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

Aware

Volume 2, July 2009

Climate, Water, Weather

NWS and Red Cross Issue Updated Tornado Safety Guidelines

By Ron Gird, Outreach Manager, NWS Office of Climate Weather and Water Services

NWS and the American Red Cross share a common goal of protecting lives through public education. To ensure we meet that goal, after careful review, we have updated our joint official tornado safety policy.

Many guidelines remain the same. If you receive a tornado warning for your area, seek shelter immediately in an underground shelter, basement or safe room. We have updated our policy on what to do if you are caught outdoors and cannot get to a safe building. As a last resort, you should:

- Immediately get into a vehicle, buckle your seat belt and try to drive to the closest sturdy shelter.
- If your vehicle is hit by flying debris while you are driving, pull over and park.
- Stay in the car with the seat belt on. Put your head down below the windows; cover your head with your hands and a blanket, coat or other cushion if possible.
- If you can safely get noticeably lower than the level of the roadway, leave your car and lie in that area, covering your head with your hands.

Your choice of whether to stay in your car should be driven by your specific circumstances. Your best choice remains getting to a secure building with a basement or saferoom.

If you find yourself outside or in a car with a tornado approaching and you are unable to get to a safe shelter, you are at risk from a number of things outside your control, such as the strength and path of the tornado and debris from your surroundings. You remain at risk whether you stay in your car or seek shelter in a depression or ditch, both of which are last resort options that provide little protection. The safest place to be is in an underground shelter, basement or safe room.

The remainder of our joint policy remains the same. It is still critically important to be prepared and act quickly when conditions are right for tornadoes to develop, such as during a severe thunderstorm warning or a tornado watch. When NWS issues a tornado warning, those at risk must act immediately.

The first step to being prepared for a tornado is to identify a safe location well in advance of any severe weather. Step two is to have a way to get weather alerts wherever you are, such as from a NOAA Weather Radio. Before NWS

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broadcasts a watch or warning, you should have a plan on what to do and where to go. When a warning is issued, act immediately. Do not wait until you see a tornado.

If no underground shelter or safe room is available, the safest alternative is a small, windowless interior room or hallway on the lowest level of a sturdy building, such as an interior bathroom. If you live in a mobile home, go to the nearest sturdy building or shelter when a tornado threatens.

NWS and the American Red Cross are working to ensure that our publications are updated to reflect this new tornado safety messaging. These changes were formulated using evidence-based research. We will continue to assess new research findings to further improve our nation's tornado safety messaging systems. ❄

Aviation Updates

Aviation Safety Tips Available in *The Front*

By Melody.Magnus, NWS Aware Editor

In June, the NWS Aviation Branch released 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:

- Vertical Wind Profiles Available on CWSU Website
- Increased TAF Service in the East
- Key to Terminal Aerodrome Forecast

If you would like an email when *The Front* is released, write **Melody Magnus**. If you have article suggestions or comments, contact **Michael.Graf**. ♦❄

Aware

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Dissemination News

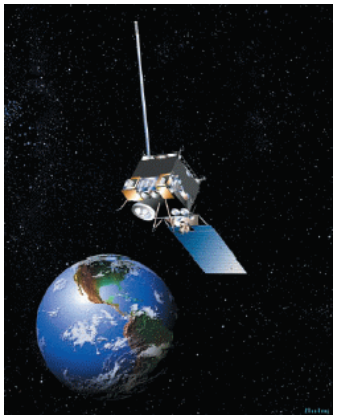
EMWIN-N Transition Continues to Approach

By Robert Wagner, NWS Office of the Chief Information Officer

GOES-O was launched from Cape Canaveral Air Force Station in Florida on June 27. GOES-O, which will be renamed GOES 14 after a successful checkout period, is the second of the GOES-N series in orbit currently waiting to be put in full-time operation. Once these satellites are placed in service, the Emergency Managers Weather Information Network-N (EMWIN-N) broadcast will replace the current legacy broadcast.

