# Pollutant transport, air quality and the urban environment

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This project, based in one of the world's only stratified atmospheric boundary layer simulating wind-tunnels, will study the complex relationships between temperature, turbulence and transport within the built environment using some of the world's most sophisticated instrumentation. To date, there has been very little work done to comprehensively include the effects of temperature in the study of urban turbulence and air quality.

In particular, this project is aimed at improving dispersion and air quality models, in order to better understand the mechanisms by which contaminants (like vehicle exhaust) distributes along street canyons when driven by both the incident wind and the effects of thermal buoyancy.
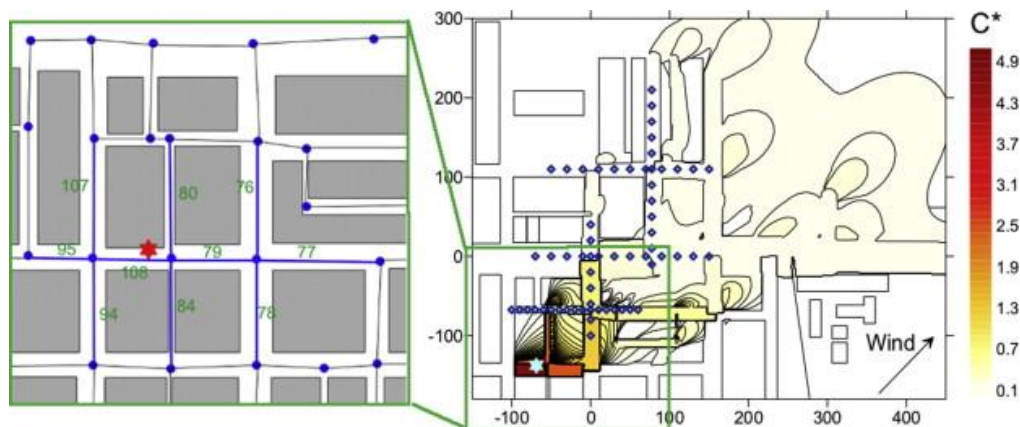
Dispersion in an urban environment. From Carpentieri M, Robins A, Salizzoni P, Soulhac L. (2012) 'Evaluation of a neighbourhood scale, street network dispersion model through comparison with wind tunnel data'. *Environmental Modelling and Software*, 37, pp. 110-124.

Training opportunities:
The student will be working in the EnFlo Laboratory (a NCAS National Facility with a strong international reputation), and will join a well-established, collaborative team of more than 30 students, researchers and academics. The student will also work in close collaboration with our spin-off company, Surrey Sensors Ltd., to develop any derivative commercially-viable technologies.

Student profile:
This project would be appropriate for a student with a background in mechanical or aerospace engineering (or related subject area) with experience in fluid flows.

Funding:
This project will be supported by an in-kind contribution by Surrey Sensors Ltd., including technical support, access to facilities and IP, and on-site support as required.

http://www.reading.ac.uk/nercdtp