

Carolinas Climate Connection

Carolinas Integrated Sciences & Assessments, a NOAA RISA Team

Integrating Climate Science and Decision Making in the Carolinas

Keynote Speaker Bob Inglis to Kick Off the 2016 Carolinas Climate Resilience Conference

The 2016 Carolinas Climate Resilience Conference will be held September 12-14 at the Hilton University Place in Charlotte, NC.

We are excited to share that Bob Inglis, former US House Representative for SC's 4th Congressional district and director of the Energy and Enterprise Initiative (E&EI) will give the keynote address to kick off the CCRC.

The CCRC will bring together researchers, and staff from local, state, and federal agencies to share information about climate-related tools, resources, experiences, and activities in the Carolinas. The conference is designed with a very interactive format geared towards networking and exchange.

Learn more about all that will be offered at this year's event on [page 3](#).

Sign up for the [conference e-mail list](#) to stay informed about requests for speakers and presentations, registration, and travel information. Contact [Amanda Farris](#) with any questions.



Upcoming Events

[Climate Education Workshop: Rising Tides and Changing Times](#)
August 3-4, 2016
Charleston, SC

[Carolinas Climate Resilience Conference](#)
September 12-14, 2016
Charlotte, NC

[SC Water Resources Conference](#)
October 12-14, 2016
Columbia, SC

Funding Opportunities

[NOAA Coastal Ecosystem Resiliency Grants Program](#)
Applications due August 16, 2016

[Institute for Sustainable Communities Resilient Communities Grant Program](#)
Applications due July 29, 2016

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CISA Annual Report Now Available

Each year the CISA team produces an annual report that captures all of the year's accomplishments including new projects and partnerships, research findings, key publications, project overviews, and a list of all deliverables. Between May 2015 and May 2016 CISA team members produced:

- | | |
|--|---------------------|
| » 5 journal articles | » 1 dissertation |
| » 1 edited book | » 2 web-based tools |
| » 5 edited book chapters | » 2 new videos |
| » 4 project reports | » 47 presentations |
| » 2 theses | » 5 posters |
| » 8 conferences, meetings, trainings, and workshops with 262 attendees | |

Check out the full 2015-2016 CISA annual report [here](#).



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Getting to Know Your RISA

Featured Researcher: Ashley Ward

Meet Ashley Ward, the new Climate Integration and Outreach Associate for CISA. Ashley is a native North Carolinian. She was born in Durham but spent much of her youth in the rural northern piedmont. Ashley earned her BA, MA, and PhD in Geography from the University of North Carolina at Chapel Hill. Throughout her career, she has focused on community-level issues particularly relating to the American South and centered on the areas of community development, poverty, and health. Ashley's passion is engaging communities to identify and address issues, and helping communities develop long-term, sustainable strategies relevant to their particular community. As a native of the American South, particularly the rural south, she has an appreciation for the importance of community-level approaches.

Ashley will work out of the Southeast Regional Climate Center at UNC-Chapel Hill. Her work with CISA will center on connecting communities and policy decision-makers with relevant climate data and information, particularly that related to vulnerabilities and impacts. Ashley will work with CISA to advance scientific understanding of climate processes in the Carolinas and to develop and communicate this information in a way that is relevant for use by decision makers.

When not working, Ashley enjoys spending time with her husband and two daughters.



Ashley exploring Venice Italy by boat.

Ongoing Stakeholder Engagement Continues to Guide Development of a Heat-Health Vulnerability Tool for North Carolina