EMWIN-N will provide several advantages over the existing broadcast, but all users will need to upgrade to EMWIN-N capable systems. The transition will occur sometime before the end of 2011, when both current generation satellites are removed from service. The transition could occur earlier due to premature failure of one or both of the current GOES satellites. A detailed transition plan is currently being developed by NWS and National

Environmental Satellite, Data and Information Service and should be ready in the near future. All users should consider migrating to EMWIN-N capable systems. Anyone with an EMWIN-N system can try out the broadcast by using the GOES 10 satellite. GOES 10 provides a test broadcast and will remain in operation until December 2009.



The Future of EMWIN

The EMWIN team hopes to use the newly launched GOES-O satellite to help test the next generation EMWIN prototype, which is nearing completion. The test will be scheduled sometime later this summer and will use the GOES-R EMWIN prototype receiver. The prototype provides backward compatibility to the current generation broadcast to ensure transition flexibility. In the GOES-R era, the EMWIN broadcast data rate will greatly increase, allowing for a much larger product set.

To keep informed of new developments in the EMWIN transition, visit the NWS EMWIN Website. ❄

Flood/Hydrology

High Water Mark Sign Info Made Easy

Flooding is part of the history of many communities across the country. Despite this reality, many residents are not fully aware of the flood potential in their local area.

To help raise awareness of flood risk, in 2006, NWS began installing High Water Mark signs in prominent locations within communities that have experienced severe flooding. The locations are selected based more on prominence rather than location of the flood. For example, a sign might be placed on the wall of a centrally located building downtown rather than near a rarely visited riverbank.

Service hydrologists from local NWS offices coordinate with emergency management and other local officials to select the best locations for the signs. The U.S. Geological Survey is involved as well, providing historical data and aiding with the surveying of High Water Mark signs in their districts.

The High Water Mark Website contains a map where High Water Mark Signs are posted, photos of the sites, how to get a sign posted in your neighborhood and more. To add information on new signs to the Website, contact Melody Magnus.

For more information on the High Water Mark program, contact Larry Wenzel, National Hydrologic Outreach Program Leader, NWS Hydrologic Services Division. ❄

High Water Mark signs, such as the one above, help raise awareness about the danger of flooding in a community.

NWS Commemorates 30th Year of Major Flood Event

By Jeff Graschel, Service Coordination Hydrologist, Lower Mississippi River Forecast Center (LMRFC)

NWS Jackson, MS, and the Mississippi Emergency Management Agency (MEMA) invited the public and media to a press conference in commemoration of the 30th anniversary of the "Easter Flood" of mid-April 1979. The Easter Flood engulfed much of central Mississippi including sections of Jackson, Rankin and Lawrence counties. The flood caused immense damage and loss of property. The 30th anniversary event focused on those who were directly affected in

MIC Alan Gerard, NWS Jackson, MS, served as Master of Ceremony for the 30 year commemoration of the 1979 Pearl River flood.

Jackson during the flood and also the improvements made in forecast operations and river gauging. The program also focused on the need to prepare for future floods.

This event brought together representatives from many federal, state and local organizations to provide their different perspectives and to describe their roles during the flooding. Many of the speakers were actively involved in flood operations, including Dale Danks, Mayor of Jackson in 1979, and Charlie Moak, the dam operator for the Ross Barnett Reservoir. Mike Womack, Executive Director of MEMA, spoke about the importance of flood preparedness and the need for flood insurance. Mickey Plunkett, Director of the US Geological Survey Mississippi Water Science Center in Jackson, and Dave Reed, Hydrologist-in-Charge at LMRFC in Slidell, LA, highlighted the latest in stream gauging, which now provides real-time data to improve river forecasting. After the press conference, speakers were available to answer questions and provide information about their perspective services.

Governor Haley Barbour of Mississippi proclaimed April 12-18, 2009, Easter Flood of 1979 Commemoration Week. ❄

Hurricane Awareness

NWS Proposes Updated Saffir-Simpson Hurricane Scale for 2010

By Timothy Schott, NWS Marine and Coastal Services Branch

Hurricane Katrina as approached the Louisiana coast.

