



**NATIONAL INTEGRATED HEAT
HEALTH INFORMATION SYSTEM**

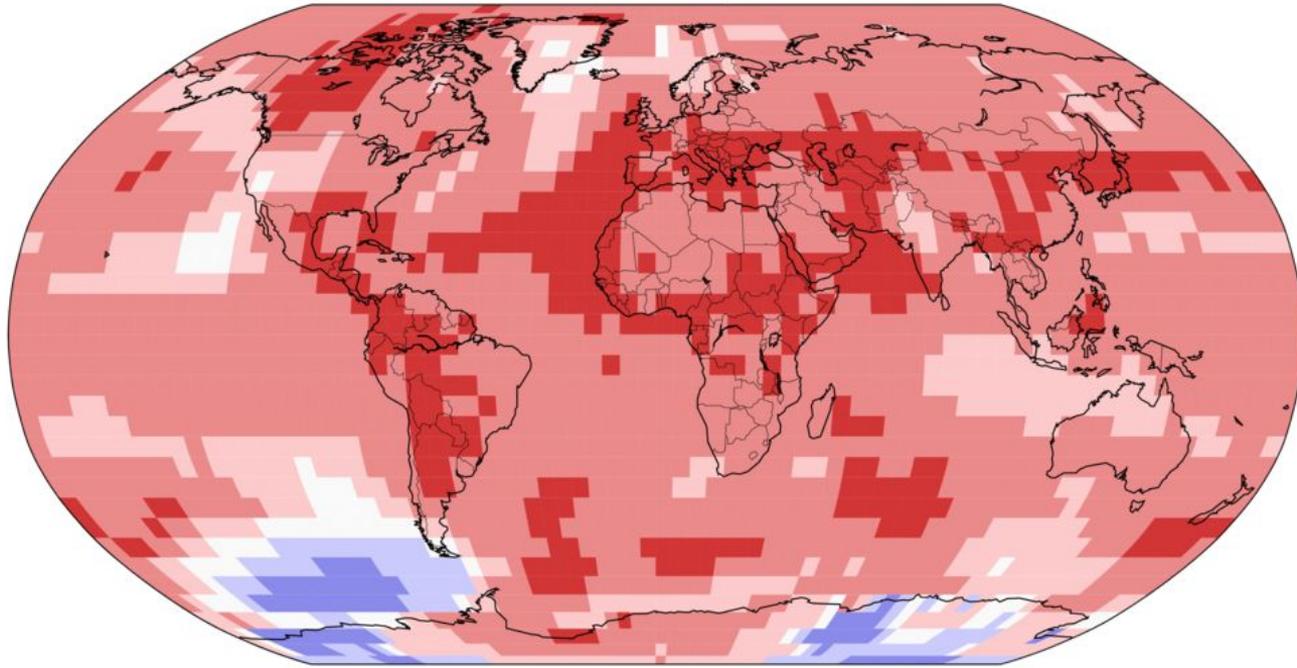
NIHHIS: Building an equitable Climate Ready Nation through extreme heat resilience

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NOAA Research, Climate Program Office

March 26, 2024

2023 Was the Warmest Year on Record




Record Coldest


Much Cooler than Average


Cooler than Average


Near Average


Warmer than Average

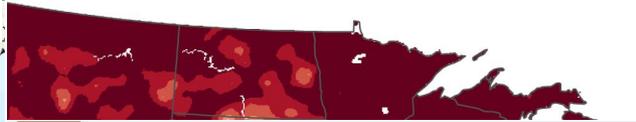

Much Warmer than Average


Record Warmest

Figure: NCEI 2023 Global Climate Report

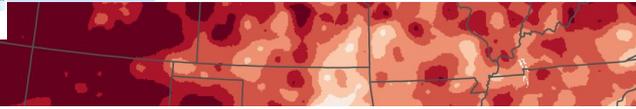
Heat events threaten human & animal health, critical infrastructure, and our economy.

Unrelenting heat keeps setting records from Texas to Florida



14 million under Heat Advisories from Florida to Virginia as heat wave shifts east on Independence Day

The historic heat wave has left more than 10 people dead, including a father and son from Florida who died on June 23 during a hiking trip in Texas' Big Bend National Park and a police K9 in Shreveport, Louisiana, that died of a heat-related injury on June 24 while chasing down suspects.



Florida is roasting in extreme heat and on pace for a record-warm year

The hot weather has been exceptional for its duration and intensity

By Ian Livingston

Updated August 11, 2023 at 1:22 p.m. EDT | Published August 11, 2023 at 1:14 p.m. EDT



IBM

Prepare without code using drag-and

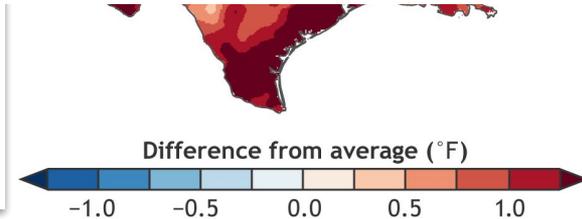
IBM SPSS

The New York Times

Heat Is Costing the U.S. Economy Billions in Lost Productivity

From meatpackers to home health aides, workers are struggling in sweltering temperatures and productivity is taking a hit.

