5-7-2013

Energy and Climate Interactions in the Urban Environment

David J. Sailor
Portland State University, sailor@pdx.edu

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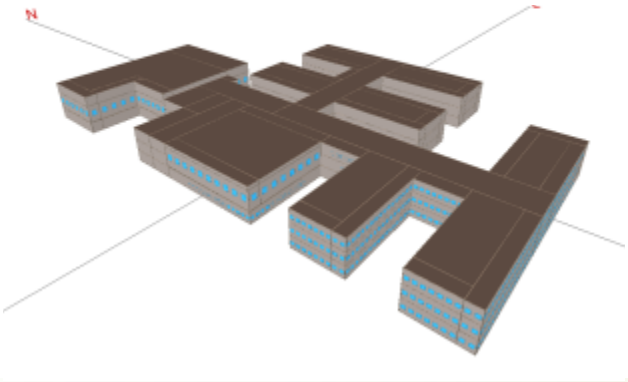
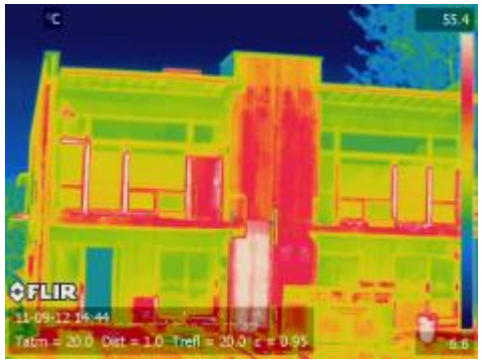
- How do sustainable design choices at the **building scale** affect…
  - Building energy use
  - Indoor thermal comfort
  - Urban environment (heat island, etc.)
- Design characteristics of interest:
  - Roofs: reflectivity, vegetation, PV
  - High performance equipment & materials
  - Heating, cooling, and ventilation





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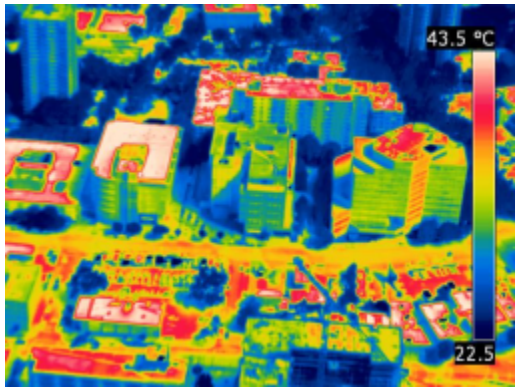
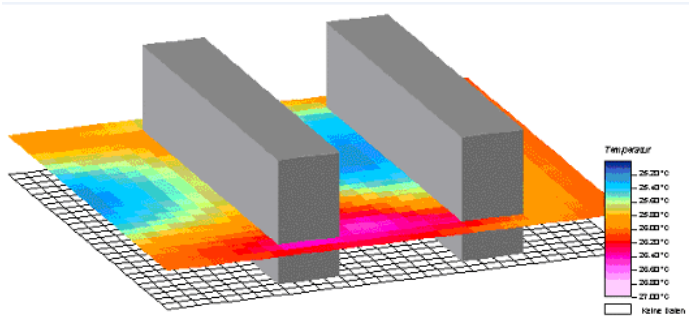
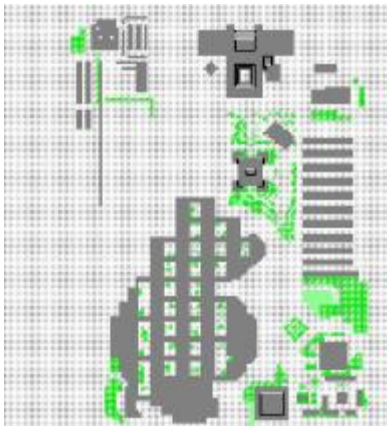
- How do sustainable design choices at the **neighborhood scale** affect…
  - Building interactions related to energy
  - Canyon flow/ventilation related to pedestrians and outside air for buildings
  - Urban heat island
- Design characteristics of interest:
  - Building materials
  - Building and urban canyon morphology







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- How do sustainable design choices at the **city scale** affect…
  - Urban heat island
  - Heat-related morbidity/mortality
  - Urban air quality
  - Urban scale energy consumption
- Design characteristics of interest:
  - Urban-scale reflectivity, moisture availability, and vegetation
  - Urban energy use and emissions