NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Columbia, SC
Weather Forecast Office

FAMOUSLY HOT

FORECASTS

Fall/Winter 2022

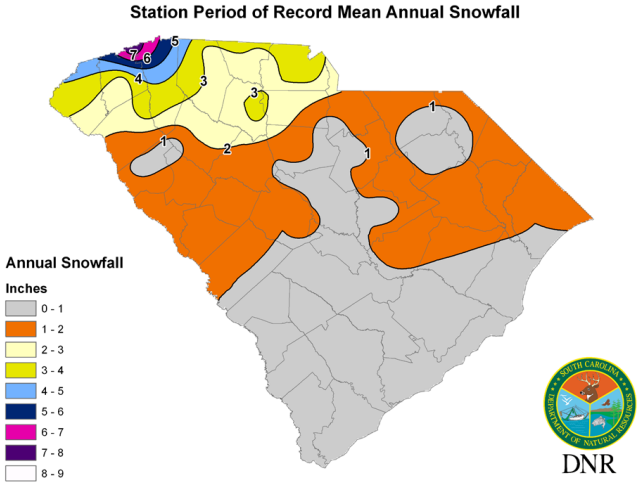
Inside this issue:

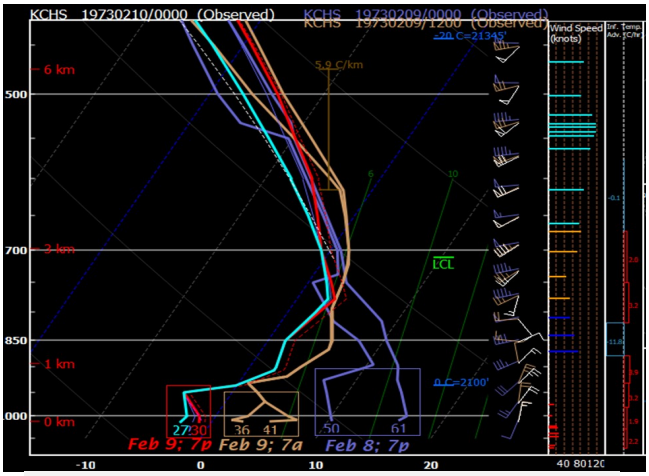
50th Anniversary of the 1973 Snow Storm

by Pierce Larkin - Meteorologist

Snow events are quite uncommon across the southern and southeastern US. On average, our forecast area sees 1-2" per year, with many areas seeing no snow annually. It is quite a rare occurrence, which is why the Snowstorm of 1973 remains so remarkable to this day.

On February 8th, a strong cold front pushed through the region and ushered in a much colder air mass. The air mass ahead of the front was fairly warm, with temperatures in the days leading up to this in the 60s and 70s across the southeastern US. The front was strong, with temperatures falling 20F in 12 hours at Charleston's Upper Air site as winds switched from southwesterly to northerly behind the front. By the 7p sounding release on February 9th, the temperature had fallen over 30F, down to 30F at the site.

