Supplement of Biogeosciences Discuss., 12, 19213–19267, 2015
http://www.biogeosciences-discuss.net/12/19213/2015/
doi:10.5194/bgd-12-19213-2015-supplement

Biogeosciences Discussions
Open Access
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Supplement of

MODIS vegetation products as proxies of photosynthetic potential: a look across meteorological and biologic driven ecosystem productivity

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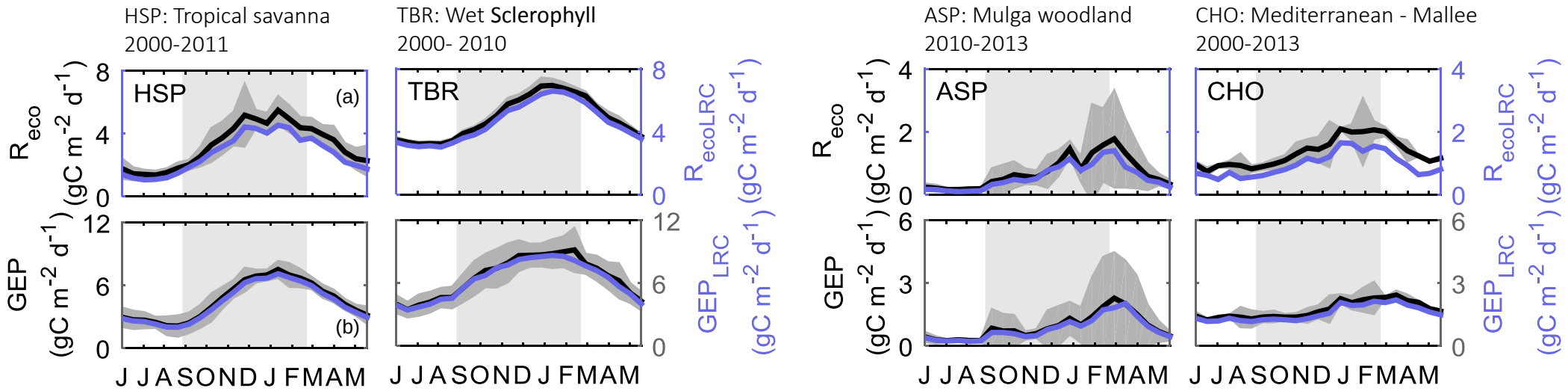
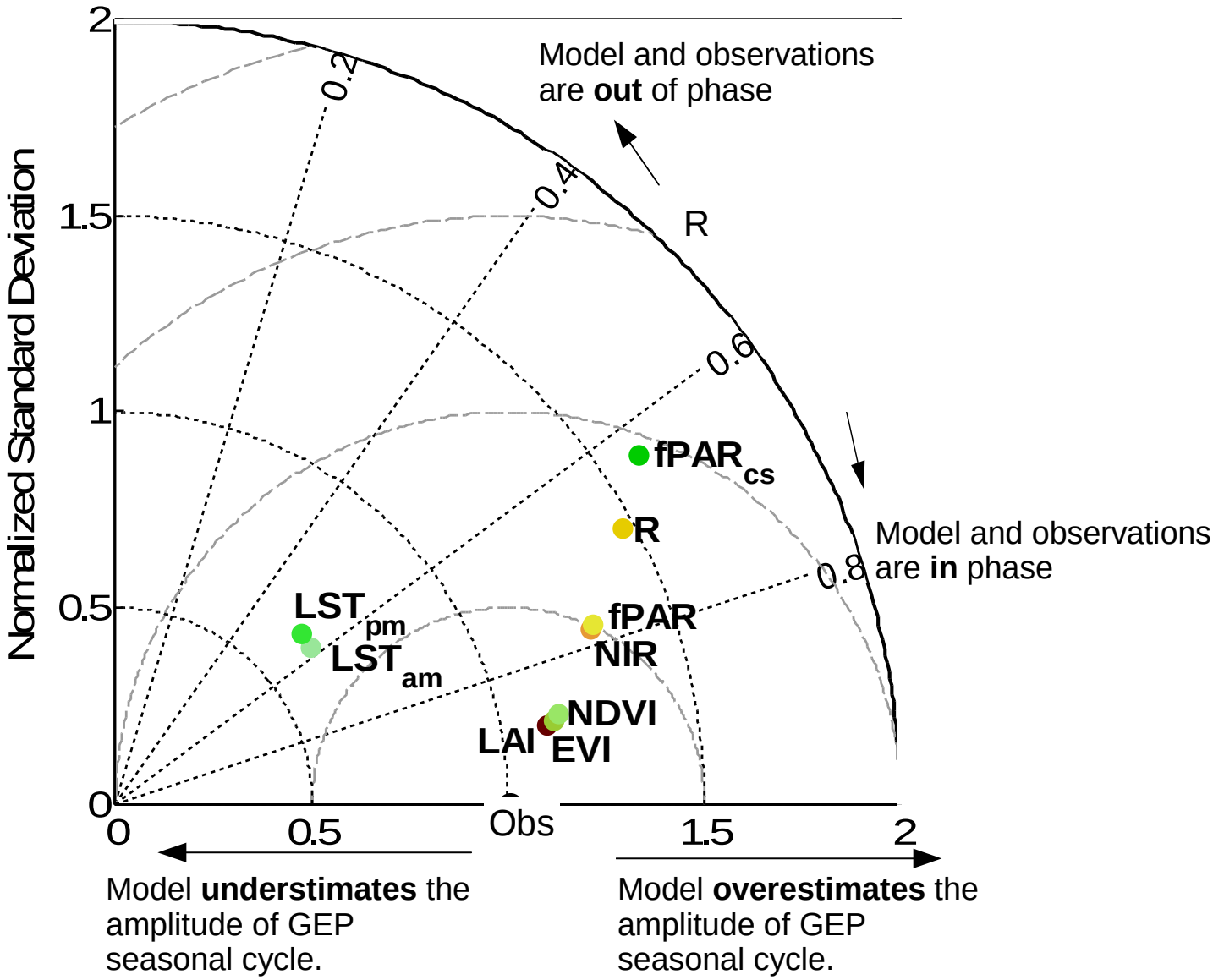
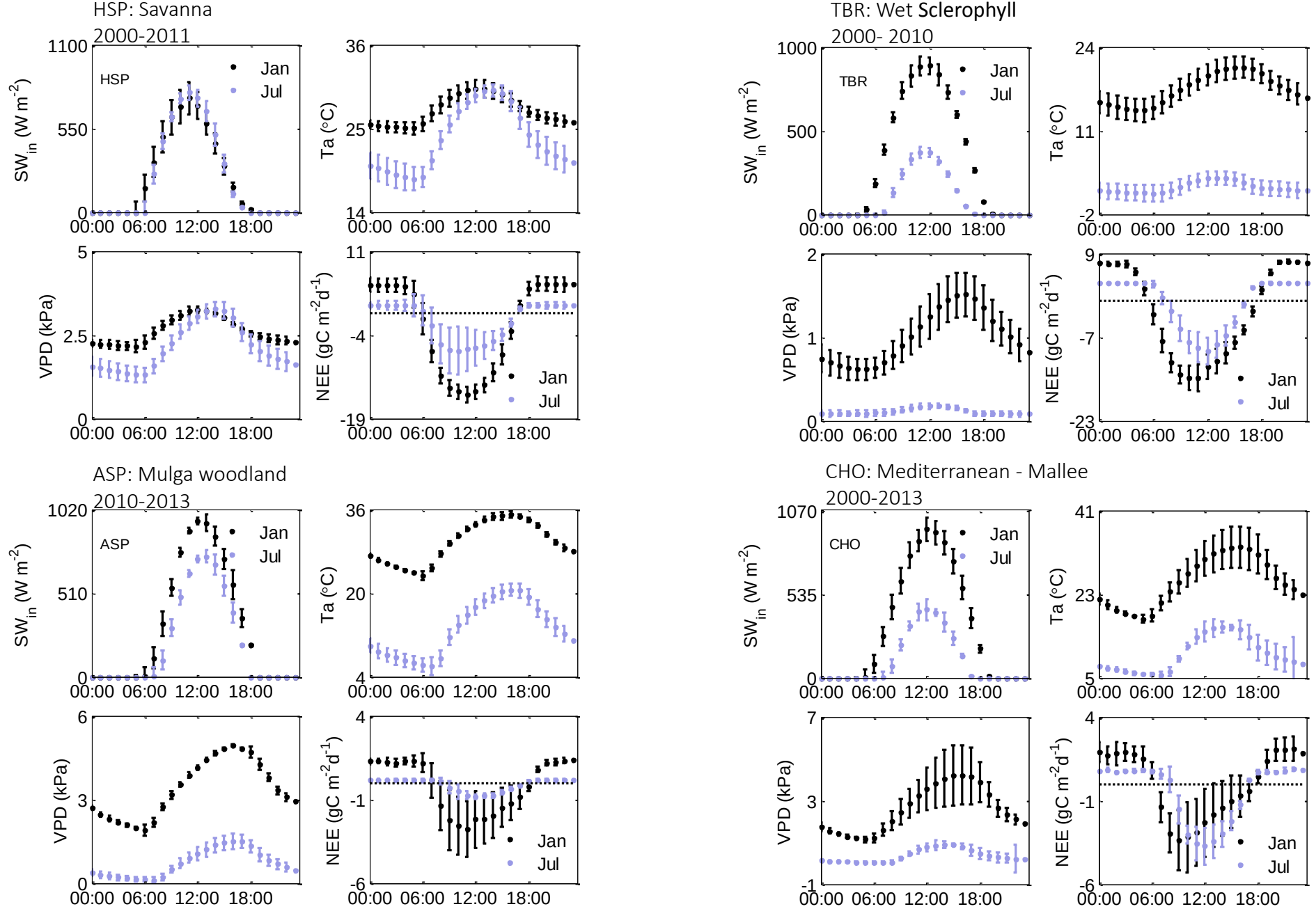


