

# OR/14/047 Trends for aerial deposition in the UK

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[Jump to navigation](#) [Jump to search](#)

Farr, G, and Hall J. 2014. Atmospheric deposition and groundwater dependent wetlands: implications for effective catchment management and future Water Framework Directive groundwater classification in England and Wales. *British Geological Survey Internal Report*, OR/14/047.

RoTAP (2012)<sup>[1]</sup> provides the most up to date synthesis of aerial deposition in the UK. Key findings in respect to long term monitoring and trends are summarized below. The work shows that there have been reductions in NO<sub>x</sub> and NH<sub>3</sub> emissions, however the deposition of total nitrogen has not changed significantly during the last 20 years.

## Emissions

- Emissions of nitrogen oxides (NO<sub>x</sub>) in recent years have not reduced as much as policy-makers intended, decreasing by 58% between 1970 and 2010. The UK met the NECD target for 2010, with emissions 5% below the target value
- Emissions of ammonia (NH<sub>3</sub>) decreased by 21% between 1990 and 2010. The UK met the NECD target for 2010, with emissions 4% below the target value

## Concentration and deposition

- Concentrations of oxidised nitrogen in surface air (as nitrogen dioxide) have declined approximately in line with emission reductions (Figure 10)
- Concentrations of reduced nitrogen (as ammonia) have changed little since 1990 (Figure 11), with small increases in background areas and small reductions in regions dominated by pig and poultry sources. This is due to complexities regulating emissions from agriculture
- The total deposition of nitrogen (including both oxidised and reduced forms) in the UK **has not changed significantly** remaining almost the same (between 350–400kt-N per year) between for the last 20 years, RoTAP (2012)<sup>[1]</sup>

[File:OR14047fig10.jpg](#)

**Figure 10** UK emissions of NO<sub>x</sub>-N (Gg-N) (Defra, 2011; EIONET, 2012), projections based on the UEP38 energy scenario. Graph from RoTAP, 2012<sup>[1]</sup>.

[File:OR14047fig11.jpg](#)

**Figure 11** UK emissions of NH<sub>3</sub> (Gg-N) (Defra, 2011; EIONET, 2012), based on the UEP38 energy and 'business as usual' agriculture

scenarios. From RoTAP, 2012<sup>[1]</sup>.

## References

- ↑  <sup>1.0</sup> <sup>1.1</sup> <sup>1.2</sup> <sup>1.3</sup> RoTAP. 2012. Review of transboundary Air Pollution: Acidification, Eutrophication, Ground Level Ozone and Heavy Metals in the UK. Contract Report to the Department for Environment, Food and Rural Affairs. *Center for Ecology & Hydrology*.

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[Categories:](#)

- [Pages with broken file links](#)
- [OR/14/047 Atmospheric deposition at groundwater dependent wetlands: implications for effective catchment management and Water Framework Directive groundwater classification in England and Wales](#)

## Navigation menu

### Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

### Namespaces

- [Page](#)
- [Discussion](#)

### Variants

### Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

### More

## Search

## Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

## Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)
  
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