

## *Supplementary Material*

### Supplementary Figures and Tables



(a)



(b)

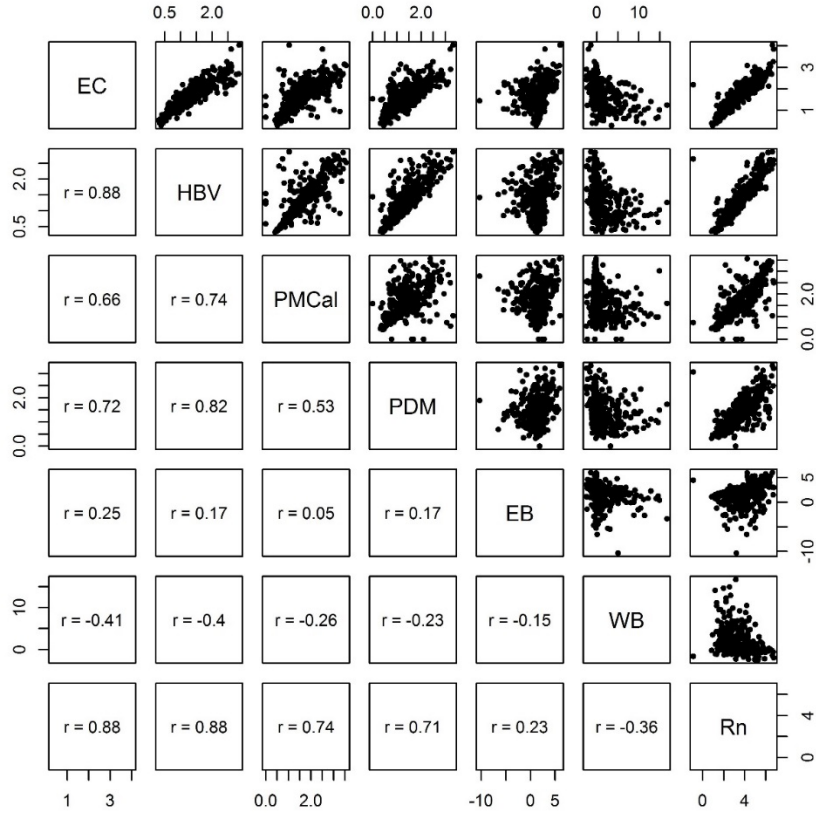


(c)



(d)

**Supplementary Figure 1.** Photographs of instruments placed at the Supersite: a) eddy-covariance tower, b) net radiometer, c) soil heat flux plates during installation and d) meteorological station.



**Supplementary Figure 2.** Scatterplots between ETa measurements and estimations from all methods: eddy-covariance (EC), HBV and PDM hydrological models, Penman-Monteith calibrated equation (PMCal), energy balance (EB), and water balance (WB). The last row and column correspond to scatterplots between methods and net radiation (Rn).  $r$  corresponds to the Pearson's correlation coefficient.

**Supplementary Table 1.** M1, M2 and M3 microcatchment characteristics. Soil type correspond to Andosol (AN), Histosol (HN) and Leptosol (LP). Vegetation coverage correspond to tussock grass (TG), cushion plants (CP), Polylepis forest (QF) and pine forest (PF).

Catchment	Area (Km <sup>2</sup> )	Altitude (m a.s.l.)	Slope (%)	Soil type distribution (%)			Vegetation coverage (%)				Annual precipitation (mm)	Runoff coefficient
				AN	HS	LP	TG	CP	QF	PF		
M1	0.38	3770 - 3900	24	83	15	2	87	13	0	0	1063	0.43
M2	1.6	3680 - 3900	17	82	16	2	82	16	0	2	1042	0.48
M3	4.31	3676 - 3900	18	77	19	4	77	20	2	1	1019	0.42

\* Characteristics calculated from the corresponding microcatchments in Mosquera et al. (2015). However, names M1, M2 and M3 differ from Mosquera et al. (2015).