

## NCDHHS Heat Health Alert System (HHAS)

### How it works:

- The Heat Health Alert System is a system the NCDHHS Climate and Health team uses to send out heat alerts via email when the forecast is projected to reach unhealthy levels during the heat season (May 1<sup>st</sup> to September 30<sup>th</sup>).
- Subscribers to a county will receive heat alerts when the daily maximum heat index is forecasted to *meet or exceed* the heat index threshold for that county's region.

### Why this matters:

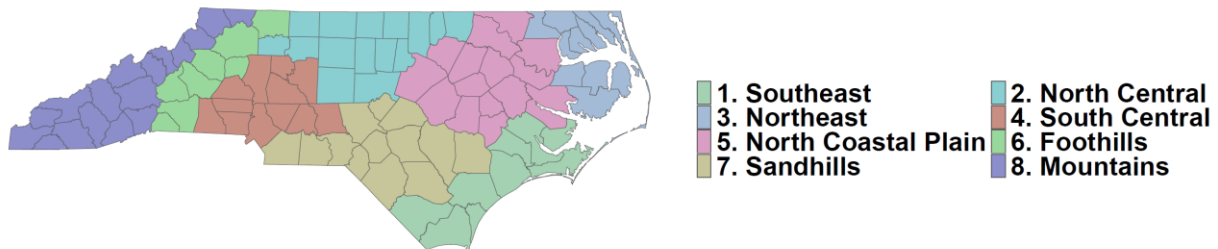
- Heat is the leading cause of weather-related deaths in the United States.
- In North Carolina, our summers are getting hotter and more humid, with more days above 90°F and nights staying above 75°F.
- This system helps protect everyone, especially populations most vulnerable to heat: elderly, young, outdoor workers, and those with pre-existing health conditions.

### Updates to the HHAS for the 2025 heat season:

- **New regions**
  - Counties with similar climates are grouped into **8 regions**.

#### North Carolina HRI Surveillance Regions

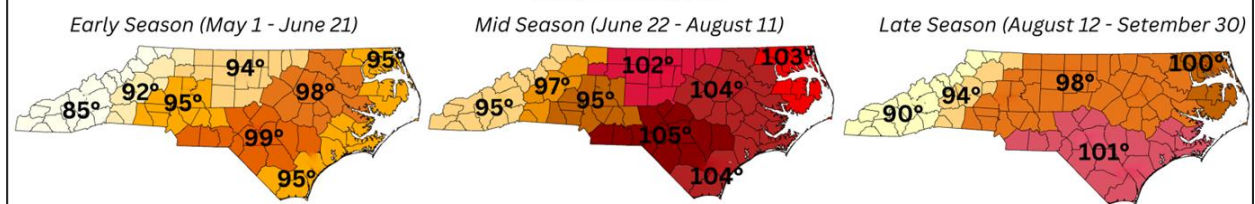
(updated for 2025 to match the new Heat Health Alert System regions)



- **Season-specific heat alerts:** tailored to different regions, making warnings more accurate
  - *Early Season (May 1-June 21):* lower thresholds when our bodies aren't yet used to heat
  - *Mid-Season (June 22-August 11):* higher thresholds when we've adjusted to summer heat
  - *Late Season (August 12-September 30):* lower thresholds as summer winds down

#### NC Heat Health Alert System Heat Index Thresholds

##### 2025 Thresholds



### What makes these changes better for protecting health?

- More accurate warnings: the new system is three times better at detecting dangerous heat in early summer, when unexpected heat can be most harmful.
- Locally relevant: unlike national systems, our thresholds are based on when North Carolinians experience health problems.
- Seasonally adaptive: acknowledges that heat tolerance varies as our bodies adjust through the heat season.

### How were these new thresholds developed?

- These thresholds were developed in partnership with the Duke University Nicholas Institute Heat Policy Innovation Hub. Researchers analyzed 15 years of North Carolina emergency department visit records and mortality data alongside historical weather data to determine when each region experiences increased heat-related emergency department visits and deaths.

