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

Aware

Volume 3, October 2008

Climate, Water, Weather

NEMA and NWS – A Strong Working Partnership

By Chris Maier, NWS National Warning Coordination Meteorologist
Chris.Maier@noaa.gov

NWS strives to serve the emergency management (EM) community. You are our number one partner. Sharing a mission to protect life and property is the cornerstone of that partnership. Communication and trust established at state and local levels is what matters most when support is needed during a crisis. This is when the NWS especially serves the American taxpayer. Our **132 Warning Coordination Meteorologists** (WCM) throughout the nation lead this effort for NWS.

It is an NWS priority to continually assess how we can best serve the EM community. One strategic way of accomplishing this is taking part at the National Emergency Management Association (**NEMA**) and International Association of Emergency Managers (**IAEM**) annual conferences. This year I attended NEMA's annual conference, September 8-11 in Portland, OR; NWS leadership made it a point to be there as well.

NWS Deputy Director Vickie Nadolski talked with many of the state EM Administration (EMA) directors. Some highlights were her discussions with new NEMA President Nancy Dragani of Ohio, and previous President Ken Murphy of Oregon. Since the conference occurred shortly after Hurricane Gustav and during the week leading up to Ike's landfall, hurricanes were the hot topic. NWS staff informally briefed the **Emergency Management Assistance Compact** (EMAC) Task Force on the latest with Ike throughout the week. Through the EMAC, a disaster impacted state can request and receive aid from other member states quickly and efficiently, resolving two key issues up front: liability and reimbursement. EMAC is administered by NEMA.

Another highlight from the NEMA conference was Dave Miller, Administrator, Iowa Homeland Security and EM Division, recounting the series of Presidentially declared disasters that impacted Iowa over the past 16 months. The images of downtown Cedar Rapids under floodwaters looked as if they were out of the movies—waters in excess of the 500-year floodplain. A take home message was that it is one thing to prepare for, respond to, and recover from one disaster, but a series of disasters in a relatively short period of time can become a catastrophic event.

NWS Southern Region Director Bill Proenza, NWS Eastern Region Services Improvement Program Manager Dave Manning; and WFO Portland WCM Tyree Wilde also attended the NEMA conference. Visit NEMA's Website for additional information on the **annual conference**, including NEMA position papers.

As the EM profession continues to evolve, NWS will continue to work with you to ensure our services remain indispensable. We encourage you to attend the **IAEM annual conference**, November 15-20, **2008, in Overland Park, KS.** NWS Director Jack Hayes will take part in another focus group with the EM community from 10 a.m.-noon on November 16. Please join us.

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Reminder: 30-Hour TAF Takes Effect November 5

On November 5, 2008, with the 0000 UTC TAF issuance, NWS will change the Terminal Aerodrome Forecast (TAF) format to conform to international standards outlined in ICAO Annex 3. The change involves identifying the date associated with each time group within the TAF. The format of all TAFs will change; though only TAFs for high-impact U.S. airports will be extended to 30 hours.

As shown in the example below, the previous TAF code is modified by adding the appropriate date before the forecast hour. For more information, go to: www.weather.gov/os/aviation/.

Example of 30-hour TAF:

TAF
KXXX 241732Z **2418/2524**[1] 11006KT 4SM -SHRA BKN030
FM242300[2] 22006KT 3SM -SHRA OVC030 **PROB30 2504/2506**[3]
VRB20G35KT 1SM +TSRA BKN015CB
FM 250600 25010KT 4SM –SHRA OVC050
TEMPO 2508/2511[4] 2SM –SHRA OVC030=

(1) Valid Period	Indicates the valid time of the 30-hour TAF where 2418 is the 24th day at 1800 UTC and 2524 is the 25th day at 2400 UTC (or 0000 UTC on the 26th)
(2) FM Change Group	Indicates a significant and rapid change to a new set of prevailing conditions, in this case starting at 2300 UTC on the 24th
(3) PROB30	Indicates the probability of occurrence of a thunderstorm or other precipitation event, in this case occurring during the 2-hour period between 0400 UTC and 0600 UTC on the 25th
(4) TEMPO Change Group	Indicates a temporary fluctuation in forecast conditions, in this case in the 2-hour period between 0800 UTC and 0011 UTC on the 25th

For more information, go to www.weather.gov/os/aviation/taf_testbed.shtml or contact Michael Graf, NWS Aviation Branch, at Michael.Graf@noaa.gov. ❄

Aviation Safety Tips Available in *The Front*

By Melody.Magnus, Editor, The Front
Melody.Magnus@noaa.gov

In October, the NWS Aviation Branch will release the latest copy of *The Front*. This free resource offers aviation weather tips to pilots of private and commercial planes, balloons and other aircraft. Articles in the latest edition include:

- Satellite Imagery Overview for Pilots
- Reaching Local Pilots with Real Weather Patterns Page
- Aviation Challenges Regarding Smoke Obscuration and Weather

Aware

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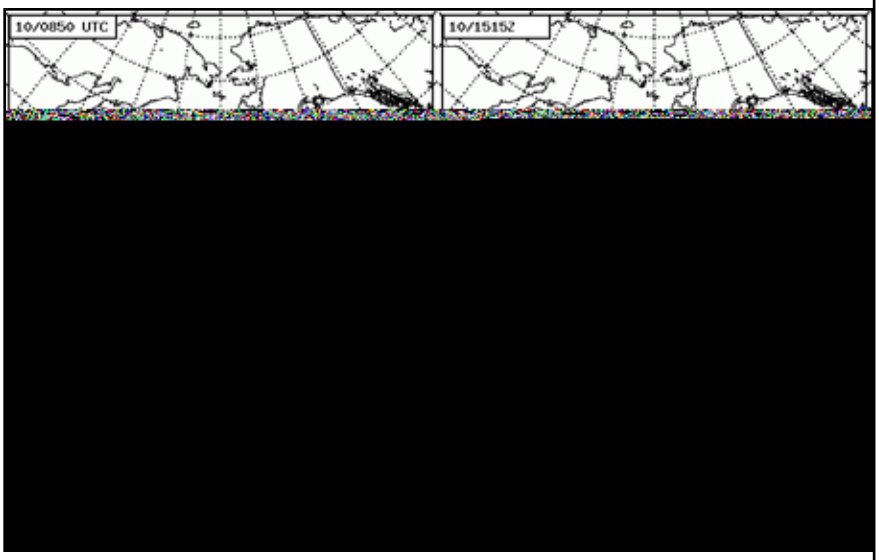
To download the October 2008 edition, go to **www.weather.gov/os/aviation/front.shtml**. If you would like an email when *The Front* is released, write **Melody.Magnus@noaa.gov**. If you have article suggestions or comments, contact **Michael.Graf@noaa.gov**. ❄

Dealing with the Effect of Volcanic Ash on Weather and Aviation

At various times during the week of August 11-15, the Okmok, Kasatochi and Cleveland volcanoes in Alaska were all erupting. NWS issued numerous Volcanic Ash Warning products and more than 100 Significant Meteorological Information Statements/warnings (SIGMETS) and Volcanic Ash Advisories (VAAs). The events required extensive coordination with various agencies and airlines. There was considerable rerouting of air traffic on the North and Central Pacific Routes as well as portions of the continental United States. Alaska Airlines alone canceled over 40 flights on August 10 and 11.

