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## Investigating Pedestrian-level Wind Fields and Thermal Environments Under Different Urban Morphology

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As urban heat island effect intensifies, weather data produced by a mainly official weather station are not adaptable to represent and reflect the microclimate situation in a city. This study selected 17 weather stations in Tainan, Taiwan, to estimate the wind velocity at pedestrian-level and utilized 102 automatic stations from high-density street-level air temperature observation network (HiSAN) to measure air temperature at a height of 2 meters. Based on those observed weather data and urban environmental information provided by the government. This study established a method of generating high-resolution pedestrian-level weather information for urban areas. The method has taken urban morphological parameters, such as surface roughness, into consideration to be the factor of evaluating wind velocity. By interpolation and extrapolation, each grid obtained microclimate weather data on the pedestrian-level scale. In addition, both pieces of information were integrated into consideration of the thermal comfort index and presented by a useful tool, WebGIS. The application could provide a simple way to visualize an instantly environmental situation for urban planning and decision making.