

# Aware

Volume 4, October 2007

## Climate, Water, Weather

### Reaching Out to Our Emergency Management Partners

By Ken Graham, OCWWS Integrated Services Director  
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As I write this from the National Emergency Management Association (NEMA) conference in Oklahoma City, I reflect on some common themes from the state directors. The partnership between the emergency managers and NWS not only continues strong, but continues to grow.

With technology advancing at what seems the speed of light, availability of products containing weather information has grown exponentially. Emergency managers are receiving volumes of information on the Internet, ranging from traditional text products to impact hazard graphics.

In presentations and conversations here at NEMA, it is clear our partners need us to shift our emphasis from products to services. Our partners need products that tie a plethora of information together into a package they can easily use. Emergency Operation Center (EOC) support requires impact services that communicate climate, water and weather impacts from NWS offices, at the EOC or at the scene of the disaster.

Several state emergency management directors commented that they have plenty of information but lack the resources to better use that information. During numerous tornado and hurricane events, I have observed at EOCs and at press conferences that NWS partners need to know impacts so lifesaving decisions can be made.

Weather plays an important role for decision makers during all hazards, from mitigation, warning and response through recovery. NWS Incident Meteorologists (IMET) provide impact support for more than fires. IMETs supported decision makers following Hurricane Katrina and the Greensburg, KS, tornado. NWS staff provided critical weather support and Mississippi River flow forecasts following the recent Minneapolis bridge collapse.

NWS partners require probability and uncertainty information above and beyond traditional deterministic forecasts. Several NEMA members commented on the importance of geo-spatial compatibility and live interfaces with the NWS before, during and after a crisis. One state director asked for more NWS training on our probabilistic information.

From my time at NEMA, it is clear emergency managers require new levels of support for a myriad of disasters. How can the NWS keep up with technology and the requirements of partners? To take a step in the right direction, NWS will hold a series of focus groups to discuss known service requirements and determine new ones. NWS will hold the first focus group at the International Association of Emergency Managers conference in November. What a great opportunity to continue our interactions with emergency managers. ❄

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### Wind Gust Grid Becomes Newest Operational Forecast Element

By Andy Horvitz, Fire & Public Weather Services Branch  
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The Wind Gust element for the contiguous United States (CONUS), Puerto Rico, the Virgin Islands, Hawaii and Guam became operational in the National Digital Forecast Database (NDFD) on September 20. This is the 11<sup>th</sup> NDFD element NWS has transitioned from experimental to operational status.

The Wind Gust element will prove especially valuable during high impact events. NWS expects this element to be a vital tool during the remainder of the 2007 hurricane season and in the upcoming 2007-2008 winter season.

One product user recently noted, "I have made this my primary tool for gauging inland wind speeds. It's an excellent tool. Nothing compares."

Three of the original set of elements—quantitative precipitation forecast, snow amount, and sky cover—remain experimental. The NWS goal is to upgrade these elements to operational status during Fiscal Year 2008. Even before this milestone is reached, Digital Services staff members are working to improve forecast methodology, verification tools and digital service policy. For more information on NDFD, go to [www.weather.gov/ndfd/](http://www.weather.gov/ndfd/). \*

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### Twelve Experimental Climate Elements To Be Added To NDFD

By Myron Berger, NWS Climate Services  
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On October 18, NWS will add 12 climate outlook probability elements to the NDFD on an experimental basis. These elements will be generated by the NWS Climate Prediction Center (CPC). These elements are among the most requested CPC products and are the first climate forecasts incorporated into NDFD. The availability of these new elements in NDFD responds to a large and growing demand from the public and private sectors for climate forecasts.

NWS has made the following 12 climate outlook elements available for the CONUS, the 16 pre-defined NDFD CONUS subsectors and for Alaska:

- 8- to 14-day average temperature above normal
- 8- to 14-day average temperature below normal
- 8- to 14-day total precipitation above median
- 8- to 14-day total precipitation below median
- 1-month average temperature above normal
- 1-month average temperature below normal
- 1-month total precipitation above median
- 1-month total precipitation below median
- 3-month average temperature above normal\*
- 3-month average temperature below normal\*
- 3-month total precipitation above median\*
- 3-month total precipitation below median\*

\* Issued 13 times per cycle: for months 1-3, 2-4, 3-5, etc., to months 13-15.

## Aware

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For more information, go to: [products.weather.gov/detail.php?selrow=297](http://products.weather.gov/detail.php?selrow=297). NWS is seeking comments and feedback on these elements through February 18, 2008.

For instructions on how to submit comments, see Technical Information Notice 07-71 at: [www.weather.gov/os/notification/tin07-71ndfd\\_climate.txt](http://www.weather.gov/os/notification/tin07-71ndfd_climate.txt).

These new climate outlook probability elements will remain experimental until NWS has assessed feedback received during the comment period and completed a technical analysis. At that time, NWS will determine whether to move these experimental elements to operational status, to discontinue them, or to revise and retain them as experimental elements. \*

## Disaster Management

### NWS Helps Emergency Managers Prepare EAS Messages

By Vernon Preston, WCM, NWS Pocatello, ID  
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Critical time is saved in disaster situations if key personnel have Emergency Alert System (EAS) message templates.

I recently assisted emergency managers from the Magic Valley region of Idaho in a daylong exercise that included writing EAS messages. Coordinators met at the regional 911 dispatch center emergency operations center, reviewed various disaster concerns and wrote scripted EAS messages to better prepare before such a disaster event.

After the messages were crafted, 911 dispatch personnel conducted two tabletop exercise simulations that allowed emergency coordinators to practice using the new templates. Participants believed the exercise went very well and are planning to conduct a second round of exercises this winter. \*



From left, Emergency Managers Todd Jaynes, Lincoln County, ID, and Jackie Frey, Twin Falls County, ID, practice Emergency Alert System operations with regional 911 Dispatch Center personnel. NWS Pocatello WCM Vernon Preston (back center) assists during table top exercise.

### Vulnerable Populations as Planners, Planning For Vulnerable Populations

By Greg Gust, WCM, NWS Grand Forks, ND  
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School children are often included in the mix of those identified as “vulnerable” or “special needs” populations—those who may not be able to readily access or use the standard resources offered in disaster preparedness, relief and recovery operations. But 8<sup>th</sup> graders at Ben Franklin Junior High in Fargo, ND, are not only reducing their personal vulnerability, they are also hoping to offer some solutions when disaster next strikes their community.

