

South Carolina State Climatology Office

NOAA Eastern Region Climate Services Webinar

September 28, 2023



April 1861
Charleston Board of Health Daily Weather Observations

from the "remarks" column:
 April 12-"Rain most of the day, Bombardment of Sumter!"
 April 13-"Cloudless day, Surrender of Fort Sumter!"
 April 14-"Bright and cloudless Sabbath, Evacuation of F Sumter!"

STATION												POSITION				DATE				WEATHER		REMARKS																								
NAME				LATITUDE				LONGITUDE				TIME		CONDITION		WIND																														
NO. 1				NO. 2				NO. 3				NO. 4		NO. 5			NO. 6																													
NO. 1				NO. 2				NO. 3				NO. 4		NO. 5		NO. 6																														
54.0	55.2	56.0	57.0	58.0	59.0	60.0	61.0	62.0	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0	90.0	91.0	92.0	93.0	94.0	95.0	96.0	97.0	98.0	99.0	100.0
<p>1. Cloudy most of the day but night.</p> <p>2. Pleasant and clear day.</p> <p>3. Cloudy and cold - Rain before daylight.</p> <p>4. Cloudy and disagreeable day.</p> <p>5. Cloudy and unpleasant day.</p> <p>6. Cloudy morning - Fair after 3 P.M.</p> <p>7. Rain all day - very disagreeable.</p> <p>8. Rain all day - Heavy and continued from 7 A.M. till 5 P.M. 2.00</p> <p>9. Clear, cool and cloudless day.</p> <p>10. Beautiful and pleasant day.</p> <p>11. Cloudy most of the day.</p> <p>12. Rain most of the day - Bombardment of Sumter!</p> <p>13. Cloudless day - Surrender of Fort Sumter!</p> <p>14. Bright & Cloudless Sabbath - Evacuation of F Sumter!</p> <p>15. Bright morning - Cloudy & rain after 4 P.M.</p> <p>16. Rainy & disagreeable - but windy after 4 P.M.</p> <p>17. Cloudy most of the day - wind high.</p> <p>18. Bright and pleasant day - high wind.</p> <p>19. Cloudy most of the day - clear after 4 P.M.</p> <p>20. Cloudless and beautiful day.</p> <p>21. Beautiful and cloudless Sabbath day.</p> <p>22. Clear and delightful day.</p> <p>23. Bright and pleasant day.</p> <p>24. Cloudless and warm day.</p> <p>25. Clear and pleasant day.</p> <p>26. Bright and cloudless day.</p> <p>27. Cloudy with light shower in morning - clear afterwards.</p> <p>28. Rain at 7 A.M. - clear & cloudless afterwards.</p> <p>29. Cloudless and delightful day.</p> <p>30. Warm and cloudless day.</p>																																														

Abstracts for

Barometer
 Maximum
 Minimum
 Range

Thermometer
 Maximum
 Minimum
 Range

Thermometer
 Maximum
 Minimum
 Range

Register
 Mean Night, 53.76

Dew Point
 Mean

Winds
 Sunrise
 South east 7
 South west 6
 South 3
 South east 2
 South west 5
 East 4
 West 3

Weather
 Fair, 16 days - Cloudy, 7
 Breezing weather -
 Quantity of
 Inches

SC State Climatology Office Team



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South Carolina
State Climatologist



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Assistant State
Climatologist



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Water Resource
Climatologist



Frank Strait
Severe Weather
Liaison

What Is A State Climatology Office?

Promote climate and weather awareness and knowledge through the development and delivery of science-based climate services and tools on a local and state level.