NWS Alaska Aviation Weather Unit (AAWU) and Volcanic Ash Advisory Center. staff met significant technical challenges during the eruptions, including major changes to the AAWU Website. Staff also made changes to the dissemination processes due to the number of simultaneously valid warning products.



The four panel ash graphic above was produced during the volcanic ash event.

Staff created and sent new volcanic ash graphics during the eruptions. The four panel ash outlooks at right are generated automatically from the text warning issued by the forecaster, requiring no user intervention and providing additional service to customers without increasing work load. This product was put in place quickly to deal with an urgent need, but AAWU plans to follow through with the usual public comment/review process while considering making it operational. For more information, contact Tony.Hall@noaa.gov. ❄

Climate Services

Twelve Climate Outlook Probability Elements Go Operational in NDFD

Effective September 21, 2008, NWS upgraded 12 climate outlook probability elements to operational status; these elements have been experimental since October 18, 2007. The new elements, generated by the NWS Climate Prediction Center (CPC), are among the most requested CPC products. These are the first climate forecasts incorporated into the National Digital Forecast Database (NDFD). Their availability in the NDFD responds to a large and growing demand from the public and private sectors for climate forecasts.

The following 12 climate outlook elements are available from the NDFD for the contiguous U.S. (CONUS), the 16 pre-defined NDFD CONUS subsectors and 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
- One-month average temperature above normal
- One-month average temperature below normal
- One-month total precipitation above median
- One-month total precipitation below median
- Three-month average temperature above normal*
- Three-month average temperature below normal*
- Three-month total precipitation above median*
- Three-month total precipitation below median*

* Thirteen issuances: for months 1 through 3, months 2 through 4, months 3 through 5, etc, to months 13 through 15.

Access the Product Description Document:
products.weather.gov/detail.php?selrow=220
Find definitions of these probabilities:
www.nws.noaa.gov/ndfd/definitions.htm
Specific information about NDFD elements using a variety of methods:
www.weather.gov/ndfd/technical.htm
Status of all NDFD elements:
www.weather.gov/ndfd/resources/NDFD_element_status.pdf
For more information, contact Ahsha N. Tribble, Chief, Climate Services Division, at Ahsha.Tribble@noaa.gov. ❄

Disaster Preparedness

Disaster Exercise Highlights Need to Prepare

NWS Memphis, TN, took part in a 2-day HAZMAT training exercise on July 29-30 at a high school in Horn Lake, MS. The July 29 exercise was run by the Mississippi Army National Guard's 47th Civil Support Team; the July 30 exercise was run by the DeSoto County Emergency Management Agency. The 2 days had similar scenarios: terrorists take over a school where church campers are staying. The terrorists take hostages and release some hazardous materials before being captured.

Although the scenario for the 2 days was similar, NWS' role in the exercises varied significantly. On Day 1, the Mississippi Army National Guard set up a Davis Weather Station at the site to measure wind, temperature and humidity data in real time. NWS staff was able to use satellite phone connections from the NWS office to the site. The Mississippi Army National Guard also had a person on site who dealt with plume modeling. This person was able to run a Hazard Prediction and Assessment Capability (HPAC) model to determine what effect the hazardous material would have on the area near the school. He could overlay his findings on a map and send the information out via email to others involved in the exercise. During the course of the exercise, NWS staff ran the HPAC model with simulated data to show what might happen if there was a sudden shift in wind direction. After several hours, the wind did shift significantly so staff ran the HPAC model a third time. We also were able to contact the Senior Duty Meteorologist at the National Centers for Environmental Prediction to get a HYSPLIT model successful run. Once a determination was made of what kind of hazardous material was involved, the ALOHA model was run.

The DeSoto County Emergency Management Agency (EMA) did not have nearly as much equipment for its exercise on July 30. There was no weather equipment at the site so wind, temperature and humidity data had to be accessed through the Web. In addition, the exercise on July 30 was on a smaller time scale. The EMA had access to the CAMEO model but the model was not run. NWS staff learned several lessons from the exercise. The NWS office needs to:

- Provide its own Internet access in case no other access is available
- Bring a weather station in case no other on site weather data is available
- Monitor communication lines; several people at the exercise on July 30 did not know NWS staff was taking part.

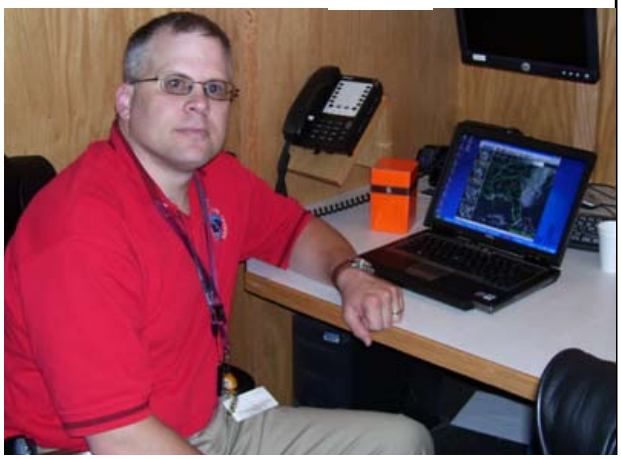
For more information, Contact Rich Okulski at Richard.Okulski@noaa.gov. ❄

Presidential Debate Decision Support

The Mississippi Emergency Management Agency (EMA) was put on alert when a Presidential Debate was held in Oxford, MS, September 25-26 and asked our NWS Memphis, TN office for heightened support. WCM Richard Okulski deployed to the Mississippi State Mobile Emergency Operations Center (EOC) to provide weather watch and site specific forecasts. He was prepared to provide briefings as needed by decision makers.

