## **Supplementary Material**

## for

## Synchrony of African rainforest solar induced chlorophyll fluorescence and environmental factors

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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

Str. 18 Proilen of En Share with Shard Mary											
SIF	100	-68	79	-36	-34	79	82	69	79		1
V	'PD	100	-71	80	78	-76	-70	-87	-76		- 0.6
	Pre	ecip	100	-46	-48	64	61	63	63		- 0.4
	Temp 100 93 -66 -56 -85 -66										- 0.2
			F	AR	-59	-54	-75	-60		- 0	
	EVI 100 78 89 100										0.2
LSWI 100 78 78											0.4
NDVI 100 89											0.6
		0.8									

Northwestern Congolian Lowland Forest



**Cameroonian Highlands Forest** 

A RO REAR RAN SHOW HA										
SIF 100 -62 37 -43 -55 71 74 57	69	1								
VPD 100 -75 90 93 -76 -39 -89	-78	).6 ).6								
Precip 100 -82 -85 67 7 86	71 (	0.4								
Temp 100 95 -63 -18 -90	-67 - (	).2								
PAR 100 -77 -32 -93	-79	0								
EVI 100 66 83	100	0.2								
LSVVI 100 38	61	0.4								
	86	0.8								
INITY	100									

Eastern Congolian Swamp Forest

St JP Proven Par EN Son NON JP											
SIF 100 -43	69	-15	2	74	35	58	75		1		
VPD 100	-56	83	65	-66	-23	-79	-68		- 0.6		
Precip	100	-46	-10	61	×	52	62		- 0.4		
Te	emp	100	81	-46	Х	-68	-47		- 0.2		
	P	AR	100	-26	-29	-62	-28		- 0		
	100		0.2								
		0.4									
		0.6									
		-0.0									

Northeastern Congolian Lowland Forest

	at RO reciper of At W. Shirt Mary											
1	SIE 100 55 72 39 30 71 32 62 71											
.8												
).6	VPD 100 -69 91 82 -74 -39 -87 -76 - 0.6											
).4	Precip 100 -58 -41 76 22 67 77 0.4											
.2	Temp 100 90 -57 -26 -82 -59 0.2											
0	PAR 100 -44 -45 -77 -47 - 0											
0.2	EVI 100 35 82 1000.2											
0.4	LSWI 100 59 37 -0.4											
0.6	NDVI 100 84 - 0.6											
0.8	NDVI 100 84											
-1												
	Western Guinean Lowland Forest											
	SH JP PROTON AFEN SMADY JPY											
1	SIF 100 -55 56 -23 -28 78 75 56 77											
.8	VPD 100 70 92 77 72 44 90 76											
0.6	0.6											
).4	Precip 100 -74 -73 82 27 80 83 0.4											
).2	Temp 100 95 -59 -22 -87 -63 0.2											
0	PAR 100 -64 -24 -83 -67 - 0											
0.2	EVI 100 50 82 1000.2											
0.4	LSWI 100 47 50 -0.4											
0.6												

Atlantic Equatorial Coastal Forest



Cross-Sanaga-Bioko Coastal Forest

	-		0	Rick	n9 .	85	C	N's	N.8	4		
SIF	100	61	30	-30	-19	70	72	60	69		ſ "	I
		100	04	-33	-43	70	26	01	74		- 0	
	Dr	noin	-01	90	93	-12	-30	-91	-/4		- 0	1
	PR	ecip	100	-87	-89	66	$\bigcirc$	88	69		- 0	1
1emp 100 96 -56 -17 -89 -60											- 0	
			Р	PAR	100	-69	-28	-92	-72		- (	)
					EVI	100	67	81	100		0	
LSWI 100 40 66											0	
NDVI 100 84											0	
NIRV 100											0	







Figure S1. Pearson's correlations in percent (r \* 100). X means the correlation was not significant at the p < 0.05 level of significance.

NDVI 100 8

NIRv 100

-0.8

-1





Eastern Guinean Forest

St JPO Preciper PAREN SW NOV NRY												
SIF	100	-64	82	-27	-29	78	79	52	77		- 1	
N	/PD	100	-80	75	82	-67	-65	-81	-69		0.6	
	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	
LSWI 100 61 74											0.4	
NDVI 100 78											0.6	
	NIRv 100											

