



Supplement of

Seasonality and synchrony of photosynthesis in African forests inferred from spaceborne chlorophyll fluorescence and vegetation indices

Russell Doughty et al.

Correspondence to: Russell Doughty (rustymonroe@gmail.com)

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Figure S1. Mean annual total precipitation and standard deviation of monthly total precipitation in 2019-2021 for 11 African tropical evergreen broadleaf ecoregions, color coded according to the forest groups we used in our study.

Table S1. Mean annual total precipitation and standard deviation of monthly total precipitation in 2019-2021 for 11 African tropical evergreen broadleaf ecoregions.

Forest Ecoregion	Mean annual precip.	Standard deviation of monthly total precip.		
West Africa moist tropical forest				
Cameroonian Highland	2648 mm	163 mm		
Cross-Sanaga-Bioko Coastal	2609 mm	152 mm		
Nigerian Lowland and Niger Delta	2922 mm	177 mm		
Western Guinean Lowland	2450 mm	120 mm		
West Africa tropical forest				
Eastern Guinean Forest	1544 mm	81 mm		
Central Africa tropical forests				
Atlantic Equatorial Coastal	2147 mm	100 mm		
Central Congolian Lowland	1793 mm	45 mm		
Eastern Congolian Swamp	1799 mm	44 mm		
Northeastern Congolian Lowland	1803 mm	45 mm		
Northwestern Congolian Lowland	1650 mm	63 mm		
Western Congolian Swamp	1638 mm	49 mm		





Eastern Guinean Forest

	SI	R	ORI	SCIP	mp P	80	1.3	an la	JUL NO	1	
SIF 1	00	-68	79	-36	-34	79	82	69	79		- 1
VF	D	100	-71	80	78	-76	-70	-87	-76		- 0.6
	Pre	ecip	100	-46	-48	64	61	63	63		- 0.4
		Te	mp	100	93	-66	-56	-85	-66		- 0.2
			F	AR	100	-59	-54	-75	-60		- 0
					EVI	100	78	89	100		0.2
					LS	SWI	100	78	78		0.4
						N	DVI	100	89		0.6
							Ν	IRv	100		0.8

Northwestern Congolian Lowland Forest



Cameroonian Highlands Forest

St JP presiler pre EV SW DU WRY												
SIF 100 -62	37	-43	-55	71	74	57	69					
VPD 100	-75	90	93	-76	-39	-89	-78		- 0.6			
Precip	100	-82	-85	67	X	86	71		0.4			
Те	Temp 100 95 -63 -18 -90 -67											
	P	AR	100	-77	-32	-93	-79		- 0			
		E	EVI	100	66	83	100		0.2			
			LS	SWI	100	38	61		0.4			
				N	DVI	100	86		0.6			
					N	IRv	100		0.8			
							1000		- 1			

Eastern Congolian Swamp Forest

St JP Prove Lever En Sh Dy Mey												
SI	F 100	-43	69	-15)2	74	35	58	75			
	VPD	100	-56	83	65	-66	-23	-79	-68		- 0.6	
	Pre	ecip	100	-46	-10	61	×	52	62		0.4	
		Te	mp	100	81	-46	X	-68	-47		0.2	
			P	AR	100	-26	-29	-62	-28	-	- 0	
					EVI	100	33	86	100		0.2	
	LSWI 100 50 34										0.4	
	NDVI 100 87										0.6	
							N	IRv	100		-0.0	

Northeastern Congolian Lowland Forest

				121									
	ex.	R	000	SCIP	nº P	8 5	N.G	N	N'NR	4			
	SIF 100	-55	72	-39	-20	71	32	62	71		<mark>1</mark>		
	VPD	100	-69	91	82	-74	-39	-87	-76		- 0.8		
	Pre	ecin	100	-59	41	76	20	67	77		- 0.6		
	r is	То	100	-00	-41	10	\bigcirc	07			- 0.4		
		Te	inp	100	90	-57	-20	-82	-59		- 0.2		
			Р	AR	100	-44	-45	-77	-47		- 0		
2					EVI	100	35	82	100		0.2		
1					LS	SWI	100	59	37		0.4		
5						N	DVI	100	84		0.6		
3							N	IRv	100		0.8		
										1.20	1		
		We	ster	n Gı	uine	an L	owla	and	Fore	st			
	to the second second												
	S	5	~ Q (5 10	" PP	10	1.0	2 2	2.414	_	- 1		
	SIF 100	-55	56	-23	-28	78	75	56	77		- 0.8		
	VPD	100	-79	82	77	-73	-41	-89	-76		- 0.6		
	Pre	ecip	100	-74	-73	82	27	80	83		- 0.4		
		Те	mp	100	95	-59	-22	-87	-63		- 0.2		
			P	AR	100	-64	\mathcal{D}	.83	-67		- 0		
)					EVI	100	50	00	100		0.2		
2 1						100	50	82	100		-0.2		
5 C					LS	SVVI	100	47	50		-0.4		

