CHARLESTON HEAT-HEALTH RESEARCH PROJECT (CHHRP)

RAISING HEAT-HEALTH AWARENESS IN THE CITY OF CHARLESTON

AUGUST, 2022
Why is the NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA) sponsoring this work?

- Extreme heat is the number one weather related killer in the United States
- Heat-related health impacts likely will increase with climate change
- Informed by Climate and Equity Roundtable Events, NOAA is working with four communities to understand heat health impacts and address community needs (in Charleston, Miami, Las Vegas, Phoenix)
- Excited to be working with the team in Charleston to decrease heat risk in the community

RESOURCES:
- National Integrated Heat Health Information System (NIHHIS)
- Interagency resource: Heat.gov
What is CHHRP?

Why does this matter?

What makes it hotter in some places?

How will we learn?

How will we use what we learn?

How can you participate?
WHAT IS CHHRP?
We are a group of community advocates, health professionals, climate scientists, city planners, students, and researchers.

We want to learn more about heat impacts and help Charleston improve the wellbeing of community.
WHY DOES THIS MATTER?
Yeah, it's hot. So what?
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Charleston is hot and humid, and we are expecting even more hot days and nights in the future.

Heat has a serious impact on health for everyone! Some people are more at risk than others.
IT’S GETTING HOTTER

- 2x the number of days over 90
- More frequent and longer Heat Waves (2+ hot days in a row)
- Increasing average temperatures
In the south, heat is a given, but it’s getting hotter than it used to be.

Increased heat exposure impacts health.

Heat kills more people annually than any other weather hazard.
SOME ARE MORE VULNERABLE TO HEAT THAN OTHERS

People with disabilities, pregnant or already infirm
The poor, displaced and homeless
Children and the elderly
Outdoor workers
Athletes and attendees of outdoor events

IMAGE CREDIT: NIHHS
IN THE PAST 20 YEARS THERE HAS BEEN A ~54% INCREASE IN HEAT-RELATED MORTALITY IN PEOPLE OLDER THAN 65
WHAT CAN WE DO?

Prevention:
• Drink lots of water
• Wear loose-fitting clothes
• Access cooler spaces

Treatment
• Cool off QUICKLY!
• GET HELP!

Resources are available!
RESOURCES AVAILABLE

Heat Health Awareness Resources
Becoming more aware of the heat-health connections

- Ask your Doctor/Nurse about your health given your heat exposure at home and at work
- Ask your Pharmacist whether heat impacts your medications
- Take a look at NOAA’s resources on NIHHIS, the National Integrated Heat Health Information System, and Heat.gov

Coping Resources
Accessing cool spaces when needed

- Cool off at Charleston Libraries, Community Centers, and Parks
- Get Energy Assistance from South Carolina’s Low Income Energy Assistance Program (LIHEAP)
- If you’re a senior, ask Project Cool Breeze for fans or air conditioners
## RESOURCES AVAILABLE

### Heat Mitigation Resources

*Reducing heat contributions to the environment*

- Add exterior shades or canopies as well as interior shades or curtains
- Consider de-paving to cool an area
- Add reflective paint for Cooler Roofs / Cooler Pavements in your neighborhood

### Heat Adaptation Resources

*Changing the environment given heat in the future*

- Ask the [State](#) and/or [Dominion Energy](#) about their Home Weatherization Assistance Program and Energy Assistance Program
RESOURCES AVAILABLE

Cooling Facilities by Area

Peninsula
- **Main Public Library**, 68 Calhoun St
- **John L. Dart Public Library**, 1067 King St
- **Shaw Community Center**, 22 Mary St
- **Saint Julian Devine Community Center**, 1 Cooper St
- **Arthur W. Christopher Community Center**, 201 President St

James Island
- **Baxter-Patrick James Island Public Library**, 1858 South Grimball Rd
- **James Island Recreation Complex**, 1088 Quail Dr
- **Lowcountry Senior Center**, 865 Riverland Dr