Heat Waves Can Be Deadly for Those With Mental Health Issues



U.S. annual temperatures: present climate compared to 20th-century average. From NOAA Climate.gov

Why aren't we preventing these heat impacts?

- Impacts are often invisible, delayed, or **poorly quantified** due to **lacking data & studies**, methodological issues.
- Heat governance falls **between the cracks** at all levels of government.
- Heat affects **marginalized groups** the most, lessening the pressure to act.
- Many communities either don't have heat action plans or long term planning in place or **haven't stress tested** those plans.



The National Integrated Heat Health Information System (NIHHIS)

- **Launched in 2015** as a sub-IPC (Interagency Policy Committee) under the Critical Infrastructure Committee of National Security Council
- **Coordinated approach to heat resilience** that builds awareness, evidence, and capacity to address heat risk
- **Multi-agency and trans-disciplinary** with partners such as health officials, elected officials, energy companies, universities, and museums
- **Works across timescales** to bridge long-term heat risk mitigation and short-term management, planning, and preparedness
- **Supports and implements the White House Extreme Heat Interagency Working Group**



OASH

Office of
Climate Change
and Health Equity



FEMA



U.S. DEPARTMENT OF
ENERGY



U.S. Department
of Veterans Affairs



United States[®]
Census
Bureau



Substance Abuse and Mental Health Services Administration
SAMHSA



USDA



ASPR
ASSISTANT SECRETARY FOR
PREPAREDNESS AND RESPONSE



NIH
National Institutes
of Health



Climate-Ready Nation Initial Risk and Focus Areas



Wildfire



Drought



Flood



Heat



Coasts



Marine Resources



Mitigation

FY24 NIHHIS & White House Heat Interagency Working Group Priorities

NIHHIS National Meeting (4/16-4/18)



NIHHIS National Meeting

April 16–18, 2024

12:00–4:00 PM ET

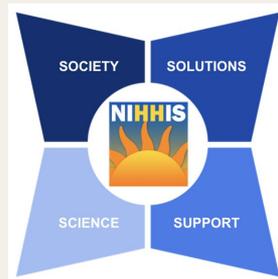
Virtual (Zoom)

NATIONAL INTEGRATED HEAT
HEALTH INFORMATION SYSTEM

Overlooked and Overburdened webinar series



National Heat Strategic Plan





- + NIHHS Centers of Excellence (IRA)
 - + Community Science Observations
 - + Heat Policy, Planning, and Assessment

- + Urban Heat Island Mapping Campaigns
 - + 80 cities & 3 international communities mapped since 2017

- + Heat Tabletop Exercises
 - + 2023 in Phoenix, Las Vegas, Charleston, Miami
 - + More planned for 2024

- + Social science Community of practice
 - + Advance social science knowledge around extreme heat & encourage interdisciplinary knowledge exchange

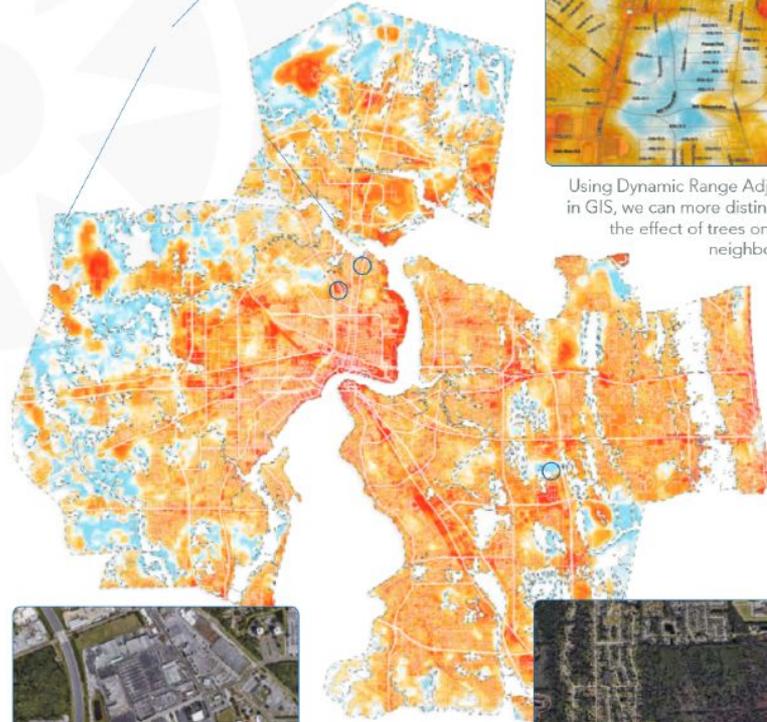
NIHHIS Activity Highlights



Initial Observations



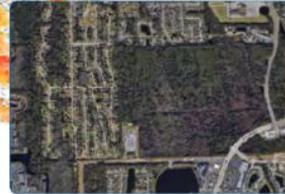
The distribution of heat across a region often varies by qualities of the land and its use. Here are several observations of how this phenomenon may be occurring in your region.



