

CAROLINAS CLIMATE CONNECTION

Carolinas Integrated Sciences & Assessments, a NOAA RISA Team
Integrating Climate Science and Decision Making in the Carolinas



Photo Courtesy: Stafford Mullin



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SPECIAL THANKS

The CISA team would like to extend our greatest appreciation to three team members who have recently moved on to the next chapter in their lives.

Kerry Guisepppe served as CISA's Program Coordinator for a little over two years. Not only did Kerry help with grant management, she was also co-lead of the 2018 Carolinas Climate Resilience Conference and supported all of our communications and outreach efforts. Kerry's family is moving to Knoxville, TN this summer.

Lauren Rouen has a long history with the CISA team. First working with CISA as a graduate student at UofSC, Lauren returned to the team after working with the Alaska Department of Natural Resources for several years. Over the past three years Lauren worked closely with Kirsten Lackstrom to continue research and development of the Coastal Salinity Index. Lauren's family is off to Atlanta, GA as their next stop.

Ashley Ward, CISA's first Climate-Health Integration and Outreach Specialist, did an exceptional job expanding our public health-focused network and creating resources like the Convergence website and the Hazardous Extremes Risk Assessment (HERA) tool to help support their work. Ashley is now a Senior Policy Analyst working with the Internet of Water at the Duke University Nicholas Institute for Environmental Policy Solutions.

All three of these women have made invaluable contributions to the CISA team. We look forward to future opportunities we might have to work with them. Good luck to each of you!

South Carolina Drought Tabletop Exercise

West Columbia, SC, July 24

Georgia Climate Conference

Atlanta, GA, November 7-8

North Carolina Coastal Conference

Wilmington, NC, November 19-20

Abstracts due August, 16

UPCOMING EVENTS

JAKE RAMTHUN

CISA Featured Researcher



Jake grew up in Athens, West Virginia and has been a geography enthusiast since childhood. After receiving a BA in Geography from Macalester College in St Paul, Minnesota, he spent a year interning as a GIS analyst with the NASA DEVELOP Earth Science program. He is now a Masters student at the University of South Carolina where he is a teaching assistant for human geography courses, the Vice President of the Geography Grad Student Association, and a member of the Hazards and Vulnerability Research Institute.

Jake is currently helping CISA to develop guidance documents to help CoCoRaHS volunteers to better recognize regionally-specific climate impacts in their condition monitoring reports. This guidance will help observers to provide reporting that is more consistent and better tailored to the needs of decision-makers at the local level. He is currently studying how climate change and precipitation extremes affect hazardous waste releases. His other interests include climate change adaptation, environmental management, and geographic theory. Outside of work, Jake enjoys cooking, going on weekend camping trips, and writing letters.

ANNUAL REPORT HIGHLIGHTS

Each year in June, the CISA team compiles our annual report, to document the progress we've made over the past year, new projects and partnerships, and major milestones in the program. The highlights below share a few details from this year's report. The final version of the annual report will be released later in July.

HIGHLIGHTED ACCOMPLISHMENT

SHAPING THE FUTURE OF FOLLY BEACH THROUGH SEA LEVEL RISE ADAPTATION

CISA began working with local government leaders on Folly Beach in 2015, to help them understand the threats that sea level rise posed to this small, barrier island in the South Carolina Lowcountry. Since that time, the City has developed a [Sea Level Rise Adaptation Report](#), imposed a six-month moratorium on beach and marsh front development in May 2018, and passed extended setback ordinances for all new waterfront and marshfront development on the island. CISA has provided technical assistance and planning guidance along the way and will continue work with the City to develop a marshfront management plan that will help protect some of the most vulnerable properties from future sea level rise.

