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Influence of climate variability on water partitioning and effective energy and mass transfer in a semi-arid critical zone

Xavier Zapata-Rios et al.

Correspondence to: Xavier Zapata-Rios (xavierzapatarios@gmail.com)

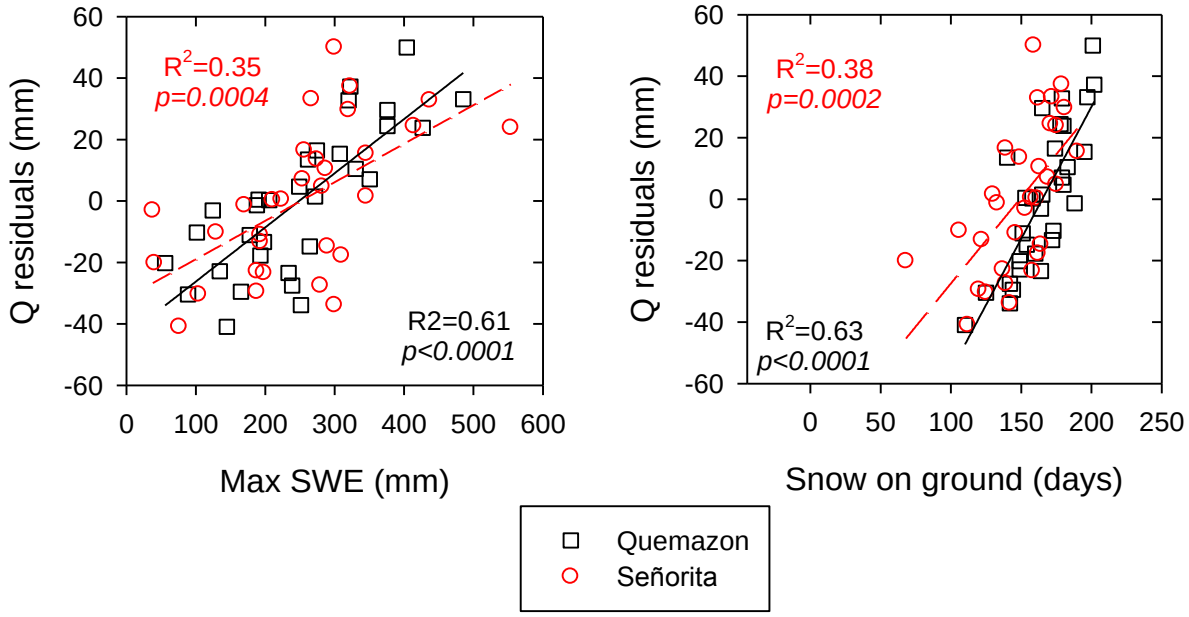

Figure S1. Plot of residuals between max SWE and snow on the ground from the linear model presented in Figure 2b. Maximum SWE and duration of the snow cover are the better predictors of discharge residuals variability. Q residuals increase during extreme dry and wet years.

Table S1. Empirical and modelled EEMT values estimated for the upper Jemez River basin. $Ebio_{emp}$ was estimated (numbers in red) by multivariable linear regression from annual Precipitation at the Quemazon station and Jemez River basin between 1984-1999 (R^2=0.75; *p=0.0009*)

	$EEMT_{emp}$			$EEMT_{model}$		
Water year	$Eppt_{emp}$	$Ebio_{emp}$	$EEMT_{emp}$	$Eppt_{model}$	$Ebio_{model}$	$EEMT_{model}$
1984	1.28	11.27	12.55	0.05	5.09	5.14
1985	2.37	12.43	14.80	0.20	5.47	5.67
1986	1.42	12.48	13.90	0.19	9.34	9.53
1987	1.60	11.15	12.75	0.09	8.71	8.80
1988	1.16	11.21	12.37	0.14	8.52	8.66
1989	0.87	9.28	10.15	0.05	4.18	4.24
1990	0.80	11.77	12.56	0.14	5.45	5.58
1991	1.35	13.61	14.96	0.27	14.22	14.49
1992	1.77	11.47	13.24	0.14	9.11	9.26
1993	1.49	11.43	12.93	0.07	8.51	8.58
1994	0.75	11.96	12.71	0.15	8.79	8.94
1995	1.74	11.93	13.67	0.19	8.72	8.91
1996	0.33	10.13	10.46	0.02	4.94	4.96
1997	1.37	12.12	13.48	0.11	7.83	7.94
1998	1.04	10.94	11.98	0.04	4.98	5.02
1999	1.04	11.47	12.51	0.21	10.90	11.11
2000	0.60	8.42	9.02	0.06	5.35	5.42
2001	1.09	10.20	11.30	0.08	5.73	5.81
2002	0.35	8.36	8.71	0.05	5.78	5.83
2003	0.62	9.67	10.28	0.04	5.95	5.99
2004	0.77	10.03	10.81	0.18	5.89	6.07
2005	1.30	10.98	12.28	0.08	5.66	5.74
2006	0.48	11.08	11.56	0.03	5.23	5.26
2007	1.00	12.56	13.57	0.06	5.74	5.80
2008	0.88	10.45	11.33	0.01	5.24	5.24
2009	0.65	9.39	10.03	0.09	6.03	6.12
2010	0.73	10.39	11.13	0.08	5.20	5.29
2011	0.39	8.43	8.82	0.03	4.29	4.31
2012	0.50	8.65	9.15	0.03	4.12	4.16