Did you know, based on the current Saffir-Simpson Hurricane Scale, Hurricane Charley (2004)—a "Category 4 storm"—had Category 4 winds at landfall and a Category 2 storm surge? Or that Hurricane Katrina (2005)—a "Category 3 storm"—made landfall on the Gulf Coast with Category 3 winds and a Category 5 storm surge? Confused?

The current Saffir-Simpson Hurricane Scale has been in place since 1975. The scale provides wind speed, barometric pressure, and storm surge ranges on a 1-5 scale. As illustrated in the examples above, storm surge ranges in the existing scale are frequently incorrect for the indicated category and are potentially misleading for preparedness decisions, since the actual storm surge depends on a variety of factors, such as the storm's areal size, forward speed, and the bathymetry of the nearshore waters.

To resolve these issues, NWS is removing , on an experimental basis, storm surge ranges from the definitions for the 2009 tropical cyclone season. The revised content will be included this year in a scale called the Saffir-Simpson Hurricane Wind Scale.

You can view the proposed Saffir-Simpson Hurricane Wind Scale definitions for the Atlantic, Eastern Pacific and Central Pacific Hurricane basins online.

NWS welcomes feedback on this experimental change. Send comments to the National Hurricane Center or the Central Pacific Hurricane Center Webmaster.

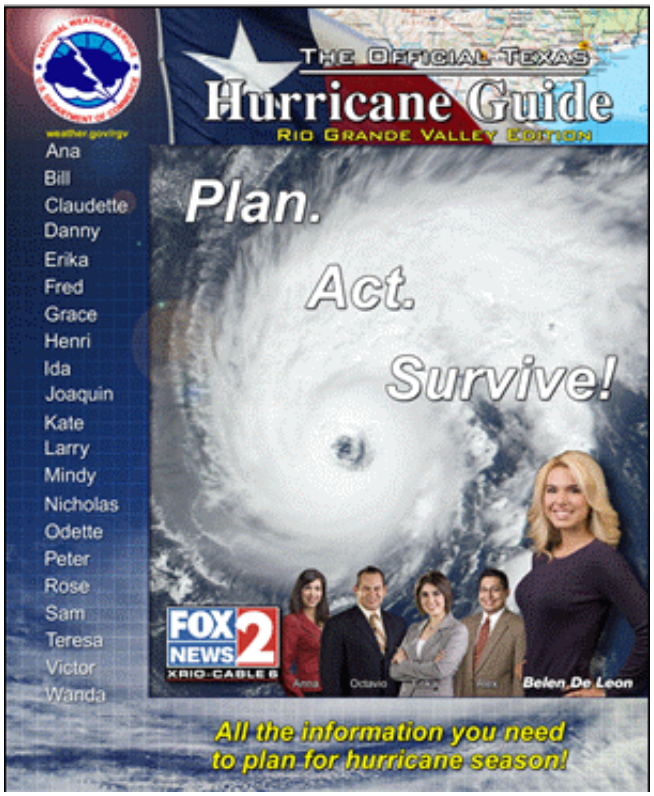
After fully considering user feedback, NWS will make a decision on whether to transition to an operational Saffir-Simpson Hurricane Wind Scale this winter. A Public Information Statement communicating this decision will be released in early 2010. ❄

A Collaborative Partnership to Distribute Hurricane Guides

By Scott Cordero, MIC, and John Metz, WCM, NWS Corpus Christi, TX
and Barry Goldsmith, WCM, NWS Brownsville, TX

Since 2006, the NWS office in Corpus Christi has published an official hurricane guide for Texas coastal residents and visitors. This effort initially focused on the Coastal Bend. This year, in collaboration with the NWS offices in Brownsville, Houston/Galveston and Lake Charles, LA, it has expanded to the entire Texas Gulf Coast. The *2009 Texas Hurricane Guide*, a comprehensive booklet in both English and Spanish, has specific editions for the four geographical areas. The Guide is a road map for surviving a hurricane and its aftermath, and includes:

- Impact and planning information
- Life-saving emergency information
- Tips to mitigate property damage
- Suggested actions for recovery by residents, visitors and businesses
- Reviews of past events



Front page of the 2009 Texas Hurricane Guide, Rio Grande Valley Edition.

