

# Aware

Aware's goal is to enhance communications  
within the National Weather Service  
and with the natural hazards community

Fall 2000/Winter 2001

## Climate, Water, Weather

### Passionate About Service Excellence

In the last *Aware*, I emphasized customer service with my plea "Help us help you." I would like to continue that theme. At the recent American Meteorological Society annual meeting I introduced the new National Weather Service (NWS) Office of Climate, Water and Weather Services (OCWWS) in a presentation titled "Passionate About Service Excellence."

Some of the challenges facing the NWS today include working better with our partners and customers, extending the range of prediction, improving short-term forecast accuracy and broadening our dissemination capabilities. The OCWWS, or the Office of Services (OS) for short, was established to meet these challenges. OS combines the service part of the Offices of Meteorology and Hydrology as well as portions of the former Office of Systems Operations. Our new office puts service program leadership in one Headquarters location. Our office and our people are passionate about service and service excellence.

What does passionate about service excellence mean? OS is structured around our key service areas of climate, water, public, wild fire, aviation, marine and observations. Our customers and partners wanted sufficient resources in each of these areas. They also wanted people they knew and trusted. Our reorganization has attempted to do that. I also expect each of our program managers to be your "service champions." As service champions, we promise to:

- Listen to our customer and partner needs with an open mind
- Coordinate your needs with our other headquarters offices, our national centers and our field offices
- Keep you in the loop as new services are created
- Develop performance measures to gage our effectiveness with measures that are meaningful to you.

In short, we promise to keep you involved and to keep you from being surprised by service changes.

Reorganizing is a way to energize our staff and to build internal linkages to provide consistent and coordinated service. OS now has the resources to bring to 21<sup>st</sup> century challenges. We can be passionate. We can be better coordinated. We can have better resources. But we cannot do anything without you. Hence back to, "Help us help you."

The Office of Services is now a reality. Help us create the services you need and expect from the NWS. Together, there is nothing we can't do.

For more information about the reorganization, go to [www.nws.noaa.gov/reorg/](http://www.nws.noaa.gov/reorg/).



Greg Mandt  
Director, Office of Climate, Water,  
and Weather Services

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# Water

## Web Site Offers Latest Winter, Spring Flooding Outlooks

Many parts of the country are particularly susceptible to flooding in late winter and spring due to snow melt and spring rainfall. To address this period of heightened flood potential, NWS issues Flood Potential Outlooks.

These outlooks include information on where snow cover exists, soil moisture, frost depths, and river and reservoir levels. Future conditions, based on climatology and long-term outlooks of precipitation and temperature are used to draw preliminary conclusions as to the potential for flood-



ing. While this information does not provide specific forecasts of where and how severe flooding might be, it does identify areas that warrant careful monitoring.

On February 22, NWS will start providing information on spring flood potential on the Web at [www.nws.noaa.gov/oh/hic/nho/index.shtml](http://www.nws.noaa.gov/oh/hic/nho/index.shtml).

This Web page provides graphical representation of the flood potential throughout the country, accompanied by a narrative summary. It also provides access to more detailed information focusing on local conditions, as provided by the NWS field offices.

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## NWS Launches Campaign on Dangers of Freshwater Floods After Hurricanes

Over the past 30 years, more than half the fatalities associated with land-falling hurricanes have been related to inland flooding. One of the NWS' major outreach campaigns is designed to raise the awareness of this danger.

The Hydrologic Services Division (HSD) is promoting this campaign by engaging its partners and customers in a variety of activities. HSD is currently working with Federal Emergency Management Agency (FEMA) and the Tropical Prediction Center (TPC) to integrate a hydrologic presence into FEMA's Hurricane Liaison Team (HLT). The HLT, activated at the request of the Director of the TPC, provides a critical information flow to the federal, state, and local response agencies.

HSD will take part in the upcoming Annual Interdepartmental Hurricane Conference to discuss partnerships being set up between NOAA, the U.S. Geological Survey, U.S. Army Corps of Engineers and others. These partnerships are a result of the North Carolina Flood Mapping Project. This group will also help develop a new flood outlook graphic for the entire country.

In April, HSD will take part in the National Hurricane Conference, staffing a booth and leading a workshop on inland flood hazards. These conferences are tremendous opportunities to meet face-to-face with the emergency management community and other groups. We look forward to the opportunity to meet with you at one of these events!

*Jeff Zimmerman, Support Branch Chief  
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cast to be extratropical by 72 hours, the HSF includes the date and time, location of the storm center and a statement saying the storm is forecast to become extratropical.