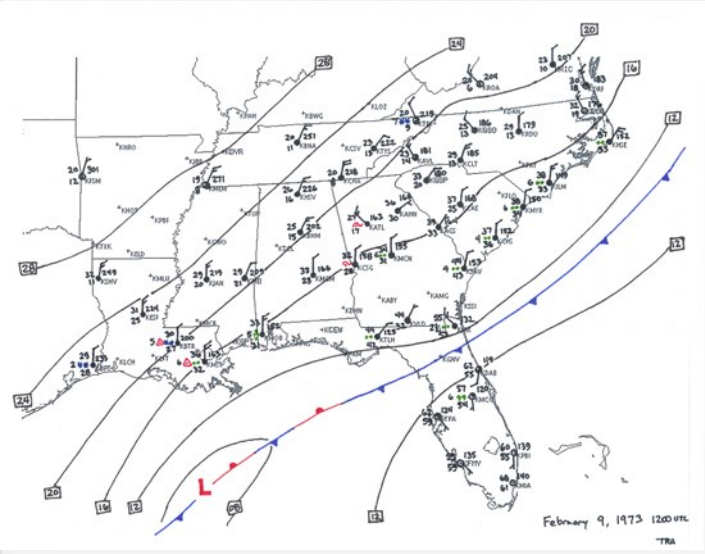




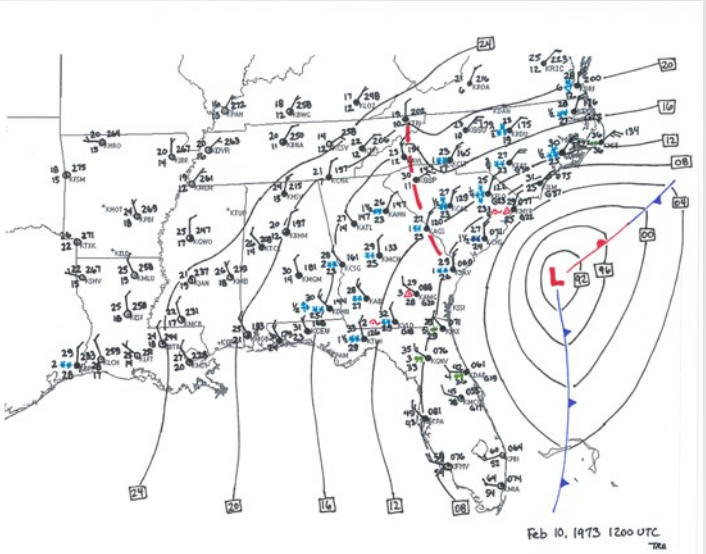
Obs Soundings from CHS Airport

This made the atmosphere favorable for wintry precipitation. While this was occurring, a strong surface low pressure was developing across the Gulf of Mexico on the morning of February 9th. This would take a climatologically favored track across Florida and southeast of the SC/NC coastline and would be southeast of Cape Hatteras by the evening of February 10th. Widespread heavy precipitation developed on the north side of this low pressure area and fell into a very cold air mass, allowing for heavy snow to blanket the entire CWA.

