



Estimation of Universal Thermal Climate Index (UTCI) in different Local Climate Zones in Berlin during the heat wave in year 2018

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Heat waves have a detrimental effect on human health and can cause discomfort and heat stress which can lead to death. In this study, Universal Thermal Comfort Index (UTCI) during a severe and long heat wave condition in Berlin was calculated. UTCI was calculated in 32 meteorological stations which are located in different Local Climate Zones (LCZs). Significant heat occurred in summer 2018 in Berlin, therefore the human thermal comfort has been estimated in the time period from 1 Jun 2018 to 31 August 2018. RayMan model has been used to estimate the UTCI. All required data for UTCI estimation are provided from the meteorological Stations. As there is no wind measurement at many stations, the urban climate model MUKLIMO_3 has been applied to simulate the high resolved wind with resolution of 100m. The UTCI values have been compared in different LCZs and the impact of LCZ on UTCI has been investigated in urban areas with different building density and land cover. The results will show the most vulnerable areas during the heat waves and the difference in the perceived temperature and UTCI regarding the local climate zone classification.