Aware

Aware is published by NOAA's National Weather Service to enhance communications within the Agency and with the Emergency Management community.

October 2012

Pilot Projects To Empower Weather-Ready Nation

By Laura Furgione, Acting NWS Director

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In the year since NOAA launched the Weather-Ready Nation initiative, forecasters and emergency managers (EM) have faced some of the most extreme weather on record. Even now, much of the United States is in the worst drought since the 1950s; this year may be the warmest year on record for the country.

Despite these challenges, huge steps along the road to a Weather-Ready Nation have been made in partnership with the EM community and others.

Life-Saving Decision Support

A Weather-Ready Nation is empowered with the information they need, in the way they need it, to make fast, smart, life-saving decisions. This vision of empowerment is what fuels the six community-based pilot projects launched over the last year.

Pilot projects are now operational in Silver Spring, MD; Fort Worth, TX; Sterling, VA; Slidell, LA; Tampa Bay, FL; and Charleston, WV. These projects range in focus from emergency response to integrated environmental support services. The pilot projects help ensure these communities are as completely prepared before,during and after high-impact weather as possible. The projects share best practices and lessons learned with other NWS offices.

The EM community has always been a critical partner in saving lives and livelihoods. A Weather-Ready Nation is not possible without the EM community, which is why many of these pilot projects include a new type of forecaster called an Emergency Response Specialist (ERS). These specialists are the frontline communicators—taking the advanced, up-to-the-minute local NWS office's forecast information directly to key decision makers. Compliant with the National Incident Management System, an ERS deploys quickly to provide in-person, on-scene decision support during high-impact events.

NOAA also launched a demonstration of Impact-Based Warnings at five Midwest Weather Forecast Offices (WFO). These warnings included terms listeners can relate to something seen or heard about from prior high-impact events and thus better motivate people to seek shelter immediately.

Better Information for Better Decisions

Data flowing from a new generation of instruments onboard the Suomi NPP satellite, a joint NASA/NOAA mission, are being used in NOAA's global numerical weather forecast system a record 7 months after launch, nearly

Inside

three times faster than previous missions. This data will improve NOAA's weather prediction models for both short and long-term forecasts.

NOAA's nationwide implementation of dual-polarization radar technology is now more than half way to completion. Dual-pol provides weather forecasters with enhanced information to track and assess weather systems and warn EMs and the public. Americans benefit from the new technology almost immediately after installation.

The advanced computing and connectivity capabilities of smart phones and tablets puts relevant data from weather satellites, radars, and forecast models into the hands of nearly everyone in the country in a format easy to understand and share with others. Official weather warnings are now available via cell phones, Google Maps, and social media.

National Dialogue Underway

Building a Weather-Ready Nation started with internal actions at NOAA, but it requires the participation and commitment of the vast nationwide network of EMs and other partners.

The first in the series of National Dialogue events was held in Norman, OK, last December, where key actions were identified, ranging from stronger integration of social and physical sciences in the extreme weather forecast and warning process, to reduced false alarm rates, and an assessment and update of warning dissemination.

A follow-on workshop was held last April in Birmingham, AL. Weather-Ready Nation: Imperatives for Severe Weather Research brought together more than 60 participants including EMs, civil engineers, economists, psychologists, public health providers, and urban planners. Participants identified research recommendations in the areas of false alarms, misperception of forecasts and warnings, and other barriers to a Weather-Ready Nation.

The workshop identified the need for stronger integration of social and physical sciences. To that end, NOAA has awarded funding for four, 2-year research projects to better understand human behavior and affect decision-making during weather-related events. The projects will also help to better understand the formulation and communication of forecast uncertainty, or forecast confidence. The results of these studies will also benefit EMs.

A truly Weather-Ready Nation requires the action of each person and community. NOAA is calling on every individual to Be a Force of Nature when it comes to extreme weather. Just as one storm can devastate a community, one ready person can save a life.

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Decision Support

Two Votes for NWS in the 2012 Presidential Conventions

By Dan Noah, WCM, NWS Tampa Bay Area, FL; Tony Sturey, WCM, NWS Greenville-Spartanburg, SC

NWS took part in what might be considered the ultimate in Decision Support Services (DSS), the Republican and Democratic National Conventions, both impacted by Hurricane Isaac.

Hurricane operations are inherently challenging, but they take on a special meaning when the eyes of the nation are focused on a national political convention in the path of the storm. The National Hurricane Center (NHC) forecast on August 22 took Tropical Storm Isaac into the southern Florida Peninsula as a 90 mph hurricane on Monday, August 27, the first day of the Republican National Convention (RNC) in Tampa.

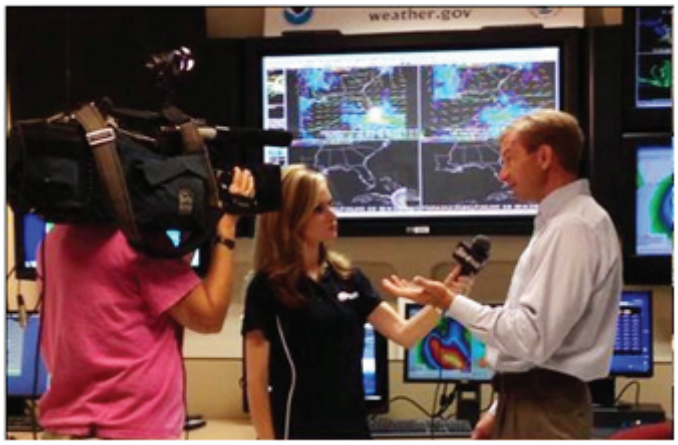
As a result of the approaching storm, NWS Tampa Bay provided 87 media interviews, 15 Webinar briefings, 42 stand-up briefings within the Emergency Operations Center and the Multi Agency Communications Center, 12 RNC top brass briefings and five RNC policy holder briefings. Based on NWS forecasts, RNC officials cancelled the first day of their convention. Although Isaac took a path further west away from Tampa's coast, rain bands produced gusty winds, flooding, and a waterspout that moved onshore within seven blocks of the RNC location.

WFO Greenville-Spartanburg (GSP) had primary weather support for the Democratic National Convention (DNC), and National Special Security Event (NSSE), held in Charlotte,

NC, in early September. The weather support plan evolved after numerous meetings and conference calls with federal, state and local agencies.