1973 Snow Storm – Continued

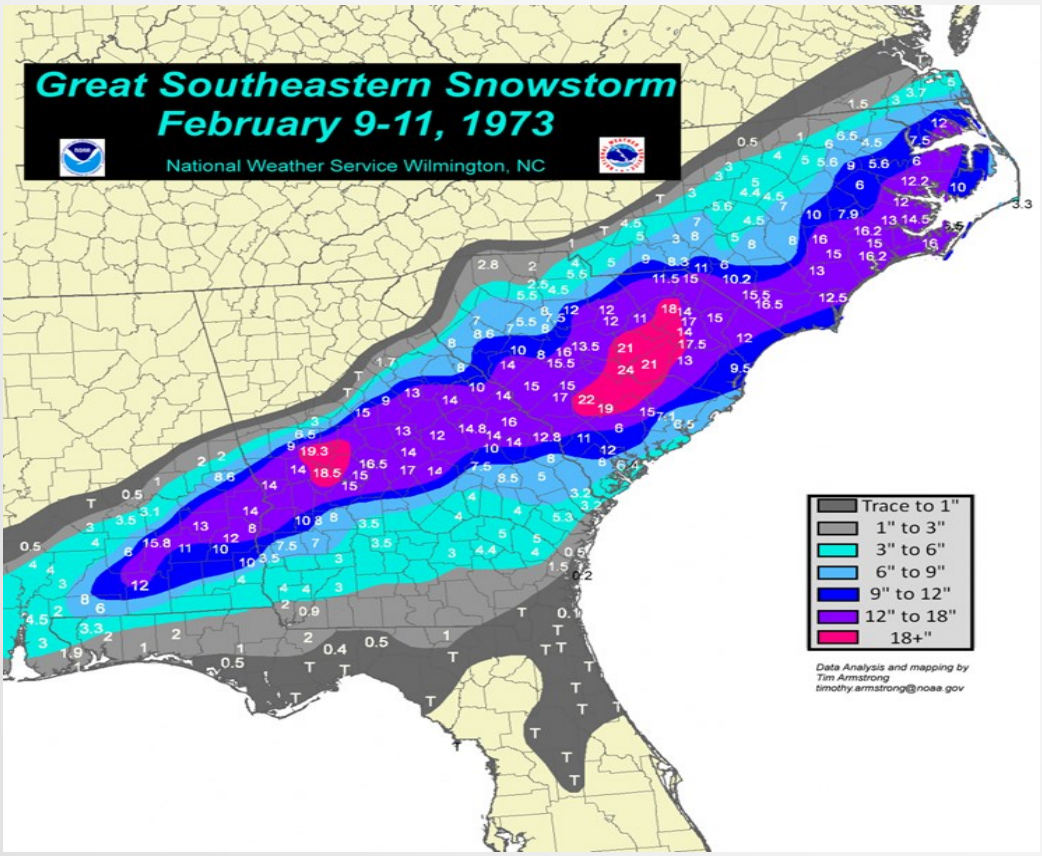


Surface Analysis 2/9/1973 at 7am EST



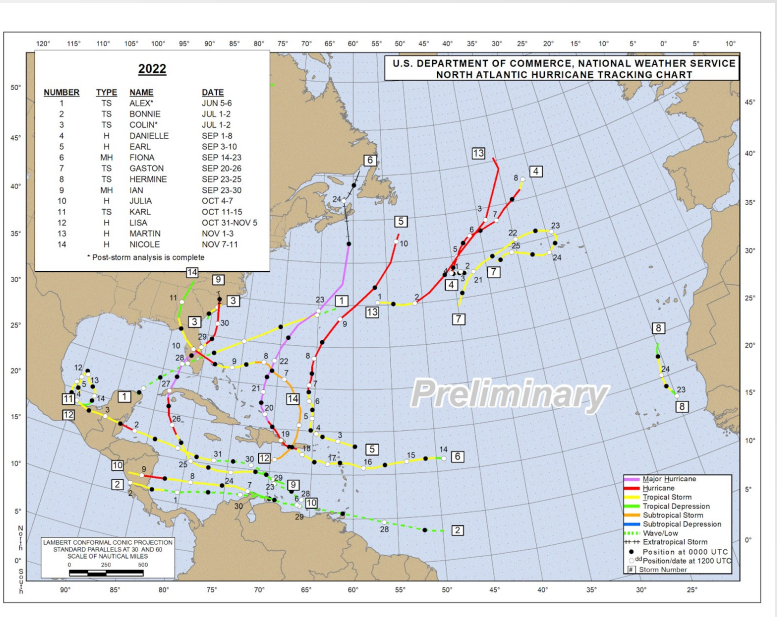
Surface Analysis 2/10/1973 at 7am EST

This storm system was devastating to the southeastern US, shutting down I75 and I95 for long stretches of time as travelers abandoned their cars on the roads. There were roof collapses from the weight of the snow, and there were at least 11 fatalities related to the storm. This broke many records for snowfall, including setting the South Carolina state record of 24” at Rimini in Clarendon County. Additionally, the SC Climate office examined observations at Florence and determined that Blizzard conditions were met there. This is the only blizzard on record in South Carolina.