More than a dozen pages in each guide include information specific to the geographical area as well as up to four pages with local inundation and/or evacuation information for specific coastal communities. Also included are storm histories, climatology and related impacts.

For example, the Rio Grande Valley edition, covering the Brownsville area, includes inundation maps for South Padre Island and the Port of Brownsville; the Coastal Bend edition includes maps for Corpus Christi, Port Aransas and Port O'Connor. The Coastal Bend edition also includes a 2 page review of Hurricane Ike (2008); while the Rio Grande Valley edition reviews Hurricane Dolly (2008) and has a brief retrospective of Hurricane Beulah (1967).

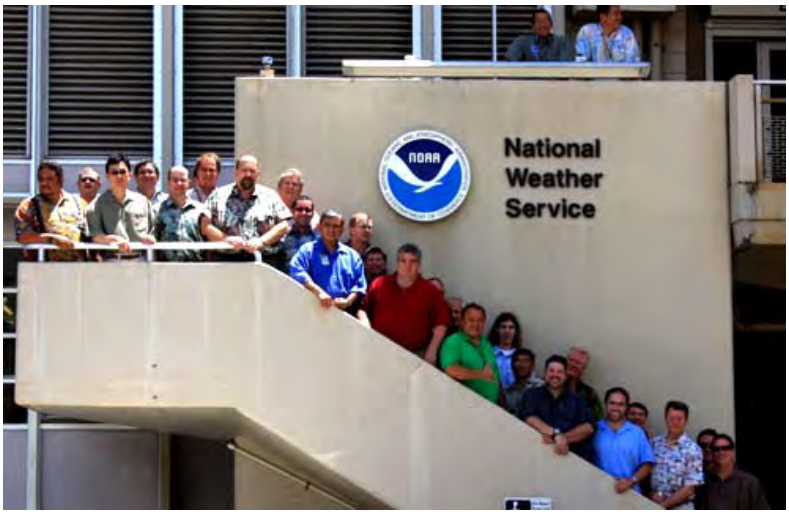
NWS Texas coastal offices recognized that collaborative partnerships with a variety of government agencies, private companies, non-profits, the media, academia and emergency managers were necessary to develop and widely distribute this guide. This unprecedented collaboration resulted in the distribution of more than one million *Texas Hurricane Guides* for the 2009 season, primarily through local retail stores. We anticipate that wide distribution of the *Guide* will result in a better understanding of the social and cultural issues related to hurricane preparedness for communities in harm's way.

English and Spanish versions of the *Guides* can be found online at the NWS Corpus Christi, Brownsville, Houston and Lake Charles Websites. ❄

Central Pacific Hurricane Center and FEMA Partner to Host a 3-day Hurricane Preparedness Course

By Raymond Tanabe, WCM, NWS Honolulu, Hawaii

NWS and the Federal Emergency Management Agency (FEMA) are constantly striving to provide innovative preparedness, awareness and decision assistance tools that address hurricane hazards and their impacts. To support the program's vision of "A Nation Prepared - protecting human life and property from the hazards of hurricanes and tropical systems" and NWS' mission of providing services "...for the protection of life and property", FEMA's National Hurricane Program and the Central Pacific Hurricane Center (CPHC) partnered to host a Hurricane Preparedness Course in Honolulu, HI, April 14-16. The 18 participants included state and county emergency managers, first responders from police and fire departments, and emergency managers from FEMA Region IX.



Attendees at the CPHC/FEMA Hurricane Program in Honolulu.

