Workshop: How Energy Efficiency & Demand Response Can Offer Resilience in Extreme Heat

January 28, 2026

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ACCESS THE SLI.DO:

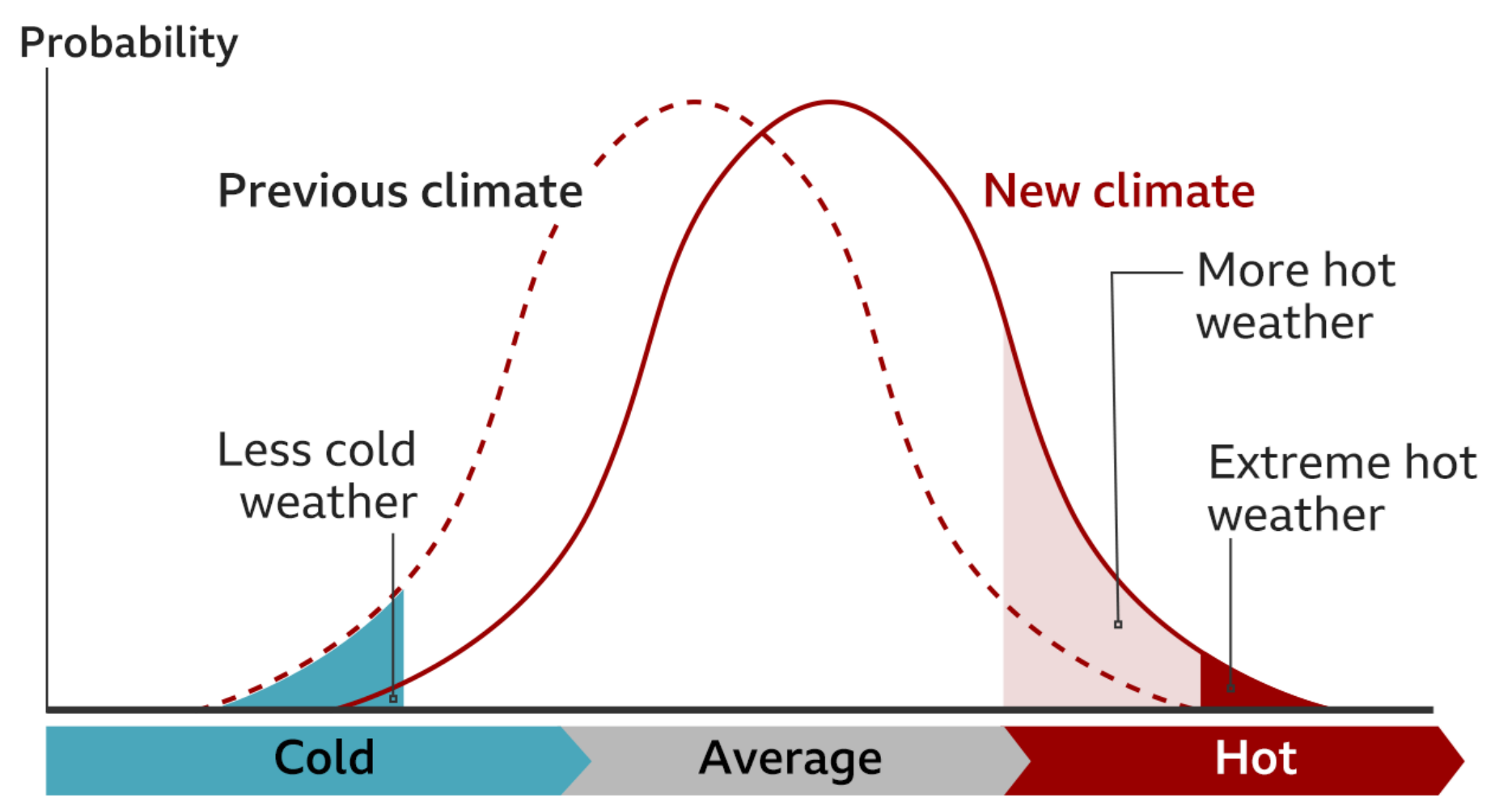
https://app.sli.do/event/n3u2BJ8sZxVntFURz6fk9M

FAS' Theory of Change

The science & technology (S&T) community has novel policy ideas, but lacks a platform to translate ideas into action.

Even the best ideas require experimentation; The S&T community needs ongoing support to evolve ideas to meet the moment

Policymakers are key partners; their focus is on "how" to actualize good ideas ensures success of policy


Probability
Previous climate
New climate
More hot weather
Less cold weather
Extreme hot weather
Cold
Average
Hot

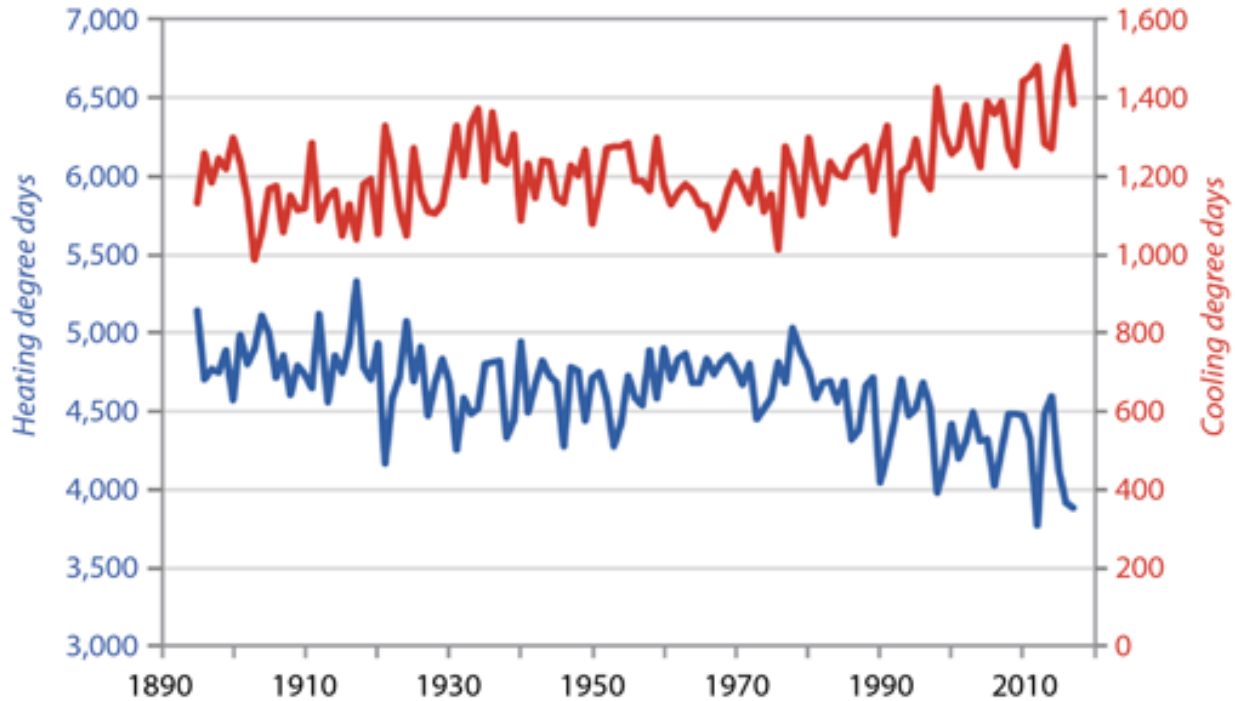
Source: BBC

Rising Demand for Air Conditioning

As the planet warms, the number of "cooling-degree days," with temperatures high enough that U.S. homes are likely to turn on air conditioning, are rising, while "heating-degree" days with the average temperature under 65°F are falling.

