

USCRN Station Struck By Deadly Storm

During the early morning hours of July 24th, 2014, a weak low-pressure system approached the North Atlantic coastal region from the northwest (Fig 1a). This system combined with highly moist air already in place over much of the Virginias, causing pre-existing storms to intensify throughout the morning. Radar products reveal a severe thunderstorm along the Chesapeake Bay and Cape Charles, VA, shore (Fig 1b) at 8:31am, with a well-defined wind couplet tornado signature (Fig 1c). A deadly EF-1 tornado was spotted making landfall at the Cherrystone Family Camping & RV Resort resulting in 2 fatalities and 36 injuries.

A U.S. Climate Reference Network (USCRN) station located 4.7 miles east of the campground was impacted minutes later by the storm. The Cape Charles station endured sustained surface winds of 30 mph, with a 50 mph 10-second wind gust and record-setting precipitation rates. Over a 10-minute period, the USCRN station observed a total of 1.63" (41.4 mm) of rain, with 0.95" (24.17 mm) in the first five minutes, shattering the Network-wide previous 5- and 10-minute precipitation records (0.88" and 1.50" respectively) set last year at Sundance, WY (Fig 1d). According to the National Oceanic Atmospheric Administration (NOAA) precipitation frequency data, such precipitation rates for this location are a once-in-1000-year event! The USCRN's Cape Charles station did not escape unscathed: a hailstone is believed to have broken one of the sensors used to monitor atmospheric wetness.

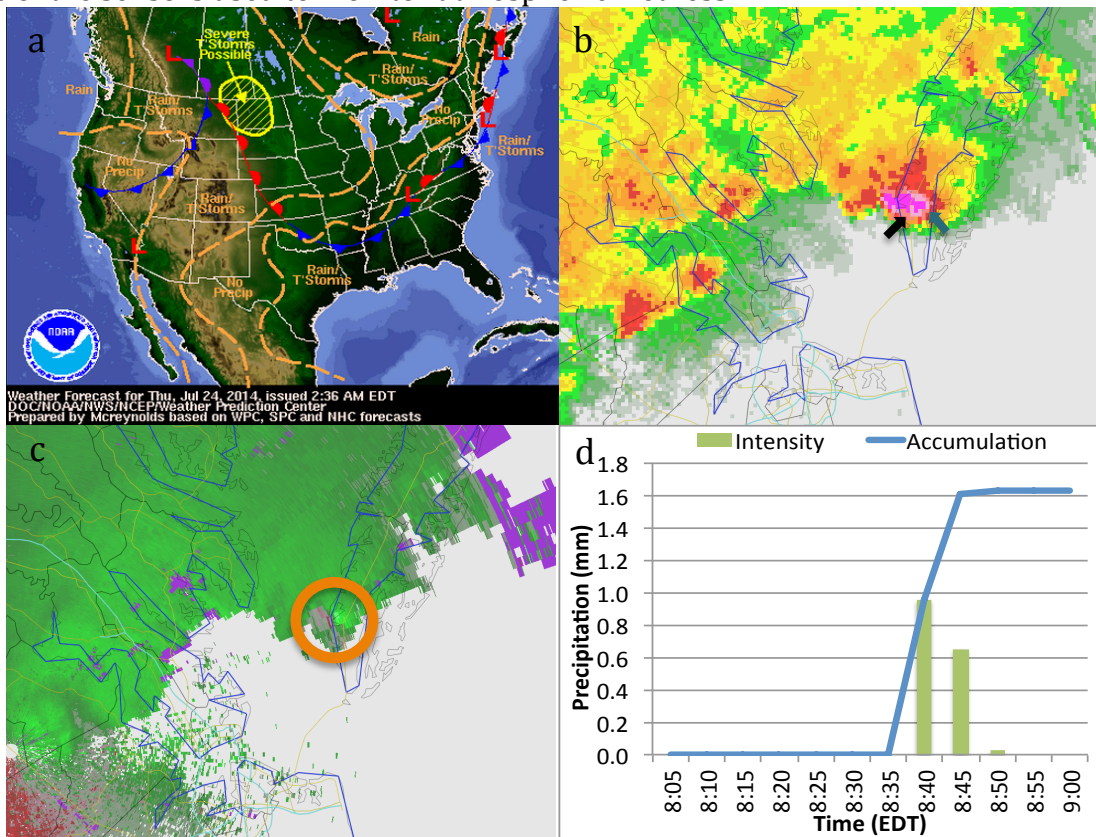


Figure 1, the synoptic setup (a) and radar reflectivity (b) showing the location of the campground (black arrow) and USCRN station (blue arrow), relative wind velocities (c) with tornadic couplet (orange circle) at 8:31 EDT, and USCRN observations of precipitation (d) for the deadly July 24th 2014 storm.