This 3-day pilot course was a specialized training opportunity to build the capacity of civil defense/emergency managers to understand hurricanes and make effective protective action decisions during a hurricane threat.

Through hands-on and interactive work with hurricane specialists from the CPHC, the course provided intensive instruction on all aspects of tropical cyclone forecasts and products, along with local NWS Weather Forecast Office products.

The course also emphasized the importance of understanding storm inundation and flash flooding threats. The culmination of the pilot course was a hurricane exercise to test and demonstrate all of the lessons, tools and resources emphasized throughout the course. For details on the event, presentations and exercise, contact Raymond Tanabe. ❄

Observations

Experimental Hourly Precipitation Estimates Web page Available

By Bill Lawrence, Service Coordination Hydrologist, Arkansas Basin RFC

Based on survey feedback, the NWS daily precipitation estimates is clearly a popular and useful Web page. Survey results also indicate users would like a Web page with hourly precipitation estimates.

In response, a team of forecasters from NWS River Forecast Centers (RFC) embarked on a project to mosaic the high quality hourly estimates of precipitation across the country. The estimates are based on a multi-sensor approach, using radar and satellite data adjusted by ground truth. Currently, 10 of the 13 RFCs are contributing data, which is run through a quality control process. The goal is to provide national coverage.

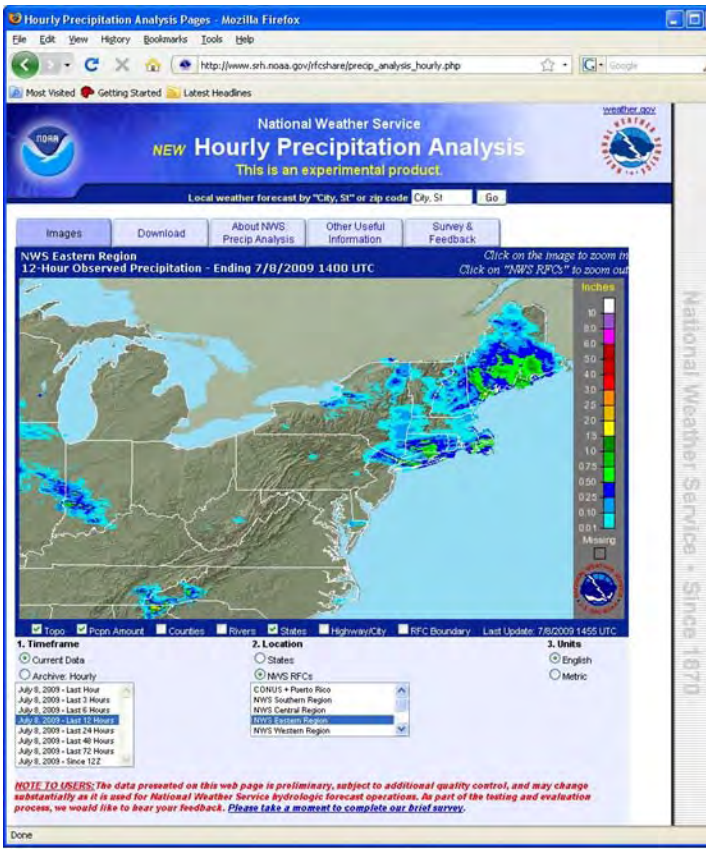
The data are available in near real-time, approximately 60 minutes after the top of the hour. When an RFC updates precipitation estimates, the data on the Web will automatically update the next time the process runs.

The experimental hourly precipitation Web page allows users to view data at the national, regional or state levels, and display various overlays such as counties and rivers.

The latest hour available is always displayed, but users can also view recent accumulations from the past 3, 6, 12, 24, 48 or 72 hours of data. The longer time period allows users to see storm totals for situations where precipitation occurs over multiple days.

An online archive of the images dates back to November 2007; however fewer RFCs were contributing data at the beginning. The data are also available in shapefile format with an online archive of 14 days. If users have access to a geographic information system (GIS) data viewer or application, this shapefile data can be downloaded and viewed or manipulated to suit individual applications.

