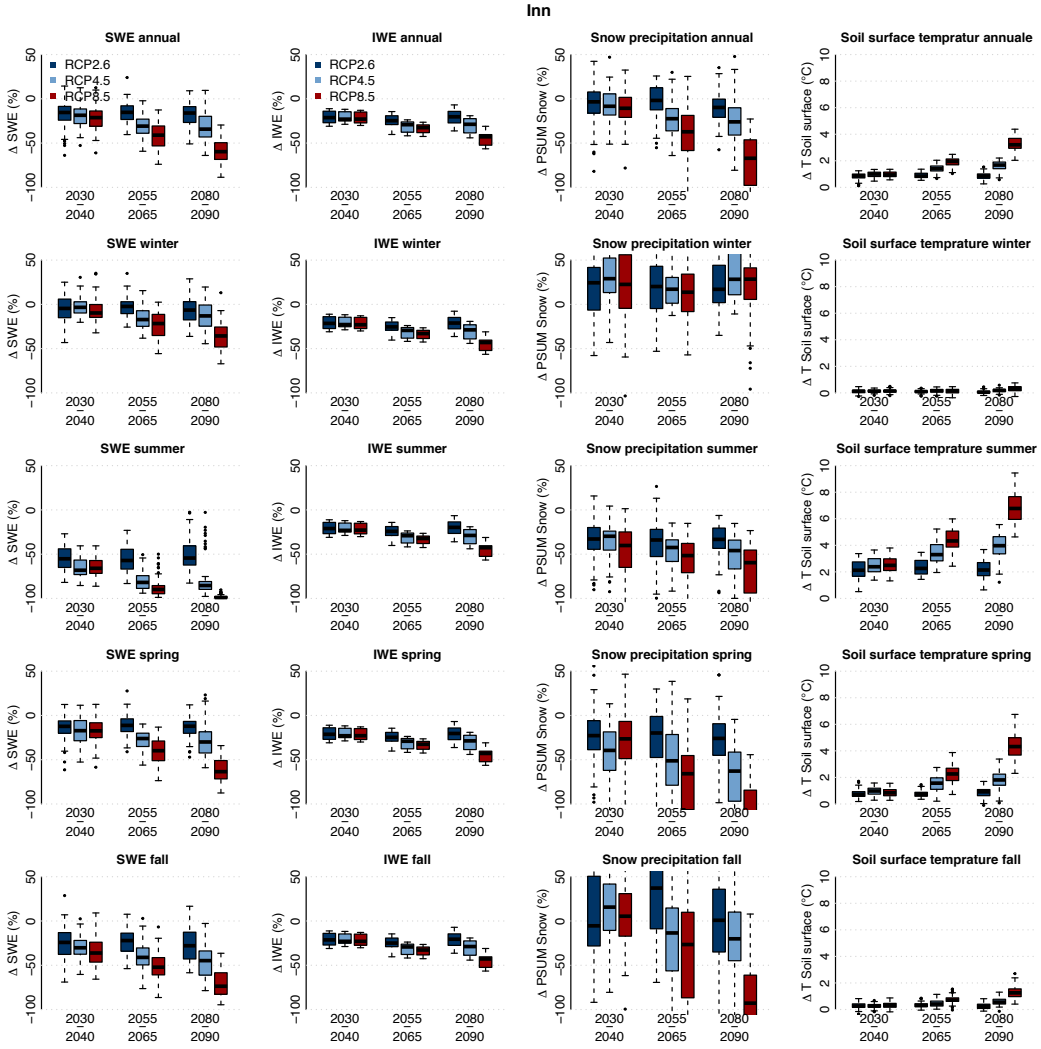

Figure S62. Change in snow water equivalent in the catchments (SWE), in ice water equivalent (mass stored in glaciers and in snow in glacier pixels) in the catchments (IWE), in solid precipitation (PSUM snow), and in soil surface temperature (TS) (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Inn catchment and for the 3 RCP scenarios. Row 1 shows the annual change, row 2 the winter seasonal change, row 3 the summer seasonal change, row 4 the spring seasonal change, and row 5 the fall seasonal change.

