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*Supplement of*

## **Climate-dependent propagation of precipitation uncertainty into the water cycle**

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**Table S1: Summary of model parameters.**

<b>Parameter</b>	<b>Meaning</b>	<b>Considered range</b>
Water holding capacity	Maximum water storage	56–1485mm
Runoff function exponent	Sensitivity of (normalized) runoff to soil moisture	0.53–15
ET function exponent	Sensitivity of evaporative fraction to soil moisture	0.04–1.25
maximum ET ratio	Maximum fraction of net radiation that can be transformed into ET	0.30–0.99
Melting parameter	Speed of snow melting	0.19–11.7
Runoff delay	Conversion of runoff to streamflow	0.05–0.85

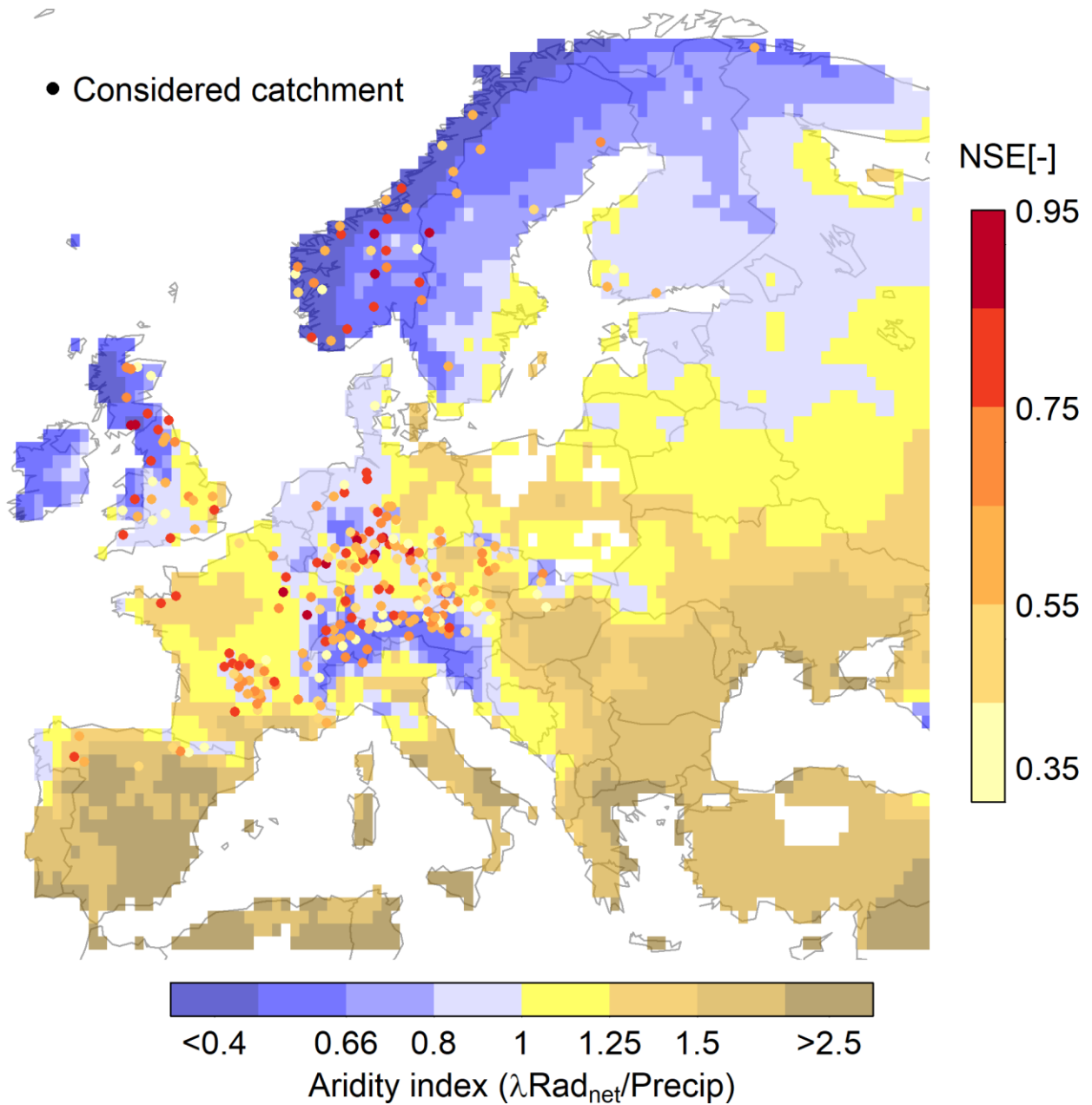


Figure S1: Same as figure 1 in the main text, but with NSE values obtained from the model calibration using E-OBS data. Only catchments where  $\text{NSE} \geq 0.36$  are shown.