Due to data coverage across multiple time zones, Universal Coordinated Time (UTC) is used on the Website. ❄



Sample of NWS Hourly Precipitation Estimates.

Outreach Innovations

NWS Draws Booth Visitors with Games, Interactive Contest

By Dave Nadler, Meteorologist, NWS Huntsville, AL

Staff at NWS Huntsville, AL, along with meteorology graduate students from University of Alabama in Huntsville (UAH), spent weeks preparing activities for the 28th Annual Panoply Arts Festival April 24-26. The word panoply means "wonderful array," which describes the variety of activities, arts and entertainment the festival has offered since 1982. With thousands of visitors from several surrounding states, Panoply is continually voted one of the top 20 regional events by the Southeastern Tourism Society.

Staff helped create coloring books to highlight different aspects of NWS including how various data and observations are used to create public, aviation and hydrologic forecasts. Staff also developed crossword puzzles in conjunction with brochures that detailed thunderstorms, flooding and hurricanes. These creative activities made up the "Kids Corner" which also included a bean bag toss and prizes.

Meteorologist Kurt Weber discusses weather to some young fanatics at the "Kids Corner." The booth's bean bag toss game also drew kids.

Another unique activity was a voting booth for the 3rd Annual Tennessee Valley Severe Weather Poster contest, sponsored by UAH meteorology students. Four finalist posters for each category, 1-4th grade and 5-8th grade, were displayed throughout the 3-day festival where hundreds of votes decided the winners.

NWS Huntsville staff also presented real-time radar data on a 32-inch large screen television, and distributed various brochures that pertained to the local office, aviation forecasts and weather safety. ❄

Media, Hurricane Hunters Add Flash to Open House

By Barry Gooden, WCM, NWS Atlanta, GA

NWS Service Coordination Hydrologist Todd Hamill talks to visitors at the Southeast RFC booth.

On June 13, NWS Peachtree City, GA, held an Open House in conjunction with hosting the Hurricane Hunter aircraft, C-130J, at Falcon Field. Both of the events were a great success. The Open House ran from 11:00 a.m. until 4:00 p.m. with about 700 people touring the NWS office and well over 2,000 visiting the Hurricane Hunter and talking with the crew. Our media partners made announcements during their broadcasts days leading up to the event, greatly increasing attendance over previous events. Just before the public tours started, we had media partners visit the office, see the arrival and landing, and tour the C-130J.

Two additional partners also helped strengthen the event: the Peachtree City Citizens Emergency Response Team (CERT) group, who had a trailer displaying materials and talked about becoming a CERT member; and the Fayetteville Police Department who provided tours of their Mobile Command Vehicle. ❄

Decision Support Services Get High Marks

By Walt Zaleski, WCM Program Manager, NWS Southern Region, Fort Worth, TX

Regional Director Bill Proenza makes the case for 24 x 7 "All-Hazards" Decision Support from your local NWS Office. Photo by Néstor S. Flecha Díaz.

At a recent meeting for NWS Southern Region Warning Coordination Meteorologists (WCM) and Service Coordination Hydrologists (SCH) in Fort Worth, TX, presentations centered around the theme of Decision Support Services.

Don McKinnon, Emergency Management (EM) Director of Jones County, MS, offered a wide range of experience in dealing with hurricanes, tornadoes, heat, drought and even winter weather hazards. He presented a unique perspective on the current and future Decision Support Services required by first responders to help save lives and mitigate property damage from the impacts of nature's severe storms.

Austin television and radio meteorologist, University of Texas professor and avid NWS product user, Troy Kimmel provided a common sense, thought provoking presentation on how NWS forecasters can best communicate risk about severe weather impacts to media, the EM community and the public. Troy made it clear that he believed that NWS

implementation of Decision Support Services was the correct vision of the future. Customers will continue to need and rely on the interpretative skills of NWS meteorologists. Troy also adamantly supports retaining NWS text products which he noted, "continue to be widely used by broadcast meteorologists across our country."