Northwestern Congolian Lowland Forest



Cameroonian Highlands Forest

SIF 100 -52 46 -39 -47 75 67 43 68 VPD 100 -87 94 98 -56 -25 -86 -64 Precip 100 -86 -88 64 20 90 72 Temp 100 96 -52 14 -91 -63 PAR 100 -60 -24 -90 -70 EVI 100 70 71 96 LSWI 100 26 56 NIRv 100												
SIF 100 -52 46 -39 47 75 67 43 68 0.8   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 - - - -   LSWI 100 26 56 - - - - -   NDVI 100 100 81 - - - - -   NIRv 100 100 81 - <th colspan="12">4 of water a grand a solution and</th>	4 of water a grand a solution and											
SIF 100 -52 46 -39 47 75 67 43 68 0 0.8 VPD 100 -87 94 98 -56 25 -86 -64 0.6 Precip 100 -86 -88 64 20 90 72 0.0 Temp 100 96 -52 14 -91 -63 0.2 PAR 100 -60 24 -90 70 1 96 0.2 EVI 100 70 71 96 -0.2 LSW 100 25 56 0.0 NIRv 100 81 0.6	31, 74, 640 46, 64, 64, 2, 40, 411											
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 26 56 0.4 NDVI 100 81 -0.6 NIRv 100 -0.8	SIF 100 -52 46 -39 -47 75 67 43	68										
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 81 -0.6 NIRV 100 -0.8	VPD 100 -87 94 98 -56 -25 -86	-64	- 0.8									
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 26 56 - 0.4 NDVI 100 81 - 0.6 NIRV 100 - 0.2		-04	- 0.6									
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 81 - 0.6 NIRv 100 - 0.6	Precip 100 -86 -88 64 20 90	72	- 0.4									
PAR 100 -60 24 -90 -70 - 0 EVI 100 70 71 96 - 0.2 LSWI 100 25 56 - 0.4 NDVI 100 81 - 0.6 NIRv 100 - 0.6	Temp 100 96 -52 -14 -91	-63	- 0.2									
EVI 100 70 71 960.2 LSWI 100 26 560.4 NDVI 100 810.6 NIRv 1000.8	PAR 100 -60 -24 -90	-70	- 0									
LSWI 100 26 560.4 NDVI 100 810.6 NIRv 1000.8	EVI 100 70 71	96	0.2									
NDVI 100 810.6 NIRV 1000.8	LSWI 100 25	56	0.4									
NIRv 100		04	0.6									
NIRv 100		101	0.8									
	NIRv	100	-0.0									

Eastern Congolian Swamp Forest

at RO real and A an and when											
SIF 100 -51 7	73 -16	22	81	38	68	81		• 1			
VPD 100 -	59 82	45	-61	-12	-75	-64		- 0.6			
Precip 1	00 -38	8	64	×	49	63		- 0.4			
Tem	Temp 100 71 -35 3 -56 -37										
	PAR	100	×	-30	-40	<u>×</u>		• 0			
	EVI 100 30 79 100										
		0.4									
		0.6									
		-0.0									

Northeastern Congolian Lowland Forest

at a real and a start and and and												
SIF 100 -53 74	-32	-15	69	33	60	71		- 1				
VPD 100 -6	7 87	75	-57	-16	-70	-59		- 0.8				
Precip 10	0 -46	-25	72	$\mathbf{x}$	52	74		- 0.6				
Temp	100	85	-35	$\mathcal{A}$	-60	-36		- 0.2				
		- 0										
EVI 100 28 67 99												
LSWI 100 63 29												
NDVI 100 70												
NIRv 100												
								1				
Weste	Western Guinean Lowland Forest											
the of a sold and a so												
SIF 100 -45 57	-24	-32	77	74	50	73		1				
VPD 100 -8	7 82	83	-69	-27	-81	-73		- 0.8				
Precip 10	0 -74	-76	77	28	79	80		- 0.6				
Temp	100	96	-53	-24	-89	-61		- 0.4				
	Temp 100 96 -53 -24 -89 -61											

Atlantic Equatorial Coastal Forest



Cross-Sanaga-Bioko Coastal Forest

	-	c d	0	Sile	mp p	8	1 G	A1 6	N 18	2	
SIF	100	-50	46	-37	-46	71	63	52	70		1
V	/PD	100	-89	94	97	-52	-15	-88	-56		- 0.8
	Pre	ecip	100	-88	-90	58	$\mathbf{S}$	85	61		0.0
		Te	mp	100	-48	X	-88	-53		0.2	
			F	AR	100	-58	-16	-91	-63		0
					EVI	100	67	70	99		0.2
LSWI 100 31 66											0.4
NDVI 100 75											0.6
NIRV 100											0.8
											1





Western Congolian Swamp Forest



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

EVI 100 51 74 99

LSWI 100 39 49

NDVI 100 80

**NIRv** 100

-0.2

-0.4

-0.6

-0.8

-1



Figure S3. Cross-sensor comparisons using Deming regressions of the monthly mean SIFdaily from all 11 ecoregions in Fig. 5.



Figure S4. Cross-sensor comparisons using Deming regressions of the monthly mean SIFdaily from all 11 ecoregions in Fig. 4.