Aware

Aware is published by NOAA's National Weather Service to enhance communications between NWS and the Emergency Management Community and other government and Private Sector Partners.

November 2016

FCC Approves Three New EAS Event Codes

By Tim Schott, NWS Dissemination Services; Jessica Schauer, NWS Tropical Cyclone Program Manager

The Federal Communications Commission added three new Event Codes to the Emergency Alert System (EAS) for the 2017 hurricane season. The new rules apply to EAS and NOAA Weather Radio (NWR). Two of the EAS codes correspond to a potential Storm Surge Watch/Warning; NWS is still developing and seeking comments on a Storm Surge Watch/Warning for operational use in 2017. A summary of the new codes follows.

- **Extreme Wind Warning (Event Code EWW)**: The EWW is an existing operational warning NWS uses for advance notice of sustained surface wind speeds of 115 mph or greater during major hurricanes. All NWS Gulf and East Coast Weather Forecast Offices (WFO) issue the EWW, including WFO San Juan and the following inland WFOs: Albany (NY), Atlanta (GA), Birmingham (NY), Blacksburg (VA), Columbia (SC), Fort Worth (TX), Greenville-Spartanburg (SC), Jackson (MS), Raleigh (NC), San Antonio (TX) and Shreveport (LA).
- **Storm Surge Watch (Event Code SSA)**: NWS may issue an SSA for the Gulf and East Coasts when life-threatening inundation from rising water moving inland is possible in the specified area, generally within 48 hours. WFOs could issue the SSA for tropical, subtropical or post-tropical cyclones. A WFO may issue the watch even earlier when conditions such as tropical storm-force winds might limit response time for evacuations or other action. A WFO may also issue the watch for locations that could be isolated by inundation in adjacent areas.

- **Storm Surge Warning (Event Code SSW)**: WFOs may issue an SSW for the Gulf and East Coasts when tropical inundation is more imminent, generally within 36 hours. NWS may issue a warning when other conditions, such as the onset of tropical storm-force winds, are expected to reduce the time available to evacuate or take other actions. Like the watch, NWS may issue the warning when an area could be isolated by inundation.

Impacts of the Changes

For NWR Listeners: For all three new codes, NWS receivers that provide a limited, caption-like message display will likely show "UNKNOWN WARNING" or "UNKNOWN WATCH." Receivers equipped with Specific Area Message Encoding (SAME) will activate with SAME alarm tones. Receivers equipped with the 1050 Hertz (Hz) Warning Alarm Tone (WAT) will activate a tone. The NWS Dissemination Team will work with receiver manufacturers to add the new codes to newly-manufactured NWR SAME receivers.

For the EAS: Beginning with the 2017 hurricane season, NWS will request an EAS activation using the EWW event code. If the NWS decides to make the SSW operational in 2017, the NWS will request EAS activation for the Storm Surge Warning. In most jurisdictions, the NWS will not request EAS activation for the Storm Surge Watch. WFOs are now reaching out to state and local Emergency Communications Committees, state and local EM agencies and broadcasters' associations for help implementing the new codes. To keep you updated about new EAS services planned for your area, your local WFO may issue Public Information Statements, update WFO web pages and air Public Service Announcements over NWR. These service changes will be further discussed at outreach events and with seasonal hurricane program briefings.

For Broadcasters and EAS Encoder/Decoder Equipment: The FCC's order does not require an upgrade of existing equipment already in use. The FCC "will allow EAS participants to upgrade their existing equipment to include the new event codes" on a voluntary basis; however, EAS equipment manufacturers are required to "make necessary software upgrades to EAS participants" by March 12, 2017. In most cases, broadcasters only need to obtain and implement the manufacturer provided software update.