Richard and other NWS Memphis emergency response meteorologists deploy with a portable printer and a laptop loaded with "AWIPS emulator" or FX-Net software. The office also can deploy a portable weather station if needed. Each WFO Memphis emergency response meteorologist has received FEMA sponsored Incident Command System training.

Richard integrated into the Mobile EOC team, provided site specific forecasts for the team's Incident Action Plan and hourly observations for the Oxford Fire Department for potential HAZMAT concerns. Happily there were no emergencies during the debate and the weather was dry with near normal temperatures. For more information, contact Rich Okulski, WCM, NWS Memphis, TN, at Richard.Okulski@noaa.gov. ❄



NWS Memphis WCM Rich Okulski provides weather support during a recent Presidential Debate.

Dissemination

Availability of CAP 1.1 Alert Feeds

Since 2004, NWS has provided access to watch, warnings and advisories formatted in the Common Alerting Protocol (CAP) version 1.0 format. The most frequent comment regarding these feeds is to provide additional pre-parsing of products so users can better use the CAP format.

In 2007, NWS began working with a group of partners interested in the CAP format. The goal: to define specific requirements for a next generation feed using the newer CAP 1.1 format. This version of the feed supplies an XML-based index to active alerts. The index offers the ability to glean key bits of information without having to download the entire CAP message. It also helps consumers determine if they want to download the entire CAP message. This two-tier approach reduces the amount of data downloaded on a routine basis.

The new CAP 1.1 alerts provide more detailed pre-parsing than previous versions. While the new CAP-based geo codes are available, users can also get pre-parsed World Meteorological Organization headers, Valid Time Event Code strings and Specific Area Message Encoding codes. If approved, the new CAP 1.1 messages would replace the CAP 1.0 messages currently being provided. More information and the messages are available at: www.weather.gov/alerts-beta/.

We encourage users to send us comments on the CAP 1.1 messages by visiting the following Website: www.weather.gov/survey/nws-survey.php?code=atom. For more information, contact Robert Bunge, Office of the Chief Information Officer, at Robert.Bunge@noaa.gov. ❄

HazCollect To Be Available Nationwide This Winter

NWS is working with the Department of Homeland Security (DHS) and Federal Emergency Management Agency (FEMA) to resolve a few final issues before making HazCollect available nationwide by the end of this winter. NWS has installed a backup HazCollect server at Mt. Weather which is connected to a DHS Data Center. NWS and FEMA are working jointly on a Non-Weather Emergency Message (NWEM) training module designed for emergency managers and others responsible for writing and issuing NWEMs. NWS is conducting a HazCollect Follow-on Operational Test and Evaluation (FOTE) from late September to December 5, 2008. FOTE goals include:

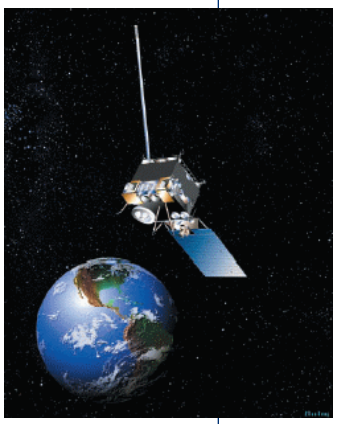
- Test the end-to-end NWEM message dissemination from EMs' computer to NOAA Weather Radio using the DMIS emergency message creation tool
- Demonstrate dissemination of NWEM messages created and distributed from a third-party incident response system using the Disaster Management (DM) Open Platform for Emergency Networks (OPEN) interface functionality

In December, NWS expects to open a Web-based HazCollect registration process for EMs to complete. To learn more about DMIS and DM OPEN, go to the DMIS Website at **www.dmi-services.org/** and the DM OPEN Special Interest Group Website at **www.emforum.org/OPEN/**. The DMIS link will soon change, however, you will be automatically redirected to the new Website.

For an overview of FEMA's DM program and its toolset and interface offerings, see *Disaster Management (DM) Takes Major Steps Forward*, in the summer edition of *Aware*. Look for HazCollect updates at **www.weather.gov/os/hazcollect/**. The HazCollect Website will include a registration link in the next couple of months.

For more information, contact Herb White, NWS Dissemination Services Manager, at **Herbert.White@noaa.gov** or Joel Williams, HazCollect Project Manager, at **Joel.Williams@noaa.gov**. ❄

EMWIN-N Makes Progress, Conference Planned



Geostationary Satellite (GOES) 13 (N) was brought out of storage and has been broadcasting the Emergency Managers Weather Information Network-N (EMWIN-N) data stream since early August. This test period has allowed the EMWIN team to further test the software-defined radio demodulator and an off-the-shelf, transition-ready EMWIN-N system now being marketed by an EMWIN vendor. Results are excellent. The broadcast should remain available through at least mid-October 2008. Based on the remaining fuel of the GOES East (12) satellite, EMWIN staff expect GOES-13 to be in operation by September 2010. In the event of a major failure of either GOES-East (12) or GOES-West (11), GOES-13 could be called into service earlier. Users should consider migrating to EMWIN-N capable systems. For vendor contact, go to **www.weather.gov/emwin/winven.htm**.

In addition, the EMWIN-N data set has been enhanced. Now included in the transmission are regional NEXRAD radar images that are broadcast approximately three times an hour.

EMWIN Latest Developments

EMWIN will be part of the 2008 Satellite Direct Readout Conference. The conference, to be held in Miami, FL, December 8-12, will focus on current GOES and Polar Operational Environmental Satellite data access and distribution. It will also help prepare users for the upcoming changes to NOAA satellite programs. The EMWIN team may hold a session for EMWIN vendors and users during the conference.

EMWIN on GOES R

An initial EMWIN-R prototype demonstration was held at NWS Headquarters during the week of August 4. The demonstration was a combined effort of the EMWIN team, Aerospace Corporation, National Aeronautics and Space Administration, National Environmental Satellite, Data and Information Service, and the GOES R Program office. While still early in development, the receiver showed enormous promise. The prototype receiver is being developed using an open source, software-defined radio solution. The receiver is intended to be backward compatible for EMWIN and Low-Rate Information Transmission and will allow for a greatly enhanced EMWIN broadcast while maintaining the current satellite dish size.

To keep informed of new developments in the EMWIN transition, please visit the NWS EMWIN Website at: **www.weather.gov/emwin/index.htm**.

For more information, contact **Robert.Wagner@noaa.gov**. ❄

How GIS Software is Improving NWS Effectiveness

In September 2007, NOAA signed an Enterprise License Agreement with Google allowing all agencies within NOAA to use Google Earth Pro software and Google Maps Application Program Interface for business purposes. NWS has used this technology to develop improved visual and graphical layers customers can easily grasp. These maps also introduce a smart way to identify earth stationary structures or geographic features NWS can use to verify warnings. Google Earth Pro software, combined with the ability to integrate NWS datasets into Google Earth, has enabled forecasters to access information on businesses, schools, addresses and phone numbers to help verify warnings.

