The National Weather Service office on Centennial Campus uses the Advanced Weather Interactive Processing System to prepare forecasts. The hardware and software allow forecasters to view many types of meteorological data on one system.

Times have certainly changed since farmers used weather vanes to tell them what the weather might do next. Now we rely on the NEXRAD Doppler radar system, computerized environmental models that use precise satellite observations of the earth and sky, and state-of-the-art telecommunications.

These sophisticated tools and many others constitute a web of technology that tracks weather patterns and predicts them with increasing — and often uncanny — accuracy.

Helping to operate this network are 21 employees of the National Weather Service’s Raleigh office, located in the Research III building on NC State’s Centennial Campus. The NWS, part of the National Oceanic and Atmospheric Administration, is celebrating its 20th year on the campus, making it one of the earliest adopters of the Centennial partnership model. Meteorologist-in-Charge Darin Figurskey says it’s been a good fit.

“Our relationship with North Carolina State University has enabled the NWS in Raleigh to easily collaborate and investigate forecast and warning challenges with faculty, students and important partners like the North Carolina State Climate Office,” he says. “The result has been an improved understanding of the atmosphere and better tools for the NWS staff.” For the people of central North Carolina, that means more accurate and timely forecasts for weather of all types, including dangerous severe thunderstorms and hazardous winter weather.

The NWS office here tracks weather patterns for more than 4.4 million residents in a region bounded by the Greensboro/Winston-Salem area on the west, the Virginia border to the north, Fayetteville to the south and the I-95 traffic corridor on the east. Not surprisingly, it’s a continued

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24/7 operation, 365 days a year. Three meteorologists staff the office most of the time, while two staff members keep an eye on things during the overnight shifts.

NC State interns often assist the professional team. Figurskey estimates that nearly 100 students have worked in the Centennial Campus office since it opened its doors. The experience has provided a wealth of experience to the future meteorologists and scientists.

“The interns have learned from the Raleigh staff the importance of the lifesaving mission of the NWS,” he notes.

“Many former NC State interns are contributing to the NWS across the nation. They’ve also gained a lot from the interns, as their research with NC State faculty has helped us improve our forecast techniques and computer models. Students have been right there with the NWS staff sharing a critical message with the public about the need to be ‘Weather Ready’ for all the types of weather conditions.”

NWS Raleigh staff also routinely work with state and local emergency managers, planners and other community partners. Figurskey, in particular, is a leader on the NOAA steering committee that encourages collaboration among NOAA line offices and other NOAA-funded programs in the Carolinas, such as North Carolina Sea Grant and the North Carolina Institute for Climate Studies, both hosted by NC State.

Tornadoes, hurricanes and heavy thunderstorms obviously generate a lot of attention, but NWS tracks other weather events as well, such as flood watches, wind and heat advisories and fire alerts. Depending on the expected weather in a seven-day period, forecasters often divide their work activity by delegating responsibility for the first 24 to 48 hours to one person, while a longer time frame goes to a second forecaster.

Together they create the week-ahead forecast, which includes sky conditions, temperature, wind and the chance of precipitation. They also compose a number of other forecasts and alerts as needed, such as the Hazardous Weather Outlook.

For all of the scientific progress in weather forecasting, human observation and evaluation still play a critical role. When different environmental models yield differing predictions, forecasters must draw upon their skill and experience to either choose one model over another or combine the results into one overarching prediction.

It’s a skill any farmer who watches the weather closely can appreciate.