



**NATIONAL INTEGRATED HEAT
HEALTH INFORMATION SYSTEM**

The National Integrated Heat Health Information System and Heat.gov: A Federal Approach to Addressing Extreme Heat and Health

CPASW 2023

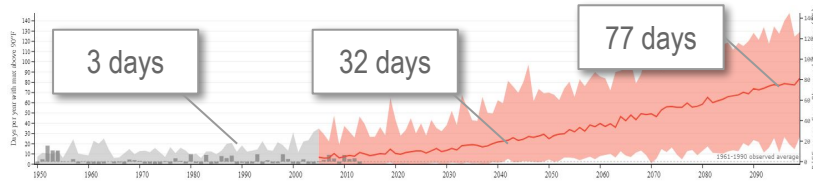
Morgan Zabow, Hunter Jones, Juli Trtanj, Kim McMahan, Paul Schramm,
Paul Hirschberg

May 9th, 2023



Heat is an Overlooked Issue

Buncombe County, NC- Days w/ max temp. > 90°F



- The impacts are often invisible, delayed, or **hard to quantify**.
- Heat governance falls **between the cracks** at all levels of government.
- Heat affects **marginalized groups the most**, which by definition lack the means to act themselves or bring high level attention to the issue
- As with other disasters, we **wait until it is too late** rather than planning and preparing.

NIHHIS vision: A heat resilient nation empowered to effectively address extreme heat and its impacts.

Understand decision context



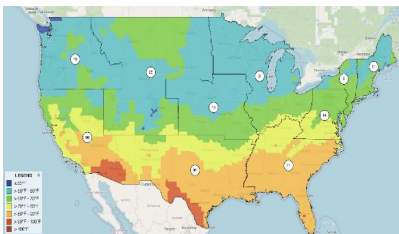
Improve Observations and Predictions



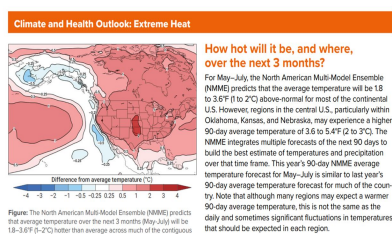
Enhance Solutions with Research



Co-Develop Products and Tools



Support Planning and Response



Communicate and Build Capacity

Heat Exhaustion

ACT FAST

- Move to a cooler area
- Loosen clothing
- Sip cool water
- Seek medical help if symptoms don't improve

Heat exhaustion can lead to heat stroke.

LDU TOSW Slay Cool, Slay Hydrated, Slay Informed!

Heat Stroke

ACT FAST

CALL 911

- Move person to a cooler area
- Loosen clothing and remove outer layers
- Cool with water or ice

Heat stroke can cause death or permanent disability if emergency treatment is not given.



NIHHIS Interagency Working Group



Accomplishments and ongoing projects:

- Developed the NIHHIS Portal with interagency information, resources, & heat predictions.
- Led 2 consecutive major national communications campaigns to promote public awareness of health impacts of extreme heat, and coordinated messaging among NIHHIS partner agencies.
- Developed tools and products including the Climate and Health Outlook and Heat and Health Tracker
- Multiple pilot projects across the country
- Leading development of the NIHHIS Strategic Plan

NOAA Climate.gov @NOAAClimate · May 20
ICYMI: @NWSOCP released the summer outlook. Are scorchers likely for your area? #HeatHealth climate.gov/news-features/...

Climate and Health Outlook: Extreme Heat
ISSUED MAY 2022

Welcome to the first edition of the Climate and Health Outlook from the Department of Health and Human Services (HHS) Office of Climate Change and Health Equity (OCCHE). The Climate and Health Outlook is an effort to inform health professionals and the public on how our health may be affected in the next 30 and 90 days by climate events and provide resources to help protect action.

This edition focuses on the 2022 early summer season and uses the most current long-term temperature forecasts that come from the National Oceanic and Atmospheric Administration (NOAA) to illustrate how extreme heat poses a health risk for all Americans.