Using Dynamic Range Adjustment in GIS, we can more distinctly view the effect of trees on cooling neighborhoods.



Large commercial shopping center parkings lots covered in asphalt appear to concentrate heat.



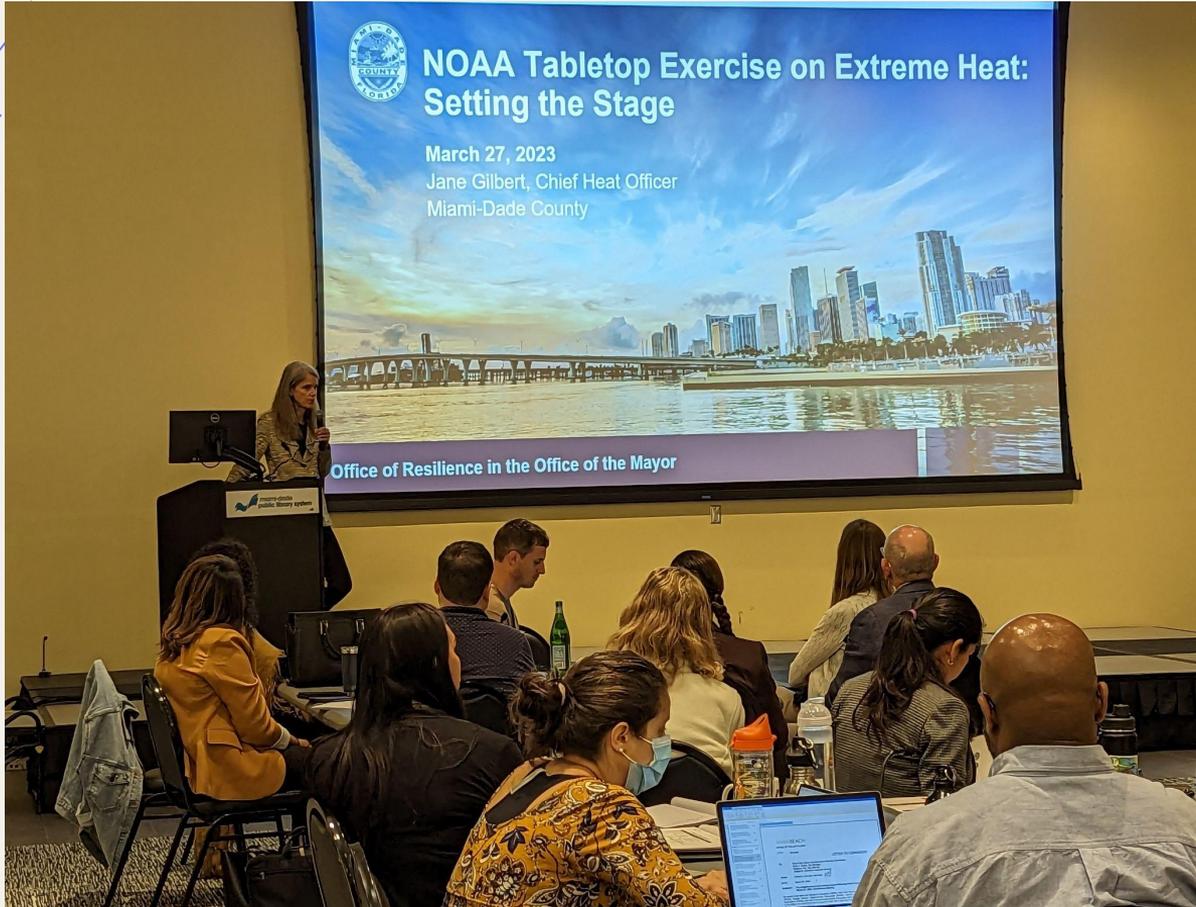
Preserved natural areas seem to stay cool and keep surrounding neighborhoods cool, too.

Heat Tabletop Exercises



- NOAA & state/local partners hosted Climate and Equity Roundtable events in fall 2021, and heat issues were focus of 4 communities
- 2023 exercises in Phoenix, AZ; Las Vegas, NV; Charleston, SC; Miami, FL.
- Innovations included:
 - The first scenarios to focus on heat.
 - Equity focus with CBOs literally at the table.
 - Consideration of long-term risk mitigation plus preparedness & response.