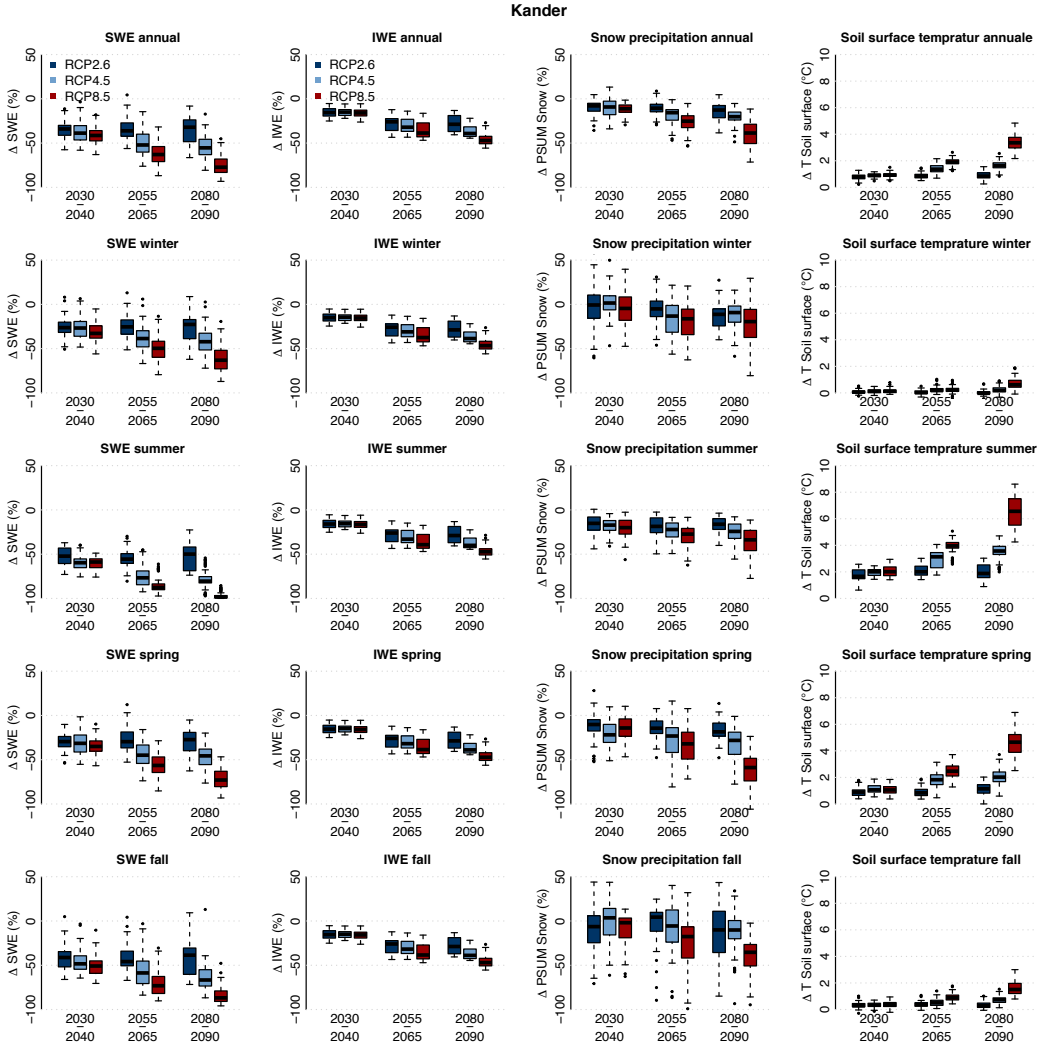

Figure S63. Change in snow water equivalent in the catchments (SWE), in ice water equivalent (mass stored in glaciers and in snow in glacier pixels) in the catchments (IWE), in solid precipitation (PSUM snow), and in soil surface temperature (TS) (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Kander catchment and for the 3 RCP scenarios. Row 1 shows the annual change, row 2 the winter seasonal change, row 3 the summer seasonal change, row 4 the spring seasonal change, and row 5 the fall seasonal change.