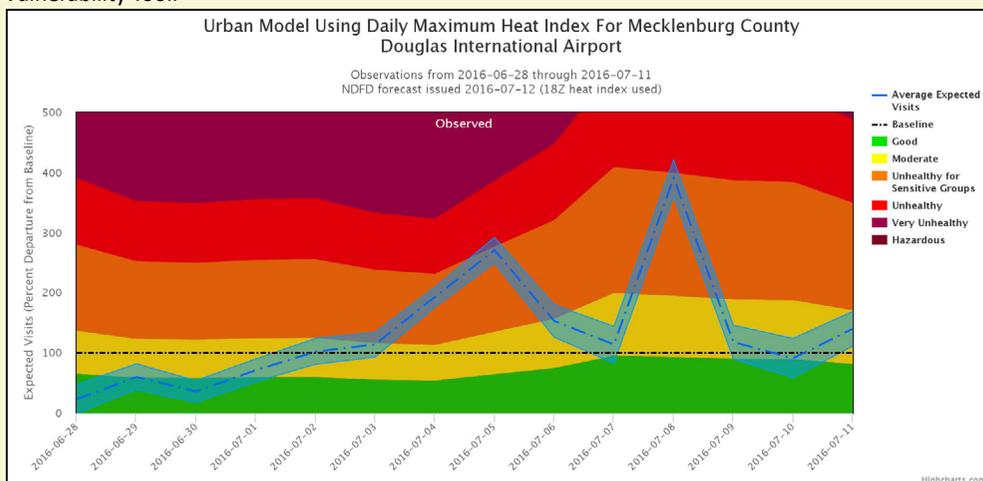
By: Chandler Green

Last year, approximately 3,376 heat-related illnesses were identified in emergency department (ED) records in North Carolina, according to the North Carolina Department of Health and Human Services. The number of ED visits from heat-related illnesses, particularly among vulnerable groups, may increase as periods of high temperature are expected to increase in frequency and magnitude ("North Carolina Climate and Health Profile"). CISA Researchers Chip Konrad and Maggie Sugg created the Heat Health Vulnerability Tool (HHVT) to help stakeholders in North Carolina better predict and prepare for cases of heat-related illness. This tool translates weather and climate conditions into useful information regarding public health emergencies, allowing users to estimate levels of heat morbidity for different demographic groups across the state. Climate Ready NC, a CDC Building Resilience Against Climate Effects (BRACE) program, is already using the tool to monitor potential heat-health events and engage with health officials and other stakeholders about heat-health vulnerabilities.

Stakeholder Feedback Informs Refinements of the HHVT

Ongoing conversation with stakeholders over the past year has enhanced the usability of the Heat Health Vulnerability Tool. In 2015-2016, CISA, Climate Ready NC, and partners held two in-person meetings in Fayetteville, NC to obtain user feedback regarding the tool's usefulness and accessibility. Participants represented county health and emergency management departments, the NC Department of Health and Human Services, Sustainable Sandhills, healthcare systems, school systems, cooperative extension, and Fort Bragg.

In the September 2015 meeting, participants suggested integrating the daily heat index into the tool because many were familiar with this particular metric. In addition, they provided ideas for developing a color-coded warning system to indicate when an increase in projected ED visits would be significant. With the help of Ashley Hiatt at the NC State Climate Office, the online tool developer, Konrad and Sugg incorporated this valuable feedback into the tool and demonstrated the 2.0 version to stakeholders in a follow up meeting in May 2016. Participants at the second meeting made suggestions for clearer online instructions for users, an instructional video and information on the site to train users on interaction with the interface and interpretation of the results, and more targeted outreach to vulnerable populations. In the coming year, Konrad, Sugg, and new CISA team member Ashley Ward will build upon their work with Climate Ready NC to engage stakeholders and continue to improve the Heat Health Vulnerability Tool.



The Redesigned Heat Health Vulnerability Tool

The figure (left) shows the expected departure from the baseline number of emergency department visits (100) in Mecklenburg County for the period June 28 through July 11, 2016, based on the daily maximum heat index at Charlotte Douglas International Airport. The color-coded graph is intended to convey the level of heat risk for that time period.

For more information about the HHVT and CISA climate and public health work contact Chip Konrad or Ashley Ward.

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2016 Carolinas Climate Resilience Conference

By: Chandler Green

Following the success of the inaugural 2014 event, CISA and steering committee members are gearing up for the 2nd Carolinas Climate Resilience Conference (CCRC) **September 12-14, 2016** at Charlotte University Place in Charlotte, NC. We are excited to share new details about the sessions, pre-conference workshops, speakers, panel discussions and more for the upcoming conference.