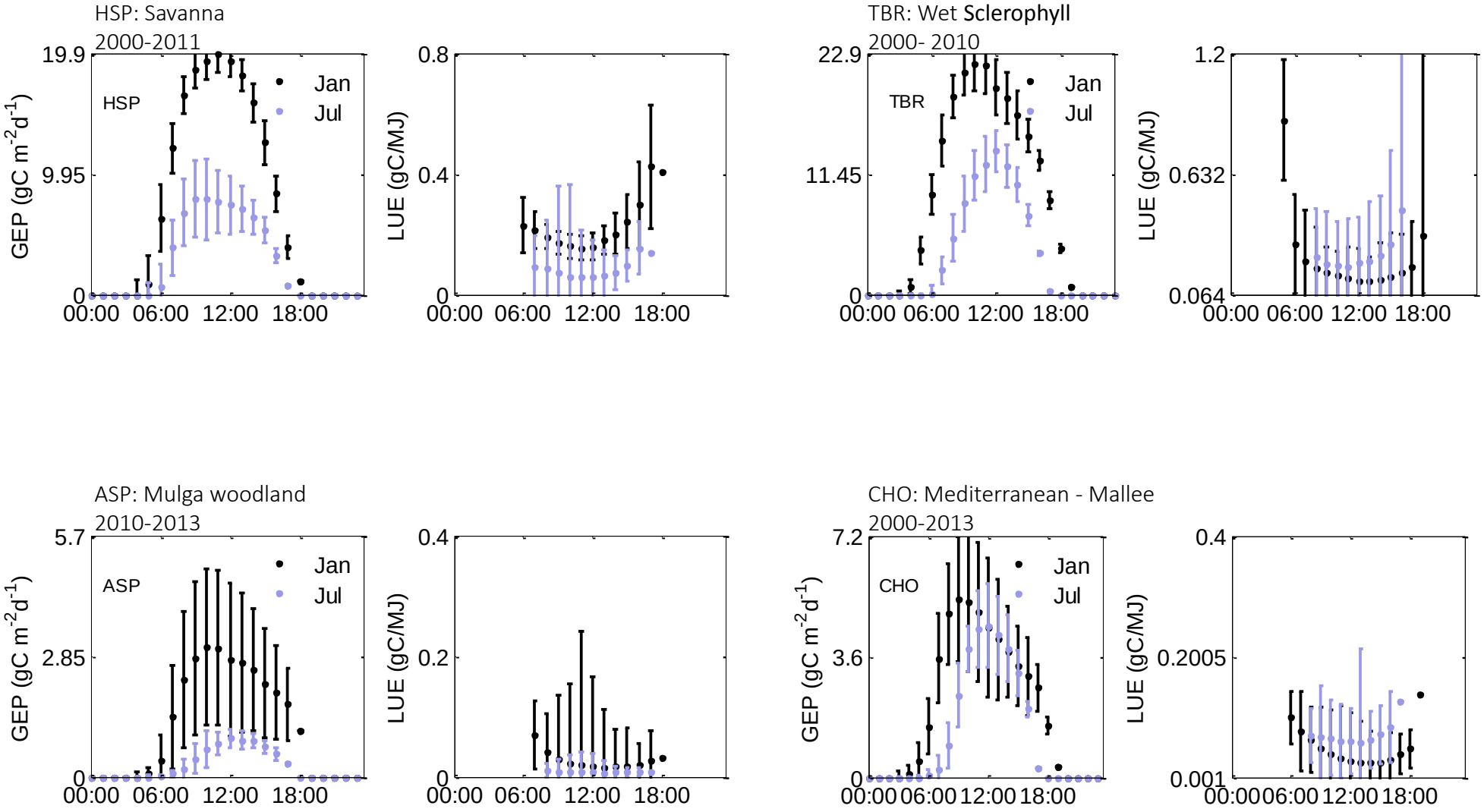
Supplement Figure 1. Savana, Mulga, Mallee and Wet Schlerophill ecosystems, OZflux sites annual cycle (16-day composites) of (a) Ecosystem Respiration derived using a second-order Fourier regression (R_e) (black line) and derived as the intercept of the rectangular hyperbola fitted to the light response curve (Net Ecosystem Exchange (*NEE*) versus Photosyntetic Active Radiation (*PAR*) without u* threshold correction (R_{eLUE}) (blue line). (b) Gross Ecosystem Productivity, *GEP* (gC m-2 d-1) derived using R_e (black line); and using R_{eLUE}, GEP_{LUE} (blue line).
Grey boxes indicate Southern Hemisphere spring and summer October to April.



