Air Quality Expert Group

Membership details

Last updated: April 2018

Chairman

Professor Paul Monks

University of Leicester.

Specialism

Atmospheric chemistry, long range and regional modeling.

Research interests

The role of photochemistry in the control of atmospheric composition; chemistry and transport, particularly the impact of long-range transport on chemical composition; the feedback between climate and atmospheric chemistry; organic complexity and the control of regional pollution and the measurement of the chemical composition of the troposphere from space.

Professor Monks has made a number of contributions to the development of policy through the EU ACCENT S&I project as well as the Defra ROTAP processes.

Members

Dr James Allan

University of Manchester and National Centre for Atmospheric Science

Specialism

In situ atmospheric aerosol measurements

Research interests

Online measurements of aerosol composition, in particular using aerosol mass spectrometry, chemical ionisation mass spectrometry and single particle soot photometry. Application of multivariate techniques such as positive matrix factorisation for receptor modelling. Measurement and modelling of black carbon microphysical and optical properties.

Dr David Carruthers

Cambridge Environmental Research Consultants

Specialism

Modelling small scale atmospheric flows and local air pollution; urban air quality.

Research interests

Airflow, turbulence, dispersion and chemical processes within the atmospheric boundary layer with a focus on complex environments including urban areas and inhomogeneous terrain; modelling, forecasting and assessment of air quality and micro-climate in these complex environments; developing parameterisations of complex atmospheric processes for application to practical operational systems.

Dr David Carslaw

Ricardo Energy and Environment and University of York

Specialism

Transport as a source of air pollution, dispersion modelling, emissions inventories and mobile monitoring.

Research interests

Quantification primary nitrogen dioxide emissions from road traffic using ambient measurement data; the development of source apportionment approaches for urban air pollution and work to characterise the seasonal cycles of key atmospheric species.

Dr Gary Fuller

King’s College London

Specialism

Urban air pollution measurement and the investigation of sources and trends.

Research interests

Analysis of sources, trends and changes in urban air pollution. Much of this research focuses on the source apportionment of PM concentrations including the impacts of PM arising from sources that are not currently represented well in emissions inventories including volcanoes, waste management facilities, construction and wood burning. I also work with toxicologists, clinicians and epidemiologists promoting the best use of air pollution measurements in health studies.

Professor Roy Harrison, OBE

University of Birmingham

Specialism

Emissions characterisation (particularly for particulate matter), atmospheric chemical and physical processes, human exposure.

Research interests

The use of chemical composition and molecular markers to infer the sources of airborne particulate matter; links between urban and ambient particulate matter and health-particle metrics; characterisation of secondary organic aerosol; source apportionment of airborne particulate matter; composition, sources and properties of the organic component of urban airborne particulate matter; diesel particle emissions and their behaviour in the atmosphere; airborne nanoparticles, polycyclic aromatic hydrocarbons; air quality in the less developed world cities.

Dr Mat Heal

University of Edinburgh

Specialism

Atmospheric chemistry, particularly in relation to boundary layer composition and chemical processes and impacts of air quality on health.

Research interests

The measurement and modelling of small-scale spatial and temporal variations in urban air pollution for estimating human exposure; high-resolution regional-scale modelling of atmospheric chemistry, to understand current and potential future impacts on atmospheric composition and on human health burdens; measurement of the concentrations and surface fluxes of volatile organic compounds from terrestrial ecosystems.

Professor Alastair Lewis

University of York, National Centre for Atmospheric Science

Specialism

Atmospheric chemistry, composition, and environmental technology.

Research interests

Experimental observations of air pollution and measurement science; transport of photo-oxidants, volatile organic compounds, composition of aerosols and particulate matter; emissions of gases and persistent organic pollutants, air pollution sensors.

Professor Lewis is the Deputy Director of the National Centre for Atmospheric Science (NCAS).

Dr Eiko Nemitz

Centre for Ecology & Hydrology (CEH)

Specialism

Measurement and modelling of surface-atmosphere exchange

Research interests

Measurement and modelling of emission and deposition of a wide range of reactive gases (ammonia, NOx, VOCs, ozone, CO, O_3, SO_2), aerosols and greenhouse gases (CO_2, N_2O, CH_4). Top-down verification of emission inventories. Online measurements of aerosol composition and source apportionment.

Professor Claire Reeves

University of East Anglia

Specialism

Atmospheric gas phase chemistry, modelling and interpretation of field data

Research interests

Tropospheric chemistry from remote clean atmospheres to polluted urban environments. Long terms trends in tropospheric oxidants. Atmospheric budgets of halogenated compounds that are ozone depleting and greenhouse gases. Impact of biogenic emissions, in particular isoprene. Impact of meteorology on air quality, including boundary layer processes and long range transport of pollutants. Interventions to change public behaviour to reduce emissions and exposure.