Example: Miami, FL



Exercise Structure

This exercise will be a multimedia, facilitated exercise consisting of three (3) modules:

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

Each module summarizes key events occurring within that time period. Participants review the situation and engage in group discussions of appropriate issues. In addition, participants will engage in a facilitated discussion, which allows for additional opportunities to address module responses and exercise priorities.

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 assets) and insights derived from your training.
- Decisions are not precedent setting and may not reflect your organization's final position on a given issue. 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 recovery efforts. Problem-solving efforts should be the focus.

Exercise Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete play in the time 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 this 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 are presented.
- All players receive information at the same time.

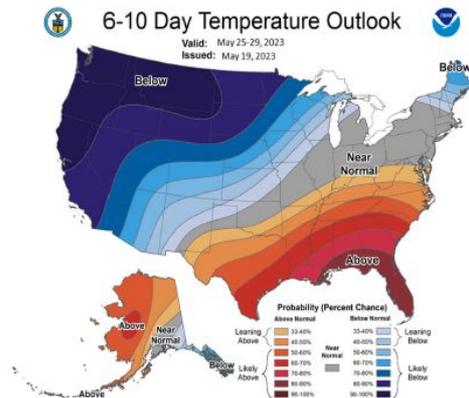
Exercise Evaluation

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

BACKGROUND

The Outlook: Week of May 14, 2023

On Friday, May 19, 2023, the Climate Prediction Center (CPC) releases its 6-10 day outlook, indicating a strong (80%) probability for above normal temperatures during the period of Memorial Day weekend (May 26-29th). It has been unusually cool so far this year, so Miami residents are not yet acclimated to the heat. The forecast suggests that the first major heat event of the year may be coming.



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

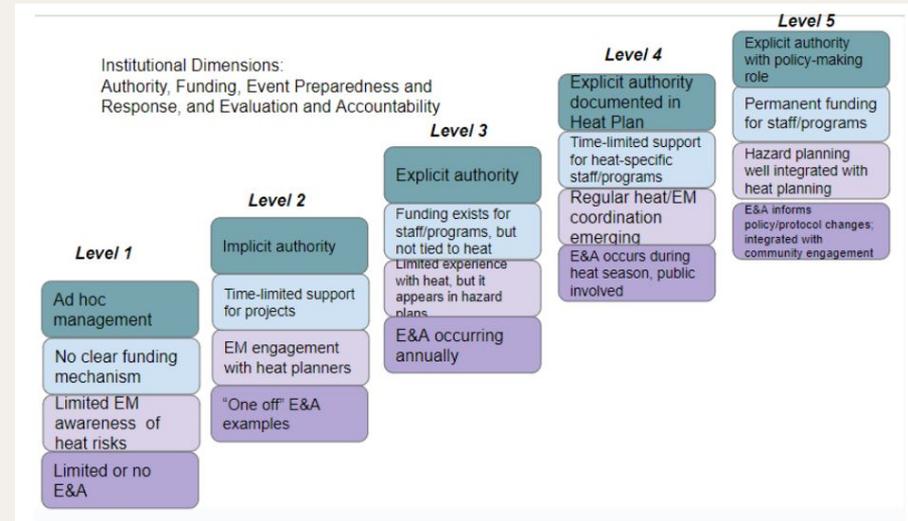
On Wednesday, May 24, WFO Miami issues a Heat Advisory for much of the metropolitan area, valid for Thursday, May 25. Higher heat indices are forecast for Friday, and an Excessive Heat Watch is issued. On Thursday, May 25, confidence in the forecast increases and the Excessive Heat Warning is issued for Saturday as well. Temperatures are expected to remain hot through the remainder of the holiday weekend and into next week, and additional Heat Advisories/Watches/Warnings are likely.

A Maturity Model for Heat Governance

+ Provides a pathway for effective governance over challenges of managing heat risks and help others assess the state of their own heat governance

+ Identifies a number of attributes/dimensions that are related to organizational capacity and performance

+ 10 dimensions, organized into three groups



<p>Institutions (see Figure 1)</p>	<ul style="list-style-type: none"> ● Authority ● Funding ● Event Preparedness and Response ● Evaluation and Accountability
<p>Partnerships and Networks (see Figure 2)</p>	<ul style="list-style-type: none"> ● Coordination ● Inclusivity ● Public Communication
<p>Assets (see Figure 3)</p>	<ul style="list-style-type: none"> ● Physical Infrastructure ● Natural Infrastructure ● Application of Technical Knowledge

