Supplement of

Towards robust seasonal streamflow forecasts in mountainous catchments: impact of calibration metric selection in hydrological modeling

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Table S1. Catchment attributes. **ME:** Mean Elevation (m.a.s.l.), **A:** Area (km^2), **FBCF:** Fraction of Basin Covered by Forest (%), **FBCBL:** Fraction of Basin Covered by Barren Land (%), **MAT:** Mean Annual Temperature (°C), **AI:** Aridity Index (-), **PS:** Precipitation Seasonality (-), **MAP:** Mean Annual Precipitation (mm), **PFS:** Precipitation Falling as Snow (%), **MAR:** Mean Annual Runoff (mm), **BI:** Baseflow Index (-), **IRV:** Interannual Runoff Variability (-).

Catchment	ME	A	FBC	FBCFL	MAT	AI	PS	MAP	PFS	MAR	BI	IRV
Pulido en Vertedero	3566	2022	0.0	63	6.3	7.0	-0.96	126	36	20	0.83	0.45
Toro antes de junta con la	3905	467	0.0	87	4.3	5.6	-0.62	133	50	43	0.68	0.38
La Laguna en Salida	4275	558	0.0	78	2.6	4.3	0.71	156	71	104	0.77	0.65
Derecho en Alcohuaz	3544	338	0.1	69	4.6	3.2	-1.12	222	64	107	0.81	1.00
Hurtado en Angostura	3724	672	0.1	66	3.9	2.4	-1.04	251	70	128	0.86	0.81
Rapel en Junta	2661	821	0.6	34	8.7	3.0	-1.05	313	12	71	0.67	1.30
