The impacts of temperature change on public health in Los Angeles

Elizabeth Rhoades, PhD
Los Angeles County
Department of Public Health
Environmental Health Division

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Heat predictions for Los Angeles

• Higher average temperatures
• More episodes of extreme heat
  – Inland and mountain areas most affected
Heat predictions for Los Angeles

Current and projected temperature extremes for Los Angeles
Average annual days exceeding 95 degrees F

<table>
<thead>
<tr>
<th>Location</th>
<th>Current</th>
<th>2041-2060 ensemble projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baldwin Hills</td>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>Downtown LA</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Eagle Rock</td>
<td>13</td>
<td>42</td>
</tr>
<tr>
<td>El Sereno</td>
<td>13</td>
<td>41</td>
</tr>
<tr>
<td>Hollywood</td>
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<td>16</td>
</tr>
<tr>
<td>Porter Ranch</td>
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<td>San Pedro</td>
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<td>100</td>
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<tr>
<td>Studio City</td>
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<td>38</td>
</tr>
<tr>
<td>Sunland</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>Sylmar</td>
<td>0.1</td>
<td>0.6</td>
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<tr>
<td>Venice</td>
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<td>Watts</td>
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<tr>
<td>Westwood</td>
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<td>Woodland Hills</td>
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</tr>
</tbody>
</table>

Source: UCLA LARC study, 2012; chart based on the mean/average projected by the 18 climate models

Source: UCLA “Climate Change in the Los Angeles Region” Project
Public health impacts of heat

• Hundreds of deaths in the US:
  – Philadelphia (1993): 118 deaths
  – Chicago (1995): 739 deaths
  – California (2006): > 650 deaths

• More deaths than floods, storms, and lightning combined

Photo © Monica Almedia/The New York Times
California Heat Wave of 2006

- Illness
  - 16,166 excess ER visits; 1,182 excess hospitalizations
  - More ER visits for heat-related illness, acute kidney failure, cardiovascular diseases, diabetes, electrolyte imbalance, nephritis (kidney inflammation)
Public health impacts of heat

- Heat worsens air quality
  - More creation of ground-level ozone
  - More temperature inversions
  - Wildfires

**Smog sticks around**

Pollution can get trapped in a basin when high pressure prevents air from moving.
What is the Urban Heat Island?

• Urban areas can be up to 17°F hotter than surrounding rural areas due to:
  – Pavements
  – Roofs
  – Lack of vegetation
Impervious surfaces

Source: California Department of Public Health and the Public Health Institute

Source: U.S. Geological Survey

Impervious Surface (%)
- <7
- 8 - 18
- 19 - 31
- 32 - 43
- 44 - 54
- 55 - 63
- 64 - 72
- 73 - 81
- 82 - 91
- >91
- County
Park-poor areas with low income

Source: The City Project, at http://www.mapjustice.org/losangeles

Assembly District Number

- Less than 3 acres parkland per 1000 people and Below $47,331 Median Household Income
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- More than 3 acres parkland per 1000 people and Below $47,331 Median Household Income
- More than 3 acres parkland per 1000 people and Above $47,331 Median Household Income
- Zero Population

More People of Color than State Average
State Average = 53.3%

All parks and open space are used to calculate acres of parkland per 1000 people, including forest service, bureau of land management and large state and regional parks.

Source: The City Project, at http://www.mapjustice.org/losangeles
Why work on the Urban Heat Island?

- Saving lives
- Lower energy costs
- More comfortable to exercise and play outside
- Improved air quality
What can be done?

- Trees
- Cool roofs
- Cool and permeable pavements
County of Los Angeles working on an Urban Heat Island Reduction Plan

- In early stages (nothing written yet)
- Interested in learning from other regions of the world!
Thank you!

Elizabeth Rhoades, PhD
Los Angeles County
Department of Public Health
Environmental Health Division
erhoades@ph.lacounty.gov