



Analysis of human thermal comfort and its tendencies in Budapest (Hungary)

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In spite of the fact that the evaluation of the thermal conditions in the urban areas is extremely important and timely, in Budapest (capital of Hungary) very few studies were performed in this direction until now. The aim of this paper is to analyze the differences and changes of the thermal comfort conditions in the last half century (1961–2010) by comparing measurements of two meteorological stations located in different environments of Budapest: one in the central urban area (Local Climate Zone 2 – ‘compact midrise’) and the other in the suburbs (between Local Climate Zones 6 – ‘open lowrise’ and A – ‘dense trees’). The thermal comfort was characterized by two human bioclimatological comfort indices, the Physiologically Equivalent Temperature (PET) and the Universal Thermal Climate Index (UTCI), for four characteristic times of the day in the examined period. Then the thermal comfort differences between the stations according to two climatic normal periods (1961–1990 and 1981–2010), and the tendencies detected among the periods were also under investigation. For the last decade, 2001–2010, hourly-resolution investigations were carried out. The results indicate that the central area is affected by a higher degree of hot stress and less cold stress. Additionally, the warm stress has become more frequent, however, the cold heat load decreased in both examined area at each time.