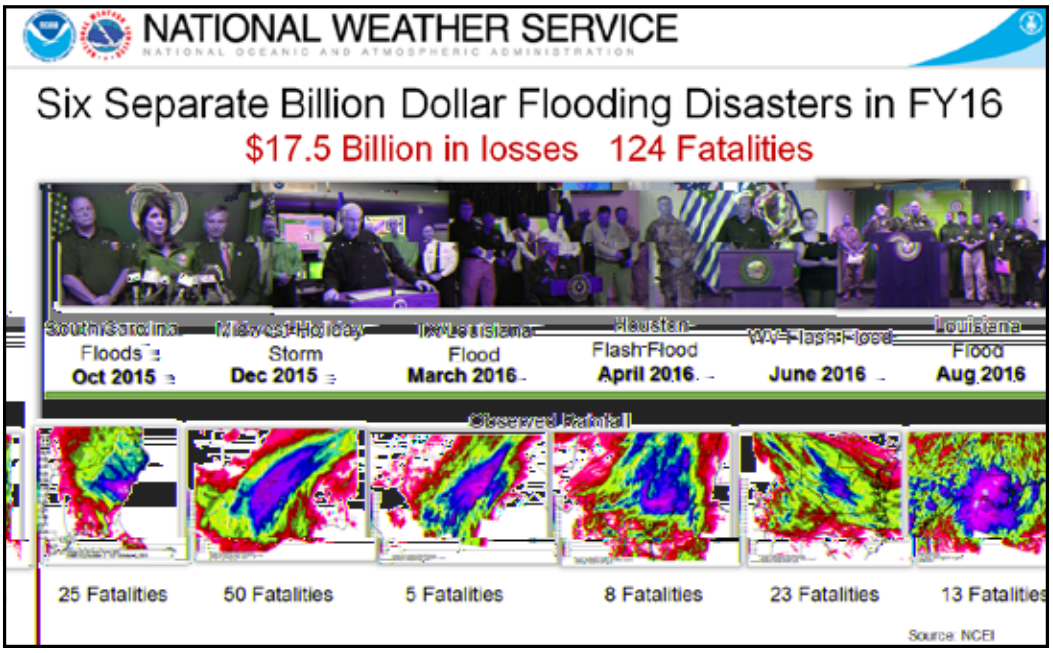
For more information, see the Weather-Ready Nation information factsheet summarizing these changes, and check the list of frequently asked questions.

Integrated Field Structure Faces Onslaught of Extreme Precipitation Events

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

In FY16, the nation was impacted by six separate billion dollar extreme rainfall and flooding events, resulting in $17.5 billion in damages and 124 fatalities. Hurricane Matthew adds to the total, representing the first of the new fiscal year. This past fiscal year was one of the wettest periods over the continental United States in recent history. The events demonstrated the nation's increasing vulnerability to extreme rainfall and subsequent flooding, especially as extreme events increase in frequency. Further, the nation's infrastructure (culverts, roads, etc.) is not built to this new normal, exacerbating impacts. In response, the NWS' integrated field structure is leveraging improved prediction of such events to mitigate loss of life and property.

By several traditional metrics, NWS has set a new standard for accuracy. For example, the Weather Prediction Center set a new precipitation accuracy record during FY16 with a threat score for 1-inch amounts of 35.8 (previous record of 34.9 was achieved in FY10).



Human forecasters improved upon the Global Forecast System by 40 percent. NWS Flash Flood Warning accuracy and lead time have exceeded goals, achieving an average lead time of 75 minutes and accuracy of 79 percent through July 2016.

In FY16, NWS formalized precipitation collaboration calls protocols to ensure all parts of the integrated field structure—from WFOs, RFCs, ROCs, NOC and NCEP—had a voice in the nation's precipitation forecast. Importantly, these protocols also ensured all parts of the field structure set a consistent IDSS message. The field structure used these protocols and executed more than 50 collaboration calls in FY16.

Accuracy and consistency are critical for a Weather-Ready Nation, but forecasts must also be communicated in a way to *motivate response.* In each disaster, the field structure executed unprecedented amounts of engagement with core partners to ensure communities were ready for the storm.