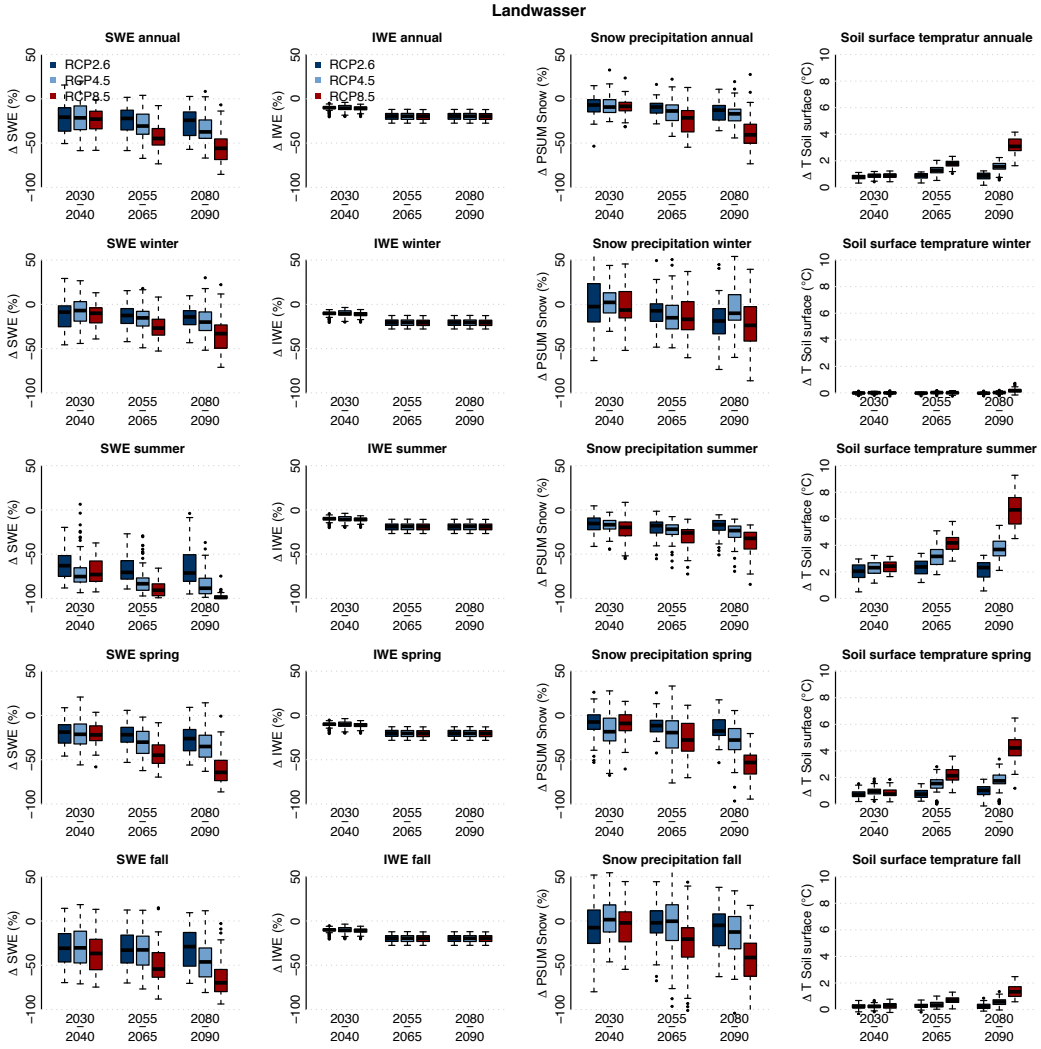

Figure S64. Change in snow water equivalent in the catchments (SWE), in ice water equivalent (mass stored in glaciers and in snow in glacier pixels) in the catchments (IWE), in solid precipitation (PSUM snow), and in soil surface temperature (TS) (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Landwasser catchment and for the 3 RCP scenarios. Row 1 shows the annual change, row 2 the winter seasonal change, row 3 the summer seasonal change, row 4 the spring seasonal change, and row 5 the fall seasonal change.

