

Understanding the Relationships among City Microclimate, Morphology and Energy Use

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In anticipation of both climate change and global urbanization, we conduct research of microclimate impacts on energy systems. We analyze and quantify the relationships among modeled and measured climatic conditions, urban morphology, land cover and energy use; and use these relationships to inform energy-efficient urban development and planning. We apply i) neighborhood resolution modeling and simulation of urban micrometeorological processes; ii) projections informed by microclimate for future energy use under different urbanization and climate change scenarios; to produce iii) analysis and visualization tools to help planners optimally use these projections to identify best strategies for energy-efficient urban morphological development.

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