The event plan was crafted to design a robust and redundant support system while allowing a smooth and fast movement of information. NWS established forward DSS positions in Charlotte, to coordinate with remote NWS National Centers. Moisture associated with the remnants of Isaac played a key role in an active weather week during the event.

WFO staff conducted conference calls, formal briefings and incident catalogues at the Multi Agency Communications Center (MACC), informal one-on-one briefings, and media briefings. At the final MACC briefing, Derek Verdeyen, Assistant Director of the U.S. Secret Service Office of Protective Operations, singled-out the NWS for its outstanding efforts and support during the event. These accolades were intended for those who maintained primary interface and for the NWS team who played a role throughout the entire process.



Bipartisan agreement? Both the Republican and Democratic Conventions staff voted for NWS Decision Support Services. NWS Tampa Bay Meteorologist Rick Davis interviewed by local media at National Republican Convention.

Daily Decision Support and Situational Awareness: Online

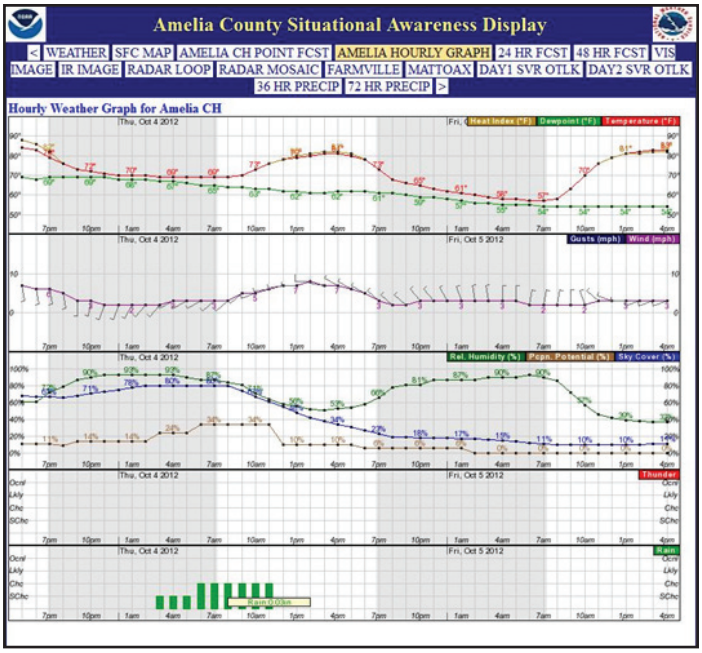
By Bill Sammler, WCM, NWS Wakefield, VA

The NWS has focused on DSS for high impact events for more than a decade. Life and property risk during these events clearly justifies an increased focus. But what about supporting DSS and situational awareness on a daily basis? Can the NWS more effectively leverage the resources available at the WFO level with those at the national centers and other NOAA line offices in a comprehensive, functional way?

Almost a decade ago, in an effort to address that question, WFO Wakefield, VA, like many WFOs, created an EM Web page as a one-stop shop for NWS products. This page has evolved into a comprehensive Briefing Web Page, which serves as a primary focal point for situational awareness and decision support to our EMs, media, government, private sector partners, and other users.

The Briefing Web Page has a different structure than most NWS Web pages. It's designed to be hazard oriented, reflecting the way EMs and other users operate. Several of the hazard specific tabs: Rain and Snow Forecasts, Severe Thunderstorms, Extended Forecasts and Drought, and Fire Weather combine forecast information from WFO Wakefield and the National Centers (Storm Prediction Center, Climate Prediction Center, etc.) into a single resource. In addition, the entire page is compatible with mobile devices.

More recently, during OpSail 2012, a massive sailing ship event, WFO staff experimented with an animated Situational Awareness Display based on a template developed by Center Weather Service Unit Cleveland. The OpSail 2012 SAD template is editable for any jurisdiction. WFO staff is working with Amelia County, VA, EMs staff to develop a similar display for the county. A sample Web page is online. We anticipate when it is finalized, many of our 66 localities will request this resource for use in their Emergency Operation Centers or 911 Centers.



Shown is a Situational Awareness Display (SAD) WFO Wakefield adapted for its new Website.

OpSail Parade of Sail, over 20 miles long with hundreds of vessels

The Situational Awareness Display page and Briefing Web Page require little routine maintenance and are available 24/7/365. The Web page offer the latest information generated by forecasters. Both these pages are easily adapted to changes in the seasons, data display, and new products.

For example, the National Ocean Service (NOS) changed it's daily tidal display in 2011 to one that includes a 2-day graph of astronomical tides. We leveraged that change to improve the existing astronomical tide display on our Tides and Coastal Flooding page. This page also integrates observations and forecasts from the NWS, NOS and external partner, in this case, the Virginia Institute for Marines Sciences.

NOAA and the NWS provide a plethora of valuable information. All this great data has not always been easy for users to find when they need it quickly. NWS has struggled to consolidate its critical information into a single, easy to navigate, and functional format. These two Websites are a step in that direction.

Disaster Preparedness

NWS Supports Unified Commands, Responds to Diesel Disaster

By Jeff Orrock, MIC, NWS Wakefield, VA

How does NWS respond to a naval invasion? What would NWS do if 200,000 gallons of diesel fuel from an underground pipeline was dumped into a local river or lake? WFO Wakefield, VA, worked closely with the U.S. Coast Guard (USCG) and local and state EMs to provide direct DSS for OpSail Norfolk 2012 in June and the James River Preparedness for Response Exercise Program (PREP) Exercise in September.

In June 2012, WFO Wakefield worked closely with the USCG to ensure OpSail 2012 went smoothly. The WFO staff provided iNWS marine alerts and twice daily marine briefings to the OpSail Unified Command. Briefings highlighted detailed hourly marine and land based conditions for the 5 days of the event. OpSail was the largest event of its kind, involving more than 50 vessels from foreign counties along with the U.S. Navy, USCG, and nearly a thousand private vessels. Captain Mark Ogle of the USCG Sector Hampton Roads commented, "Thank you for all your amazing support during this historic event. Your timely weather reports and alerts were useful during the Opsail 2012 meetings with the captains and all event planning meetings. With your help and support we were well prepared for any weather."