Climatological Data Services

Fort Sumter, April 1861

D ^y	BAROMETER		THERMOMETER		WIND		WEATHER	REMARKS
	IN AM	IN PM	IN AM	IN PM	DIR	VELOCITY		
1.	30.49	30.31	58.5	57.5	SE	2	Cloudy	1. Cloudy most of the day at night.
2.	30.40	30.25	61	57	SE	2	Clear	2. Breeze and clear day.
3.	30.40	30.25	60	57	SE	2	Rain	3. Cloudy and cold. Rain before daylight.
4.	30.35	30.20	57	56	SE	2	Cloudy	4. Cloudy and disagreeable day.
5.	30.30	30.15	56	55	SE	2	Cloudy	5. Cloudy and unpleasant day.
6.	30.25	30.10	55	54	SE	2	Rain	6. Cloudy morning. Rain after 11 A.M.
7.	30.20	30.05	54	53	SE	2	Rain	7. Rain all day - very disagreeable.
8.	30.15	30.00	53	52	SE	2	Rain	8. Rain all day. Heavy and continued from 7 A.M. to 10 P.M.
9.	30.10	30.00	52	51	SE	2	Rain	9. Clear, cool and cloudless day.
10.	30.10	30.00	51	50	SE	2	Rain	10. Beautiful and pleasant day.
11.	30.10	30.00	50	49	SE	2	Cloudy	11. Cloudy most of the day.
12.	30.10	30.00	48	47	SE	2	Rain	12. Rain most of the day. Bombardment of Fort Sumter.
13.	30.10	30.00	47	46	SE	2	Rain	13. Cloudless day. Surrender of Fort Sumter.
14.	30.10	30.00	46	45	SE	2	Rain	14. Bright and cloudless Sabbath. Evacuation of Fort Sumter.
15.	30.10	30.00	45	44	SE	2	Rain	15. Bright morning. Cloudy in afternoon.
16.	30.10	30.00	44	43	SE	2	Rain	16. Cloudy and pleasant day. High wind.
17.	30.10	30.00	43	42	SE	2	Rain	17. Cloudy most of the day. Clear after 2 P.M.
18.	30.10	30.00	42	41	SE	2	Rain	18. Cloudless and beautiful day.
19.	30.10	30.00	41	40	SE	2	Rain	19. Pleasant and beautiful day.
20.	30.10	30.00	40	39	SE	2	Rain	20. Clear and delightful day.
21.	30.10	30.00	39	38	SE	2	Rain	21. Bright and pleasant day.
22.	30.10	30.00	38	37	SE	2	Rain	22. Cloudless and warm day.
23.	30.10	30.00	37	36	SE	2	Rain	23. Clear and pleasant day.
24.	30.10	30.00	36	35	SE	2	Rain	24. Bright and cloudless day.
25.	30.10	30.00	35	34	SE	2	Rain	25. Cloudy with light shower in morning. Clear in afternoon.
26.	30.10	30.00	34	33	SE	2	Rain	26. Rainy day. Clear and cloudless in afternoon.

April 12 – Rain most of the day, Bombardment of Sumter.
 April 13 – Cloudless Day, Surrender of Sumter.
 April 14 – Bright and cloudless Sabbath, Evacuation of Sumter.



Climatological Data Services

Rainfall data and radar imagery for reconstruction of an automobile accident.

Low temperatures for North Charleston to determine current chill hours for plants.

Lightning data and strike confirmation for damage to equipment at Columbia Metro Airport.

Media interview about the warmest and coldest Decembers.

Hourly barometric pressure to verify SCDHEC water level data from ground well sensors.

Appear in court and have been deposed to speak about conditions for litigation purposes.



Databases and Tools

South Carolina Hurricanes & Tropical Storms

A table-only view of these data, along with storms prior to 1851, can be found in the [Table View](#).

