AMMONIA IN ARCHIVES

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Introduction

Ammonia in indoor environments of libraries and archives is harmfull for stored books and manuscripts. It can damage arcival materials such as pigments and metals and also mediate microbial decomposition.

Sampling

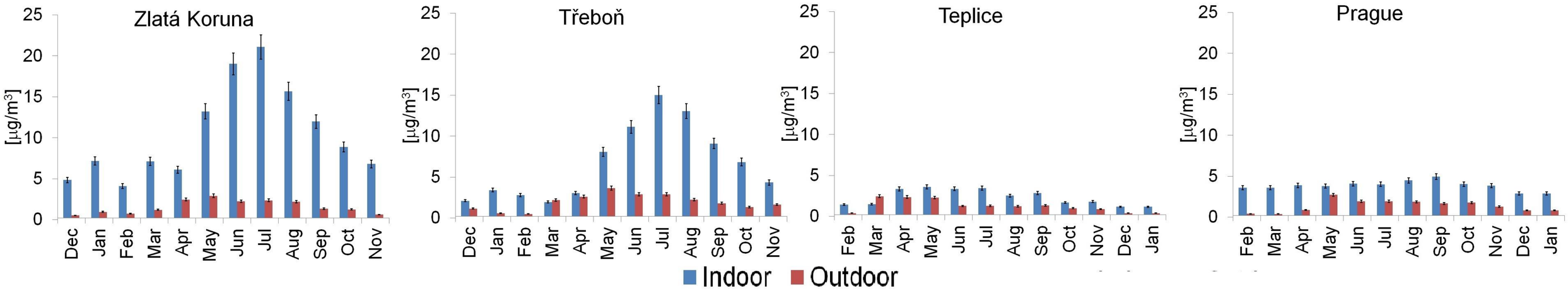
- Monthly indoor/outdoor concentrations of ammonia measured by passive dosimeters (Analyst, Marbaglass)
- 12 month period at each location

Locations

- Depository at Zlata Koruna Monastery – rural area
- State Regional Archives at Trebon – small city
- Library of Regional Museum in Teplice – industrial area
- National Archives in Prague – large city

Results

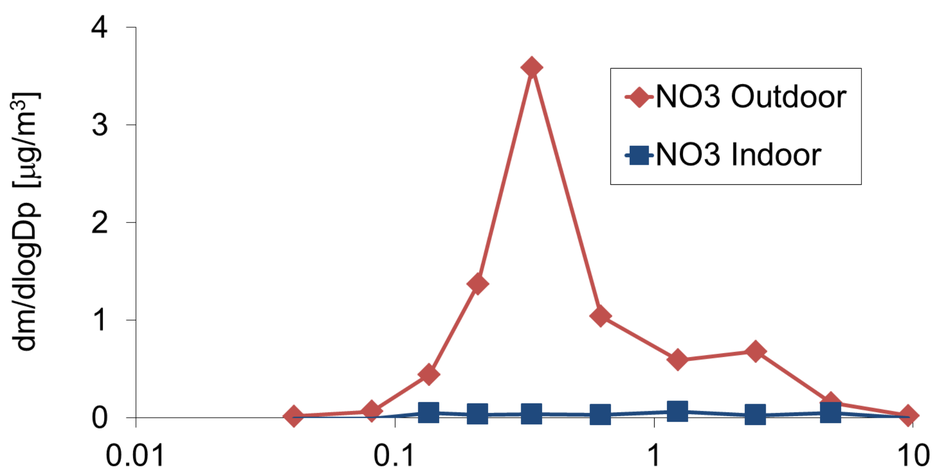
Indoor/outdoor ammonia concentrations

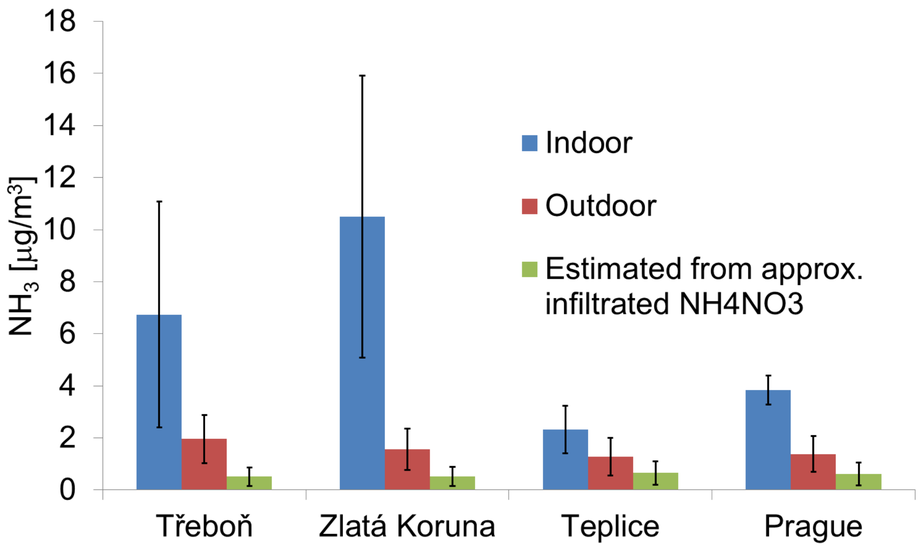


Sources of indoor ammonia

1. Decomposition of ammonium nitrate

NH_4NO_3 (s) ↔ NH_3 (g) + HNO_3 (g)





2. Emissions from the building material

Conclusions

- Indoor concentrations of ammonia usually higher than outdoors
- Sources of indoor ammonia:
  1. Decomposition of infiltrated ammonium nitrate, which explained 20-80% of indoor ammonia
  2. Emissions from the building material most likely caused by the degradation of organic additives (animal urine, urea etc.)

Acknowledgement

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