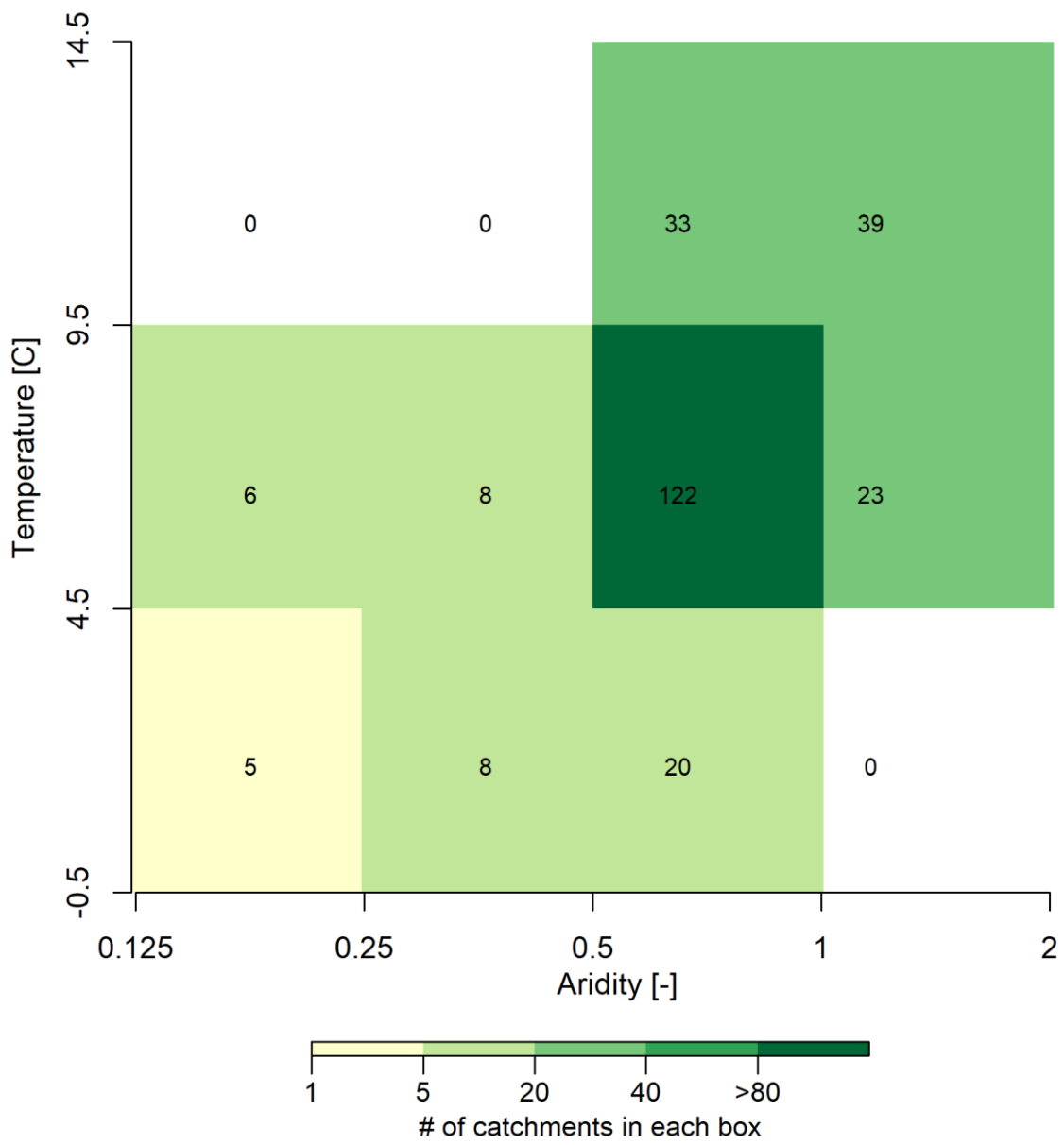


Figure S2: Number of considered catchments in each hydro-climatological regime at the monthly scale. Overall, 264 catchments across Europe are evaluated in this study.