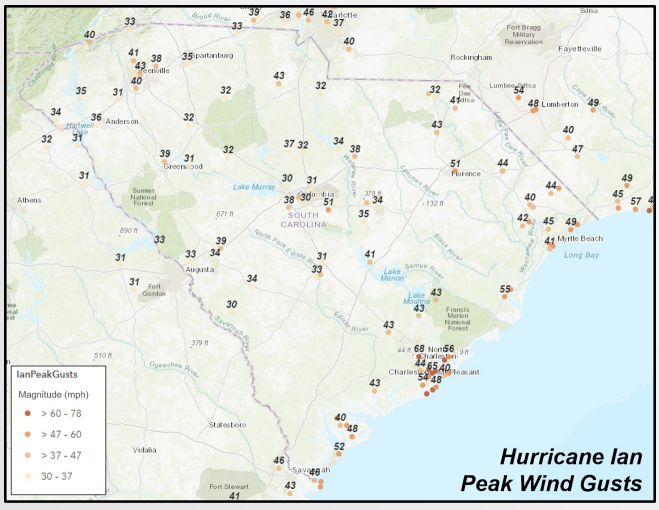


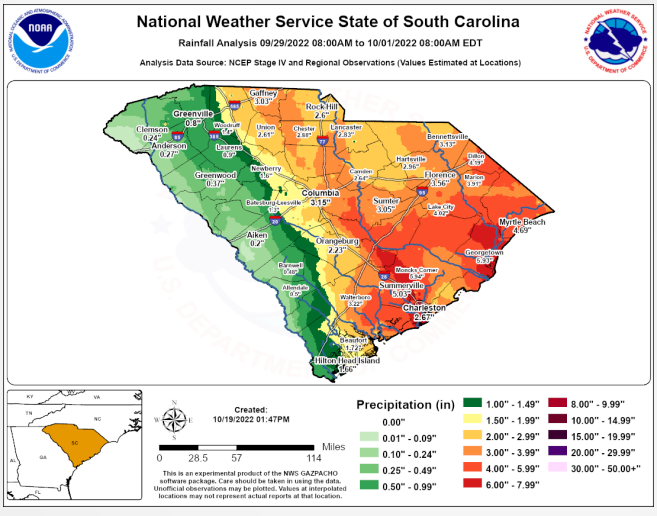
Recap of the 2022 Hurricane Season

by Chris Landolfi - Meteorologist



The 2022 Hurricane season featured 14 named storms which was the lowest since 2015, in which there were 11 named storms. Of course, just because there are fewer named storms does not mean there were not major impacts to the United States. The most notable storm of the season was Hurricane Ian which made landfall as a Category 4 Hurricane near Fort Myers, FL with wind speeds of 150 mph. This brought significant storm surge, hurricane force winds and flooding rainfall to much of the Florida peninsula. Ian then moved offshore into the Atlantic Ocean as a Tropical Storm. It strengthened over the Gulf Stream into a hurricane and moved north towards South Carolina. The wind field expanded which led to our office issuing Tropical Storm Warnings across the entire forecast area. Ian made another landfall near Georgetown, SC this time as a Category 1 Hurricane with max winds of 85 mph. Tropical storm force wind gusts and significant moisture pushed inland. There was a sharp cutoff in rainfall but max amounts of 3 to 6 inches were observed in eastern SC. While this led to some nuisance flooding in parts of the area along with trees and power line damage, more significant damage occurred along the Grand Strand where preliminary maximum storm surge was around 4 feet and hurricane force winds battered the coast.





Other notable storms from the 2022 season included Hurricane Fiona which first impacted Puerto Rico and the Dominican Republic with hurricane force winds leading to widespread power outages and flooding. Fiona continued northward and strengthened into a major hurricane leading to significant damage in Nova Scotia, Canada becoming the costliest and most intense tropical cyclone to hit Canada on record. Hurricane Nicole also impacted the east coast of Florida as a Hurricane, although quickly moved inland, limiting the extent of damage and just bringing some beneficial rain to our area.

NWS Hosts 28th OWS from Shaw AFB

by Chris Landolfi - Meteorologist

Over the past several months, our office welcomed military personnel from the 28th Operational Weather Squadron (OWS) based out of Shaw Air Force Base near Sumter, South Carolina. The 28th OWS is responsible for providing operational-level environmental analysis and weather forecasts to support military operations in the Middle East. We have a great working relationship with the men and women of Shaw AFB with the base being a StormReady community and the 28th OWS being a Weather-Ready Nation Ambassador. Multiple groups of the 28th OWS joined us at our office at the Columbia Metropolitan Airport to learn our process for creating forecasts, issuing warnings, and various other day to day operations. Staff from our office were also able to learn from them and discuss the complexities of forecasting for military operations overseas.

The visits concluded with an opportunity to simulate warning operations by utilizing our Weather Events Simulator (WES) machine. The WES uses data from past events and allows forecasters to issue warnings in a simulated environment. It is an invaluable tool for meteorologists at our office to be able to practice analysis of severe weather environments and issue warnings so we can be better prepared when severe weather impacts the region.

Members of the 28th OWS took turns issuing practice Severe Thunderstorm and Tornado Warnings for the Midlands and CSRA as our Science and Operations Officer, Frank Alsheimer, walked them through what we typically use to assess the environment as well as some tips and tricks for issuing warnings. It was great to host the 28th Operational Weather Squadron and we hope to be able to send some forecasters to Shaw Air Force Base sometime in the near future to get a better look at their operations!

Office Updates

by Chris Landolfi, Pierce Larkin

Staffing Changes

The National Weather Service Columbia welcomed their newest meteorologist, Brad Carlberg, who served his first shift on December 8, 2022. Brad is originally from the frozen tundra known as Minnesota. He earned his B.S degree in meteorology from St Cloud State University in 2014, followed by a Ph.D. from Iowa State University in 2018. Following his schooling, he began his career with the NWS as a meteorologist at the Pueblo, CO weather forecast office in the fall of 2018. After spending two and a half years in Pueblo, he trekked across the country to join the team at the Middle Atlantic River Forecast Center in State College, PA as a meteorologist in the spring of 2021. Brad is excited to use the skills he's learned through his career to serve the residents of the Midlands and CSRA. He is also looking forward to learning from the team at NWS Columbia! During his free time, Brad likes to spend time with his family checking out the area, spending time outdoors, traveling, reading, and spending Sunday afternoons in the fall watching the Minnesota Vikings. Brad was drawn to Columbia because of the warmer weather/lack of Upper Midwest winters, and its proximity to Charleston and Savannah; two places he loves to visit. We're happy to have Brad join us!

