

Supplementary Material

NDVI response to satellite-estimated antecedent precipitation in dryland pastures

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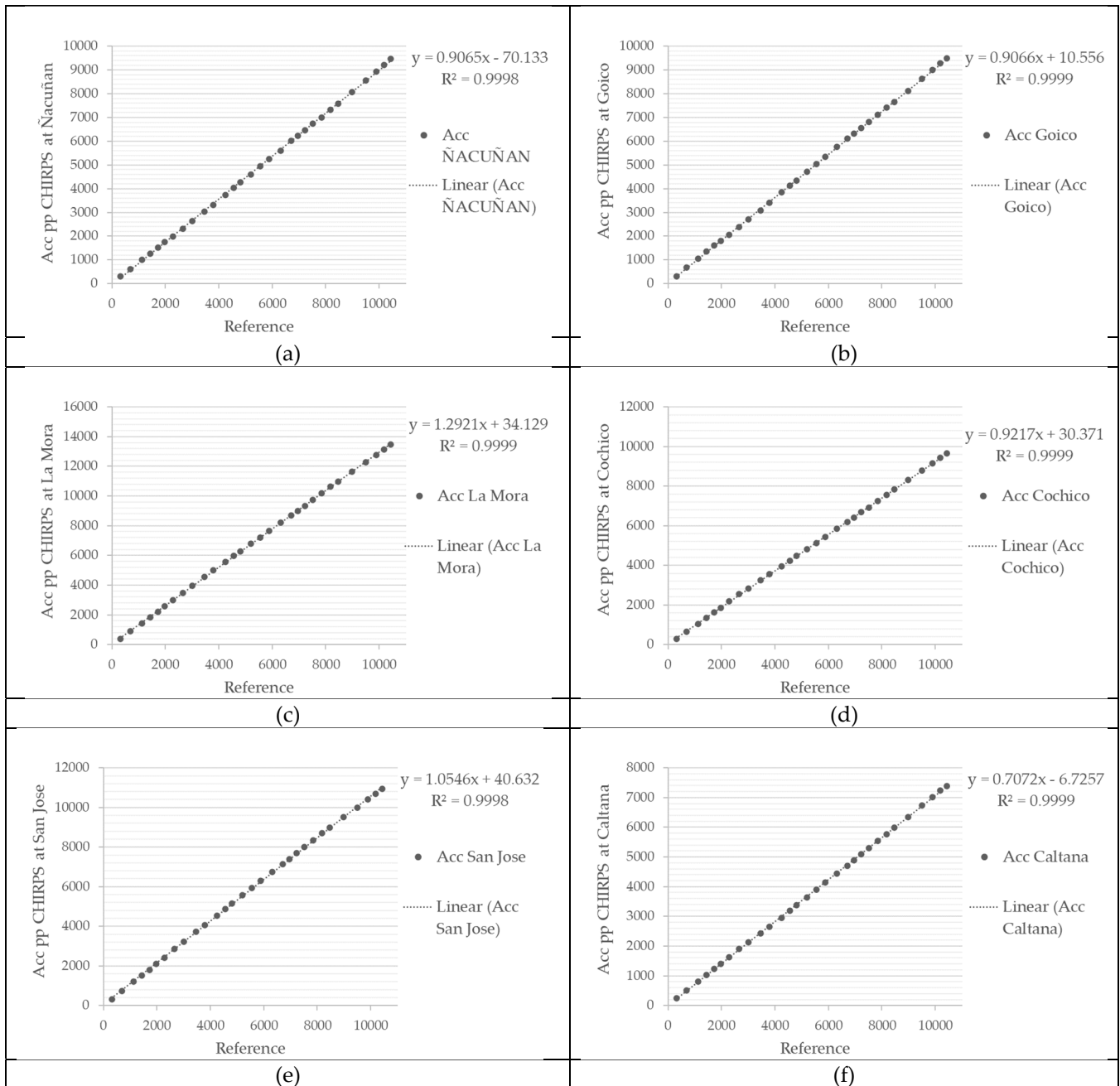


Figure S1: Double Mass Analyses for CHIRPS at a) Nacuñan, b) Goico, c) La Mora, d) Cochicó, e) San Jose, and f) Caltana.