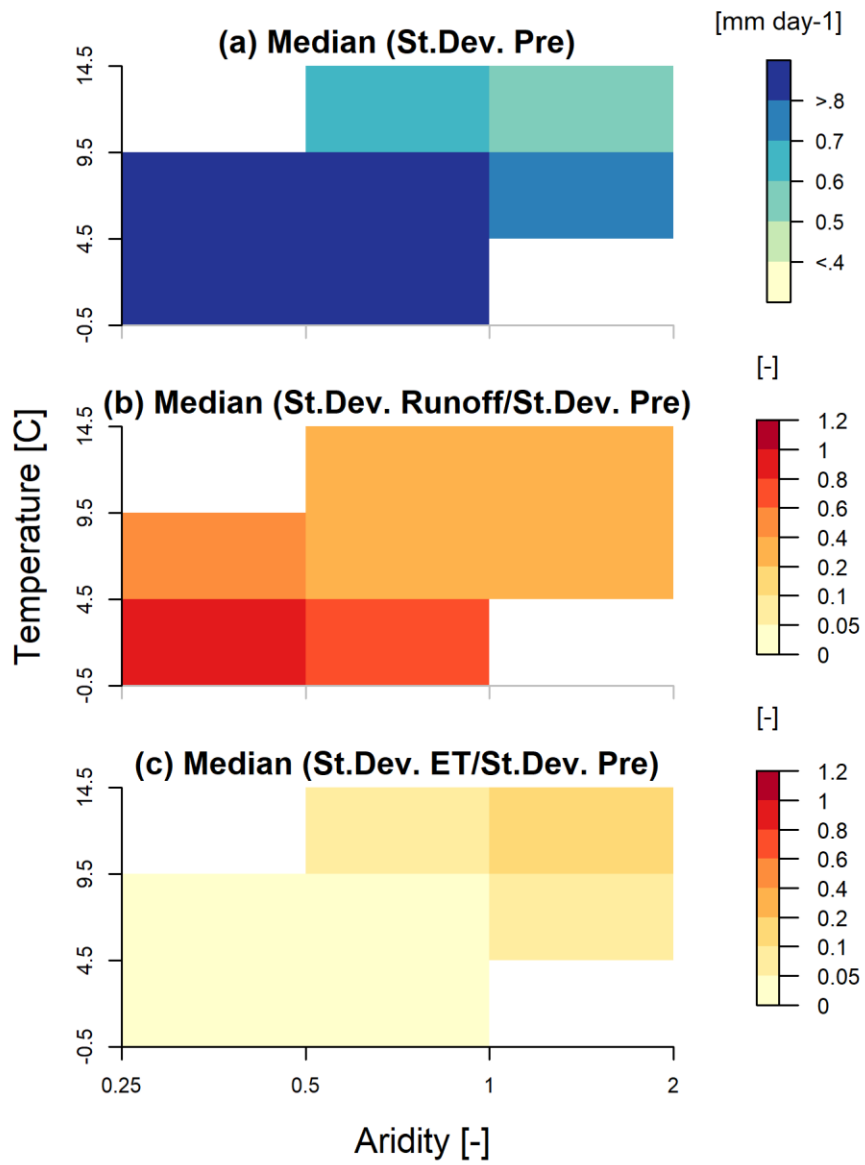


Figure S3: Same as figure 4 in the main text, but with results computed based on daily time series.