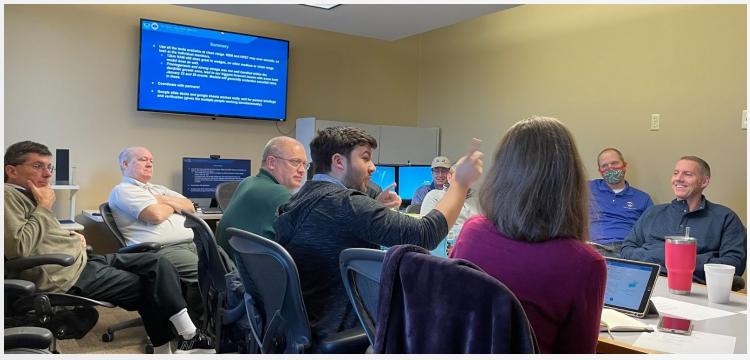
NWS Columbia also would like to say thank you to our longtime Administrative Support Assistant, Marian Ellison, who retired at the end of July. Marian was a valued member of our team for 10+ years, helping the staff with all things administrative. We will miss her positive and upbeat personality and always being willing to chat to whoever passed by her desk. We wish Marian the best and hope she enjoys her retirement. She will always be welcome back here at the office!

Winter Weather Workshop

After two years of virtual workshops because of the COVID19 Pandemic, the NWS Columbia office has returned to in-person workshops again! The latest of these was the Winter Weather Workshop, where a host of speakers gave informative presentations to help prepare our staff and partners for potential winter weather events this upcoming winter. Some topics we covered included:

- A recap of last January's winter storms
- New applications available to us as forecasters in the Weather Service
- Using Ensemble data to get a better look at the overall forecast
- Probabilistic Data to help with our forecast decisions

We also we able to interact with partners from the SC Department of Natural Resources and SC's Emergency Management Division. It was great to be able to interact with these folks after several years of interruption for in person meetings. Thank you to all of the presenters and to some of our partners for attending!



Office Updates - Continued

by Nicole Rebarick

Holiday Treat Contest

Our 2nd annual Holiday Treat Contest filled our kitchen with cheer and tons of sugar! We had a total of 7 different homemade goodies to try, from pumpkin cookies to festive red velvet cake pops. Each was made special by our coworkers and their families. Everyone had a chance to vote throughout the week so everyone could try a little bit of everything. It was hard to choose just one, but in the end, Joyce Kimsey's famous chocolate cake won! Joyce and her husband Mike (one of our electronics technicians) routinely decorate our office with tons of Christmas trimmings every year, making the midnight shifts and Christmas shifts a little more cheerful. It was great to recognize them not only as the Holiday Decoration Elves Extraordinaires, but also the Holiday Treat Virtuosos!

COOP Corner

by Doug Anderson - Observation Program Leader

Cooperative Weather Stations Serve Our Nation

The Cooperative Weather Observing Program's roots can be traced back to 1797 when Thomas Jefferson envisioned a nationwide network of weather observers. The program itself was created in 1890 under the Organic Act passed by Congress. Its mission is two -fold:

- To provide climatological records, usually consisting of daily high and low temperatures, snowfall and precipitation totals. This data is essential to defining U.S. Climate and measure long-term climate trends.
- To supply observational meteorological data in near real-time to support forecast, warning and other public service programs (drought, agricultural, fire weather, etc.) programs of the NWS.

Cooperative stations (COOP) are locations at which volunteers take daily weather observations using NWS-supplied equipment, filling in gaps between other types of observing stations such as airports, mesonets, etc. The equipment meets stringent standards and is installed in accordance with strict standards to ensure uniformity. About 10,000 volunteers around the country from all walks of life provide this valuable service. We are always looking for new observers to join the NWS CAE team and are willing to take observations over many years to come. Contact Doug Anderson, douglas.anderson@noaa.gov for more information. On the web: https://www.weather.gov/coop/

How Long Have COOP Stations Been Reporting Weather?