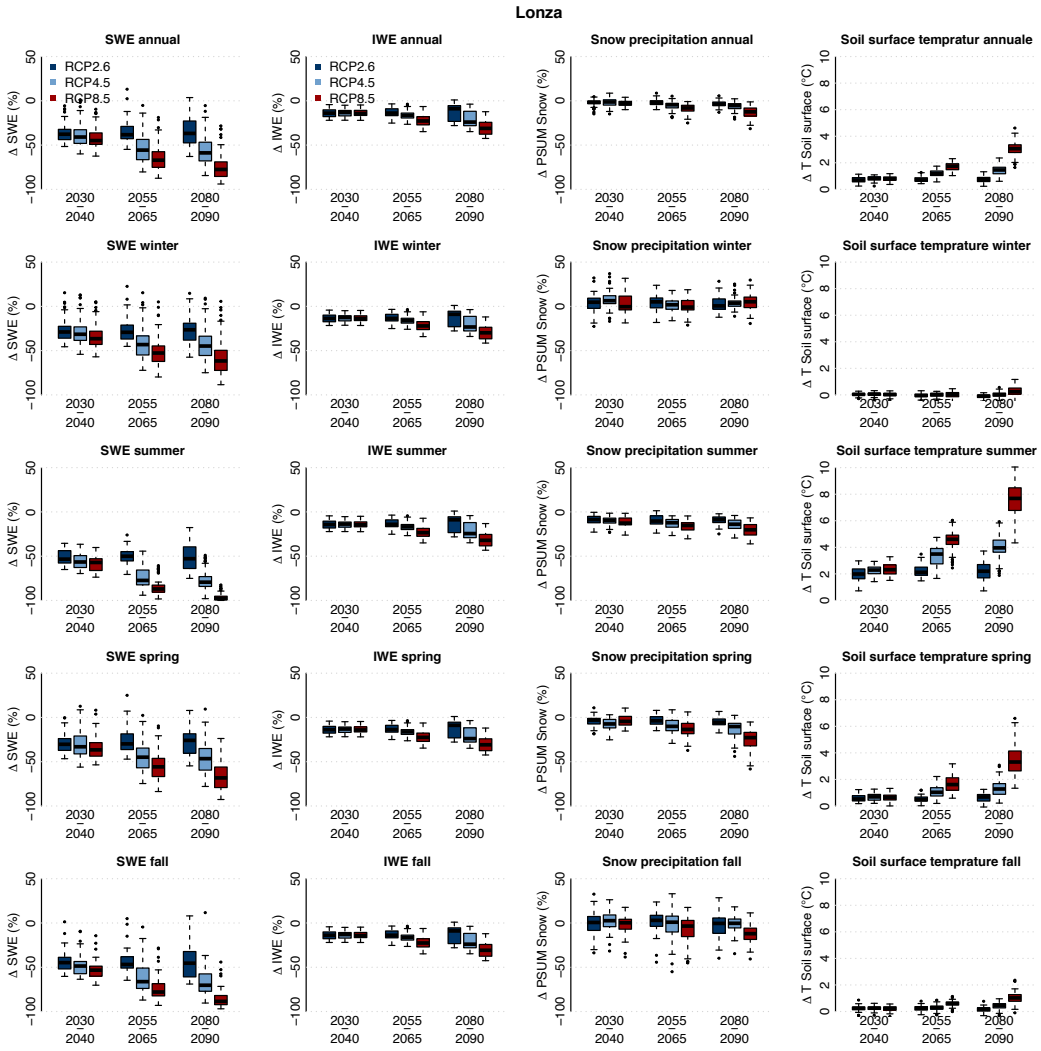

Figure S65. Change in snow water equivalent in the catchments (SWE), in ice water equivalent (mass stored in glaciers and in snow in glacier pixels) in the catchments (IWE), in solid precipitation (PSUM snow), and in soil surface temperature (TS) (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Lonza catchment and for the 3 RCP scenarios. Row 1 shows the annual change, row 2 the winter seasonal change, row 3 the summer seasonal change, row 4 the spring seasonal change, and row 5 the fall seasonal change.

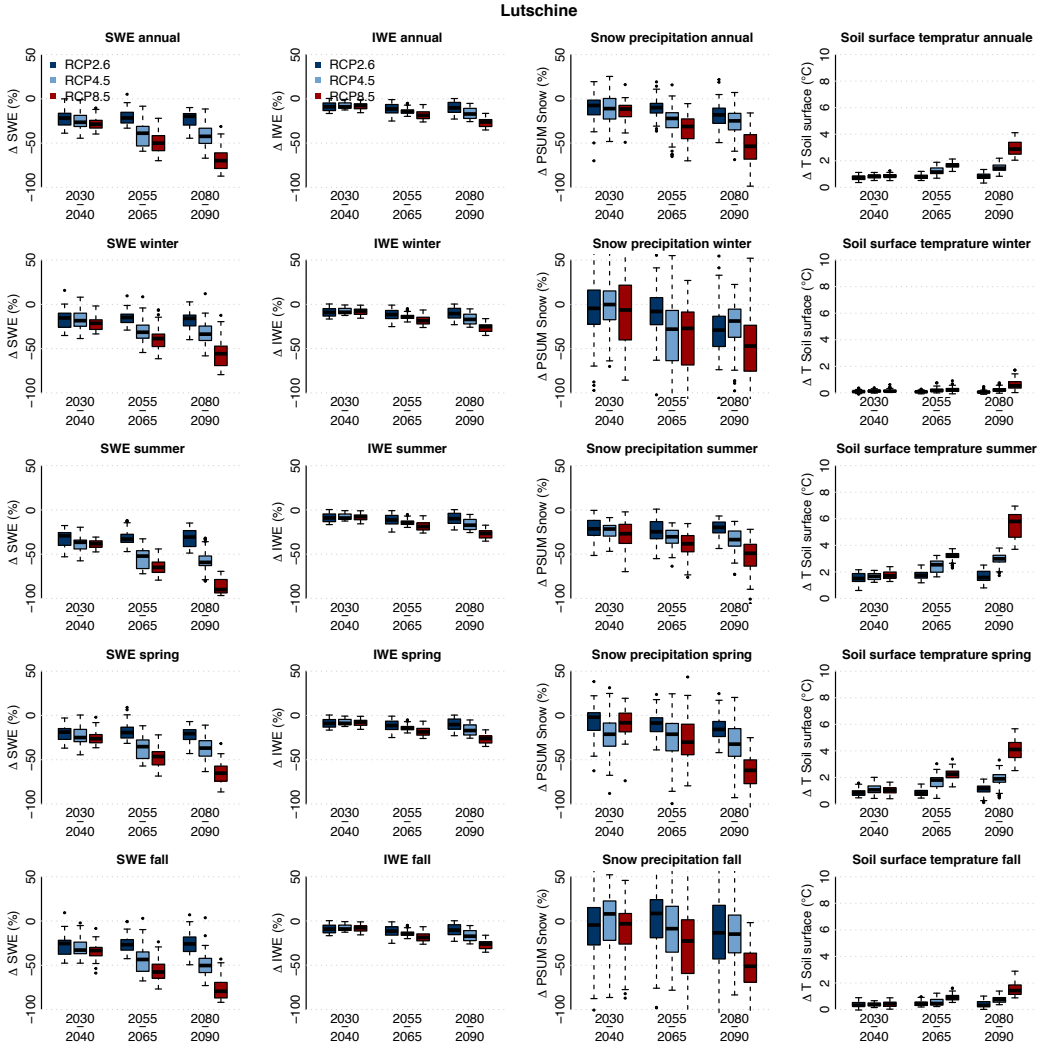

Figure S66. Change in snow water equivalent in the catchments (SWE), in ice water equivalent (mass stored in glaciers and in snow in glacier pixels) in the catchments (IWE), in solid precipitation (PSUM snow), and in soil surface temperature (TS) (columns, from left to right) over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Lütschine catchment and for the 3 RCP scenarios. Row 1 shows the annual change, row 2 the winter seasonal change, row 3 the summer seasonal change, row 4 the spring seasonal change, and row 5 the fall seasonal change.

