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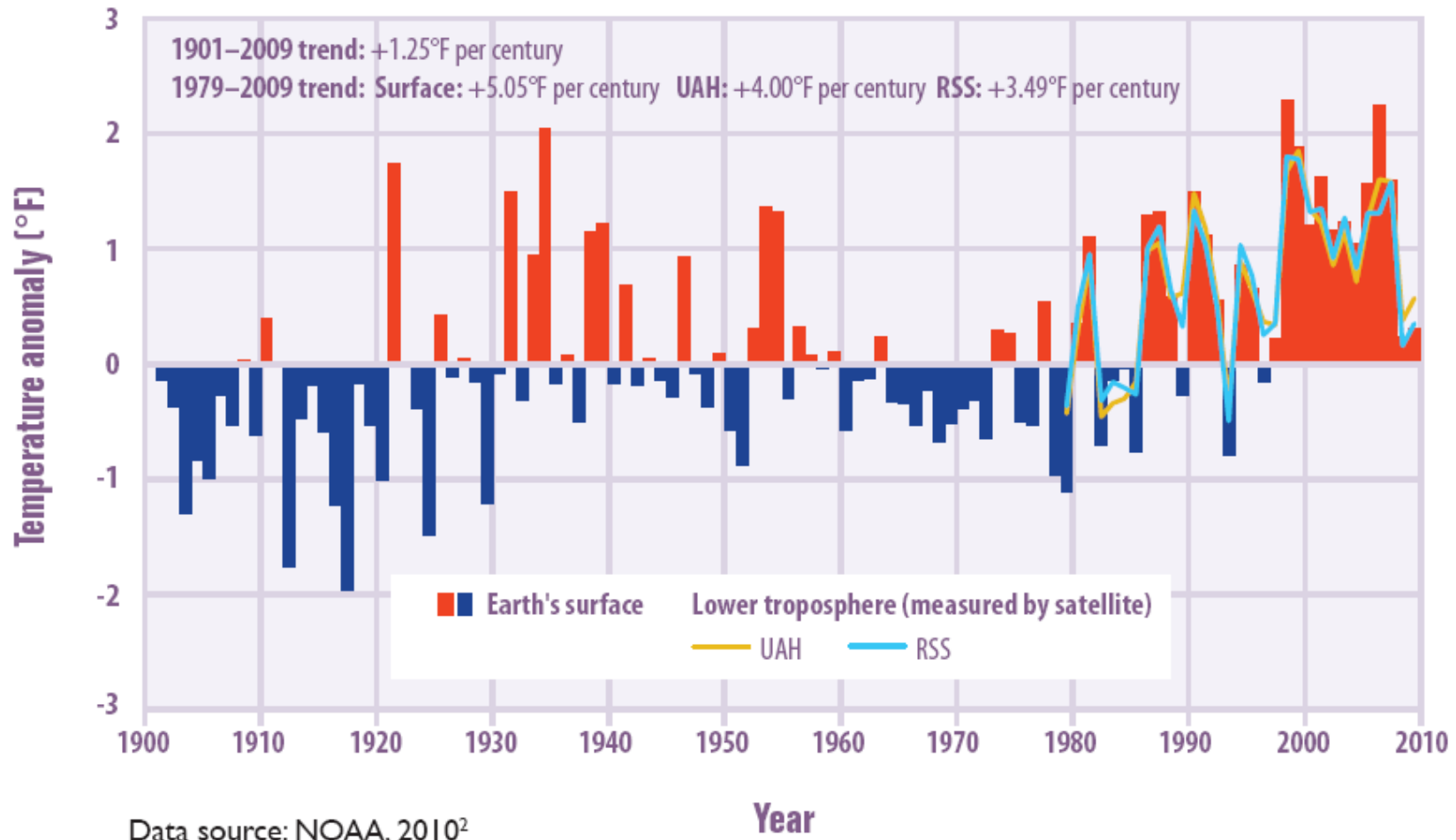
Heat Island Reduction Program

Neelam R. Patel

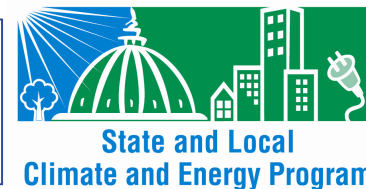
Webcast: Federal Resources and Support for
Climate Change Adaptation