Figure 1: *Overlay of RIDGE radar on Google Earth, with a search for businesses in the core of the storm to help with verification and real-time feedback.*

There have been numerous cases of warnings NWS staff could not have verified without these new resources. One such case occurred at the NWS Shreveport, LA, office after midnight during a weekend last April. Several non-tornadic severe thunderstorms were developing in areas with minimal population. Most storm spotters were asleep. The forecaster on duty used Google Earth to overlay the radar and search for buildings in the core area of the storm. After finding a business in the key area, the forecaster called the owner who said hail the size of quarters had fallen at 2 a.m.

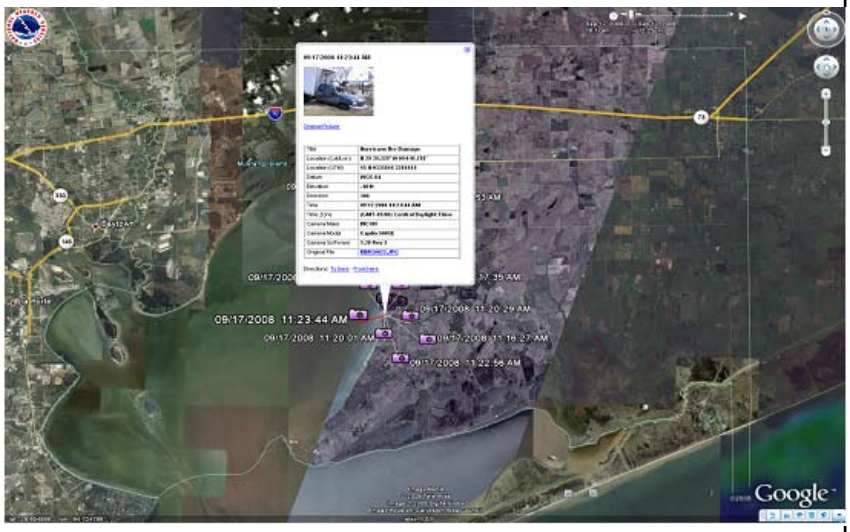


Figure 2: *A KML file with links to photographs of damage taken during a survey related to Hurricane Ike. Users can share the file and photos by emailing the KML file. Data collected by Steve Piltz, MIC, WFO Tulsa, OK.*

A recent review of the 2008 NWS Shreveport, LA, verification scores and local storm reports show a 10% increase in verified

tornado and severe thunderstorm warnings compared to 2007. The office used Google Earth to verify approximately 40 warnings by finding businesses near the core of a storm. This software is particularly useful for verifying reports of hail 1 inch or less because damage is minimal and the area impacted is usually smaller.

Google software also has proven useful in post-storm analysis and map generation. The software allows meteorologists and hydrologists to overlay multiple weather data layers, such as radar rainfall estimates and surface observations, on readily available layers like terrain, river basins, infrastructure, population and even survey photographs. The result is improved situational awareness and post storm analysis. Data sharing has also improved collaboration between local NWS staff and emergency managers. Figure 2 displays how storm survey teams collected photographs of damage from Hurricane Ike and integrated them into a Keyhole Markup Language (KML) file and shared it with users.

Figure 3: *Show use of Maps API to more easily provide a tornado track map with links to photos and information taken from the survey. The page shown is available at* **www.srh.noaa.gov/shv/events/**

Staff can also better analyze data from tornado and damage surveys using this software. Data can be collected in the field using standard GPS devices or GPS digital cameras and plotted in Google Earth. The surveyor can use simple measurement tools to calculate distance and width. This technique saves time, enables a more accurate track depiction, and allows the output to be displayed on the Web.

The Google Maps Application Program Interface (Maps API) allows NWS staff to focus more of its resources on issuing warnings and less on creating maps for the Web. Maps API allows users to embed Google Maps into their Website and integrate data using JavaScript or KML.

Maps API also allows NWS staff to easily generate interactive maps for the Web showing tornado surveys and images (Figure 2). Figure 3 shows an example of a tornado track created with this technique. One major benefit of API is that maps are hosted on Google servers rather than NWS servers, reducing bandwidth and increasing our ability to create data mashups. Many NOAA sites are using Maps API now to display data on an interactive mapping platform. A list of sites can be found by going to: **www.epic.noaa.gov/talks/nns/forums/google-maps-api.html**.