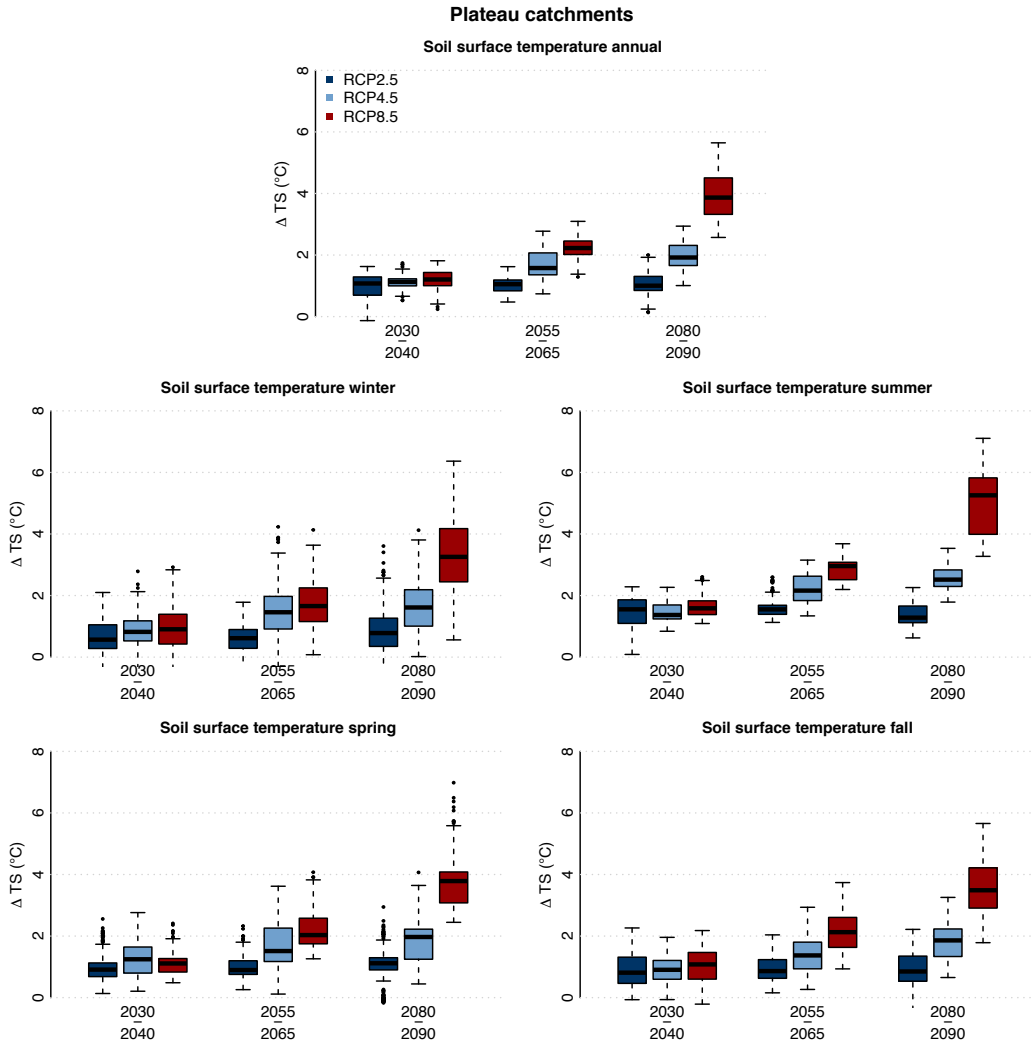

Figure S67. Annual and seasonal change in soil surface temperature over the periods 2030-2040, 2055-2065, and 2080-2090, compared to the reference period 1990-2000 for the Swiss Plateau catchments and the 3 RCPs.