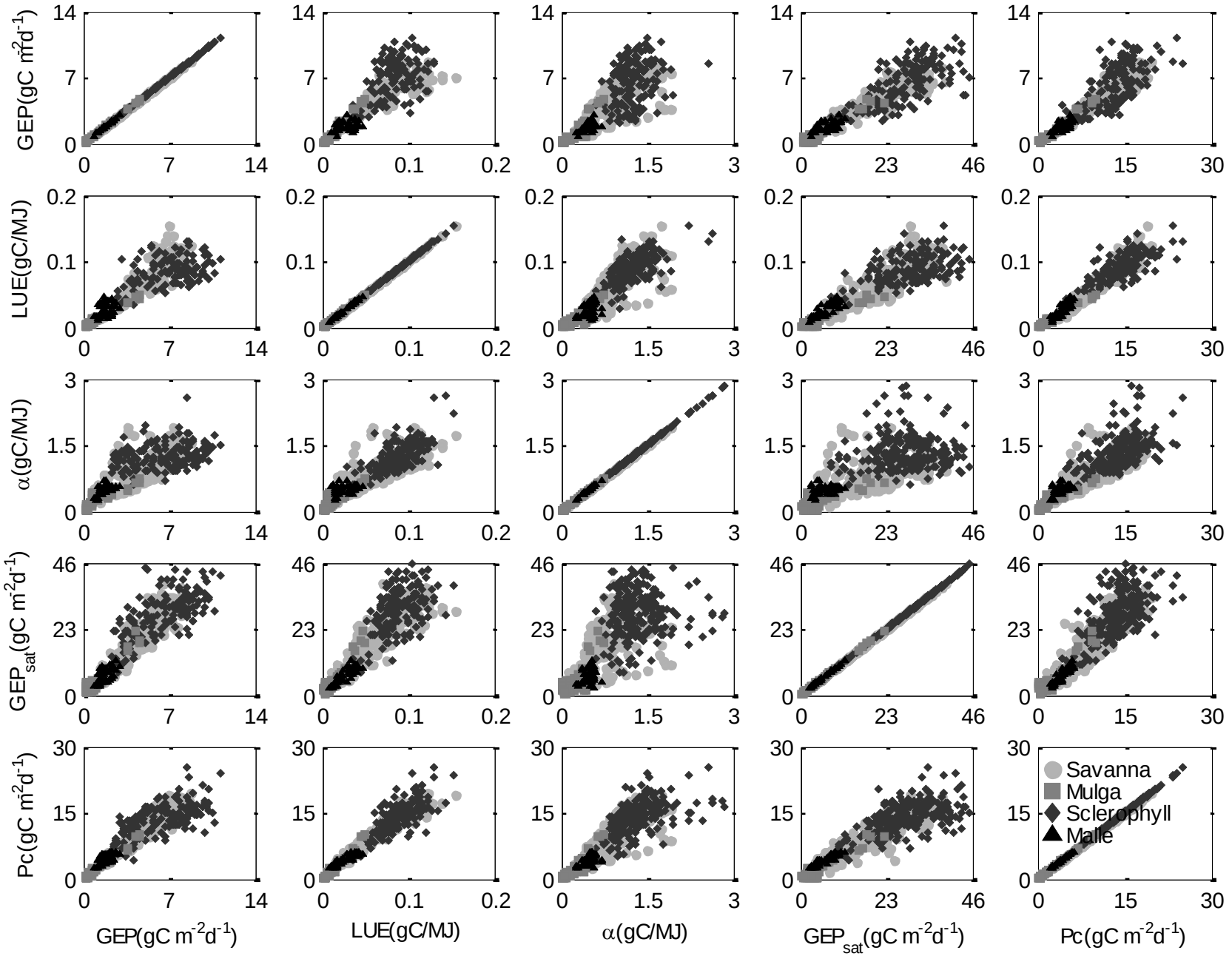
Supplement Figure 2. Taylor diagram comparing Howard Springs eddy flux tower measured Gross Ecosystem Productivity (GEP) and GEP based on MODIS and AVHHR products (based on a Type II linear regression). Labels indicate MODIS Leaf Area Index (LAI) and fPAR (fPAR); MODIS NBAR (nadir) Normalized Vegetation Index (NDVI43), Enhanced Vegetation Index (EVI43), Green reflectance (G43), Red (R43), Near Infrared (NIR43); MODIS Land Surface Temperature Daytime (LSTam) and Nighttime (LSTpm) and AVHHR (processed by CSIRO) total fPAR (fPARcs).



