Swedish Environmental Research Institute

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NATURAL ENVIRONMENT RESEARCH COUNCIL

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# Temporal aspects in the UK ammonia emission inventory

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## 1. Background

Annual ammonia ($NH_3$) emission inventories fail to capture variations in emissions due to seasonal changes in climate and agricultural practices. Temporal variation in emissions need to be considered so that abatement strategies can be efficiently targeted throughout the year.

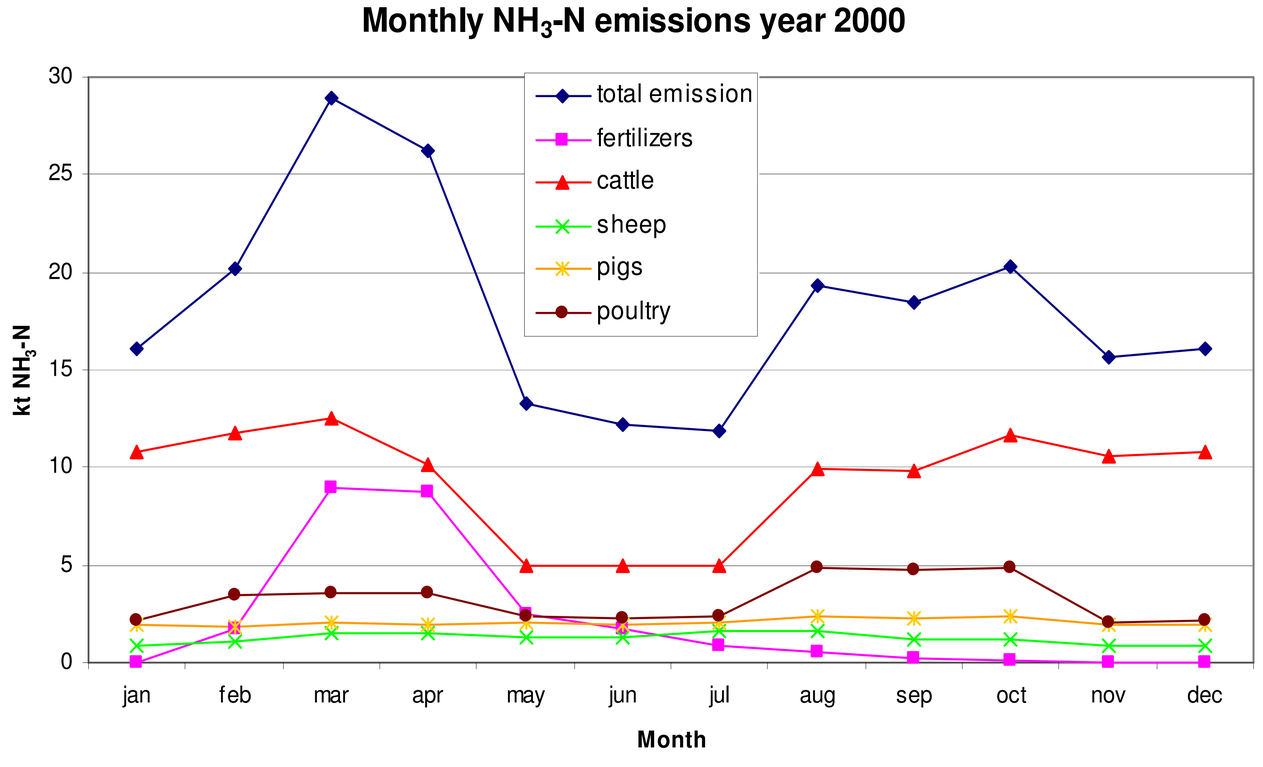
## 2. Methodology

Seasonal ammonia emissions from agriculture were calculated on a monthly basis for the year 2000, by incorporating temporal activity data on farming practice, in the annual inventory of ammonia emissions in the UK (IAEUK).