*Richard May, Staff Meteorologist  
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## Water Level Data Now in SHEF

National Ocean Service (NOS) tide and water level data is now available on the Advanced Weather Interactive Processing System (AWIPS). This data is found in the Standard Hydrometeorological Exchange Format (SHEF) under the following product identifiers: TIDNT (Atlantic Ocean), TIDGX (Gulf of Mexico and Puerto Rico/Virgin Islands), TIDPZ (Pacific Ocean), TIDGT (Great Lakes), TIDAK (Alaska), TIDHW (Hawaii).

The data comes from the 189 NOS operated water level and tide gages along the U.S. coasts, harbors, Great Lakes and U.S. territories and possessions. The gages compare water levels with astronomical tide heights. The SHEF enables coastal WFOs and RFCs to more effectively display and use the data during storm surges, river rises and inland flooding from tropical storms. SHEF also allows marine WFOs co-located with RFCs to integrate NWS river data with the NOS water-level data. This integration allows WFOs to better determine potential for river/coastal flood events.

About 30 of the NOS gages are also equipped with meteorological sensors measuring temperature, pressure and wind. This meteorological data should be available in SHEF by early 2001. Near-real-time tidal and storm surge water level observation data are also available at TIDES ONLINE at [140.90.155.52/tidesonline/](http://140.90.155.52/tidesonline/).

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## WFO Cleveland Changes Dates for Ice Report Dates

Based on user input, this winter WFO Cleveland, OH, is issuing ice reports on Monday, Wednesday and Friday afternoons. WFOs with Open Lakes Forecast responsibility will issue an additional Marine Weather Statement if needed. Also, with its new generation computer, WFO Cleveland will now be able to include the more detailed analyses produced by the National Naval Ice Center.

*Bob Jacobson, Meteorologist  
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## Aviation Services

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### TAF Verification program

NWS is implementing a new Terminal Forecast (TAF) verification system for WFOs. This program was chosen from half a dozen local applications by the Regional Aviation Managers (RAM) back in December during the RAM conference. The program leans heavily toward TAF users. Specifically it:

- Provides individual statistics for each forecaster
- Verifies all TAFs
- Provides statistics for the individual office, Regions and NWS Headquarters.
- Verifies TEMPO/PROB groups
- Allows forecasters to view their TAF verification numbers with the TEMPO/PROB groups stripped off.

This program should generate more cross feeding of information between sister offices. The RAMs and headquarters will use this information to provide a quarterly newsletter to advertise verification successes and ways to improve the health of the Aviation program. For more information or questions, e-mail me at the address below.

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### NWS Headquarters Hosts Meeting on Aviation Weather

In December 2000, the NWS Aviation Services Branch hosted a Regional Aviation Meteorologists/Aviation Program Manager's meeting in Silver Spring, MD. Representatives from the Federal Aviation Administration (FAA), the Office of the Federal Coordinator for Meteorology (OFCM), and the Weather and Radar Processor (WARP) team attended the meeting. Topics discussed included:

- Development of a national TAF verification program
- National Strategic Training and Education Plan: How aviation training programs are identified
- Center Weather Service Unit operations and the WARP program

## NWS Provides Weather Products For International Space Station

On October 31, the NWS Space Environment Center (SEC) Space Weather Operations began supporting the continuous manning of the International Space Station (ISS). The date coincides with the launch of the Expedition I crew. SEC will provide space weather support for ISS operations, continuing a tradition that began during the early days of manned space flight. The National Oceanic and Atmospheric Administration (NOAA)-National Aeronautic and Space Administration cooperation is built on the expertise of each agency. NOAA provides environmental information that NASA uses to ensure the safety and success of a major space mission.

SEC works closely with NASA's Space Radiation Analysis Group (SRAG) to determine space radiation hazards to crews manning the Shuttle Transportation System and ISS. SEC provides SRAG with access to near-real-time, in-situ measurements of energetic particle fluxes and other environmental data. SRAG uses the data to calculate and monitor radiation dosages for astronauts during in-station and extra-vehicular activity.

SEC also provides weekly space weather forecasts, alerting SRAG to potentially hazardous space weather. SEC supplies SRAG with near-real-time alerts, watches and warnings of potentially hazardous space weather activity including solar flares, solar proton events and geomagnetic storms. SEC forecast teams issue alerts and warnings of significant space weather activity to NASA within 10 minutes of occurrence. The U.S. Air Force works in concert with SEC to provide uninterrupted space weather support by providing backup support to SRAG during communication outages.