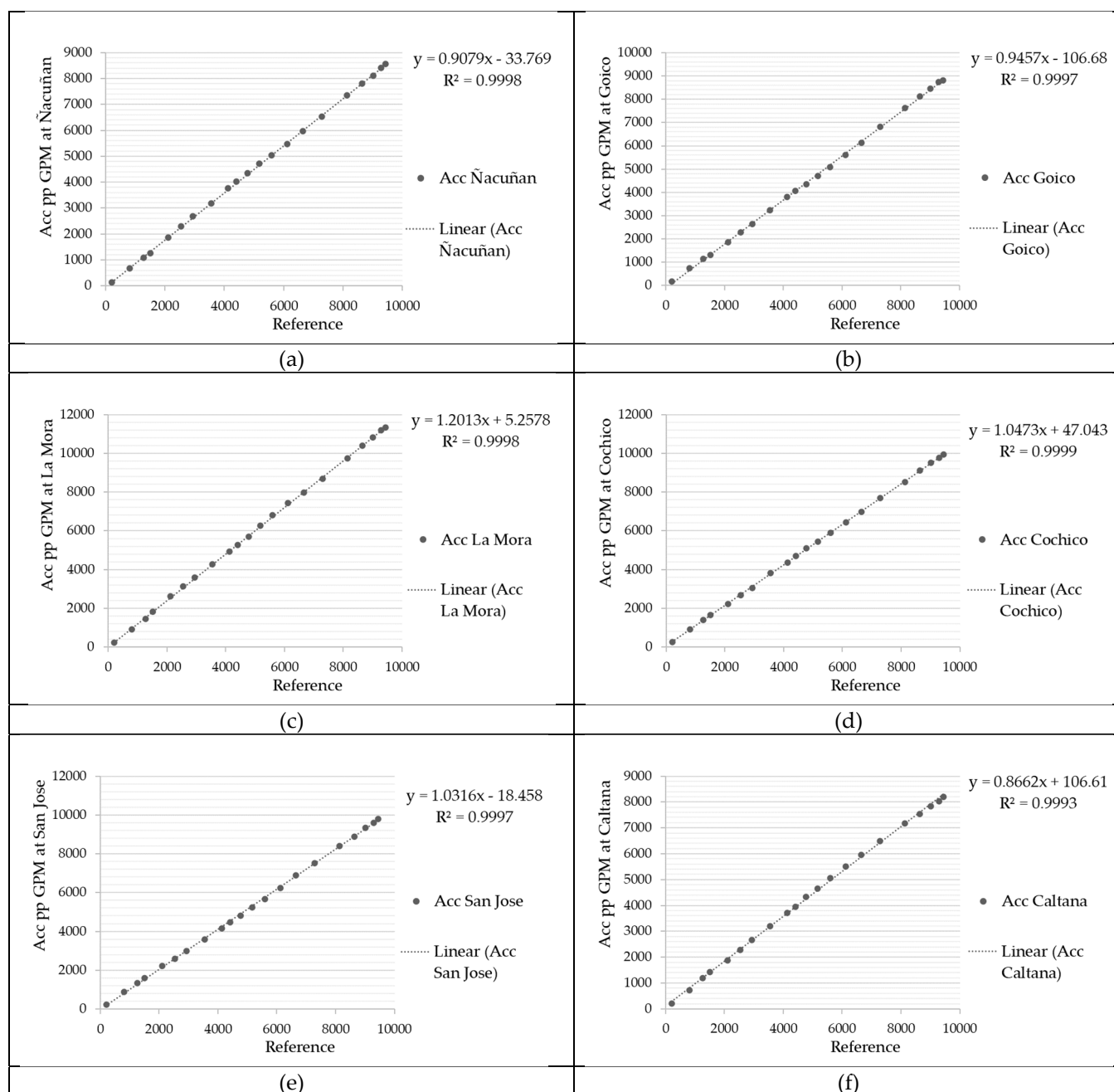


Figure S2: Double Mass Analyses for GPM at a) Nacuñan, b) Goico, c) La Mora, d) Cochicó, e) San Jose, and f) Caltana.