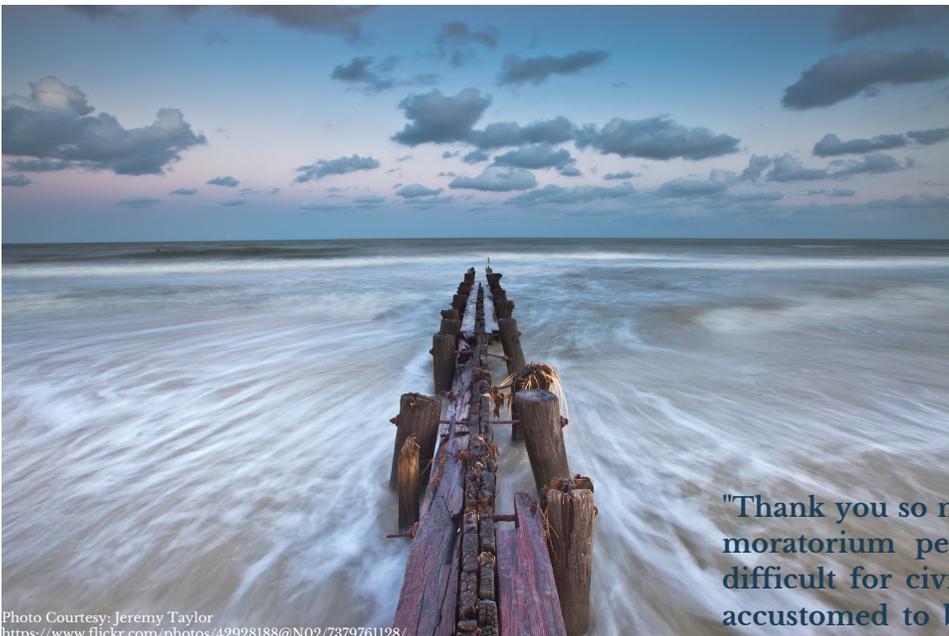


Photo Courtesy: Jeremy Taylor
<https://www.flickr.com/photos/42928188@N02/7379761128/>

"Thank you so much for your guidance during this moratorium period on Folly Beach. It is very difficult for civilians - particularly myself, who is accustomed to black and white answers - to wrap their heads around sea level rise and how to prepare for it. Your guidance has been so helpful not only by way of the science but also in the area of how to speak to people about sea level rise and flooding. This experience may in fact change the course of my career and the rest of my life." ~ Lisa Strauss, Folly Beach Planning Commissioner

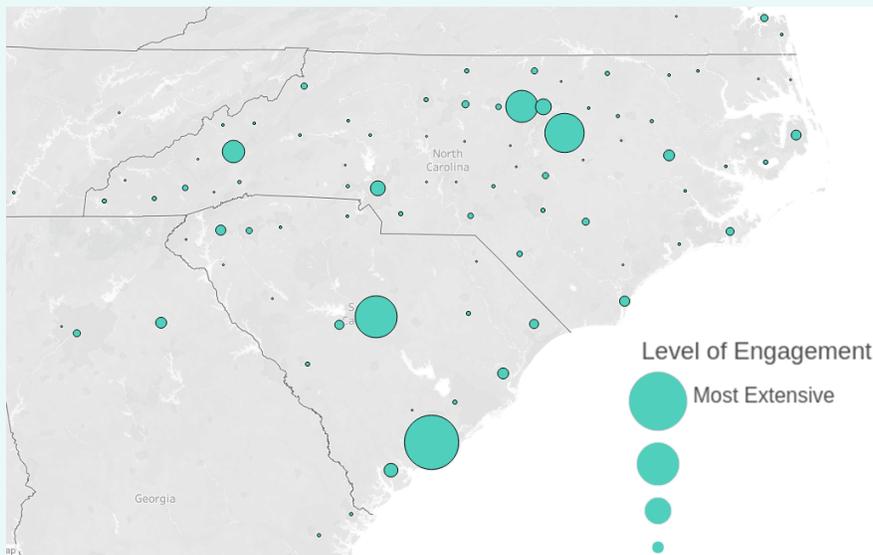
OTHER PROJECT HIGHLIGHTS

We are working with partners at the National Institute of Standards and Technology (NIST) and students at the College of Charleston to survey businesses in the Charleston, SC region, to better understand the true costs of recent hurricanes and flooding and help identify strategies to make local economies more resilient.

In partnership with the State Climate Office of North Carolina, we are improving the usability of drought information for the agriculture, forestry, and water resources sectors. The NC Drought Management Advisory Council and NC Division of Water Resources have been enthusiastic supporters of the [project](#). NC DWR has begun posting the new drought information prototypes to their website.