Site of PREP exercise in Newport, News, VA, courtesy David Weydert, USCG

On September 19, NWS Wakefield Forecaster **Jonathan McGee** took part in a full-scale PREP exercise sponsored by the USCG 5th District and Colonial Pipeline Company. More than 260 individuals from 30 different private companies, and local, state and federal agencies took part in the exercise, including NOAA's Office of Response and Restoration (OR&R). The exercise tested what these agencies would do if a major pipeline broke near a key water source.

The Wakefield NWS office provided on-site support for the exercise in the form of a real-time weather watch. McGee setup a mobile workstation in the Incident Command Post in Newport News, VA, using one of NWS Wakefield's decision support laptops. He provided an on-site weather briefing for vessel operators and captains before 7 am the morning of the exercise. The briefing advised vessel operators of current and expected weather conditions so they could make vital go/no-go decisions for their containment booming/clean-up practice runs on the James River. Small Craft Advisory conditions further down river, where seas become rougher in higher wind, forced several smaller vessels planning to travel via the river to the exercise to withdraw due to safety concerns.

Before the exercise, McGee worked for several months with exercise planners to develop realistic canned weather forecasts for the exercise plan, using climatological weather data and tide information. This information was used by OR&R to input into a specific model and simulate the diesel fuel's expected trajectory along the James River.

Both events demonstrated the critical role NWS can provide with DSS, and show the importance of effective communication.

Dissemination Updates

Wireless Emergency Alerts Saves Lives in New York Tornado

By Mike Gerber, NWS New and Emerging Technologies Meteorologist

Just 1 month after the NWS began pushing its most critical warnings to the new Wireless Emergency Alert (WEA) service, WEA is already being credited with saving lives.

At 4 pm on July 26, 2012, a tornado with 110 mph winds ripped a 10 mile path through the Elmira, NY, area. Four homes were completely destroyed and 16 were made uninhabitable by fallen trees. In total, about 2,000 structures sustained damage. Miraculously, however, no significant injuries were reported. Numerous residents credited WEA, saying they took shelter in their basement upon receiving the WEA message on their cell phone.

While WEA wasn't the only factor in saving lives, it greatly complemented traditional warning services. NWS Binghamton WCM **David Nicosia** commented, "Due to the preparedness, briefings, media coverage, WEA and a very proactive emergency management office, there were no injuries or deaths from this tornado.

Mike Smith, Chemung County, NY, EM Director, said "There were no deaths or injuries because of the early warnings and also people took the warnings seriously." Smith also credits the NWS StormReady program for ensuring the county was fully prepared for the tornado.

*WFO Binghamton MIC **Barbara Watson** is interviewed by WETM TV 18 after the Elmira, NY, tornado.*

New Atmospheric Sensing Network to Fill Radar Gap

By Ron Trumbla, NWS Southern Region Public Affairs Officer

Doppler radar is an essential tool for detecting precipitation, thunderstorms and other phenomena, but sometimes geography foils even this advanced technology. Distance, curvature of the Earth, and mountainous terrain limit the ability of NWS San Juan, P.R., to monitor the island's western region using Doppler radar. To solve the problem, NWS installed a new low-power, short-range radar network. This new TropiNet network, with three Collaborative Adaptive Sensing of the Atmosphere, (CASA) radar nodes, will improve flash flood detection and warnings.

Front row, from left: UPRM Professor José Colom Ustariz, Engineering Dean Jaime Seguel, Professor Sandra Cruz-Pol and Chancellor Jorge Rivera Santos cut ribbon as NWS Southern Region Dir. Bill Proenza and UPRM staff observe. (Photo: UPRM)

"This new network will certainly enhance our radar coverage across the western end of the island," said NWS Southern Region Regional Director **Bill Proenza**. "Not only will it help our meteorologists provide better short-term forecasts, it also will improve our understanding of the weather processes in this volatile region."

When completed, the CASA radar nodes will supplement the existing NWS NEXRAD radar, 64 miles away in Cayey, P.R. Located in a tropical region, Puerto Rico has varied and quickly changing weather. That variability, along with its mountainous topography, urban development, and torrential rains can result in life-threatening flash floods, mud slides, landslides, and other precipitation-related hazards in just a matter of minutes.

The new radar network will feature dual pol technology, which not only provides information on precipitation intensity and movement, but also adds information about the size and shape of airborne objects, enhancing estimates of how much rain is falling.

NWS installed the first TropiNET radar node in March. Site preparations continue for the rest of the network. The Puerto Rico network is part of a broad-based project to test the viability of CASA technology. Launched in 2003 with primary funding from a National Science Foundation grant, the project included a recently completed 5-year test in rural Oklahoma. Just launched is the next step, a 5-year study to test the CASA technology in an urban setting, the Dallas/Fort Worth Metroplex.

Forecast Database Adds Experimental 2.5km Spatial Resolution

*By **Melody Magnus**, Aware Managing Editor*

On August 28, the National Digital Forecast Database (NDFD) team released an experimental 2.5km spatial resolution for all forecast times. Users can access the experimental product in 1-hour resolution for the first 36 hours from the time it was issued. These products are the finest spatial and temporal resolutions in which WFOs in the Conterminous United States (CONUS) can provide forecasts.

Forecasts from NWS offices and National Centers using coarser resolutions will be mapped onto the finer resolution NDFD grid. This change will affect files containing data for the entire CONUS, but not Alaska, Hawaii, Guam, Puerto Rico and the Virgin Islands, or the 16 CONUS subsectors which will remain at their current operational resolutions. Specifications for **operational and experimental NDFD grids are online**.