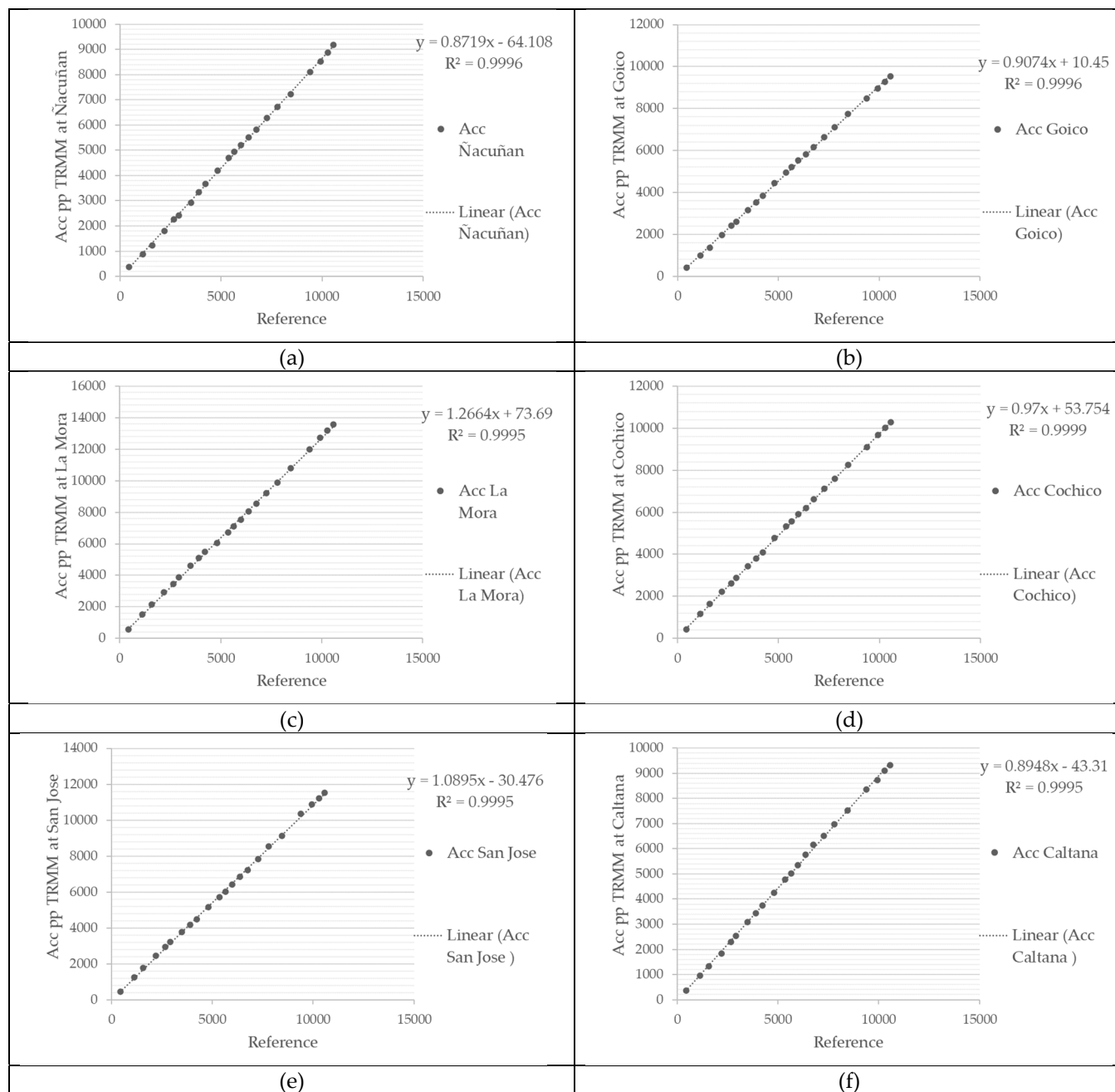


Figure S3: Double Mass Analyses for TRMM at a) Nacuñan, b) Goico, c) La Mora, d) Cochicó, e) San Jose, and f) Caltana.