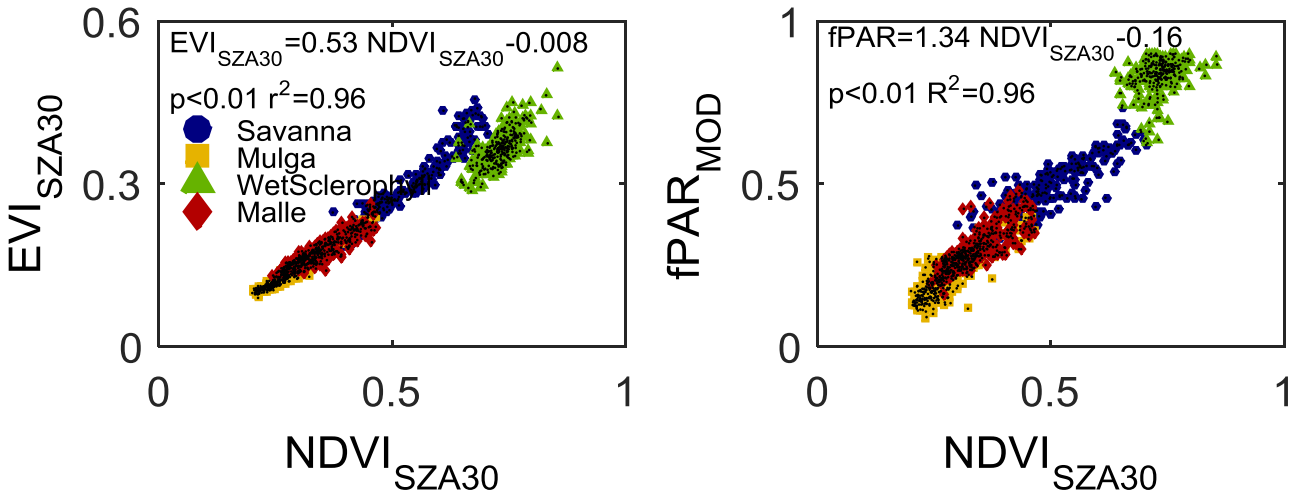
Supplement Figure 3. Diel cycle January (Australian winter) and July (summer) red dot mean and error bars indicating standard deviation for all January or July months (missing if only one year of data is available). Four plots per site from right to left ,top to bottom, Photosyntetic Active Radiation, PAR (umol m-2 s-1); Gross Ecosystem Productivity, GEP (gC m-2 d-1); GEP/PAR (gC/MJ) and Net Ecosystem Exchange, NEE (gC m-2 d-1). HSP: Howard Springs Savanna, TBR: Tumbarumba wet schlerophill forest, ASP, Alice Springs Mulga and CHO, Calperum-Chowilla.



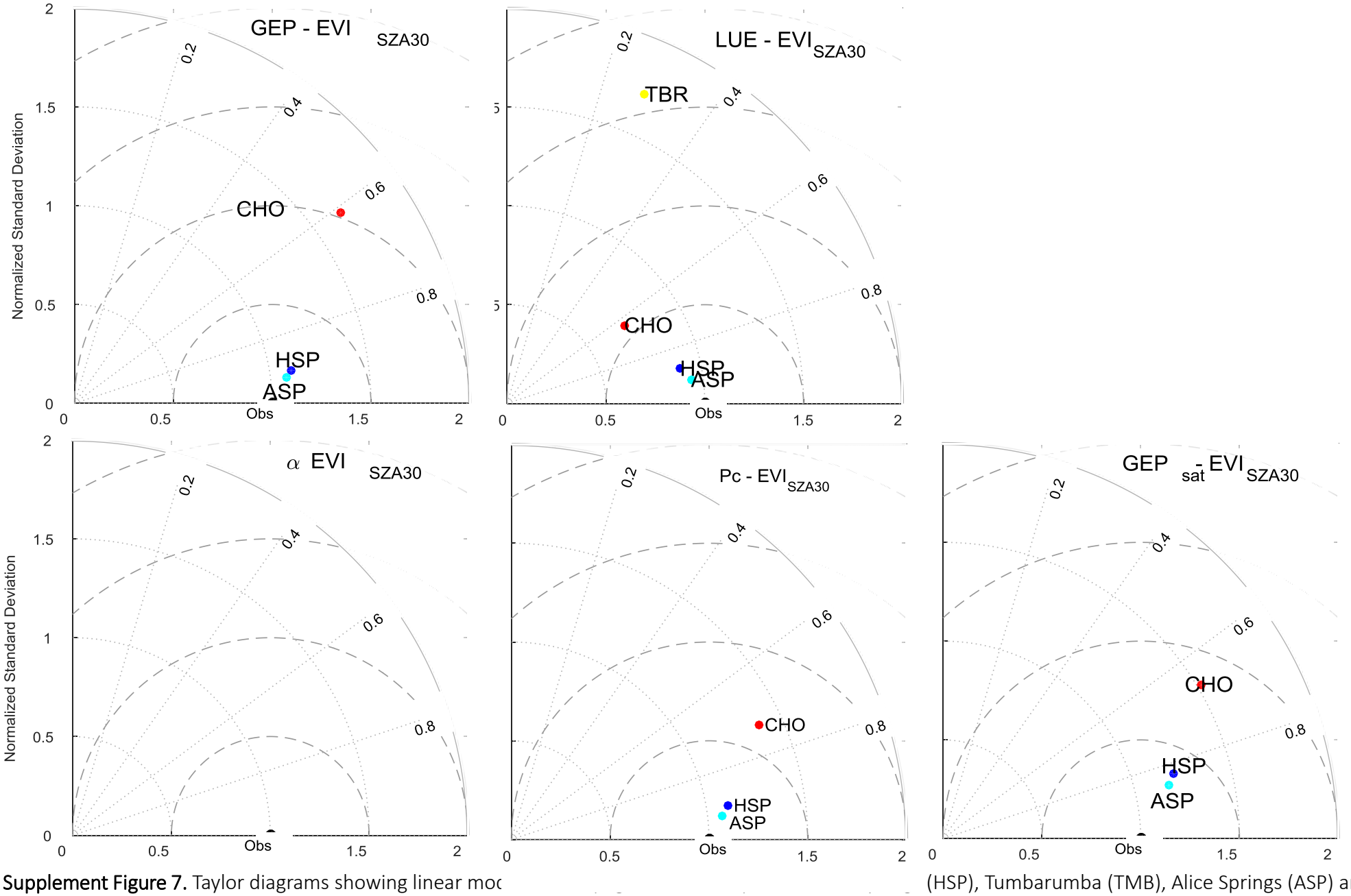
Supplement Figure 4. Diel cycle January (Australian winter) and July (summer) red dot mean and error bars indicating standard deviation for all January or July months (missing if only one year of data is available). Four plots per site from right to left ,top to bottom, Photosyntetic Active Radiation, PAR (umol m-2 s-1); Gross Ecosystem Productivity, GEP (gC m-2 d-1); GEP/PAR (gC/MJ) and Net Ecosystem Exchange, NEE (gC m-2 d-1). HSP: Howard Springs Savanna, TBR: Tumbarumba wet schlerophill forest, ASP, Alice Springs Mulga and CHO, Calperum-Chowilla.