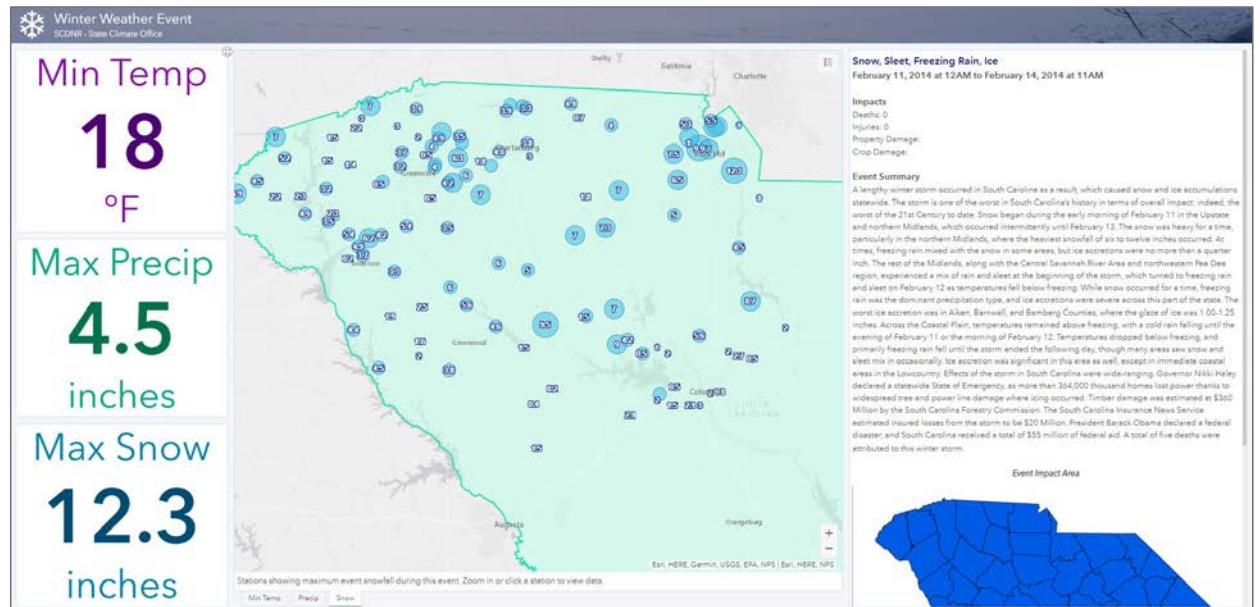
HURRICANE FLORENCE - 2018

Storm Summary	South Carolina Impacts
Formation Date 08/29/2018	SC Impacts Dates 09/13 - 09/17
Max Category HU 4	SC Impacts Category TS
Max Wind 159 mph	Comments Florence brought heavy rainfall and widespread flooding to South Carolina. Extreme rainfall in NC and SC caused extensive prolonged flooding impacts in late September, long after Florence left the state. Significant response for flooded communities was required. Nearly every USGS river gage in the Pee Dee region marked a record peak flood stage. Two tornadoes were spawned in Horry County. There were 2 tornadoes reported in South Carolina.
Min Pressure 941 millibars	Reports Track Map Storm Report
Landfall Locations Wrightsville Beach, NC	

<https://www.dnr.sc.gov/climate/sco/hurricanes/>



Databases and Tools



<https://www.dnr.sc.gov/climate/scoswinterweathe>
r/



Databases and Tools

Keystone Riverine Flooding Events in South Carolina

Prepared by
 South Carolina State
 Climatology Office
 Land, Water, and
 Conservation
 Division
 South Carolina
 Department of
 Natural Resources



Flooding in Loris, SC from Florence in 2018
 (Hope Mizzell/SCDNR)

THE BAHAMAS HURRICANE SEPTEMBER – OCTOBER 1929

Heavy pre-hurricane rainfall fell over the region from September 23 – 28. This rainfall produced higher than normal river levels and some flooding across portions of the Savannah and Upper Santee river basins.



The remnants of the Bahamas Hurricane moved from the Gulf northeastward over the Southeast, bringing excessive rains across areas impacted by heavy rains at the end of September. Damaging floods were reported on most streams and rivers, where "previous high-water marks were overtopped twice in one week," and "the Savannah River at Augusta set a record crest of 45.1 feet," 13 feet above flood stage.

Rainfall Totals (Sep 28 – Oct 3)	Station	County
10.98"	Saluda	Saluda
10.56"	Edgefield 3 NNE	Edgefield
10.25"	Newberry	Newberry
10.17"	Greenwood	Greenwood
9.70"	Camden 3 W	Kershaw
8.74"	Aiken 5 SE	Aiken
8.67"	Fort Mill 4 NW	York

