Preparing the Nation for Extreme Heat: A Closer Look at Philly & NOAA efforts

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Why Is It So Difficult to Reduce Heat Risk?

1. Heat has been overlooked for a long time and is not yet reflected in **policies** and **governance** structures at all levels of government.

2. Heat impacts are “invisible,” delayed, or **poorly quantified** due to **lacking impact data & studies**.

3. Many communities don't have heat action plans or long-term planning in place, or they **have not stress-tested** those plans.

4. Communities need **guidance**, **evidence**, and **support** to take effective action on heat.

The National Integrated Heat Health Information System (NIHHIS)

- Launched in 2015 by NOAA and CDC for a coordinated approach to heat resilience
- Transdisciplinary work across governmental agencies and non-governmental partners
- Works across timescales to bridge long-term heat mitigation and short-term planning

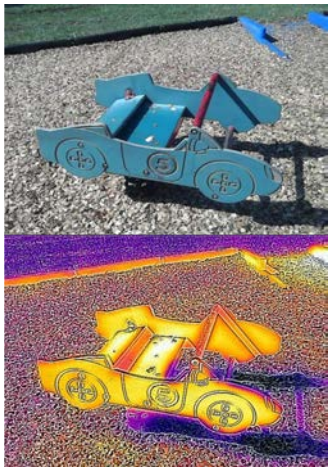
NIHHIS Supports Heat Preparedness

1. Heat.gov Interagency Information
2. Participatory Heat Observing and Mapping
3. Heat Tabletop Exercises & Assessments
4. Applied Research on Heat Impacts & Actions

*Volunteers for **Urban Heat Island** mapping campaign, Las vegas, NV*

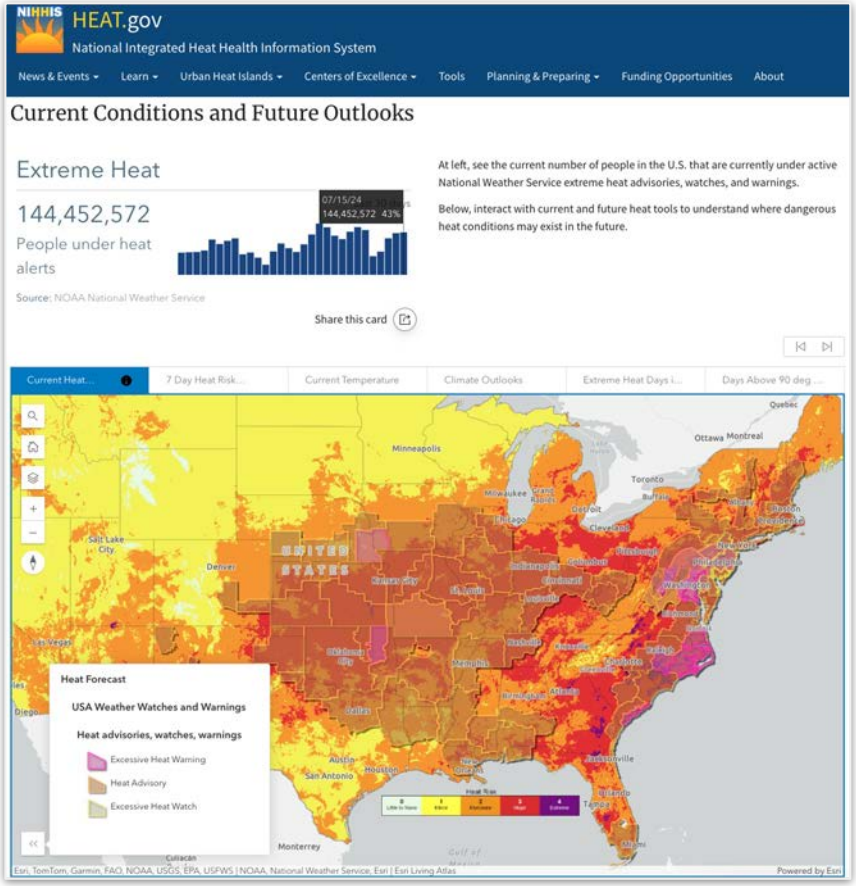
Pressure Cooker Tabletop Exercise
Phoenix, AZ

***Shading Dade** volunteers deploy iButton sensors at bus stops and in parks*



***Vis and IR imagery** of playground equipment, Charleston, SC*

Heat.gov tools and resources



Screenshot captured 15 July 2024

- **Left**: Last year's heat conditions saw over half of the U.S. population under an active heat alert.
- **Below**: NWS issues more heat alerts year over year.