Grande en las Ramadas	3098	569	0.0	67	6.7	2.9	-1.12	284	34	202	0.78	0.89
Grande en Cuyano	2726	1287	0.2	49	8.8	3.6	-1.21	277	8	147	0.75	0.96
Choapa en Cuncumén	3142	1132	0.2	64	6.0	2.7	-1.18	318	53	236	0.75	0.74
Pedernal en Tajada	2454	81	0.1	27	9.6	2.8	-1.25	355	3	89	0.65	1.06
Sobrante en Piñadero	2610	241	0.2	40	8.3	2.3	-1.21	397	13	90	0.78	1.15
Alicahue en Colliguay	2403	348	0.2	37	9.1	2.5	-1.18	391	7	94	0.78	1.06
Aconcagua en Chacabuquito	3178	2113	0.3	66	5.3	1.9	-1.16	390	52	448	0.76	0.52
Pocuro en el Sifón	2006	181	0.2	20	11.1	2.5	-1.22	445	1	124	0.72	0.79
Arrayán en la Montosa	2513	216	0.4	50	8.1	1.6	-1.15	560	18	207	0.75	0.63
Yerba Loca antes de junta con	3424	110	0.2	70	3.3	1.2	-1.13	456	72	278	0.75	0.44
Maipo en el Manzano	3181	4839	0.2	69	5.0	0.9	-1.12	764	59	605	0.81	0.35
Claro en el Valle	1605	349	27.1	20	10.7	0.8	-1.16	1297	1	702	0.63	0.59
Claro en los Queñes	1857	354	14.6	36	8.9	0.6	-1.11	1568	8	1527	0.70	0.41
Colorado en junta con Palos	2288	878	11.5	57	7.1	0.5	-1.09	1650	23	1526	0.73	0.38
Palos en junta con Colorado	1973	490	16.7	55	8.1	0.5	-1.07	1743	14	1532	0.80	0.32