River and station	Flood stage	Above flood stage—stage		Crest
		From—	To—	
ATLANTIC DRAINAGE—continued				
<i>Savannah</i>	<i>Feet</i>	<i>From—</i>	<i>To—</i>	<i>Stage</i>
Bristol, S. C.	1	0	0	5
Ferguson, S. C.	12	0	0	25.8
Fayetteville, S. C.	12	0	0	25.8
Calvinia	15	2	3	18.0
Claxton, N. C.	12	2	4	26.7
Walden	14	2	3	36.0
Chatham, S. C.	14	4	5	36.0
Madison, S. C.	15	1	1	35.1
Chaparral, S. C.	15	1	1	35.1
Walter, S. C.	7	1	4	11.8
Walter, S. C.	14	0	23	17.9
Chaparral, S. C.	14	0	23	17.9
<i>Santee</i>	<i>Feet</i>	<i>From—</i>	<i>To—</i>	<i>Stage</i>
Calhoun Falls, S. C.	6	1	3	15.1
Agulhas, S.C.	30	1	4	65.1
<i>Piedmont</i>	<i>Feet</i>	<i>From—</i>	<i>To—</i>	<i>Stage</i>
Stoney, S. C.	27	2	6	38.6
Mary Hill, S. C.	17	3	4	25.3
Peters, S. C.	16	6	17	26.5
Lytton, S. C.	14	6	10	18.4



Outreach and Education



Weather-Ready for a day on the water?

- Be alert of changing weather conditions, such as shifting winds and dark clouds.
- Stay hydrated. Use sunscreen and take shade breaks.
- Head to shore and find shelter if you see lightning or hear thunder.

FROM THE SOUTH CAROLINA STATE CLIMATOLOGY OFFICE

Severe Weather Outlooks, Watches, & Warnings

Outlooks are issued up to 8 days in advance of a potential severe weather event to give advance notice of a threat.

Watches are issued for a period of hours. They mean that conditions are favorable for severe weather.

Warnings are issued when severe weather is occurring or imminent.

"Outlooks" aka "The Shopping List"

"Outlook" is an advanced severe weather notice.

The Outlook means that conditions favorable for severe weather are in the forecast, but the forecast could change.

Outlooks are similar to gathering ingredients for a recipe on a shopping list.

"Watches" aka "Purchased Ingredients"

"Watches" are issued when conditions favorable for severe weather are occurring and that severe weather can begin in the very near future.

Akin to the cook in the kitchen with all the ingredients ready to prepare.

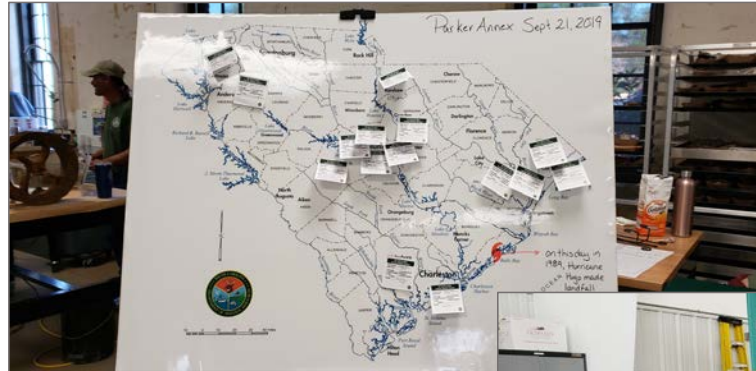
"Warnings" aka "The Dish"

"Warnings" are when the severe weather is occurring or imminent.

Likewise to the Shrimp and Grits being served!



Outreach and Education



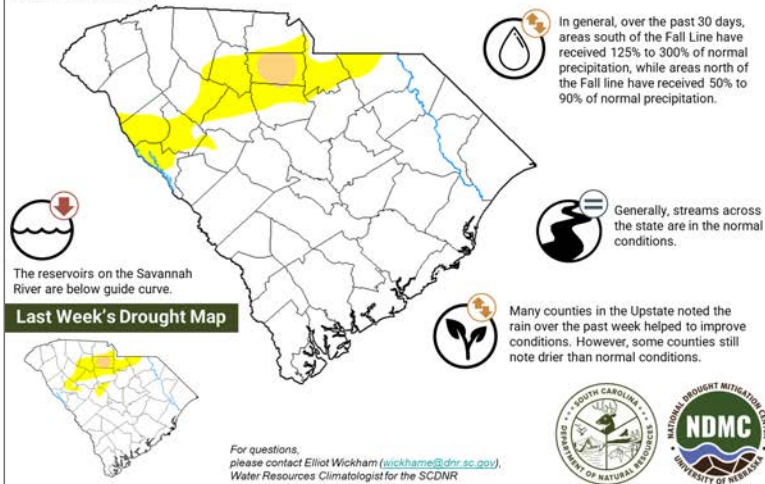


Drought Monitoring and Response

U.S. Drought Monitor Update for South Carolina

Assessment Period Ending September 19, 2023

This week's USDM authored **Richard Heim (NOAA)**, with input from local, state, and federal partners based in South Carolina.