HeatRisk

National Weather Service
National Oceanic and Atmospheric Administration

Bookmark Download KML Graphics En español

NWS HeatRisk

Identifying Potential Heat Risks in the Seven Day Forecast

Tue 8/6	Wed 8/7	Thu 8/8	Fri 8/9	Sat 8/10	Sun 8/11	Mon 8/12

Click map for potential heat risks and NWS forecast for a location.

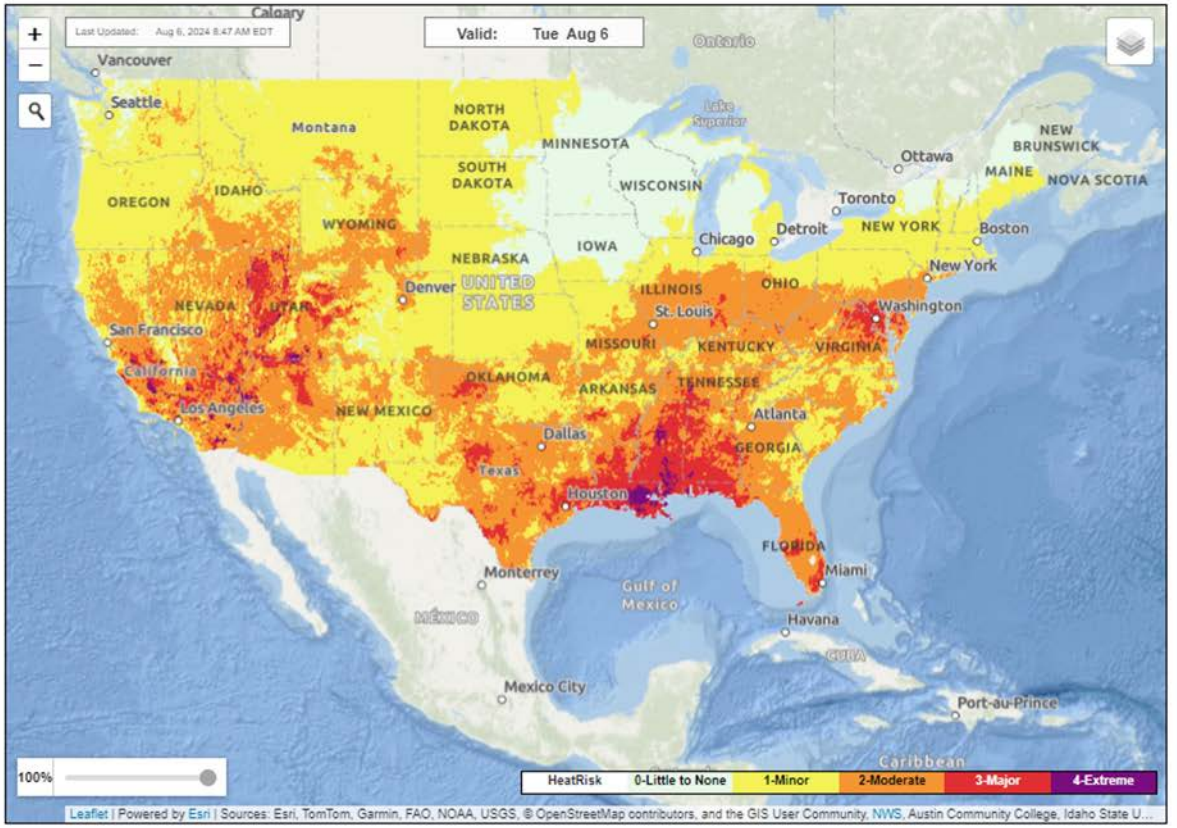
The NWS HeatRisk is an experimental color-numeric-based index that provides a forecast risk of heat-related impacts to occur over a 24-hour period. HeatRisk takes into consideration:

- How unusual the heat is for the time of the year
- The duration of the heat including both daytime and nighttime temperatures
- If those temperatures pose an elevated risk of heat-related impacts based on data from the CDC

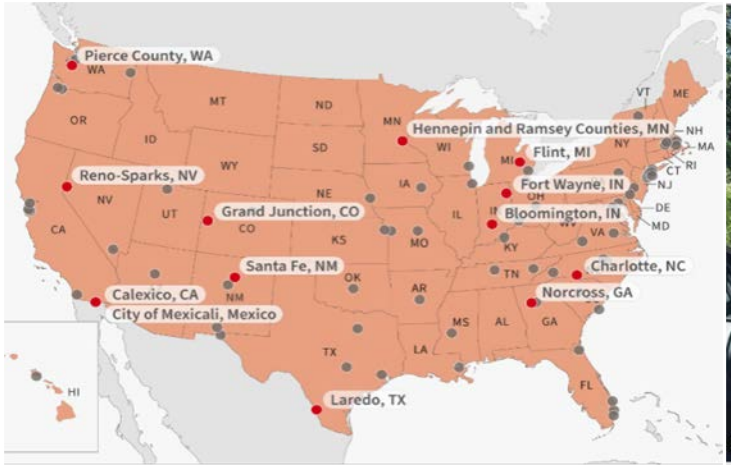
This index is supplementary to official NWS heat products and is meant to provide risk guidance for those decision makers and heat-sensitive populations who need to take actions at levels that may be below current NWS heat product levels.

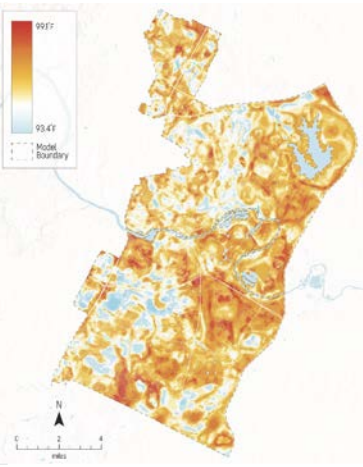
Category	Risk of Heat-Related Impacts
Green 0	Little to no risk from expected heat.
Yellow 1	Minor - This level of heat affects primarily those individuals extremely sensitive to heat, especially when outdoors without effective cooling and/or adequate hydration.
Orange 2	Moderate - This level of heat 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.

Map | Overview | What's in HeatRisk? | Understanding HeatRisk | CDC-NWS Collaboration | Verification | Looking for Resources?



Building Awareness and Critical Heat Datasets with Citizen Science



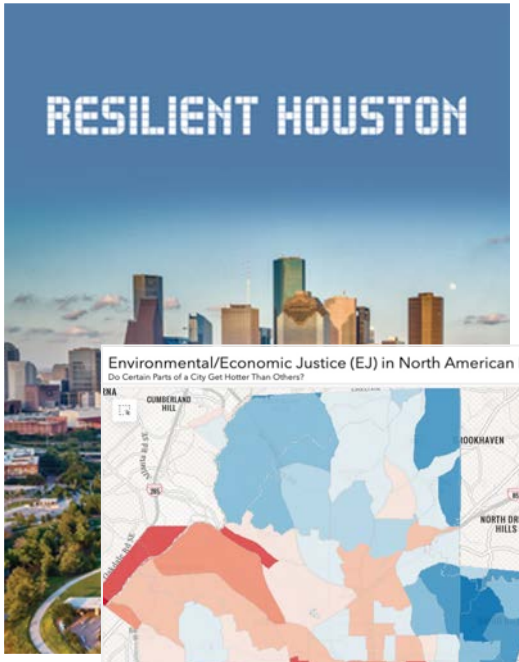


80+ community-led **urban heat island mapping campaigns** across the U.S. that build upon local partnerships to learn how heat is distributed.

