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## Nitrous oxide emission from a range of land uses across Europe

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**Abstract.** The results of a literature study examining quantitative estimates of N<sub>2</sub>O emission rates are presented for a range of land-uses across Europe. The analysis shows that the highest N<sub>2</sub>O emission rates are for agricultural lands compared to forests and grasslands. The main factors regulating these rates are available mineral nitrogen, soil temperature, soil water content and the available labile organic compounds. These controls operate across different time-scales, all must exceed a certain threshold for N<sub>2</sub>O emission to occur. The results support the need for an emission factor function of land-use and climate within models describing nitrogen dynamics in catchments. This would allow the assessment of the net N<sub>2</sub>O emission within catchments in terms of current levels and potential changes associated with climate variability, climate change and land use change.

**Keywords:** nitrous oxide, soil water content, inorganic N, soil temperature, ecosystems, land-use management, soil type

[Final Revised Paper](#) (PDF, 625 KB)

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