West Ashley
- **West Ashley Public Library**, 45 Windemere Blvd
- **Hurd/Saint Andrews Public Library**, 1735 N. Woodmere Dr
- **Bees Ferry West Ashley Public Library**, 3035 Sanders Rd
- **Charleston Tennis Center**, 19 Farmfield Ave
- **Waring Senior Center**, 2001 Henry Tecklenberg Dr
- **Bees Landing Recreation Complex**, 1580 Ashley Gardens Blvd

Johns Island
- **Johns Island Public Library**, 3531 Maybank Hwy

Daniel Island
- **Daniel Island Public Library**, 2301 Daniel Island Dr
- **Daniel Island Recreation Center**, 160 Fairbanks Dr
WHAT MAKES IT HOTTER IN SOME PLACES?
This research hopes to collect data to better understand how wind and air temperature, sun exposure, and materials make areas hotter.
GADSDEN GREEN IS IN A HOT PART OF THE PENINSULA

We hope to start addressing heat impacts in Gadsden Green by:

**Phase 1 (LEARN):**
- recording hot temperatures in the community
- identifying materials that make heat feel worse
- talking about how heat affects health

**Phase 2 (ACT):**
- identifying resources to help cope with heat
- finding solutions to help cool the environment
Surface material affects how heat is experienced in any given area. In general, planted spaces are cooler than paved spaces, but the type of surface also plays a role. Lawns feel hotter than naturally unpaved areas, and dark asphalt roads and parking lots feel hotter than concrete sidewalks.

Are there places on the map that feel hotter than others over the course of a day?

How about places with a breeze vs places where the air is still?
HOW WILL WE LEARN?
Working with community members, we’ll collect information about where it’s hotter and why.
CHHRP APPROACH

We are here!

**August**
- CO1

**August**
- heat season data collection
  
  August 27th*

**October**
- CO2

**Fall 2022**
- TE

**Winter 2022/2023**
- CHA

*September 10th Backup

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CO - community outreach
TE - tabletop exercise
CHA - Charleston Housing Authority workshop

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August, 2022
OUTDOOR TEMPERATURE READINGS

Outdoor temperature readings will be collected at various locations using Kestrel Web-Bulb-Globe Temperature (WBGT) devices.

WBGT

ambient temperature + relative humidity + wind speed & direction + solar radiation

IMAGE CREDIT: The Citadel

heat season data collection
**THERMAL IMAGING**

Thermal Imaging will be conducted with **Forward-Looking InfraRed (FLIR)** adapters that connect to a smart phone.

FLIR sensors detect radiation emitted from surfaces and produce an image showing the temperature of the surface.

*IMAGE CREDITS: FLIR (left) and Climate Adaptation Partners (right)*
Surface materials will be identified by type.
Spot temperatures will be taken.
Locations and time will be recorded.
ENVIRONMENTAL CONDITIONS

For each measurement, the environmental conditions will also be noted:

- Sunny, Partly Cloudy, Overcast
- Still, Breezy, or Windy
- Dry or Rainy

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<th>12 pm</th>
<th>6 pm</th>
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<td>WIND mph (direction)</td>
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<td>2 (w)</td>
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<td>8 (ssw)</td>
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<td>HUMIDITY %</td>
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Historical weather data sourced from timeanddate.com
© 2020 Time and Date AS

IMAGE CREDIT: Climate Adaptation Partners
We hope to work with community members as Community Scientists.

If you choose to participate, you will:

• help the researchers to collect data
• receive a gift card
• be recognized in the resulting NOAA report
USING WHAT WE LEARN

October 2022 Community Meeting
Fall 2022 Tabletop Exercise
Winter 2022/2023 CHA Workshop
HOW YOU CAN PARTICIPATE

To volunteer, or for other questions, contact Sea Grant:
Susan Lovelace, Executive Director, 843-953-2075
South Carolina Sea Grant Consortium

For additional information on the research contact:
Scott Curtis, Director, 843-953-6781
The Citadel James B. Near, Jr. Center for Climate Studies

For additional information on the City’s work on Heat, contact:
Dale Morris, Chief Resilience Officer, 843-817-7854
City of Charleston
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