With support from the DOI Southeast Climate Adaptation Science Center, we are conducting research to better understand how decisions regarding longleaf pine prescribed burn planning and implementation are made across the Southeast region and how potential changes in climate and urban growth may influence the future use of prescribed burning as a management tool.

In collaboration with the NC High School Athletics Association, we are piloting a new [Wet Bulb Globe Temperature forecasting tool](#) that will improve the ability of athletic directors and coaches to determine when they should modify practice schedules in order to minimize heat stress and risk to athletes.



CISA works with partners throughout the Carolinas and the Southeast. Figure 1 (above) represents the location of CISA team members, partners, and individuals who participated in CISA-organized projects and events over the last year. The placement of the symbols represents the county location of individuals' organizations. The size of the circle reflects the number of participants and weighted participation values, used to represent the extent to which individuals participated in particular projects or events. For example, participation in a year-long research project received a greater weight than attendance at a one-day workshop. This analysis is part of CISA's ongoing network evaluation.

PROJECT HIGHLIGHTS CONTINUED

With funding support through a NOAA Regional Coastal Resilience grant we are working with partners at the S.C. Sea Grant Consortium, College of Charleston, and The Citadel to improve understanding of flood risk and strategies to increase resilience in the Charleston region. A high resolution, parcel-level flood model was created to incorporate both tidal and stormwater flooding and provide a more realistic view of what happens during storms or other flooding events. Project leaders are organizing engagements with neighborhoods in the Charleston metro area to ground-truth the flood model maps as well as provide flood education and engagement with residents.

CISA hosted the third [Carolinas Climate Resilience Conference](#) on October 29 - 31, 2019 in Columbia, SC. Although the event had to be rescheduled due to Hurricane Florence, it drew 248 attendees from throughout the region. Members of federal, state, tribal, and local governments in addition to private and other non-governmental organizations contributed to over 100 presentations and an atmosphere ripe with engagement and networking. Highlights included

- collaboration with the [American Society of Adaptation Professionals](#) to organize the “Accelerating Climate Action through Innovation and Technology” track and award the first Carolinas Regional Adaptation Leadership Award,
- a plenary session on flood mitigation and adaptation in the Carolinas during which speakers addressed the impacts of recurrent flooding events and sea level rise,
- and a panel discussion with [representatives from Native American tribes](#) about how they are coping with the impacts of climate change.

“I love that this conference brings scientists and decision makers together so that we can all interact and have meaningful conversations that translate to real-world changes. I met many great people at the conference, and it allowed me to make connections with those in my field.” ~ 2019 CCRC Attendee

