WACL
Wolfson Atmospheric Chemistry Laboratories

Development of Improved and Targeted Quantification of Ammonia Emissions

Prof. David Carslaw, Dr Marvin Shaw, Prof. Ally Lewis

The project tackles the growing importance of ammonia emissions to the atmosphere, which is a priority for the control of current and future air quality in Europe and beyond. Work with an advanced instrument, a mobile laboratory and innovative analysis and modelling techniques.

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Direct measurements of NOx emissions in central London: How are they changing and how can they be used to inform government policy?

Prof. James Lee, Dr Sarah Moller

Data taken from the BT tower in London will be used to calculate NO_x emissions from the streets below. Analysis of the data will show how emissions are changing with policy and technological changes and a collaboration with DEFRA will use the data to inform government policy.

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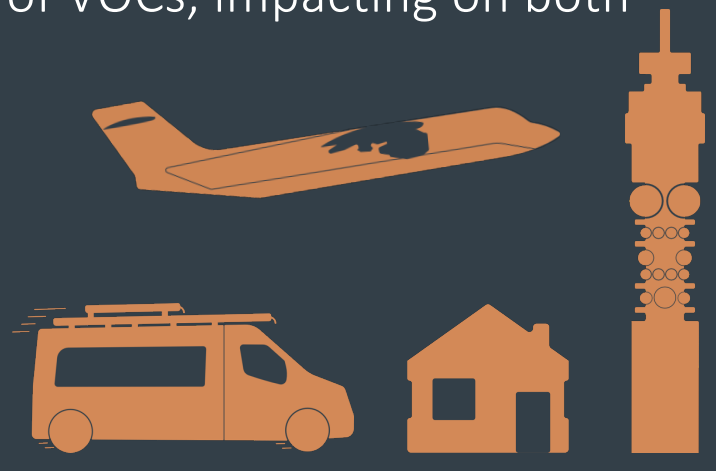
PHOtolysis Reaction Mechanisms by Emerging and New Technologies – PhoRMENT

Dr Andrew Rickard, Dr Terry Dillon, Prof. Victor Chechik

Project on photolysis mechanisms of carbonyl compounds under atmospheric conditions, including indoor where LED lighting emits in the UV. Carbonyls are key multigenerational secondary products in the photooxidative degradation of VOCs, impacting on both indoor/outdoor air quality



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Implications for Air Quality from Net Zero Policies and Pathways in the UK

Dr Sarah Moller, Prof. Ally Lewis

Explore specific UK net zero policies from a systemic perspective, with a focus on identifying significant co-benefits or trade-offs for air pollution. Includes the opportunity to work with relevant government departments.

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Improving our Understanding of the Atmospheric Sulfur Cycle and its Impact on Air Pollution and Climate

Dr Pete Edwards, Dr Stuart Young, Prof. James Lee

Develop and deploy new instrumentation, both on the ground and aboard the UK research aircraft, to improve our understanding of the atmospheric sulphur cycle in marine environments, and its control of both air pollution and climate.

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Investigating the Impact of Urban Greening on Urban Air Quality

Prof. Jacqui Hamilton, Prof. James Lee

The interaction between plant and anthropogenic emissions can lead to the formation of organosulfates in particles. High resolution mass spectrometry will be used to study their formation and toxicity.

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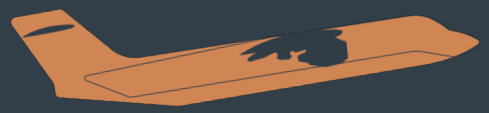
Domestic Combustion as a Source of Air Pollution

Dr Terry Dillon, Prof. Nic Carslaw

Indoor air pollution impacts of recreational combustion (candles, incense) will be investigated in room scale deployments to a new kitchen/bathroom "lab" and via model simulations. You will work alongside the INGENIOUS team of UK universities and industrial partners investigating chemistry at the indoor / outdoor interface.



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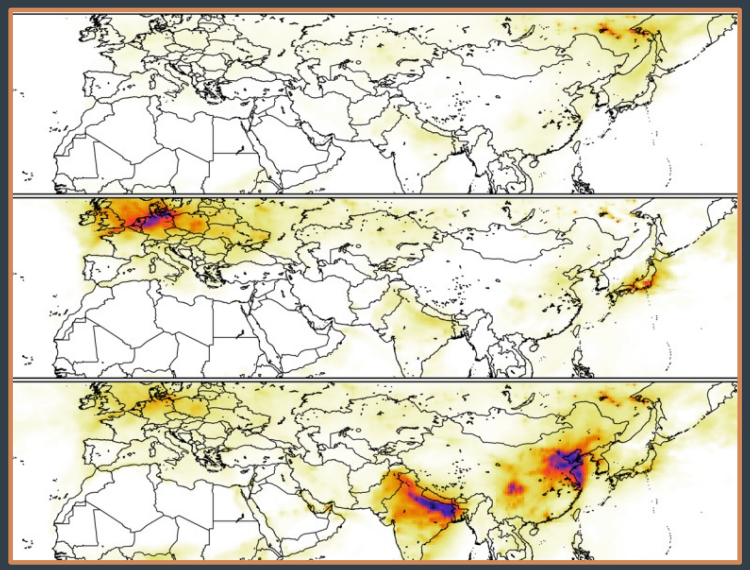
Understanding tropospheric ozone trends. Is it all just emissions?



Prof. Mat Evans, Prof. Lucy Carpenter

This project will explore our understanding of changes in the O_3 concentration on the decadal-to-century scale, using a state-of-the-art numerical model, the impact of atmospheric chemistry and the deposition of compounds to the Earth's surface and clouds, to enhance or diminish the impact of human emissions on O_3 in the atmosphere.

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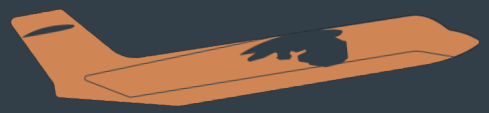
Measurements of Ozone-depleting Substances at the Cape Verde Observatory

Prof. Lucy Carpenter, Dr Steve Andrews

This project will expand our atmospheric halocarbon automated measurements at the Cape Verde Observatory and potentially at the Hateruma station in Japan to include a wider range of established and emerging ozone depleting substances. You will also collect new measurements at Cape Verde to investigate in situ ocean production.



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