Supplement Figure 5. Multi-site regressions between different measures of ecosystem function, where *GEP* is Gross Ecosystem Productivity, GEP/PAR is the ratio of *GEP* to incoming Photosynthetic Active Radiation, *LUE* is Light Use Efficiency, GEP_{sat} is *GEP* at saturation light and *Pc* is the photosynthetic capacity.



Supplement Figure 7. Multi-site regressions between MODIS Normalized Difference Vegetation Index, $NDVI_{SZA30}$ at fixed solar zenith angle of 30˚ and Enhanced Vegetation Index, EVI_{SZA30} (left panel) and MODIS fraction of the absorbed Photosynthetic Active Radiation, fPAR (right panel)



Supplement Figure 7. Taylor diagrams showing linear moc (HSP), Tumbarumba (TMB), Alice Springs (ASP) and Calperum-Chowilla (CHO) based on site-specific linear regressions between Gross Ecosystem Productivity (*GEP*), Light Use Efficiency (*LUE*), Photosynthetic Capacity (*Pc*), ecosystem quantum yield (α) and daytime Net Ecosystem Exchange (NEE_{day}) and MODIS Enhanced Vegetation Index at fixed solar zenith angle of 30˚ (EVI_{SZA30}). Missing sites indicate that the model overestimates the seasonality of observations -model normalized standard deviation is >2.

SDS Name	Field	Value Masked
Pixel Reliability	N/A	-1 (Fill/No Data)
		2 (Snow/Ice)
		3 (Cloudy)
VI Quality	MODLAND_QA	10 (Produced/Cloudy)
		11 (Not Produced)
	VI Usefulness	1100 (Lowest Quality)
		1101 (Not Useful)
		1110 (Data Faulty)
		1111 (Other)
	Mixed Clouds	1 (Yes)