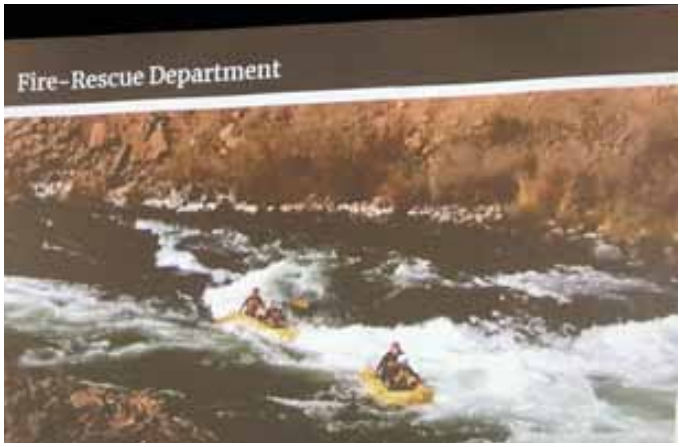
NWS has numerous initiatives in place to address the nation's extreme rainfall challenge, including developing

storm-scale ensembles, situational awareness displays, and enhanced visual collaboration tools, as well as establishing the National Water Model.

NWS tested many of these advances in the annual Flash Flood and Intense Rainfall Experiment and verified that no single tool or piece of guidance was a perfect solution to the flash flood problem. Rather, all tools, guidance, and applications should be used together by the forecaster to help determine the likelihood of flash flooding. As WPC Director Dr. David Novak put it, "If the past year is any indication, the nation will need to rely on the full suite of science and service advances more than ever."

Swiftwater Rescue Teams Integrate NWS Forecasts

*By **Alex Tardy**, WCM, NWS San Diego, CA*



San Diego area swiftwater team discusses field training in Oregon and local procedures.

Despite the continued drought in Southern California, residents are still at risk from sudden floods. To better prepare for sudden high intensity events, NWS San Diego took part in a swiftwater rescue planning meeting with coastal cities in San Diego County, the U.S. Border Patrol BORSTAR, and CalFire. The teams coordinate directly with NWS San Diego on potential rainfall totals and rates that can cause urban or rural flooding.

The team has responded to several high water rescues in the last few years, including December 3, 2014, and January 5, 2016. This team is one of eight qualified teams in California and 1 of 28 Type 1 teams in the United States. During the flash floods on January 5, 2016, seven units were engaged in activities in the county. The swiftwater team leader was in direct contact with NWS leading up to and during rain events for the latest on rainfall rates and amounts. These forecasts triggered levels of response among the swiftwater groups working directly in the Fire and Rescue departments in San Diego and nearby coastal cities.

NWS Hosts Special EM Gathering Site at CESA Conference

*By **Alex Tardy**, WCM, NWS San Diego, CA*

EMs from all parts of California met in San Diego for the annual California Emergency Services Association (CESA) conference. This 3-day conference includes an additional day for training.

NWS San Diego hosted a booth for EMs to gather and discuss weather hazards. NWS California Warning Coordination Meteorologists embraced the opportunity to collaborate on critical California-related topics such as the Heat Impact Levels and local policies.

NWS staff also attended presentations on the new California and USGS early warning system for earthquakes and the San Bernardino terrorism attacks.

EMs discuss leadership and outreach. Did you know 70 percent of emails go unread but 80 percent of SMS text messages are read.

Flood Commemoration Focuses on Future as Well as Past

*By **Sarah Corfidi**, Meteorologist, NWS Tulsa, OK*

Communication and technology have improved dramatically since the historic 1986 flood in the Tulsa, OK, area. An event remembering the anniversary focused on the past and on the need for people who live and work near the river to have a plan and be prepared when the Arkansas River floods again. On October 3, NWS Tulsa and the NWS Arkansas-Red Basin River Forecast Center, together with the city of Tulsa, U.S. Army Corps of Engineers Tulsa District, and U.S. Geological Survey, commemorated the 30th Anniversary.

The team installed a High Water Mark sign provided by WFO Tulsa at Cousins Park in Tulsa, where water was approximately 3.5 feet over the road.