About 120 students in the Ben Franklin Team 8-2 Survival Unit have been reading the novel, *The Girl Who Owned a City*, by O.T. Nelson. In the book, a virus sweeps the world and only those who haven’t reached puberty remain alive. All adults perish, forcing the children to start from scratch as they rebuild society, generate



power, provide fresh water, etc. For the September 17<sup>th</sup> Survival Unit kick off, Unit Instructor Rachel Ibes invited local disaster experts, including myself, to take part in a panel discussion with the students. I teamed with an emergency manager, public health specialist, disaster relief agency representative and a university disaster researcher to motivate the students. I contributed stories of some of the real weather disasters Fargo has experienced.

The panel members will return to judge the finished student projects during the school's first ever Preparedness Fair later in the month.

### So What's in Your Toolbox?

Students at Ben Franklin weren't the only Fargo residents taking part in activities for National Preparedness Month. On September 27<sup>th</sup>, The City of Fargo and Fargo/Cass County Public Health sponsored a **Community Toolbox for Emergency Preparedness**. The FargoDome

Event Center was home field for the numerous area first responder groups, disaster relief agencies, vendors and others who are so often linked together in the chain of local disaster response and recovery.

NWS Grand Forks, ND, staffed a booth on the stadium field which featured Fargo's recently achieved StormReady status and demonstrated various NOAA Weather Radio All Hazards receivers. Grand Forks staff stuffed more than 1,200 individual "Preparedness Toolboxes" during the event.

I also served as one of the featured speakers during the FargoDome event. Kym Overland, Fargo Cass Public Health Emergency Preparedness & Response Coordinator, knew that folks in the community were quite eager to hear about the August 26 devastating Northwood, ND, EF4 Tornado. After hearing my previous presentation on the tornado during the North Dakota Emergency Management Association (ND EMA) Fall Conference, Kym and Fargo Police Lieutenant Gene Anderson made it a point to advertise the Community

Toolbox for Emergency Preparedness event by going door-to-door in some of the most vulnerable parts of the city—mobile home parks.

### Media and Community Awareness/Response Go Hand-in-Hand

Numerous commercial media spots leading up to Fargo's "Toolbox" event helped generate interest in individual preparedness activities and may have also helped to keep the current disaster recovery efforts in Northwood, ND, on a fast track.

At the ND EMA Fall Conference, Bonnie Turner, president of the North Dakota Volunteer Organizations Active in Disasters, remarked how the persistent media attention on Northwood's recovery efforts, especially in larger communities like Grand Forks and Fargo, was also keeping the needed resources of personnel, materials and money flowing to that community.

As Bonnie noted, "Both Grand Forks and Fargo had recently commemorated their own historic and devastating disasters, floods [1997] and tornadoes [Fargo, 1957], making it easier for individuals in those communities to understand and respond to the needs of their struggling neighbors."



*Young Disaster Researchers in Fargo, ND, plan their community response needs as part of their Survival Unit.*

### NOAA Weather Radio Audio Available Through the Internet

By Art Kraus, OCWWS Dissemination Services Meteorologist  
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As the number of on-the-air NOAA Weather Radio (NWR) transmitters approaches 1000, more of them (as well as the audio files that are broadcast over them) are becoming available through the Internet.

There are two kinds of NWR audio available: “live streaming audio” and “downloadable audio files,” which includes podcasts.

#### Live Streaming Audio

At the present time, NWS offices are not hosting live streaming audio, but many third parties have stepped in to do it for us. FCC regulations allow NWR signals to be rebroadcast. In fact, many broadcast and cable television stations have aired NWR over their second audio or local weather channels for years. There are currently more than 140 different transmitters available “live” over the Internet, some through multiple feeds. The streams originate through universities, media and other private companies, and through individuals who capture our signal through their receiver and rebroadcast it through their own Website or through an audio aggregator such as Weather Underground. (Weather Underground started their Weather Radio Streaming Project in fall 2006.)

Some of the streams have been active for years, while others come and go quickly. The NWS streaming audio Website at [www.weather.gov/nwr/streamaudio.htm](http://www.weather.gov/nwr/streamaudio.htm) is updated every few weeks.

Streaming audio is one of the functional requirements included in the NWS Weather Radio Improvement Program (WRIP). Depending on the final architecture of the WRIP, some or all of our transmitters may be available “live” over the Internet hosted by NWS.

#### Downloadable Audio Files, Podcasts

A few dozen NWS offices are uploading audio files of Weather Radio messages to their Websites, either as mp3 files or as podcasts. The podcasts are covered in a recent Product Description Document (PDD) entitled “Experimental Weather, Water and Climate Information Podcasts,” available at [products.weather.gov/viewliste.php](http://products.weather.gov/viewliste.php). The PDD will be updated soon to extend the feedback period.

The audio files available vary by site, but typically contain routine messages such as forecasts, hourly weather roundups and climate summaries. Because of timeliness issues, event-driven messages such as watches and warnings normally are not included. Those sites with Really Simple Syndication (RSS) feeds or audio podcasts are labeled as such.

For the list of downloadable audio sites, go to [www.weather.gov/nwr/streamaudio-d.htm](http://www.weather.gov/nwr/streamaudio-d.htm). NWS expects to add more downloadable audio sites in the coming months. In addition, NWS Eastern Region is working on an “NWR on the Web” project to make content from all of their transmitters available online. ❄





NWS Tallahassee, FL, WCM Bob Goree programs weather radios and answers questions at a Harveys grocery store. Local TV station, WALB, was on hand to film the event for the evening news.

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## NWS Partners with Media and Grocers to Promote Weather Radio

By Bob Goree, WCM, NWS Tallahassee, FL  
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In late August, I took part in an NWR promotional event in Albany, GA, jointly cosponsored by local TV station WALB and Harveys Supermarkets. The public was invited to bring their NWR receivers into the Harveys stores to be programmed by WALB personnel, volunteers from the Albany Amateur Radio Club and myself.

NWR receivers were also for sale in the grocery stores, where over a hundred radios were sold and programmed.