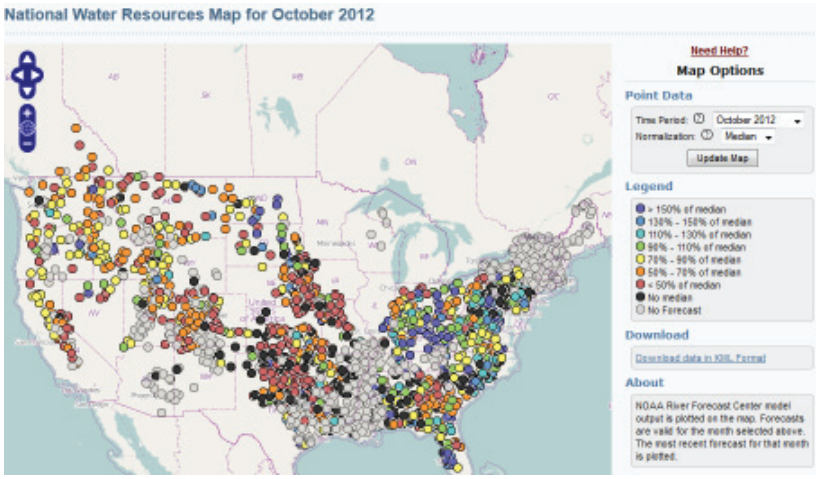
Flooding/Hydrology

NWS Testing National Water Resources Outlook Web Page

By Dan Matusiewicz, NWS Hydrologic Services

Through September 30, 2013, NWS is seeking user feedback on its Experimental National Water Resources Outlook Web Page. This proposed product provides a single Web page for displaying water resources information from all River Forecast Centers (RFC).

Water resources information includes expected streamflow conditions for the next 30, 60, and 90 days. A range of flows is provided for each time period. Forecasts of the most likely value are color coded according to percentage of normal streamflow. More specific information for individual forecast points is available by drilling down to points.



Experimental National Water Resources Outlook Web Page.

The site also provides gridded information such as soil moisture and snow water equivalent. Details are on the Website. Please provide feedback on this experimental product on our short survey form.

Western Region ROC Simplifies Job for California EMA

By Matt Ocana, NWS News Staff

During major weather events, EMs often receive too much information. That's why the California EMA, (Cal EMA) appreciates the organizational support of the NWS Western Region Regional Operations Center (WR ROC). Western Region established WR ROC in the summer of 2011 to provide online briefings for Cal EMA when NWS expects a major weather or water event to impact a large portion of the state. The Webinars typically include 30-40 other state and local agencies. WR ROC briefings give participants a coordinated, concise overview of weather events and possible major impacts.

"The statewide briefings from the NWS western regional operations center helps Cal EMA and other state and federal stakeholders get a quick and comprehensive overview of weather or flood events that may impact the state so that appropriate response measures can be coordinated," said California State Warning Center (CSWC) Manager Randy Schulley. "The briefings also help the CSWC relay important information to the Cal EMA secretary and executive staff and the Governor's Office when needed."

California is a geographically large and environmentally varied state with 35 million residents and the 8th largest economy in the world. The state is served by 10 NWS forecast offices, a potentially overwhelming number. With help from WR ROC, Cal EMA can focus its efforts on efficiently coordinating state and local event and impact

From top right: Matt Solum, Leslie Wanek, Roger Lamoni, and Jeff Zimmerman, Western Region Operations and Decision Support Division, give a briefing to Cal EMA.

information for its local partners and customers. WR ROC also gains by this partnership. Lessons learned help NWS develop best practices to use when briefing other partners.

NWS forecast offices serving California join the briefings so staff can answer questions requiring local expertise. NWS briefing participants often remain on the call after the NWS briefing portion so they understand mitigation measures state and local jurisdictions are taking in response to expected impacts.

WR ROC conducted the most recent briefings for Cal EMA officials in response to the state's concern about hot weather in early August. NWS forecast offices were issuing multiple Special Weather Statements, Excessive Heat products, Weather Story graphics and other decision support information the state wanted consolidated into a single briefing.

The WR ROC briefing prompted several city and county EMs to open overnight cooling centers. State officials reminded the broadcast media there were free, recorded, heat safety messages in several languages available for rebroadcast. Officials also reminded various industries of the requirements for cool drinking water and shaded rest breaks for employees working outside. On all calls, NWS advised agencies to contact their local NWS forecast office for help with event details and possible impacts.

Cal EMA and NWS consider the statewide high impact event briefings a success. If the expected El Niño brings the usual wet weather impacts to California this winter, the WR ROC may gain even more experience in providing these briefings.

Hurricane News

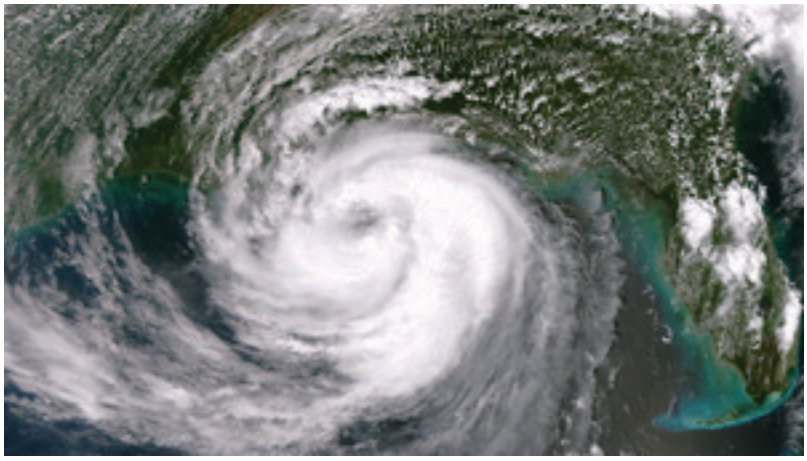
Hurricane Isaac Tests Effectiveness of NWS Services

By NWS News Staff, Silver Spring, MD

When a major hurricane, such as Isaac, threatens parts of the United States, NWS shifts into high gear. Here's a snap shot of the Hurricane Isaac mobilization:

- One forecaster from WFOs Corpus Christi, TX, and Birmingham, AL, and from Southern Region Headquarters was sent to WFO Tampa to ramp up staff. Two ERSs were deployed to staff a U.S. Secret Service Communications Center in Tampa for the Republican National Convention (RNC).
- All Florida WFOs and the NHC provided twice daily conference updates for state and local EMs, state meteorologists, the governor, and groups organizing the RNC.
- Starting August 24, NWS Key West, FL, provided round-the-clock briefings to municipal and Monroe County, FL, EMs. The office also provided daily email and Webinar updates to local, state, and federal partners; posted video briefings; and updated social media pages. The local cable television broadcasted hourly video on its tourism channel.
- Also on August 24, NWS Miami staff began offering daily media briefings and Webinars and provided on-site decision support services. Miami staff worked closely with the NHC to produce and update podcasts.
- WFO Tallahassee, FL, provided twice daily Webinar briefings to EMs in its area as early as August 23. The office emailed briefing packets to partners describing impacts throughout the event, and gave daily Webinar briefings for command staff at the U.S. Marine Corps Logistics Base in Albany, GA. They also conducted twice daily conference calls with Florida Region 2 EM directors, and daily briefings for the Alabama EMA.
- Using the NWS experimental short-term hydrologic ensembles Website, the Southeast RFC supported the twice daily calls and daily conference with FEMA headquarters, including potential river flooding from Isaac. The RFC issued numerous Hydrologic Vulnerability Assessments along the Gulf Coast.
- WFO Mobile, AL, conducted twice daily briefings. In addition, the WFO produced short-term graphicasts to help the public interpret the dangers shown on radar.

- WFOs in New Orleans, Lake Charles, and Shreveport, LA, conducted briefings for the USCG, U.S. Corps of Engineers, and other marine partners and EMs.
- The Lower Mississippi RFC and Center Weather Service Unit in Atlanta shifted to 24/7 operations during the event. The RFC provided daily briefings to FEMA. The CWSU provided additional airspace support.
- WFOs Atlanta; Birmingham, and Huntsville, AL; Jackson, MS; and Little Rock, AR briefed their EMs. The Atlanta office also worked with the Federal Aviation Administration. WFO Houston provided Webinars, email blasts, and multi-media presentations on the Web.
- The Hydrometeorological Prediction Center sent specialized quantitative precipitation forecast graphics for Isaac
- The NWS Storm Prediction Center issued products related to the threat for severe weather.



Hurricane Isaac approaches the Gulf Coast.

The use of social media as a tool to help the country become a Weather-Ready Nation has increased since Hurricane Katrina made landfall 7 years ago, and has made a major difference in how people prepare for severe weather. Facebook, Twitter, Webinars, Web pages, and mobile chat create ripples from the pebble in the pond that reach incredible distances and help influence people's actions, which ultimately save lives.

Media Campaign Helps Ensure Hurricane Readiness

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

NWS Texas Gulf Coast forecast offices were ready for an above average Atlantic hurricane season this year. Texas forecast offices, media partners, and the Insurance Council of Texas launched a week-long tour on August 31 to highlight the need for tropical storm and hurricane preparedness. Through dozens of radio, television, and newspaper interviews in English and Spanish, officials reached out to Texas coastal communities.

NWS staff from forecast offices in Houston/Galveston, Corpus Christi, and Brownsville/Rio Grande Valley reminded audiences of the power of hurricanes, the need for awareness and preparedness, where to find local information on the Internet and how to communicate with NWS via social media. Multiple media outlets provided a potential reach to millions of Texas residents.

"The media tour was a great way to reach a large audience with important and timely information on how to prepare for a hurricane landfall and to give them a better understanding of how to interpret hurricane forecasts and warnings," said WCM **Dan Reilly,** NWS Houston/Galveston, TX.

The arrival of Hurricane Isaac along the Louisiana coast in late August provided a dramatic backdrop for these efforts. NWS staff frequently discussed the array of hurricane hazards, limitations of the Saffir-Simpson Hurricane Wind Scale, and the outlook for the remainder of the 2012 hurricane season.

In the Texas Coastal Bend region near Corpus Christi, NWS Forecaster **Alina Nieves** took advantage of her Spanish language fluency to help the Spanish speaking community better understand the tropical

NWS staff from forecast offices in Houston/Galveston, Corpus Christi and Brownsville/Rio Grande Valley reminded audiences of the power of hurricanes, the need for awareness and preparedness, where to find local information on the Internet and how to communicate with NWS via social media. Shown is Brownsville Forecaster Maria Torres (center left).

cyclone threat. “It’s important to me because I am part of the Spanish speaking community and I want them to understand and respond to the threat posed by hurricanes,” said Nieves.

Further south, NWS Brownsville WCM **Barry Goldsmith** and Forecaster **Maria Torres** picked up the torch to crisscross the Rio Grande Valley, conducting dozens of additional interviews in English and Spanish. “The annual tour is another great example of the public/private partnership among the NWS, the Insurance Industry, and local media to remind residents that being prepared includes a family plan, survival kits, home protection, and peace of mind that comes from being fully covered by a variety of insurance policies,” noted Goldsmith.

Video Tutorial Helps Users Navigate Hurricane Impact Graphics

By Barry Goldsmith, WCM, NWS Brownsville/Rio Grande Valley

NWS made major changes to the Tropical Cyclone Impact Graphics (TCIG) this summer (see Summer Aware) to improve delivery of tropical cyclone hazard information during the 2012 Hurricane Season. The most significant changes were to the core Website and associated pages for each participating WFO. These changes included:

- A Google map for each hazard with zoom capability
- KML map files to download into Google Earth for uses such as mosaicking hazards across multiple WFO CWA/MAOR
- netCDF file download for external processing
- An Interactive Hurricane Local Statement reader for users who prefer to interrogate the hazards and associated text products on a separate page

Given the importance of TCIG for decision support well beyond the Saffir-Simpson Hurricane Wind Scale and the need to address many of the wholesale changes as the peak of the season approached, WFO Brownsville/Rio Grande Valley created a 13 minute virtual user’s guide, which the office posted to YouTube in mid-August. The guide uses a fictitious landfalling Category 4 hurricane to show viewers how to:

- Navigate the TCIG Web page view and manipulating the hazard map and potential impacts
- Download KML files into Google Earth
- Manipulate the file to include impact pop-up text windows
- Use the interactive HLS reader

WFO Brownsville/Rio Grande Valley first provided the tutorial to core partners and staff for feedback. After review, the tutorial link was posted on the WFO’s Facebook page for wider distribution. Following Hurricane Isaac, links to the guide were posted to various trusted weather related blogs, Facebook pages and groups. The tutorial serves as a basic tool to get people started with TCIG. NWS Brownsville staff may offer updated versions in the future.