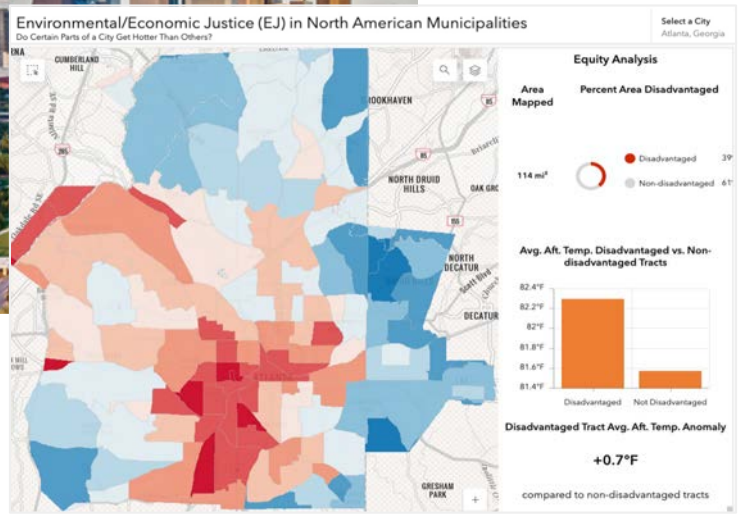
Outcomes from Heat Mapping

Awareness and Advocacy

Community Engagement



Resilience Planning & Grantmaking

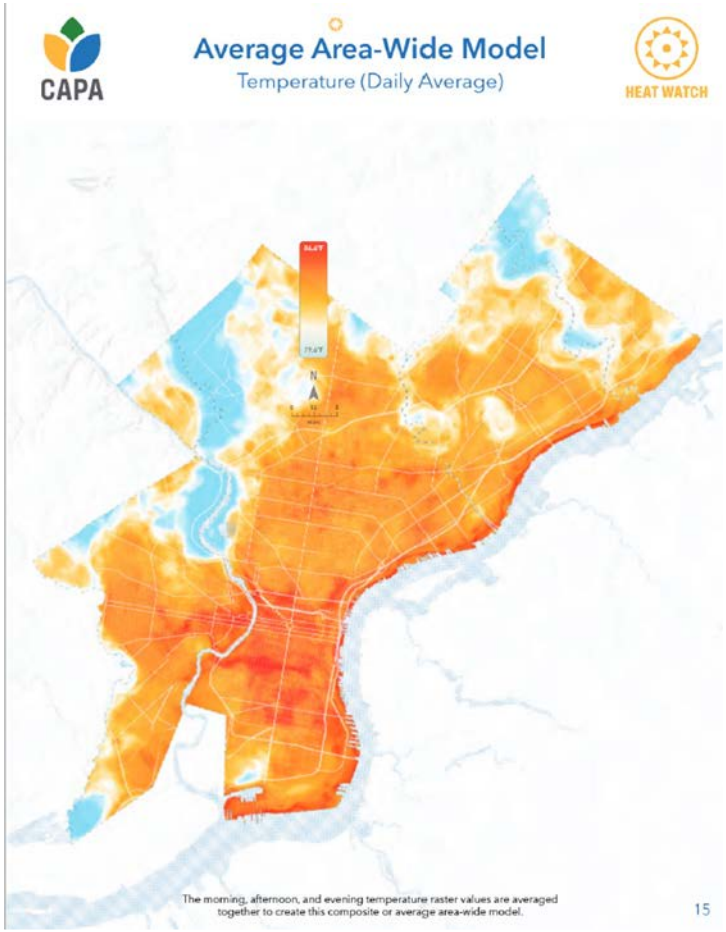


Datasets for Evidence

Shade & Smart Surfaces

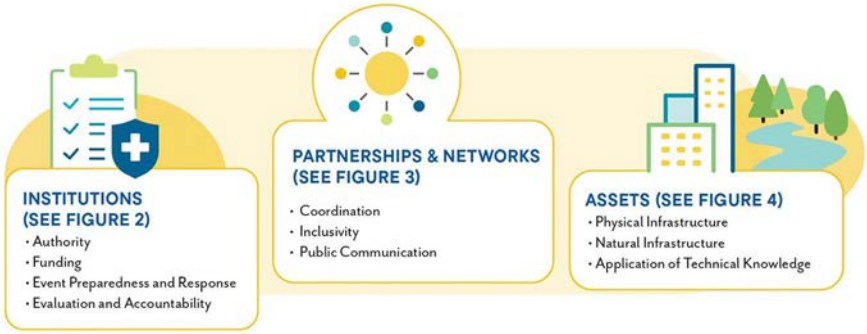
Urban Greening

Philadelphia UHI campaign

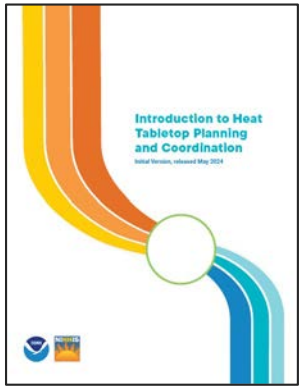


- July 30, 2022
- 105 square miles with 50 volunteers and 10 routes
- Max temp = 95°
- Temp differential = 10.5°
- Morning, afternoon, & evening

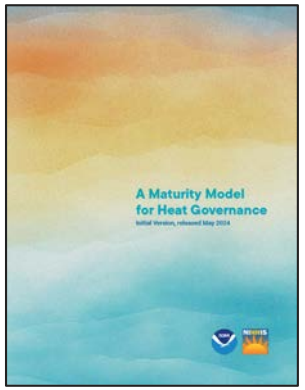
Supporting Local Heat Action Planning, Heat Governance, and Tabletop Exercises