### Appendix:

**Table 1. County Assignments for Updated 2025 Heat Health Alert System Regions**

<b>1.Southeast</b>	<b>2. North Central</b>	<b>3. Northeast</b>	<b>4. South Central</b>	<b>5. North Coastal Plain</b>	<b>6. Foothills</b>	<b>7. Sandhills</b>	<b>8. Mountains</b>
Brunswick Carteret Columbus Craven Jones New Hanover Onslow Pamlico Pender	Alamance Caswell Chatham Durham Forsyth Granville Guilford Orange Person Randolph Rockingham Stokes Vance Warren Yadkin	Camden Chowan Currituck Dare Gates Hertford Hyde Pasquotank Perquimans Tyrrell Washington	Cabarrus Catawba Cleveland Davidson Davie Gaston Iredell Lincoln Mecklenburg Montgomery Rowan Stanly	Beaufort Bertie Edgecombe Franklin Greene Halifax Johnston Lenoir Martin Nash Northampton Pitt Wake Wayne Wilson	Alexander Burke Caldwell McDowell Polk Rutherford Surry Wilkes	Anson Bladen Cumberland Duplin Harnett Hoke Lee Moore Richmond Robeson Sampson Scotland Union	Alleghany Ashe Avery Buncombe Cherokee Clay Graham Haywood Henderson Jackson Macon Madison Mitchell Swain Transylvania Watauga Yancey

**Table 2. NC Heat Health Alert System Heat Index Thresholds, 2025 Season**

Region	Early (May 1 - June 21)	Mid (June 22 - Aug. 11)	Late (Aug. 12 - Sept. 30)
1. Southeast	95°F	103°F	100°F
2. North Central	94°F	102°F	98°F
3. Northeast	95°F	104°F	101°F
4. South Central	95°F	100°F	98°F
5. North Coastal Plain	98°F	104°F	98°F
6. Foothills	92°F	97°F	94°F
7. Sandhills	99°F	105°F	101°F
8. Mountains	85°F	94°F	90°F

**Table 3. HHAS Weather Station Locations, by County**

County	Weather Station Location	Latitude	Longitude
Alamance	Burlington-Alamance Reg Asos	36.04854	-79.47489
Alexander	Taylorsville	35.91	-81.17
Alleghany	Sparta	36.49	-81.12
Anson	Wadesboro	35.0206389	-80.077111
Ashe	2 Miles Wnw Jefferson NC	36.43	-81.49
Avery	Newland	36.08	-81.93
Beaufort	Washington Warren Field Aprt	35.57	-77.05
Bertie	3 Miles SSW Askewville Nc	36.07	-76.96
Bladen	Elizabethtown Curtis Brown Field	34.6	-78.58
Brunswick	Southport Brunswick	33.92917	-78.07472
Buncombe	Asheville Municipal Asos	35.43194	-82.5375
Burke	Morganton-Lenoir Airport	35.82	-81.61
Cabarrus	Concord	35.38777	-80.70914
Caldwell	3 Miles NNW Lenoir NC	35.96	-81.55
Camden	4 Miles NNW Camden NC	36.37	-76.18
Carteret	Smith Field Beaufort Asos	34.73355	-76.6606
Caswell	Yanceyville NC	36.4	-79.34
Catawba	Hickory Regional Asos	35.74115	-81.38955
Chatham	Silver City	35.7043	-79.5043
Cherokee	Andrews-Murphy Airport	35.19523	-83.86304
Chowan	Edenton Northea	36.02773	-76.56709
Clay	4 Miles E Hayesville NC	35.07	-83.76
Cleveland	Shelby Muni Arpt	35.25556	-81.60111
Columbus	Columbus Cnty Muni Arpt	34.27529	-78.71463
Craven	New Bern NC	35.11	-77.09
Cumberland	Fayetteville Rgnl Asos	34.99122	-78.88028
Currituck	Currituck	36.3999444	-76.015444
Dare	Dare County Gunnery Range	35.6667	-75.9
Davidson	3 Miles Ese Lexington NC	35.78	-80.21
Davie	2 Miles Nne Mocksville NC	35.93	-80.55
Duplin	Kenansville Duplin County	35	-77.98