Who is at high risk from heat in the countries with the most extreme heat days?

Some communities face greater health risks from extreme heat given various risk factors they face. These communities include people who are elderly and live alone, have existing health conditions, have poor access to healthcare, live in hot areas with outlooks, make a low income, lack difficulty paying utility bills, live in poor housing, and live in urban areas without adequate tree cover.

These risk factors vary across the 203 counties estimated to have 5 or more expected extreme hot days in May. Of those counties:

- 63 (25%) have a high number of people aged 65 or over, living alone.
- 28 (14%) have a high number of people with diabetes.
- 124 (61%) have a high number of people without health insurance.
- 63 (31%) have a high number of people living in care areas.
- 61 (30%) have a high number of people employed in construction.
- 76 (38%) have a high number of people living in poverty.
- 23 (11%) have a high number of people spending a large proportion of their income on home energy.
- 60 (30%) have a high number of people with access to advanced medical equipment and enrolled in the HHS eMPower program.
- 63 (31%) have a high number of people in mobile homes.
- 63 (31%) have a high number of people with severe housing cost burden.
- 108 (53%) have a high number of people living in areas without adequate tree cover.
- 62 (31%) are identified as highly vulnerable by CDC's Social Vulnerability Index.

Decision makers in these counties should consider these factors when developing and implementing heat stress prevention strategies to protect specific populations.

Where are extremely hot days expected to be most frequent in May?

Estimated extreme hot days
0 1-4 5-14 15-34

Figure: This map shows the expected number of extremely hot days in May in each county in the contiguous U.S. The forecast is based on the NOAA Climate Prediction Center's publicly available 30-day outlook for May 2022. An extremely hot day is when the daily temperature is above the 95th percentile value of the historical temperature distribution for each county for your county. Data were made available by the Centers for Disease Control and Prevention (CDC) Heat and Health Tracker.

In May, 203 counties across 14 states are projected to have 5 or more extremely hot days – Texas (TX), California (CA), New Mexico (NM), Arizona (AZ), Utah (UT), Oklahoma (OK), Kansas (KS), Idaho (ID), Nevada (NV), Montana (MT), Colorado (CO), Georgia (GA), Florida (FL) and Alabama (AL). In these 203 counties, the total population at risk is 31,877,388 people.



We want to hear from you! Please send your feedback on ways to improve the Climate and Health Outlook to ocche@hhs.gov





National Weather Service @NWS · May 20
 Heat is the leading cause of weather-related deaths in most years. Protect yourself during excessive heat and stay Weather-Ready. #NIHHIS #NationalHeatSafetyWeek

CDC Environment @CDCEnvironment · May 19
 Stay cool! Pace yourself while working or exercising in hot weather. See more tips to stay safe and prevent heat-related illness: bit.ly/2SBrtgJ. #NationalHeatSafetyWeek #NIHHIS