The event garnered live coverage and an interview on the 6 o'clock news by WALB-TV meteorologists. ✨

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## Florida Congresswomen Brown-Waite Campaigns For NOAA Weather Radio

By Daniel Noah, WCM, WFO Tampa Bay Area, FL  
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On September 9, Florida Congresswoman Ginny Brown-Waite organized Natural Disaster Preparation and Awareness Workshops in Brooksville and Land O'Lakes, FL. The program emphasized how to program NWR receivers. At the conferences, I spoke on the need to program the radios correctly. Florida has 31 weather radio transmitters, so it is easy to program a radio with an incorrect frequency or input the wrong SAME code.

The 235 attendees were asked to bring their weather radios with them so a team of Citizen Emergency Response Team volunteers and myself could ensure the radios were programmed correctly. ✨



U.S. Rep. Ginny Brown-Waite helped organize Disaster Preparation and Awareness Workshops that stressed the need for NOAA Weather Radios.

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## HazCollect in Fine-Tuning; To Be Fully Available in Winter

By Herb White, NWS Dissemination Services Manager, [Herbert.White@noaa.gov](mailto:Herbert.White@noaa.gov)  
Steven Schofield, SAIC, [Steven.Schofield@noaa.gov](mailto:Steven.Schofield@noaa.gov)

NWS expects HazCollect to be available nationwide this winter. Users can access it through the Disaster Management Interoperability Services (DMIS) Toolkit and DM Open Platform for Emergency Networks (OPEN) Applications Program Interface (API). Will Fellows has been named the new HazCollect Project Manager with support from Steve Schofield, SAIC. The NWS

and Department of Homeland Security (DHS) are now working through program management responsibility transfer and IT consolidation issues. Due to a number of physical hardware moves and resulting communications and staff changes, the prudent course of action was to delay making HazCollect fully available. The team also is addressing concerns expressed by NWS management before the system is fully deployed, including policy issues and resolution of Test Trouble Reports.



NWS is working with DHS to demonstrate the HazCollect API necessary for Commercial Off-the-Shelf and Government Off-the-Shelf systems to interface with DM OPEN. To send Non-Weather Emergency Messages through HazCollect and other NWS systems, government and commercial incident management applications must interface with DM OPEN and be Common Alerting Protocol enabled (CAP).

DM OPEN enables secure data exchange for sharing emergency alerts or incident-related information through the use of standards-based messages. There is no charge for the use of these federal government interfaces.

Emergency managers can learn more about DMIS and DM OPEN by going to the DMI Website at [www.dmi.services.org/](http://www.dmi.services.org/). Information on the DM OPEN Special Interest Group is online at [www.emforum.org/OPEN/](http://www.emforum.org/OPEN/). NWS will update the Hazcollect Website in early 2008 with information on how to register for HazCollect at [www.weather.gov/os/hazcollect/](http://www.weather.gov/os/hazcollect/). ❄

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## Call-to-Action Markers Proposed For Watch/Warning/Advisory/Statement Products

By Herb White, NWS Dissemination Services Manager  
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The NWS CAP enhancement Integrated Working Team (IWT) has proposed the addition of Instruction Field “markers” into WMO-formatted text Watch/Warning/Advisory/Statement products generated by the NWS Advanced Weather Interactive Processing System (AWIPS). The change will provide markers to CAP file production software to delineate the “Instruction” or Call-to-Action statement. These statements will populate the Instruction element in the CAP/XML file. Current software cannot parse the CAP “Instruction” element from existing WMO-formatted text products. The change also should improve response to weather watches, warnings and advisories by highlighting the Call-to-Action portion of the messages.

The change also should improve response to weather watches, warnings and advisories by highlighting the Call-to-Action portion of the messages. NWS plans to request comments on the proposal later this year.

The Instruction Field markers (highlighted in red) will be inserted into the WMO-formatted text product output automatically by AWIPS product generation software applications, left justified with no other printable characters on the same line as the markers:

```
(blank line)
<INSTRUCTION>
(text of call-to-action, instructions, etc.)
</END INSTRUCTION>
(blank line)
```

The Instruction Field and associated markers will be inserted either into each product segment or only in the Overview/Synopsis section of the product. It will not be inserted in both places in the same WMO-formatted text product. Key NWS headquarters and regional staff as well as NWS partners worked with the CAP IWT.

In September, NWS sent a change request to the Marine Weather Warning (MWW) product developer to insert the Instruction Field markers into the experimental MWW product. This change to the MWW product offers NWS and its users and partners an excellent prototyping and risk reduction opportunity. NWS plans to request comments on the proposal later this year. Barring significant problems, NWS plans to implement the Instruction Field Markers in WMO-formatted Watch/Warning/Advisory/Statement products in the fall of 2008.

#### Sample View

WWUS53 KDDC 050242  
SVSDDC

SEVERE WEATHER STATEMENT  
NATIONAL WEATHER SERVICE DODGE CITY KS  
941 PM CDT FRI MAY 4 2007

KSC097-050300-  
/O.CON.KDDC.TO.W.0025.000000T0000Z-070505T0300Z/  
KIOWA KS-  
941 PM CDT FRI MAY 4 2007

...A TORNADO WARNING REMAINS IN EFFECT UNTIL 1000 PM CDT FOR CENTRAL  
KIOWA COUNTY...

...A TORNADO EMERGENCY FOR GREENSBURG....

AT 937 PM CDT...NATIONAL WEATHER SERVICE METEOROLOGISTS AND STORM  
SPOTTERS WERE TRACKING A LARGE AND EXTREMELY DANGEROUS TORNADO. THIS  
TORNADO WAS LOCATED 5 MILES SOUTH OF GREENSBURG...MOVING NORTH AT 20  
MPH.

<INSTRUCTION>  
A VIOLENT TORNADO WAS ON A DIRECT PATH FOR PORTIONS OF GREENSBURG...  
ESPECIALLY THE EASTERN PORTIONS OF TOWN. TAKE IMMEDIATE TORNADO  
PRECAUTIONS...THIS IS AN EMERGENCY SITUATION FOR GREENSBURG.  
</END INSTRUCTION>

A TORNADO WATCH REMAINS IN EFFECT UNTIL 200 AM CDT SATURDAY MORNING  
FOR SOUTHWESTERN KANSAS.