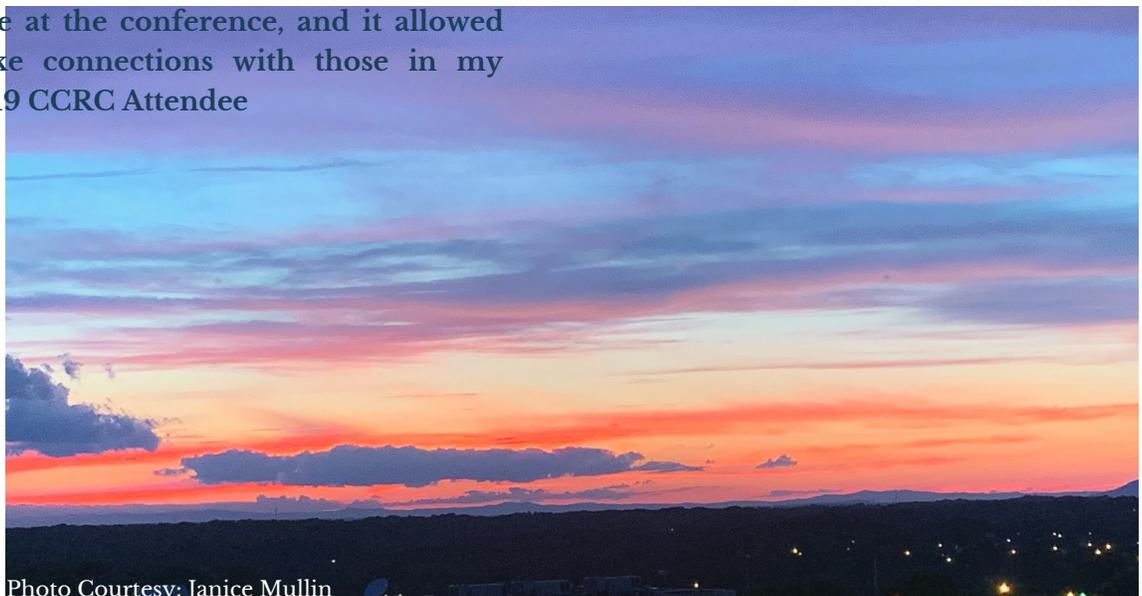


Photo Courtesy: Janice Mullin

CISA

BY THE NUMBERS

18 student researchers

30 collaborating organizations

923 project partners and stakeholders

16 newsletters

8 journal articles and project reports

16 conferences, training sessions, workshops

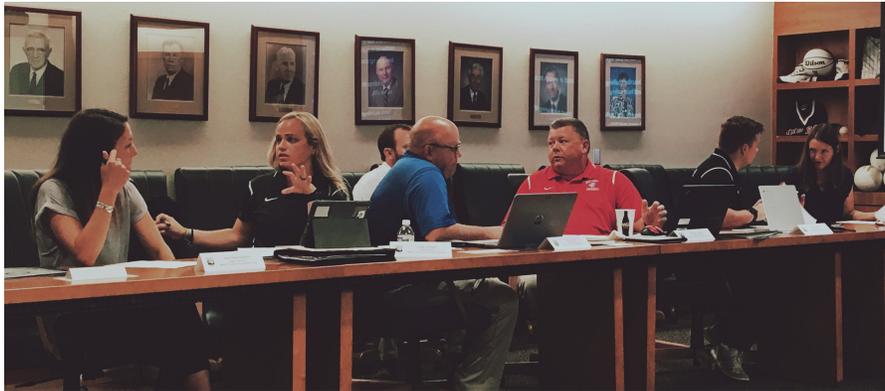
\$9,858 in travel support

\$567,164 leveraged grant funds

Photo Courtesy: Rick Mullin

CISA ENGAGEMENT WITH THE NORTH CAROLINA HIGH SCHOOL ATHLETIC ASSOCIATION HEAT SAFETY WORKING GROUP

By: Jordan Clark

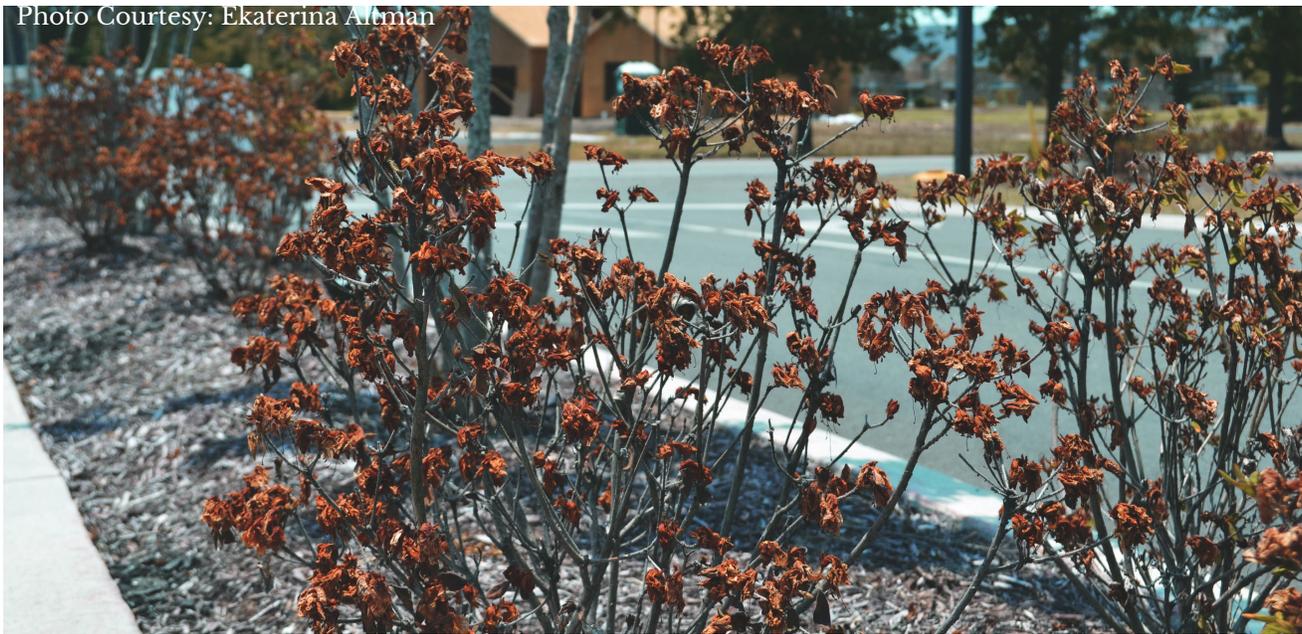


CISA team members Chip Konrad and Jordan Clark as well as Sandra Rayne at the Southeast Regional Climate Center and Darrian Bertrand at the North Carolina State Climate Office have developed a web-based tool that provides forecasts of wet bulb globe temperature (WBGT) across North Carolina. WBGT is a heat stress index that accounts for the impacts of air temperature, humidity, solar radiation, and wind speed on human body temperature. WBGT is not routinely forecasted in the U.S. This summer, the WBGT forecast tool is being used by high school athletic directors and trainers through a working group facilitated by the North Carolina High School Athletic Association (NCHSAA). The NCHSAA has developed sports practice guidelines based on WBGT measurements which must be made on the practice fields at member schools.

Users of the WBGT tool select a location in North Carolina from a Google map interface, and the tool returns a 5-day WBGT forecast for the selected location. The forecast is based on a suite of weather variables forecasted by the US National Weather Service, including air temperature, wind speed, and cloud cover, to give a more accurate estimate of how current weather conditions might lead to heat stress.

The project team held an in-person workshop with NCHSAA athletic directors on June 17, 2019. Chip provided an overview of previous work conducted through CISA on the health impacts of extreme heat and the challenges associated with measuring and forecasting WBGT. The engagement provided members of the CISA team an opportunity to hear directly from practitioners about the challenges they face with ensuring the safety of high school athletes on dangerously hot days. The engagement also included a demonstration of how to use the WBGT forecasting tool. Athletic directors shared the types of information that helps them make determinations about outdoor practices and ways this information might be incorporated into the tool.