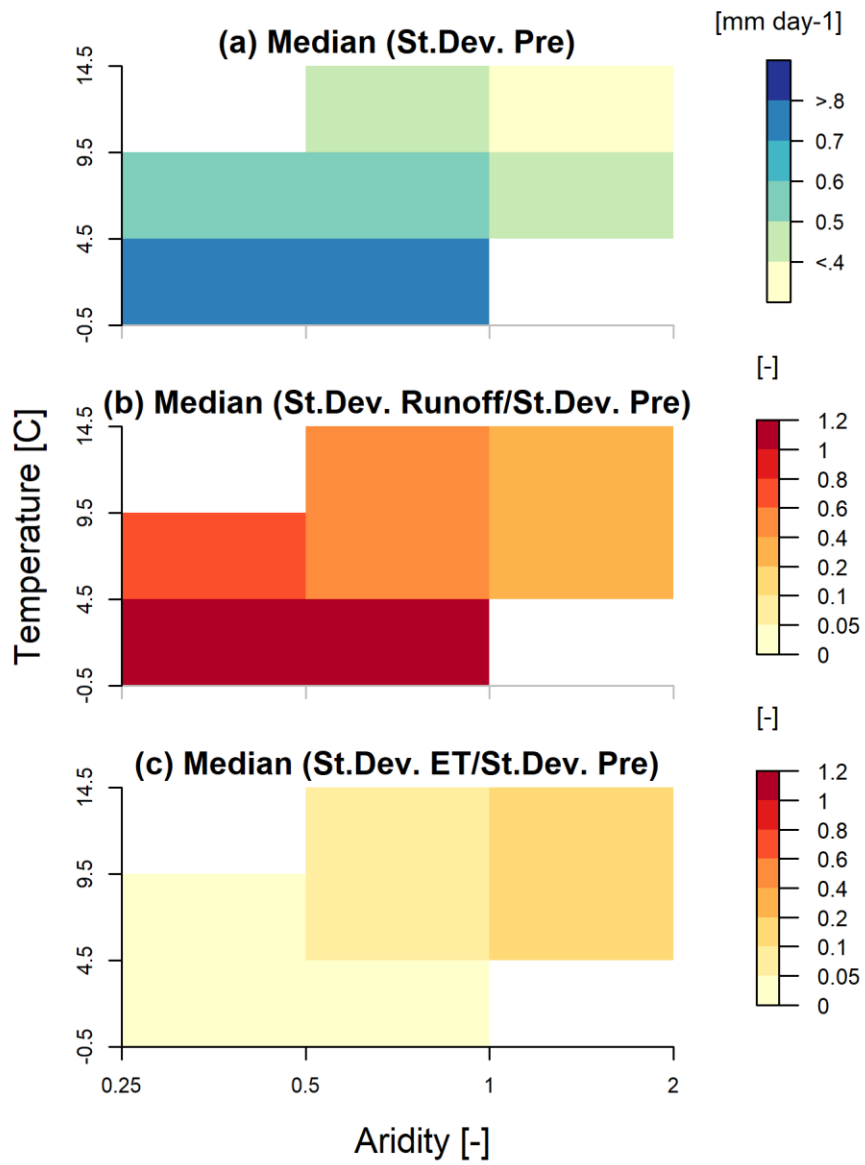


Figure S4: Same as figure 4 in the main text, but with results obtained from the model calibrated using GPCC precipitation data.