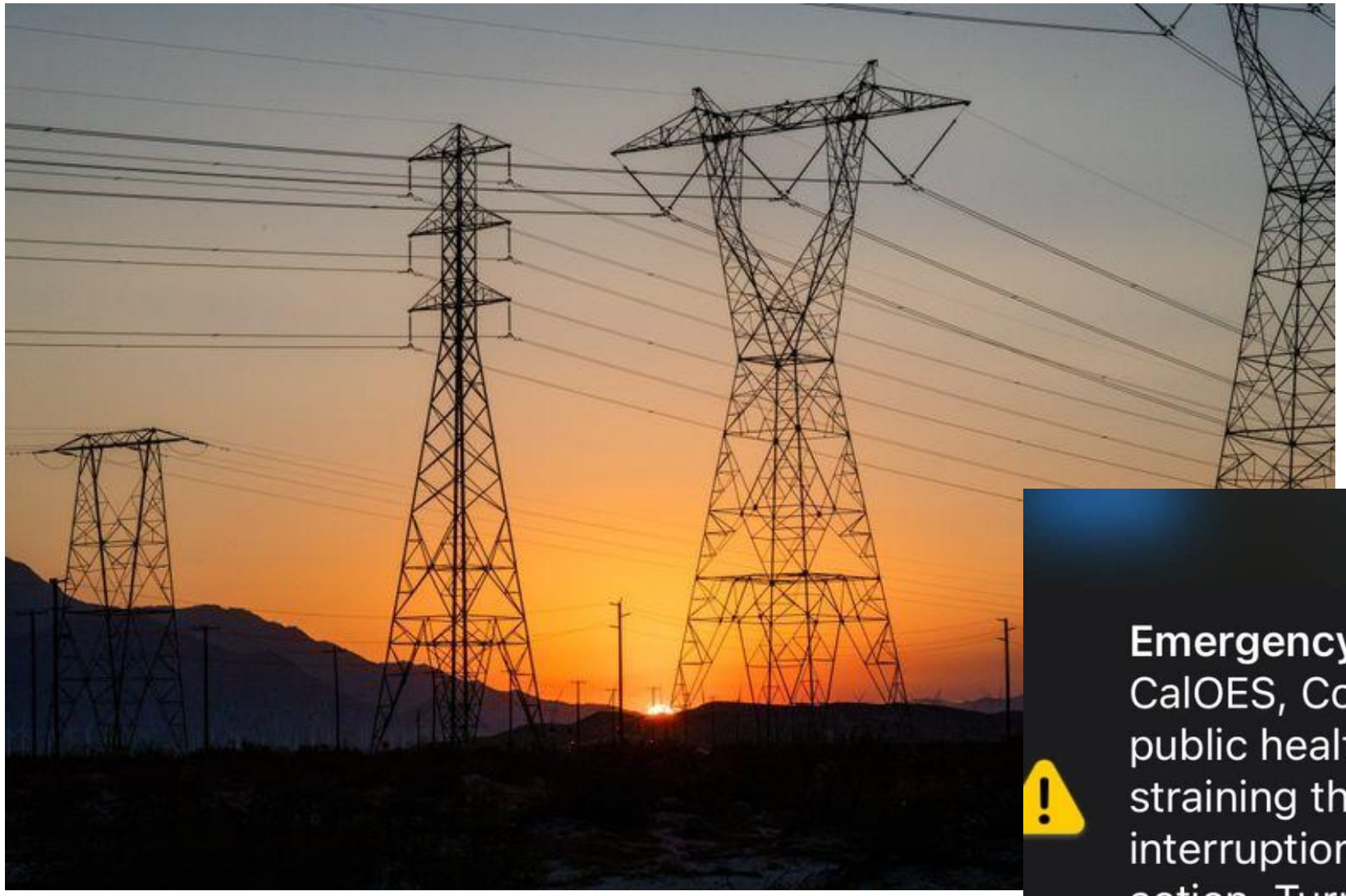
U.S. HEATING AND COOLING DEGREE DAYS

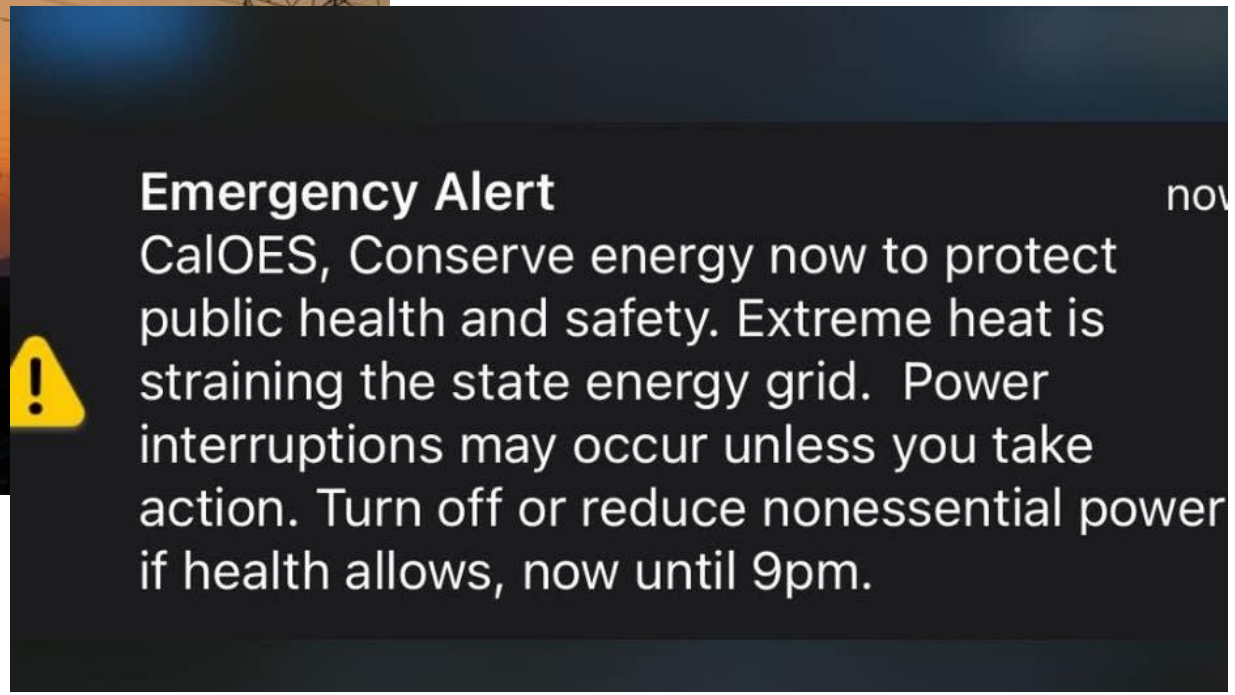
Per year, 1890-2018

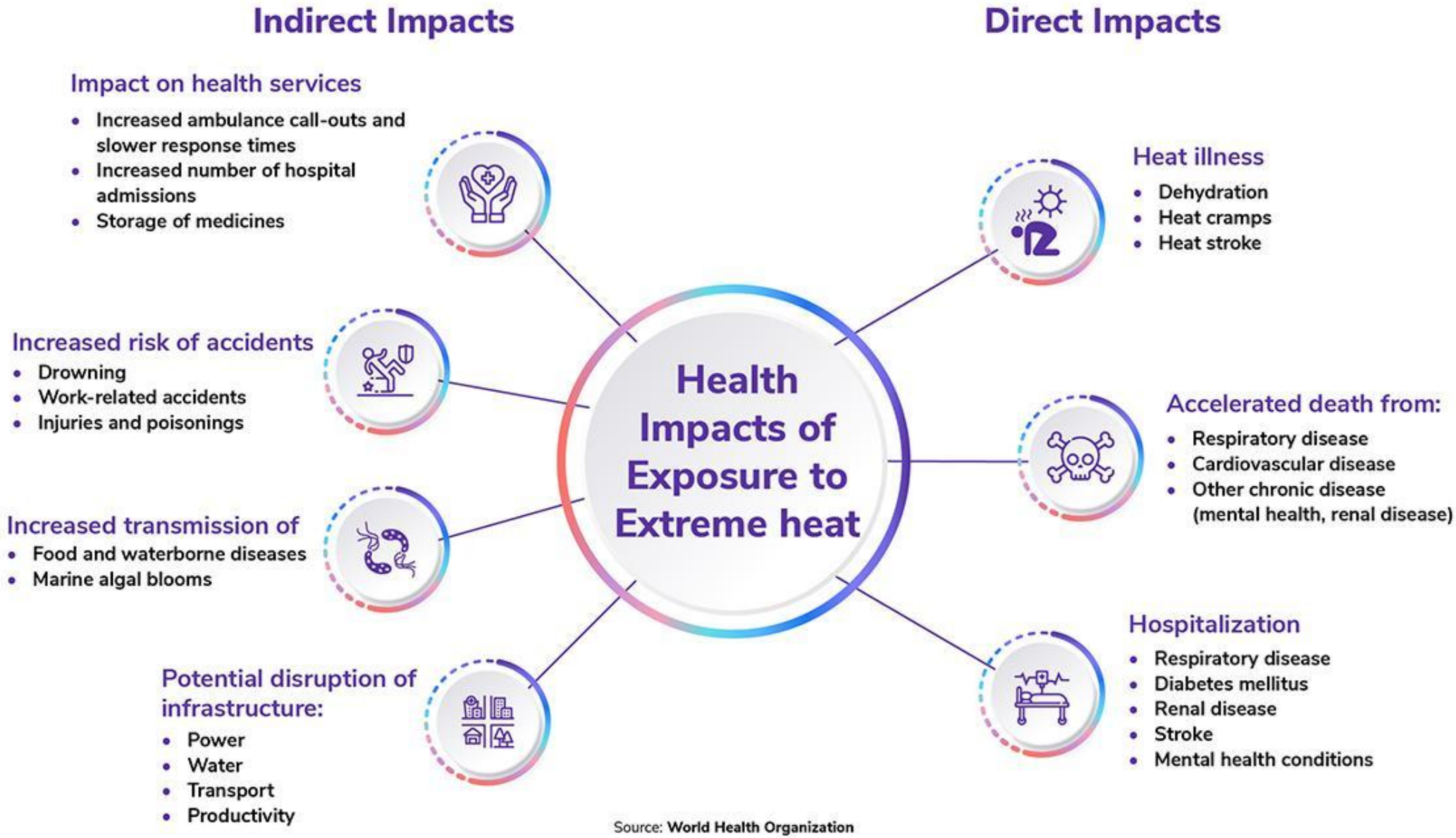


SOURCE: Fourth National Climate Assessment

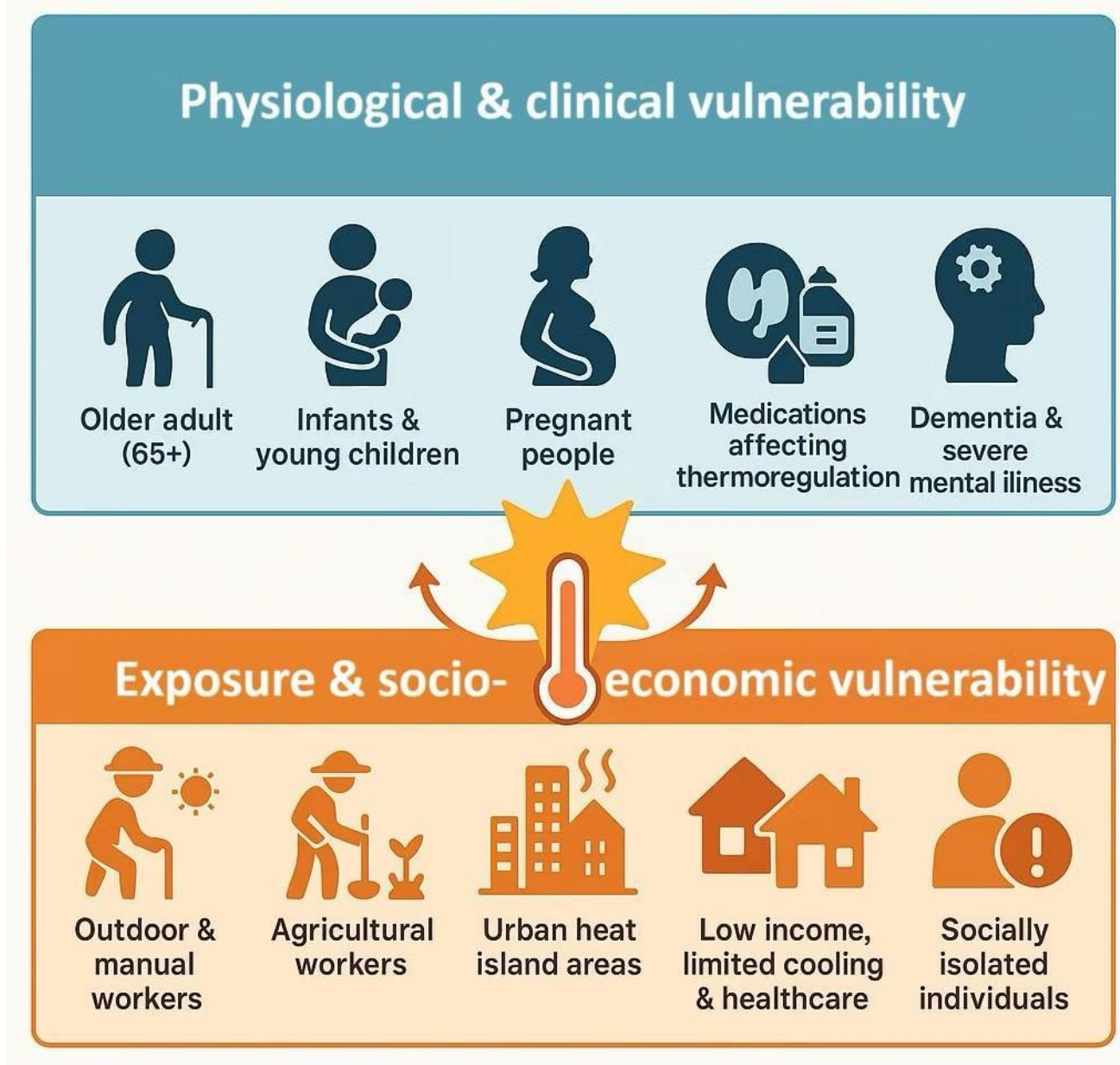
InsideClimate News




Emergency Alert
CalOES, Conserve energy now to protect public health and safety. Extreme heat is straining the state energy grid. Power interruptions may occur unless you take action. Turn off or reduce nonessential power if health allows, now until 9pm.



