# **ACTIVITY REPORT** 2020-2021

Over the past year, the State Climate Office of North Carolina (SCONC) delivered high-quality climate extension programming to clients across the state and completed the development of a new, state-of-the-art climate data retrieval system. While the global COVID-19 pandemic brought challenges, it also provided new opportunities to reach more people across the state.

# DATA ACCESS

In early April 2021, SCONC launched the **Cardinal Data Retrieval System** to enable users to more easily obtain recent and historical data from SCONC's servers. The system's two key components are the **Station Scout tool**, which allows users to quickly view and explore recent observations and metadata from stations in the state, and the **Cardinal Request Builder**, a step-by-step guide to requesting data. The foundation of the Cardinal system is the SCONC's Clouds API, which is also available for more advanced users to obtain climate data.

The Cardinal system's design and functionality were built to address needs and feedback from our partners in Extension and NC State University's College of Agriculture and Life Sciences (CALS), and we continue to collect input from users to ensure that the system best meets users' needs for climate information. Since its launch, over 900 requests have been completed.





## **CLIMATE TOOLS**

In early 2021, we launched a new **Chill Models Product** to provide current-season chill model guidance for North Carolina growers. We worked with Extension agents and specialists with expertise in various fruit and berry crops to understand how chilling hour information is used to support decisions, to identify which chill models are most useful for growers, and to test the new product to ensure it met user needs for output content and format.

Over the past year, we additionally rolled out a new **Inversion Tool** to help with herbicidal spraying decisions, in addition to a **Wet Bulb Globe Temperature Tool** to help monitor and make decisions around heat stress. We also continued to support a number of climate-smart agricultural tools, including the Cotton Planting Conditions Calculator, the Cotton Thrips Infestation Predictor, and the Tobacco Thrips Flight and TSWV (Tomato-Spotted Wilt Virus) Intensity Predictor.



### **EDUCATION AND TRAINING**

In 2020-2021, we focused on ways to increase our reach across the state through virtual engagements while continuing to support our partner organizations. We participated in a number of online workshops, trainings, and invited lectures with county Extension Centers and Master Gardener programs across the state. Through these, we reached more than 700 attendees including Extension agents and specialists, CALS faculty, Extension Master Gardeners, farmers, and public audiences on topics related to North Carolina's climate, climate change, implications for agriculture, and climate tools for different applications. Partnering with Richmond County 4-H, we developed a video on weather sensors and participated in "Ask a Climatologist" Zoom sessions with three elementary schools.

Based on increasing requests for climate change information, and timed to follow the release of the NC Climate Science Report, we collaborated with the NC Institute for Climate Studies to hold a 6-part webinar series covering different aspects of climate change in North Carolina. These webinars were open to the public, but were targeted for Extension agents and specialists in North Carolina and the climate change questions and information requests the SCONC has received from these partners. The series had 438 attendees, and all webinars were recorded and posted online.

We evaluated the series, with findings revealing that attendees felt more knowledgeable and confident talking about climate change with their colleagues and clients. Attendees also requested that future events include more action-oriented information about mitigation and adaptation. Future directions for the SCONC's climate change outreach and education include providing regular updates on the latest research, such as through the SCONC's Climate Blog or in conjunction with climate-update webinars, and continuing to connect clients to tools and resources for climate change data.

#### MONITORING

The North Carolina Environment and Climate Observing Network (ECONet) is a network of 43 research-grade weather stations operated by the SCONC. This network is utilized by CALS faculty and graduate students, public safety agencies (e.g., National Weather Service, North Carolina Emergency Management), and NCARS staff. Approximately 23 million one-minute observations were recorded by ECONet stations in 2020. A new station, supported by NC State University's College of Sciences, will be installed along North Carolina's coast in summer 2021.

#### **SYNERGIES**

Collaborations with Extension and CALS have led to new projects at the SCONC. We are developing a Climate Dashboard for NC Corn growers, supported by the NC Corn Growers Association, to provide weather forecast and seasonal climate guidance, tailored to users' location, and designed to support pre- and within-season management decisions. As part of this, we are also comparing corn yields to historic and future climate data to support longer-term planning and decisions.

In summer 2021, we are beginning work on a project, funded by Cotton Incorporated, to assess cotton growing degree day temperature thresholds. We are additionally exploring new collaboration and research opportunities, including a proposal to NC State's RISF program for a Future-Ready Farmer's Almanac for the 21st Century, and connecting with the National Extension Climate Initiative.