LAT...LON 3749 9936 3745 9929 3760 9901 3764 9936

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## Advisory Committee Targets Improved Emergency Communication

By Herb White, NWS Dissemination Services Manager  
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On October 3, the Commercial Mobile Services Alert Advisory Committee (CMSAAC) formally adopted its recommendations for Commercial Mobile Alert Service Architecture and Requirements. The committee struggled with several amendments for a few hours at its final meeting before accepting the 109 page recommendation document.

CMSAAC addressed the future distribution of emergency alerts via cellular phones, pagers and other electronic devices. NWS, as a CMSAAC member, briefed the committee's working groups on NWS alert and warning responsibilities, functions and activities. NWS also helped draft the recommendations that relate to improving dissemination of emergency warnings and the public's response to those warnings.

CMSAAC's mission was to develop recommendations on technical standards and protocols that help commercial mobile service (CMS) providers voluntarily transmit emergency alerts to their subscribers. The Warning, Alert and Response Network Act (WARN Act enacted on October 13, 2006), required the Committee to submit recommendations to the FCC no later than October 12, 2007.

The FCC will consider the recommendations for a commercial mobile services Report and Order as early as spring 2008. Setting industry standards and developing, testing and deploying the infrastructure is expected to be a 3-year project, culminating in late 2010. ✱

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## EMWIN Helps Belize Respond to Hurricane Felix; Testing Update

By Bill Johnson, NWS Office of the Chief Information Officer  
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For the first time, emergency personnel in the Central American country of Belize used hurricane tracking and advisories transmitted on the Emergency Managers Weather Information Network (EMWIN) to coordinate their response during Hurricane Felix. Fortunately, the hurricane spared the country a direct hit. Belize only recently received its EMWIN system and training when the country's representatives completed Phase 2 of the EMWIN Caribbean training last July.

This training was part of the Third Border Initiative (TBI) through which NWS hosted a training workshop at the NWS Headquarters. The goal of this collaborative effort between the NWS Office of the Chief Information Officer and NWS International Activities Office was to help participating countries to more effectively protect lives and property of their citizens.

The U.S. Department of State provided funding for the training and donated the EMWIN receivers to the Caribbean nations. To date, 13 Caribbean nations have been trained and received EMWIN systems: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, Bahamas, Belize, Jamaica, the Dominican Republic, Haiti, Guyana, Suriname, Trinidad and Tobago.

Also over the summer, NWS brought GOES 13 (formerly GOES-N) out of storage for a 30-day test period that began on July 17. The GOES 13 test period and the ongoing GOES 10 EMWIN-N test broadcast offered vendors an opportunity to trial their systems. Vendors will be able to access the GOES 10 broadcast until at least November and likely for 6 months after that. The EMWIN Website offers details about how to acquire the GOES 10 broadcast. Several vendors have indicated they are working on EMWIN-N receiver equipment. The availability of this signal should aid the development process. To keep abreast of EMWIN news and activities, go to: [www.weather.gov/emwin/index.htm](http://www.weather.gov/emwin/index.htm). ✱



GOES Satellite

## Fire Weather

### NWS Joins Team to Assess Risks After Wildland Fires

By Vernon Preston, WCM, NWS Pocatello, ID  
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Now that the flames from the Castle Rock fire surrounding the mountain resort town of Ketchum, ID, have subsided, the threat of flash flooding and debris flows are taking center stage. Sherrie Hebert, Pocatello WFO Service Hydrologist, joined a Burn Area Emergency Response (BAER) Team to assess the flash flood and debris flow potential in the burn area, which consisted of more than 48,000 acres.

Sherrie arrived at the Castle Rock incident command post on August 31, and by that afternoon, was assisting the BAER Team inside the burn area. The crew spent 2 days primarily conducting water repellency tests and collecting Global Positioning System data and photographs of the more intensely burned areas. The following days were spent analyzing data and determining the high, moderate and low flash flood and debris flow risks. The team then presented its findings to Kurt Nelson, Sawtooth National Forest Superintendent, and Larry Schoen, Blaine County Commissioner.

Pocatello WFO weather forecasters also were briefed on the findings. The timing was fortunate because 2 days later, flash flooding caused three mud slides in high-risk areas. The flooding occurred on an extremely active weather day: the NWS Pocatello staff issue a flood warning with 2 hours of lead time and issued a tornado warning for southeastern Idaho with a 10-minute lead time.

On September 13, the BAER Team presented its findings and foundation for the development of an Early Flood Warning System (EFWS) to city and county commissioners and the public. More than 50 citizens attended, many of whom expressed interest in becoming weather spotters.

The Pocatello WFO will continue to work with the Castle Rock Fire BAER Team as an integral part of the EFWS. In addition to providing forecast and warning services for the area, a primary objective is providing input on where to locate two Remote Automated Weather Stations (RAWS) sites for high-risk flood areas. RAWS sends alerts to local 911 dispatch offices when the system detects specific precipitation rates.

Sherrie's BAER Team involvement may also be the initial step in making the NWS a permanent member of future teams. The office plans to train more Western Region Service Hydrologists for BAER Team participation. ✨



*Sherrie Hebert, Pocatello Service Hydrologist, and Kim Pierson, Sawtooth National Forest Botanist, take a breather while performing a flash flood and debris flow risk assessment after the recent Castle Rock fire in Ketchum, ID. Remarkably, the Sun Valley ski area, in the background, and all structures were spared from the fire.*