Source: **World Health Organization**


Physiological & clinical vulnerability
Older adult (65+)
Infants & young children
Pregnant people
Medications affecting thermoregulation
Dementia & severe mental iliness
Exposure & socio-economic vulnerability
Outdoor & manual workers
Agricultural workers
Urban heat island areas
Low income, limited cooling & healthcare
Socially isolated individuals

Access to cooling is the best preventative measure

But...access, affordability, and availability are not a given.

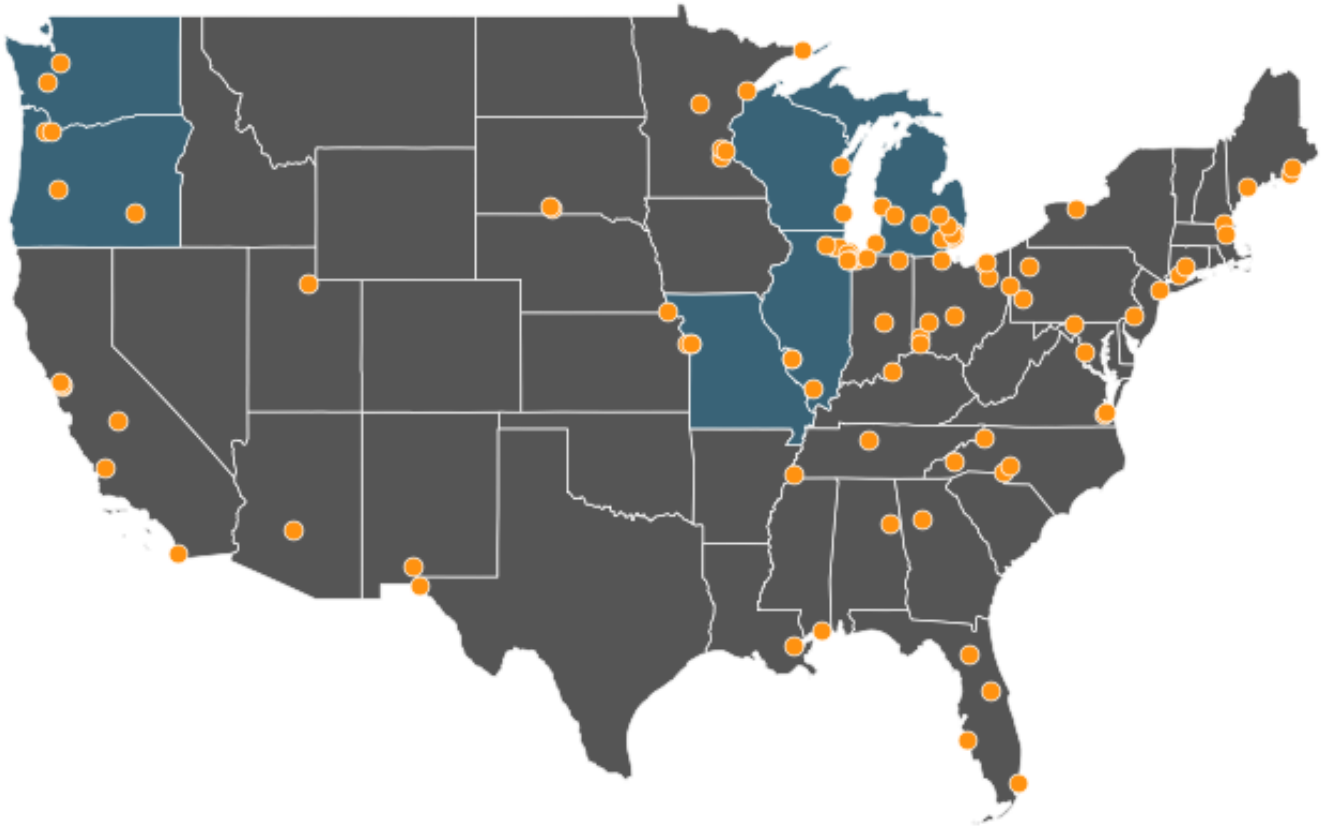
What stands in the way of cooling U.S. communities

- Unprepared building stock (aging and no cooling device)
- Energy affordability
- Grids reliability and resilience challenges

Connect with FAS

gwickerson@FAS.org
FAS.org
@FAScientists

Elevate: Delivers programs, policy, research and TA to communities



For over 20 years, Elevate has been working to create a just and equitable world in which everyone has clean and affordable heat, cooling, power, and water in their homes and communities.

- ✓ 1,551,065 people helped
- ✓ $148,036,923 saved by families
- ✓ 377,912 tons of CO2 emissions reduced
- ✓ 367,797 units of housing improved
- ✓ 2,173 clean energy jobs created

City of Chicago and Defusing Disasters

Spring 2022

Chicago Climate Action Plan Released

Defusing Disasters aligns with Pillar 5 of the CAP which includes the development of an HVI to integrate it into planning and development, community safety, and public health planning processes.

Fall 2022

Defusing Disasters Working Group Formed

Funded by the Buffett Institute for Global Affairs at Northwestern University, to co-develop a community driven, data-informed, public health-focused Heat Vulnerability Index with researchers, community, and government.

Summer 2023

NOAA HeatWatch & Indoor Heat Study

Team measured air temperature and humidity across all 77 community areas of Chicago on July 28, 2023 as part of NOAA's mapping campaigns. Indoor heat study measures temp and humidity in common home types July-September

Summer 2024

HVI Governance Advisory Council & Community Engagement Working Group

Team representing community, academic, and government stakeholders came together to create the parameters around community voice in the HVI that recommended community engagement, decision-making processes, and organizational structure.

Fall 2024

HVI Development

The HVI incorporates public health, socioeconomic, environmental, and climate data, and community input. The result is a map that identifies specific risk factors for each community.