Statewide Condition Summary

What's New? Addition of abnormally dry (D0) conditions in the Savannah River basin and removal of D0 conditions in Lexington and Richland counties.

What's Changed? Over the past week, the state received between 0.00" and 2.00", with localized amounts reaching over 5.00". Lexington and Richland counties received 2.00" or more inches of rain over the last week, allowing D0 conditions to be removed. D0 conditions were added in Abbeville and McCormick counties, where below normal precipitation over the past 2 months has allowed Lake Thurmond water levels to drop to "Drought Level 1" status. The other lakes in the Upper Savannah River basin also have below normal water levels but have higher rain accumulation over the past 2 months.

What's Next? The forecast through Tuesday morning shows that the potential for rain is highest in the Pee Dee Region, particularly along the coast. Totals will range from 0.50" to 3.00". Rain totals for the rest of the state will likely be less than 0.25". Through the period, daytime high temperatures will range from the low 70s to the mid 80s. It is likely for abnormally dry (D0) to expand next week.

Statewide Coverage By Category

Category	Categorical Coverage This Week	Change Since Last Week
D0: Abnormally Dry	11.57%	+1.63%
D1: Moderate Drought	1.19%	0.00%
D2: Severe Drought	0.00%	0.00%
D3: Extreme Drought	0.00%	0.00%
D4: Exceptional Drought	0.00%	0.00%

*Plus sign on "Change Since Last Week" indicates expansion of category area, minus sign indicates reduction of category area

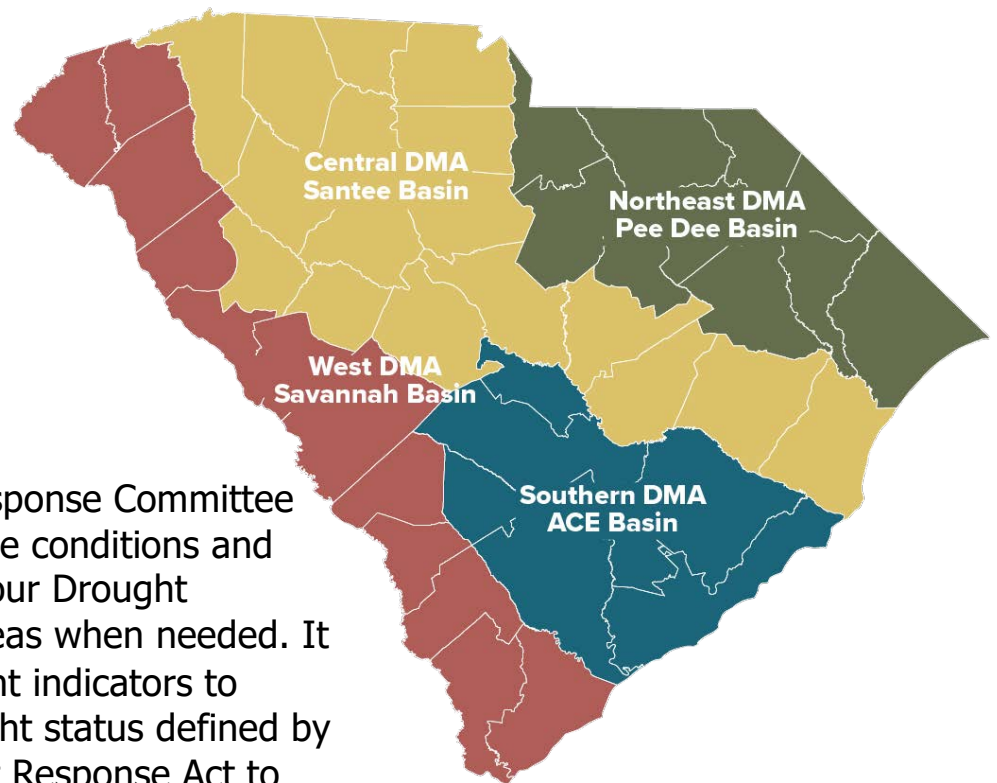
<https://www.scdrought.com>

SCDNR | State Climatology Office



Drought Monitoring and Response

The Drought Response Committee meets to evaluate conditions and impacts within four Drought Management Areas when needed. It evaluates drought indicators to determine drought status defined by the S.C. Drought Response Act to protect the State's water resources.