*Barbara Poppe, NOAA Space Environment Center  
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## Space: The Final Weather Frontier?

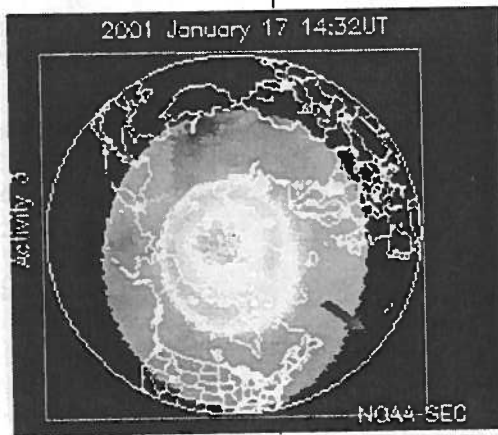
From November 24 at 12:02 a.m. Eastern Time, until November 26, 11:34 a.m. Eastern Time, the X-Ray Sensor aboard the NOAA GOES detected a series of seven major solar flares from a large complex area in the north central quadrant of the sun. This is the most active the sun has been during this solar cycle. Geomagnetic storms (G-3 on the NOAA scales) were forecast by the SEC in Boulder, CO. The earth continues to be bombarded with electrically charged particles and activity is expected to continue for the next several days.

SEC is responsible for issuing warnings, watches and forecasts of the space environment and its potential impacts on people and technology on earth. In this case, SEC issued warnings and alerts to more than 600 customers, including industry, military and NASA, informing them of the strong solar flares with resulting radio blackouts and solar radiation storms. SEC also predicted geomagnetic storms late on November 25.

Although multiple disturbances buffeted earth, there was no severe geomagnetic storm. GOES spacecraft operations were affected and the McMurdo Station in Antarctica suspended all flight operations due to loss of high-frequency communications between aircraft and the ground.

When geomagnetic storm intensity reaches G4 on the NOAA scales, electric power grids could be affected, tracking problems for satellites could occur and GPS navigation could be degraded. Such storms also interfere with high frequency radio communications, as well as producing northern lights visible from the middle of the continental United States. Check out other effects and storm types at [sec.noaa.gov/NOAAscales](http://sec.noaa.gov/NOAAscales).

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This release marks the first update to the NAWIPS software package since 1996. In addition, SOOSAC has extended support to HP-UX and LINUX operating systems. Users will find significant improvements in NAWIPS 5.6. Most notable is the inclusion of NMAP, a graphic user interface developed by NCEP and used at the National Centers. Enhancements also include the ability to manipulate and display graphics files and to decode and view new data types.

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## December Release for SOOSAC Workstation Eta Package

COMET continues to work on the SOOSAC version of the NCEP workstation Eta Modeling package. The SOOSAC workstation Eta was developed as a means of getting numerical model data into the forecast offices at temporal and spatial resolutions not available from operational data sources. Version 2.0 of the distribution was released in early December. The release contained the non-hydrostatic version of the operational Eta model in addition to numerous other enhancements.

One of the primary enhancements will be shared multi-processor support, allowing the model to be run on more than one computer at a time. Many offices are replacing aging systems with dual processor LINUX machines, which have become more accessible to local area modeling efforts over the past year. Preliminary tests with the WS Eta have demonstrated about a 90 percent improvement in efficiency on a dual-processor workstation, representing a significant cost for performance benefit.

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## AWIPS DRT Playback to be Implemented in Three Phases

The National Implementation Plan for Case Study Playback in AWIPS provides a three-phase implementation for displaced real-time (DRT) playback capability to field offices. By phasing-in capability as it becomes available, NWS can quickly put case study playback functionality in field

offices and further refine it as software evolves. Development efforts to implement the first phase are underway. Details on this program can be found at [www.comet.ucar.edu/resources/cases/drt/concept.htm](http://www.comet.ucar.edu/resources/cases/drt/concept.htm).

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## Tornado Events and Fire Weather Case Added to COMET Library

COMET has expanded its Case Study library to include a regional tornadic event and the system's first fire weather case.