Supplement Table 1: MODIS Pixel Reliability and VI Quality

	HSP				ASP				TMB				CHO				All			
	Coeff [a b c d]	CI	R^2	AIC	Coeff	CI	R^2	AIC	Coeff	CI	R^2	AIC	Coeff	CI	R^2	AIC	Coeff	CI	R^2	AIC
GEP = a EVI + b	**[21.94 -2.65]**	**[0.96 0.28]**	**0.82**	**263**	**[26.01 -2.48]**	**[1.69 0.2]**	**0.85**	**64**	[15.52 0.90]	[5.55 2.01]	0.03	740	**[12.74 -0.71]**	**[2.05 0.38]**	**0.36**	**49**	**[22.47 -2.19]**	**[0.51 0.1]**	**0.69**	**1323**
GEP = a NDVI	[15.03 -4.11]	[0.70 0.35]	0.78	275	[14.34 -3.10]	[0.99 0.26]	0.83	80	[19.05 -7.28]	[5.23 3.79]	0.07	733	[3.97 0.24]	[1.29 0.46]	0.09	70	**[12.62 -2.74]**	**[0.27 0.12]**	**0.72**	**1276**
GEP = a LST_{day} + b	[-0.22 70.91]	[0.02 7.70]	0.28	676	[-0.02 7.59]	[0.013 3.90]	0.03	218	**[0.26 -68.09]**	**[0.015 4.45]**	**0.58**	**656**	[0.017 -3.27]	[0.006 1.74]	0.12	69	[-0.095 32.57]	[0.01 3.13]	0.14	2279
GEP = a $Precip_{TRMM}$ + b	[0.01 3.03]	[0.001 0.11]	0.53	627	[0.01 0.38]	[0.004 0.11]	0.30	182	[-0.017 7.54]	[0.005 0.31]	0.03	799	[0.0006 1.66]	[0.003 0.097]	0.02	73	[0.009 3.60]	[0.001 0.14]	0.13	2340
GEP = a SW_{CERES} + b	[-0.012 7.30]	[0.006 1.48]	0.02	781	[0.005 -0.30]	[0.002 0.59]	0.02	209	[0.026 1.025]	[0.001 0.26]	0.60	635	[0.003 1.14]	[0.0008 0.14]	0.12	67	[0.007 2.81]	[0.0016 0.32]	0.01	2329
GEP = a EVI + b LST_{day} + c LST_{day} EVI + d	[-29.96 127.38 0.09 -0.34]	[18.42 66.60 0.06 0.22]	0.82	268	[-11.51 76.94 0.03 -0.16]	[7.81 67.35 0.03 0.22]	0.87	66	[-2.64 1.38 0.08]	[0.21 10.71 0	0.64	583	**[22.6 -145.8 -0.08 0.53]**	**[9.4 51.44 0.03 0.17]**	**0.63**	**30**	[-5.60 17.51 0.01 0.02]	[2.98 13.87 0.01 0.05]	0.70	1322
GEP = a EVI + b LST_{day} + c	[ ]	[ ]	0.82	266	[ ]	[ ]	0.87	62	[ ]	[ ]	0.63	586	[ ]	[ ]	0.57	35	[ ]	[ ]	0.70	1318
GEP = a LST_{day} + b LST_{day} EVI + c	[ ]	[ ]	0.81	266	[ ]	[ ]	0.86	65	[ ]	[ ]	0.63	586	[ ]	[ ]	0.58	33	[ ]	[ ]	0.70	1329
GEP = a EVI + b LST_{day} EVI + c	[ ]	[ ]	0.82	266	[ ]	[ ]	0.86	63	[ ]	[ ]	0.64	582	[ ]	[ ]	0.59	32	[ ]	[ ]	0.70	1319
GEP = a LST_{day} EVI + b	[ ]	[ ]	0.81	265	[ ]	[ ]	0.86	61	[ ]	[ ]	0.14	720	[ ]	[ ]	0.50	36	[ ]	[ ]	0.70	1326
GEP = a EVI + b SW_{CERES} + c SW_{CERES} EVI + d	**[-3.57 24.15 0.003 -0.004]**	**[3.45 11.26 0.01 0.05]**	**0.82**	**266**	[2.48 -21.70 -0.02 0.19]	[0.99 8.68 0.004 0.03]	0.87	54	**[7.75 -19.41 -0.05 0.21]**	**[3.25 8.84 0.017 0.05]**	**0.70**	**553**	**[1.87 -4.52 -0.01 0.095]**	**[0.83 4.41 0.005 0.025]**	**0.62**	**26**	**[-0.31 4.95 -0.009 0.079]**	**[0.35 1.45 0.001 0.007]**	**0.82**	**1154**
GEP = a EVI + b SW_{CERES} + c	[ ]	[ ]	0.82	263	[ ]	[ ]	0.87	62	[ ]	[ ]	0.67	567	[ ]	[ ]	0.56	34	[ ]	[ ]	0.76	1259
GEP = a SW_{CERES} + b SW_{CERES} EVI + c	[3.63 -0.03 0.097]	[0.73 0.003 0.004]	0.82	263	**[-0.008 -0.01 0.10]**	**[0.18 0.001 0.006]**	**0.88**	**56**	[0.69 -0.014 0.12]	[0.29 0.006 0.016]	0.69	554	**[1.023 -0.01 0.07]**	**[0.097 0.001 0.008]**	**0.62**	**23**	[0.92 -0.014 0.1]	[0.13 0.001 0.002]	0.82	1179
GEP = a EVI + b SW_{CERES} EVI + c	[ ]	[ ]	0.82	264	[-2.44 20.45 0.02]	[0.198 2.4 0.007]	0.88	60	[ ]	[ ]	0.68	559	[ ]	[ ]	0.58	30	[ ]	[ ]	0.81	1181
GEP = a SW_{CERES} EVI + b	[ ]	[ ]	0.74	297	[ ]	[ ]	0.70	105	[ ]	[ ]	0.68	558	[ ]	[ ]	0.32	52	[ ]	[ ]	0.73	1454