# Flood Awareness/Hydrology

## Visual Flood Hazard Graphics Soon To Be Available

By Glenn Austin, OCWS Chief,  
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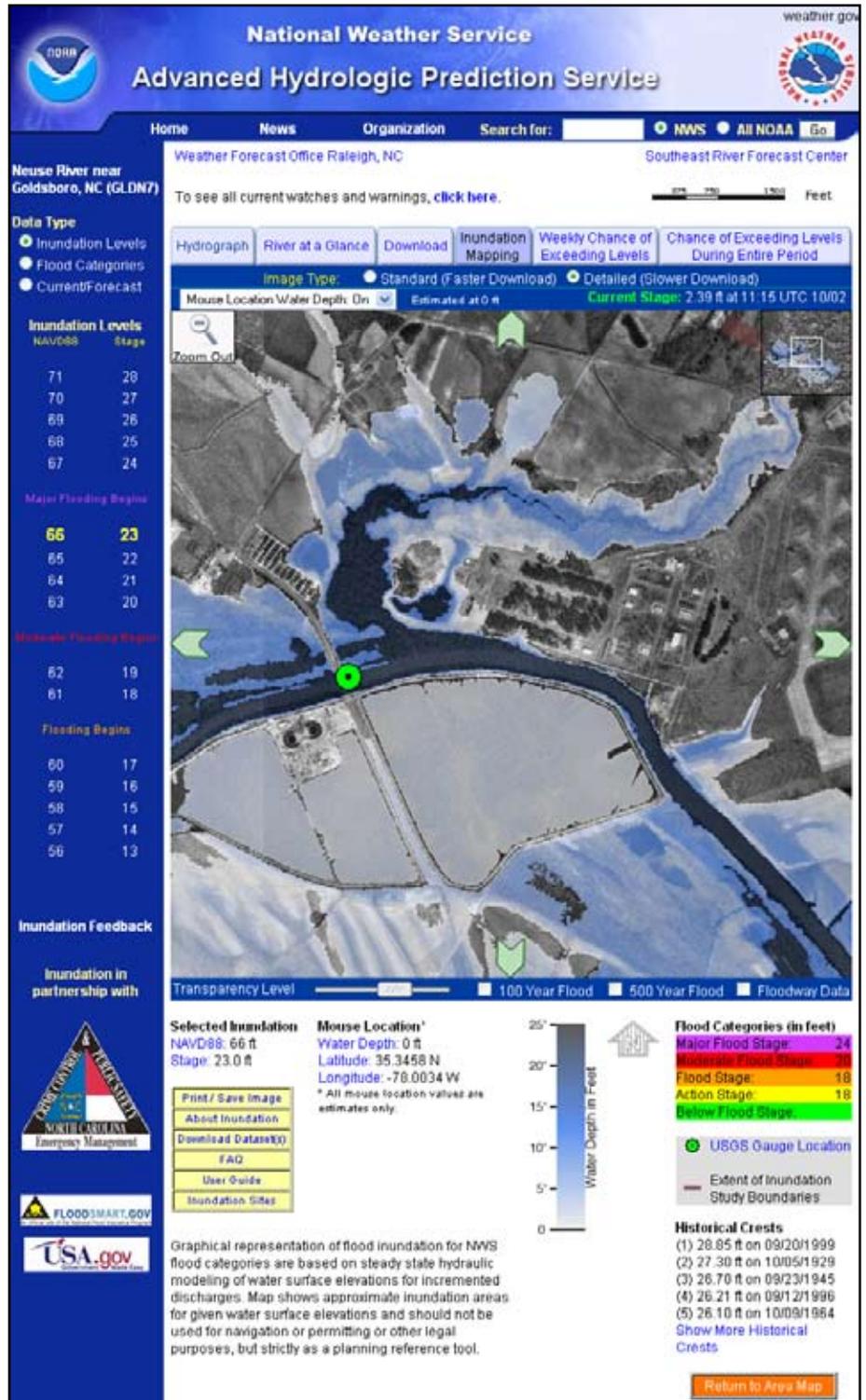
NWS is enhancing the way it communicates flood risk and impacts by using flood inundation maps, a product of the Advanced Hydrologic Prediction Service (AHPS). The inundation maps provide information on the spatial extent and depth of flood waters in the vicinity of NWS river forecast locations. Combined with river observations and forecasts, inundation maps provide decision makers with information to better mitigate flood impacts and to build more resilient communities.

Effective October 22, NWS, in collaboration with the National Ocean Service's Coastal Services Center (CSC), will provide the first series of AHPS flood inundation map libraries.

Following the devastating floods resulting from Hurricane Floyd in 1999, the North Carolina state government assumed responsibility for the National Flood Insurance Program maps for its communities.

The North Carolina Floodplain Mapping Program (NCFMP) is coordinating statewide flood hazard studies and preparing up-to-date seamless statewide digital flood insurance rate maps. The maps use updated flood hazard data, new topographic data and aerial imagery. This resource was invaluable to NWS efforts to create flood inundation map libraries. The U.S. Geological Survey (USGS) also provided valuable assistance and performed some of the preliminary mapping.

The partnership with CSC, FEMA, USGS and NCFMP has made it possible for NWS to create flood inundation libraries for 17 locations in North Carolina.



AHPS Flood Inundation Mapping Interface illustrates conditions in Goldsboro, NC.

NWS is now making these map libraries available on the Web. Users will be able to display flood inundation maps for forecast river levels ranging from minor flooding through the largest observed flood on record. You can find these maps and associated geospatial data (such as shapefiles) on the AHPS Website at: [www.weather.gov/ahps/](http://www.weather.gov/ahps/).

Direct links to flood inundation map libraries for North Carolina will be available at: [www.weather.gov/ahps/inundation.php](http://www.weather.gov/ahps/inundation.php)

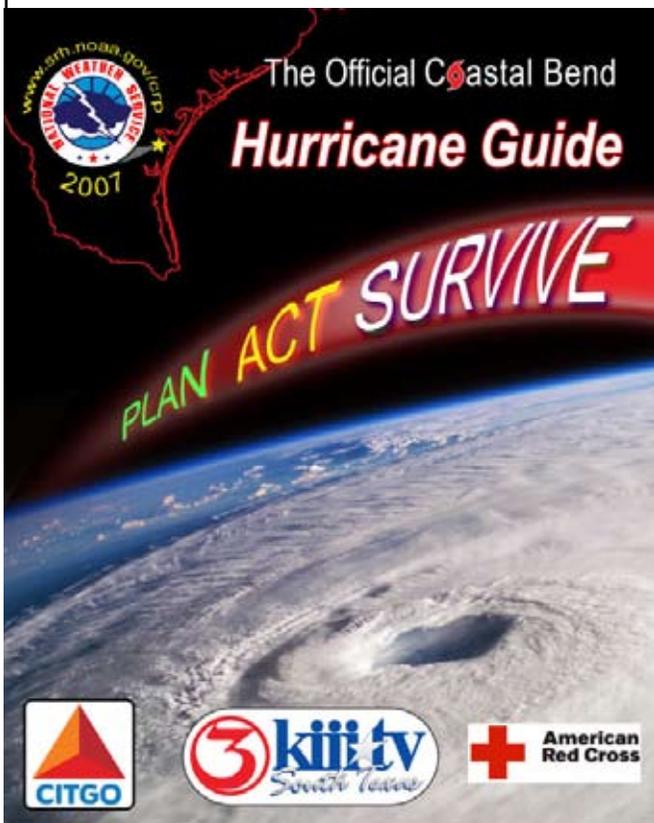
A user's guide for the flood inundation map Web interface is available at: [newweb.erh.noaa.gov/ahps2/inundation/inundation\\_mapping\\_user\\_guide.pdf](http://newweb.erh.noaa.gov/ahps2/inundation/inundation_mapping_user_guide.pdf)

Hurricane Katrina exposed the vulnerability of other coastal states to hurricanes and flooding. NWS is in the process of creating additional flood inundation map libraries at 35 locations in five Gulf States to ensure that communities and property owners have accurate, up-to-date information about flood risk. The majority of these new map libraries will be available before the next hurricane season.