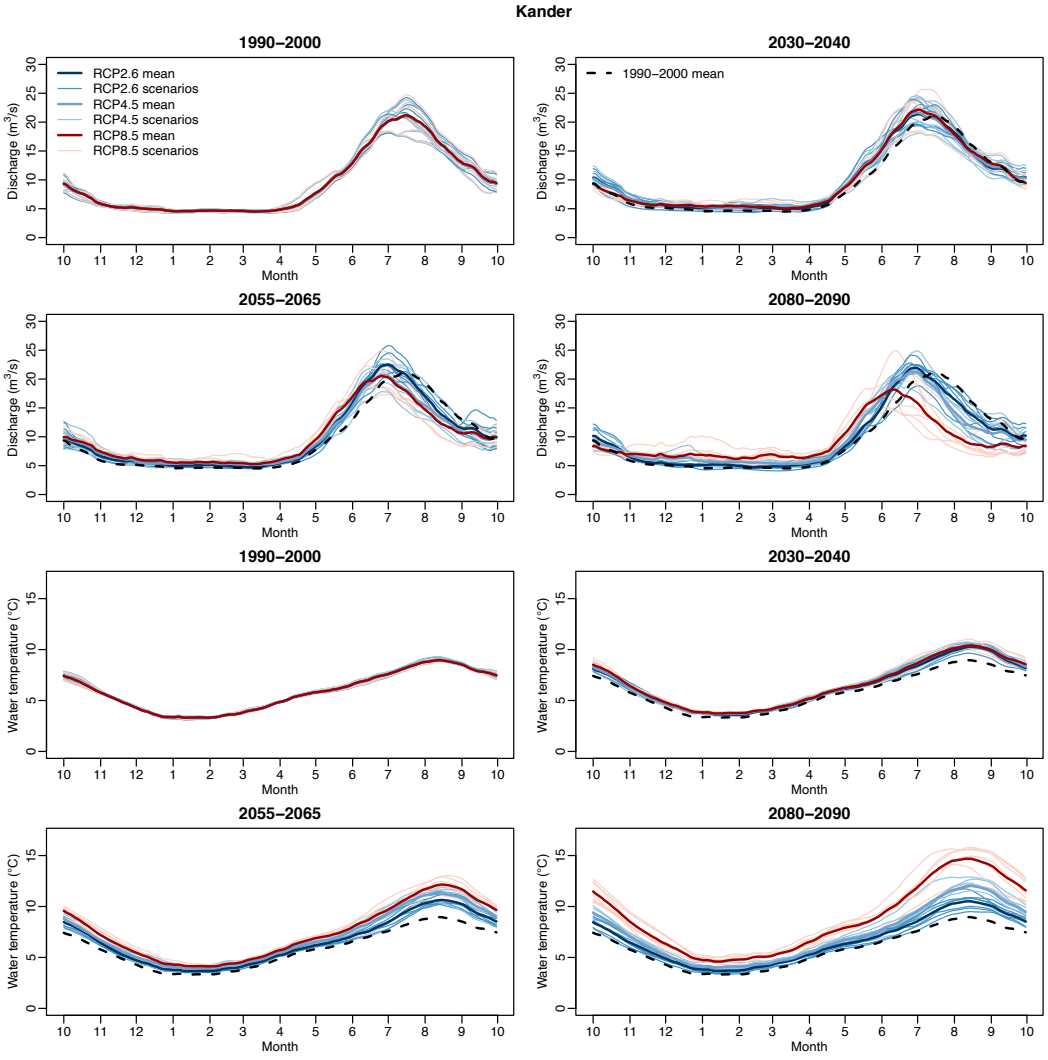

Figure S68. Annual cycle for discharge (top) and temperature (bottom) for the Kander catchment. The cycles are obtained by computing the average for each day of the years and by applying a circular moving average of 30 days. Dark lines show the mean for each RCPs over each period, light lines show individual scenarios. Black dashed lines show the mean over the reference period 1990-2000 (only shown in subsequent periods to ease comparison).