January 13, 2011

Trends in U.S and Global Temperatures



The Heat Island Effect

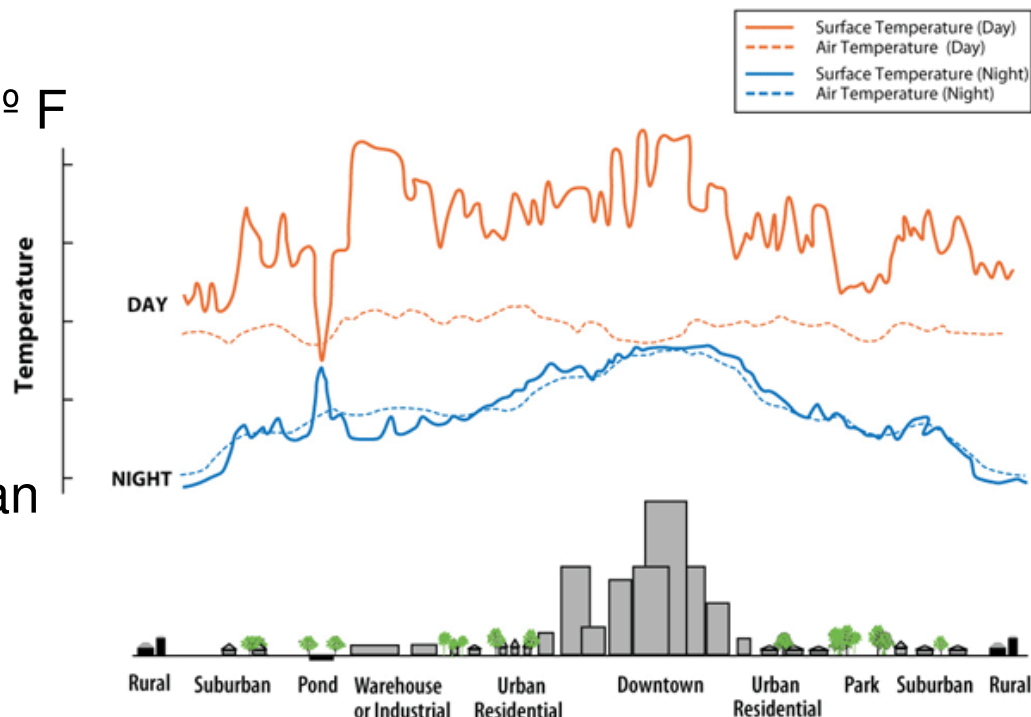


Definition

- Micro-scale temperature differences between urban and rural areas
- Urban areas can be 9 – 27 ° F higher than rural areas

Formation

- Reduced vegetation
- Materials used to build urban infrastructure
- Urban geometry



Heat Island Impacts



■ Air Quality and Greenhouse Gas (GHG) Emissions

- Ozone formation
- Increased air pollution
- Increased GHG emissions

■ Increased Energy Use

- 5 – 10 % of electricity demand is to cool heat islands effects
- 1.5 – 2.0% E demand ↑ for every 1 °F ↑ in the summer
- Longer peak periods; pressure on E grid; brownouts, blackouts

■ Water Quality

- Warmer water runoff = ecological shock in waterways
- Increased water runoff = more pollutants in waterways

■ Human Health

- Respiratory difficulties
- Heat cramps
- Heat exhaustion
- Non-fatal heat stroke/sun stroke
- Heat related mortality

Extreme Heat Events and Heavy Precipitation



Long-term Planning Actions for Adapting to Urban Heat



Heat Island Mitigation Strategies

Communities can take medium to long-term action to reduce urban heat islands and protect public health by integrating four main strategies throughout built infrastructure.

- Trees and Vegetation
- Green Roofs
- Cool Roofs
- Cool Pavements



U.S. EPA Heat Island Program Resources



- **Website**, features include basic information on heat island topics, calendar of events, heat island newsroom, science corner and a variety of resources <http://www.epa.gov/heatislands/>
- **Database**, provides info on more than 75 local and statewide initiatives to reduce heat islands and achieve related benefits
- **Compendium of Strategies: Reducing Urban Heat Islands**, provides an overview of latest science, mitigation strategies, case studies, and recommendations for additional resources
 - Heat Island Basics
 - Trees and Vegetation
 - Green Roofs
 - Cool Roofs
 - Cool Pavements
 - Heat Island Reduction Activities<http://www.epa.gov/heatislands/resources/compendium.htm>
- **Webcasts**, regular online meetings cover topics such as local/regional urban heat island programs, new scientific findings, and upcoming meetings www.epa.gov/heatislands/resources/webcasts.htm
- **Listserv**, to sign up, email EPA_heatisland_subscribe@icfi.com