Durham	Durham - Duke North Heliport	36.0070389	-78.937333
Edgecombe	Tarboro	35.9373	-77.5465
Forsyth	Winston-Salem Smith Asos	36.13372	-80.222
Franklin	Louisburg NC	36.07	-78.27
Gaston	Gastonia Mcpl Asos	35.19667	-81.15583
Gates	4 Miles Ne Gatesville NC	36.45	-76.7
Graham	2 Miles Ese Santeetlah NC	35.34	-83.84
Granville	Henderson-Oxford Arpt	36.36	-78.53
Greene	2 Miles N Snow Hill NC	35.49	-77.67
Guilford	Greensboro Piedmont Asos	36.0975	-79.94361
Halifax	Roanoke Rapids Asos	36.44	-77.71
Harnett	4 Miles Sw Lillington NC	35.37	-78.88
Haywood	2 Miles N Lake Junaluska NC	35.56	-82.99
Henderson	Balfour NC	35.34	-82.48
Hertford	Ahoskie Tri Cou	36.3	-77.17
Hoke	2 Miles Nnw Silver City NC	35.01	-79.24
Hyde	3 Miles Ssw Fairfield NC	35.54	-76.27
Iredell	2 Miles Nne Statesville NC	35.82	-80.87
Jackson	Sylva	35.3159	-83.2071
Johnston	Smithfield	35.54094	-78.39033
Jones	3 Miles S Trenton NC	35.03	-77.35
Lee	Sanford NC	35.48	-79.17
Lenoir	Kinston Stallings	35.33	-77.61
Lincoln	Lincolnton	35.48333	-81.16125
Macon	Franklin	35.22	-83.42
Madison	2 Miles Ene Walnut NC	35.85	-82.7
Martin	Williamston	35.8622	-77.1782
McDowell	2 Miles W Marion NC	35.69	-82.06
Mecklenburg	Charlotte Douglas	35.22255	-80.95431
Mitchell	Bakersville NC	36.01	-82.16
Montgomery	Jordan Field	35.2378	-79.9956
Moore	Southern Pines Awos	35.23722	-79.39111
Nash	2 Miles W Nashville NC	35.98	-77.98
New Hanover	Wilmington New Han Asos	34.27	-77.9
Northampton	2 Miles Ne Jackson NC	36.41	-77.41
Onslow	New River Mcas	34.70842	-77.43966
Orange	Hillsborough NC	36.07	-79.11
Pamlico	Stonewall NC	35.14	-76.75
Pasquotank	Elizabeth City	36.2577	-76.1716
Pender	Wallace	34.7179	-78.0036
Perquimans	Winfall NC	36.2	-76.44
Person	Roxboro	36.28489	-78.98423
Pitt	Pitt-Greenville Aprt	35.63525	-77.38531
Polk	Mill Spring NC	35.27	-82.16
Randolph	Asheboro Muni Arpt	35.65453	-79.89475
Richmond	Rockingham	34.89	-79.76

Robeson	Lumberton	34.61	-79.06
Rockingham	Reidsville	36.4372222	-79.851011
Rowan	Rowan County Airport	35.64589	-80.52029
Rutherford	Rutherfordton	35.42822	-81.93508
Sampson	Clinton	34.97556	-78.36444
Scotland	Mackall Aaf	35.03666	-79.4974
Stanly	Albemarle	35.41669	-80.1508
Stokes	2 Miles Wsw Danbury NC	36.39	-80.24
Surry	Mount Airy Surry County Aprt	36.46	-80.55
Swain	4 Miles Wnw Deep Creek NC	35.48	-83.49
Transylvania	2 Miles N Cherryfield NC	35.2	-82.8
Tyrrell	8 Miles Sse Columbia NC	35.83	-76.19
Union	Monroe Airport Asos	35.01694	-80.62056
Vance	2 Miles N Henderson NC	36.36	-78.4
Wake	Raleigh Durham	35.8922	-78.7819
Warren	3 Miles E Warrenton NC	36.4	-78.11
Washington	4 Miles Sse Roper NC	35.83	-76.58
Watauga	Watauga Cnty Hosp Helip	36.2	-81.65
Wayne	Seymour-Johnson Afb	35.33938	-77.96059
Wilkes	North Wilkesboro Wilkes Cnty	36.22284	-81.09834
Wilson	Rocky Mount-Wilson Asos	35.85625	-77.89193
Yadkin	2 Miles N Yadkinville NC	36.16	-80.66
Yancey	Mount Mitchell NC	35.89	-82.31