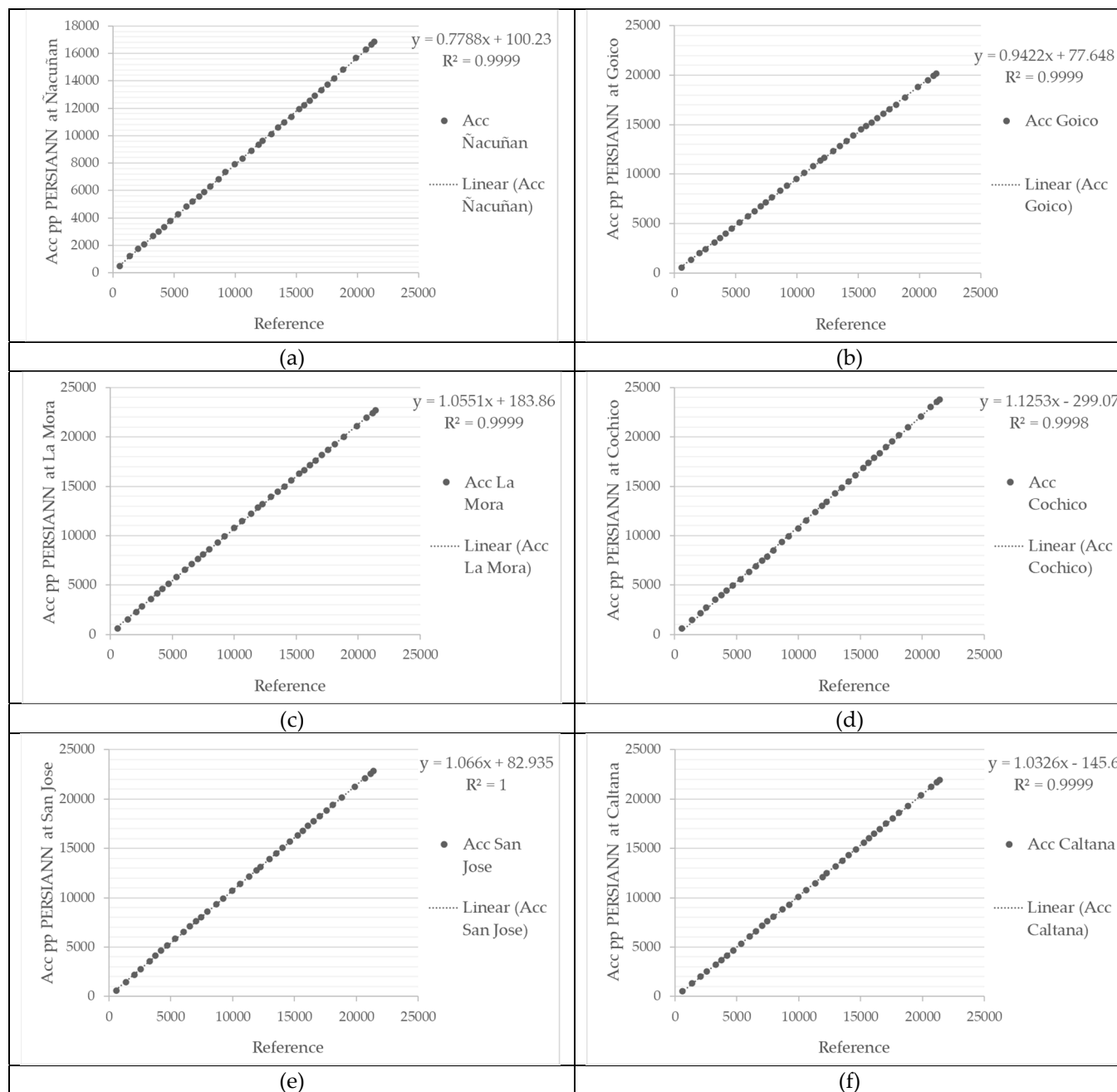


Figure S4: Double Mass Analyses for PERSIANN at a) Nacuñan, b) Goico, c) La Mora, d) Cochicó, e) San Jose, and f) Caltana.