Heat Governance Maturity

1.1. Institutions - Authority

1.2. Institutions - Funding

1.3. Institutions - Event Prep. & Resp.

1.4. Institutions - Eval. & Account.

2.1. Partnerships & Networks - Coordination

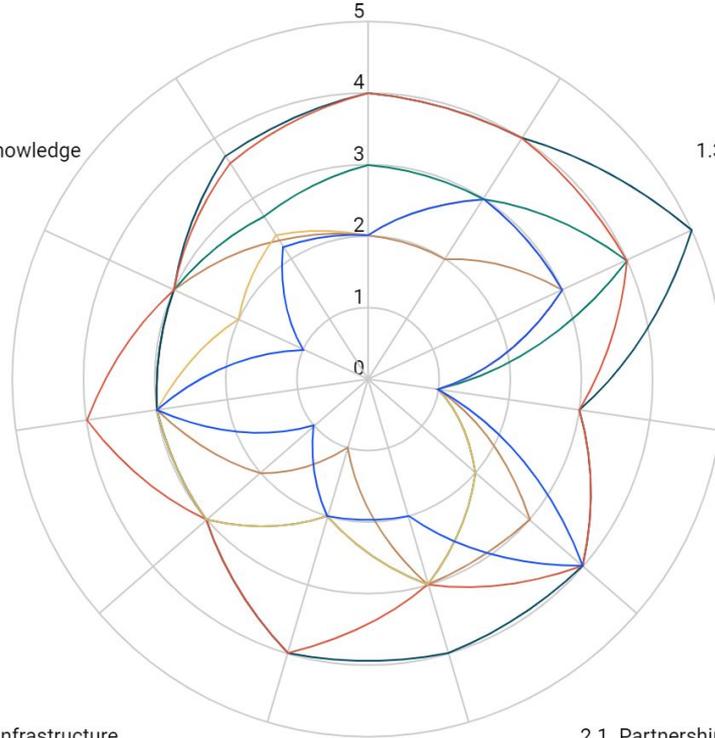
Location

3.1. Assets - Physical Infrastructure

3.2. Assets - Natural Infrastructure

3.3. Assets - Applications of Tech. Knowledge

AVERAGES



- City 1
- City 2
- Miami
- City 3
- City 5
- City 6

Next steps

- + Publish documents:
 - + The Maturity Model
 - + A “how to” exercise guide
 - + Miami’s situational manual and after-action report
- + 2-3 additional tabletops in new geographies
- + An open Challenge competition, where 4 additional cities will be selected to run their own heat tabletop exercise
- + Case studies published on heat.gov (interviews with government staff who have “tested” their own locality’s heat governance)



Opportunities to Engage with NIHHIS

- Engage with us via **Heat.gov**, **Heat Beat Newsletter**, **@HeatGov** on X
- Register for **NIHHIS National**
- Join a heat mapping campaign this summer

