Extreme Heat in the Intermountain Southwest

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Urban Heat Islands

The urban heat island (UHI) effect describes the way in which urban or metropolitan areas are substantially warmer than neighboring rural areas, most notably overnight, due to modification of land surfaces. As open land is replaced with pavement and buildings—which are more effective at absorbing and storing heat than vegetated landscapes and soils—the built environment heats up, relative to surrounding areas. In the Southwest, Las Vegas and Denver have the largest urban heat islands with summer daily temperatures approximately **7.3°F** and **4.9°F** warmer than nearby rural areas, respectively.

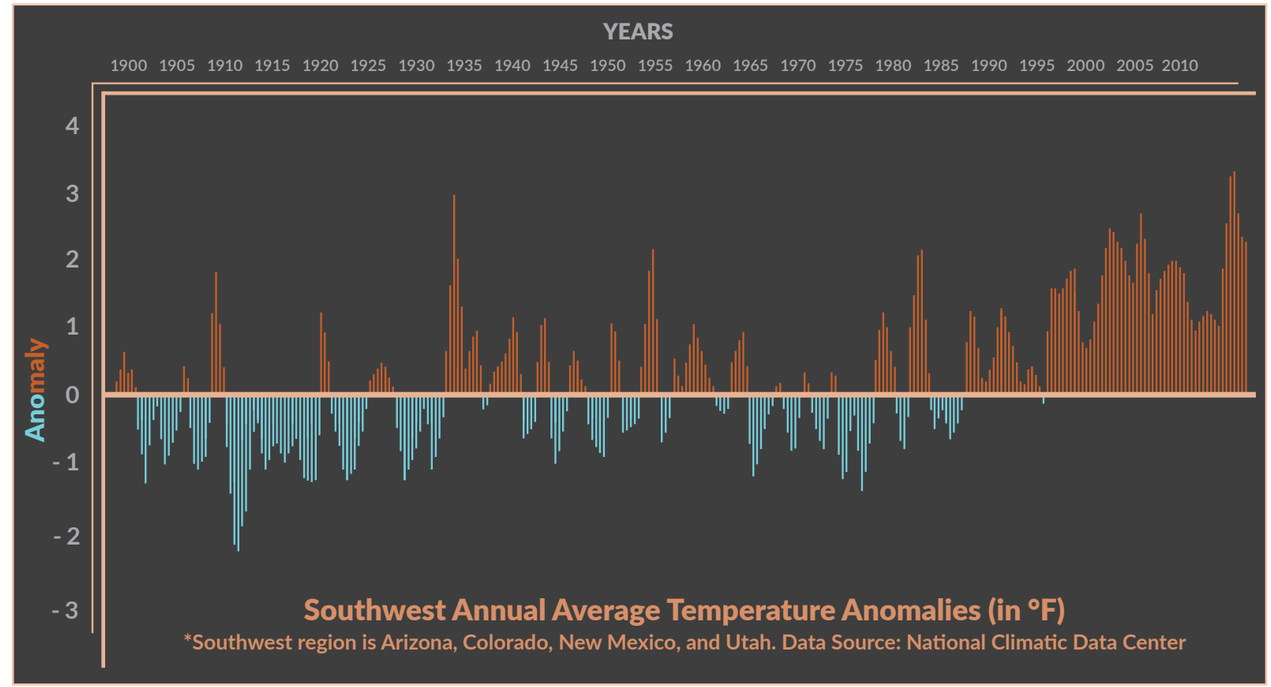
From 1979-2003, more **people died in the U.S. from extreme heat** than from hurricanes, lightning, tornadoes, floods, and earthquakes combined.

Over 1,500 deaths from exposure to excessive natural heat have occurred in Arizona from 2000 to 2012.

The Phoenix metropolitan area has an average of **26 heat-related deaths every summer.**

Heat is the **#1 weather-related killer** in the U.S.

Since 1901, average annual temperatures in the region have risen over **1.5°F**



IMPACTS:

Deaths and Injuries
(e.g. dehydration, heat stroke, respiratory ailments from ozone level exceedances)

Delayed/canceled flights
On June 26, 1990 temperatures reaching 122°F caused the closure of Sky Harbor Airport in Phoenix for several hours.

Exacerbates wildfires and drought conditions

Blackouts
On June 29, 2013 extreme heat knocked out power for 2 hours in Las Vegas

Buckled roads
In late June 2013 extreme heat caused an interstate on-ramp to buckle in Salt Lake City

Increased water use

BUILDING RESILIENCE

To combat the UHI effect, several cities including Las Vegas, Phoenix, and Tucson have engaged in such programs as tree-planting campaigns, sustainable building strategies, and the use of cool paving and cool roofing materials.

The City of Las Vegas opens cooling stations on summer days when the National Weather Service projects temperatures in excess of 5°F above normal, or when heat comes on suddenly.

The State of Arizona, in partnership with several local agencies, launched a heat warning service in 2001 that warns the public of extreme heat up to 2.5 days in advance via press releases and reminds people to take precautions.

The City of El Paso convened the Extreme Weather Task Force (EWTF) in 2002 to improve public awareness of severe weather safety and preparedness and to reduce the number of extreme weather-related deaths and illnesses, especially those related to extreme heat and cold. Between 2004 and 2008 the EWTF delivered 7,400 fans to high-risk individuals, and since its creation in 2002 the number of heat-related deaths has decreased by 50%.

*Sources: Climate Central (climatecentral.org), Assessment of Climate Change in the Southwest United States (www.swcarr.arizona.edu), Centers for Disease Control, National Climatic Data Center, Arizona Department of Health Services.