Professor Martin Williams

Kings College London

Specialism

Air quality science and policy

Research interests

The application of atmospheric science to policy on air quality; the relationship between air quality and health; linkages between air quality and climate change; urban and regional air quality; ozone chemistry and modelling. Professor Williams was the Deputy Director of the air quality programme in Defra responsible for air quality policy and research from 2005-2010. He was until 2014 the Chair of the Executive Body of the UNECE Convention on Long Range Transboundary. He is co-chair of the WHO Guideline Development Group tasked with revising the WHO Air quality Guidelines.

Ad-hoc members

Professor David Fowler

Centre for Ecology and Hydrology, Edinburgh

Specialism

Surface – atmosphere exchange processes, atmospheric composition.

Research interests

Measurement and modelling surface –atmosphere exchange of pollutant gases, aerosols and greenhouse gases. Synthesis and analysis of trends and budgets of pollutants at country scales, effects of pollutants on ecosystems, nitrogen and sulphur biogeochemistry and global cycles.

Dr Ben Marner

Air Quality Consultants Ltd.

Specialism

Air quality assessment in the development control process.

Research interests

Assessing the air quality impacts from new developments within the development-control framework, with specific respect to human health and ecological habitats. Consideration of residential, commercial, infrastructure, and industrial emissions sources. Devising evidence-based assessment methods for industry-wide use, including emissions models and empirical predictive concentration models. Particularly interested in modelling road traffic, airport and energy plant emissions.

Dr Andy Williams

University of Chester

Specialism

Particulate emissions, exhaust emission after-treatment and powertrain technologies

Research interests

Dr Williams's research interests lie in applied fluid mechanics and thermodynamics, with a focus on transport technologies. This includes particulate emission characterisation, filtration fundamentals and filtration technology performance evaluation. He is currently investigating particulate adhesion and re-entrainment characteristics under transient gas concentrations, thermal conditions and flow conditions. He is also developing new

methods for representing flow interactions in 1-D modelling of turbomachinery with the aim of improving predictive capability while maintaining very low computational and time costs.

Ex Officio member for the Central Management and Control Unit of the automatic urban and rural networks

Dr Richard Maggs

Practice Manager for the ambient air quality team at Bureau Veritas. He gained his PhD from Imperial College in 1996 having studied the impacts of air quality on agricultural crops in Pakistan, and having worked with the Punjab EPA to set up a number of pollution monitoring networks. After completion of his studies, Richard continued at Imperial College in the field of air quality where he researched the impacts of diesel particulates on lung-function at the National Heart & Lung Institute; the impacts of traffic management schemes on personal exposure to pollutants; and undertook a review on the critical loads of pollutants in relation to ecosystem changes in upland habitats. He specialises in the management of air quality networks and is current Project Director for the Central Management and Co-ordination Unit (CMCU) of the UK Automatic Urban and Rural Network. He has previously advised the Secretary of State on the efficacy of local authority action plans under the UK Local Air Quality Management regime.

Ex Officio member for the National Atmospheric Emissions Inventory

Dr Tim Murrells, Ricardo Energy & Environment

Specialism

Emission inventories and projections of air pollutants and greenhouse gases, specialising in emissions from transport sources and application of emission inventories in air pollution models. Tim is the technical lead of the UK's National Atmospheric Emissions Inventory programme

Research interests

Development and verification of emission inventories, emission projections and control technologies, vehicle emissions and the impacts of alternative fuels and technologies, technical support on transport and air quality policies, atmospheric and combustion chemistry.

Ex Officio member for the National Physical Laboratory

Dr Paul Quincey

Specialism

Methods, uncertainties and standardisation in air quality measurements. Scientific work within BEIS's National Measurement System, and associated EURAMET projects, covering low concentration gas measurements as applied to air quality, and airborne particle measurements, including particulate matter mass concentration, nanoparticle characterisation, elemental carbon / organic carbon (EC/OC), and black carbon. Oversight of data quality within the Defra/EA monitoring networks for Metals, Black Carbon, and Particles. Harmonisation of data across Europe through CEN and AQUILA.

Ex Officio member for Quality Assurance and Quality Control of the automatic urban network (AURN), and information dissemination (UK-AIR)

Paul Willis

Business Manager for the Air Quality Measurements team at Ricardo Energy & Environment. He has an MA in Natural Sciences from Cambridge and has worked for over 20 years in Air Quality, initially at Warren Spring Laboratory and then at Ricardo-AEA. Paul has a background in atmospheric chemistry, and extensive knowledge of both air quality policy and the practical aspects of air quality monitoring, data analysis and reporting.

Paul provides technical guidance for many projects including UK Air Quality Compliance reporting, and QA/QC of local or national air quality monitoring. Paul’s particular interests include working closely with Public Health experts to develop air quality forecasts and alerts, and educational projects to inspire our next generation of young scientists.