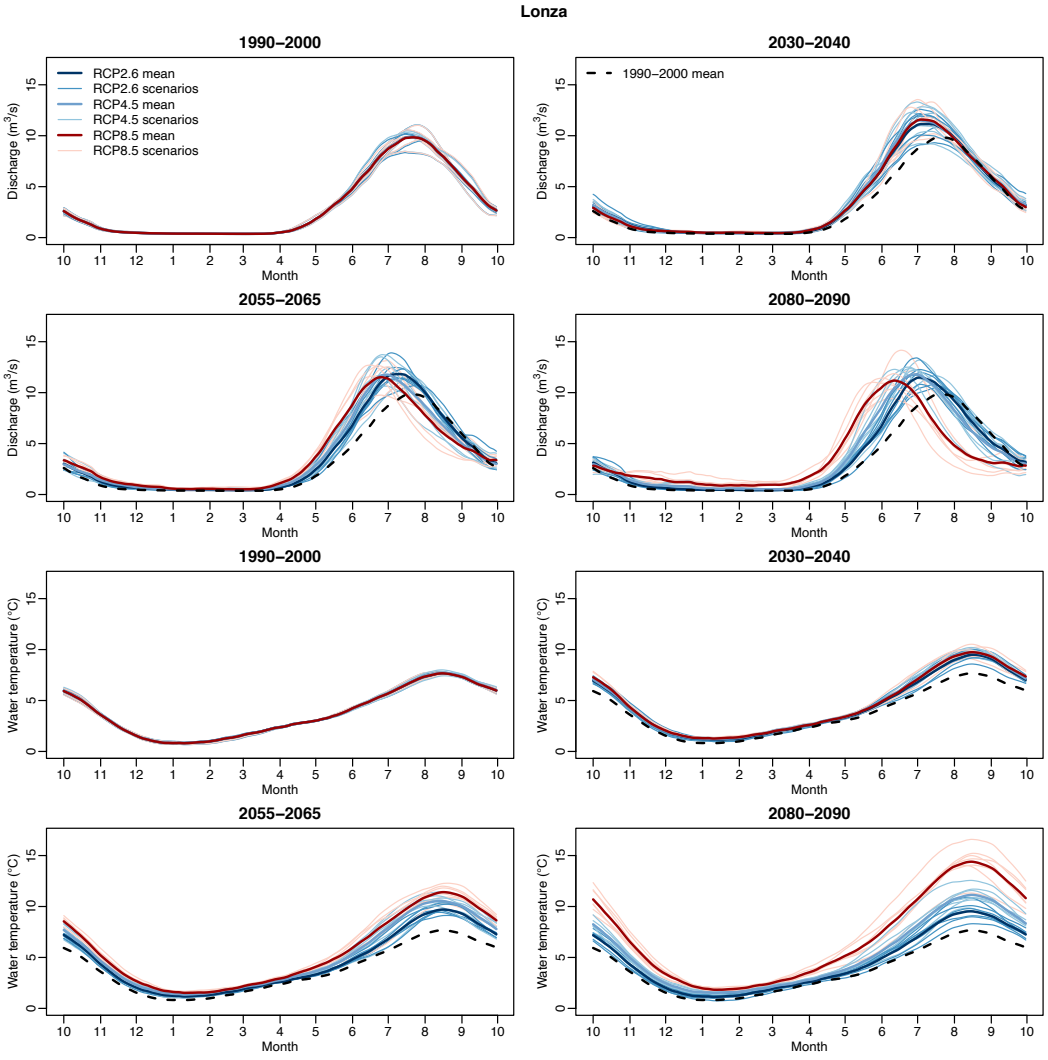

Figure S69. Annual cycle for discharge (top) and temperature (bottom) for the Landwasser catchment. The cycles are obtained by computing the average for each day of the years and by applying a circular moving average of 30 days. Dark lines show the mean for each RCPs over each period, light lines show individual scenarios. Black dashed lines show the mean over the reference period 1990-2000 (only shown in subsequent periods to ease comparison).