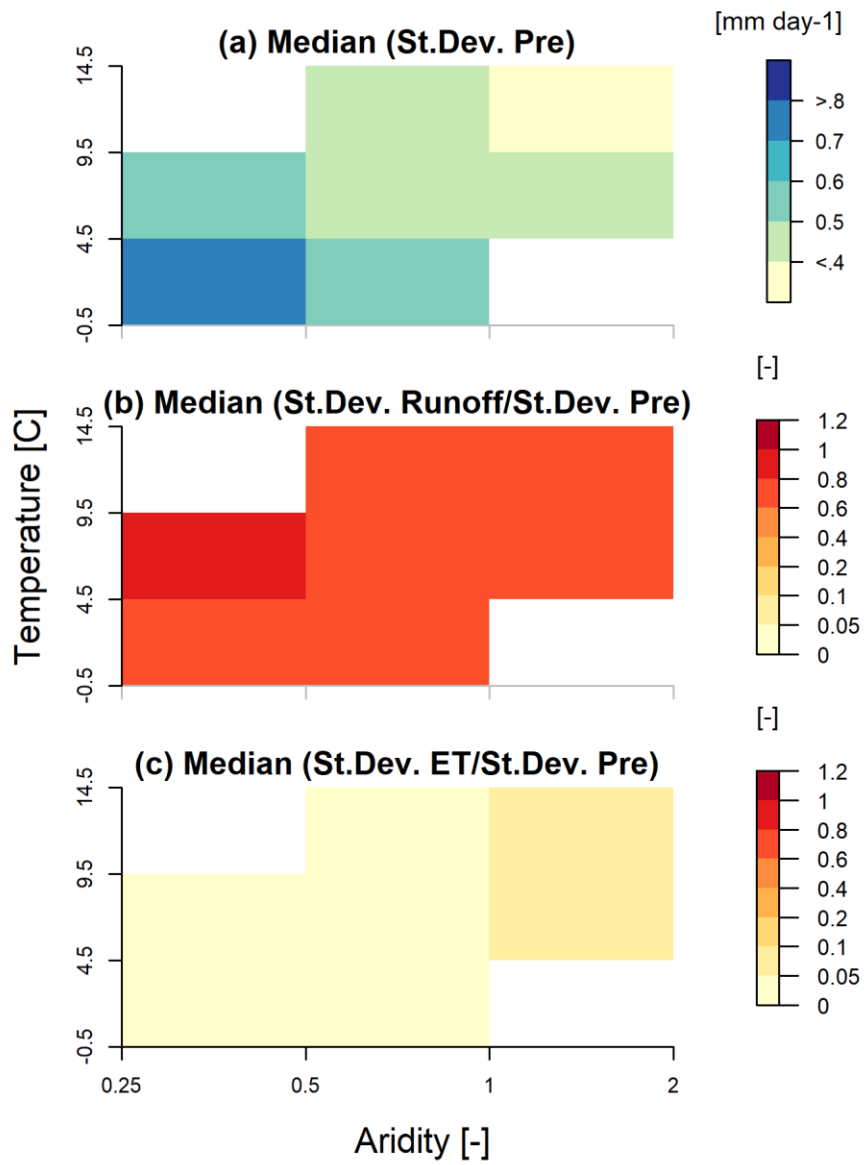


Figure S5: Same as figure 4 in the main text, but with results computed for whole year.