Throughout the remainder of the summer, the heat-safety working group will provide feedback on the usability of the WBGT forecast tool. They will also provide direct WBGT measurements and feedback into how well the forecast aligned with what they observed, to ground truth the forecast data. In addition, Jordan Clark, a CISA-funded Ph.D. student, is conducting field work this summer to validate the accuracy of the tool. The feedback and lessons learned from this summer's work will be used to develop the third version of the tool, which will be expanded to cover the entire Southeast.



2019 SOUTH CAROLINA DROUGHT TABLETOP EXERCISE

By: Ekaterina Altman

CISA helped to organize the first [South Carolina Drought Tabletop Exercise](#) in September 2017. This convening of drought decision makers resulted in 23 appointments by the Governor's Office to fill vacancies on the SC Drought Response Committee and the creation of the [scdrought.com](#) website, now used as the primary drought information portal for the state.

Following on this success, CISA is once again partnering with the SC State Climatology Office, the SC Water Resources Center, and the SC Emergency Management Division to host the second statewide drought tabletop exercise on **Wednesday, July 24, 2019**, at the Emergency Operations Center.

The event is intended for members of the South Carolina Drought Response Committee, emergency managers, water managers, and others with responsibility for drought monitoring and response. Participants will be introduced to intensifying drought scenarios to learn about their roles and responsibilities in drought response and planning, and to ensure that they have the support they need to fulfill the tasks.

Objectives:

- Exercise the South Carolina drought monitoring and response process.
- Identify gaps in existing processes and prioritize follow-up actions.
- Increase awareness of participants' roles and responsibilities for drought response and planning within their agencies and organizations.

Registration

The event is free, but registration is required. Click here to [register](#).

Lunch will be provided

Learn More

The official drought status for South Carolina is available at <http://www.scdrought.com/>

Learn more about South Carolina Drought Planning [here](#).