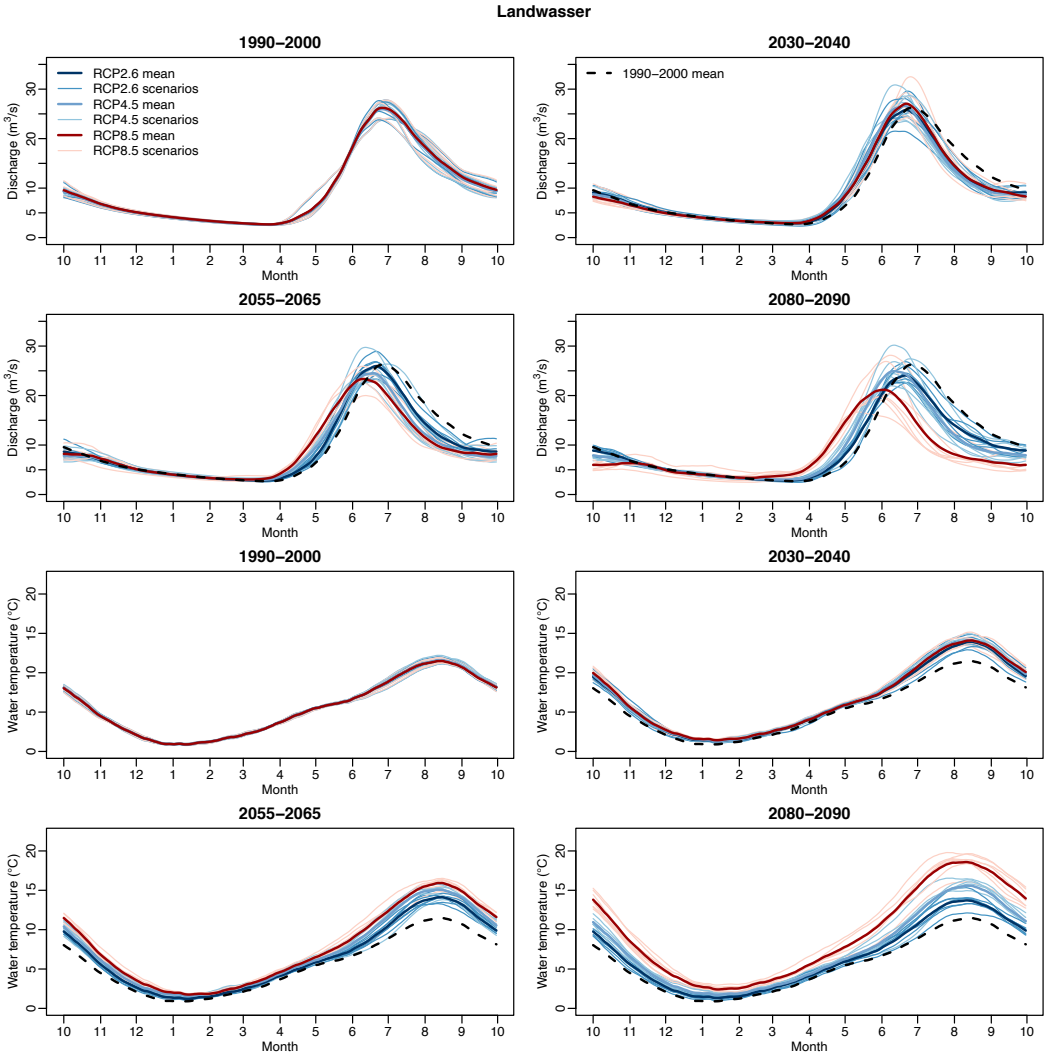

Figure S70. Annual cycle for discharge (top) and temperature (bottom) for the Lonza catchment. The cycles are obtained by computing the average for each day of the years and by applying a circular moving average of 30 days. Dark lines show the mean for each RCPs over each period, light lines show individual scenarios. Black dashed lines show the mean over the reference period 1990-2000 (only shown in subsequent periods to ease comparison).

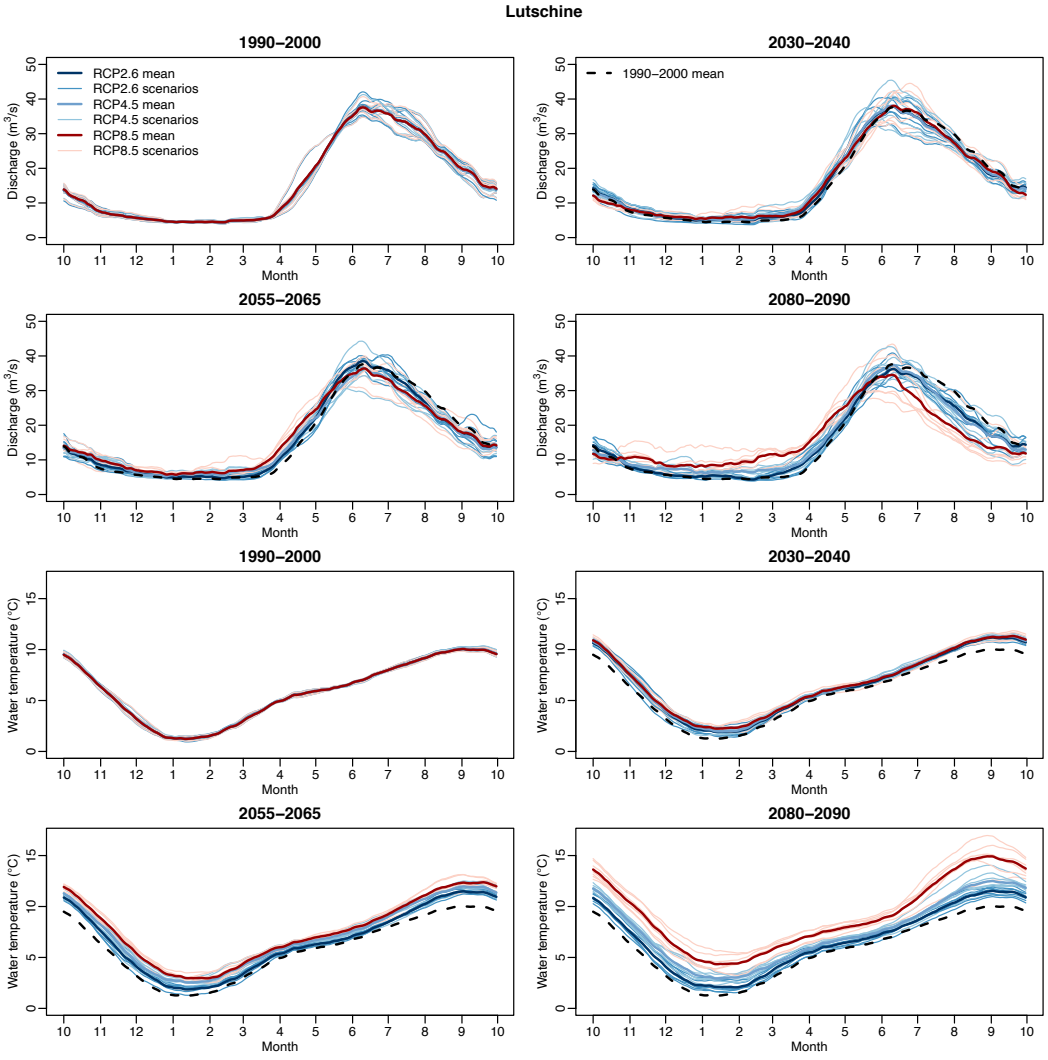

Figure S71. Annual cycle for discharge (top) and temperature (bottom) for the Lütschine catchment. The cycles are obtained by computing the average for each day of the years and by applying a circular moving average of 30 days. Dark lines show the mean for each RCPs over each period, light lines show individual scenarios. Black dashed lines show the mean over the reference period 1990-2000 (only shown in subsequent periods to ease comparison).