Additional conference presentations included WFO-SPC Collaboration by Dave Imy of SPC, StormReady/TsunamiReady and other valuable outreach updates from National WCM Program Leader Chris Maier, and a comprehensive look into the future of Verification/Storm Data from Brent MacAloney, from the NWS Performance Branch. Regional Director Bill Proenza amplified the importance of NWS Decision Support Services to current and future customers, partner and users alike. ❄

Rip Currents

Cold Water Rip Current Issues Take Center Stage

By Carol Christensen, WCM, and Dean Packingham, Marine Focal Point NWS Duluth, MN

On June 4, NWS Duluth, MN, and the Minnesota Sea Grant cosponsored the 2009 Great Lakes Rip Current Conference. This NOAA collaboration was a major success, with nearly 40 participants from across the western Great Lakes region. The conference featured national experts on rip currents and hypothermia, including Dr. Guy Meadows, Director of the University of Michigan's Ocean Engineering Laboratory, and hypothermia expert Dr. Lawrence Wittmers of the University of Minnesota Duluth Medical School. The conference also included NWS presenters and speakers from the Minnesota, Wisconsin and Michigan Sea Grant.

The conference addressed the mechanics of how, why and where rip currents form in the cold waters of the Great Lakes, our ability to forecast rip current conditions, the effects of hypothermia and how cold water can affect rescues. The program also offered a showcase for educational programs on how to recognize and escape from rip currents.

Real-time experiments were conducted on Lake Superior by Dr. Meadows showing how dye packets can be used to track potential rip currents.

While the conference highlighted rip currents across the Great Lakes, the results should be applicable to other cold water large lakes and possibly cold water areas along portions of the west coast and the northeastern United States. The presentations will soon be posted at the Minnesota Sea Grant's Rip Current Website.

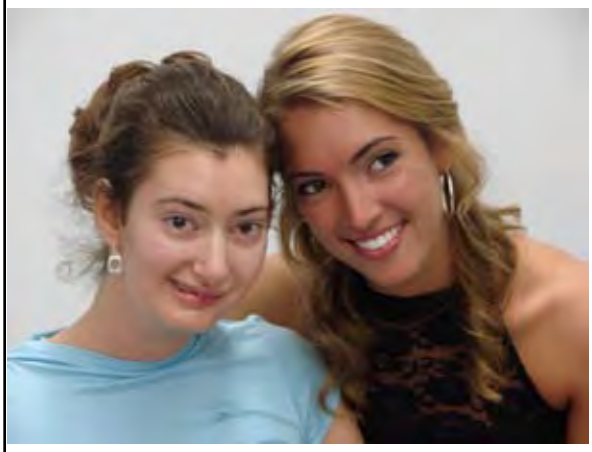
Forecaster and Marine Focal Point Dean Peckingham, NWS Duluth, MN, gives an interview during a break in a Rip Current conference.

The conference met its goal of bringing together government, emergency management, educational and public resources to discuss ways to improve rip current forecasting and awareness as well as ways to communicate risks. NWS plays a significant role by issuing daily Surf zone Forecasts to address the risk of rip currents. The purpose of the Surf Forecast has been to set the preparedness level for the day. When there is a greater risk of rip currents, there needs to be a great deal of coordination between all levels of government, media, emergency management, lifesaving and other groups that have an interest in keeping people safe at the beach. ❄

Severe Weather

Lightning Safety Week Features Dramatic New Video

By Melody Magnus, NWS Aware Editor



Christina and Ellen Bryan. Christina became a lightning victim while working at a golf course.

The centerpiece of the 2009 Lightning Safety Campaign is a dramatic new video featuring Christina and Ellen Bryan. Christina is a lightning victim who was struck while working at a golf course. She thought the storm had passed by and went out to finish her shift. Her moving story is told by her younger sister Ellen, now a college student at Ball State University.