NWS is vigorously building coalitions with emergency and floodplain managers to implement this new valuable, cost-effective hazard visualization and communication technique. For more information, contact Victor Hom, NWS National Inundation Mapping Services Leader, at 301-713-0006 ext.173 or [victor.hom@noaa.gov](mailto:victor.hom@noaa.gov). ✽

## Hurricane Preparedness

### Coastal Bend Hurricane Guide Expanded



By James Reynolds, Meteorologist  
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In 2005, NWS Corpus Christi formed a public-private partnership with the goal of creating a hurricane awareness guide for the Coastal Bend area of Texas. The **Official Coastal Bend Hurricane Guide** has now gone through its second printing.

What began as a 24-page color booklet in 2006 with a total distribution of 85,000 copies has expanded to a 32-page publication with a distribution of 200,000 copies. The production and distribution of this many copies was made possible through partnerships with local, regional and national businesses.

The guide includes maps of evacuation routes and high resolution storm surge inundation zones, insurance tips, pre- and post-storm to-do lists, as well as a hurricane tracking chart. A "what if" scenario depicting Hurricane Rita striking the central Texas coast was formulated and included in the guide to show the potential consequences of a major hurricane in this area.

The hurricane guide is currently being translated into Spanish. It will soon be posted on the Corpus Christi Website. A plan has been made to also translate the guide into French. Updates for the 2008 version are also in the works.

To access the Official Coastal Bend Hurricane Guide go to: [www.srh.noaa.gov/crp/tropics/2007Guide/guide.php](http://www.srh.noaa.gov/crp/tropics/2007Guide/guide.php) ✽

## E-Letter Helps NWS Keep in Touch with Partners and Spotters

By *Tanja Fransen, WCM, NWS Glasgow, MT*  
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Realizing how many people are interested in the weather in northeast Montana, I started collecting email addresses of weather spotters who attended Skywarn presentations this past spring. I now send out a biweekly "Under the Big Sky" e-letter that generally is 2 pages long and is emailed to interested spotters and partners. The letter highlights:

- Activities occurring at the Glasgow forecast area
- Future outreach and training events
- Recent weather events of interest
- NOAA/NWS news stories relevant to the area
- Seasonal outlooks and weather events

For example, during a significant heat wave in July, the e-letter focused on heat health issues. During fire weather season, the e-letter featured air quality and respiratory health as well as fire restrictions in the area.

The newsletter generally takes less than an hour to put together, and has provided some excellent feedback from the recipients. Not one person has requested their name be taken off the list, and many subscribers have asked that friends and family be added. It is also available on the NWS Glasgow spotter web page at [www.wrh.noaa.gov/ggw/spotter.php](http://www.wrh.noaa.gov/ggw/spotter.php) ❄

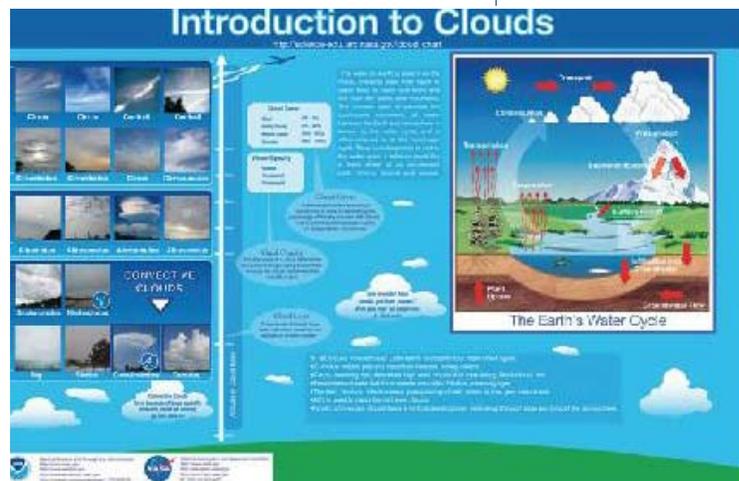
## New Sky Watcher Chart Now Available

By *Ron Gird, OCWS Outreach Manager*  
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The NWS OCWS Outreach Team has just released an updated, two-sided Sky Watcher Chart, replacing the older NWS Cooperative Observer Program Cloud Chart.

NWS partnered with National Aeronautics and Space Administration on this updated poster. Side one offers cloud thumbnail pictures similar in appearance to the old chart, with cloud photos and classifications according to the observing code. Side one also now includes the cloud symbol on the lower right corner of each photo.

Side two presents an introduction to clouds and includes definitions of the different categories of clouds, the hydrological cycle, and a cloud height chart. Unlike previous versions, there are no copyright restrictions for this chart. The Outreach team is working on a Spanish version of the cloud chart that we hope to have available in early 2008. You can find the chart online at: [www.weather.gov/os/brochures.shtml#storm](http://www.weather.gov/os/brochures.shtml#storm) ❄



# Severe Weather

## Storm-Based Warnings—Greater Precision for New Technologies

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On October 1, NWS began issuing warnings for geographically specific areas rather than for entire counties or parishes. This major service change affects warnings for tornadoes, severe thunderstorms, flash floods, areal floods and marine hazards. This storm-based warning technique allows NWS forecasters to warn for specific geographic areas where threats to life and property are greatest.