Pre-Conference Workshops

CISA and expert facilitators will host three Pre-Conference Workshops as in-depth learning opportunities from 9:00 to 11:30AM on Monday, September 12th, before the start of the full conference. The three workshops, held concurrently, will focus on **climate fundamentals, inclusive adaptation and resilience and effective climate communication**. Registration is \$25 each and limited to the first 25 registrants. Learn more about the workshops [here](#).

Keynote Speakers

An engaging set of speakers from the Carolinas will kick off the conference on Monday, September 12th. **Linda Rimer**, liaison for Climate Resilience for U.S. EPA Region 4, and **Rob Phocas**, the City of Charlotte Energy and Sustainability Manager, will contribute opening remarks. **Deke Arndt**, Chief of the Climate Monitoring Branch at the NOAA National Centers for Environmental Information (NCEI), will provide an overview of Climate in the Carolinas.

The **Keynote Address** will be given by **Bob Inglis**, former House Representative from South Carolina's 4th Congressional district. Inglis, a devout conservative who used to doubt the validity of climate change, now leads the **Energy and Enterprise Initiative (E&E)** to promote free enterprise action on climate change. He has been awarded the 2015 John F. Kennedy Profile in Courage Award for his work on climate change, and featured in the film, *Merchants of Doubt*, and the Showtime series *YEARS of Living Dangerously*.

Plenary Panel Discussions

The conference will showcase two plenary panel discussions on **Water Resources and Climate Resilience** and **Climate Communications in the Carolinas**. The Water Resources and Climate Resilience panel discussion will be held Tuesday morning 8:30-10:00AM and will feature speakers representing agriculture, business, energy and local government. The closing plenary on Climate Communications in the Carolinas will feature Chief Meteorologists **Greg Fishel** and **Jim Gandy**, **Susan Joy Hassol** of Climate Communication and **David Salvesen** of UNC Chapel Hill's Institute for the Environment.

Carbon Neutrality

It's no surprise that big conference events (even conferences on climate) produce a lot of carbon – from the emissions produced by attendees traveling into town to the energy expended to air condition dozens of hotel rooms. That's why CCRC has enlisted the help of **Shift Equity** to offset the total carbon emissions from the three day event, so we can truly “walk the talk” of sustainability. The costs of these offsets have been combined into the new **Carbon Neutral Sponsorship** available this year. We are pleased to share that the **USDA Southeast Regional Climate Hub** is an official Carbon Neutral Sponsor for this year's conference.

Plus, More Interactive Events

Bingo is back! Bingo cards with clues about individuals at the conference will be given to every attendee to spark conversation with someone new. Those who participate will be eligible for prizes.

Share your climate resilience story. David Salvesen, producer of *Climate Stories NC*, will host a video booth during the conference to interview participants about their work and experiences in climate resilience. These testimonials will be edited into a new video for his series.

Registration

Secure your spot for September and take advantage of early registration fees by registering for the conference before **August 5**.

We look forward to seeing you in September! Until then, stay updated on CCRC news by [Twitter](#), [Facebook](#) or [Email](#). Contact **Amanda Farris** for any **specific inquiries or questions you have**.



“Ask the Climatologists” sessions on Monday afternoon will give participants an opportunity to interact with local and regional climatologists. You can submit your questions to our climatologists beforehand by emailing cisa@sc.edu or tweeting @CarolinasRISA #CCRC16.

The Sessions

The three-day conference agenda features 32 sessions with over 120 interactive presentations, designed to facilitate networking and collaboration among all participants. More information on the interactive presentation types can be found [here](#).

Presentation Topics Will Cover

- » Adaptation Planning Strategies
- » Coastal Resilience
- » Climate Communication & Education
- » Hydrological Extremes
- » Conservation & Natural Resource Management
- » Climate & Energy
- » And more!

