

**Nitrification regulates the responses of soil nitrous oxide emissions to nitrogen
addition in China: a meta-analysis from a gene perspective**

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Supplementary Materials

Nitrogen addition protocols of unpublished data

Sediments were collected from *Shacheng Bay* (27°17'N, 120°18'E), *Quanzhou Bay* (24°57'N, 118°41'E), and *Zhangjiang Estuary* (23°54'N, 117°26'E) in Fujian Province, China and transported to laboratory at 4°C. Incubation slurries were made by mixing sediments with artificial seawater at a ratio of 1:2. Next, the slurry was divided into four treatments and each was incubated under a different nitrogen (N) input rates (i.e., 0, 50, 150, and 320 kg N ha⁻¹ year⁻¹) for 42 days. After that, slurry was used for denitrification rate measurement and soil property determination. Particularly, denitrification rates were measured by isotopic partitioning technique according to our previous work.¹

Supplementary Figures

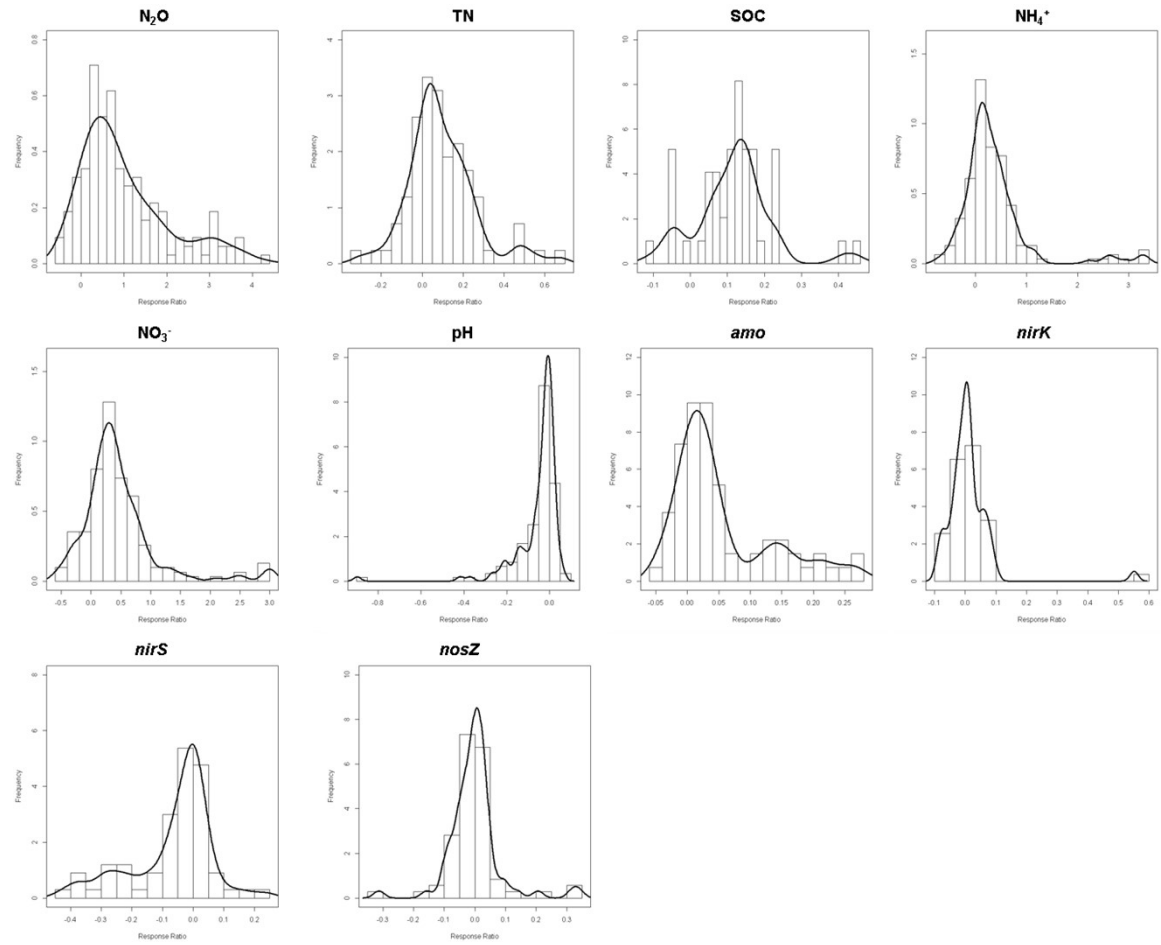


Figure S1 The frequency distributions of the response ratio (lnRR) for N₂O, TN, SOC, NH₄⁺, NO₃⁻, pH, *amo*, *nirK*, *nirS*, and *nosZ* responses to N addition. The solid curve is a Gaussian distribution fitted to the frequency data. The x-axis is the response ratio and the y-axis is frequency.