GEP = a EVI + b $Precip_{TRMM}$ + c $Precip_{TRMM}$ EVI + d	**[-2.13 18.93 0.01 -0.02]**	**[0.34 1.28 0.004 0.01]**	**0.84**	**253**	**[-1.32 15.09 -0.019 0.18]**	**[0.25 2.19 0.005 0.04]**	**0.88**	**42**	[1.63 15.31 0.002 -0.04]	[3.78 10.29 0.06 0.16]	0.04	732	[0.21 6.96 -0.03 0.2]	[0.69 3.57 0.015 0.08]	0.52	43	[-2.35 22.48 0.008 -0.02]	[0.14 0.64 0.003 0.009]	0.66	1312
GEP = a EVI + b $Precip_{TRMM}$ + c	[ ]	[ ]	0.82	251	[-2.25 22.8 0.005]	[0.19 1.73 0.002]	0.88	59	[ ]	[ ]	0.04	729	[ ]	[ ]	0.48	45	[ ]	[ ]	0.68	1321
GEP = a TRMM + b $Precip_{TRMM}$ EVI + c	[ ]	[ ]	0.49	364	[ ]	[ ]	0.75	123	[ ]	[ ]	0.03	733	[ ]	[ ]	0.49	45	[ ]	[ ]	0.19	1848
GEP = a EVI + b $Precip_{TRMM}$ EVI + c	[ ]	[ ]	0.81	254	[-1.97 20.17 0.049]	[0.2 1.86 0.01]	0.89	51	[ ]	[ ]	0.04	728	[ ]	[ ]	0.49	43	[ ]	[ ]	0.65	1309
GEP = a $Precip_{TRMM}$ EVI + b	[ ]	[ ]	0.51	361	[ ]	[ ]	0.57	155	[ ]	[ ]	0.01	734	[ ]	[ ]	0.08	72	[ ]	[ ]	0.15	1932
GEP = a NDVI + b LST_{day} + c LST_{day} EVI + d	[-57.78 118 0.17 -0.33]	[23.79 48.54 0.08 0.16]	0.79	279	[-24.42 79.28 0.07 -0.21]	[9.19 36 0.03 0.12]	0.86	75	[231 -416.25 -0.83 1.51]	[105.9 145.1 0.37 0.50]	0.68	566	**[34.5 -119.1 -0.12 0.43]**	**[10.8 29.76 0.036 0.1]**	**0.60**	**34**	[0.43 -27.31 -0.01 0.14]	[3.17 7.05 0.01 0.024]	0.79	1226
GEP = a NDVI + b LST_{day} + c	[ ]	[ ]	0.78	278	[ ]	[ ]	0.85	74	[ ]	[ ]	0.66	572	[ ]	[ ]	0.48	45	[ ]	[ ]	0.76	1237
GEP = a LST_{day} + b LST_{day} NDVI + c	[ ]	[ ]	0.78	279	[ ]	[ ]	0.85	76	[ ]	[ ]	0.66	571	[ ]	[ ]	0.49	44	[ ]	[ ]	0.77	1235
GEP = a NDVI + b LST_{day} EVI + c	[ ]	[ ]	0.78	279	[ ]	[ ]	0.85	76	[ ]	[ ]	0.67	569	[ ]	[ ]	0.53	40	[ ]	[ ]	0.79	1215
GEP = a LST_{day} NDVI + b	[ ]	[ ]	0.78	276	[ ]	[ ]	0.84	73	[ ]	[ ]	0.34	677	[ ]	[ ]	0.21	61	[ ]	[ ]	0.75	1249
GEP = a NDVI + b SW_{CERES} + c SW_{CERES} NDVI + d	[-9.6 23.6 0.02 -0.03]	[4.76 9.06 0.02 0.04]	0.79	277	[2.77 -11.51 -0.02 0.10]	[1.38 5.41 0.006 0.02]	0.87	62	**[13.58 -17.68 -0.12 0.198]**	**[6.53 8.95 0.032 0.04]**	**0.71**	**542**	**[2.74 -5.59 -0.02 0.07]**	**[0.88 2.32 0.005 0.014]**	**0.60**	**30**	**[-0.75 2.8 -0.01 0.05]**	**[0.37 0.75 0.001 0.003]**	**0.88**	**1013**
GEP = a NDVI + b SW_{CERES} + c	[ ]	[ ]	0.79	276	[ ]	[ ]	0.86	72	[ ]	[ ]	0.69	555	[ ]	[ ]	0.46	45	[ ]	[ ]	0.81	1163
GEP = a SW_{CERES} + b SW_{CERES} NDVI + c	[2.63 -0.031 0.07]	[0.79 0.004 0.003]	0.78	277	[-0.15 -0.01 0.06]	[0.19 0.001 0.004]	0.88	64	**[0.72 -0.056 0.11]**	**[0.29 0.01 0.014]**	**0.71**	**542**	[0.69 -0.01 0.04]	[0.12 0.002 0.005]	0.57	30	[0.64 -0.016 0.058]	[0.12 0.0006 0.001]	0.87	1052
GEP = a NDVI + b SW_{CERES} EVI + c	[ ]	[ ]	0.79	274	[ ]	[ ]	0.87	69	[ ]	[ ]	0.70	550	[ ]	[ ]	0.51	39	[-3.15 7.36 0.026]	[0.096 0.35 0.0015]	0.87	1052
GEP = a SW_{CERES} NDVI + b	[ ]	[ ]	0.69	313	[ ]	[ ]	0.62	120	[ ]	[ ]	0.65	568	[ ]	[ ]	0.30	53	[ ]	[ ]	0.77	1403
GEP = a NDVI + b $Precip_{TRMM}$ + c $Precip_{TRMM}$ EVI + d	[ ]	[ ]	0.82	249	[-1.56 7.74 -0.026 0.11]	[0.31 1.196 0.006 0.02]	0.88	50	[ ]	[ ]	0.08	727	[ ]	[ ]	0.26	66	[ ]	[ ]	0.72	1250
GEP = a NDVI + b $Precip_{TRMM}$ + c	[ ]	[ ]	0.82	245	[ ]	[ ]	0.86	69	[ ]	[ ]	0.07	725	[ ]	[ ]	0.21	65	[ ]	[ ]	0.72	1263
GEP = a $Precip_{TRMM}$ + b $Precip_{TRMM}$ EVI + c	[ ]	[ ]	0.51	360	[ ]	[ ]	0.76	121	[ ]	[ ]	0.08	726	[ ]	[ ]	0.25	65	[ ]	[ ]	0.35	1808
GEP = a NDVI + b $Precip_{TRMM}$ EVI + c	[ ]	[ ]	0.81	246	[-2.28 10.35 0.03]	[0.24 0.98 0.006]	0.88	60	[ ]	[ ]	0.07	725	[ ]	[ ]	0.23	64	[ ]	[ ]	0.71	1251
GEP = a $Precip_{TRMM}$ NDVI + b	[ ]	[ ]	0.52	361	[ ]	[ ]	0.54	158	[ ]	[ ]	0.01	733	[ ]	[ ]	0.06	72	[ ]	[ ]	0.19	1920

