



CALL FOR PAPERS

Six billion of dwellers are projected to be urban by 2050, which means that over 65% of world's population will be urbanite. The consequent increasing urbanization by means of replacement of natural land surfaces by buildings and pavements modifies the weather and climate at local and regional scales. The related growth in traffic, industry, and anthropogenic emissions within the city continues to cause concerns about levels of air pollution and health risks associated with exposure to elevated pollutant concentrations and high temperatures. Of particular concern are periods with elevated ozone concentrations and unusual high temperatures (e.g., during heat waves), given that extreme heat conditions commonly result in immediate increases in mortality. Many researchers studied the distribution of pollutants in built-up areas, but due to the city-atmosphere complexity, the understanding of flow and turbulence processes is still limited and more investigations are required. Furthermore, assessment of realistic and efficient mitigation strategies to improve both air quality and thermal comfort in urban areas is still insufficient. The importance and extent of this subject that combines multiple disciplines demand for an integrated multiscale approach based on field measurements, laboratory experiments, and numerical modelling (including modern techniques that use data assimilation methods).

We invite researchers to contribute research articles dealing with air quality and thermal comfort in urban areas. These contributions include new measurement techniques applied to urban climate and air quality monitoring (new sensors and methods) and new developments in modelling urban meteorology (including thermal effects) and air quality. Numerical studies include Computational Fluid Dynamics modelling and mesoscale modelling at high spatial resolution (urban scale). Reviews with possible future lines of investigations and the presentation of main findings of recent research projects related to urban climate and air quality are also welcome.

Potential topics include, but are not limited to:

- ▶ Modelling and Experimental:
 - ▶ Modelling effects of urban vegetation on urban climate and air pollution
 - ▶ Modelling thermal effects of urban surfaces
 - ▶ Modelling and measuring urban heat island
 - ▶ Implementation of photochemical models at street level
 - ▶ Traffic modelling (emissions, traffic-produced turbulence, etc.)
 - ▶ Coupling of mesoscale and microscale models for meteorological and air pollution applications, urban canopy parameterizations
 - ▶ Experimental data from new field campaigns in cities
 - ▶ Monitoring greenhouse gas-induced global climate change
- ▶ Applications:
 - ▶ Application studies to modern cities (considering both mesoscale and microscale models)
 - ▶ Urban air quality assessment (i.e., spatial representativeness of air quality measurements, air quality issues related with legislation, and population exposure to air pollutants)
 - ▶ Mitigation strategies of urban air pollution and thermal stress (i.e., urban greening, photocatalytic materials, and urban planning)
 - ▶ Building climate and energy consumption modelling (including anthropogenic heat impacts)
 - ▶ Regional impacts of projected urban expansion on urban climate and air quality (including local effects of urbanization under climate change projections)
 - ▶ Extreme meteorological phenomena like heat waves and their impacts

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First Round of Reviews

Friday, 8 April 2016

Publication Date

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