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About

Title of PhD: Sources and Properties of Polycyclic Aromatic Hydrocarbons (PAHs) in the UK atmosphere

Supervisors: Professor Roy Harrison (/staff/profiles/gees/harrison-roy.aspx) , Dr William Bloss (/staff/profiles/gees/bloss-william.aspx)

My research focuses on the sources, behavior and fate of polycyclic aromatic hydrocarbons (PAHs), a toxic and potentially carcinogenic class of air pollutant, in the atmosphere. I am interested in estimating the relative contribution of direct combustion emissions and atmospheric reactions to the observed levels of nitro-PAH and oxy-PAH derivative compounds in the atmosphere. I am taking air samples in Birmingham and analyzing them for levels of PAHs as well as nitro- and oxy- derivatives. The levels of these compounds in the atmosphere can then be compared with reaction kinetics data to produce an estimate of the role of secondary reactions vs direct emissions. Computer modeling of these data can also be used to produce an estimate for the concentrations of these compounds.

Qualifications

BSc Environmental Chemistry (Lancaster University) , 2008
MSc Green Chemistry and Sustainable Industrial Technology (University of York), 2009

Biography

I have previously studied at Lancaster University, completing a degree in Environmental Chemistry in 2008. There I became interested in the sources, distribution and fate of persistent organic pollutants in the environment and carried out a dissertation project on the interaction of PAHs with vegetation under the supervision of Prof Kevin Jones. Following this, in 2009 I completed a Masters degree in Green Chemistry and Industrial Technology at the University of York before coming to Birmingham in 2010 to continue researching the environmental behavior and fate of PAHs under the supervision of Prof Roy Harrison.

Research

Research interests

Sources of PAHs and derivative compounds, Gas-phase and heterogeneous-phase reactivity of PAHs, ambient concentrations of PAHs, nitro-PAH, and oxy-PAHs.

Publications

Keyte, I.,. Wild, E., Dent, J. and Jones, K.C. (2009). Investigating the Foliar Uptake and Within-Leaf Migration of Phenanthrene by Moss (Hypnum Cupressiforme) Using Two-Photon Excitation Microscopy with Autofluorescence. Environmental Science & Technology 43(15): 5755-5761.

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