Heat **tabletop exercises** simulate extreme heat events and inform improvements to preparedness, response and long-term resilience.



The **maturity model for heat governance** allows leaders and decision- makers to evaluate institutional posture and improve heat governance.

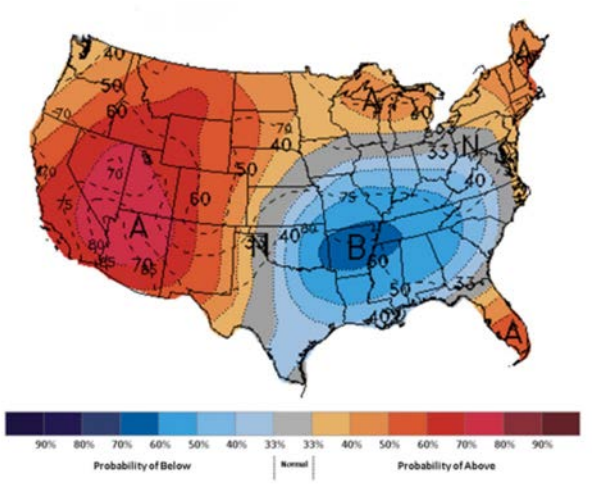


Quick history of tabletop exercises

- Fall 2021 - NOAA and state/local partners hosted Roundtable events, with heat the focus of 2 regions
- Built on prior UHI campaigns
- Developed by local NOAA teams and NIHHIS, with NWS deeply involved
- Community-based organizations literally at the table
- Focused on place-based solutions and new model practices

What is a Tabletop Exercise like?