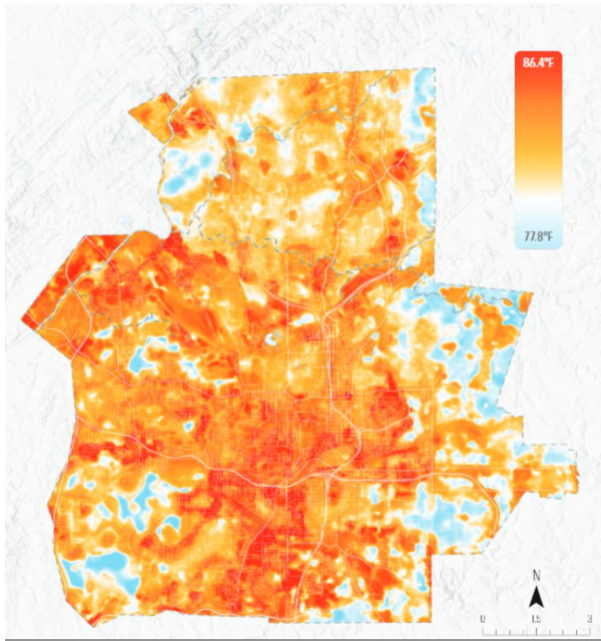
Heat Exhaustion	Heat Stroke
<p>ACT FAST</p> <ul style="list-style-type: none"> Move to a cooler area Loosen clothing Sip cool water Seek medical help if symptoms don't improve 	<p>ACT FAST</p> <p>CALL 911</p> <ul style="list-style-type: none"> Move person to a cooler area Loosen clothing and remove extra layers Cool with water or ice
<p><i>Dizziness</i></p> <p><i>Thirst</i></p> <p><i>Heavy Sweating</i></p> <p><i>Nausea</i></p> <p><i>Weakness</i></p>	<p><i>Confusion</i></p> <p><i>Dizziness</i></p> <p><i>Becomes Unconscious</i></p>
<p><i>Heat exhaustion can lead to heat stroke.</i></p>	<p><i>Heat stroke can cause death or permanent disability if emergency treatment is not given.</i></p>
	<p>Stay Cool, Stay Hydrated, Stay Informed!</p> 



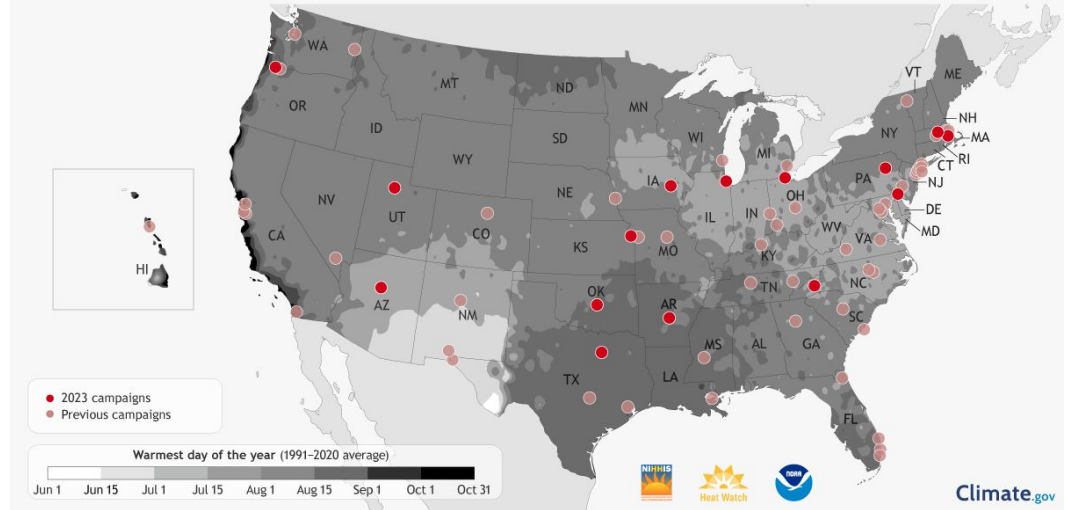
NIHHIS Urban Heat Island Mapping Campaigns



Afternoon Area-Wide Predictions
Temperature (3 - 4 pm)



NOAA Urban Heat Island Mapping Campaigns: All Locations, 2017-2023





NOAA Climate & Equity Roundtable Pilots: Heat

- NOAA Regional Coordination Teams, RCSDs & NIHHIS piloted heat tabletop exercises in:
 - Las Vegas, NV
 - Phoenix, AZ
 - Charleston, SC
 - Miami, FL
- The tabletops span timescales including resilience; they are planned with community-based organizations that serve at-risk groups.
- Ex Action: shaded bus stops



Exercise Structure

This exercise will be a multi-media, facilitated exercise consisting of four modules:

- Module 1: Outlook & Preparedness
- Module 2: Heat Response
- Module 3: Improving the Response
- Module 4: Managing Risks for the Long Term

Each module contains key events occurring within that time period. Participants receive the mission and engage in group discussion of appropriate issues. These participants will engage in a facilitated discussion, which allows for additional opportunities to address module objectives and exercise progression.