Atlantic Equatorial Coastal Forest



Cross-Sanaga-Bioko Coastal Forest

	c.	R	0	Sile	mp P	8	N G	14	N.R	4	
SIF	100	-61	39	-39	-49	70	72	60	69		- 1
V	PD	100	-81	90	93	-72	-36	-91	-74		- 0.6
	Pre	ecip	100	-87	-89	66	X	88	69		- 0.4
		Te	mp	100	96	-56	X	-89	-60		- 0.2
			P	AR	100	-69	-28	-92	-72		- 0
					EVI	100	67	81	100		0.2
					LS	SWI	100	40	66		0.4
						N	DVI	100	84		0.6
							Ν	IRv	100		1







Figure S2. Pearson's correlations in percent (r * 100). X means the correlation was not significant at the p < 0.05 level of significance.

NDVI 100 85

NIRV 100

-0.6

-0.8

-1





Eastern Guinean Forest

	S	R	ORI	SCIP	mp P	30	1.9	N'A	JUL N	2	
SIF	100	-64	82	-27	-29	78	79	52	77		- 1
V	'PD	100	-80	75	82	-67	-65	-81	-69		0.0
	Pre	ecip	100	-40	-48	62	63	54	61		0.4
		Te	mp	100	91	-54	-50	-87	-57		0.2
			F	AR	100	-54	-49	-81	-56		- 0
					EVI	100	74	76	100		0.2
					LS	SWI	100	61	74		0.4
						N	DVI	100	78		- 0.6
							N	IRv	100		0.8
											1

Northwestern Congolian Lowland Forest



Cameroonian Highlands Forest

× 0												
St JO Proston Soft En Swar	2 MB											
SIF 100 -52 46 -39 -47 75 67 43	68											
VPD 100 -87 94 98 -56 -25 -86	-64	- 0.6										
Precip 100 -86 -88 64 20 90	72	- 0.4										
Temp 100 96 -52 -14 -91	-63	- 0.2										
PAR 100 -60 -24 -90	-70	- 0										
EVI 100 70 71	96	0.2										
LSWI 100 25	56	0.4										
NDVI 100	0.6											
NIRv	NIRV 100											
		1										

Eastern Congolian Swamp Forest

at RO realen Aren and what												
SIF 100 -51	73	16 22	81	38	68	81						
VPD 100	-59 8	2 45	-61	-12	-75	-64		- 0.6				
Precip	100 -:	8 8	64	2	49	63		- 0.4				
Ter	Temp 100 71 -35 3 -56 -37											
	PA	R 100	×	-30	-40	×		- 0				
	EVI 100 30 79 100											
		0.4										
		0.6										
	NIRy 100											

Northeastern Congolian Lowland Forest

SIF	, PO pr	eciRe	nº P	8 5	1.9	N'S	N'NR	4				
SIF 100	-53 74	-32	-15	69	33	60	71					
	100 -67	87	75	-57	-16	-70	-59		- 0.6			
Pred	cip 100	-46	-25	72	X	52	74		- 0.4			
	Temp	100	85	-35	X	-60	-36		- 0.2			
	F	PAR	100	-24	-39	-69	-27		- 0			
			EVI	100	28	67	99		0.2			
			LS	SWI	100	63	29		0.4			
				N	DVI	100	70		0.6			
	NIRv 100											
	Weste	rn Gı	uine	an L	owla	and	Fore	st				
St Roper and be for Shared May												
SIF 100	-45 57	-24	-32	77	74	50	73					
VPD	100 <mark>-87</mark>	82	83	-69	-27	-81	-73		- 0.6			
Pred	cip 100	-74	-76	77	28	79	80		- 0.4			
	Temp	100	96	-53	-24	-89	-61		- 0.2			





Cross-Sanaga-Bioko Coastal Forest









Figure S3. Spearman's correlations in percent (r * 100). X means the correlation was not significant at the p < 0.05 level of significance.

PAR 100 -59 -31 -86 -66

EVI 100 51 74 99

LSWI 100 39 49

NDVI 100 80

NIRv 100

0

-0.2

-0.4

-0.6

-0.8

-1



Figure S4. Cross-sensor comparisons using Deming regressions of the monthly mean SIFdaily from all 11 ecoregions in Fig. 5.



Figure S5. Cross-sensor comparisons using Deming regressions of the monthly mean SIFdaily from all 11 ecoregions in Fig. 4.