



**NATIONAL
WEATHER
SERVICE**

National Weather Service Extreme Heat Products and Services Evolution

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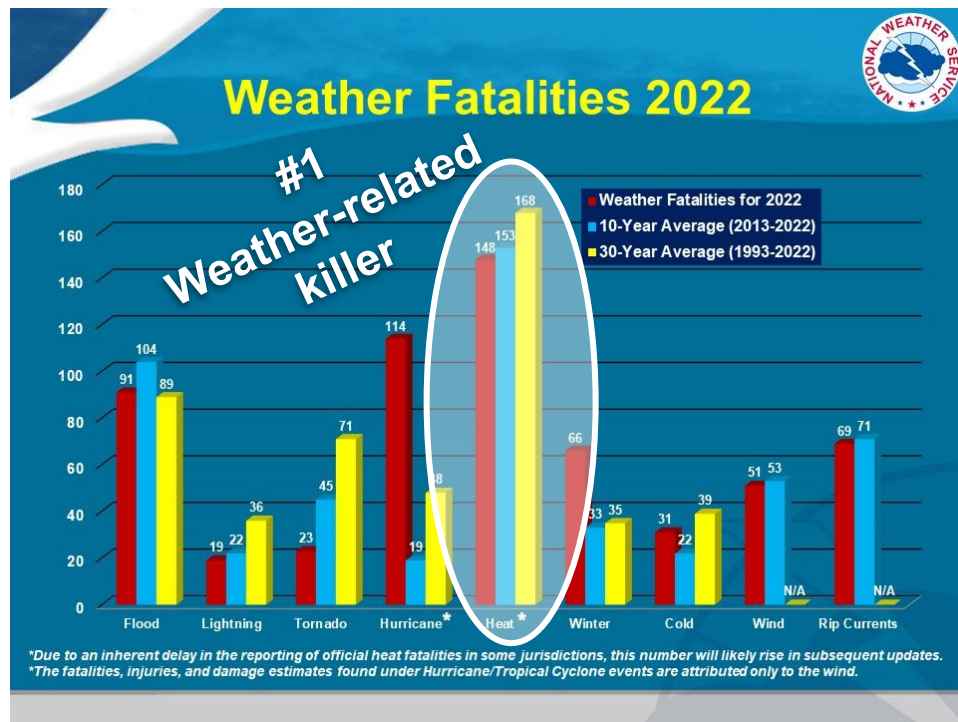
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Why Heat Matters

- Heat is the leading weather-related killer
- 2023 was the warmest year on record, with the top 10 warmest years on record occurring from 2014-2023
- Studies show heatwaves trending hotter, longer, and more frequent with less overnight relief



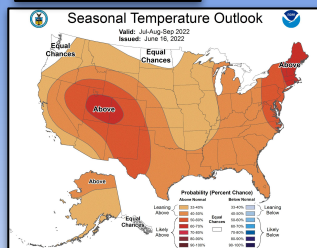


Continuum of NWS Heat Products & Services



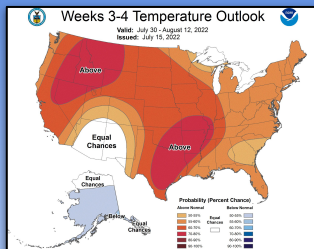
Impact-Based Decision Support Services
and public messaging

Seasonal
Outlooks



Monthly
Outlooks

Weeks 3-4
Outlooks



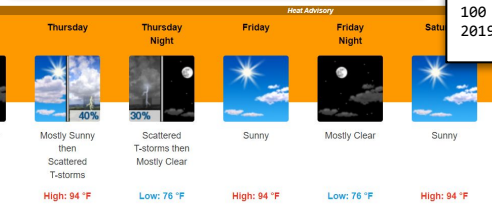
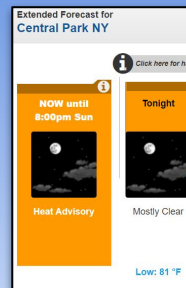
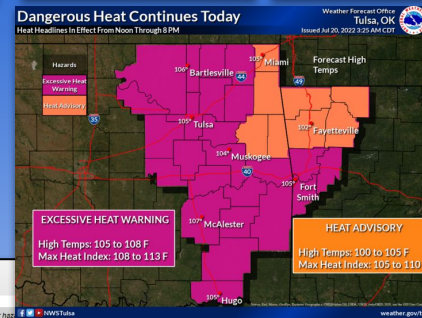
Week 2
Outlooks

Day 1-7
Forecasts

Watch,
Warning,
Advisory

Monitor,
Update,
Report

Monitor,
Update,
Report:
Validated
Observations &
After Action



...RECORD HIGH TEMPERATURE
SET AT ALBUQUERQUE NM...
A RECORD HIGH TEMPERATURE OF
102 WAS SET AT ALBUQUERQUE NM
TODAY.
THIS BREAKS THE OLD RECORD OF
100 SET IN 2009, 2010 AND
2019.