Winter 2025

Community Priority DD Subgroup Formed & Photovoice Project Begins

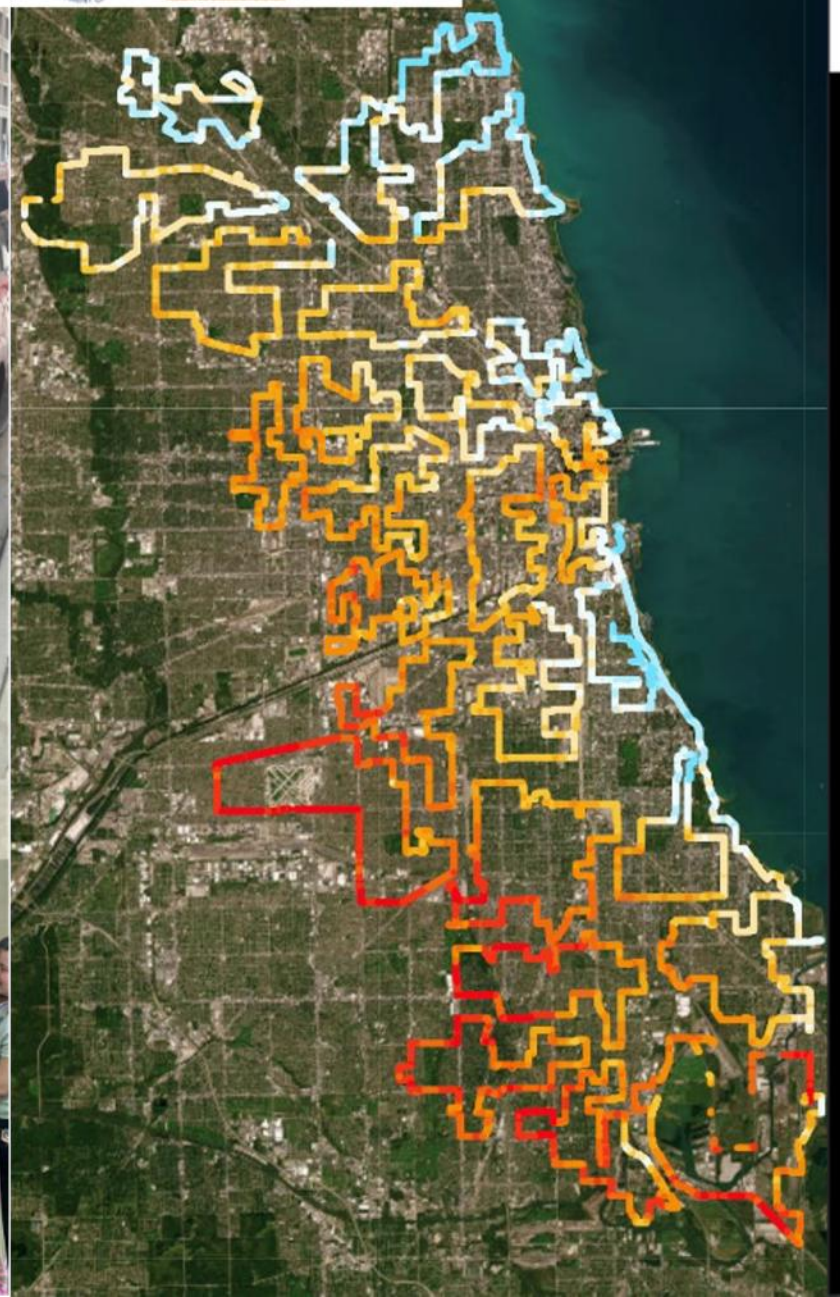
Summer 2025

Initial HVI Analysis & Emerging Community Priorities Released

Community-Driven Initiatives

- Communities have lived experience.
- Community knows what they have.
- Community knows what they need.
- Community knows what will work for them.
- What issues contribute to heat burdens.
- What issues impact their community.
- What changes would improve their community.
- Ask:
  - Does it make sense in every community?
  - What research has already been done in community that should be considered?

Community Science



Study Date

July 28th, 2023

228 mi²
Study Area

100
Volunteers

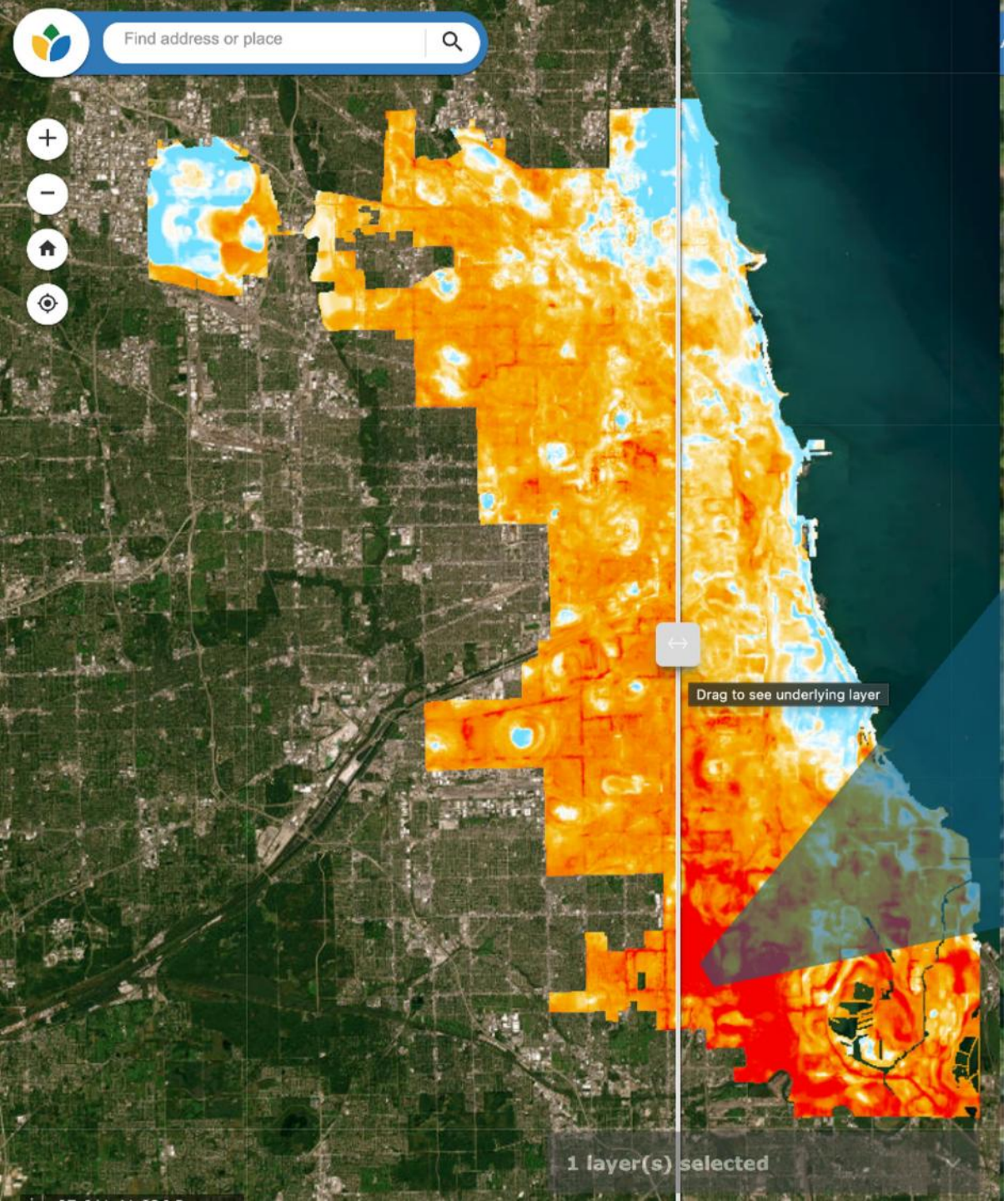
29
Routes

139,433
Measurements

99.1°
Max Temperature

22°
Max Temperature Differential

HEAT WATCH



ENVIRONMENT NEWS WEATHER

Southwest Side is hottest part of Chicago during summer, climate study finds

One day in July, there was a more than 20 degree difference between Rogers Park and Archer Heights. Why the Southwest Side is so hot will be explored by the city.

By Brett Chase | Dec 28, 2023, 2:43pm CST

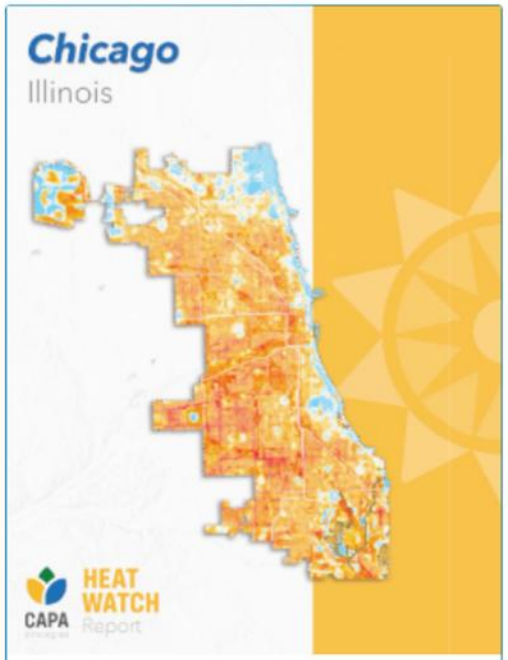
SHARE

Maria Caripa holds her 1-year-old daughter outside a Near North police station on one of the hottest days of the year last August. | Tyler Pasciak LaRiviere/Sun-Times

https://chicago.suntimes.com/2023/12/28/24017673/southwest-chicago-is-hottest-part-of-city-during-summer-climate-study