Exercise Guidelines

- This exercise will be held in an open, low-stress, no fault environment. Varying viewpoints, even disagreements, are expected.
- Respond to the scenario using your knowledge of current plans and capabilities (i.e., you may use only existing events and angles derived from your training).
- Decisions are not president setting and may not reflect your organization's final position or goals. This exercise is an opportunity to discuss and present multiple options and possible solutions.
- Issue identification is not as valuable as suggestions and recommended actions that could improve current efforts. Problem-solving efforts should be the focus.

Exercise Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete pilots in the allotted and/or account for logistical limitations. Exercise participants should accept that assumptions and artificialities are inherent in any exercise, and should not allow these considerations to negatively impact their participation. During the exercise, the following apply:

- The exercise is conducted in a no-fault learning environment wherein capabilities, plans, systems, and processes will be evaluated.
- The exercise scenario is plausible, and events occur as they presented.
- All players receive information at the same time.

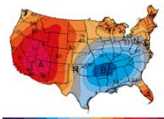
Exercise Evaluation

Evaluation of the exercise is based on the exercise objectives and aligned capabilities, which are documented in the Scenario Manual (SMan). Additionally, players will be asked to complete participant feedback forms and provide post-exercise follow-up. These documents, compiled with Facilitator Observations and notes, will be used to evaluate the exercise and compile the Action-Action Report (AAR).

THE PRESSURE COOKER SCENARIO

The Outlook: Week of June 5, 2023

On Monday, June 5, the Climate Prediction Center (CPC) releases its 6-14 day outlook, indicating a strong 70% probability for above normal temperatures during the period of June 11-19. It has been manually used in the last several through only. June does have only been four days where 100°F took 100°F. This forecast suggests that the first major heat wave of the year may be coming.



The NWS Weather Forecast Office (WFO) in Phoenix begins reaching out to its core partners to notify them of the potential for a heat event in the following week.

As the week progresses, forecast models continue to call for an elevated chance for heat beginning early next week. On Wednesday, June 7, WFO Phoenix issues an Executive Heat Watch for much of the metropolitan area, valid for June 12-14 (Mon-Wed). On Friday, June 9, in confidence in the forecast, the Executive Heat Watch is upgraded to an Executive Heat Warning valid for June 12-14 (Mon-Wed).

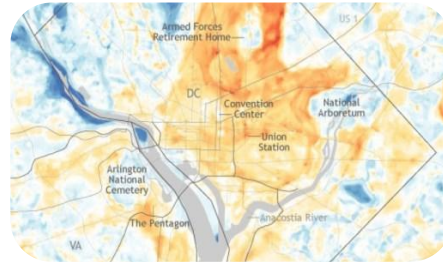




NIHHIS Work on Extreme Heat



The launch of Heat.gov spurred over 1050 news articles, reaching a potential audience of 3.6 billion.



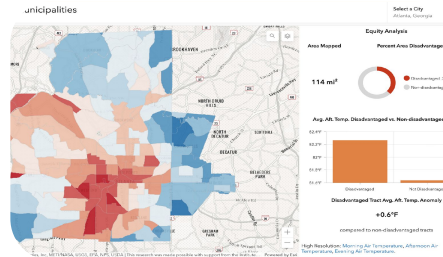
Conducted Urban Heat Island mapping campaigns in 61 communities



Communicated heat messages through 285,600 impressions on Twitter



20K awarded to 10 communities for innovative communications to at-risk populations



Developed 6 new tools/datasets to inform heat resilience

Join us for the 2nd annual
NIHHIS NATIONAL MEETING
 April 25 - 27, 2023
 12:00 - 4:00 PM ET
 Virtual (Zoom)



NATIONAL INTEGRATED HEAT HEALTH INFORMATION SYSTEM
 Hosted by the CoE Environmental Health Nexus

Featured congressionals, 7 agency leaders and reached nearly 1,000 attendees.