The Situation Manual is your guide



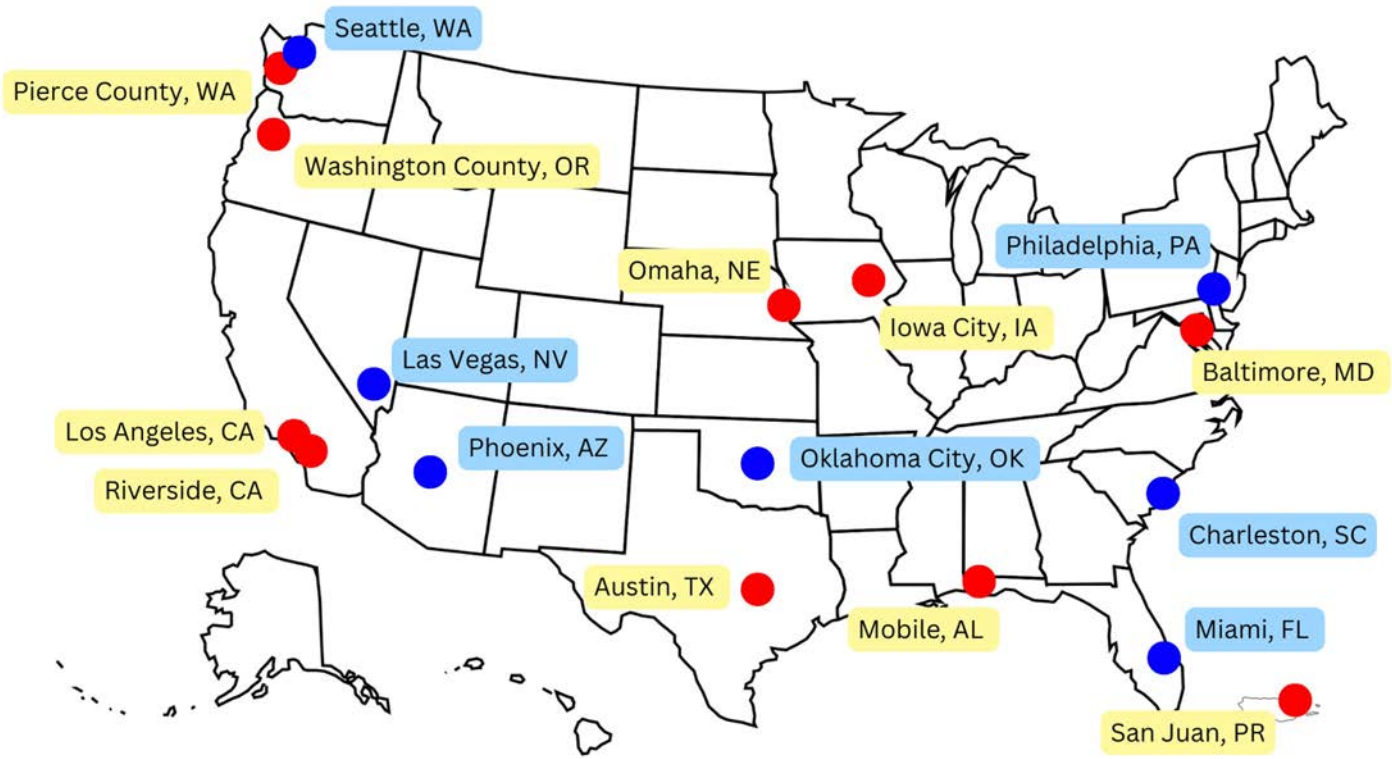
Day 1. Event Response

- Overview of Expectations
- NWS WFO forecast and scenario setup
- Plenary discussion of information and roles
- Impacts scenarios and breakout discussion
- Identification of gaps and prioritization

Day 2. Long-term Planning - Putting heat into a climate context

- Breakouts to elaborate on gaps and opportunities
- Detailed discussion and planning to address gaps
- Exercise wrap-up and closing thoughts

NOAA supported Heat Tabletops



NOAA supported 7 heat TTXs from 2022-2025 (shown in blue).

In 2025, NOAA scaled up the exercises in 10 more U.S. communities (shown in red). The communities each received a $20,000 prize to plan and host their own TTX as part of the NIHHIS Heat Tabletop Exercise Planning Challenge.