"My sister Christina is the biggest inspiration in my life, but I never want anyone else to endure the challenges and struggles she has faced as a result of being struck by lightning," said Bryan, who expects to graduate in 2011 with a degree in telecommunications. "What happened to Christina profoundly changed my life. It has been my mission since that day to warn people."

The video, featured in *USA Today*, has been picked up as far away as China. Here's a more local review: "The new lightning PSA was fantastic and one local TV station in our area, WVVA (Bluefield, WV), is broadcasting this every Saturday morning," said Phil Hysell, WCM, NWS Roanoke, VA.

This year's program also features a new brochure entitled "Lightning Safety for You and Your Family," and the popular "When Thunder Roars, Go Indoors" stickers. Phil took the brochures and stickers to a game of the Salem, VA, Red Sox, a Class A minor league baseball team, and sent more than 150 people home with lightning safety information.

To see the video in a variety of formats, as well as audio PSAs, interviews and a wealth of additional resources, go to the NWS Lightning Safety Website. ❄

Lightning Safety Gets Hot Air Boost at Baseball Game

NWS Hydrometeorological Technician Steve Bilodeau talks to kids in preparation for release of the weather balloon at an Amarillo Dillas Baseball Game.

By Steve.Drillette, WCM, NWS Amarillo, TX.

To kick off Lightning Awareness Week, NWS Amarillo, TX, teamed up with KVII News Channel 7 and the Amarillo Dillas baseball team to promote lightning safety at a Dillas home game. The Mayor of Amarillo, Debra McCartt, officially proclaimed June 22 as "Weather Night at the Dilla Villa." NWS Amarillo presented the Mayor and Dillas General Manager Mike Lee with a lightning safety sign. The event drew nearly 3,800 fans out to support the Amarillo Dillas and learn about lightning safety.

Before the game, Amarillo NWS released a weather balloon in center field that was followed by Mayor McCartt's official proclamation. NWS and KVII-TV staffed booths throughout the game. More than 500 helium-filled "mini weather balloons" were provided to kids as they entered the stadium and the first 200 kids also received a coupon for a free drink from Sonic Restaurants. In addition, numerous door prizes were

given away after each inning including weather radios, rain gauges and small coolers, which included an AM/FM radio. Members of the KVII news team and Amarillo NWS also threw tee-shirts into the crowd, much to the delight of the fans. ❄

StormReady/TsunamiReady

Boston, Grand Teton, Ole Miss Join StormReady Program, TsunamiReady Gains Three Sites

By Melody Magnus, NWS Aware Editor

This spring, the NWS StormReady Program added Boston, MA, to the StormReady program along with 34 other counties and communities in locations ranging from Maine to California and Puerto Rico to Oregon. San Bernadino County in southern California, the nation's largest county, also joined the program. San Bernadino is larger than Massachusetts, Rhode Island and Connecticut combined.

The StormReady program also gained Grand Teton National Park in Wyoming and Craters of the Moon National Monument Preserve in Idaho.

Higher Education gains include the University of Mississippi, better known as "Ole Miss," and Saginaw Valley State University in Michigan.

The TsunamiReady program gained three new sites in Puerto Rico: Anasco, Dorado City, Rincon City.

The Supporter program gained its first office building, the 907 Detroit Building in Tulsa, OK, and the Little Sioux Scout Ranch in Iowa, the site of the tragic tornado killing several Boy Scouts last year.

For more information on the benefits of the StormReady or TsunamiReady program, contact your local NWS office. ❄

NWS Riverton, WY, MIC Kevin Lynott presents StormReady Project Lead Heather Voster with Grand Teton National Park's new StormReady sign.

Online Summer and Fall Awareness Resources

Summer and fall are thunderstorm, tornado, lightning, flood and hurricane seasons. Check out the sites above for posters, videos, animations, photos, survivor stories, children's and teachers' resources, policy statements and much more. If you know of additional resources, contact Melody Magnus. ❄

Climate, Water and Weather Links

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