Aware

Harvey and Irma Tested New EAS Codes for Tropical Cyclones

*By **Tim Schott**, EAS Program Lead, NWS Disseminations Services, Silver Spring, MD*

The FCC Report and Order of July 2016 implemented three new Emergency Alert System (EAS) Event Codes for the tropical cyclone program. Broadcasters worked with their EAS equipment manufacturers over the past year to update their equipment to process the new codes.

After tremendous efforts by our NWS State Liaison Officers over the past 15 months, working closely with their respective state broadcasters' associations and state emergency committees, the public was notified via EAS activations for Hurricanes Harvey, Irma and other landfalling events along the Gulf and south Atlantic Coasts. For the first time, EAS sent out the new Storm Surge Warning Event Code, SSW, and Extreme Wind Warning Event Code, EWW. The FAA also approved a new Event Code for the Storm Surge Watch, SSA, however, most states are choosing not to implement this code yet.

These new watches and warnings are broadcast via NOAA Weather Radio All Hazards Specific Area Message Encoding (NWR SAME). When the power went out, NWR listeners remained informed of all weather and non-weather emergency (e.g., Civil Emergency) messages with their battery-powered NWR receivers. More information about these new codes is online.

Stay tuned for more NWR SAME and EAS service enhancements, as the NWS begins work towards a new Snow Squall Warning and short-fused Dust Storm Warning, both of which will be disseminated via NWR SAME and EAS.

As with the tropical event codes, State Liaison Officers are beginning a similar outreach and coordination effort with their state partners to ensure the code implementations are complete.

Mesonet Making a Big Impact on Weather Accuracy

*By **Rick Shanklin**, Warning Coordination Meteorologist, Paducah KY*

Mesonets serve as a valuable resource to collect weather, climate and water data. The Kentucky mesonet is a network of automated weather and climate stations and has become one of the nation's most comprehensive state mesonets. The mesonet's first station was connected in 2007 and now consists of 68 stations, primarily solar powered.

The stations collect and transmit the data wirelessly to Kentucky's Climate Center at Western Kentucky University in Bowling Green, KY. These stations fill in many of the gaps between the Automated Surface Observing System and Automated Weather Observation System stations across Kentucky. The mesonet provides high quality, near real time (5 minute data intervals), weather and climate data. Data provided by each

Calloway County, KY, mesonet

station consists of temperature, dew point temperature, solar radiation, wind speed and direction, precipitation and derived parameters. In addition, a growing number of stations report soil moisture and temperature at depths from 2 to 40 inches. The high quality, reliable data are used extensively by the NWS Kentucky offices to issue warnings in real time, prepare forecasts and provide climate services. The data is also used extensively by many other interests, including the agricultural and water management sectors, which use the data for immediate needs as well for its historical record and is stored by a data logger at each site.

The state Agricultural Development Board recently approved a $105,000 grant for Western Kentucky University's Research Foundation to fund software and instrumentation improvements to the mesonet.

Internal Assessment of Hurricane Matthew Now Available

*By **NWS Communications Staff**, Silver Spring, MD*

NWS has completed an internal review of agency services during last year's Hurricane Matthew, which left a trail of destruction from the Caribbean to Virginia from September 29 to October 9, 2016.
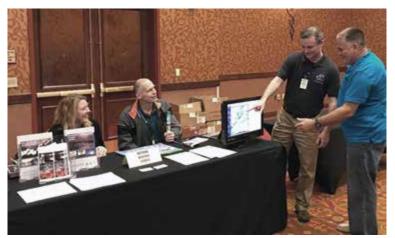
NWS routinely evaluates how our offices perform before and during weather events that cause significant impacts to help the agency improve its science and service to America. The ultimate goal is to better protect life and property and enhance the national economy.

The multi-disciplinary assessment team included experts from across NWS but outside the impact area to ensure impartiality of the review. While the team found areas for improvement, overall they determined that NWS staff members performed exceptionally and professionally throughout the event and provided tremendous service in the face of such a dangerous and historic situation.

Satellite view of Hurricane Matthew.

Emergency Management Conference Featured Special Guest Hurricane Harvey

From left, NWS Meteorologist Tabitha Clarke, Meteorologist in Charge Steve Drillette, and Warning Coordination Meteorologist Dennis Cavanaugh provided in person weather briefings for the remnants of Harvey during the AEMA conference.

*By **Dennis Cavanaugh**, WCM, NWS Little Rock AR*

From August 30 to September 1, meteorologists from NWS Little Rock took part in the Arkansas Emergency Management Conference. This year, NWS Little Rock hosted a booth at the conference where they provided weather briefings for impacts associated with the remnants of tropical cyclone Harvey.

When this massive storm finally left the coast, it moved across southeast Arkansas, just as the conference got underway. The NWS booth allowed attendees a one-stop shop for the latest information about Harvey and its associated short-term flash flooding and tornado threats. NWS staff stepped up to offer more than they originally planned. NWS Little Rock staff also

presented the Randolph County emergency management coordinator and the County Judge with Special Service Awards for their incredible response and recovery efforts during the significant flooding event of late April through early May of 2017.

Randolph County is home to the town of Pocahontas, the eastern half of which suffered significant flash flooding and inundation when a levee was breached along the Black River last May. The photo, right, shows major highways and hundreds of structures inundated with flood waters.

Although there were significant impacts to the community, there were no fatalities, despite the inundation of hundreds of homes and other structures. Randolph County officials frequently coordinated with meteorologists from the NWS offices in Little Rock and Memphis to help make the preparations and decisions. The coordination helped avoid loss of life in this record breaking flooding event.

An aerial view of the flooding in Randolph County, AR, May 3, 2017. Photo courtesy of Ryan Vaughan.

NWS Helps Before, During and After Hurricanes Harvey and Irma

The "postcard," left, shows the eye of Hurricane Harvey as seen from a NOAA hurricane hunter aircraft. Inset shows Flight Director Mike Holmes at his station onboard.

Data collected within the hurricane were a bedrock of NOAA's early, accurate predictions. Holmes and other pilots led nine missions to collect these data, which NOAA researchers, modelers and forecasters put to life-saving use. To observe track and intensity, crews flew through the eye many times. Forecasters received real-time data from dropsondes parachuting through Harvey, Doppler radar and other instruments.

Aerial images, right, shows Marathon, FL, before and after Hurricane Irma. Inset shows NOAA Lt. Commander Rebecca Waddington, who helped NOAA's National Geodetic Survey (NGS) collect this post hurricane image of Marathon, a 13-island community in the heart of the Florida Keys.

After Irma devastated Marathon, FEMA requested aerial images to help emergency teams assess damage, an almost incomprehensible feat from ground level. NGS now has over 10,000 aerial images to help speed recovery effort for these Florida communities.