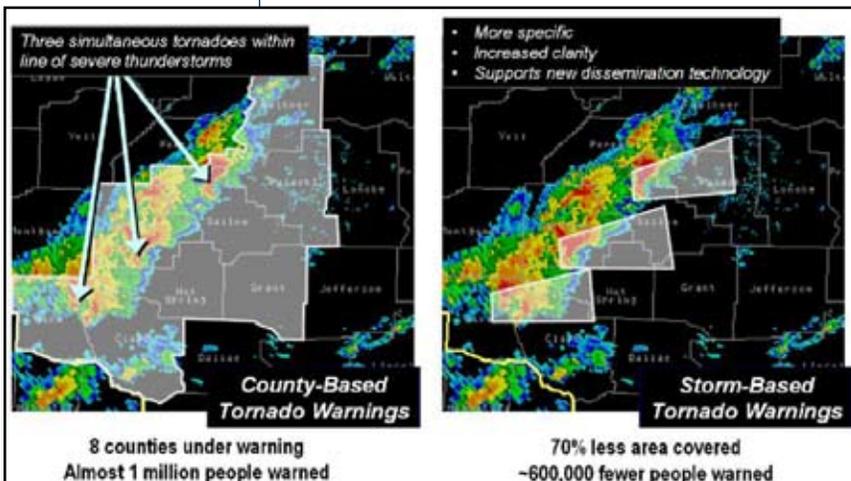


Figure 1: Benefits of storm-based warnings

Forecasters define the storm-based warning area by a set of latitude and longitude points easily ingested by graphical applications (see Figure 1). This reduction in the area unnecessarily warned (potentially as much as 70 percent) offers important benefits to the American public.

NWS is making this major service change without significant changes in the text warning products. The header information, the format of the warnings with bullets followed by specific information, and the list of latitude/longitude points at the bottom of the warning have not changed. There will be a few more cities and landmarks listed in the fourth bullet, especially in rural areas. Users will also see the addition of some tracking information at

the bottom of the warning (see below).

So what does change? Although the text product will look the same, the focus of the product changes from a list of counties to the polygon described by latitude and longitude points. The valid area of the warning is no longer entire county or counties, but only the area inside the polygon.

Users who receive warnings via weather radio or text products will still rely on the list of impacted counties, cities, towns and landmarks. Those who receive warnings that include graphics via TV, Internet, PDA or other media that can be geographically located (e.g., cell phones and satellite radio) will benefit from the more specific storm-based area. For example, a user will be able to see exactly where a storm is moving in relation to where they are in a vehicle.

Users as diverse as store managers, airlines staff, broadcast meteorologists and emergency managers can expect to benefit by using these graphics for their operations. For instance, a store owner will no longer have to move customers to shelters or take other emergency precautions if a tornado is not expected to go through that part of a large county.

There will be one minor addition to these warnings. A tracking line will be added to the bottom of the warning. This line, beginning with the characters: TIME...MOT...LOC, will include location, speed and direction of movement of the event being tracked: tornado, hail core, leading edge of gust front, etc. This line can provide additional graphical information, but is not meant for those who do not receive a graphic. For more information, including a list of Frequently Asked Questions, go to: [www.nws.noaa.gov/sbwarnings](http://www.nws.noaa.gov/sbwarnings) \*

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## Planning Underway for 8th National Severe Weather Workshop

By Greg Carbin, WCM, NWS Storm Prediction Center, [Gregory.Carbin@noaa.gov](mailto:Gregory.Carbin@noaa.gov)  
Dale Morris, OCWWS Warning Decision Training Branch, [Dale.A.Morris@noaa.gov](mailto:Dale.A.Morris@noaa.gov)

For the past 7 years, meteorologists, emergency managers, weather enthusiasts and members of the media have gathered in Norman, OK, for a targeted information-sharing conference: the National Severe Weather Workshop (NSWW).

The annual meeting dates back to 2000 when NWS held a small “Severe Weather Media Workshop.” Workshop planners extended invitations to emergency managers for the 2001 meeting. Since then the gathering has matured into a larger conference with guest speakers, interactive workshops and break-out sessions. The 8th Annual NSWW is scheduled for March 6-8, 2008 in Norman.

The theme for NSWW 2008 is “From Readiness to Recovery.” The workshop will feature speakers discussing recent major weather events from tornadoes and wildfires to large venue safety. Central to the workshop, and one of the meeting’s most popular elements, is what has come to be known as “The Scenario.”

This scenario allows workshop participants to step out of their normal operational roles and responsibilities and take part in a simulated emergency. An emergency manager becomes a local TV meteorologist, or a NWS forecaster may wear the hat of an emergency manager. These role reversals occur as weather data from an actual archived event appears in real time. Team members then manage the various issues associated with the unfolding event as changing demands are put to the different groups. For example, the “emergency managers” may ask the “NWS forecasters” for a spot forecast, while the “broadcasters” must make critical decisions on how to provide the best media coverage for the unfolding event. Eye opening interactions among the different groups managing the scenario spur ongoing discussions about ways to improve emergency communications and the warning process.

The workshop also serves as a venue for producers of weather information and emergency management technology. Vendors will have booths available during the event. A banquet, featuring a special guest speaker, will also be held during the first evening. Finally, since the NSWW is held in close proximity to the National Weather Center, the University of Oklahoma, and NOAA entities such as the National Severe Storms Laboratory and the Storm Prediction Center, workshop attendees can visit these facilities between speaker and scenario sessions. For more information on the upcoming 8<sup>th</sup> Annual NSWW, contact [Linda.Crank@noaa.gov](mailto:Linda.Crank@noaa.gov). \*

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## Working with EMs to Keep Large Outdoor Events Safe

By Andy Bailey, WCM, NWS Kansas City/Pleasant Hill, MO  
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Large event venues, such as racetracks, present a huge challenge to NWS efforts to keep people safe during severe weather. Imagine 100,000+ people exposed to the elements with little to no viable emergency shelter options. Consider the difficulty of trying to evacuate thousands of people. And then consider that state-of-the-art severe thunderstorm and tornado warnings are usually provided with only 10-20 minutes lead time.

If a severe thunderstorm producing large hail, damaging winds, lightning, or the unthinkable—a tornado—made a direct strike on one of these crowded venues, the devastation and loss of life could be horrific.

For some time, this scenario had been on the minds of NWS meteorologists and emergency managers in Kansas. For the last 6 months, the two groups have met with Kansas Speedway officials to urge them to get proper severe weather plans in place, provide them with training and assist them with emergency planning activities. The coordination and planning are not yet complete, but are moving in the right direction.