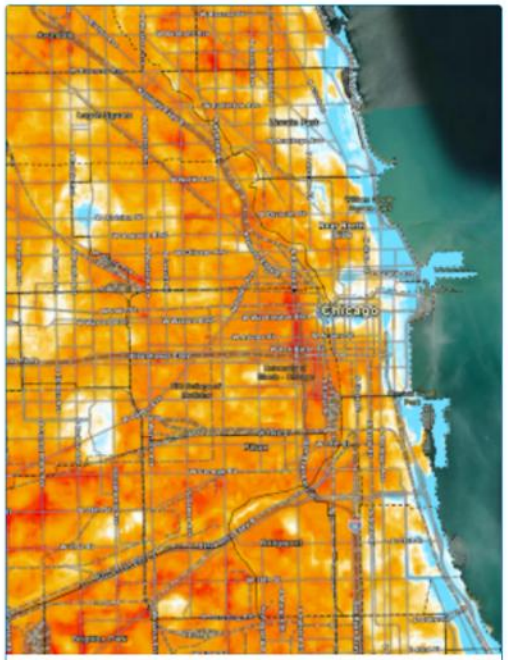
Public Report, Maps & Data

★ Heat Watch Findings ★



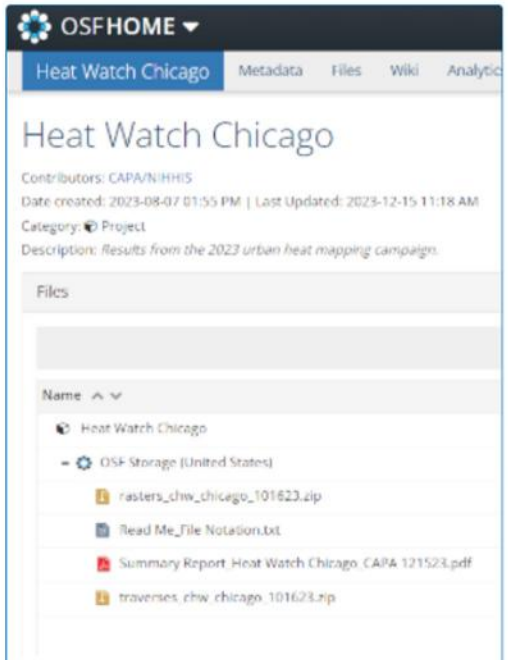
Heat Watch Report

Download PDF



Heat Watch Maps

View Maps



Heat Watch Data

View Data

Heat Watch Presentation

Download Presentation

chicago.gov/CoolChi

Chicago Summer 2023 Indoor Air Temperature Study

Rachel Scheu
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Midwest Energy Solutions Conference, Chicago IL
January 28, 2026

ILLINOIS TECH
Armour College of Engineering

ELEVATE

July 25, 2023-September 8, 2023

Defusing Disasters

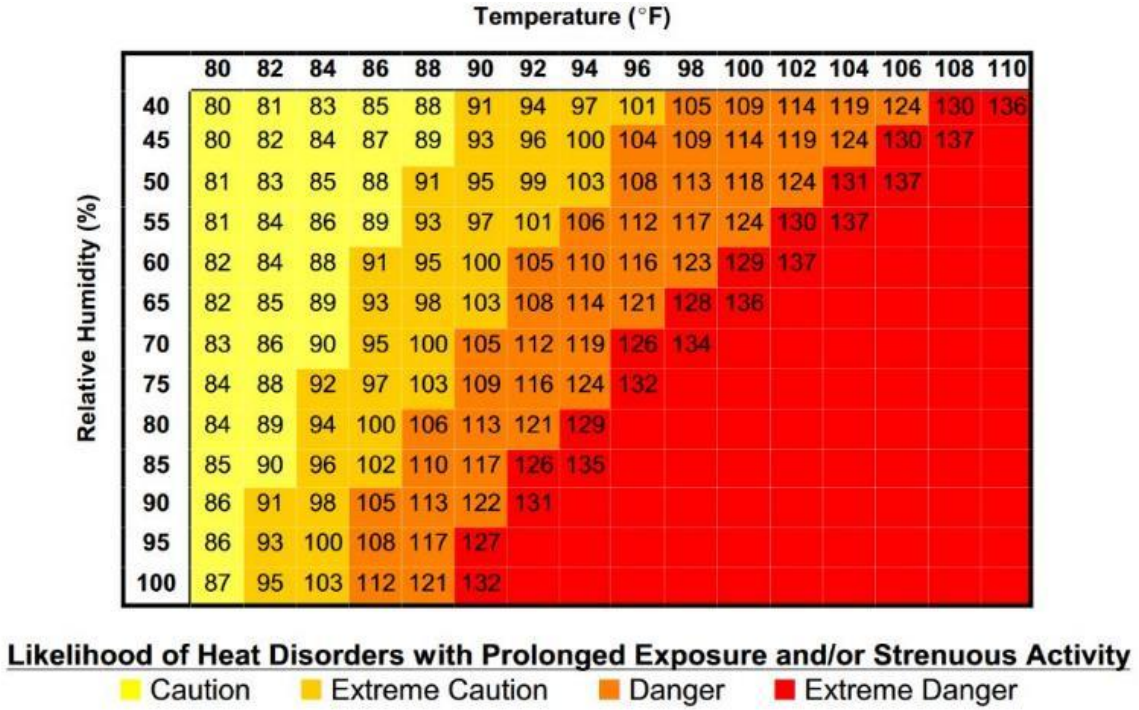
Northwestern
BUFFETT INSTITUTE
FOR GLOBAL AFFAIRS

CDPH
Chicago Department
of Public Health

HEAT WATCH
by CAPA

Methods-Summer Indoor Air Temperature Study

- Recruit 10 homeowners in representative home types in Chicago.
- Criteria: Own and reside in a 1-4 unit home without central air conditioning (window units ok); no members of household vulnerable to heat stress; have Wi-Fi.
- Four sensors per home for 26-64 days
- Metrics: Temperature & Heat index
- Survey questions about extreme heat concerns, risk perception, strategies and behaviors to mitigate heat exposure, and reasons for not having central cooling.



Ranges of heat index and likelihood of heat disorders. Source: National Weather Service

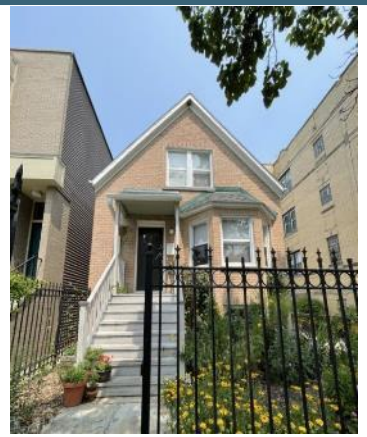
Homes Included in Study

Year Built: 1924
Floors occupied: 2 floors
Units: 2 full units and a basement studio

Year Built: 1928
Floors occupied: 2 floors
Units: 3 units

Year Built: 1917
Floors occupied: 1 floor
Units: 2 units

Year Built: 1879
Floors occupied: 2 floors
Units: 4 units



Year Built: 1899
Floors occupied: 2 floors
Units: 1 unit (Single Family)

Year Built: 1931
Floors occupied: 3 floors
Units: 1 unit (Single Family)

Year Built: 1964
Floors occupied: 1 floor
Units: 1 unit (Single Family)