Supplement Table 3. Linear regressions obtained by a nonlinear mixed-effects regression model for Gross Ecosystem Productivity (GEP) versus combinations of 16-day average MODIS products: fixed solar zenith angle of 30˚ Enhanced Vegetation Index (EVI), daytime and Land Surface Temperature (LST_{day}), fixed solar zenith angle of 30˚ Normalized Difference Vegetation Index (NDVI), precipitation from the Tropical Rainfall Measuring Mission (TRMM) data product from 1998-2013 (NASA, 2014) (mm mo^{-1}), and surface shortwave incident radiation from the CERES (Kato et al., 2012). Model runs for HSP: Howard Springs, ASP: Alice Springs Mulga, CHO: Calperum-Chowilla, and TBR: Tumbarumba and all available data (includes all sites). EVI and NDVI labels are used instead of EVI_{SZA30} and $NDVI_{SZA30}$ for displaying purposes.

	HSP				ASP				TMB				CHO				All			
	Coeff [a b]	CI	R^2	RMSE	Coeff [a b]	CI	R^2	RMSE	Coeff [a b]	CI	R^2	RMSE	Coeff [a b]	CI	R^2	RMSE	Coeff [a b]	CI	R^2	RMSE
LUE = a EVI_{SZA30} + b	[0.2616 -0.0293]	[0.0124 0.00	0.77	0.0006	[0.3 -0.029]	[0.02 0.002]	0.85	0.000	[ ]	[ ]	0.10	0.000	[ ]	[ ]	0.44	0.0000	[ ]	[ ]	0.67	0.000
LUE = a $NDVI_{SZA30}$ + b	[ ]	[ ]	0.73	0.0000	[ ]	[ ]	0.83	0.000	[ ]	[ ]	0.13	0.000	[0.18 -0.041]	[0.016 0.006]	0.69	0.0000	[ ]	[ ]	0.75	0.000
LUE = a LAI + b	[ ]	[ ]	0.75	0.0000	[ ]	[ ]	0.68	0.000	[ ]	[ ]	0.12	0.000	[ ]	[ ]	0.52	0.0005	[ ]	[ ]	0.73	0.004
LUE = a fPAR + b	[ ]	[ ]	0.74	0.0001	[ ]	[ ]	0.65	0.000	[ ]	[ ]	0.15	0.001	[0.13 -0.02]	[0.007 0.002]	0.85	0.0000	[ ]	[ ]	0.78	0.000
Pc = a EVI_{SZA30} + b	[50.5671	[2.1125 0.61	0.81	0.0912	[60.91 -5.91]	[3.42 0.41]	0.87	0.000	[44.26 -2.34]	[7.12 2.6]	0.15	3.314	[ ]	[ ]	0.52	0.0340	[49.43 -4.75]	[0.82 0.18]	0.81	0.000
Pc = a $NDVI_{SZA30}$ + b	[ ]	[ ]	0.76	0.0000	[33.78 -7.40]	[1.95 0.51]	0.85	0.000	[42.27 -17.05]	[6.72 4.9]	0.16	0.145	[ ]	[ ]	0.49	0.0000	[27.47 -5.81]	[0.43 0.19]	0.79	0.000
Pc = a LAI + b	[7.66 -2.57]	[0.28 0.38]	0.79	0.0000	[ ]	[ ]	0.73	0.000	[ ]	[ ]	0.10	0.000	[ ]	[ ]	0.68	0.0000	[ ]	[ ]	0.64	0.432
Pc = a fPAR + b	[ ]	[ ]	0.72	0.0000	[ ]	[ ]	0.65	0.000	[ ]	[ ]	0.03	0.000	[ ]	[ ]	0.66	0.0000	[ ]	[ ]	0.74	0.000
α = a EVI_{SZA30} + b	[ ]	[ ]	0.34	0.0035	[ ]	[ ]	0.75	0.000	[ ]	[ ]	0.01	0.000	[ ]	[ ]	0.18	0.0055	[ ]	[ ]	0.54	0.000
α = a $NDVI_{SZA30}$ + b	[ ]	[ ]	0.29	0.0000	[ ]	[ ]	0.74	0.000	[ ]	[ ]	0.02	0.000	[ ]	[ ]	0.09	0.0064	[ ]	[ ]	0.58	0.000
α = a LAI + b	[ ]	[ ]	0.32	0.0014	[ ]	[ ]	0.72	0.000	[ ]	[ ]	0.02	0.000	[ ]	[ ]	0.26	0.0000	[ ]	[ ]	0.54	0.057
α = a fPAR + b	[ ]	[ ]	0.28	0.0000	[ ]	[ ]	0.55	0.000	[ ]	[ ]	0.02	0.000	[ ]	[ ]	0.10	0.0000	[ ]	[ ]	0.62	0.006
GEP_{sat} = a EVI_{SZA30} + b	[ ]	[ ]	0.66	0.3131	[ ]	[ ]	0.73	0.000	[113.95 -12.36]	[17.9 6.5]	0.14	0.132	[ ]	[ ]	0.44	0.1384	[ ]	[ ]	0.71	0.000
GEP_{sat} = a $NDVI_{SZA30}$ + b	[ ]	[ ]	0.69	0.2707	[ ]	[ ]	0.71	0.000	[ ]	[ ]	0.13	0.362	[ ]	[ ]	0.51	0.0000	[ ]	[ ]	0.74	0.000
GEPsat = a LAI + b	[ ]	[ ]	0.69	0.3214	[ ]	[ ]	0.58	0.000	[ ]	[ ]	0.07	0.356	[ ]	[ ]	0.60	0.1019	[ ]	[ ]	0.63	1.539
GEPsat = a fPAR + b	[ ]	[ ]	0.65	0.2730	[ ]	[ ]	0.55	0.000	[ ]	[ ]	0.01	0.497	[ ]	[ ]	0.72	0.0000	[ ]	[ ]	0.68	0.162
GEP = a EVI_{SZA30} + b	[23.03 -2.89]	[0.96 0.28]	0.82	0.0502	[26.17 -2.49]	[1.69 0.2]	0.86	0.000	[ ]	[ ]	0.04	0.129	[ ]	[ ]	0.37	0.0000	[ ]	[ ]	0.68	0.000
GEP = a $NDVI_{SZA30}$ + b	[16.27 -4.63]	[0.70 0.35]	0.77	0.0000	[14.33 -3.09]	[0.99 0.26]	0.83	0.000	[ ]	[ ]	0.06	0.000	[ ]	[ ]	0.10	0.0000	[ ]	[ ]	0.70	0.000
GEP = a LAI + b	[ ]	[ ]	0.84	0.0406	[ ]	[ ]	0.74	0.000	[ ]	[ ]	0.04	0.090	[ ]	[ ]	0.37	0.0000	[ ]	[ ]	0.60	0.395
GEP = a fPAR + b	[ ]	[ ]	0.71	0.0230	[ ]	[ ]	0.63	0.000	[ ]	[ ]	0.00	0.000	[ ]	[ ]	0.07	0.0337	[ ]	[ ]	0.65	0.000

RMSE: The square root of the estimated error variance (computed on the log scale for the exponential error model)

Supplement Table 4. Linear regressions obtained by a nonlinear mixed-effects regression model for light use efficiency, (LUE; gC/MJ), photosynthetic capacity (*Pc*; gC m^{-2} d^{-1}), ecosystem quantum yield (*α;* gC/MJ), and GEP at saturation light, (GEP_{sat}, gC m^{-2} d^{-1}), Gross Ecosystem Productivity (GEP; gC m^{-2} d^{-1}), versus combinations of 16-day average MODIS products: fixed solar zenith angle of 30˚ Enhanced Vegetation Index (EVI_{SZA30}) and Normalized Difference Vegetation Index ($NDVI_{SZA30}$), MODIS Leaf Area Index, (LAI_{MOD}) and fraction of the absorbed Photosynthetic Active Radiation ($fPAR_{MOD}$)