

Table Supp1. Information content and complexity measures of daily precipitation (P), observed (Q) and simulated daily streamflow time series using 8 models in five watersheds (S1-M4). ME – Metric Entropy; MIG – Mean Information Gain; EMC – Effective Measure of Complexity; FC – Fluctuation Complexity.

Measures Models	French Broad				Tygart				Leaf River			
	ME	MIG	EMC	FC	ME	MIG	EMC	FC	ME	MIG	EMC	FC
P	0.905	0.872	0.198	0.613	0.960	0.943	0.103	0.277	0.915	0.890	0.150	0.552
Q	0.498	0.379	0.717	1.551	0.431	0.301	0.778	1.658	0.420	0.286	0.804	1.520
S1	0.081	0.065	0.093	0.600	0.394	0.337	0.342	1.103	0.014	0.013	0.002	0.214
S2	0.513	0.404	0.650	1.727	0.470	0.348	0.737	1.574	0.332	0.195	0.824	1.248
S3	0.553	0.452	0.603	1.759	0.384	0.254	0.781	1.575	0.243	0.091	0.912	0.941
S4	0.426	0.306	0.724	1.695	0.352	0.217	0.814	1.444	0.247	0.094	0.914	0.950
M1	0.389	0.368	0.125	1.578	0.520	0.471	0.289	1.299	0.280	0.251	0.173	1.361
M2	0.506	0.395	0.667	1.708	0.518	0.405	0.679	1.626	0.326	0.191	0.810	1.257
M3	0.499	0.391	0.647	1.758	0.442	0.324	0.705	1.717	0.302	0.159	0.858	1.321
M4	0.414	0.286	0.771	1.606	0.407	0.282	0.755	1.620	0.368	0.233	0.806	1.515
Models	Guadalupe				San Marcos							
P	0.829	0.785	0.268	1.005	0.830	0.785	0.266	1.000				
Q	0.371	0.233	0.827	1.445	0.375	0.225	0.901	1.257				
S1	0.008	0.007	0.007	0.129	0.004	0.004	0.004	0.077				
S2	0.102	0.081	0.131	0.732	0.236	0.152	0.502	1.070				
S3	0.141	0.068	0.439	0.696	0.186	0.063	0.742	0.707				
S4	0.217	0.059	0.948	0.668	0.233	0.075	0.947	0.759				
M1	0.008	0.007	0.003	0.130	0.017	0.011	0.036	0.176				
M2	0.314	0.280	0.204	1.490	0.384	0.290	0.566	1.559				
M3	0.423	0.326	0.583	1.685	0.298	0.156	0.854	1.286				
M4	0.357	0.210	0.884	1.283	0.259	0.103	0.935	0.890				

Table Supp2. Distances between observed and simulated streamflow in the coordinates of information content and complexity measures.

Model	French Broad		Tygard Valley		Leaf		Guadalupe		San Marcos	
	$d_{MIG,EM}$	$d_{MIG,FC}$	$d_{MIG,EMC}$	$d_{MIG,FC}$	$d_{MIG,EMC}$	$d_{MIG,FC}$	$d_{MIG,EMC}$	$d_{MIG,FC}$	$d_{MIG,EMC}$	$d_{MIG,FC}$
S1	0.699	0.570	0.437	0.280	0.847	0.708	0.851	0.696	0.924	0.630
S2	0.072	0.091	0.062	0.063	0.093	0.164	0.712	0.388	0.406	0.119
S3	0.135	0.127	0.047	0.063	0.223	0.349	0.422	0.409	0.227	0.319
S4	0.073	0.103	0.091	0.136	0.221	0.344	0.212	0.426	0.157	0.291
M1	0.592	0.017	0.518	0.247	0.632	0.087	0.854	0.695	0.891	0.581
M2	0.052	0.080	0.144	0.105	0.095	0.162	0.625	0.052	0.341	0.164
M3	0.071	0.104	0.077	0.037	0.138	0.161	0.261	0.152	0.083	0.071
M4	0.108	0.097	0.030	0.027	0.053	0.053	0.061	0.084	0.127	0.220