

Supplementary Information Table S2, Figures S1 and S2

Atmospheric deposition of phosphorus to land and freshwater

E Tipping, S Benham, JF Boyle, P Crow, J Davies, U Fischer, H Guyatt, R Helliwell, L Jackson-Blake, AJ Lawlor, DT Monteith, EC Rowe, H Toberman

Table S2. Summary of temporal trends in P deposition.

Country	Site	P form	Period yrs	Mean dep. $\text{g m}^{-2} \text{a}^{-1}$	SD $\text{g m}^{-2} \text{a}^{-1}$	RSD	Ann. change $\text{g m}^{-2} \text{a}^{-2}$	sig
Germany	301	PO4-P	10	0.015	0.010	0.641	0.000	ns
Germany	302	PO4-P	10	0.038	0.026	0.678	-0.002	ns
Germany	303	PO4-P	10	0.038	0.026	0.678	-0.002	ns
Germany	306	PO4-P	11	0.014	0.013	0.872	-0.001	ns
Germany	307	PO4-P	12	0.016	0.010	0.629	0.000	ns
Germany	308	PO4-P	13	0.013	0.010	0.788	0.000	ns
Germany	501	PO4-P	10	0.123	0.196	1.593	-0.025	ns
Germany	502	PO4-P	12	0.069	0.048	0.702	-0.005	ns
Germany	503	PO4-P	13	0.112	0.278	2.474	-0.028	ns
Germany	504	PO4-P	11	0.137	0.220	1.600	-0.031	ns
Germany	505	PO4-P	13	0.097	0.202	2.090	-0.023	ns
Germany	506	PO4-P	13	0.113	0.296	2.613	-0.030	ns
Germany	507	PO4-P	10	0.165	0.387	2.347	-0.046	ns
Germany	508	PO4-P	15	0.097	0.140	1.445	-0.007	ns
Germany	701	PO4-P	14	0.040	0.090	2.270	0.003	ns
Germany	702	PO4-P	19	0.031	0.054	1.738	0.003	ns
Germany	703	PO4-P	18	0.030	0.077	2.608	0.003	ns
Germany	704	PO4-P	16	0.039	0.104	2.661	0.005	ns
Germany	705	PO4-P	18	0.029	0.021	0.733	-0.001	ns
Germany	706	PO4-P	12	0.018	0.021	1.191	0.000	ns
Germany	707	PO4-P	18	0.041	0.071	1.751	0.002	ns
Germany	801	PO4-P	14	0.009	0.007	0.831	0.000	ns
Germany	802	PO4-P	12	0.010	0.013	1.310	0.001	ns
Germany	803	PO4-P	14	0.012	0.016	1.378	0.001	ns
Germany	804	PO4-P	12	0.007	0.007	0.944	0.000	ns
Germany	805	PO4-P	14	0.013	0.011	0.878	0.000	ns
Germany	806	PO4-P	12	0.011	0.006	0.576	0.000	ns
Germany	808	PO4-P	14	0.010	0.010	0.984	0.000	ns
Germany	809	PO4-P	13	0.006	0.005	0.788	0.000	ns
Germany	810	PO4-P	14	0.010	0.007	0.647	0.000	ns
Germany	811	PO4-P	14	0.007	0.008	1.088	0.001	<0.05
Germany	812	PO4-P	17	0.004	0.004	0.953	0.000	ns
Germany	1401	PO4-P	17	0.108	0.043	0.402	-0.005	<0.01
Germany	1402	PO4-P	17	0.091	0.050	0.548	-0.002	ns
Germany	1403	PO4-P	17	0.081	0.042	0.520	-0.003	ns
Germany	1404	PO4-P	16	0.093	0.056	0.601	-0.006	ns
Germany	1405	PO4-P	17	0.077	0.055	0.711	-0.005	ns
Germany	1406	PO4-P	16	0.070	0.033	0.474	-0.003	ns