Many Thanks to All of Our Generous Sponsors

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- » USDA Southeast Regional Climate Hub

Gold

- » AECOM
- » Clean Air Carolina / Medical Advocates for Healthy Air
- » EcoAdapt / National Adaptation Forum
- » State Climate Office of North Carolina

Silver

- » National Environmental Modeling and Analysis Center (NEMAC)
- » NC SeaGrant
- » NC Water Resources Research Institute

Bronze

- » Four Twenty Seven Climate Solutions
- » USC School of Earth, Ocean and Environment

Interested in becoming a sponsor or exhibitor? [Learn more](#)

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Building Adaptive Capacity through a Climate Community of Practice

By: Sumi Selvaraj

With support from NOAA and the Sea Grant College Program, the Southeast and Caribbean Climate Community of Practice (CCoP) held its 3rd in-person member workshop, "Building Adaptive Capacity in the Southeast and Caribbean through a Climate Community of Practice" in Tybee Island, GA April 13 – 15, 2016. 64 individuals representing local and federal government, non-profits, and academia from Georgia, Florida, North Carolina, South Carolina, Virginia, and Puerto Rico participated in the workshop to share lessons learned, network with other CCoP members, gain new ideas, and make connections in their work to increase adaptive capacity in the region.

Climate Communications, Tool Demonstrations, and Lessons Learned from Local Communities

On Day 1, a session on communicating climate science featured a presentation on climate science and variability in the region, examples of how to effectively communicate the impacts of drought, and a demonstration on facilitating a neighborhood meeting on the local impacts of sea level rise and flooding. A panel on assessing vulnerability and risk featured case studies from communities in Puerto Rico, Florida, Georgia, and North Carolina on the different strategies used to assess climate-related risks from the perspective of a State Coastal Management Program, extension agents, and a local government planning department.

On Day 2 a panel of local community representatives shared how they prepare for and respond to extreme events in the short- and long-term. Discussion highlighted how local and state governments have addressed impacts from flooding, drought, hurricanes, and extreme heat events. Examples include how the City of Charleston responded to extreme flooding and sea level rise and are planning for long term resilience and how Puerto Rico has responded and adapted to its ongoing long-term drought. The Tools Café featured eight different resources to support climate-impacts and risk assessments for different sectors and audiences, which have been developed specifically for the regional climate context of the Southeast and Caribbean or have been used by communities in these areas. Day 2 ended with a tour of Tybee Island to see climate adaptation in action.

On the final day of the workshop, CCoP members learned how to utilize an existing federal program, the [Community Rating System](#), to support local climate adaptation by learning more about the program, legal procedures, and how towns such as Nags Head, NC, and Tybee Island, GA have been able to decrease flood insurance rates and become more prepared for future flooding. The workshop concluded with a keynote address from Billy Keyserling, Mayor of the City of Beaufort, SC. Mayor Keyserling shared his own experiences on addressing sea level rise challenges in Beaufort through the [Beaufort and Port Royal Sea Level Rise Task Force](#). He stressed the importance of having strong neighborhood and community organizations in motivating local government actions and how to utilize early federal and non-profit funding streams to support adaptation even if limited financial resources exist from the local or state government.

Next Steps for the CCoP

CCoP members also spent time during the meeting to discuss how best to utilize the CCoP to support a network of climate adaptation practitioners in the Southeast and Caribbean. Participants expressed that in-person meetings are critical for the continued success of the CCoP. They find the opportunity to network, make new connections, and have an in-person exchange about effective climate adaptation strategies especially valuable. Overall, evaluation of the workshop was very positive. Participants came away with a better understanding of the Community Rating System (CRS), flooding risks, sea level rise, and management strategies.

Additional highlights from each session and key takeaways from the workshop can be found in the [CCoP Meeting Final Report](#) and copies of each presentation can be found on the [CCoP 2016 workshop webpage](#). **Contact Liz Fly or Amanda Farris for more information about the CCoP.**



Mark Risse (GA Sea Grant) explains how an oyster reef has been created to reduce erosion as an adaptation strategy on Tybee Island.



Former City Councilman Paul Wolff shares information about Tybee Island's beach renourishment efforts.



City of Beaufort, SC Mayor Billy Keyserling gives the keynote address to close the workshop.

