

**Job Title:** Postdoctoral Research Scientist      **ORCID:** [0000-0002-3587-837X](https://orcid.org/0000-0002-3587-837X)  
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### Employment & Research Experience

- 2016 - 2020 **Research Scientist, National Centre for Earth Observation (NCEO), Leeds**  
i) I use novel satellite observations of atmospheric composition to provide detailed evaluation of the UK Earth system model using complex model transfer functions to allow like-for-like comparisons removing satellite vertical sampling biases.  
ii) I use models and satellite observations to study important interactions between the biosphere and atmosphere to help quantify the influence on global/regional air quality (e.g. wildfire emissions on surface pollutant concentrations).
- 2015 - 2016 **Post-doctoral Research Fellow, University of Leeds, Desert Storms Project**  
My role was to analyse Met Office dust forecast/analysis products over northern Africa to identify processes (e.g. dust uplift mechanisms) causing model biases.
- 2011 - 2015 **PhD Student, UK Met Office, Exeter**  
As part of my CASE-funded PhD project in Leeds I spent extended periods at the Met Office working in the Air Quality Group.

### Qualifications

- 2011 - 2015 **PhD in Air Quality Modelling and Satellite Observations** – University of Leeds, UK  
Thesis title: “*The meteorological and chemical processes influencing UK air quality investigated using satellite observations and modelling*”. Supervised by Prof Martyn Chipperfield (University of Leeds) and Dr Nick Savage (Met Office).
- 2007 - 2011 **Masters of Science (MSci) – Meteorology and Oceanography (1<sup>st</sup> class honours)**  
University of East Anglia, UK.

### Research Interests

- Earth observation (EO) of global and regional air quality (AQ).
- Atmospheric modelling of air pollutants (e.g. ozone and nitrogen dioxide).
- Model evaluation and development using EO atmospheric composition data.
- UK AQ observed from space (e.g. long-term trends, the 2018 Saddleworth Moor fires).
- The impact of weather regimes on observed/modelled AQ.

### Selected Peer-Reviewed Publications

**Pope, R. J.**, Arnold, S. R., Chipperfield, M. P., et al.: Substantial increases in Eastern Amazon and Cerrado biomass burning-sourced tropospheric ozone, *Geophys. Res. Letts.*, doi.org/10.1029/2019GL084143, 2020.

**Pope, R. J.**, Arnold, S. R., Chipperfield, M. P., Latter, B. G., Siddans, R., and Kerridge, B.J.: Widespread changes in UK air quality observed from space, *Atmos. Sci. Letts.*, doi.org/10.1002/asl.817, 2018.

**Pope, R. J.**, Marsham, J. H., Knippertz, P., Brooks, M. E., and Roberts, A. J.: Identifying errors in dust models from data assimilation. *Geophys. Res. Letts.*, doi:10.1002/2016GL070621, 2016.

**Pope, R. J.**, Chipperfield, M. P., Savage, N. J., Ordonez, C., Neal, L. S., Lee, L. A., Dhomse, S. S., Richards, N. A. D., and Keslake, T. D.: Evaluation of a regional air quality model using satellite column NO<sub>2</sub>: treatment of observational errors and model boundary conditions and emissions, *Atmos. Chem. Phys.*, 15, 5611-5626, doi:10.5194/acp-15-5611-2015, 2015.

**Pope, R.J.**, Savage, N. H., Chipperfield, M. P., Arnold, S. R., and Osborn, T. J.: The influence of synoptic weather regimes on UK air quality: Analysis of satellite column NO<sub>2</sub>, *Atmos. Sci. Letts.*, doi:10.1002/asl2.492, 2014.

I act as a reviewer for multiple journals including Atmospheric Environment, Atmospheric Chemistry and Physics, Nature Geoscience and Environmental Research Letters.

### Selected International and Invited Conference Presentations

- Apr 2019 European Geophysical Union (EGU), Vienna, Austria  
Pope, R. J., Chipperfield, M. P., Kerridge, B. J., et al.: Investigation of the European summer 2018 air pollution episode using satellites/modelling. (**Oral presentation**).
- Sep 2016 EUMETSAT Meteorological Satellite Conference, Darmstadt, Germany  
Pope, R. J., Richards, N. A. D., Chipperfield, M. P., et al.: Intercomparison of satellite peroxyacetyl nitrate observations in the UTLS. (**Oral presentation**).
- Mar 2016 Air Quality – Science and Application, Milan, Italy  
Pope, R. J., Chipperfield, M. P., and Savage, N. H.: The Influence of Synoptic Weather Regimes on UK Air Quality: Tropospheric Column NO<sub>2</sub>. (**Invited speaker**).

### Teaching, Supervising & Funding

**Lecturing:** I lecture on the University of Leeds undergraduate modules “SOEE3190 Earth Observations from Space” and “SOEE3431 Atmospheric Pollution: Causes, Impact and Regulation” on detection of atmospheric composition, clouds and UK AQ from space.

**Supervision:** Co-supervise two PhD students in Leeds, who investigate UK and European AQ using modelling and satellite data. I also co-supervise two NCEO PhD students based at University of Leicester working on global OCS and HCN satellite data. I have led the supervision of three Leeds undergraduate final year projects (2 receiving awards for their dissertations).

**Funding:** Co-researcher on a successful bid (£150,000), funded by the UK Department for Environment, Food and Rural Affairs (DEFRA), to use satellite data to derive top-down UK NO<sub>x</sub> emissions for verification of official bottom-up inventories. Also obtained funding for five summer student placements (2016-2020) investigating topics such as weather-AQ interactions, power station plume modelling and quantification of transboundary pollution sources.

### Leadership Experience

- I co-ordinate the Atmospheric Group Chemistry seminar series at the University of Leeds.
- Organised the 2014 NCEO Young Scientist Conference at the University of Leeds.
- Led successful bids for undergraduate summer student placement funding.

### Technical Skills

#### Atmospheric Chemistry Modelling Skills

Extensive experience of:

- Running global/regional atmospheric chemistry models on supercomputing platforms.
- Coding model subroutines (Fortran) and altering the setup of the model.
- Processing/analysing large model and observational datasets in numerous file formats.

#### General Computing Skills

High proficiency in:

- Unix/Linux and Windows operating systems.
- IDL programming language and data visualisation.
- Latex document generation software.
- Microsoft Office software.

### Referees

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