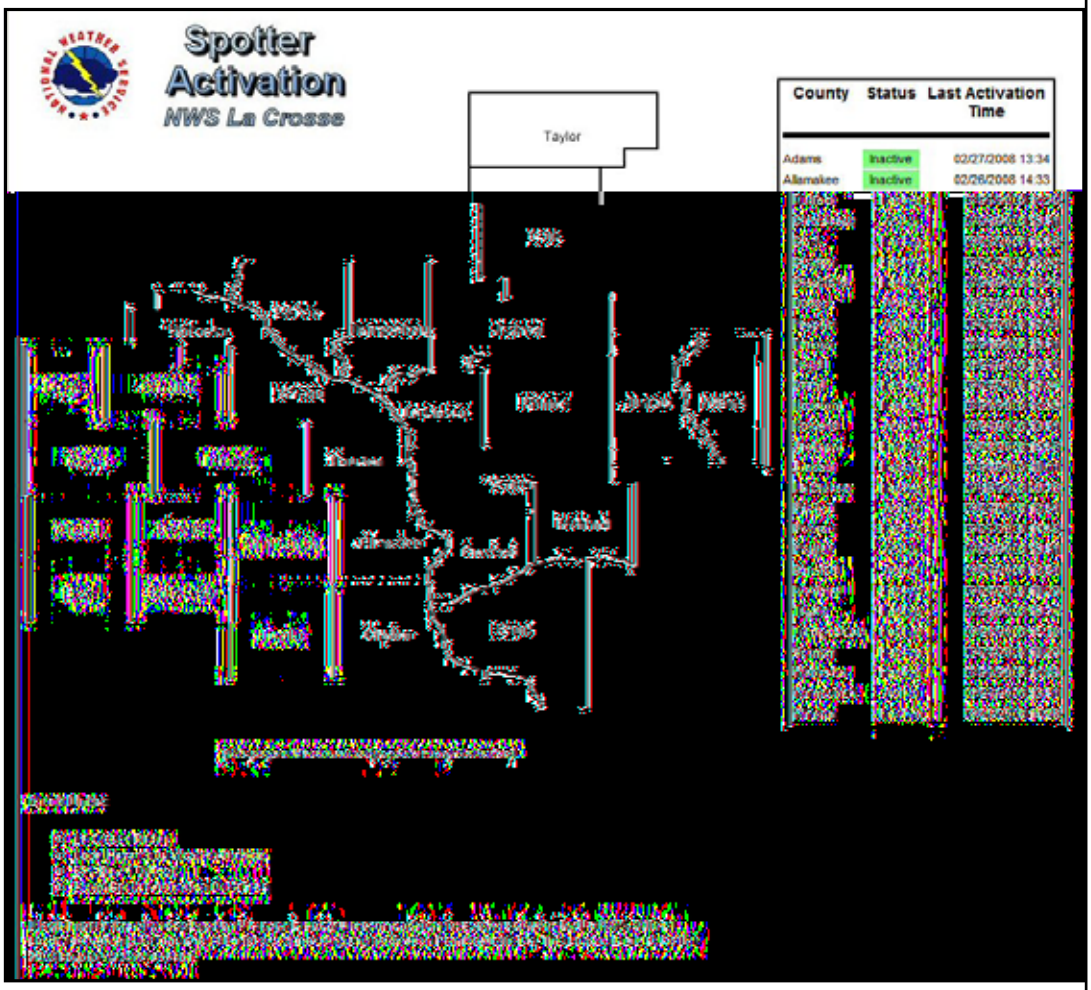
The Google Enterprise Agreement has impacted the way NWS creates and shares data. The NWS GIS site (**www.weather.gov/gis**) has been updated to provide a list of data available for viewing in GIS programs like Google Earth. More recently, NWS offered training sessions, through Webinar Technology, on how to use Google Earth. More than 1,100 people have viewed the sessions to date. Find out more at the NOAA GIS site and a site with Enterprise License Agreement information.

For more information, contact either Keith Stellman or Nick Fillo, NWS Shreveport, LA, at **Keith.Stellman@noaa.gov** or **Nicholas.Fillo@noaa.gov**. ❄

NWS Completes Spotter Activation Tests

During the 2008 severe weather season, NWS La Crosse, WI, developed and tested a Spotter Activation Notification System (SANS). The system allowed NWS operational staff members to manually recommend spotter activation in a county by simply interfacing with a simple PC-based map. This would, in turn, do the following:

- Send a text message to cell phones (SMS)
- Send an email message
- Update a public Website
- Insert brief messages on NOAA Weather Radio All Hazads (NWR) to alert spotters or group leaders that NWS recommends spotter activation.



NWS La Crosse sent a total of 220 activations through the system from April to August 2008, 151 were followed by severe weather warnings. The average amount of lead time from activation to the first reported severe weather report was 42 minutes; 56 minutes to the second report. Feedback solicited at the end of the convective season was favorable. All 60 of the responders indicated they liked the system and the format of the message. Many stated that they hoped MWS would continue the program in 2009. Future changes might include:

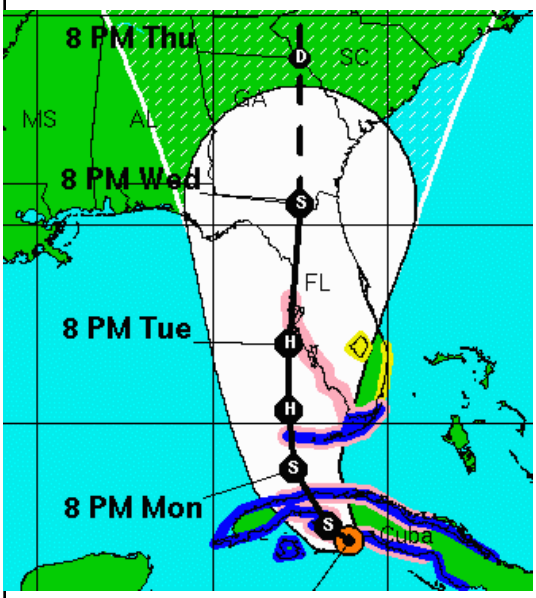
- Additional outreach to alert more spotter groups of the system
- More consistent protocol for activating counties
- Additional information in the activation messages, perhaps defining sections of a county most at risk, possible weather types and timing.

The La Crosse NWS office serves 28 counties in northeast Iowa, southeast Minnesota and parts of western and central Wisconsin. For more information, contact Todd Shea at Todd.Shea@noaa.gov. ❄

Hurricane Safety

Tropical Storm Fay Highlights Value of Webinars

Since November 2007, NWS Tallahassee has been using Citrix Go To Meeting software as a briefing program for EMs. These online briefings, or Webinars, are conducted when a hazardous weather threat is anticipated in our region within 48 hours, or as much as 5 days in advance for a tropical system.



Tropical Storm Fay 5 day track.

During Tropical Storm Fay, we provided Webinars for our EMs. They began well before the first rain bands from Fay affected our region. These briefings allowed NWS Tallahassee to graphically convey the expected threat from the storm as well as answer any pertinent questions from our EM partners. As Fay drew closer and the expected impacts became more certain, the frequency of the Webinars increased to twice daily in addition to the routinely scheduled audio calls at the local and state level.

In the days after Fay, an assessment of the briefing services by NWS Tallahassee was conducted among our EM community. EMs were unanimous in their praise of this new system. In fact, our users suggested that while the routine set of local and state conference calls scheduled during Fay were helpful, the Webinars were of the greatest value to EMs in the planning and response phases. Moreover, instead of EMs having to summarize a conference call for their staff, various local emergency operations centers would project our Webinar onto a large screen for all EM staff to view. Not only did this allow our weather information to reach the maximum number of first responders, it also decreased the time needed for summary weather briefings within local EOCs.

With Webinars now part of our arsenal, we hope to continue to keep our EMs better informed during critical weather events and thus fulfill the NWS mission of protecting life and property. For more information, contact Bob Goree, WCM, NWS Tallahassee, FL, at Bob.Goree@noaa.gov ❄

Hydrology Update

Flood Forecast Inundation Maps for Hurricane Ike Released

Hurricanes can have devastating impacts. Some of the best known threats include coastal storm surges, destructive winds exceeding 75 miles per hour and tornadoes spawned by hurricanes. Since the 1970s, however, inland flooding has killed more people than all of these threats combined. (See www.nhc.noaa.gov/HAW2/english/inland_flood.shtml.)

