



Supplement of

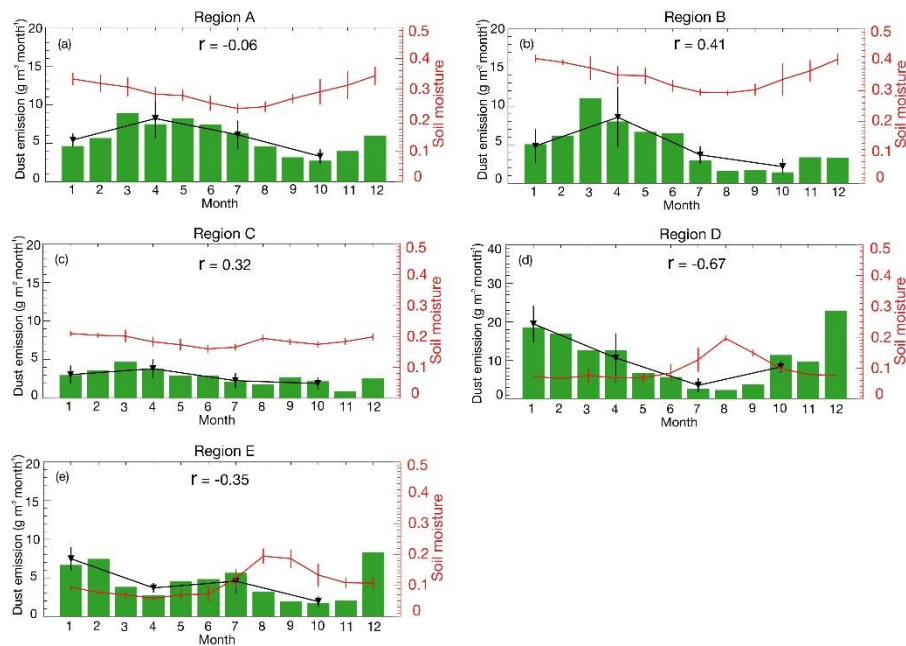
The export of African mineral dust across the Atlantic and its impact over the Amazon Basin

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3 **Figure S1.** Monthly dust emission fluxes together with the soil moisture over each
 4 region averaged from 2013 to 2017. Seasonal fluxes of dust emissions are shown as
 5 black lines. The correlation coefficients (r) between the dust emission fluxes and soil
 6 moisture are also shown as inset.

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11 **Table S1.** Annual dust emission fluxes ($\text{g month}^{-1} \text{m}^{-2}$) over different source regions in
 12 northern Africa^a.

Year	Region A	Region B	Region C	Region D	Region E
2013	7.4	7.6	3.6	9.1	4.9
2014	6.7	5.3	2.8	9.6	5.3
2015	5.0	4.0	3.2	14	4.6
2016	5.3	4.0	2.2	10	3.6
2017	4.4	3.1	2.0	9.5	3.7
Mean \pm std ^b	5.8 \pm 1.3	4.8 \pm 1.8	2.8 \pm 0.64	11 \pm 2.1	4.4 \pm 0.74

13 ^a Region A: 15° W – 10° E, 21° N – 35° N; Region B: 10° E – 25° E, 25° N – 35° N; Region C:
 14 25° E – 35° E, 15° N – 32° N; Region D: 12.5° E – 23° E, 13° N – 21° N; Region E: 17° W – 5°
 15 W, 15° N – 21° N.

16 ^b standard deviation

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18 **Table S2.** Seasonal dust deposition (including dry and wet deposition, Pg yr⁻¹) as well
 19 as the ratio of deposition to total emission over northern Africa, AOaTP^a and the
 20 Amazon Basin during 2013 – 2017.

Region	Spring		Summer		Fall		Winter	
	Deposition	Ratio	Deposition	Ratio	Deposition	Ratio	Deposition	Ratio
northern Africa	0.51±0.090	54%	0.38±0.10	64%	0.26±0.055	60%	0.44±0.085	48%
AOaTP	0.073±0.031	7.7%	0.079±0.034	13%	0.063±0.019	15%	0.18±0.034	20%
Amazon Basin	0.015±0.0064	1.6%	0.0089±0.045	1.5%	0.0022±0.0010	0.51%	0.015±0.0033	1.6%

21 ^a Atlantic Ocean along the transport path, over the region between 20° – 50° W and 5° S – 25° N.

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25 **Table S3.** Dust emission (Pg yr⁻¹) from northern Africa and its lifetime (d) along the
 26 trans-Atlantic transport during January – April of 2014 – 2016.

Year	January		February		March		April	
	Emission	Lifetime	Emission	Lifetime	Emission	Lifetime	Emission	Lifetime
2014	0.68	1.4	1.2	1.5	0.97	1.8	0.75	1.8
2015	1.5	1.5	0.92	1.4	1.5	1.6	1.2	1.9
2016	0.78	1.4	0.95	1.7	1.0	1.7	0.68	1.8

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