Country	Site	P form	Period	Mean dep.	SD	RSD	Ann. change	sig
			yrs	$\text{g m}^{-2} \text{a}^{-1}$	$\text{g m}^{-2} \text{a}^{-1}$		$\text{g m}^{-2} \text{a}^{-2}$	
UK	Alice Holt	PO4-P	18	0.014	0.015	1.074	-0.001	ns
UK	Savernake	PO4-P	12	0.020	0.024	1.231	-0.001	ns
UK	Grizedale	PO4-P	16	0.010	0.011	1.126	0.001	ns
UK	Thetford	PO4-P	18	0.011	0.014	1.230	-0.001	<0.05
UK	Rannoch	PO4-P	16	0.011	0.013	1.259	0.001	ns
UK	Tummel	PO4-P	11	0.018	0.017	0.949	-0.003	ns
UK	L Brianne	PO4-P	14	0.013	0.014	1.053	-0.001	ns
UK	Alice Holt	TP	13	0.016	0.010	0.620	-0.002	<0.05
UK	Grizedale	TP	11	0.027	0.018	0.665	-0.001	ns
UK	Thetford	TP	13	0.018	0.019	1.061	-0.001	ns
UK	Rannoch	TP	11	0.023	0.022	0.955	0.003	ns
UK	L Brianne	TP	14	0.023	0.029	1.295	0.000	ns
UK	Alice Holt_ECN	PO4-P	16	0.004	0.004	0.959	0.000	ns
UK	Wytham_ECN	PO4-P	18	0.004	0.001	0.256	0.000	ns
UK	Porton Down_ECN	PO4-P	14	0.028	0.056	2.000	0.003	ns
UK	Moor House_ECN	PO4-P	19	0.005	0.001	0.136	0.000	ns
UK	Glensaugh_ECN	PO4-P	17	0.009	0.005	0.556	0.000	ns
UK	Drayton_ECN	PO4-P	16	0.008	0.005	0.603	0.000	<0.05
UK	Snowdon_ECN	PO4-P	14	0.014	0.009	0.690	0.000	ns
UK	North Wyke_ECN	PO4-P	16	0.021	0.017	0.817	0.002	<0.05
UK	Rothamsted_ECN	PO4-P	18	0.021	0.017	0.841	0.001	ns
UK	Sourhope_ECN	PO4-P	17	0.020	0.017	0.837	0.002	ns