On September 30, Kansas Motor Speedway was filled to capacity with just over 100,000

spectators for the LifeLock 400 Nextel Cup race. NWS forecasters knew thunderstorms were possible during the race and began coordinating with Wyandotte County Emergency Management officials several days before race day. As the race began, a Severe Thunderstorm Watch was issued as storms formed in eastern Kansas then moved eastward towards the NASCAR track. For the next few hours, NWS meteorologists were in almost constant contact with emergency management officials at the emergency operations center, providing updates on storm development and threats.

At 3:43 pm, NWS issued a Significant Weather Alert for a storm that was heading toward the stadium. Track officials then read the alert over the public address system and urged spectators to evacuate the stands and seek shelter. Several minutes later, as the storms



approached, track officials again urged spectators to evacuate the stands due to the numerous nearby lightning strikes and strong thunderstorm wind gusts. According to Bob Evans from Wyandotte County Emergency Management, "We certainly appreciated the level of support the National Weather Service gave us throughout the event. The quality of the briefings and level of service was great."

While the actions taken by the track officials were positive, they continue to refine their plan to provide more awareness and advanced notice for the average spectator. According to Les Lemon of the NWS Warning Decision and Training Branch, "The problem with these large venues is that they often have few options when it comes to sheltering fans. Additionally, there has been very little work done on this problem to determine exactly what fans should be told to do and when. Many of these facilities simply were not designed with severe weather in mind. Often financial and logistical pressures inhibit postponement or cancellation."

Another significant challenge is getting the fans to heed the warnings and take action when necessary. Planning and warnings are of little good if the public refuses to act. Informing the fans of the type of threat ahead of time, as well as letting them know what actions they should take as the severe weather event unfolds, is necessary to overcome this obstacle. ❄

## StormReady/TsunamiReady

### StormReady Goes to Harvard; TsunamiReady Hits Saipan

*By Melody Magnus, Aware Editor  
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*Harvard University joined the StormReady program last summer. Pictured above is Harvard Yard.*

Now you can get an excellent education at Harvard University in Cambridge, MA, and also a safe one. Harvard joined the StormReady program this summer to better protect its students and staff.

The program also gained 14 new sites in Idaho including the Southeastern District Health Department. In all StormReady gained 43 new sites in the last quarter of Fiscal Year 2007, bringing the program's total to more than 1,500 sites.

The TsunamiReady Program enrolled three new sites, Grays Harbor, WA, Orange County, CA, and the island of Saipan in the Northern Mariana Islands, a U.S. Protectorate. Although the risk of a tsunami seems distant to many Americans, it only takes one major wave to wreak enormous havoc on the overpopulated coasts

of the United States. U.S. weather history includes records of numerous tsunamis on both the East and West Coasts.

The goal of the StormReady and TsunamiReady programs is to help assure local and prospective business owners, tourists and residents that a community is prepared for extreme weather. StormReady sites post local signs to alert residents to the community's commitment to safety and preparedness.

In addition to full StormReady sites, the program enrolled a record 16 new supporters this summer, 14 of which were from Kentucky, which enrolled numerous County Extension Offices in the supporter program. Kentucky is a state frequently struck with tornadoes and other severe weather. The supporter program is offered to organizations that show a commitment to StormReady goals, but are unable to meet all the requirements. This typically includes sites that cannot maintain 24/7 alerting operations.

Emergency Managers who want to learn more about the StormReady/TsunamiReady program and the supporter program should contact their local NWS Warning Coordination Meteorologist for details. Find contact information by clicking on "Local Contacts" at [www.stormready.noaa.gov](http://www.stormready.noaa.gov). ❄



*The island of Saipan, in the Northern Mariana Islands, A U.S. Protectorate, is now Stormready and TsunamiReady.*

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## Online Fall/Winter Awareness Resources

For severe weather and winter awareness brochures, booklets, state awareness event links and more, go to [www.weather.gov/os/severeweather/index.shtml](http://www.weather.gov/os/severeweather/index.shtml) and [www.weather.gov/os/winter/index.shtml](http://www.weather.gov/os/winter/index.shtml). ❄

### Climate, Water and Weather Links

Aviation Weather:	<a href="http://www.aviationweather.gov/">www.aviationweather.gov/</a>
Brochures/Booklets/Posters:	<a href="http://www.weather.gov/os/brochures.shtml">www.weather.gov/os/brochures.shtml</a>
Education/Outreach:	<a href="http://www.weather.gov/os/edures.shtml">www.weather.gov/os/edures.shtml</a>
Flooding/Water:	<a href="http://www.floodsafety.noaa.gov/">www.floodsafety.noaa.gov/</a>
Hurricane Awareness:	<a href="http://www.weather.gov/om/hurricane/index.shtml">www.weather.gov/om/hurricane/index.shtml</a>
Lightning Safety:	<a href="http://www.lightningsafety.noaa.gov/">www.lightningsafety.noaa.gov/</a>
Marine Weather:	<a href="http://www.weather.gov/os/marine/home.htm">www.weather.gov/os/marine/home.htm</a>
MIC/WCM/SOO/DOH List:	<a href="http://www.weather.gov/os/wcm-soo.pdf">www.weather.gov/os/wcm-soo.pdf</a>
Natural Hazards Statistics:	<a href="http://www.weather.gov/os/hazstats.shtml">www.weather.gov/os/hazstats.shtml</a>
National Digital Forecast Database:	<a href="http://www.weather.gov/ndfd/">www.weather.gov/ndfd/</a>
NOAA Weather Radio Information:	<a href="http://www.weather.gov/nwr/">www.weather.gov/nwr/</a>
Past Weather/Climate:	<a href="http://lwf.ncdc.noaa.gov/oa/ncdc.html">lwf.ncdc.noaa.gov/oa/ncdc.html</a>
Rip Current Awareness:	<a href="http://www.ripcurrents.noaa.gov/">www.ripcurrents.noaa.gov/</a>
StormReady Home Page:	<a href="http://www.stormready.noaa.gov/">www.stormready.noaa.gov/</a>
Severe Weather Safety:	<a href="http://weather.gov/os/severeweather/index.shtml">weather.gov/os/severeweather/index.shtml</a>
Tsunami Information:	<a href="http://www.tsunami.gov">www.tsunami.gov</a>