<https://www.scdrought.com>

SCDNR | State Climatology
Office



Severe Weather Operations and Assessments





Severe Weather Operations and Assessments

dnr.sc.gov/food2015

South Carolina Flooding 2015

A record setting and historic rainfall event occurred October 1st through 5th, 2015, producing widespread and significant flooding across much of South Carolina. All-time precipitation records were shattered from the midlands to the coast, with totals ranging from 10 to over 26 inches of rain. Streams and creeks swelled out of their banks with 17 U.S. Geological Survey (USGS) gauges reaching record peaks. The event was the worst flooding most residents had ever experienced. Emergency responders worked tirelessly with over 1,500 water rescues. The flooding displaced over 20,000 citizens, closed over 500 roads and bridges, resulted in 47 dam failures, disrupted drinking water supply to over 40,000 residents and tragically took the lives of 19 people. This journal includes flood and rescue images, maps of the event and a synoptic and chronological summary of how the historic rain and flooding unfolded with documentation of the meteorological and hydrological records. Most importantly, we hope this interactive report provides an opportunity to learn about the flood that impacted so many lives.

--- Exploring the Story Map ---

<<< Click the dots to the left to jump to sections, or scroll down to move through the story map.

Interact with the maps! Click and zoom to dig deeper.

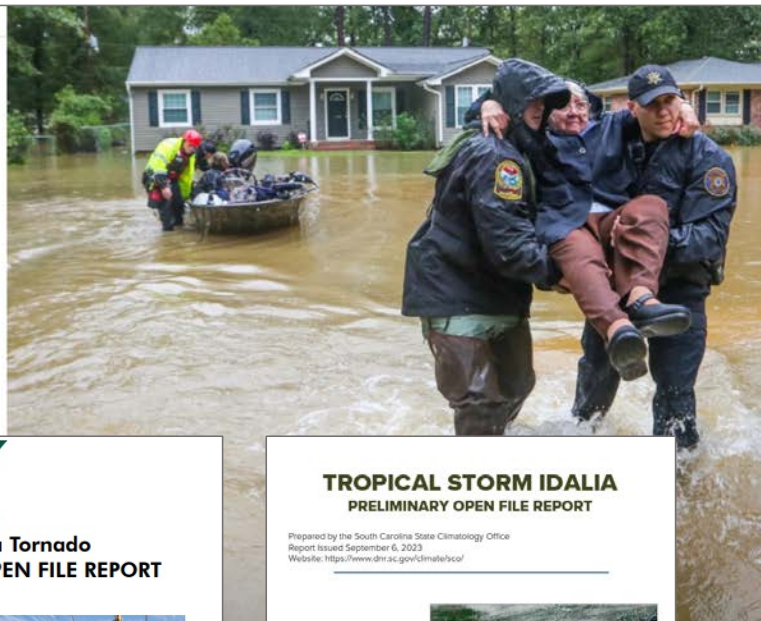
Follow the blue highlighted text for story highlights.

Dash-underlined links will change Story Map content.



Underlined green text will link you to other content.

Video Data links will take you to our SC Flood Data Page.

This content is best viewed with Chrome or Firefox web browsers.



April 13, 2020 South Carolina Tornado Outbreak – OPEN FILE REPORT



South Carolina State Climatology Office
Report Date: June 9, 2020
Website: <http://www.dnr.sc.gov/climate/sco/>

TROPICAL STORM IDALIA PRELIMINARY OPEN FILE REPORT

Prepared by the South Carolina State Climatology Office
Report Issued September 6, 2023
Website: <https://www.dnr.sc.gov/climate/sco/>

Storm History and Impacts Report

August 30 – 31, 2023





Figure 1. South Carolina State Climatology Office. A GeoColor visible satellite image of Idalia from around 1800 UTC (7:18 p.m. EDT) on August 30, 2023, as the storm was centered near Waycross, Georgia.





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