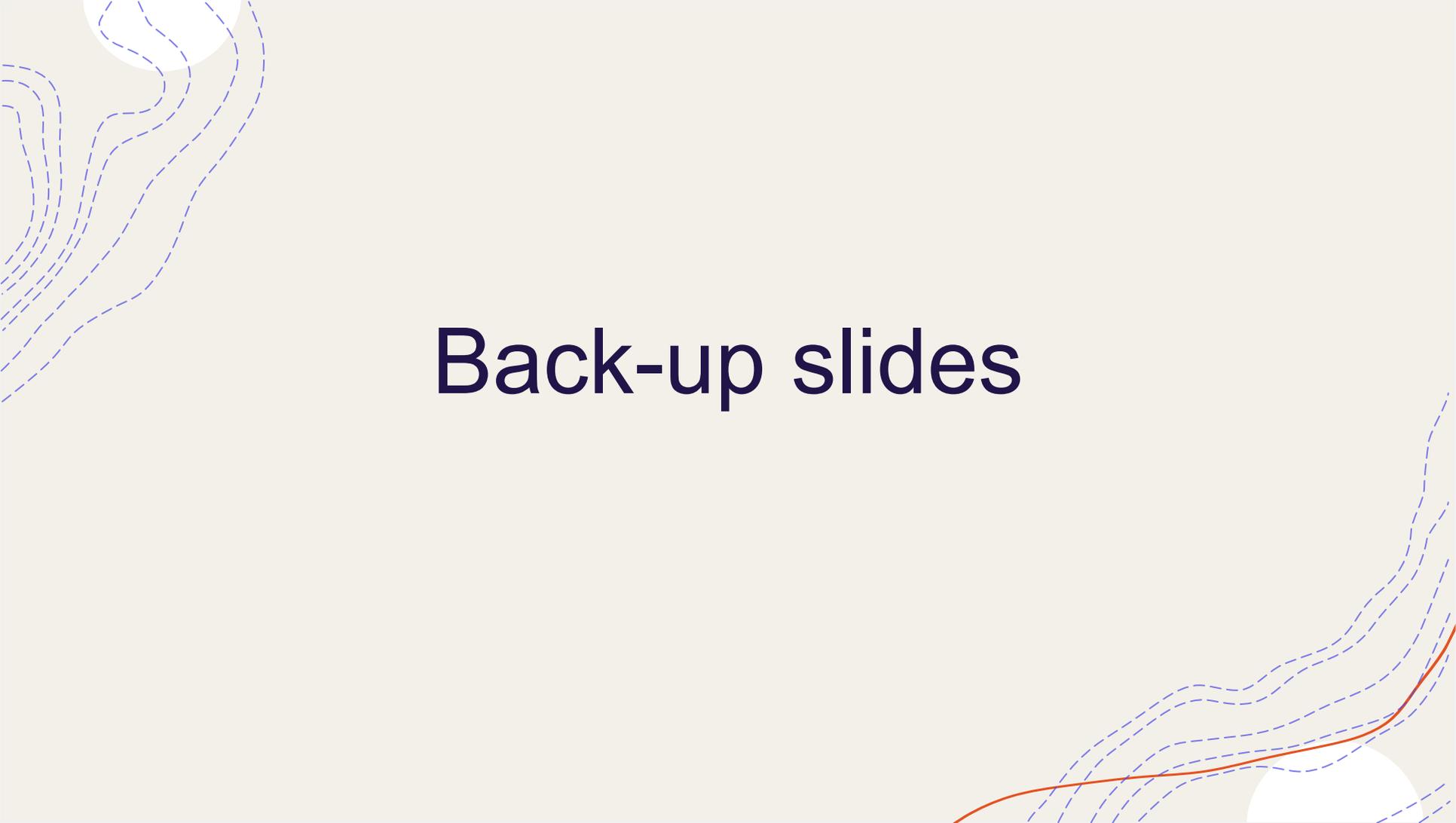


Heat Beat
newsletter



NIHHIS National

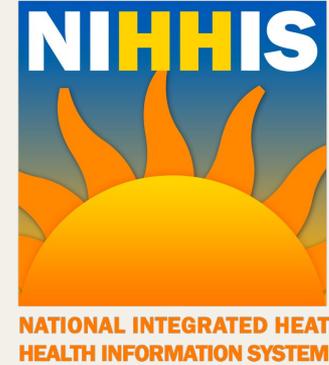
Questions? maggie.allen@noaa.gov



Back-up slides

3rd Annual NIHHIS National Meeting (15-18 APR 2024)

- **Connects stakeholders** from various organizations and fields to discuss heat and health across **timescales and geographic scales** and develop a shared vision for **community heat resilience**
- April 15: **State, local, tribal, and territorial (SLTT) governments** will organize locally-focused heat planning sessions and share outcomes.
- Themes:
 - **Heat Impacts** (e.g., Congressional remarks, reflection on 2023 heat season, 2024 forecasts, infrastructure impacts)
 - **Reducing Risk** (e.g., at-risk populations, addressing heat in clinical settings, understanding heat's impact on infectious disease)
 - **Community Resilience** (e.g., developing heat safe spaces, heat policy, community response case studies)



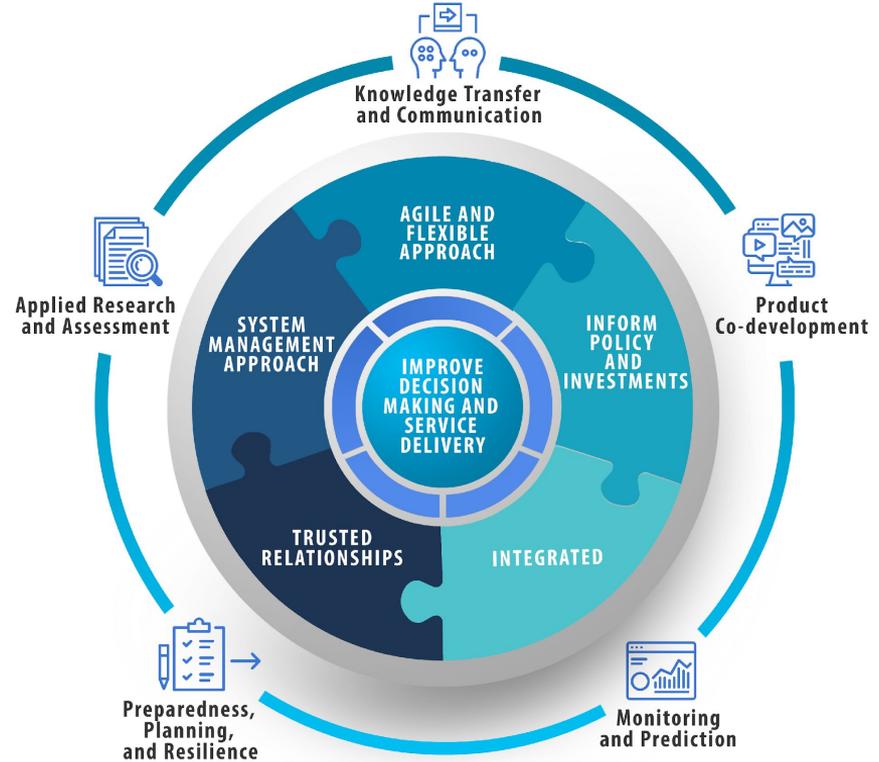
Opportunity:
Co-sponsors of
H.R.4953 -
Preventing HEAT
Illness and Deaths
Act of 2023 address
at NIHHIS National

