IMPACT OF URBAN GREEN DISTRIBUTION ON URBAN TEMPERATURE

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Urban heat island (UHI) is a phenomenon evident in increased temperatures inside the city compared to the surrounding area. The main cause of increased temperatures in the city is the anthropogenic transformation of the ground surface. The development of a heat island results in a less comfortable urban environment for people during heatwaves. In this framework, urban green provides a mitigation of UHI and urban temperatures reduction.

This study is an analysis of the effect of three scenarios of urban green distribution in the city on the intensity of UHI and air temperature under the different conditions. In addition, this work includes a literature review of existing research and gaps toward assessing the mitigating effects of the parks, as well as an examination of trends and recent UN projects on sustainable urbanization and greening. The main idea used in the development of scenarios to study the impact of parks on the urban environment is to compare cities with the same amount of sealed fraction and green, but the amount of green is distributed differently within the city. After that, different conditions were implemented to three city scenarios with one, nine and four hundred parks.

The results show that UHII is higher for the lower park number. The results for different wind speeds and locations demonstrate a strong difference between scenarios with one large park and many small parks. The PCI intensity is the highest for the lower number of parks. In addition, lower temperatures in both parks and the city are observed at higher wind speeds. However, the difference between the urban and the rural areas for higher wind velocities increases as the wind speed rises. The mitigation effect of the parks in the city is not affected by geographic locations.