

This is a repository copy of Measurement of NOx fluxes from a tall tower in central London, UK and comparison with emissions inventories.

White Rose Research Online URL for this paper: https://eprints.whiterose.ac.uk/id/eprint/95576/

Version: Accepted Version

Article:

Lee, James D. orcid.org/0000-0001-5397-2872, Helfter, Carole, Purvis, R.uth M. orcid.org/0000-0003-3375-3765 et al. (7 more authors) (2015) Measurement of NOx fluxes from a tall tower in central London, UK and comparison with emissions inventories. Environmental Science and Technology. pp. 1025-1034. ISSN: 1520-5851

https://doi.org/10.1021/es5049072

Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



Measurement of NO_x fluxes from a tall tower in central London, UK and comparison with emissions inventories.

James D. Lee*\(^{\alpha\star}\), Carole Helfter\(^{\alpha}\), Ruth M. Purvis\(^{\alpha\star}\), Sean D. Beevers\(^{\alpha}\), David C. Carslaw\(^{\alpha}\),
Alastair C. Lewis\(^{\alpha}\), Sarah J. Moller\(^{\alpha\star}\), Anja Tremper\(^{\alpha}\), Adam Vaughan\(^{\alpha}\), Eiko G. Nemitz\(^{\alpha}\).

^{\$}National Centre for Atmospheric Science, University of York, York, UK.
 ^λDepartment of Chemistry, University of York, York, UK
 [&]Centre for Ecology and Hydrology (Edinburgh Research Station), Penicuik, UK.
 [#]Environmental Research Group, King's College London, 4th Floor, Franklin Wilkins Building,
 150 Stamford Street, London, UK.

This supplementary information contains 6 figures on 6 pages.



Figure S1. Map of the location of the North Kensington site and the BT tower

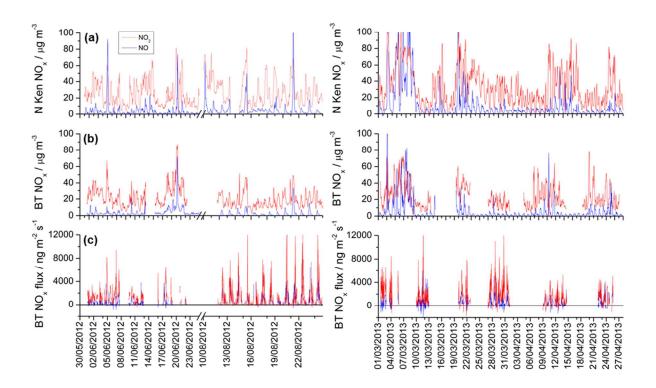


Figure S2. Time series showing (a) NO and NO₂ concentrations at the North Kensington urban background site, (b) NO and NO₂ concentrations at the BT tower and (c) NO and NO₂ fluxes at the BT tower. The left panels show data from June – August 2012 and the right panels show data from March and April 2013.

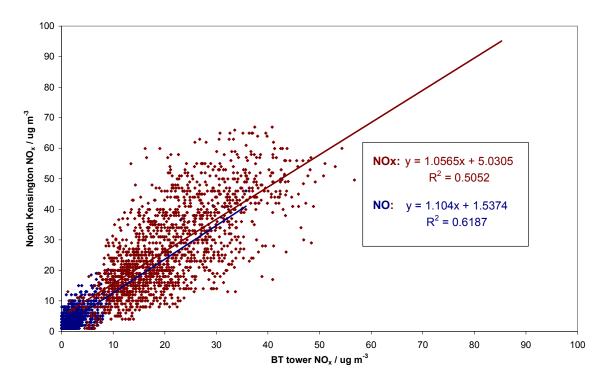


Figure S3. Regression of NO and NOx mass mixing ratios between the North Kensington site and BT tower.

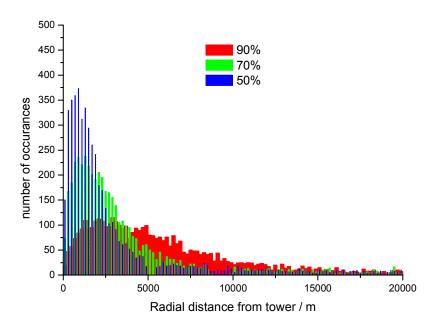


Figure S4. Flux footprint statistics for the BT tower showing histograms of the distance from the tower where 90%, 70% and 50% of the flux is calculated to originate from.

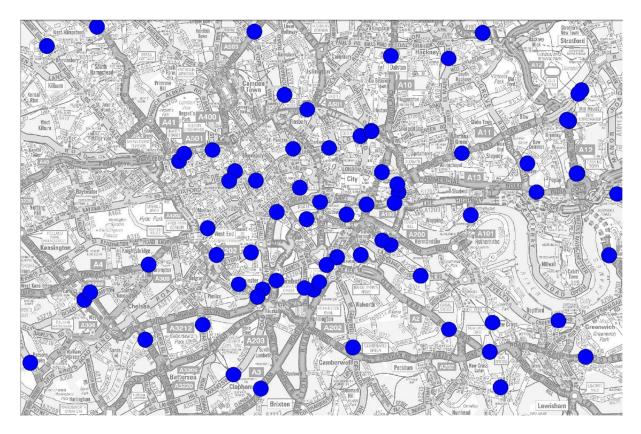


Figure S5. Traffic sites used in the diurnal average of traffic flow calculation in figure 3

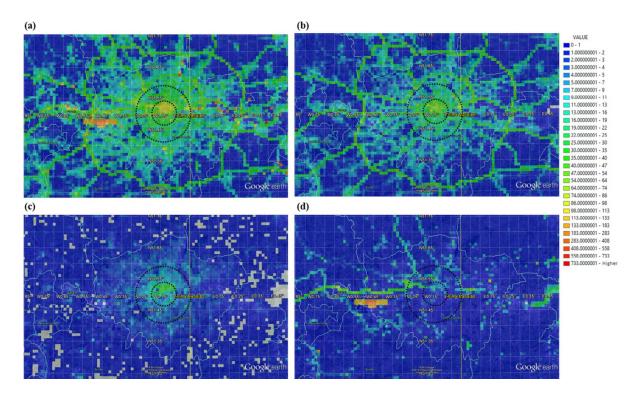


Figure S6. NAEI NOx emissions for London. The map is centre on the BT tower and the dashed circles show 5km and 10km footprints of the measurements. (a) shows total NOx emissions, (b) road transport, (c) domestic, industrial and commercial combustion and (d) other transport (rail and shipping). The scale is in Tonnes km⁻² yr⁻¹.