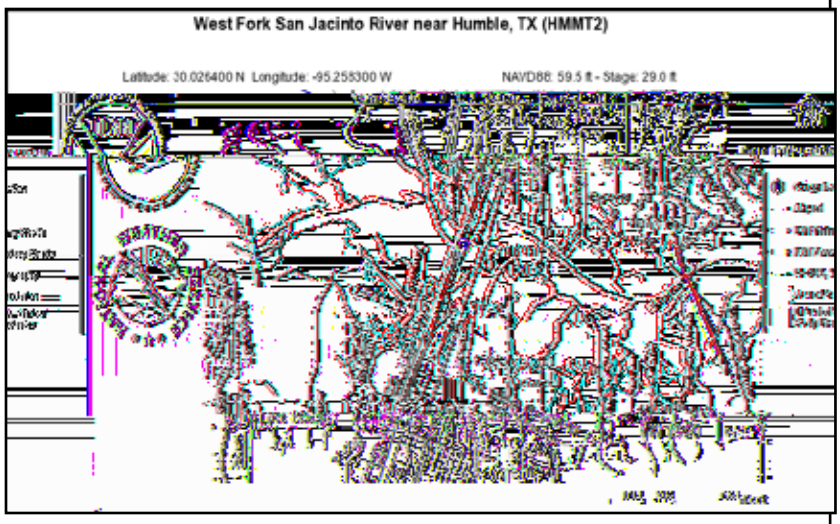
To achieve the NWS mission to save lives and protect property, NWS is committed to providing timely and accurate flood forecasts. NWS works closely with EMs by providing real-time water information and support services to reduce flood hazards and mitigate societal impacts. In response to increasing demands for visualizations of our forecasts, NWS now provides inundation maps to depict the spatial extent and depth of flood waters in the vicinity of NWS river forecast locations. This allows users to visualize flooded areas for discrete river levels ranging from minor flooding through the largest observed flood.

In June 2008, NWS added four new inundation map libraries to the Advanced Hydrologic Prediction Service (AHPS) for the following forecast locations: Buffalo Bayou, Cypress Creek

and two sites along the San Jacinto River, all in the Houston, TX, area. Before the severe flooding caused by rainfall from Hurricane Ike (September 2008), emergency officials, floodplain managers, public works departments and others in the flood prone Houston area could refer to online maps to visualize the potential areas for flooding.

During the flood, users were able to reference NWS inundation maps, current river level observations, and forecasts to evaluate the severity of flooding and take appropriate action.

For example, the illustration on the right shows the area that would be flooded along the West Fork of the San Jacinto River near Humble, TX, when the river is 10 feet above flood stage.



Flood inundation maps, combined with river observations and NWS river forecasts, enhance the communication of flood risk and provide users additional information needed to better mitigate the impacts of flooding and build more resilient communities. Currently, NWS provides inundation mapping for 36 locations in Texas, Louisiana and North Carolina. For details, see **www.weather.gov/ahps/inundation.php**.

NWS hopes to expand this capability by reaching out to communities interested in collaborating on the development of new AHPS inundation maps. In many cases, NWS can obtain the necessary analysis by using ongoing studies to delineate flood plains, under programs such as FEMA's National Flood Insurance Program.

If your community is interested in inundation mapping, please see the Flood Inundation Mapping fact sheet at: **www.weather.gov/hic/noaawatch/flood.mapping.fact.sheet.shtml** or contact **Victor.Hom@noaa.gov**. ❄

Outreach Innovations

Rain Gauge Drawing Attract Crowd at County Fair

More than 800 people signed up for the rain gauge drawing at the Wilson County, TN, fair. The drawing, plus a well placed booth location, significantly upped interest in the NWS Nashville display, which drew about 2,000 attendees. Many were residents of Macon County and were very familiar with the Super Tuesday damage photos displayed at the booth, another major attention-getter.

In all, the fair attracted more than 466,000 visitors—an increase of almost 100,000 people over last year. For more information, contact Larry Vannozzi, MIC, NWS Nashville, TN, at Larry.Vannozzi@noaa.gov.

Editor's Note: With great sadness, we relay that the author of this article, Nashville WCM Jerry Orchanian, died in early October after an extensive battle with colon cancer. Please feel free to write Nashville MIC Larry Vannozzi for more information and condolence information. Jerry was committed to his work and never stopped striving to make a difference. He will be sincerely missed at the National Weather Service. ❄

Nashville WCM Jerry Orchanian will be missed throughout the National Weather Service.

NWS Supports NOAA Booth at AARP National Conference

NWS reaches out to Seniors at AARP Conference booth.

A varied display featuring 12 raffled NOAA Weather Radios drew thousands to the NWS booth at the annual American Association of Retired Persons conference, held in Washington, D.C., September 5-7. There were nearly 30,000 attendees at the conference. The NOAA booth included short presentations on climate, weather and health, drought and severe weather preparedness.

Visitors were especially interested in learning more about NWS products; many attendees said they travel extensively and always check **www.weather.gov** before making any travel plans.

Participants were also very interested in learning how to prepare for inclement weather and understanding the potential impacts of climate change. NWS personnel were especially key in talking to people about Tropical Storm Gustav and its potential impacts on the weather in the Washington, D.C. area.

For more information, contact Donna Franklin, NWS National WCM Program, at **Donna.Franklin@noaa.gov**. ❄

Weather Radio Month Succeeds with New Activities

Washington state has made it a goal to make weather radios as common as smoke detectors in homes and businesses. To meet that goal, Washington Governor Christine Gregoire again declared September as Weather Radio Awareness Month and National Preparedness Month. The campaign was a joint effort with Washington State Emergency Management and all four NWS offices serving Washington. Activities included booths at numerous state and county fairs and disaster preparedness events as well as the following:

- Consumer incentives offered by many weather radio manufacturers and vendors
- Media interviews and slots on live talk radio shows
- Joint guest newspaper columns with Washington State's Emergency Management Director
- Radio Public Service Announcements
- Article in the Washington State Association of Broadcasters newsletter
- Headlines on all local WFO Websites linking to the state hosted campaign Website
- Campaign announcements on all NWR stations
- Dedication of the new Upper Cowlitz Basin NWR station
- Recognition of new StormReady site at Federal Way, WA

Another key activity was a statewide earthquake drill combined with a coastal area tsunami warning communication test. All Washington NWS offices activated the Emergency Alert System (EAS) using the Required Monthly Test (RMT) event code to initiate the drills. Broadcasters aired the EAS RMT. Initial consumer feedback on the tsunami test was quite good. Many schools conducted an earthquake drill with some coastal schools doing a tsunami evacuation drill.

