CISA

A NOAA RISA TEAM

January 2018

CISA & CoCoRaHS Condition Monitoring Newsletter

This month's newsletter includes:

- Walking in a Winter Wonderland
- Coastal Climate Attribution
- Citizen Scientists Needed: North Carolina King Tides Event
- Southeast Regional Climate Update
- Observer Spotlight

As always, do not hesitate to reach out to us at cisa@sc.edu if you have any other questions or comments.

Walking in a Winter Wonderland

Oh, the weather outside is frightful, but the NC State Climate Office's blog is delightful!

This winter has certainly produced some cold, blustery weather in the Carolinas. While it may have been in the 70's here in Columbia a few days before Christmas, temperatures quickly dropped as Arctic air helped freezing revelers ring in the New Year. That cold snap surprised many people, plants, and animals. My poor, early daffodils looked rather sad in early January as cold temperatures and melting snow flakes informed them it was not, in fact, Spring.

Surprisingly, the North Carolina State Climate Office ranked last month as only the 62nd-coolest December since 1895. Their article about winter weather explains the Arctic air mass that was responsible for -2°F in Mount Jefferson on December 31st. It also discusses the dry weather that has plagued the western Carolinas.

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Image from NOAA NESDIS

Once snow finally fell in January, the NC Climate Office provided satellite photos and analysis of the snow storm that pummeled the mid-Atlantic coast. The "bombogenesis" as it was called provided much needed precipitation during an otherwise dry winter.

Gabriel Wolken/Alaska Division of Geological and Geophysical Surveys via AP

Speaking of snow, if you are taking a trip to Alaska or the Pacific Northwest this year, you can contribute as a citizen scientist backcountry skier. Using a NASA grant, researchers from Oregon State University, the University of Washington, and the Alaska Division of Geological and Geophysical Surveys are recruiting citizen scientist skiers to take snow pack measurements. These measurements are then used by a hydrologic model to predict stream flow and drinking water availability for the coming year.

Know about any other citizen scientist opportunities? Be sure to send them to us via email. We'll pass them along to your fellow observers for consideration.

As we (hopefully) start to look towards spring, keep up the great work submitting precipitation measurements and condition monitoring reports and let us know what the seasonal transition looks like in your area.

Citizen Scientists Needed: NC King Tides Event

Nags Head July King Tide Event

There is a predicted King Tide event starting Monday, January 29th that continues through Friday, February 2nd as a result of a lunar perigee (Jan. 30th) and the full moon (Jan. 31st) occurring less than a day apart.

But wait, there's more! This particular full moon is the second full moon to occur in the same calendar month, also known as a Blue Moon. It will also feature a lunar eclipse which is when the moon passes into Earth's shadow. Click here to learn more about the upcoming Blue Moon and lunar eclipse.

The NC King Tides Team is very interested in seeing any photos you are able to capture of the abnormally high and low water levels that are being predicted. Visit our website to submit your photos and reports via the "What's Your Water Level?" GeoForm and view submissions on the interactive map.

We warmly welcome all to participate as long as you maintain personal safety as a top priority. Please plan accordingly with the weather and ocean conditions, and watch out for slippery surfaces (click here for tips on how to plan your photo shoot).

Coastal Climate Attribution

How is the coastal climate affected by global climate change?

Charleston, SC during Hurricane Irma, U.S. News

Hurricane season is always worrisome for our coastal observers, and the last several years have been no exception. For some, the number of hurricanes that have impacted the Carolinas in recent years has raised questions about how climate change might be influencing these storms.

A recent article on MyrtleBeachonline discussed how the changing global climate is influencing the Carolinas coast. Dr. Greg Carbone, a CISA Primary Investigator, stated "the science describing the effect that warming has had on the last two hurricane seasons is more firmly established, and over the last two years the Lowcountry has seen that effect first hand."

Two aspects of climate change that are influencing our coastline are warming of the ocean and sea level rise.

As global air temperatures rise, ocean temperatures are also heating up. Warmer air holds more water vapor than colder air. Hurricanes are fueled by the warm ocean water and fed by the increased moisture in the air. This can lead to larger and more destructive hurricanes forming and affecting the Carolinas coast.

Sea levels are also rising and we in the Carolinas are feeling the effects. As global temperatures rise, more of the world's ice masses are melting which is increasing the amount of water in the oceans. Not only does this impact the level of tides, but during extreme storms it can affect the level of flooding along the coast.