Table S1: Monthly Pearson's Correlation Coefficient between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	0.79	0.57	0.61	0.38	0.77	0.6	0.62
CHIRPS	0.74	0.7	0.6	0.63	0.7	0.68	0.68
TRMM	0.9	0.68	0.73	0.65	0.83	0.63	0.74
GPM	0.9	0.72	0.73	0.74	0.87	0.73	0.78

Table S2: Monthly Mean Error between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	8.77	30.98	15.48	19.55	6.84	11.83	15.58
CHIRPS	-12.30	4.27	-1.58	1.14	-12.85	-8.16	-4.91
TRMM	4.30	14.41	7.18	3.56	9.89	2.32	6.94
GPM	5.70	17.82	9.35	0.07	7.75	3.20	7.32

Table S3: Monthly BIAS between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	-0.27	1.26	0.52	0.57	0.15	0.29	0.42
CHIRPS	-0.41	0.17	-0.05	0.04	-0.29	-0.2	-0.12
TRMM	0.15	0.58	0.25	0.11	0.24	0.05	0.23
GPM	0.19	0.72	0.36	0.002	0.2	0.08	0.26

Table S4 Monthly NSEC between gauged and satellite estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	0.48	-1.92	-0.03	-1.17	0.57	0.25	-0.30
CHIRPS	0.32	0.47	0.35	0.38	0.39	0.4	.39
TRMM	0.7	-0.48	0.37	-0.03	0.52	0.18	0.21
GPM	0.75	-0.31	0.28	0.45	0.68	0.48	0.39

Table S5 Monthly RMSE between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	26.1	48.68	35.74	49.75	32.71	40.85	38.97
CHIRPS	29.6	20.85	28.22	27.42	38.73	36.57	30.23
TRMM	19.6	34.68	27.38	33.87	31.62	44.14	31.88
GPM	18.1	32.57	28.08	24.7	25.03	31.96	26.74

Table S6 Monthly RSR between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	0.76	1.72	1.42	1.46	0.65	0.87	1.15
CHIRPS	0.82	0.74	0.8	0.79	0.78	0.78	0.79
TRMM	0.54	1.23	0.79	1.01	0.69	0.9	0.86
GPM	0.5	1.15	0.85	0.74	0.57	0.72	0.76

Table S7: Annual Pearson's Correlation Coefficient between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San Jose	Average
PERSIANN	0.9	0.77	0.78	0.52	0.82	0.59	0.73
CHIRPS	0.9	0.77	0.64	0.7	0.67	0.66	0.72
TRMM	0.88	0.74	0.87	0.57	0.84	0.52	0.74
GPM	0.84	0.76	0.92	0.73	0.86	0.65	0.79

Table S8: Annual Mean Error between gauged and satellite estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San José	Average
PERSIANN	111.1	369.2	185.25	209.86	88.23	140.17	183.97
CHIRPS	-150.5	50.3	18.85	29.48	-143.04	-100.59	-49.25
TRMM	58.7	172.3	86.13	42.72	122.62	22.37	84.14
GPM	80.8	216.4	114.44	0.89	103.09	41.81	92.91

Table S9: Annual BIAS between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San José	Average
PERSIANN	0.3	1.24	0.51	0.53	0.17	0.29	0.51
CHIRPS	-0.41	0.17	-0.05	0.07	-0.28	-0.21	-0.12
TRMM	0.16	0.58	0.25	0.11	0.25	0.04	0.23
GPM	0.22	0.72	0.36	0.002	0.22	0.09	0.27

Table S10: Annual NSEC between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San José	Average
PERSIANN	0.12	-24.38	-1.06	-5.3	0.45	-0.26	-5.07
CHIRPS	-0.67	0.11	0.37	0.4	-0.16	0.1	0.03
TRMM	0.51	-6.32	0.43	-0.54	-9.87	-0.04	-2.64
GPM	0.25	-8.23	0.13	0.36	0.43	0.27	-1.13

Table S11: Annual RMSE between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San José	Average
PERSIANN	131.2	400	211.25	285.96	141.02	209.63	229.84
CHIRPS	57	74.9	118.37	88.19	205.51	177.57	120.26
TRMM	98.3	214.7	114.63	141.15	648.35	196.5	235.61
GPM	121.8	241.2	129.6	91.02	138.71	134.82	142.86

Table S12: Annual RSR between gauged and satellite-estimated precipitation

	Ñacuñan	Cochicó	Goico	Caltana	La Mora	San José	Average
PERSIANN	0.89	4.56	1.42	2.37	0.73	1.12	1.85
CHIRPS	0.44	0.85	0.78	0.73	1.06	0.94	0.80
TRMM	0.67	2.45	0.74	1.17	3.22	1	1.54
GPM	0.83	2.75	0.91	0.75	0.74	0.83	1.14