

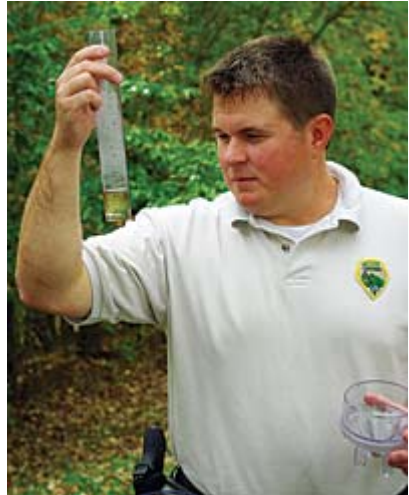
Who's Watching Our Weather

Text and Photos By Ralph Troutman

Whether it's the great flood of May 2010, the drought of 2007, or the yearly onslaught of deadly tornadoes, you'll find Tennesseans talking about, watching and even worrying about the weather.

In between such disasters, however, there are many pleasant days of enjoyable weather to which Tennesseans have grown accustomed. Many people move to Tennessee to experience our diverse weather and the changing seasons that bring something special to every time of the year. Folks even say "If you don't like the weather just wait awhile and it will change."

But what can we do about the weather? The answer might be found in volunteering. There are two groups of dedicated volunteers keeping a close watch on everything that goes on with our Tennessee weather: the Cooperative Observer Program of the National Weather Service and the Community Collaborative Rain, Hail, and Snow network. These volunteer weather observers take readings of weather elements at their specific locations 365 days a year in the heat and cold, rain and snow, and even when it's sunny and pleasant!



COOP observers are the backbone of climate study. This group was established by Congress in the Organic Act of 1890. This legislation required what would become the Weather Bureau to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures and 24-hour precipitation totals (including snowfall), to help define the climate of the United States and to support forecast, warning, and public service programs.

The observations these volunteer weather watchers collect are used to establish the normal and record temperatures and precipitation for their home area. The city of Clarksville is the longest tenured COOP observer in Tennessee, taking observations since January 1, 1854. About 20 observing stations across the state have records beginning before 1900.

Observers vary from individuals with an interest in weather to institutions that need weather information for their operations. These institutions include the University of Tennessee Agricultural Research and Education Centers, water and waste water plants, radio stations, fire departments, fish hatcheries, wildlife refuges, national parks, and the U.S. Army Corps of Engineers. Many Tennessee State Parks have also joined the ranks of observers, making the daily readings part of their routine and allowing them to keep a closer watch on the resources they are responsible for managing.

Tennessee State Parks also include the weather program in their environmental educational nature offerings. Local city park nature centers in Nashville and Fairview are also part of the COOP network and make the observations part of their educational programs.

Montgomery Bell State Park was right in the middle of the May 2010 flood in Middle Tennessee recording almost 13 inches of rain in one 24-hour period. Their rainfall report was essential for monitoring the flooding conditions along the Harpeth River. Pickett State Park along the Kentucky state line is one of the snowiest locations in Middle Tennessee. Mousetail Landing State Park in Perry County helps keep an eye on conditions on the Tennessee River while Rock Island State Park watches the Caney Fork, Collins, Calfkiller, and Rocky Rivers.

Fall Creek Falls State Park, the first Tennessee State Park to join the COOP program, tracks the weather like all the other parks to ensure their visitors have a safe and enjoyable time outdoors. This increased awareness of weather conditions gives the park managers more vital information to help keep Tennessee State Parks among the best in the country.

The data collected from Tennessee State Parks, along with all the sites in Tennessee, is sent to the local weather office then on to the National Climate Data Center in Asheville, North Carolina, where it is archived and published, then used for study of the climate here in Tennessee. This data is valuable to engineers, architects, planners, insurance adjusters, farmers, aviation interests, utility companies, state

and local highway departments, builders, water resource managers and anyone with an interest in weather. If you've ever bought a packet of seeds and checked the planting zones on the back, those zones are based on observations collected by COOP observers. Accurate weather information has approximately a \$4 trillion dollar impact on the U.S economy.

The official COOP program site locations are set up on a 25 square-mile grid, which leaves a lot of land and people between each site. After a disastrous flood occurred in Fort Collins, Colorado, that missed the official rain gauges, Nolan Doeskin, the Colorado state climatologist, developed a program that would help fill in the gaps between official measuring locations. CoCoRaHS was born. The idea was to recruit motivated individuals with a quality rain gauge to report the precipitation in their backyard.

CoCoRaHS came to Tennessee in April 2007, just in time to document one of the worst droughts in recent history. Tennesseans lived up to their heritage as the Volunteer State by stepping up and developing one the largest and most active CoCoRaHS programs in the United States. Tennessee was the first state in the Southeast to adopt the program and became the model for many other states to follow. Rain or shine, Tennessee CoCoRaHS reports average over 325 a day. Many observers haven't missed a report from the time they started. More observers are still needed to increase the observation resolution statewide.

Interested individuals are able to join the program by visiting the CoCoRaHS Web site www.cocorahs.org. You can sign up for the program and purchase a rain gauge for about \$30. After you receive the gauge, there is training on how to set up the gauge and make your reports on the Web site. Volunteers make daily reports by using the Web interface. Individuals can also access and view any of the observations made by CoCoRaHS observers across the country. The daily observation takes less than five minutes. Observers can also view their report, as well as every other report across the country, on the CoCoRaHS maps available on the Web site.

CoCoRaHS proved invaluable during the May flood in Middle Tennessee, allowing forecasters and hydrologists to have more observations at a higher resolution and to make better decisions. Many observers recorded 15 inches in three days and Camden 4.5NE reported almost 20 inches, more rainfall than was recorded in New Orleans during Hurricane Katrina! These observations have proven valuable many times, documenting the extent and severity of the 2007 drought, tracking tornadoes by delivering comments and significant weather reports from observers and tracking how much and the specific location of heavy snowfall.

Participants in CoCoRaHS range from members of the general public to those with a weather background in the military. One female CoCoRaHS observer was an Army Air Corps weather observer during World War II. Other observers come from many walks of life including farmers; retirees; home school students (one family has several gauges, one for each student); outdoor enthusiasts (hunters and fishermen, hikers and kayakers); emergency managers; and even National Weather Service employees. Observations are also taken at schools, utilities, and in state parks. It's not unusual when a group of CoCoRaHS observers get together to hear stories comparing rainfall totals and even wrangling for bragging rights. These public service minded Tennesseans represent almost all counties in Tennessee and every walk of life. It's easy to see how great the spirit is in the Volunteer State by looking at the national CoCoRaHS Web page. Very few states can match our numbers after a rainy day.

There still isn't much we can do about the weather, but thanks to the dedicated volunteers of the Cooperative Observer Program and the Community Collaborative Rain, Hail, and Snow network we are beginning to understand the daily and long term influence it has on all of our lives.

For more information about the Cooperative Observer Program, or to obtain climate data, visit the National Weather Service Web site www.weather.gov or the National Climatic Data Center Web site lwf.ncdc.noaa.gov.

To find out more about CoCoRaHS, visit the Web site www.cocorahs.org or contact the Tennessee state coordinator by e-mailing ralph.troutman@noaa.gov.

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