NIHHIS is an Integrated Information System

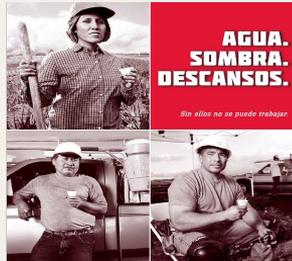
- Integrated Information Systems are a proven, **whole-of-government** organizational approach for enabling and strengthening capabilities to understand, manage, and mitigate **societal risks from complex environmental hazards** (e.g., heat, drought, floods) across sectors, timescales, geographies, and disciplines.
- An IIS is designed to **inform and improve the policy and decision-making landscape**, connect and amplify existing programs and networks, and respond to emerging priorities in a rapidly changing world.

INTEGRATED INFORMATION SYSTEMS

Integrating weather, water, and climate information to help decision-makers proactively manage risk and build resilience



NIHHIS Informs Heat-Risk Reducing Decisions at All Timescales



National Heat Strategic Plan

Vision

A thriving, heat-resilient nation

Mission

Representing 23 federal agencies, we work together to reduce heat-related impacts by building societal understanding of heat risks, developing science-based solutions, and improving capacity, communications, and decision-making.

Overarching Values

Diversity, Equity, and Inclusion

One-Health (heat impacts on animals, humans, ecosystems)

Nature-based Solutions

Collaborative Development of Solutions

Across Timescales

NIHHIS Interagency Working Group



Launched in 2016 as successor to NSC Critical Infrastructure Interagency Policy Committee (IPC) on Extreme Heat.

Initial focus on heat season communication, exertional heat injuries in military, athletics, and outdoor workers.

Now: Strategic Plan, Heat Season Campaigns, Climate and Health Outlook, NIHHIS National Meeting, [Heat.gov](https://www.heat.gov)

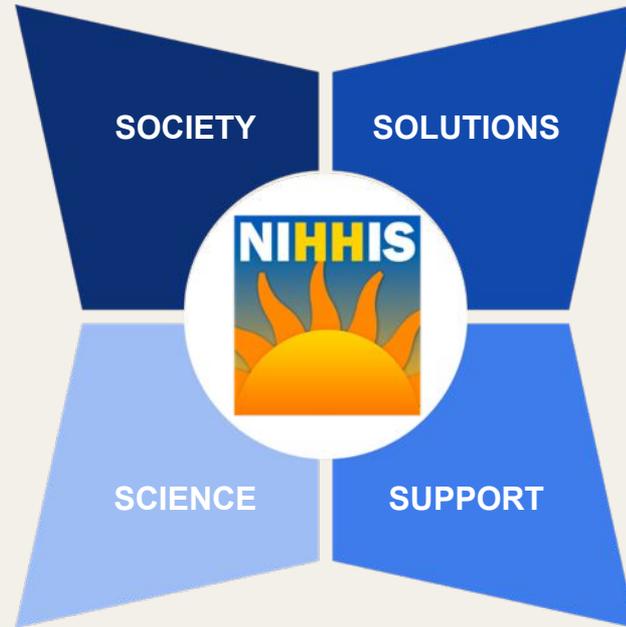
National Heat Strategic Plan - Overview of Goals

Goal 1:

Understand needs and perceptions, expand awareness, and inspire action to address the impacts of heat

Goal 2:

Advance understanding of heat and its impacts to develop science-based services and solutions for enhanced resilience



Goal 3:

Improve and facilitate an integrated approach and access to heat health information, services, and solutions to support international, national, state, local, territorial, tribal, and individual actions

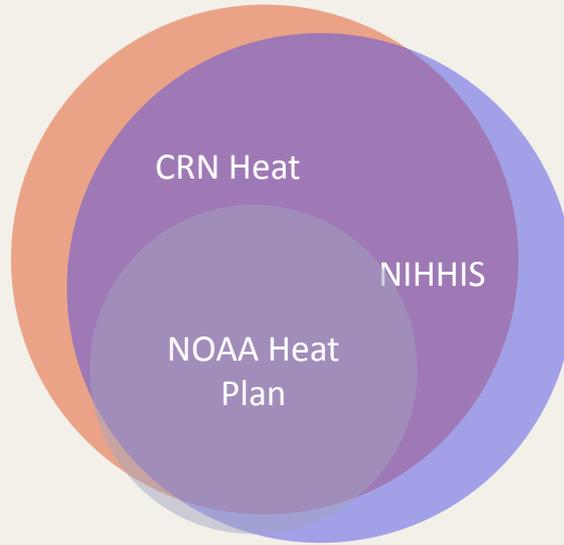
Goal 4:

Strengthen the foundations of NIHHIS success to ensure continuity as the primary integrated federal source for heat and health information and solutions

CRN + NIHHIS Shared Visions through 2030

CRN Vision

A thriving Nation whose prosperity, health, security, and continued growth benefit from and depend upon a shared understanding of, and collective action to reduce, the impacts of climate change.