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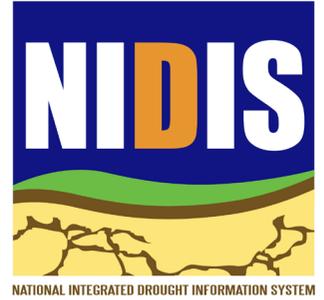
Next Steps for the NIDIS Coastal Carolinas Drought Early Warning System

By: **Meghan Sullivan**

The National Integrated Drought Information System (NIDIS) supports a Drought Early Warning System (DEWS) in the coastal Carolinas. Launched in 2012, the main objectives of the program are to improve understanding of drought's effects on coastal environmental resources and to develop information to enhance drought monitoring and planning processes.

Stakeholder Workshop Convened to Set Priorities, Generate Project Ideas

In early June, a group of researchers and stakeholders from the Carolinas met in Wilmington, NC, to discuss ongoing activities and next steps for the Coastal Carolinas DEWS (CC DEWS). The meeting opened with presentations from project leaders about current activities in the Carolinas. Presentations included information on drought in the Carolinas, the NIDIS program, and current CC DEWS projects including the assessment of drought indicators for coastal zone fire risk, the development of a coastal salinity index, and forecasting the impacts of future drought on the blue crab fishery. Check out this [series of 2-pagers](#) to learn more about these projects.



NIDIS Regional Drought Coordinator Courtney Black provides an overview of the NIDIS Drought Early Warning System program to meeting attendees.

The meeting continued with a brainstorming session to identify needs and priorities for the CC DEWS. Discussions centered on the themes of the CC DEWS understanding vulnerabilities and impacts of drought on coastal ecosystems, developing resources to help integrate drought and coastal resource management, and facilitating communication and collaborations around issues and activities related to coastal drought.

The most common ideas include integrating datasets, creating better impact assessments, and gaining a better understanding of salinity dynamics. Other ideas involve creating a comprehensive water budget and assessing the public health impacts of drought.

Attendees were then split into four different groups, according to their work interests and specialties: Fire and Forestry, Agricultural and Conservation Land Management, Salinity and Ecological Indicators, and Coastal Resource Management. Each group was responsible for brainstorming project ideas that will move the CC DEWS forward and identifying stakeholders and partners for collaboration. These ideas were to include short and long-term actions for the CC DEWS that will address the key needs discussed beforehand.

Project Ideas Establish Path Forward

Each group presented their top ideas to the audience at the meeting. Ideas include expanding existing fire monitoring activities, enhancing public communications about drought, and improving tools to assess water resources and drought conditions in coastal areas. For example, since drought can contribute to increased salinity in coastal waterways, operationalizing the coastal salinity index and developing informational resources to help resource managers monitor salinity levels in correlation with recent rainfall patterns were noted as priorities. Other ideas centered on expanding wildfire risk assessment through soil moisture monitoring and data synthesis with existing tools.

The information from this strategic planning meeting will be used to help develop the Coastal Carolinas DEWS strategic plan. This document will be used to guide project selection and prioritization. To learn more about the Coastal Carolinas DEWS, or to read the strategic plan when published, take a look at the [project page](#) on the U.S. Drought Portal.

NIDIS Coastal Carolinas DEWS Resources

» Coastal Carolinas DEWS webpage

This portion of the NIDIS website provides an overview of the Coastal Carolinas DEWS program with links to a variety of resources and information about the various projects which make up the CC DEWS.

» CC DEWS Project 2-Pagers

These 2-page information sheets provide an overview of each of the CC DEWS projects including:

- » An overview of the CC DEWS program
- » Development of the Coastal Salinity Index
- » Forecasting the SC blue crab fishery using real-time freshwater flow data
- » Assessment of indicators for coastal zone fire risk
- » Using the CoCoRaHS network to improve drought monitoring and reporting
- » Development of a Carolinas hydroclimate extremes atlas

Contact **Kirsten Lackstrom** for more information about the NIDIS Coastal Carolinas Dews.



Meeting attendees participated in break out groups to identify needs, priorities, and project ideas for the development of the CC DEWS strategic plan.