

Supplementary

Table 1. Variables used as input to derive ET in three models.

Models	Leaf Area	Meteorological variables					Land Cover
	Index	Ta	P	Pa	RH	Rn	
SiTH	√	√	√	√		√	√
MOD16	√	√		√	√	√	√
PT-JPL	√	√		√	√	√	√

Table 2. Details of the input datasets combinations for each ensemble members.

Models	Ensemble	Meteorological datasets		Leaf Area Index datasets			period
	No.	ERA5	MERRA2	GLOBMAP	GLASS	GIMMS	
SiTH	e1	√		√			1982-2017
	e2	√			√		1982-2015
	e3	√				√	1982-2011
	e4		√	√			1982-2017
	e5		√		√		1982-2015
	e6		√			√	1982-2011
MOD16	e7	√		√			1982-2017
	e8	√			√		1982-2015
	e9	√				√	1982-2011
	e10		√	√			1982-2017
	e11		√		√		1982-2015
	e12		√			√	1982-2011
PT-JPL	e13	√		√			1982-2017
	e14	√			√		1982-2015
	e15	√				√	1982-2011
	e16		√	√			1982-2017
	e17		√		√		1982-2015
	e18		√			√	1982-2011

Table 3. Details of 32 river catchments.

Number	Basin	Location	Area (km ²)	KG Climate
1	Amazon	South America	5,854,000	Af
2	Congo	Africa	3,699,000	Af/Aw
3	Mekong	Asia	759,000	Aw
4	Aral	Asia	2,148,000	Bwk
5	Columbia	North America	732,000	Bsk
6	Indus	Asia	1,143,000	Bwh
7	Limpopo	Africa	420,000	Bsh
8	Murray	Oceania	1,032,000	Bsk
9	Niger	Africa	2,240,000	Bwh
10	Nile	Africa	3,826,000	Bwh
11	Senegal	Africa	847,000	Bwh
12	Changjiang	Asia	1,794,000	Cfa
13	Danube	Europe	788,000	Cfb
14	Huang	Asia	795,000	Cwa
15	Mississippi	North America	3,203,000	Cfa
16	Parana	South America	2,664,000	Cfa
17	Zhujiang	Asia	450,000	Cfa
18	Amur	Asia	1,755,000	Dwa
19	Dnieper	Europe	500,000	Dfb
20	Don	Asia	500,000	Dfa
21	Indigirk	Asia	334,000	Dfd
22	Kolyma	Asia	666,000	Dfc
23	Lena	Asia	2,442,000	Dfc
24	MacKenz	North America	1,695,000	Dfc
25	Ndavina	Asia	288,000	Dfc
26	Ob	Asia	3,026,000	Dfb
27	Olenek	Asia	223,000	Dfd
28	Pechora	Asia	314,000	Dfc
29	Ural	Asia	296,000	Dfb
30	Volga	Europe	1,476,000	Dfb
31	Yenisei	Asia	2,579,000	Dfc
32	Yukon	North America	856,000	Dfc