North America

Europe

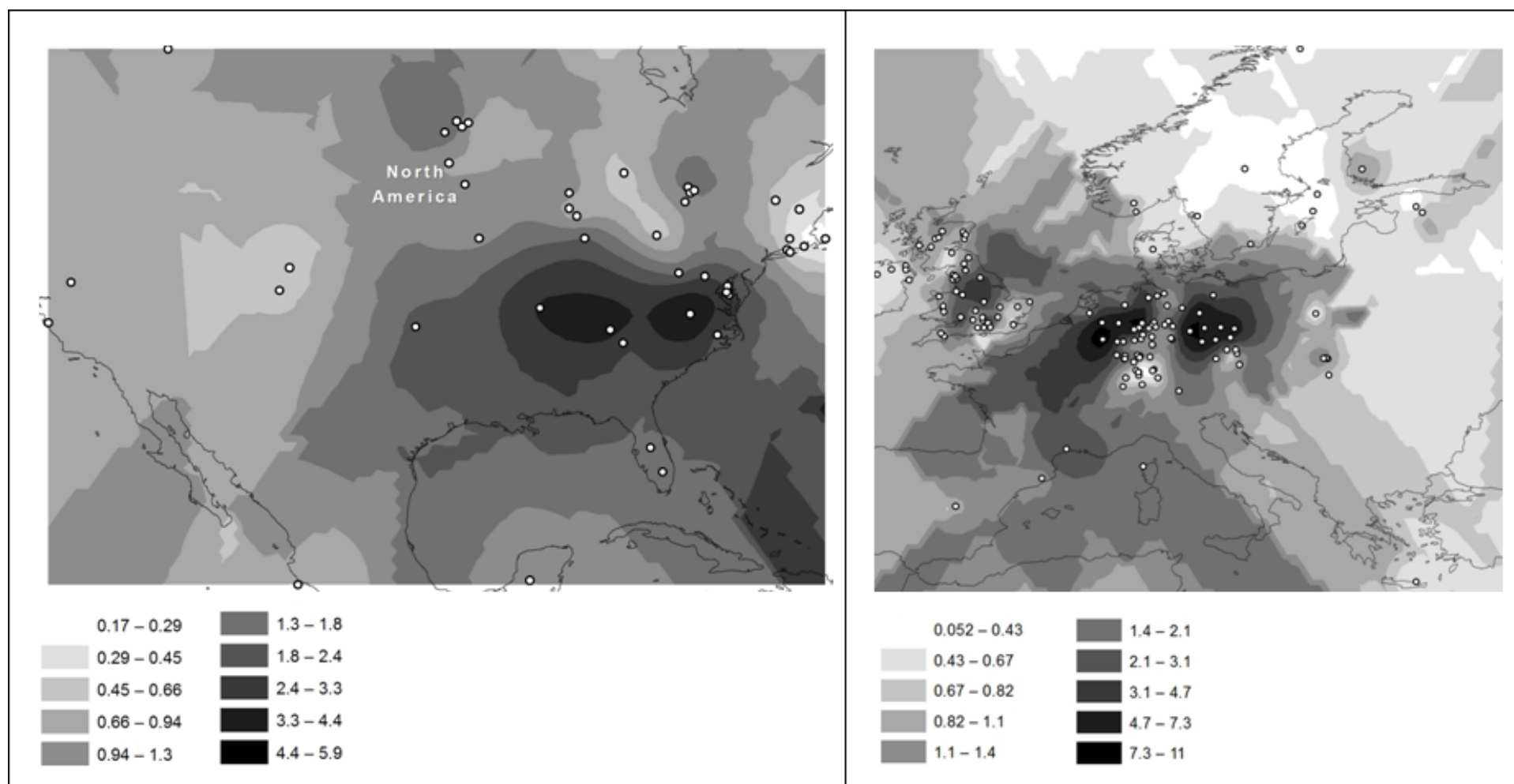


Figure S1. Spatial variation of normalised P deposition in North America and Europe, obtained by kriging in MATLAB. The normalised deposition value for each location was obtained as follows;

- (1) If available, the TP, FTP or PO₄-P deposition rates were divided by their respective geometric mean average values for the whole data set.
- (2) The overall normalised deposition was obtained as the average of the available quotients in Step 1.

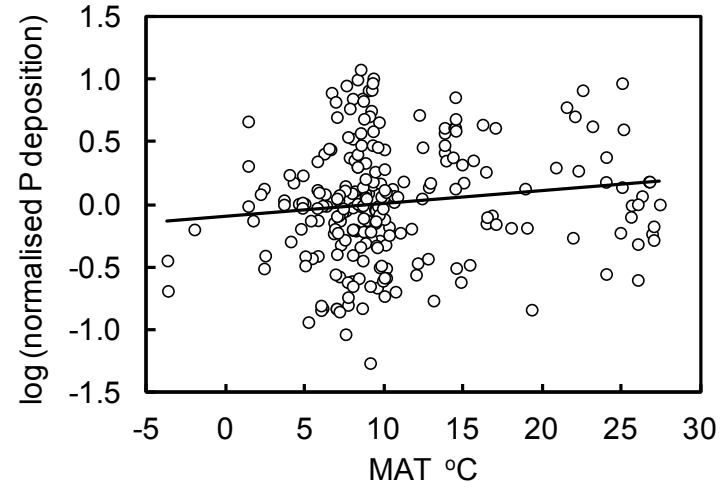
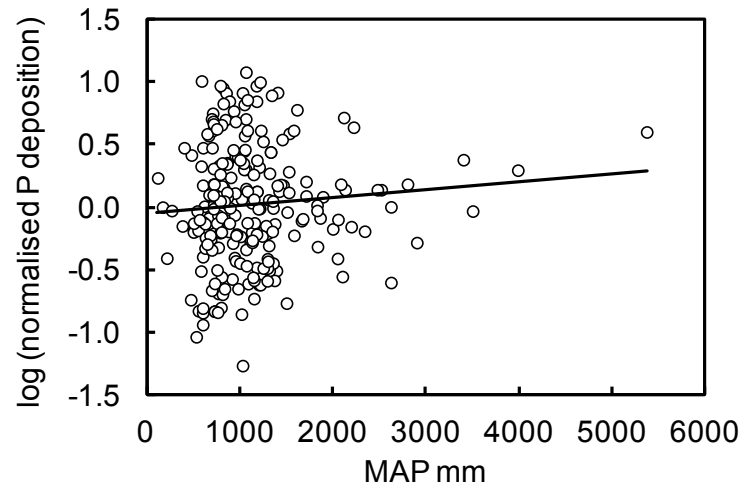


Figure S2. Dependence of log (normalised P deposition) on mean annual precipitation and temperature (MAP, MAT). The regression on MAT is significant, with $r^2 = 0.018$, $p < 0.05$.