

Using Geospatial Approaches to Locate Where to Plant Trees and Maximize the Thermal Comfort of Vulnerable Urban Residents

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ABSTRACT:

Global warming threatens to modify many of the earth systems and human wellbeing and despite many notable efforts to plant more trees in large urban environments around the world, there may not be sufficient resources to plant enough trees to improve thermal comfort for everyone. This presentation describes recent work using geospatial approaches and data to locate priority neighborhoods and streets for planting a large and more vibrant tree canopy. Our methods focus attention on vulnerable populations who live in neighborhoods with a sparse tree canopy and few, if any, additional ways to combat rising temperatures and in many instances, poor air quality. The spatially inspired methods we have developed model the pedestrian journeys taken to and from home to school for elementary school children and to and from home to transit stops for the residents of households without a vehicle, and the canopies of individual trees. The streets with relatively high pedestrian traffic but few trees and shade resources offer high priority planting opportunities that would help the most vulnerable residents combat rising air temperatures and poor air quality and thereby likely offer the best return on investment for new tree planting campaigns in large metropolitan regions across the U.S.

KEYWORDS: *global warming, geospatial methods, vulnerable populations, thermal comfort*

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