



Using fast response CO₂ detectors to analyse the flow and emissions in street canyons

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Using multiple fast response NDIR CO₂ detectors it is possible to measure, with high temporal resolution the emissions of CO₂ within a street canyon and to infer the flow regime within the street canyon. Field work in the urban environment is augmented via the use of an idealised street canyon, where CO₂ is used as a trace gas, monitored by multiple detectors in real time. Visualising the flow in real time allows for more efficient use of experimental time as well as aiding the understanding of a complex dynamical system. The fast response of the detector ($1/8^{th}$ of a second) allows the capture of the fine structure of the emissions within the street canyon. Analysis using the Fourier transform and wavelet analysis shows that there are many high frequency signals within the emissions profile of a street.