The Arkansas River at Tulsa crested at 25.21 feet on October 5, 1986, causing flooding in Sand Springs, Tulsa, Jenks and Bixby. Thousands of properties were flooded, causing $63.5 million in damages in Tulsa County ($137.4 million in 2016 dollars) alone.

NWS Tulsa, OK, and ABRFC staff proudly display the newly installed High Water Mark sign, installed to prevent future loss of life during flood events.

Drill, Website, Game Teach Earthquake Safety

*By **Audrey Rubel**, Regional Communications Manager, NWS Alaska Region*

NWS Alaska staff across the state joined more than 120,000 Alaskans in the Great ShakeOut Earthquake Drill the morning of October 20. Heeding the advice EMs and preparedness experts agree is the best action to save lives during earthquakes, staff across the region practiced the "Drop, Cover and Hold On" technique at 10:20 a.m.

From left: Carven Scott, Director, NWS Alaska Region; Michael West, State Seismologist and Director of the Alaska Earthquake Information Center; Renee Tatusko, International and Arctic Policy Program Manager; Jeff Osiensky, Deputy Chief, Environmental and Scientific Services Division

The ShakeOut website explains that the main goal of the technique is to protect individuals from falling and flying debris and other non-structural hazards, and to increase their chance of surviving in the event of building collapse.

The website explains that trying to move during earthquake shaking is dangerous and people are much more likely to sustain injury from falling or flying objects than to die in a collapsed building.

At the Regional Office, Michael West, State Seismologist and Director of the Alaska Earthquake Information Center, discussed Alaska's future with the USArray, a dense, temporary network of instrumentation helping locate earthquakes and providing a possible early warning system.

WFO Juneau began with a morning briefing of the "Drop, Cover, and Hold On" procedure then sent a tweet at about 10 a.m. with text and graphics from the ShakeOut website showing how to participate. The ShakeOut's instructional 1-minute audio was played over the office's public address system during the drill.

Alaska is the most seismically active state in the nation, home of three of the seven largest earthquake events in the 20th century, including The Great M9.2 Alaska Earthquake and Tsunami of March 27, 1964. On January 24, 2016, a magnitude 7.1 earthquake shook the state. Movement of the Frontier Building in downtown Anchorage was captured in this video.

The Beat the Quake game is a great tool to learn how to secure items before an earthquake to minimize damage and injury. In closing, if you live in a seismically active area, please take the time to prepare for earthquakes and other disasters.

EMs Help Make Weather Radio Event Successful

*By **Vanessa Pearce**, Meteorological Intern, NWS Wichita, KS*

Brad Ketcham from NWS Wichita, KS, helps a shopper program a NOAA Weather Radio.

In coordination with KAKE media and the Midland Radio Corporation, the NWS offices in Dodge City and Wichita took part in weather radio programming events hosted mainly at grocery stores across Kansas. EMs helped make these events so successful by coming out and joining the NWS team to help attendees.

These events increase interest on the importance of weather radios and allow individuals to bring their newly purchased or already owned receivers to be programmed. The various types and older models of weather radios that were brought in were fascinating. One of the radios had a hand crank with a television.

According to Bruce Jones from the Midland Radio Corporation, one of the participating stores sold 2,500 radios this year alone in the 90-120 day run of the campaign.

Jones stated the past 8 years of this weather safety campaign has been responsible for putting at least 18,100 radios into use. These numbers represent only a portion of the impact. Many residents bring in their weather radios to make sure that they are functioning and programmed properly.

NWS participation offered a great opportunity to get to know our public and share what NWS does. It was also a great chance to strengthen relationships with partners in the weather enterprise.

Aware

NOAA's National Weather Service Analyze, Forecast and Support Office
Managing Editor: ***Melody Magnus,*** Editor: ***Donna Franklin, Nancy Lee***
Aware online: **www.weather.gov/os/Aware/** ISSN 1936-8178
Subscribe/Unsubscribe **www.weather.gov/os/Aware/awarelist.shtml**