

## Guest editorial address

In the last decades urbanisation accelerated and reached enormous magnitude. The Earth's urban population grows faster than the total population, therefore, more and more people live in urbanised regions. Not only the large cities but also the smaller ones can modify almost all properties of the urban atmospheric environment compared to the natural surroundings. These changes are caused by the artificial building-up, as well as by the emission of heat, moisture and pollution related to human activities resulting changes in radiation, energy and momentum processes. As a result a local climate (*urban climate*) develops in the urbanised areas. The climate modification effect of cities occurs most notably in the temperature increase (*urban heat island*) which influences, on the one hand, the energy demand for heating in winter and air conditioning in summer, and on the other hand, it increases the thermal load of the city dwellers in varying degrees in time and space within the settlement. The heat island affects not only the quality of life and well-being (e.g. human comfort), but in many cases also the health conditions of people living in cities. This can be a problem especially as heat waves are becoming more and more frequent due to climate change.

This special issue of the Hungarian Geographical Bulletin provides some insights into the recent results of research groups of five Central European cities (Brno, Budapest, Cluj-Napoca, Novi Sad and Szeged) from four countries related to this large and diverse topic. Certain parts of their research were linked by joint projects (e.g. URBAN-PATH project – <http://en.urban-path.hu/>, Urban climate in Central European cities and global climate change project – <http://www.klimat.geo.uj.edu.pl/urbanclimate/about.html>). The apropos of this thematic issue is given to the session 'Applied urban climate and bioclimate' of the EUGEO-2015 congress in Budapest. The presented results of this session were largely derived from the above mentioned research groups (<http://www.eugeo2015.com/sessions/session/3>).

The focus of this special issue is the measurement/modelling of thermal patterns and human thermal sensation within urban environments. The first three papers deal with temperature measurements at districts and city scales. The next three ones contribute to our knowledge on human thermal comfort and radiation modification effects of urban environments. The last two studies present modelling tools that can be used to assess and compare the intra-urban thermal conditions both at present and in the future.

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