The development of our coastline to accommodate growing populations and tourists are also a contributing factor. As we develop these areas, more people and infrastructure are in harms way. Hurricanes have and always will happen, but how they are impacting us is changing.

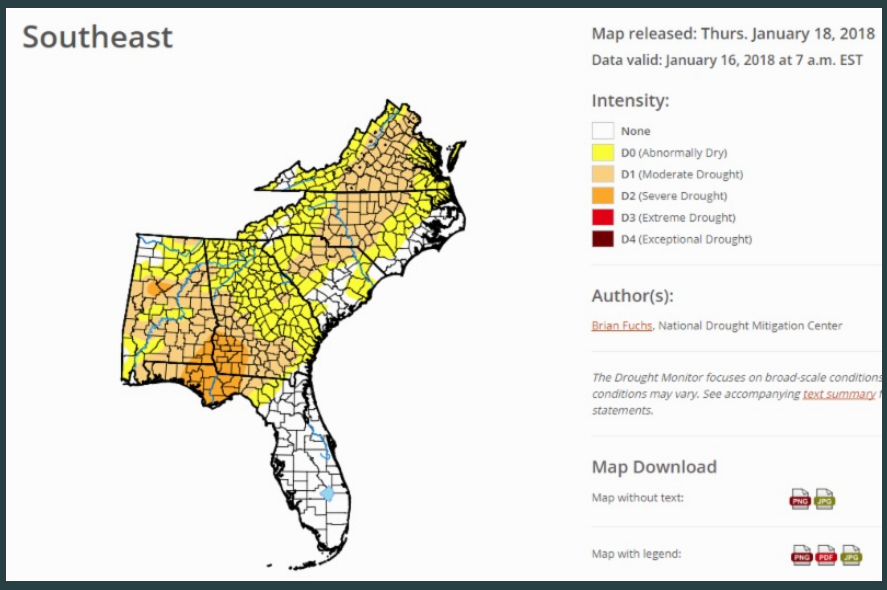
How have recent extreme storms and coastal flooding affected

you? Remember to submit your condition monitoring reports and let scientists and decision makers know what is happening in your area.

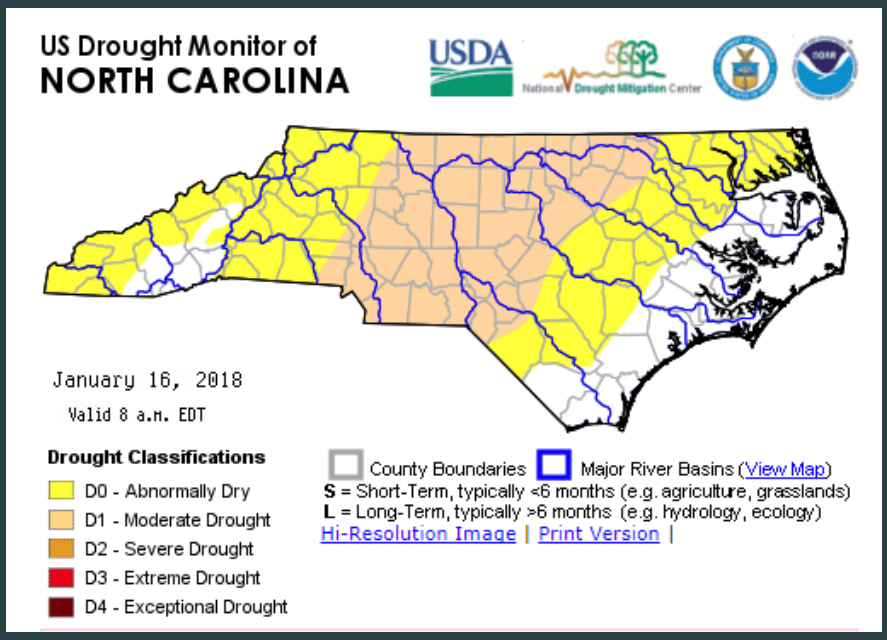
Southeast Regional Climate Update

The Southeast Regional Climate Center has released its December 2017 Climate Report. Temperatures were above average in much of Florida, Georgia, South Carolina, Puerto Rico, and the U.S. Virgin Islands, while near-average to below-average temperatures were observed across Alabama, North Carolina, and Virginia.