Sauces antes de junta con Ñuble	1683	607	9.8	20	8.3	0.6	-1.04	1752	10	1581	0.68	0.36
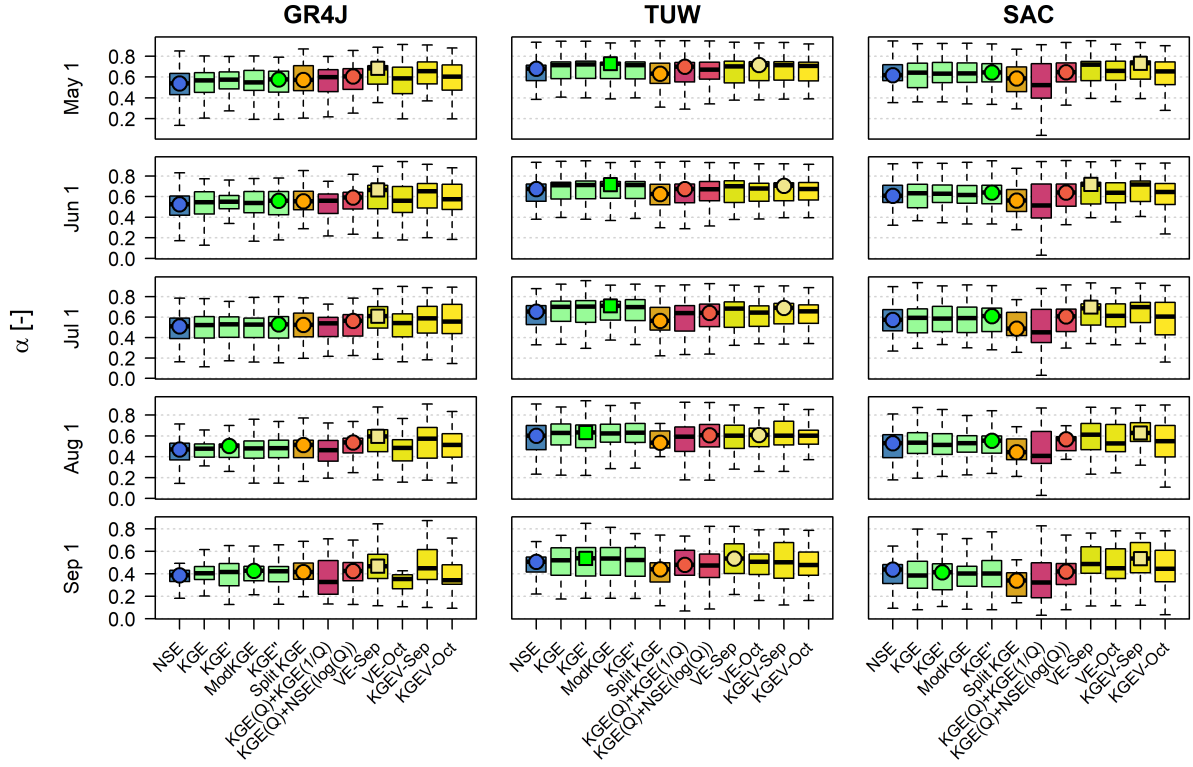
Figure S1. Comparison of α reliability indices obtained with different calibration objective functions. Each panel contains results for a specific combination initialization time (rows) and hydrological model (columns), and each boxplot comprises results from the 22 case study basins. The boxes correspond to the interquartile range (IQR, i.e., 25th and 75th percentiles), the horizontal line in each box is the median, and whiskers extend to the $\pm 1.5 \cdot IQR$ of the ensemble. The circle indicates the objective function providing the highest median within each family of calibration metrics (identified with different colors), and the square indicates the objective function that delivers the best set of metric values using a specific combination of initialization time and hydrological model.
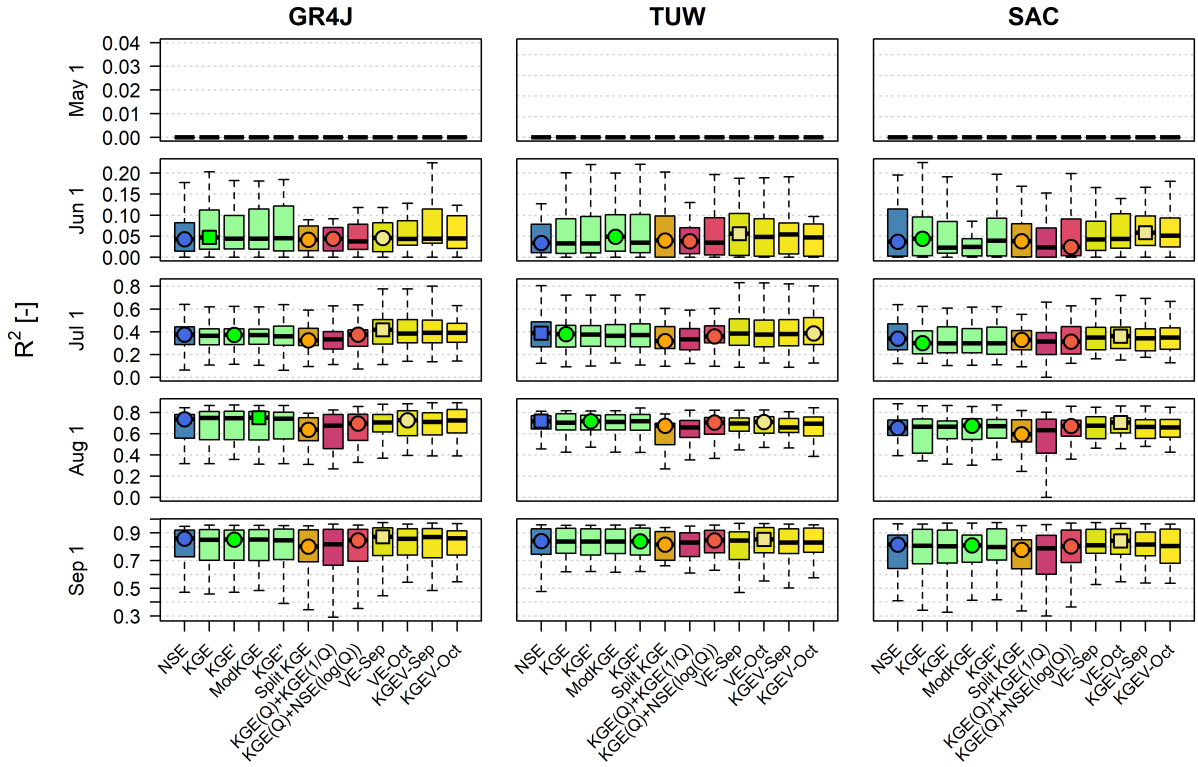
Figure S2. Same as in Figure S1, but for R^2.
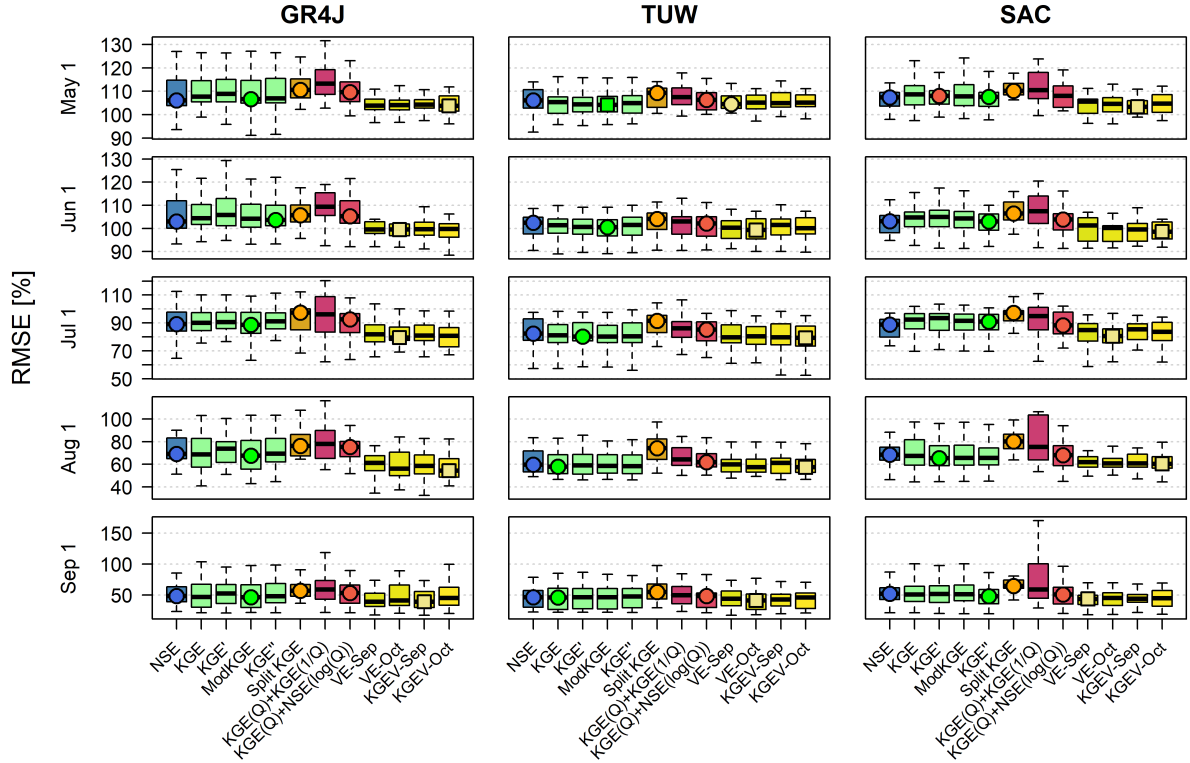
Figure S5. Same as in Figure S1, but for the root mean square error (RMSE) of the ensemble median.