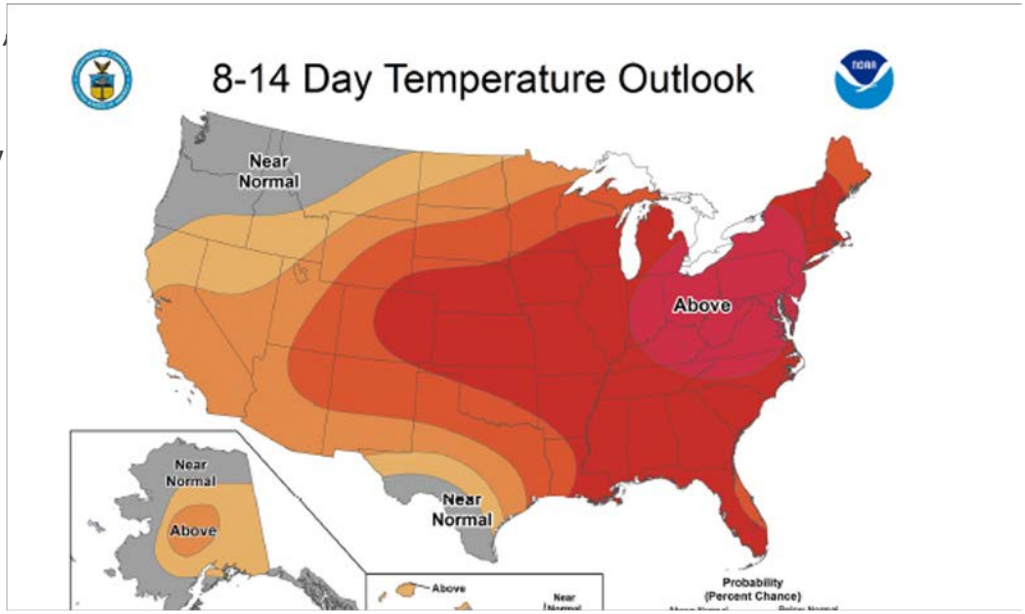
Heat! … It’s a Philly Thing

TTX Objectives

1. **Better understand heat trends** (both current and future) in Philadelphia and use this data to **further examine heat-related gaps, areas for improvement, and strengthen existing plans.**
2. Identify opportunities for **knowledge exchange** on extreme heat preparation and response among participants, as well as other interested organizations, universities, and/or community groups.
3. Recommend **solutions** (action plan for intervention, remediations) for both short (1-3 years) and longer term (10-15 years) that can occur at various social levels (individual, community, municipality, etc.).

TTX Details

- Extended heat wave over holiday weekend poses threat to residents, especially the unhoused
- Participating orgs: universities, city departments, FEMA, NOAA, HHS, St. Christopher's Hospital, non-profits, SEPTA, state departments
- Number of days over 95 F could increase by 4-40 days in the future



Lessons learned

Strengths:

- Robust healthcare network, resources, and proactive approach to emergency management
- Extreme heat is known with many heat advocates
- Cooling sites
- well-established networks of orgs and public health and environmental initiatives with strong community engagement

Areas for improvement:

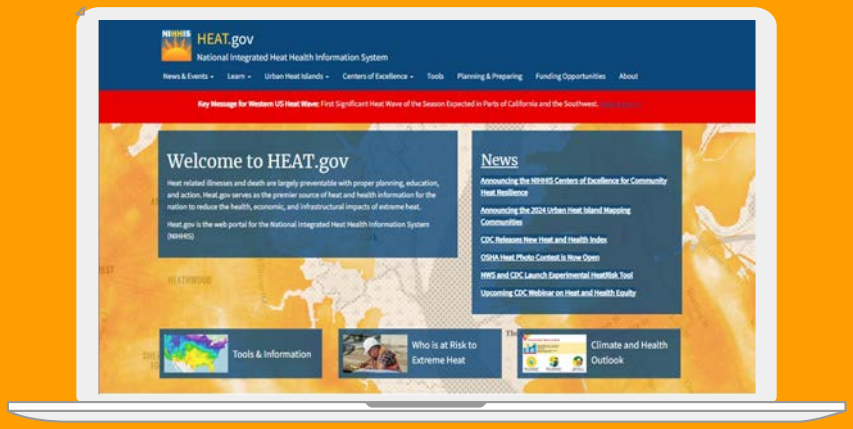
- More data collection of heat-related illness statistics
- Evaluate combo of heat events and other hazards' impacts
- Better outreach to at-risk populations and communication about various alerts
- More promotion and outreach of cooling sites
- Need to better enhance and support built and natural environment

Overall lessons

- **Value in building connections**
  - Within each city, across pilot cities *(EMs vs CBOs)*
  - Between NOAA and local organizations *(Miami WFO)*

- **Building capacity and authority**
  - Heat governance (or lack thereof) varies from place to place (e.g., city, county, Tribal nations)
  - Non-profits can help NOAA reach local communities - they have the relationships.

Stay Connected with NIHHIS



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