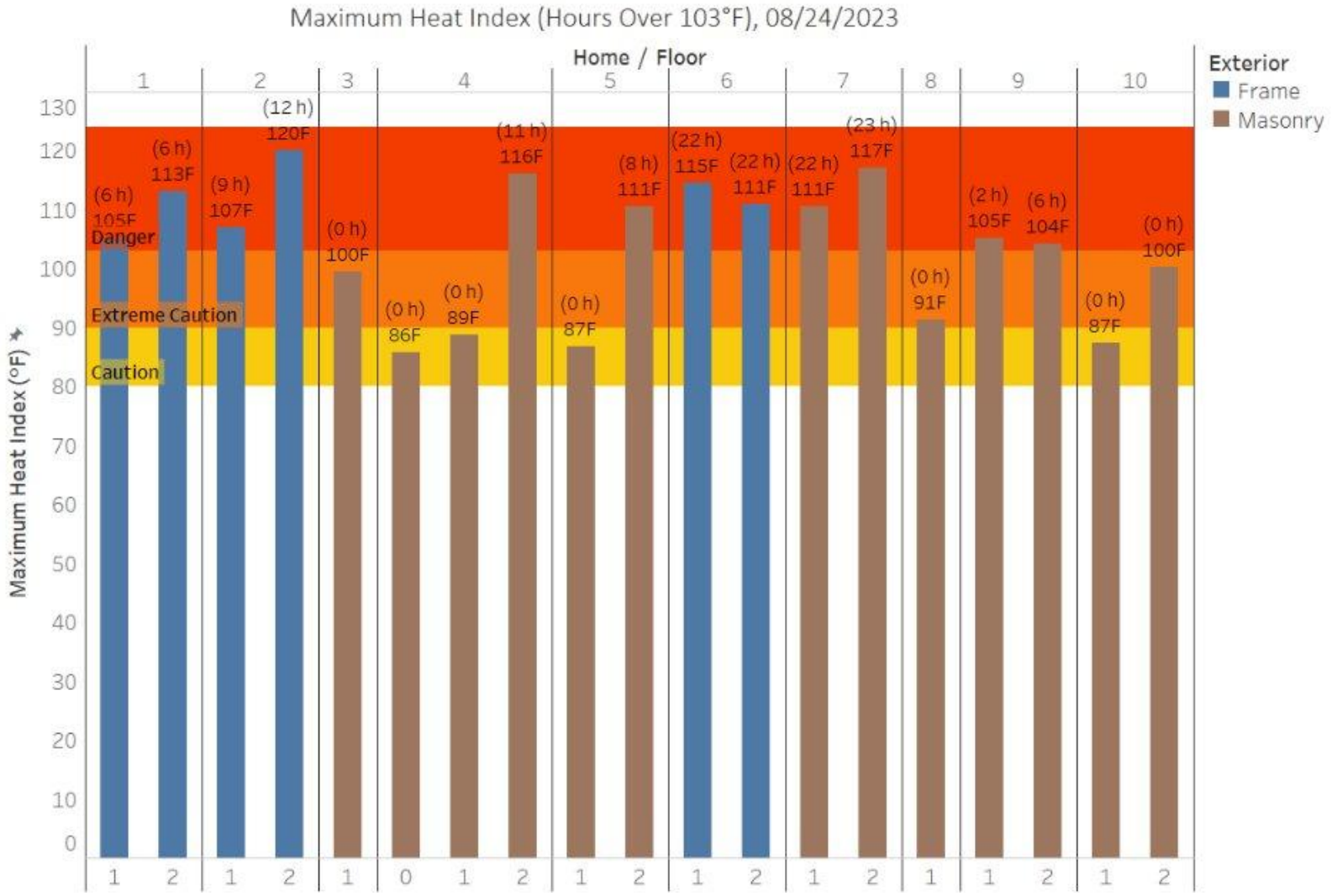
Year Built: 1899
Floors occupied: 2 floors
Units: 1 unit (Single Family)

Year Built: 1894
Floors occupied: 2 floors
Units: 1 unit (Single Family)

Year Built: 1899
Floors occupied: 2 floors
Units: 2 units

Results – Heat Index (Max)- and hours over 103°F

- All 10 homes* reached the **extreme caution** or **danger** threshold for heat index on 8/24



*unconditioned spaces

Results Summary

- All 10 homes* reached the **extreme caution** or **danger** threshold for heat index on 8/24
  - 7 homes exceeded 103°F heat index (danger) for 2h - 23h on 8/24
    - 2 homes (both floors) were in the danger category for 21+ hours on a heat wave day
  - Max Temperature: 108°F; Max Heat index: 120°F
  - Upper floors generally warmer and more danger hours compared to lower floors; Max HI differential: 36.8°F; Masonry homes had the greatest differentials

- Excluding the heat wave days, most spaces experienced temperatures > 80°F during the study
  - Ranging from 1% -34% of the time (5 -354 hours)

- Survey: All employed multiple adaptive capacity strategies to keep cool
  - Survey: Majority staying home during heat waves despite very warm indoor temperatures
  - Survey: 50% stated their homes were too hot, the rest were unsure or did not have concern, though they have concern for others

    "Our second floor is unbearable when the outside temps hit 100 degrees. We have a window unit that cools the sleeping areas, but it's not enough."

    "I am mostly concerned about others who are sensitive to heat. I never had AC growing up so am used to using fans, opening windows at night, etc. And we do have one room with an AC we can **retreat** to."

*unconditioned spaces

Indoor Air Temp Study Insights

Need for:

1. Greater **access** to **safe** conditions and **affordable cooling** in homes
2. Better **understanding** and increased **education** about risks
3. Additional **public communications/alerts** before and during heat events
4. Better understand **community needs** with respect to extreme heat

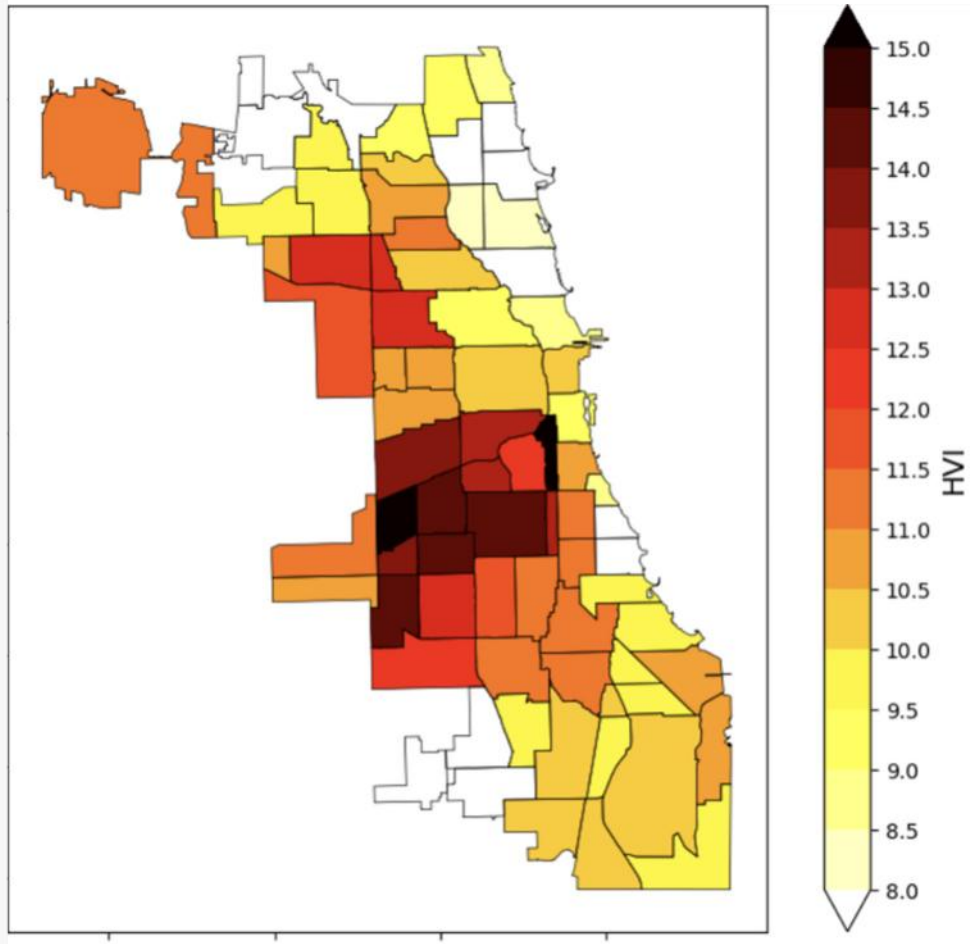
https://www.elevatenp.org/wp-content/uploads/Summer-Indoor-Thermal-Conditions-2.pdf