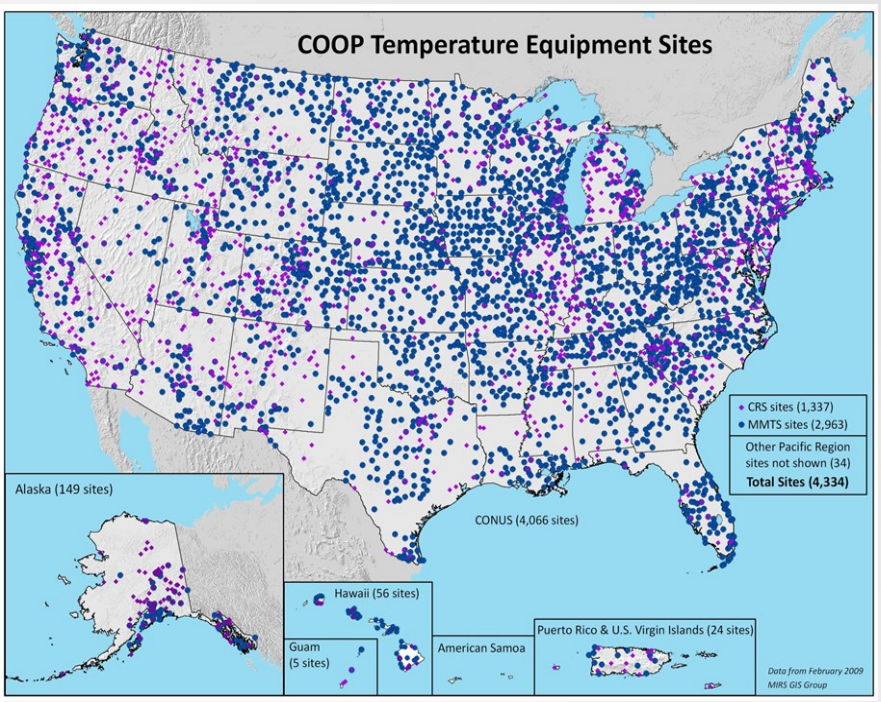
We've already mentioned that the COOP Weather Observing Program was established back in 1890, with organized weather observing dating back to Thomas Jefferson's vision in 1797. Many of our volunteer observing stations have a very rich history. To the right is a look at some of our oldest stations.
Some of the stations have breaks in their temperature and rainfall data, but many such as Winnsboro, Sumter and Little Mountain have virtually no breaks in their reports. That's incredible when you think about it! These three stations have been included in a very special group…the US Historical Climate Network (USHCN). USHCN stations are considered to be the "gold standard" for climate research and tracking due to their quality and long period of records. Out of over 4000 CO-OP stations nationwide, less than 1,500 are included in this special group. Not only are they used for research, the rainfall data they provide are used by other customers such as setting flood insurance rates, and planning for energy and agricultural concerns. A very special group of volunteer stations indeed!

Station Name	State	Co-Op ID Number	Year Started
Appling 2 NW	GA	09-0311	1/1961
Bamberg	SC	38-0448	8/1951
Batesburg	SC	38-0506	5/1894
Cheraw	SC	38-1588	1/1893
Clarks Hill 1 W	SC	38-1726	8/1952
Columbia University of SC	SC	38-1944	9/1954
Parr	SC	38-6688	3/1946
Johnston 4 SW	SC	38-4607	8/1957
Lincolnton	GA	09-5204	1/1893
Little Mountain	SC	38-5200	10/1893
Midville Experiment Station	GA	09-5863	6/1957
Newberry	SC	38-6209	1/1893
Orangeburg 2	SC	38-6527	10/1919
Pelion 0.8 NW	SC	38-6775	1/1947
Saluda	SC	38-7631	4/1902
Sumter	SC	38-8440	12/1901
Wateree Dam	SC	38-8979	1/1893
Waynesboro 2 S	GA	09-9194	10/1892
Winnsboro	SC	38-9327	3/1896

COOP Corner - Continued

So…Just What Does A COOP Station Look Like?