The campaign also included some first time activities. One was a joint weather radio event at three Olympic Peninsula Walmart stores and several other coastal hardware retailers. More than 200 weather radios were sold during those well advertised events, held in conjunction with county emergency management agencies, retailers, local electric utilities and NWS. Other emergency preparedness kit supplies were also on hand.

In addition, NWS offices worked with Midland Radio and Reecom Radio to produce "how to program my weather radio" slide shows which were posted on the campaign Website. Feedback on the slide show was so positive that Midland plans to produce national slide shows and videos to help address its most common consumer inquiries. Other weather radio manufacturers were invited to produce similar "how to" presentations and may do so in the near future. For more information, contact Ted Buehner, WCM, NWS Seattle, WA, at Ted.Buehner@noaa.gov. ❄

Update on NWS Service Assessments

The service assessments for the Pacific Northwest Storms of December 1-3, 2007, was released October 14. No firm release dates have been set for the following service assessments NWS staff is preparing:

- February 5-6 Southern Tornadoes
- Mother's Day Weekend Tornadoes
- Record Midwest Flooding

For more information on service assessments, contact Wayne Presnell, NWS Performance Branch, at **Wayne.Presnell@noaa.gov**. ❄

Beyond Storm-Based Warnings: Integrating Societal Impacts

Integrating social sciences into the NWS physical science paradigm is a challenge that will only be successfully met by collaborating with academia, the private sector and other branches of government. The over arching benefit is clear: more viable warning information that addresses the societal impacts that severe weather uniquely imposes on our nation.

With that challenge in mind, **NOAA's Central Region** funded a **workshop** in association with **Weather and Society Integrated Studies** (**WAS*IS)** at **NOAA's Hazardous Weather Testbed** in Norman, OK, September 15-17. The goal was to identify and discuss major societal challenges for NOAA's Hazardous Weather Testbed as its staff develops new severe weather warning technologies and information streams.

In addition to NOAA meteorologists, the workshop included representatives from the private sector, media, emergency management (National and local FEMA staff) and representatives from a variety of social science fields. Many new connections were made between these key stakeholders and the NOAA scientists who are developing future warning techniques. The workshop identified a number of essential goals:

- Obtain a fundamental understanding on how users are using NWS information to drive future warning applications
- Improve understanding of a wide spectrum of end users with a variety of vulnerabilities and communication technology to receive warnings and action thresholds
- Replace one-size-fits-all warnings that no longer effectively take into account the spectrum of user needs
- Develop new performance measures to accurately assess the skill and socio-economic benefits of warnings
- Maintain a clear and consistent message when attempting to communicate uncertainty
- Obtain customer and stakeholder input throughout the design, evaluation and implementation of new warning information
- Implement improved techniques to facilitate customer and stakeholder input into studies of weather disasters, include an accounting of societal impacts and warning response
- Fully leverage new technology, such as GIS tools, to predict and measure the human impact of weather events.

For more information, contact Kevin Scharfenberg, Severe Storms Services Coordinator, at Kevin.Scharfenberg@noaa.gov. ❄

Next Generation Warning Services Workshop, December 2-4

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TORNADO WARNING
NATIONAL WEATHER SERVICE DODGE CITY KS
919 PM CDT FRI MAY 4 2007

THE NATIONAL WEATHER SERVICE IN DODGE
CITY HAS ISSUED A

* TORNADO WARNING FOR...
  KIOWA COUNTY IN SOUTH CENTRAL KANSAS.

* UNTIL 1000 PM CDT

* AT 917 PM CDT...NATIONAL WEATHER
SERVICE METEOROLOGISTS WERE TRACKING A
CONFIRMED LARGE AND EXTREMELY DANGEROUS
TORNADO 14 MILES SOUTH OF GREENSBURG...
OR 11 MILES NORTHWEST OF WILMORE...
MOVING NORTHEAST AT 25 MPH.
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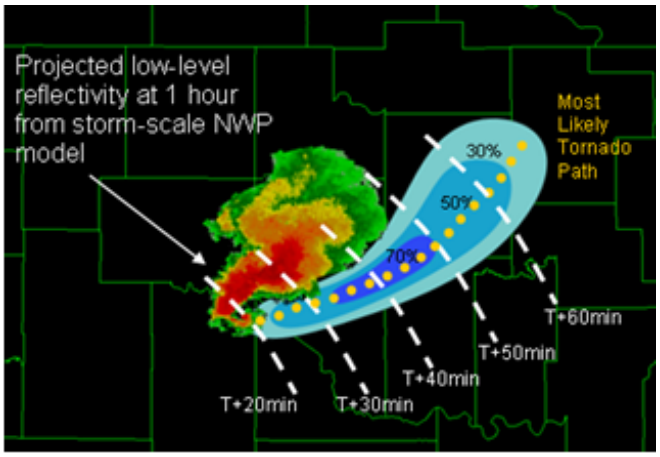
Example of current tornado warning format.

The communication of threats imposed by extreme weather events such as tornadoes, floods, hurricanes, blizzards and extreme heat involves a large segment of the weather enterprise. Vendors of meteorological information, the media, emergency managers and federal, state and local governmental organizations all have specific needs for information during these high impact events.

NWS is designing a new application to fully support its watch, warning and advisory mission and meet new operational requirements. A critical first step in this design process is to ensure there is a thorough understanding of both the types and the formats of needed information.

On December 2-4, NWS and the University of Oklahoma will hold a workshop in Norman, OK, to bring together technical and operations experts from the private weather enterprise, government agencies, the broadcast media and academia (including social scientists) with the following goals:



This could be the future tornado threat graphic.

- Foster discussion on ways to optimize dissemination of NWS threat information services, including details of textual and graphical dissemination
- Explore how to best use new and emerging technologies and capabilities in the dissemination of NWS advisories and warnings
- Collect new ideas to maximize public and partner satisfaction with the quality, usability and flexibility of NWS watch, warning and advisory services
- Apply social science expertise to the understanding of human response to the watch, warning and advisory services.

Workshop results will help NWS plan for potential modifications to our suite of warning products and services. For more information, contact John Ferree, NWS Severe Storms Services Leader, at John.T.Ferree@noaa.gov. ❄

Planning Underway for Ninth National Severe Weather Workshop

The Ninth National Severe Weather Workshop in Norman, OK, is scheduled for March 5-7, 2009. The theme will be *Dangerous Weather Ahead: Understanding and Communicating the Threats*. With this theme as the framework, workshop organizers have focused on four broad topic areas of interest to professionals and students involved in forecasting and emergency management:

- Understanding communities at risk and what to do about them
- Current and future tools for threat assessment

- Communications technology before, during and after severe weather
- Careers in weather, hazard mitigation and crisis management.