Planning

Preparedness

Response

Recovery



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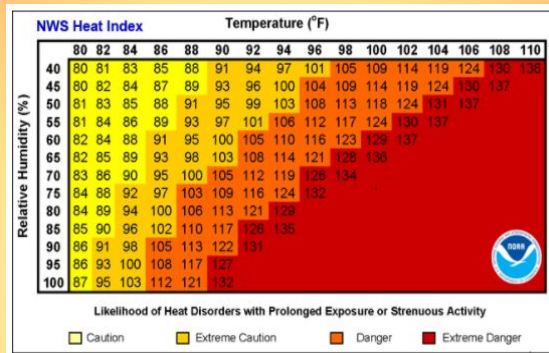
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NWS Forecast Tools to Assess Heat



Heat Index



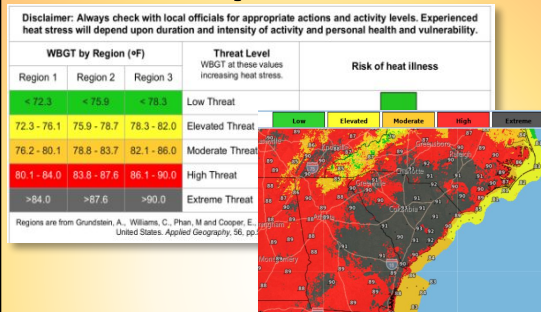
Heat stress in context for **general public.**

- Relatively simple: T + RH
- Light physical activity in shade



5'7" adult, 147.7 lbs, walking outside at 3.1 mph, wearing trousers and short sleeved shirt

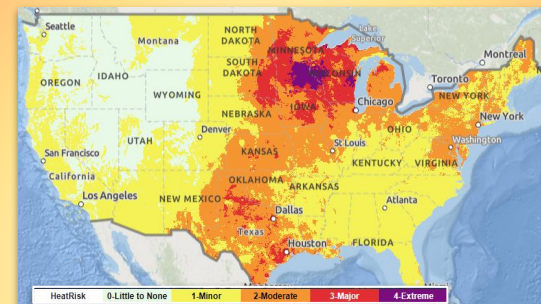
Wet Bulb Globe Temperature



Heat stress in context for **healthy, active outdoor communities.**

- More Complex: T + RH + wind + solar radiation
- High levels of physical activity

Experimental HeatRisk



Heat forecasts in **climatological context** with CDC-based health impact messaging.

- How significantly above normal the temperatures are
- Messaging can target more sensitive/vulnerable groups