That's a question we get from time to time, and many prospective observers are disappointed that they are not getting a high-tech super-duper station. Many people are surprised that NWS-issued COOP equipment isn't wireless, high-tech or super fancy. The basic requirements of temperature, rain and snow measurements involved proven, accurate equipment, although they are old-school and involve some human interaction. That makes them special! First, where are COOP stations? Just about everywhere that Americans live, work and play. Our region has stations installed not only at our observers' homes, but also water plants, fire stations and many other locations.



Regardless of what equipment is used, it has to be installed and sited correctly for measurements to be accurate. That's why NWS prefers to use the same type of equipment all across the country. That way, the equipment is calibrated and maintained at every station as much as possible. Putting the equipment in the right spot is also very important. Let's say…if a temperature sensor is installed next to a heat pump, building, on a roof, on or near a concrete or asphalt parking lot, the temperature readings wouldn't be right, would they? To the left is an example of where NOT to put a temperature sensor. Rain gauge placement is also very important. They should be placed in an open area with no obstructions like trees, bushes and buildings that may interfere with the gauge "catching" all the rain that falls. Many people ask why we don't use fancy electronic systems. The biggest reason is that in heavy rain, the mechanical and electronic "tipping bucket" inside can't keep up to count the number of "tips" that the little cup inside makes to count each increment of 0.01 inches. Our 8-inch and 4-inch rain gauges trap and keep everything that falls into them. Unfortunately, that sometimes includes bird poop! As a general rule, if there is a tree or something else near the gauge, the gauge should be placed at least twice as far from it than the obstruction's height. That's the bare minimum…it's best to shoot for at least 4 times as far away than its height (e.g. 20-foot tree, rain gauge placed 80 feet away). To the right is an example of what NOT to do.

COOP Corner - Continued

Basically, if you are measuring rain (and snow), you want to put your rain gauge and snowboard in the most open area you have available for the best and most accurate measurements. So, being a COOP observer does require some manual reading and re-setting of the equipment we provide. There are newer systems being tested that will hopefully make the job easier…but even now, each weather observation only takes a few minutes each day. Here are some examples of what our equipment looks like:

Maximum-Minimum Temperature System (MMTS)

8-inch and 4-inch rain gauges

These gauges are actually more accurate in heavy rainfall events than electronic automated gauges than electronic and automated gauges. That's a big reason we use them in the COOP program!

Snow Board, Snow Stick, Evaporation Pan

COOP Corner - Continued

As you can see, our equipment is old school…designed and installed to make sure each COOP station measures weather elements as consistently and accurate as possible across the country. Using the same type of equipment across thousands of stations across the country is part of the reason the data is considered one of the gold standards for climate. Interested in learning more? Contact Doug at douglas.anderson@noaa.gov. He's also happy to help you with advice on installing any of your personal home weather stations.

Palmer Soil Thermometer

Catching Up on Awards!

Cooperative Observers are eligible to earn many different types of awards for their outstanding service. Since the COVID Pandemic began, we've been waiting to visit our observers to present awards in person and will be doing so over the next few months. Let's recognize these observers for their length of service. We're looking forward to seeing them in person soon! Photos will be coming in future issues!

Congratulations to the following volunteers:

45 Year Award:

Darwin Morris (Appling), Keith Barry (Saluda)

40 Year Award:

Clyde McFaddin (Wateree Hydro), Sherry Turner (Cheraw) & Olin Berry (Johnston)

35 Year Award:

Edwin Riley (Saluda) & Dr. Greg Carbone (UofSC)

30 Year Award:

Carl Alewine & Lonnie Boatwright (Batesburg), & Jimmie Boatwright (Wateree Hydro)

20 Year Award:

Calvin Robinson & John Lorick (Saluda), Robert Parrish (Waynesboro), & Wayne Fulmer (Batesburg)

15 Year Award:

Bruce Elrod (Longtown), Hank Rutland & Rachel Crosby (Orangeburg), George Wells (Barnwell), Jean & Woodrow Miles (Cedar Creek)

10 Year Award:

Dr. April Hiscox (UofSC), Clif Inabet (St. Matthews), Rubin Hardy & James Bethea (Manning)

Weather-Ready Nation Ambassadors

by Chris Landolfi - Meteorologist

One of NOAA's missions is to save life and property by providing critical environmental intelligence, including weather forecasts and warnings, to our partners and the general public. NOAA wants everyone, from communities across the country, businesses, and the public at large to be ready, responsive, and resilient to extreme weather, water, and climate events. Weather-Ready Nation Ambassadors (WRN Ambassadors) are formally recognized by NOAA as organizations committed to collaborating with NOAA, sharing preparedness messaging in outreach to the public, and serving as examples themselves by implementing resilience best practices. For more information, go to: weather.gov/cae/wrn.