NWS Office Supports *Operation Raging Winds*

By Jeff Garmon, WCM, NWS Mobile, AL

Does a county really know how ready it is for a disaster until one strikes? On September 19, Baldwin County EMA in Orange Beach, AL, did the next closest activity: a full scale exercise to test resources. WFO Mobile, AL, provided key decision support services for the exercise known as Operation Raging Winds.

The mission: test hurricane preparedness and rescue capabilities of a host of federal, state and local agencies. In addition to NWS, participants included Alabama state troopers and marine police, local and state EM personnel, local fire and rescue agencies, and Homeland Security staff.

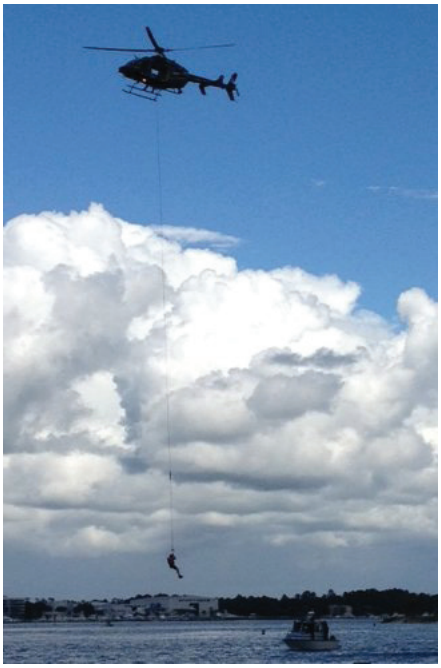
"The operation was a real time simulation which included active search and rescue in an area deemed to have been cut off by a natural disaster, such as a hurricane, where helicopter rescue was the only means of life-saving support," said Mobile MIC **Jeffrey Cupo**.

Mobile Senior Forecaster **Don Shepherd** and Meteorologist Intern **Morgan Barry** provided critical mission support with continuous on-site weather monitoring and frequent updates. Their briefings featured aviation and marine forecasting for helicopters and vessels involved in rescue operations.

The on-site team provided an morning weather briefing for participants, as well as numerous updates for operation commanders as needed throughout the exercise. They also conducted interviews with local news media concerning the NWS role in these types of events.

NWS is working with a vast network of partners to build a Weather-Ready Nation. This network includes other government agencies, EMs, researchers, the media, the insurance industry, non-profit organizations, the private sector and the academic community.

Through events like *Operation Raging Winds*, a series of symposiums and workshops, NOAA and the NWS are engaging these partners to assess how the nation can become less vulnerable to the impacts of extreme weather, which is increasing in frequency. Initial feedback from such events has identified some key action items to increase weather-readiness in the future. To learn more about other specific Weather-Ready Nation efforts and how the vision is taking shape, visit the Weather-Ready Nation Website.



Rescue during Raging Winds *exercise (Photo: WFO Mobile)*

Outreach Ideas

Young Meteorologist Program, a Free, Interactive, Online Game

By Melody Magnus, Aware Managing Editor

Hurricanes, tornadoes, floods, blizzards, and other severe weather take lives. Coming through unscathed requires education and preparation. In an effort to increase awareness of severe weather preparedness to children, PLAN!T NOW (P!N), has teamed up with the NWS, the American Meteorological Society (AMS) and the National Education Association (NEA) to produce The Young Meteorologist Program (YMP). The program is a free, online resource and computer game that educates and empowers children and adults about severe-weather science, weather awareness, and safety.

"We are so grateful to our partnering organizations for their help in creating and promoting YMP," says P!N Founder Donna Lee. "Together we can help create a Weather-Ready Nation."

YMP's centerpiece is an online game featuring a junior data collector for Owlie, a digital evolution of the NWS Owlie Skywarn cartoon. Owlie helps kids on their online severe weather preparedness adventure. Players encounter lightning, hurricanes, tornadoes, floods, and winter storms, all while learning severe weather science and safety.

Players who successfully complete the game earn a Young Meteorologist Certificate. The Website also provides players opportunities to put their knowledge to work by launching community service projects. Resources for educators, parents, and meteorologists to guide Young Meteorologists are also available.

"YMP offers a fun and interactive way to educate our youth about otherwise complex issues," says NWS Outreach Program Manager **Ron Gird**. "In fact, we find YMP helps children

retain the information and gets them excited enough to share what they have learned with friends and family, keeping everyone around them involved and safe."

YMP is already being incorporated into curriculums across the nation and is anticipated to reach 55 million kids by the end of 2012 through direct and partner-based outreach. From teachers and camp leaders to parents and youth volunteers, the possibilities to introduce YMP to kids are endless. In addition, NWS plans to use its 123 forecast offices to promote YMP even further. The NEA will engage its 3.2 million teachers; AMS plans to promote the program to its 14,000+ members.

"YMP is helping children stay safe during severe weather activity and enticing them towards careers in Science, Technology, Engineering, and Mathematics," says Gird. "It's a win-win for everyone."

Publications/Assessments

Assessment of Hurricane Irene Released

By Melody Magnus, Managing Editor

On October 5, NWS released its Service Assessment of Hurricane Irene, the devastating hurricane that stretched from the Caribbean to the Maritime Canadian provinces and as far west as the Catskill Mountains of New York. The storm, which struck in August 2011, claimed more than 40 lives, caused an estimated $6.5 billion in property damages, unleashed major flooding, downed trees and power lines, and forced road closures, evacuations, and major rescue efforts.

The storm produced widespread, devastating flooding in Vermont, New Hampshire, New York, and New Jersey, and damaging storm surge along the coasts of North Carolina and Connecticut.

Irene left 8 million people without power, some for as long as a week, resulted in the closure of several major airports, the suspension of Amtrak train service, and the historic closure of the New York City mass transit system.

Although the report found that EMs and other partners felt NWS performed strongly during this massive event, the release included 86 findings and recommendations. These recommendations are carefully tracked and followed by NWS management. You can download a free copy of the assessment from the NWS Service Assessment Website.