Community Data Recommendations for Developing Heat Vulnerability Index

46

variables

Chicago's death records



Emerging Community Priority Policy & Program Ideas

Greenspace Prioritization

Outdoor Worker Heat Protections

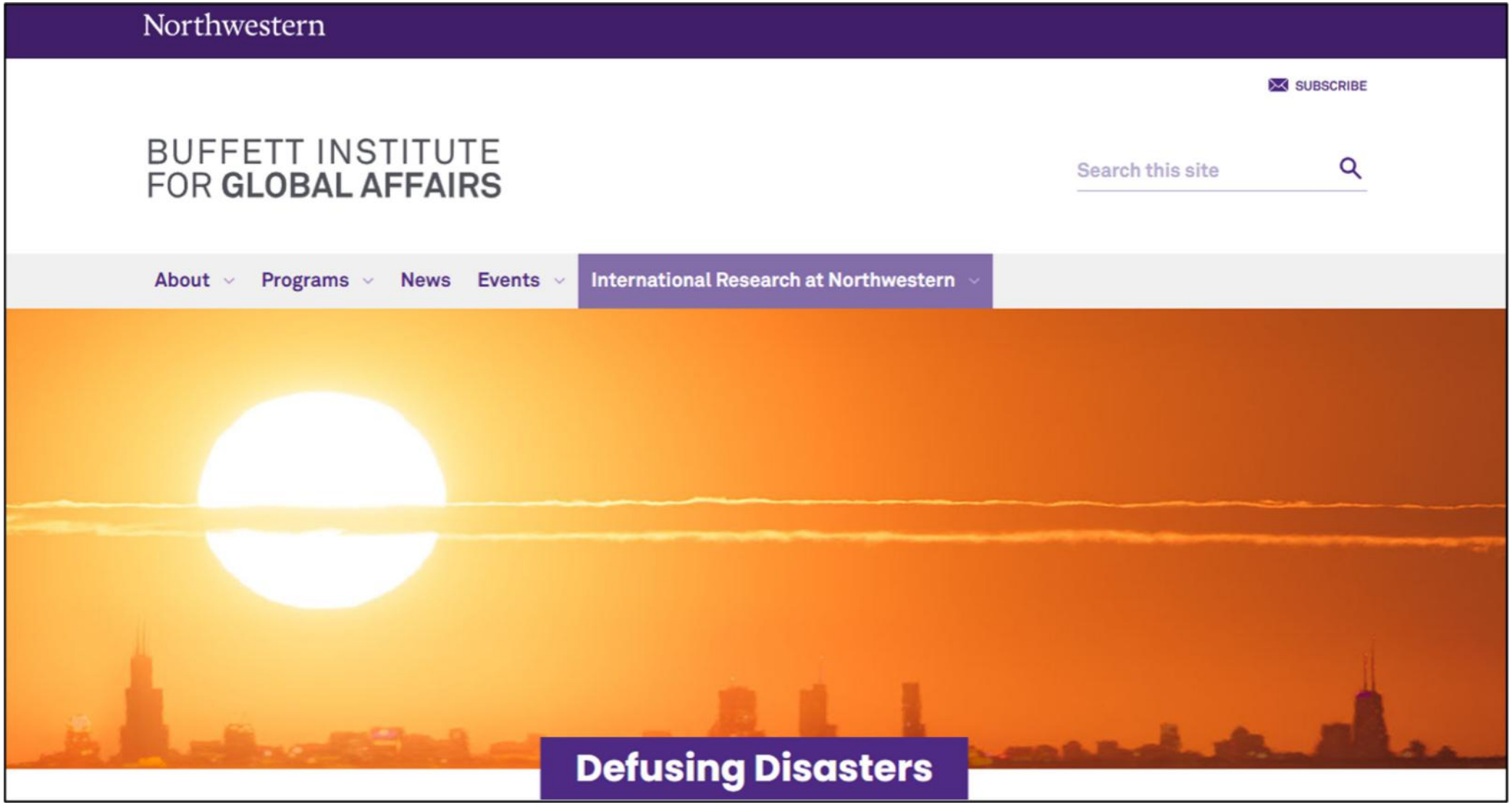
Transit Hydration & Cooling Stations

Unhoused Cooling Outreach

Resiliency Hubs

Indoor Worker Heat Protections

Cooling in Residential Buildings



https://buffett.northwestern.edu/research/global-working-groups/defusing-disasters.html

Connect with Elevate

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ELEVATE

Malachi Rein
Director,
Building Energy Exchange St. Louis

Malachi Rein holds degrees in Architectural Engineering and Communications. His work is dedicated to fostering conversations, connecting partners, building project pipelines, and providing resources to enhance the efficiency of the St. Louis region's building stock at scale.

Table Lead for:
Buildings, Thermal Resilience and Energy

Heather Navarro

Director,
Midwest Climate Collaborative

Heather brings her experience in nonprofits, law, and local government to connect climate leaders across the Midwest to one another and the resources they need to advance their climate goals. Let's think about what we need to leverage existing resources and draw in new ones to prepare for a warming world.

Table Lead for:
Planning Proactively for Extreme Heat

Zahra Seblini
Senior Energy Analyst
City of Detroit's Office of Sustainability

Zahra Seblini administers the Energy and Water Benchmarking Ordinance for the City of Detroit, which requires over 2 thousand buildings in Detroit to report energy and water use. Zahra is also developing the City's Municipal Energy Management Strategy.

Table Lead for: Access and Cost of Cooling.

Kit White, Manager of Legislative & Regulatory Affairs
Midwest Energy Efficiency Alliance

Kit tracks legislative and regulatory policy developments impacting energy efficiency throughout the Midwest, focused mostly on Illinois and the Dakotas. Ask her about MEEA's monthly *Policy Insider* newsletter.

Table Lead for:

Grid Preparedness for Extreme Heat

Ruth Schmidt

Associate Professor,
Institute of Design at the
Illinois Institute of Technology

Ruth Schmidt is an associate professor at the Institute of Design (ID) at Illinois Tech, whose research sits at the intersection of behavioral science, humanity-centered design, and complex systems and focuses on addressing private sector and public policy behavioral challenges more systematically and equitably.

Table Lead for:
Behavioral Interventions (personal/governmental)

Midwest Heat Coalition

If you want to stay connected . . .

Take the Survey

Thank you!

MIDWEST CLIMATE COLLABORATIVE