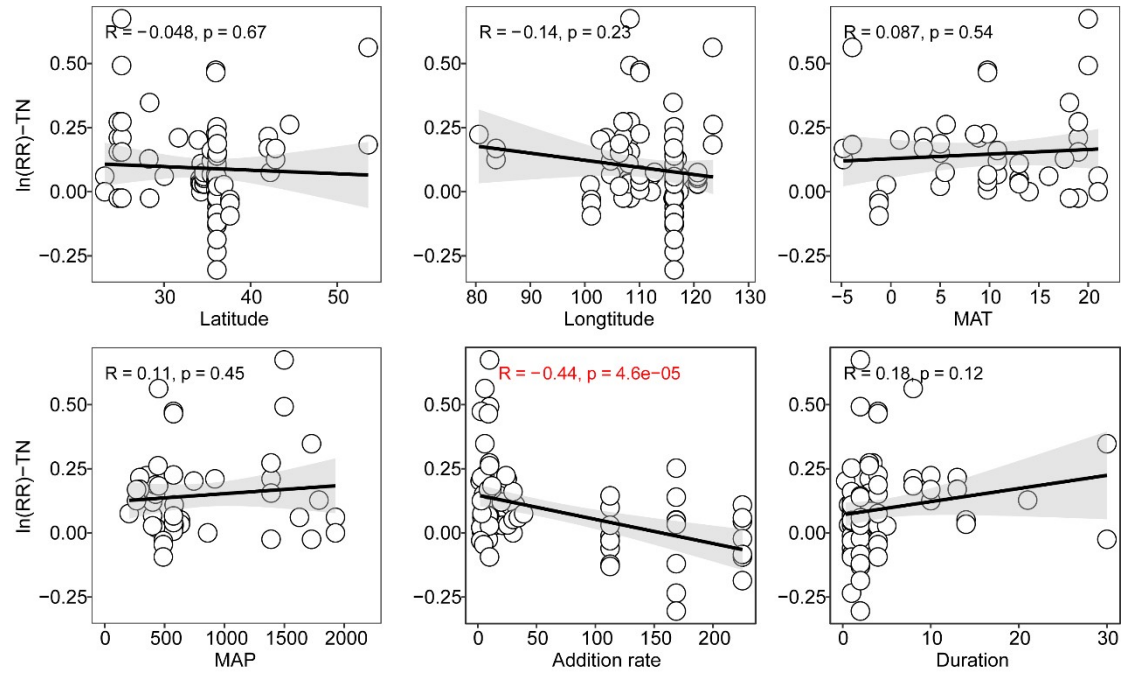


Figure S2 Meta-regression for TN. $\ln RR$ means response ratio.