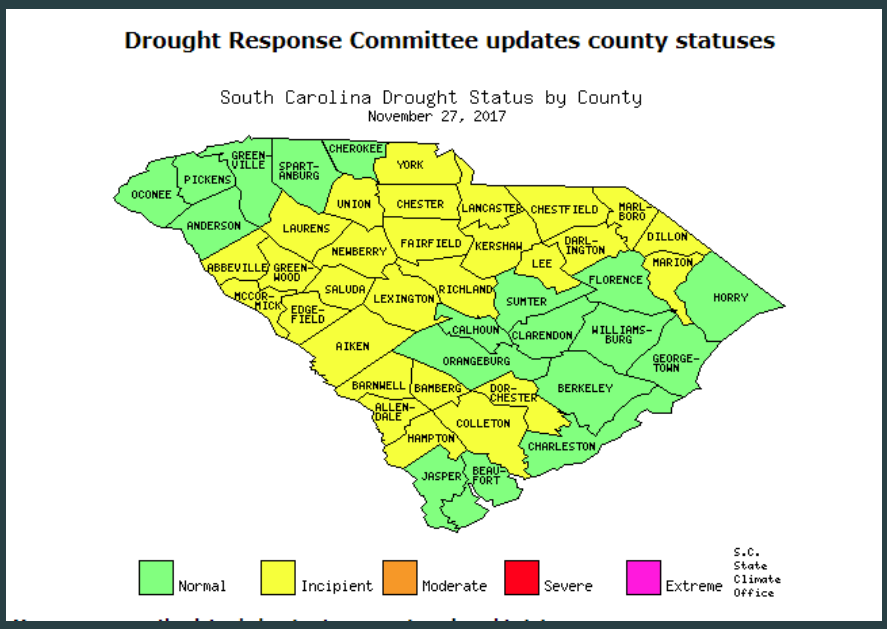
Precipitation was near normal to well below normal across much of the Southeast region during December. The driest locations were found across portions of central and southeastern Florida, northern and western North Carolina, and Virginia, where monthly precipitation totals were 50 to less than 25 percent of normal. At least 22 long-term stations observed December precipitation totals that were ranked within their five lowest values on record.



Moderate (D1) drought continued to expand in coverage across the Southeast during December, increasing from 15 percent on November 28th to 28 percent on December 26th. By late December, moderate drought covered at least 15 percent of every state in the region.



The North Carolina Drought Management Advisory Council updated their drought status as of January 16, 2018. There are currently 47 counties with abnormally dry (D0) conditions and 38 counties with Moderate Drought (D1) conditions.



The South Carolina Drought Response Committee last updated the drought status on November 27, 2017. There were 28 counties in the state with an incipient drought status while the rest of the state remained under normal conditions.

A meeting of the committee should be happening soon.

Observer Spotlight

This month's Condition Monitoring Observer Spotlight is Shepard McAninch from Boiling Springs, NC.

My father, Bill McAninch, is a CoCoRaHS observer near Bat Cave, NC. He got me started with CoCoRaHS. A couple of years ago, after entering my daily precipitation data, the website invited us to participate in Condition Monitoring.

I am most interested in the effects of environmental moisture on wildlife and vegetation. I have observed drought several times since I moved to the Carolinas in 2002, including the historic drought of 2007-2008. It is important to collect good baseline data on precipitation, evapotranspiration and environmental conditions now so that we better understand how climate effects all of us, including our natural neighbors!

My most memorable events submitting condition monitoring reports were the two Hurricanes to bring rain and wind to Boiling Springs, NC in 2017. The far-flung bands of Hurricane Irma watered us with 1.03 inches on September 12, which were followed when the remnants of then Tropical Storm Nate dropped 2.58 inches on October 8-9. There were some strong super-cells embedded within these storms, including one that produced a tornado behind my house. The winds had been strong, but their power became truly awesome for a short time! I was lucky enough to capture radar images of the twister. I learned studying climatology at the University of South Carolina that South Carolina and other southeastern states sometimes get a large part of their summer and fall rain from these tropical systems.

I advise other observers to send their reports in, even if it is not practical every weekend. I understand that these reports can be used by climatologists determining drought levels for the Drought Monitor (which is updated on Thursdays) even if they are posted on Monday morning. You can see maps at droughtmonitor.unl.edu.

Feel free to contact us with any questions.

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