End of an Era for *Storm Data*'s Outstanding Storm of the Month

By Brent MacAloney, NWS Performance Branch

After more than 30 years, the Outstanding Storm of the Month (OSM) section of the *Storm Data* report will no longer be published. The decision was made to discontinue it effective November 2011 based on budgetary shortfalls and lack of OSM submissions.

Storm Data was first published in January 1959. The original publication was 8 pages, compare that to the April 2012 publication with more than 1,200 pages. In 1981, OSM became a regular part of the *Storm Data*. The addition came about during another budget crisis. At that time, in a cost cutting move, NOAA reluctantly decided to discontinue *Storm Data*. At

the 11th hour, Dr. Theodore Fujita swooped in to save the day.

In the July 1982 *Storm Data* announced: "*Storm Data, which had been slated to end with the June 1981 issue, is given a new lease on life in a revised and expanded format. Coordination among the National Climate Center, the National Weather Service, and Dr. T. Theodore Fujita, Professor of Meteorology at Chicago University and an acknowledged tornado authority, has made this possible.*" For the full story, see the Fall edition of the *Peak Performance* or contact **Alfreda Walters**.

Rip Currents

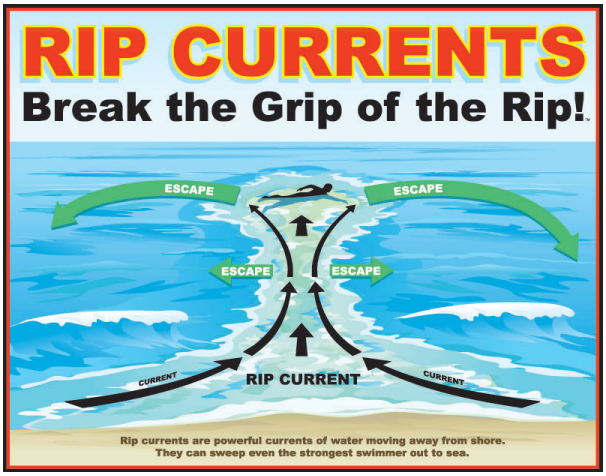
NWS Working with Lifeguards to Reduce Rip Current Risk

By NWS News Staff, Silver Spring, MD

WFO San Diego is taking rip current safety a step further by working with several lifeguard agencies in the areas it serves. The program, developed by the NWS Meteorological Development Laboratory, (MDL), is designed to reduce rip current hazards for beachgoers through improved situational awareness and forecasting.

Participating lifeguards issue reports either once or twice daily. The reports alert the NWS to rip current and surf conditions on the beach. The reports also relay beach characteristics such as tide state and swell direction, which may be different onshore than those relayed by offshore buoys.

These observations provide vital data that improves situational awareness at an NWS office. According to NWS Observing Program Leader **Noel Isla**, "Strong rips can occur at any time, even when surf heights are only in the 2-3 foot range."



This past May, a group of the WFO San Diego staff visited beaches along the Orange and San Diego County coasts. Lifeguards gave the forecasters details that will help improve forecasts, such as local problem areas for rip currents, the direction of swells that bring the highest surf and coastal flooding, and areas along the beach that may experience coastal flooding. The lifeguards also provided feedback on the effectiveness of NWS products and how they impact beach operations.

At NWS Headquarters, MDL staff are storing and evaluating the data sent by the lifeguards and comparing lifeguard reports to buoy observations and wave model data. These data may help MDL develop rip current forecast guidance tailored to individual beaches. Forecasters could use the guidance to improve accuracy in NWS rip current products.

A beach-by-beach approach is necessary due to unique physical features, such as shoreline angle, slope, and jetties and piers, which can greatly affect the generation of rip currents. In addition, changing near-shore bathymetry, which may not be immediately evident without on-site observation, contributes to rip current intensity in ways that standard weather prediction methods may not address. Bathymetry information must therefore also be taken into account when developing diagnostic and forecasting methods.

An additional benefit to collaborating with lifeguards is the promise of improved communication and partnership between the NWS and the various lifeguard agencies, an important part of the agency's goal to build a Weather-Ready Nation.

The rip current program has been expanded and now covers 15 beaches served by WFOs Melbourne, FL, Northern Indiana, Chicago, Wilmington, NC, New York City, and Jacksonville, FL.

The project's developers hope it will include additional beaches. "It would be great to see that a better surf and rip forecast product come to fruition from the cooperation and

relationships established between the lifeguards, our [office] and MDL," said WCM **Alex Tardy,** NWS San Diego. "I would like to see our surf product used as a vehicle to increase awareness and promote safety."

B. Chris Brewster, President of the United States Lifesaving Association, who collaborated with NOAA on rip current education through its Sea Grant program, has been a strong advocate for creating partnerships between forecasters and the rescuers who must respond to changing rip current dynamics. Brewster noted that there are more than 40,000 rescues from rip currents in Los Angeles, Orange, and San Diego Counties each year.

"Most people have little ability to identify rip currents or rip current intensity, so NWS advice can have far reaching consequences," Brewster said. "If there's a disconnect between prediction and reality, credibility may suffer and beachgoers may make poor decisions. Conversely, if we can work together to improve the quality of NWS rip reports, we may be able to enhance the safety of beachgoers and lifeguards may be able to rely more confidently on NWS predictions."

Partnership Results in New Beach Website

By Carol Christenson, WCM, NWS Duluth, MN

WFO Duluth, MN, WCM Carol Christianson explain beach warning flags to 6th graders during RiverQuest.

WFO Duluth, MN, has made some great friends and helped keep beachgoers safe along Duluth's 7-mile long Park Point Beach. Anyone making plans to head to the beach can now check the Park Point Website for the latest weather and rip current forecast, as well as water conditions.

This Website is the result of the Twin Ports Rip Current Working Group. This grass roots group consists of local, state, and federal agencies whose goals are to increase public safety. Members of the group include the NWS, Minnesota and Wisconsin Sea Grant, Duluth Parks and Recreation, Duluth Fire Department, the Northland Red Cross, and the YMCA. In the past few years, the group has been instrumental in educating the public on the dangers of rip currents and enacting a rip current warning system.

The new site went live in mid-July and has been a hit with local and out-of-town beachgoers who want to experience the "Greatest Lake." Local news media did an excellent job advertising the new Website.