In addition to these broad areas, the workshop will look at topics ranging from emergency management weather hazards training to the latest news in hazardous weather research.

If you are interested in submitting a presentation or poster associated with these topics, contact Greg Carbin at **Gregory.Carbin@noaa.gov** as soon as possible. In addition to individual efforts, we strongly encourage submissions from cross-disciplinary teams that include the media, emergency management, scientists and forecasters. Students in those fields are also encouraged to submit their work. In addition to presentations and possible poster sessions, workshop organizers are planning to have at least one panel discussion.

As is the case every year, the workshop will conclude with an afternoon session devoted to storm spotters, EMs and others who help protect their communities from severe storms. The session will feature topics of special interest to storm spotters, including:

- Preview of the upcoming VORTEX-2 project scheduled for spring 2009
- First look at the latest technological advances that can help spotters be safe, informed and able to share their information with NWS
- Short course on the basics of severe weather meteorology for spotters
- Entertaining and enlightening presentation on storm spotter safety and observations.

Check the winter edition of *Aware* for additional information about the NWS Weather Workshop. Our next installment will include the Web address for early workshop registration.

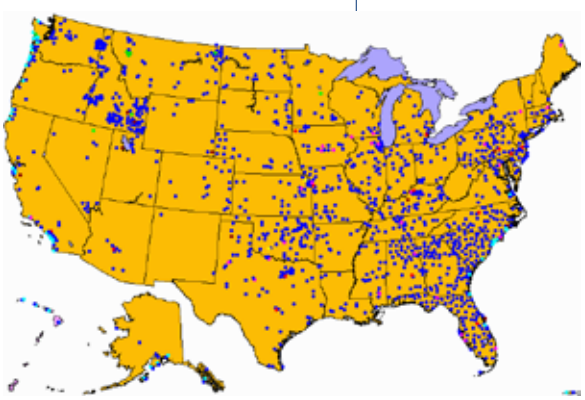
For more information contact Greg Carbin, WCM, NCEP Storm Prediction Center, Norman, OK, at **Gregory.Carbin@noaa.gov**, or Rick Smith, WCM, NWS Norman/Oklahoma City Forecast Office at **Richard.Smith@noaa.gov**. ❄

StormReady/TsunamiReady

StormReady Gains Indian Nation and Military Barracks

Since July 1, the StormReady program has gained 30 new sites including the Shoshone-Bannock Tribes of Idaho and Carlisle Military Barracks in Pennsylvania. Pennsylvania led the pack with four new sites over the summer. New StormReady locations were added nationwide from Washington to Alabama and Arizona to New York. The fiscal year ended with more than 1,400 sites.

The supporter program added State Farm Insurance headquarters and several Cooperative Extension sites in Kentucky as well as Fayetteville Public Utilities in Tennessee. The supporter program is for entities that cannot meet all the StormReady requirements, such as 24/7 communication, but supports the StormReady mission.



The NWS StormReady and TsunamiReady programs are geared to help communities better prepare and respond to weather emergencies. During 2008, that preparedness has been crucial in light of an onslaught of winter weather, tornadoes, high winds, flooding, heat, hurricanes and wildfires. No program can prevent destructive weather or eliminate the destructive results but StormReady ensures Emergency Managers have the tools they need to prepare and respond.

For more information on StormReady or TsunamiReady, contact **Melody.Magnus@noaa.gov**. ❄

NWS Shifts to "Simplified" Winter Weather Advisories and Warnings

NWS made significant changes to its suite of winter weather products effective September 9. After two full winter seasons of issuing a myriad of event-specific winter weather products, feedback from our forecasters, partners, media and other users revealed there was too much confusion and complexity in our output—both graphical and textual.

In recent years, NWS offices were issuing multiple warnings and advisories across metropolitan areas and media markets with little difference in impacts. Forecasters were often in a quandary on whether to issue or update event-specific products when changing conditions, such as when heavy snow occasionally mixed with sleet, or when winds hit blizzard warning criteria in parts of a county or zone. As a result of these concerns, NWS issued a Public Information Statement in February 2008 requesting comments on a proposal to simplify the winter weather product types based on impacts rather than precipitation type. To view the change in available products, go to: **www.weather.gov/os/winter/resources/wsw_ex.pdf**.

Of those who responded, 85% supported the proposed changes. Respondents who disagreed with the proposed changes expressed concern that important information would be lost in the headlines. Through interactions with our regions and partners, we addressed concerns by agreeing to prominently display event-specific information in or immediately following the attribution statement below the headline. NWS is keeping Lake Effect, Ice Storm and Blizzard Warnings separate from Winter Storm Warnings to reflect their significant and unique impacts. Similarly, Freezing Rain and Lake Effect Snow Advisories will remain separate from Winter Weather Advisories. You can find a guide to these changes, including examples at: **www.weather.gov/os/winter/resources/wording.pdf**. NWS staff also issued Service Change Notice 08-40 on May 12, 2008, announcing this change.

In addition to upcoming software changes to address products no longer in use, NWS forecast offices received instructions on the new policy. NWS staff also received an update to the Winter Weather Advanced Warning Operations Course (AWOC) training materials to reflect the changed procedures. A revised NWS Instruction (10-513) is in final draft and will reflect the new policy. Benefits of the change include:

- Streamlined forecaster decision making
- Easier coordination among adjoining county warning areas
- Reduced need for updates
- Improved graphical presentation of hazards during rapidly changing weather events

This entire process exemplifies the flexibility of NWS staff to make changes, reflect on those changes, and make improvements to better our products and services.

For more information, contact Paul Stokols, Winter Weather Service Expert, at **Paul.Stokols@noaa.gov.**

Climate, Water and Weather Links

Aviation Weather:	**aviationweather.noaa.gov/**
Brochures, Booklets, Posters:	**weather.gov/os/brochures.shtml**
Education and Outreach:	**www.weather.gov/os/edures.shtml**
Flooding, Hydrology:	**www.floodsafety.noaa.gov/**
MIC, WCM, SOO, DOH List:	**weather.gov/os/wcm-soo.pdf**
Natural Hazards Statistics:	**weather.gov/os/hazstats.shtml**
NOAA Weather Radio Information:	**weather.gov/nwr/**
Past Weather and Climate:	**lwf.ncdc.noaa.gov/oa/ncdc.html**
Severe Weather Safety:	**weather.gov/os/severeweather/index.shtml**