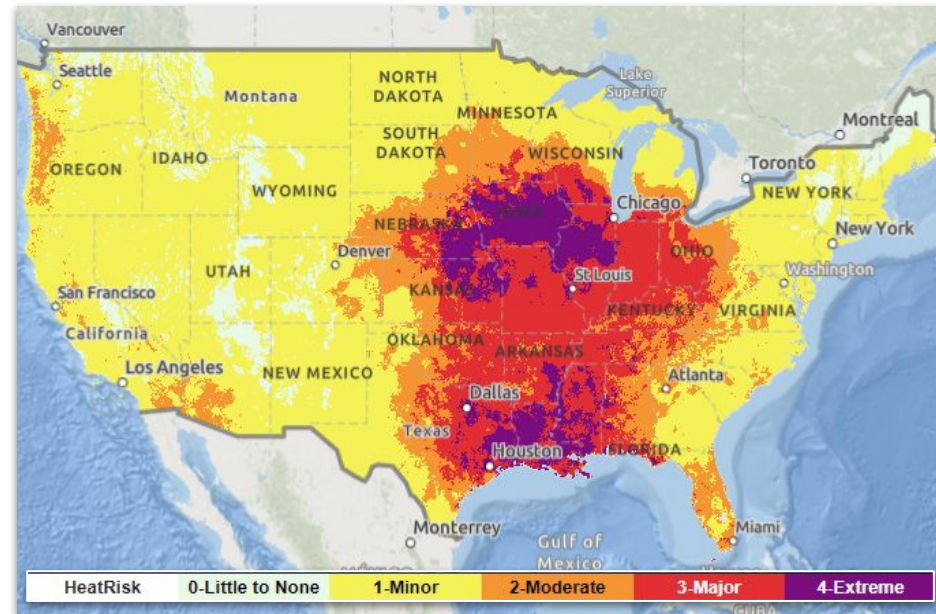




Experimental HeatRisk Overview



- A numeric/color-based index that serves as a **framework** for leveraging peer-reviewed heat-health science and data consistently across the CONUS
- Developed as a heat **service**, to include serving the heat-vulnerable populations
- Unique local thresholds are based on **local climatology and CDC heat-health relationships**





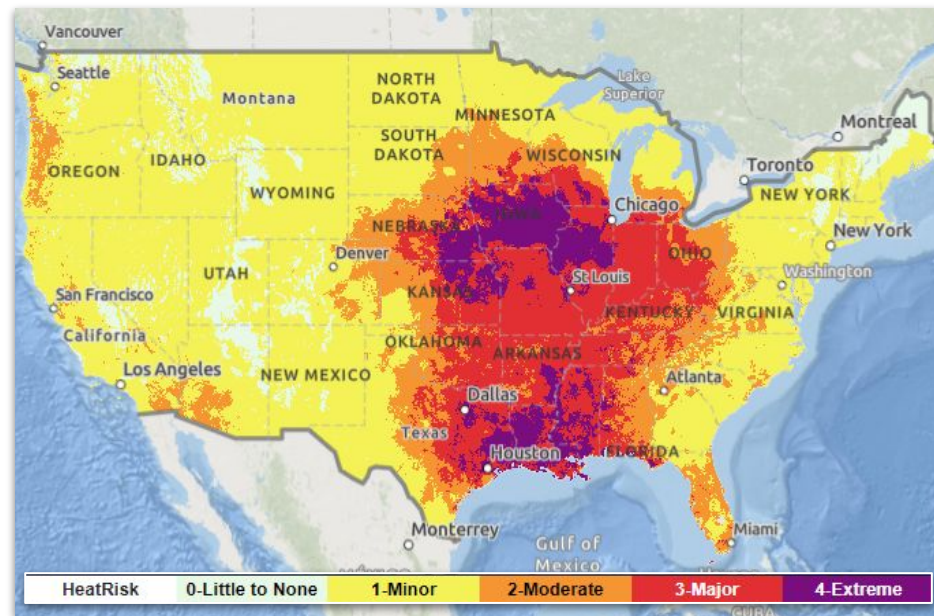
Experimental HeatRisk Overview

*Puts expected heat into a **climatological context** using NWS official forecast and CDC heat-health data*



What does it take into account?

- How above normal temps (hi & lo) are for a location (24h period, 7 days out)
- Time of the year
- Duration of unusual heat
- Overnight relief
- Difference between lows and highs
- If temperatures are at high enough levels to pose an elevated risk for heat complications (based on CDC heat-health thresholds)





Experimental HeatRisk Overview

Provides awareness to more sensitive groups without overwarning the entire population.

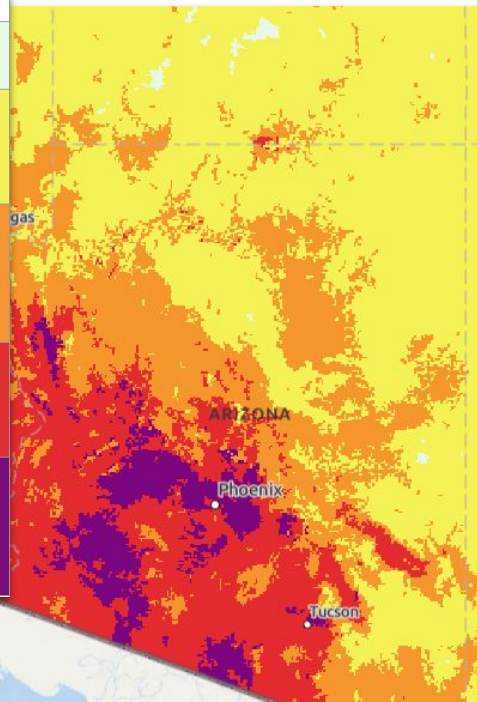


What are the benefits?