Expectations

Weather-Ready Nation Ambassadors will promote awareness of and preparedness for hazardous weather within your organization and/or community. Periodic emails from NOAA will be sent to WRN Ambassadors to provide information such as links to newly posted outreach material on relevant hazards, as well as updates on experimental or newly operational NOAA products, services, or data.

Who Can Become a WRN Ambassador?

- Any organization across all levels of government
- Businesses large and small
- TV, Radio, and Print media
- Non-profit and non-governmental organizations
- Churches
- Home Owner Associations
- Academia

2022 WRN Ambassador of Excellence

Our 2022 Weather-Ready Nation Ambassador is:

South Carolina State Climatology Office

The efforts by the South Carolina State Climatology Office to promote weather safety through the Weather-Ready Nation program are worthy of recognition. The South Carolina State Climatology Office has created brochures on "Boating and Severe Weather", "Hunting and Severe Weather", "Heat Related Illness While Boating", "Hyperthermia", and "Hypothermia" that are distributed to those engaged in outdoor activities throughout the state, and tend to be more vulnerable to hazardous weather due to greater exposure to hazardous weather. They also promote weather safety at various exhibits, including the annual Palmetto Sportsman's Class (in which over 40,000 people attend each year) and at the NWS sponsored WeatherFest for children.

Our Weather-Ready Nation Ambassadors!

- 28th Operational Weather Squadron Shaw AFB
- Aiken County Emergency Management Division
- Aiken Regional Medical Centers
- Augusta-Richmond County EMA
- Augusta Mall
- Augusta University
- Bamberg County Emergency Services
- Barnwell County Emergency Management
- Buford Fire & Rescue
- Burke County EMA
- Calhoun County Emergency Management Agency
- Carolinas Integrated Sciences & Assessments (CISA)
- Challenger Learning Center of Richland District One
- Chris Wolfe SC Weather
- City of Columbia Police Department
- City of Sumter
- Clarendon County Emergency Management
- Columbia County Emergency Management Agency
- Columbia International University
- Columbia Metropolitan Airport
- Columbiana Centre Mall
- CSRA East Central District Amateur Radio Emergency Service
- CSRA Weather
- District Five of Lexington and Richland Counties
- Dominion Energy SC
- Edgefield County EMA
- Fairfield County Emergency Management
- GA Dept. of Public Health - East Central Health District
- Gold Cross EMS
- Kershaw County Amateur Radio Club, Inc.
- Kershaw County Emergency Management
- Lady Starr Radio
- Lancaster County Emergency Management
- Lee County Emergency Management
- Lexington County Emergency Management Division
- Livingston Insurance
- McCormick County Emergency Services
- McDuffie County Fire Rescue Service
- Michelin Tire North America - Lexington, SC
- @Midlands_Wx
- Montmorenci Volunteer FD
- Newberry County Emergency Management
- Newberry County Emergency Services Alliance
- Orangeburg County Emergency Services
- Orangeburg County Fire District
- Palmetto Chapter - American Meteorological Society
- Pantagraph.online
- Pee Dee Ice & Fuel, Inc.
- Reach Out Security Services
- Richland County Emergency Services
- Richland Library
- Right at Home Columbia, SC
- Robert Bryant & Son, Inc.
- Saluda County Emergency Management Division
- Savannah River Nuclear Solutions
- SC Department of Transportation - Emergency Management
- SD Department of Transportation - Hydraulic Design Support Office
- SC Department of Transportation - Traffic Management
- SC State Fire
- Simply Flood LLC
- South Carolina Emergency Management Division
- South Carolina Farm Bureau Insurance
- South Carolina State Climatology Office
- The Times and Democrat
- Thomson-McDuffie Fire, EMS, and EMA
- University of South Carolina Emergency Management
- USGS South Atlantic Water Science Center
- US Postal Service (National Preparedness)
- Wagener Fire Department
- WRDW (Augusta, GA)
- Wilbur's Last Ride
- WFXG FOX 54 NEWS NOW (Augusta, GA)
- WIS-TV (Columbia, SC)
- WJBF-TV (Augusta, GA)
- WLTX-TV (Columbia, SC)

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Is there a topic you'd in the next edition?

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