Heat.gov

The premier source of heat and health information for the nation

Morgan Zabow, Hunter Jones, Richard Glupker, Dan Pisut, Juli Trtanj, Kim McMahon, Paul Schramm David Herring



FEMA



U.S. Department of Veterans Affairs

Heat.gov- Launched July 2022



Search NOAA sites

Home / News & Features

Biden Administration launches Heat.gov with tools for communities facing extreme heat

Focus areas: Research, Climate

Topics:

heat , heat waves , safety , extreme weather , public health , Social media and Web , climate , resilience

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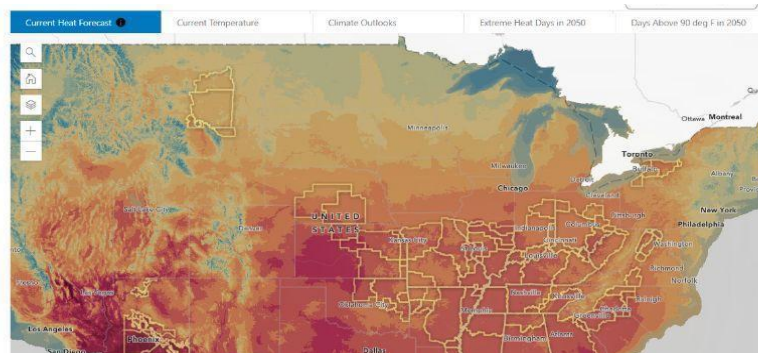
Current Conditions and Future Outlooks

Extreme Heat

92,530,689
people in warning area



source: NOAA National Weather Service



Current Conditions and Future Outlooks





Prevent Heat Illness at Work

Every 10th Work-Related heat-related fatality from heat stress happens during the first week of work.

Build a tolerance to heat by increasing intensity by 20% each day.

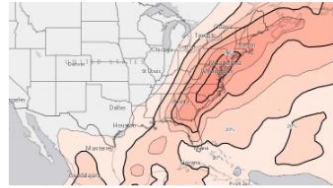
Drink cool water even if you are not thirsty

Rest for long enough to recover from the heat

Take breaks in a shady or cool area

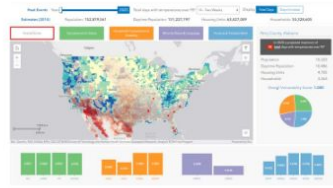
Climate and Health Outlook

Extreme heat events have long threatened public health in the United States. The CDC Heat & Health Tracker provides local heat and health information so communities can better prepare for and respond to extreme heat events. Use the tool to explore how extreme heat affects your county, populations who are at risk, and response resources.



Climate Prediction Center Probabilistic Extremes Forecast

The Week-2 global probabilistic extremes forecast tool, or GEFS Reforecast Tool, is a model guidance tool that applies statistical adjustments to raw Global Ensemble Forecast System (GEFS) model forecasts.

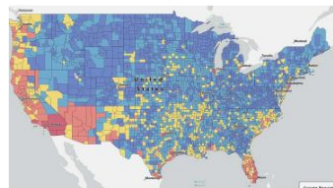


Extreme Heat Vulnerability Mapping Tool

Overlay NOAA projected heat events and CDC's Social Vulnerability Index (SVI) which uses U.S. Census data to determine the social vulnerability of every county. The SVI ranks each county on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes.



Heat & Health Tracker



National Risk Index (FEMA)



LIHEAP and Extreme Heat

Heat.gov Featured Tools



Planning & Preparing

Extreme heat illness and death are largely preventable with proper planning and preparing at all levels.