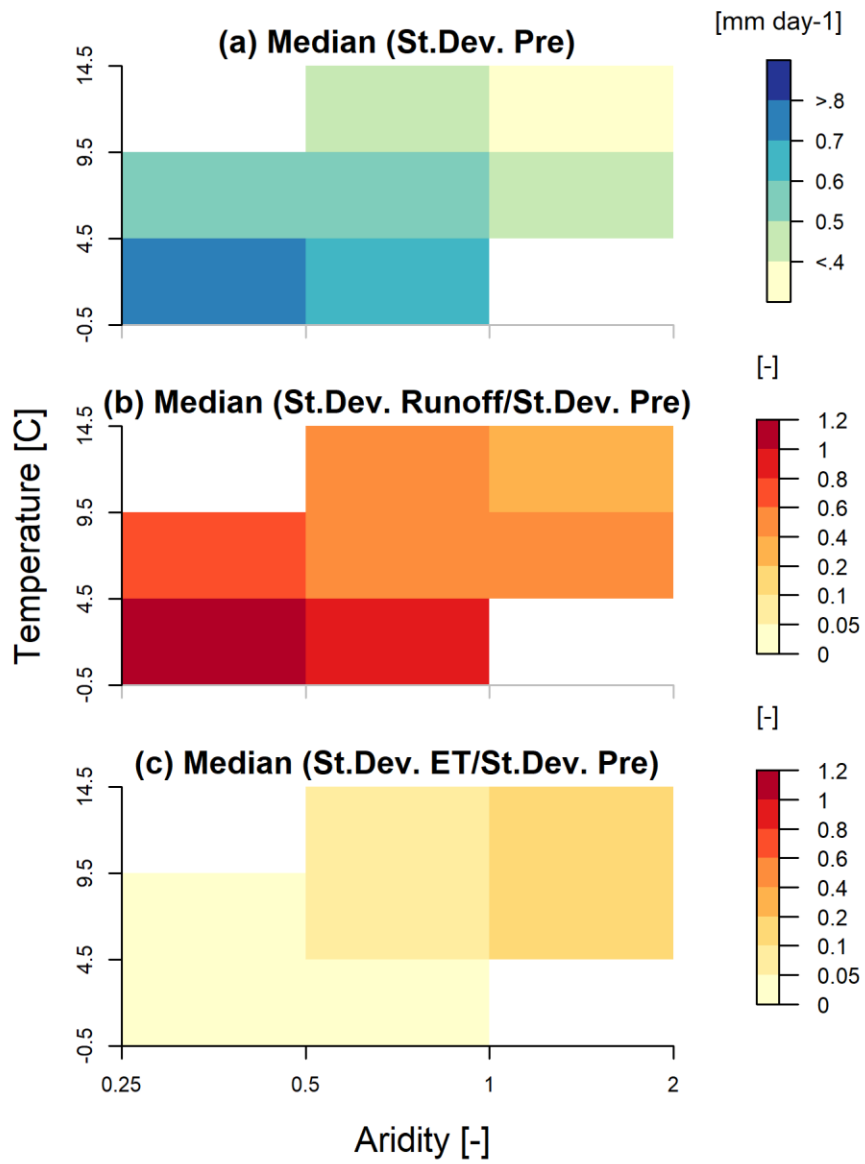


Figure S6: Same as figure 4 in the main text, but with results obtained from filtering catchments with  $NSE \geq 0.5$ .



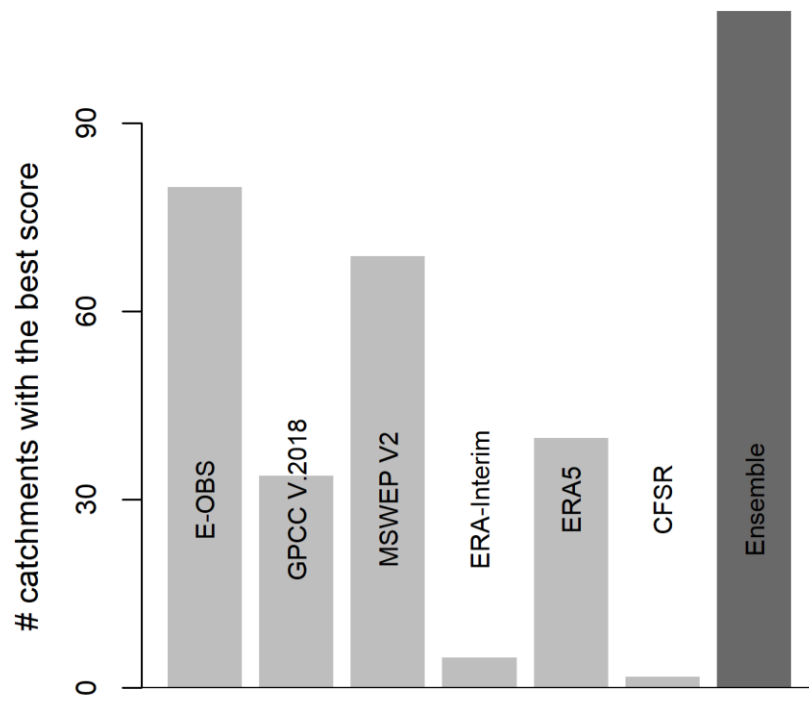


Figure S7: Same as figure 5 in the main text, but with results obtained from daily time series.

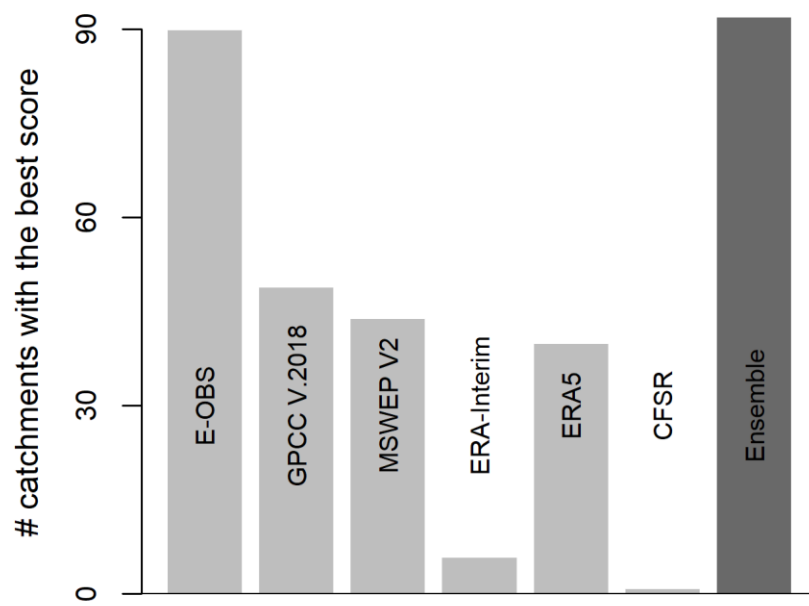


Figure S8: Same as figure 5 in the main text, but with results computed for whole year.

