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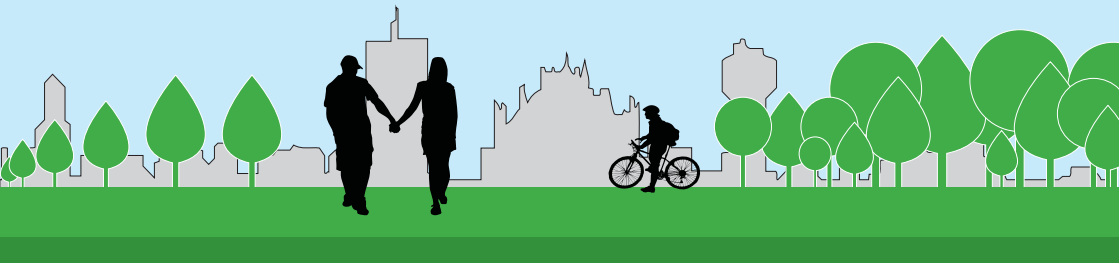

ABSTRACTS

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URBAN CLIMATE STUDIES - ADDRESSING THE ROLE OF URBAN GREEN SPACES

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Abstract

Cities present a wide range of climate transformations resulting from changes induced by buildings and other artificial structures, including such effects as the urban heat island (UHI) and the changes in the ventilation patterns. Under these conditions, urban climate analysis is increasingly considered as a necessary activity that should be part of the urban planning practice. Although there has been a wide development of climate studies across different countries, further improvement is needed to address a wider diversity of geographic locations and conditions (Ren et al., 2010). Stewart and Oke (2012) defined a set of Local Climate Zones (LCZ) as a way to address such a complex reality, including both urban and periurban locations.

As part of the transnational project BIOURB, a study is taking place in Bragança (Portugal) aiming at studying local urban climate, while establishing a basic methodology that can be used as a reference for cities located in the regions of the North of Portugal and Castilla-León (Spain). The methodology can be described as consisting on the integration of urban climate monitoring with the interpretation of major factors influencing local climate (topography, land use and artificial structures), allowing for the interpretation of major climate transformations, with the ultimate goal of providing urban design strategies.

Urban climate monitoring is being carried out with a combination of twenty three temperature and relative humidity sensors, five wind anemometers and three weather stations. The location of these equipment addresses different LCZs and the potential rural to urban gradient, including several green spaces within the urban limits. Results from a full year campaign, show that while addressing a small, though complex, urban reality and despite the proximity to rural surroundings, the Urban Heat Island effect reaches intensity values over 5oC during the hot summer nights, thus showing the contrast between the higher temperatures resulting from the effects of artificial surfaces, anthropogenic heat and heat retention by buildings, and the lower temperatures observed in green spaces both within and outside the town.

As urban climate study is still being carried out, preliminary results suggest green spaces are relevant assets in climate intervention by both diminishing thermal load, relevant under warm summer conditions and to potentially being associated to topographic dynamic processes such cold air drainage (valleys), wind reduction (woodlands) or wind enhancing (grasslands).

Key Words

Urban Climate, Local Climate Zones, Green Spaces.

Key References

Ren, C., E.Y. Ng, and L. Katzschner, 2010. Urban climatic map studies: a review. *International Journal of Climatology*, 31 (15), p. 2213-2233.

I. D. Stewart and T. R. Oke, 2012. Local Climate Zones for Urban Temperature Studies. *Bulletin American Meteorology Society*, 93, 1879–1900