In addition to the Website and rip current flag warning system, the group educates thousands of 6th graders annually on rip currents during a program known as River Quest aboard the Vista King vessel.

Finally, the group hosted the third annual Water Safety Expo last July. This year's expo was held at the Park Point Beach house in conjunction with the beach's sand modeling contest. The expo included the safety community, local hospitals, Coast Guard Auxiliary, Sea Grant, Red Cross, the University of Minnesota-Duluth, and the local Power Squadron.

StormReady

Linkin Park Rocks NWS StormReady Program

Courtesy Weather Decision Technologies, edited by Melody Magnus, Aware Managing Editor

The 2012 Linkin Park World Tour is the first concert tour to achieve the NWS StormReady supporter designation. Linkin Park, a Grammy Award-winning, multi-platinum alternative rock band, took the step in the aftermath of the weather-related tragedies that occurred

in the United States and the Netherlands in 2011. Linkin Park Production Manager Jim Digby contacted NWS and WeatherOps meteorologists to establish early warning systems and procedures that would help protect fans, band and crew in the event of severe weather during the current Honda Civic Tour, which features Linkin Park and Incubus.

The StormReady program recognizes organizations with superior communication and safety skills before, during, and after severe weather. The Linkin effort is supported by Weather Decision Technologies®, Inc. (WDT), the Event Safety Alliance corporate sponsor.

The StormReady program enhance's an organization's awareness, preparedness, response, recovery, emergency public notification, and public education related to hazardous weather events.

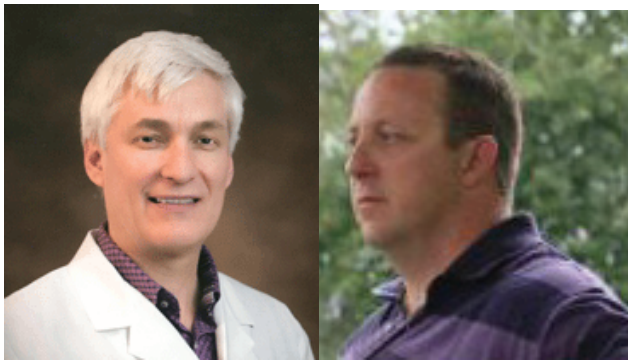
In the process it also enhances the overall EM plan, increasing the safety of individuals at all levels and phases of significant emergencies and disasters.

"It is vital to have an emergency preparedness plan in place when dealing with large venue events," says NWS Norman, OK, WCM **Rick Smith**. "Receiving the StormReady designation illustrates the concert tour's proactive approach to weather-related hazards. We have confidence that this accomplishment will establish a trend in the industry as a whole."

Two Forces of Nature Show Earn StormReady Hero Awards

By Tony Edwards, WCM, NWS Jackson, KY

On March 2, 2012, 18 tornadoes streaked through Kentucky, killing 24 people and injuring more than 200. One of the strongest and longest tracked tornadoes on that day affected the community of Salyersville in Magoffin County, KY. Before March 2, only one tornado on record had ever struck Magoffin County, a weak F-0 twister back in 2001. In the early evening hours of March 2, a tornado packing winds of up to 160 mph tore a path of up to ¾ of a mile wide through the town and across the county.



From left, StormReady Heroes Doc Hardin and Mike Wilson.

Magoffin County Judge Executive **Charles "Doc" Hardin** and County EM Director **Mike Wilson** were preparing to head north and help a neighboring county already impacted by the event. Then at 6:38 pm, NWS Jackson issued a Tornado Warning for Salyersville. This warning mentioned a tornado emergency.

Wilson received the warning information in a text alert from iNWS and then quickly notified Hardin of the threat. In response to this news, Hardin began traveling down U.S. Rte. 460 alerting patrons of businesses along the highway of the approaching tornado. Hardin was able to notify approximately 20 people in a McDonalds, who took shelter in the restaurant's cooler. He then notified 8 shoppers and employees in the nearby Mighty Mart Grocery Store, who also took shelter in a refrigerator. Hardin then went on to notify approximately 21 people in a food court and nearby Subway restaurant. Every one of these structures suffered major damage within minutes of Hardin's visit with windows blown out and walls collapsing. The Mighty Mart and Subway buildings were totally destroyed; the coolers where customers and staff took shelter were the only part of the structures to remain standing.

Shown at right are the remains of the Mighty Mart grocery store after a tornado tore through Saylersville, KY. Thanks to a warning by StormReady Hero Doc Hardin, staff and customers sheltered in the cooler room minutes before the tornado struck. The room was the only part of the store not destroyed by the EF-3 tornado.

Wilson arrived in town as the tornado was striking and had to pull into a parking lot along the highway as power poles fell nearby. Once the storm had passed, he and Hardin spent several hours digging through the rubble trying to rescue victims who were trapped.

Magoffin County was first designated as a StormReady County on December 1, 2005. As part of the recertification process earlier this year, NWS Jackson, KY, worked closely with Wilson. The severe weather procedures put in place through the StormReady process were used perfectly during the March 2 tornado. NWS recognized these exceptional efforts with the StormReady Community Hero Award, which recognizes individuals within a StormReady community who have gone above and beyond appropriate actions and taken proactive action to save lives and or property.

"The StormReady program made possible the effective communication which took place between the National Weather Service and Magoffin County Emergency Management leading up to and during the March 2 tornado outbreak. The actions taken by Doc and Mike after receiving word of the tornado's approach went above and beyond what anyone should expect of their elected officials and really put the StormReady concept into action. They truly are StormReady Community Heroes!"

Aware Survey Results Coming Soon

My thanks to everyone who responded to the survey I sent in September requesting your opinion on the length and frequency of future editions of *Aware*. NWS will review the votes and comments and decide how to proceed by the end of the year.

Melody Magnus, Managing Editor

Climate, Water and Weather Links

- National Weather Service Home Page
- Aviation Weather, Information and Resources
- Weather Safety and Awareness Brochures, Booklets, Posters
- Education and Outreach Videos, Multimedia and More
- NWS Local Office Key Contact List
- NOAA Weather Radio All-Hazards
- Past Weather and Climate from the National Climatic Data Center
- StormReady Home Page
- TsunamiReady Home Page
- Weather Fatality and Injury Statistics