CAROLINAS INTEGRATED SCIENCES & ASSESSMENTS

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- East Carolina University
- National Integrated Drought Information System
- NC Sea Grant
- NC State University
- NC Water Resources Research Institute
- NOAA Southeast and Caribbean Regional Team
- SC Sea Grant Consortium
- SC State Climatology Office
- State Climate Office of North Carolina
- USGS South Atlantic Water Science Center

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CISA
A NOAA RISA TEAM

Established in 2003, CISA is 1 of 10 NOAA Regional Integrated Sciences and Assessments (RISA) teams. These interdisciplinary research teams are designed to help expand and build the nation's capacity to prepare for and adapt to climate variability and change.

integrating climate science with decision making

CISA's portfolio of research and engagement is designed to achieve our overarching goal of increasing climate resilience in the Carolinas. Our work centers on four key activities:

- **Advancing understanding of climate processes and impacts in the Carolina –** CISA conducts applied research to answer stakeholders' questions about climate variability and extremes, projections of future climate, and climate-related impacts on the Carolinas' resources and communities.
- **Providing decision support services –** CISA collaborates with local and regional stakeholders to produce tailored information, tools, and resources to support climate-related decision making.
- **Fostering adaptation and its implementation in the region –** CISA works directly with communities to assess climate vulnerabilities and identify potential adaptation strategies and avenues for implementation in order to foster more resilient communities and ecosystems.
- **Supporting climate information networks –** CISA seeks to be a trusted source of climate information and provides a variety of opportunities for dialogue around climate issues.

working collaboratively to support climate resilience

CISA has established long-term partnerships and collaborations with partners at Sea Grant, the State Climate Offices, the Southeast Regional Climate Center, and the USGS South Atlantic Water Science Center. Working together enables us to leverage expertise from other agencies and organizations and build robust and coordinated efforts around climate research and decision support activities.

Our interdisciplinary, multi-state team works with partners and decision makers across the Carolinas. We integrate social and natural sciences to characterize the risks, vulnerabilities, and potential impacts of climate variability and change. From the insights we gain, we develop decision-relevant tools and analyses that meet our stakeholders' specific needs and help build regional capacity to address climate concerns. By emphasizing processes that facilitate learning, we help to foster information exchange among decision makers, researchers, and climate service providers.

CONNECT WITH CISA

CISA publishes a quarterly newsletter, the *Carolinas Climate Connection*, and manages the *Carolinas Climate Listserv* in order to share up-to-date information about climate research, upcoming events, funding opportunities, or other relevant news.

Contact us if you would like to subscribe to the newsletter or listserv or to request additional information about our projects and resources.

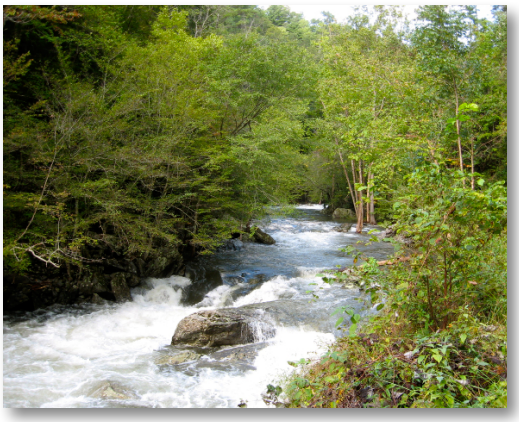
supporting climate resilience in the carolinas

CAROLINAS INTEGRATED SCIENCES & ASSESSMENTS

ADVANCING UNDERSTANDING OF CLIMATE PROCESSES AND IMPACTS

Connections between Climate and Water

CISA uses and integrates historical climate and hydrological data, watershed models, and global and downscaled climate models to answer questions about climate impacts on water supply and quality. Research seeks to provide information that can inform planning and preparedness for extreme rainfall events and drought. For example, the team is conducting research to better understand the hydroclimatological context which contributed to the historic October 2015 rainfall and flooding event in South Carolina. Another project is investigating a North Carolina water utility's potential vulnerability to changing climatic and water resource conditions.



Connections between Climate and Human Health

CISA and the Southeast Regional Climate Center (SERCC) collaborate to investigate linkages between climate and human health, with respect to heat stress vulnerability and waterborne disease. Based on heat-health research findings, SERCC developed the NC Heat Health Vulnerability Tool in partnership with the NC State Climate Office. This tool has the capacity to predict heat-related emergency department (ED) visits at the county level based on National Weather Service daily forecasts. CISA and SERCC have also partnered with the Climate-Ready NC program to use the tool to learn more about local vulnerabilities to extreme heat events.

DECISION SUPPORT SERVICES

Coastal Carolinas Climate Outreach Initiative

In partnership with the SC Sea Grant Consortium, CISA supports a coastal climate and resilience extension specialist to unite CISA research with the outreach expertise of regional Sea Grant extension programs. This partnership allows CISA to cultivate relationships with stakeholder groups, including coastal zone management, local municipalities, and local NGOs in order to bridge the gap between coastal climate science and decision making. Examples include partnerships with a citizen-driven sea level rise task force in Beaufort and Port Royal, SC, and the Charleston Resilience Network.

National Integrated Drought Information System (NIDIS)

CISA collaborates with NIDIS and other regional partners to develop a drought early warning system for the Carolinas, focused on the coastal areas of the two states. Efforts center on developing information and tools that will support drought monitoring, communications, and planning in the coastal Carolinas. Specific projects include the development of a coastal salinity index to monitor drought conditions on the coast, an online atlas to provide information about hydroclimate risks and impacts, and a network of citizen science observers to support the reporting of drought's effects on local communities and resources.

FOSTERING ADAPTATION AND ITS IMPLEMENTATION IN THE REGION

Assessing Vulnerabilities and Identifying Adaptation Solutions in Local Communities

The Vulnerability, Consequences, and Adaptation Planning Scenarios (VCAPS) process was developed to allow decision makers in small municipalities to explore the potential outcomes and consequences of climate change in their towns, along with pathways to help plan and prepare. The process has been used in over 15 U.S. communities, including 8 in the Carolinas.

SUPPORT FOR CLIMATE INFORMATION NETWORKS

In addition to stakeholder engagement conducted as part of individual research and projects, CISA conducts a wide range of outreach and engagement activities in order to foster climate information networks in the Carolinas. CISA circulates Carolinas-specific information through a quarterly newsletter and the Carolinas Climate Listserv. The Carolinas Climate Resilience Conference is held bi-annually to provide an in-person opportunity for information exchange and networking. CISA also supports a broader network of climate adaptation practitioners in the Southeast through leadership roles with the Southeast & Caribbean Climate Community of Practice.

CISA works with stakeholders in the Carolinas from the mountains to the coast.