**Temporal activity data:**

*a) Number of grazing/housing days per month*
*b) Percentage slurry and farm yard manure spread to grass and/or arable land per month*
*c) Number of manure storing days per month*

The estimated monthly emissions were spatially distributed using the AENEID approach (Atmospheric Emissions for National Environmental Impacts Determination) (Dragosits *et al.*, 1998). Temporal dynamics were incorporated both regarding the spatial location of sources and the magnitude of $NH_3$ emission factors.



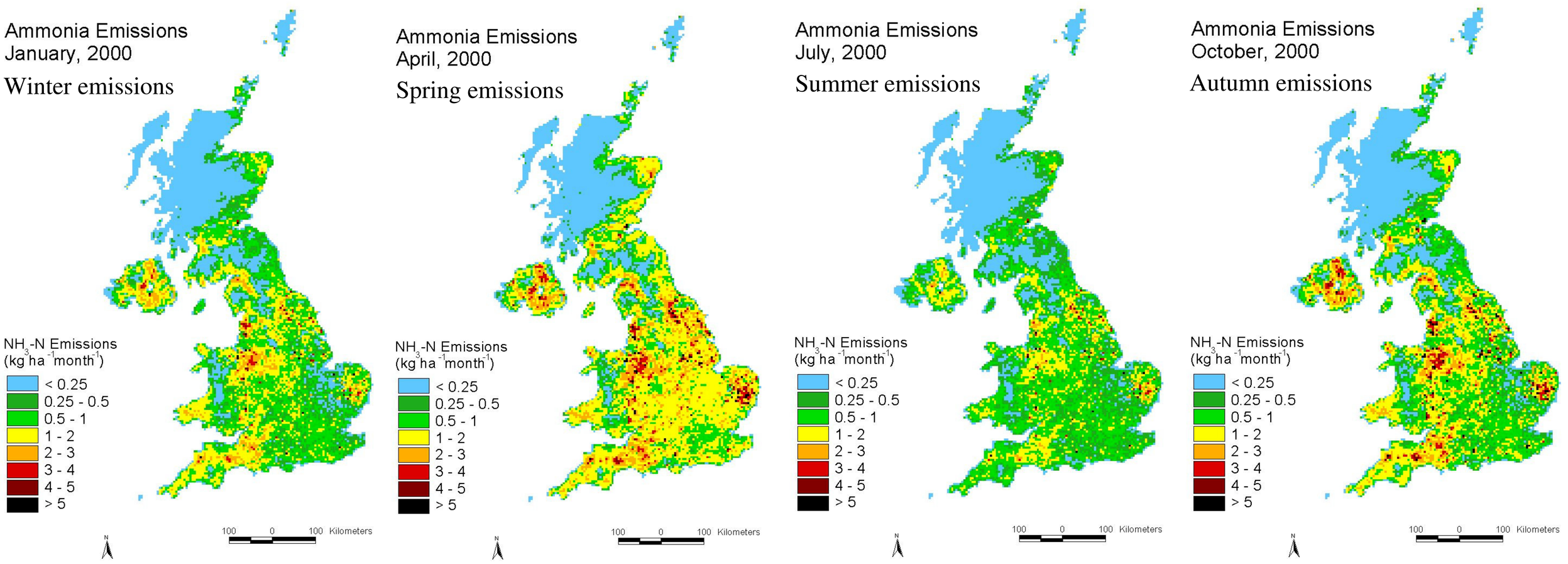

## 3. Conclusions

The calculated ammonia emissions showed a strong seasonal pattern, with the highest emissions during springtime (March and April), and the lowest emissions during summer (May to July).

**Main factors influencing the seasonal emission trend**:

*a) The cattle grazing season* (lower emissions during the grazing season).

*b) Application of livestock manure and inorganic fertilizer* (mainly occurs during spring and autumn).




**Reference:** Dragosits, U., Sutton, M.A., Place, C.J., and Bayley, A.A. (1998): Modelling the spatial distribution of agricultural ammonia emissions in the UK. *Environmental Pollution* **102**, 195-203.

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The topic of this poster has been submitted as a manuscript

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