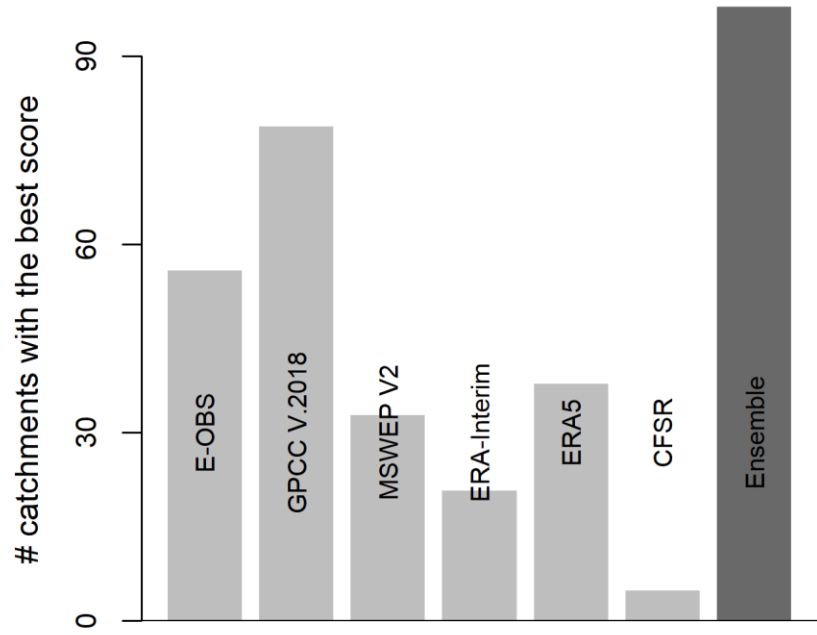


Figure S9: Same as figure 5 in the main text, but with results obtained from the model calibrated using GPCC precipitation data.

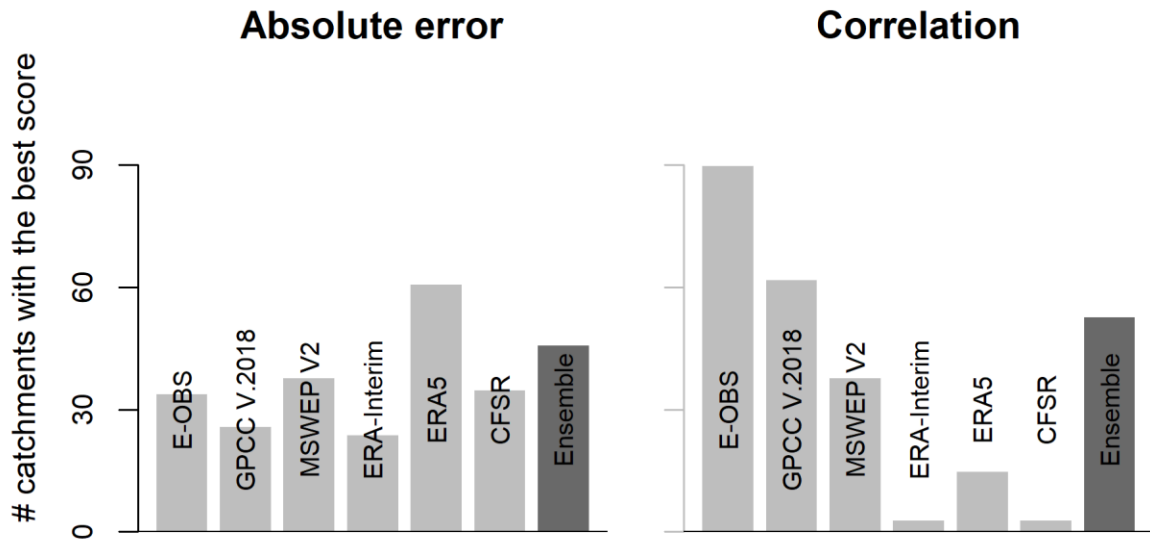


Figure S10: Same as figure S8 , but with results obtained from absolute error and correlation separately.