



Supplement of

Evaluation of simulated N cycling using observations from a ^{15}N tracer experiment in a mixed deciduous forest

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Table S1. The turnover rates (in years) of vegetation and soil pools in the QUINCY model.

Pool	Turnover rate (year)
Leaf	0.5
Fine roots	0.7
Coarse roots	8.0
Sapwood	40.0
Fruits	1.0
Litter: soluble	0.08
Litter: structural	0.1
Soil: fast pool	2.0
Soil: slow pool	100.0

Table S2. Soil carbon (C) and nitrogen (N) at different soil depths, down to 50 cm. Observations (in bold) and simulated carbon and nitrogen pools. The simulated values are 30 year averages.

Storage	C (gCm ⁻²)	N (gNm ⁻²)	C:N	obs depth (cm)
L1	3078 3407	205 382	15 8.9	0-10
L2	- 2913	- 332	- 8.8	-
L3	2049 2428	169 277	12 8.8	10-20
L4	983 2142	113 243	8.7 8.8	20-30
L5	571 2214	87 248	6.6 8.9	30-40
L6	304 1602	63 178	4.8 9.0	40-50

Table S3. The initial $\delta^{15}\text{N}$ of the simulations and observations. The $\delta^{15}\text{N}$ of the observed wood pool was derived from observations of bark and new wood, as no measurements of old wood before labelling were available.

Pool	Observed $\delta^{15}\text{N}$	Simulated $\delta^{15}\text{N}$
Leaf	-2.1	-2.3
Fine roots	-1.6	-2.0
Coarse roots	-2.4	-1.4
Wood	-1.2	-1.1
Litter	0.4	-1.7
SOM 0-10 cm	2.9	-1.4
SOM 10-50 cm	4.9	-0.4

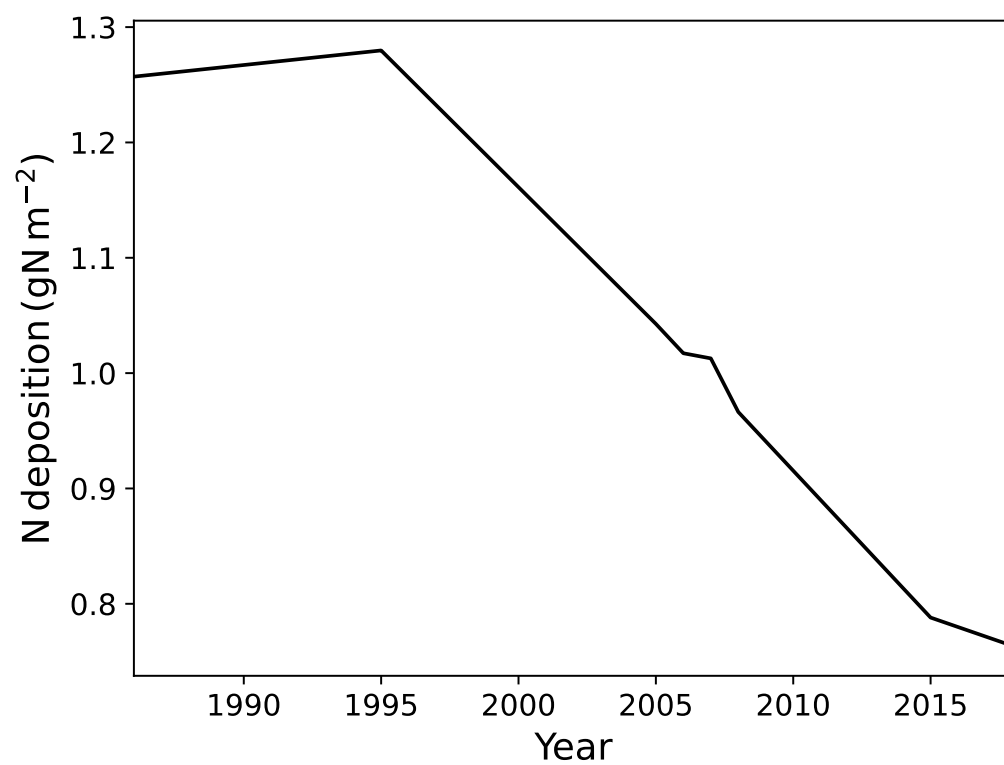


Figure S1. Nitrogen deposition at the site from Lamarque et al. (2010, 2011).

References

- Lamarque, J.-F., Bond, T. C., Eyring, V., Granier, C., Heil, A., Klimont, Z., Lee, D., Lioussé, C., Mieville, A., Owen, B., Schultz, M. G., Shindell, D., Smith, S. J., Stehfest, E., Van Aardenne, J., Cooper, O. R., Kainuma, M., Mahowald, N., McConnell, J. R., Naik, V., Riahi, K., and van Vuuren, D. P.: Historical (1850–2000) gridded anthropogenic and biomass burning emissions of reactive gases and aerosols: methodology and application, *Atmospheric Chemistry and Physics*, 10, 7017–7039, <https://doi.org/10.5194/acp-10-7017-2010>, 2010.
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