En Español

- [NOAA NWS materiales comunitarios para la seguridad contra el calor](#)
- [OSHA carteles de prevención en el trabajo por la enfermedad del calor, folletos, hojas informativas](#)
- [FEMA recursos sobre el calor extremo](#)
- [OSHA programa de estrés por exceso de calor](#)

For Decision Makers

Essential Information from Federal Agencies

- [National Weather Service Heat Safety Tips and Resources \(NOAA / NWS\)](#)
- [Ready.gov Extreme Heat Resources \(FEMA\)](#)
- [Excessive Heat Events Guidebook \(EPA\)](#)
- [Climate Change and Extreme Heat: What You Can Do to Prepare \(EPA\)](#)
- [Extreme Heat tips, information, and resources \(CDC\)](#)
- [The Use of Cooling Centers to Prevent Heat-Related Illness: Summary of Evidence and Strategies for Implementation \(CDC\)](#)
- [Heat Safety Tool Kit \(OSHA, NIOSH\)](#)

Staying Safe During Extreme Heat

Exposure to extreme heat can have many direct effects on human health (heat stroke, reduced labor productivity), as well as indirect effects (promoting air pollution and increasing asthma attacks, overloading power grids requiring rolling blackouts). Negative health outcomes occur if an individual is exposed to the hazard and has not sufficiently adapted to reduce sensitivity.

What are the signs of heat related illness?

Heat Exhaustion	Heat Stroke
<p>ACT FAST</p> <ul style="list-style-type: none"> • Move to a cooler area • Loosen clothing • Sip cool water • Seek medical help if symptoms don't improve 	<p>ACT FAST</p> <p>CALL 911</p> <ul style="list-style-type: none"> • Move person to a cooler area • Loosen clothing and remove extra layers • Cool with water or ice
<p>Dizziness</p> <p>Thirst</p> <p>Heavy Sweating</p> <p>Nausea</p> <p>Weakness</p>	<p>Confusion</p> <p>Dizziness</p> <p>Becomes Unconscious</p>
<p><i>Heat exhaustion can lead to heat stroke.</i></p>	<p><i>Heat stroke can cause death or permanent disability if emergency treatment is not given.</i></p>
<p>Stay Cool, Stay Hydrated, Stay Informed!</p>	

Heat-related illnesses happen when the body is not able to properly cool itself. While the body normally cools itself by sweating, during extreme heat, this might not be enough. In these cases, a person's body temperature rises faster than it can cool itself down. This can cause damage to the brain and other vital organs. Types of heat related illnesses include:

- **Heat Cramps** - Muscular pains and spasms due to heavy exertion. Although heat cramps are

Planning & Preparing for Extreme Heat



Upcoming for NIHHIS in 2023

- Social Media Heat Safety Awareness campaign (May)
- 2023 UHI campaigns (Summer)
- Release of the NIHHIS Strategic and Implementation Plan
- International UHI campaign (Winter)



NIHHIS Heat Season Awareness Social Media Campaign
May 15- 19 2023

The National Integrated Heat Health Information System (NIHHIS) Interagency Communications Group will be holding a heat season awareness social media campaign.

#NIHHIS
#HeatSafety

Themes over the course of the week

- Monday, May 15, 2023 - Heat-related illness awareness
- Tuesday, May 16, 2023 - Vulnerabilities (groups that are at higher risk)
- Wednesday, May 17, 2023 - Childhood Heatstroke (PVHD)
- Thursday, May 18, 2023 - Prevention/preparedness/actions
- Friday, May 19, 2023 - Heat and heat-health-related tools

Staying Safe in the Heat

- ☒ Limit outdoor activities
- ☒ Drink plenty of water
- ☒ Wear light clothing
- ☒ Wear sunscreen
- ☒ Work outdoors early or very late in the day

weather.gov/heat



NATIONAL INTEGRATED HEAT
HEALTH INFORMATION SYSTEM

Thank you!

Contact: morgan.zabow@noaa.gov

*NIHHIS Twitter: **@HeatGov***

Subscribe to our newsletter on Heat.gov