NIHHIS Vision

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

NOAA Heat Plan

Aligns with the Federal Heat Strategy, NIHHIS Implementation Plan, and NOAA Strategic Plan



CRN : Heat

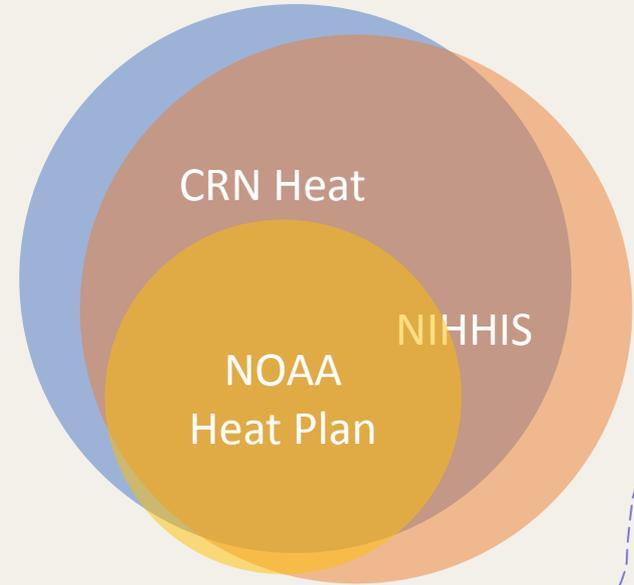
Initial goals of the group:

- Improve **cross-NOAA** information sharing and **collaboration** on heat-related work.
- Establish a **shared vision** for NOAA's role in building a heat-resilient, climate-ready nation.
- Develop a clear operational understanding and framework/**mapping of heat equities, interactions, and roles** among NOAA LOs, as well as other federal partners, that guides stakeholder engagement, R2X, and heat service provision in the broader context of climate service delivery.
- Create a **long-term NOAA Heat plan** to achieve ambitious outcomes in national heat resilience that draw upon NOAA's heat equities and leverage NIHHIS partner capabilities — integrated with NIHHIS strategic/implementation planning.



CLIMATE-READY NATION: HEAT

- A shared vision for NOAA's role in building a heat-resilient, climate-ready nation.
- A 7-year plan to achieve SMART and ambitious outcomes in national heat resilience that draw upon NOAA's heat equities and leverage NIHHS partner capabilities—integrated with NIHHS strategic/implementation planning.
- A clear operational understanding and framework/mapping of heat equities, interactions, and roles among NOAA LOs, as well as other federal partners, that guides stakeholder engagement, R2X, and heat service provision.



Landscape of Federal Heat Action

Coordination

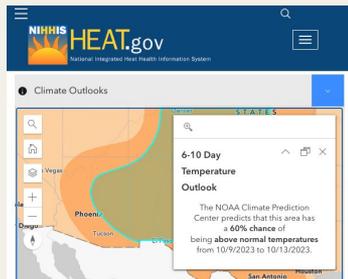
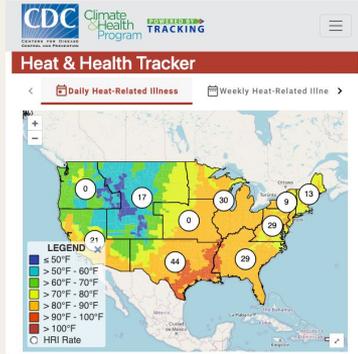


NATIONAL INTEGRATED HEAT HEALTH INFORMATION SYSTEM



National Heat Strategy

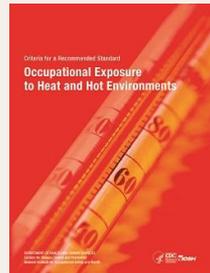
Research, Data, Information



Regulation, Policy



H.R.4953 - Preventing HEAT Illness and Deaths Act of 2023
H.R.4733 - Smoke and Heat Ready Communities Act of 2023
H.R.4256 - Jordan McNair Student Athlete Heat Fatality Prevention Act
H.R.4314 - Stay Cool Act
H.R.4269 - Timothy J. Barber Act
H.R.4378 - SMART Energy Efficiency Standards Act
11+ Bills in the House Alone



Implementation & Capacity



Technical Support & Guidance

