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The Leicester Air Quality Measurement Project - Investigating the composition and dynamics of the urban atmosphere.

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From July to September 2007 a suite of instruments from a number of UK institutions measured the composition of air in the “typical” urban environment of Leicester, a UK city of 300,000 people. Measurements taken included ambient concentrations of NO₂, Ozone, CO, CO₂, CH₄, volatile organic compounds, aerosol backscatter coefficient and aerosol composition. In addition, a dispersion model, AIRVIRO was populated with traffic data and emission estimates to provide a wider spatial and temporal context to the measured data. This presentation includes analysis of measurement techniques for common parameters such as nitrogen dioxide and particulate matter, where spatial sampling scales and differing instrumental mechanisms provide scope for synergistic use of datasets. Implications for operational monitoring systems are also discussed.

Particular attention will be paid to aerosol optical depth data derived from a multi-axis differential optical absorption spectroscopy instrument. This data is compared with concurrent aerosol backscatter measurements from a multi-wavelength LIDAR sited by the DOAS instrument. Information on boundary layer height available from both instruments is discussed.