- Helps people understand what forecasted heat means to them
- Provides heat risk guidance for decision makers and heat sensitive populations who may need to take action below NWS heat product levels



Category	Risk of Heat-Related Impacts
Green 0	Little to no risk from expected heat.
Yellow 1	Minor - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration.
Orange 2	Moderate - This level of heat affects most individuals sensitive to heat, especially those without effective cooling and/or adequate hydration. Impacts possible in some health systems and in heat-sensitive industries.
Red 3	Major - This level of heat affects anyone without effective cooling and/or adequate hydration. Impacts likely in some health systems, heat-sensitive industries and infrastructure.
Magenta 4	Extreme - This level of rare and/or long-duration extreme heat with little to no overnight relief affects anyone without effective cooling and/or adequate hydration. Impacts likely in most health systems, heat-sensitive industries and infrastructure.





Extreme Heat Key Messages



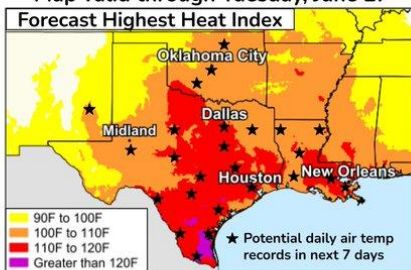
Key Messages for June Southern U.S. Heat Wave

Updated Jun 21, 2023
4:00 PM CDT

Dangerous heat in much of the southern U.S.; with increased concern in south and south-central Texas

- Oppressive and persistent heat will become increasingly dangerous and potentially deadly in south and south-central Texas, especially to people repeatedly exposed for long durations. Many locations in those parts of Texas have already experienced a yearly record number of hours of dangerously high heat index readings, and the heat will continue at least into next week.
- Other parts of the southern U.S. are likely to experience dangerous heat in the next week, with potential for additional record temperatures and heat index values well in excess of 100 degrees.
- There is increasing confidence that this dangerous heat wave will continue through the beginning of the July 4th holiday week, with periods of excessive heat expanding from Texas into surrounding states.
- There may be more danger than a typical heat event, due to the longevity of near-record or record high nighttime lows and elevated heat index readings. It is essential to have a way to cool down and interrupt your heat exposure.

Map valid through Tuesday, June 27



Map valid from June 29 to July 5



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U.S. Department of Commerce

For more information go to:
www.wpc.ncep.noaa.gov, www.cpc.ncep.noaa.gov and www.weather.gov

Weather Prediction Center
& Climate Prediction Center



Key Messages for Potential Northwest U.S. Heat

Updated Aug 8, 2023
12:00 PM PDT

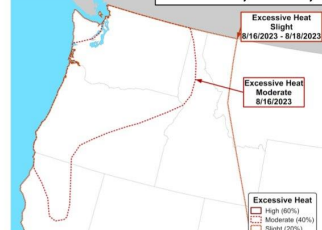
Heat wave will be possible from this weekend into next week in the Pacific Northwest

- Hazardous heat will be possible in portions of the Northwest U.S. from this weekend into next week, particularly from Sunday, August 13th to Wednesday, August 16th. There is a slight risk of the heat persisting through August 18th.
- Greatest confidence exists in the interior valleys and lower elevations of southwest Washington, western Oregon, and northern California. At any given location in that region, there is generally about a 50-60 percent chance of hazardous heat, and a 30-40 percent chance of daily record highs.
- However, if the hotter forecast scenarios materialize, hazardous heat would be possible across most of the Northwest U.S.
- Now is the time to evaluate your plans and preparedness levels for a multi-day period of dangerous heat. This is particularly true for anyone without reliable access to cooled and air conditioned locations, and anyone with plans for outdoor recreation. Have a way to break your heat exposure and stay hydrated! Never leave people or pets locked in a vehicle, which can heat up to dangerous levels in minutes.

Areas with at least a 40% chance
of Hazardous Levels of Heat



Wednesday to Friday



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U.S. Department of Commerce

For more information go to:
www.wpc.ncep.noaa.gov, www.cpc.ncep.noaa.gov and www.weather.gov

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Hazard Simplification Efforts



Why?

- Enhance communication of threat
 - Public interpretation of “excessive” vs “extreme”
- Align terms with upcoming Extreme Cold Watch/Warning

When?

- Planned for Spring 2025
- No changes to Heat Advisory at this time



Questions



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