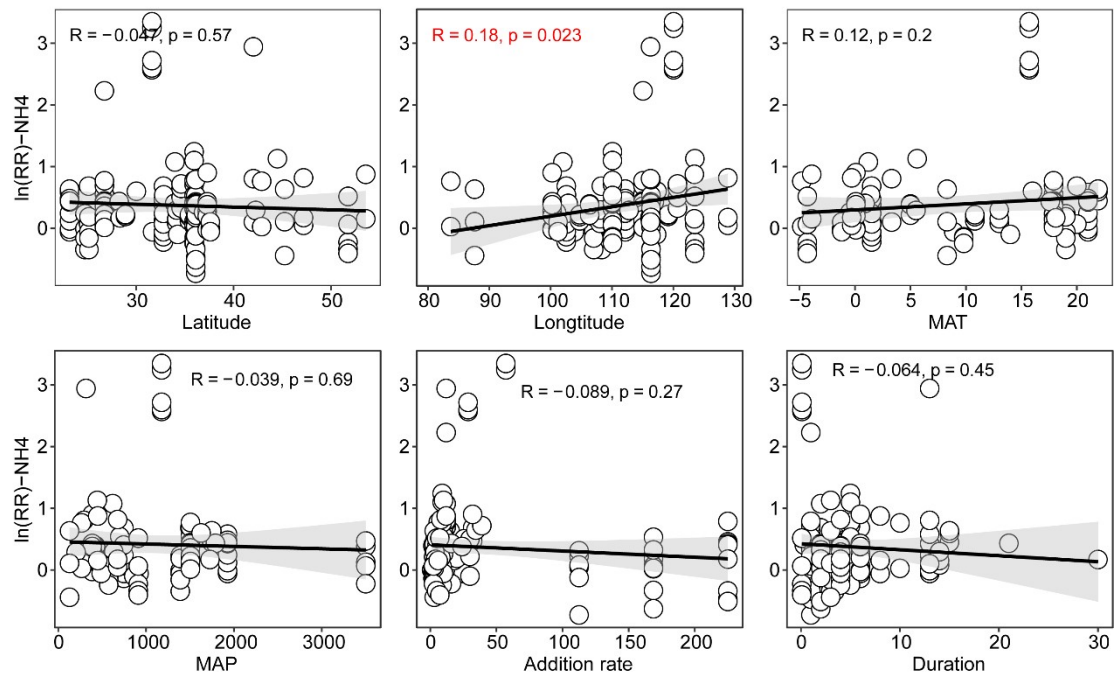


Figure S3 Meta-regression for NH_4^+ . $\ln RR$ means response ratio.

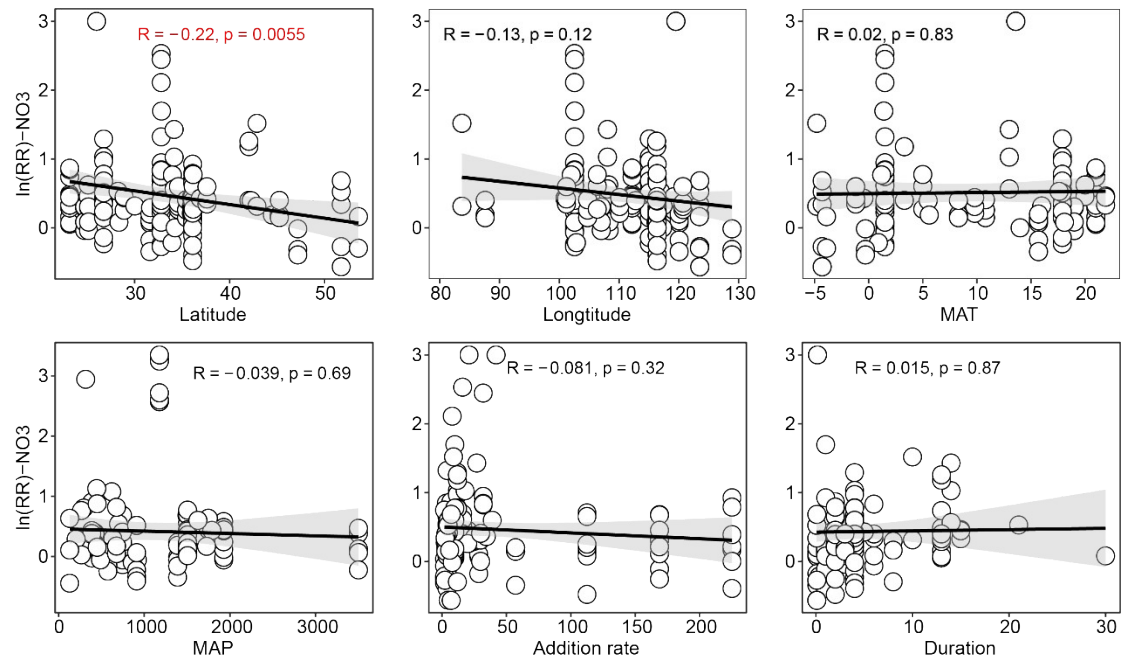


Figure S4 Meta-regression for NO_3^- . $\ln RR$ means response ratio.

Reference

1. N. Zhang, R. Guo, F. Wang, Z. Dai, Y. Li and W. Cao, Warming Tends to Promote Nitrogen Conservation but Stimulate N_2O Emissions in Mangrove Sediments, *Ecosystems*, 2023, **27**, 235-249.