- **Case 27: Southern Louisiana Tornadoes:** January 1-2, 1999, southeast Texas and southwest Louisiana experienced a major tornado outbreak. Southern Louisiana averages 13 tornadoes annually; 12 tornadoes hit the region on January 1-2. One fatality occurred in Texas.
- **Case 28: Fort Worth Tornado:** On March 28, 2000, two tornadoes struck Fort Worth, Arlington and Grand Prairie, TX. The Fort Worth tornado touched down west of the city and moved through the downtown area. Five deaths were attributed to these storms; damage in Fort Worth was estimated at \$450 million.
- **Case 29: Montana Fire Weather/Dry Cold Front:** On October 31, 1999, a critical fire weather pattern emerged with sustained post-frontal winds of 45 to 60 mph. The winds lasted for several hours with peak gusts to 80 mph. More than 30 fires were reported during this time, with a few spreading out of control. No injuries were reported, however, more than \$12 million in damages are estimated statewide from wind and fires.

For detailed information on each case, see the COMET Case Study Web page at [www.comet.ucar.edu/resources/cases/](http://www.comet.ucar.edu/resources/cases/).

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The goal of this new partnership is to ensure weather warnings and forecasts are delivered online in real time. Front Range Internet Inc. of Fort Collins, CO, volunteered to pilot a project for other ISPs to expand on. The prototype consists of a pop-up window displaying weather data for a given city. The forecast is updated about once every 10 minutes. If a severe weather warning or alert is issued for the forecast area, the pop-up window displays it with a red border and sounds a tone. To check out the prototype, go to [home.frii.com/community/weather\\_control.html](http://home.frii.com/community/weather_control.html).

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## **NWS Declares National Lightning Safety Awareness Week: June 18-22**

NWS will declare the week of June 18-22, 2001, National Lightning Safety Awareness Week. Lightning kills an average of 87 people a year in the United States. This is more than the average of 82 deaths a year caused by tornadoes and 27 deaths a year caused by hurricanes.

Because lightning usually claims only one or two victims at a time and does not cause the mass destruction of tornadoes or hurricanes, it generally receives much less attention than the more destructive weather killers. While documented lightning injuries in the United States average about 300 per year, undocumented injuries caused by lightning are likely much higher.

The campaign's goal is to reduce the number of people struck by lightning. NWS will provide information explaining why people need to move to a lightning-safe shelter sooner—before the lightning threat arrives—and why they need to stay in that shelter longer—until the lightning threat has moved away or dissipated.

In addition, the campaign will help the public understand what is a safe lightning shelter. The campaign also will explain what to do while inside a shelter to minimize the risk of being killed or injured by lightning. Finally, NWS will provide information on the immediate care needed by a lightning strike victim.

During a thunderstorm, each flash of cloud-to-ground lightning is a potential killer. The only question is whether a person is in the path of the lightning discharge. In addition to the visible flash seen traveling through the air, the current associated with the lightning also travels along the ground. Although some victims are struck by lightning as it moves from the air to the ground, most are struck as the current moves in and along the ground. In addition, many lightning victims are struck indoors while involved in activities which put them in danger.

Lightning safety information will be distributed to the public through the media by the NWS and its partners. At the national level, NWS will conduct a press conference highlighting the dangers of lightning and the importance of lightning safety awareness. Locally, information will be distributed through the outreach efforts of local NWS offices nationwide. In addition, lightning safety information will be available on NWS Web sites across the country.

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## **NWS Supports Science Show**

NWS was represented at the Maryland Science Center Educator Extravaganza last October. I presented an introduction to forecasting, weather folklore, hands-on weather lesson plans and a short how-to on accessing weather information via the Internet. The Extravaganza is an informational, hands-on learning experience for science teachers in the state.

*Ron Gird, NWS Outreach Manager  
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# Community Outreach

## Battle Creek First StormReady Michigan Community

Battle Creek is the first Michigan Community recognized as StormReady by the Grand Rapids, MI, StormReady Advisory Board. WFO Grand Rapids staff worked with community members to complete an application and review process. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather forecasts and warnings and to alert the public
- Create a system that monitors local weather conditions
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan which includes training severe weather spotters and holding emergency exercises.

For more information on the StormReady program, go to [www.nws.noaa.gov/stormready](http://www.nws.noaa.gov/stormready).

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## NWS Director Jack Kelly Welcomes StormReady to Montana

On a cool but clear morning on the Capitol steps in Helena, MT, Lewis and Clark County and the City of Helena were designated as StormReady. Among the speakers at the ceremony was NWS Director Jack Kelly, who told the crowd, "Every year around 500 Americans lose their lives to severe weather. The numbers are startling with 10,000 thunderstorms, 2,500 floods and 1,000 tornadoes impacting the United States each year. Because potentially deadly severe weather can impact every American, the National Weather Service developed StormReady, a program to help guard against the ravages of Mother Nature." As snow flakes fell, Kelly traveled to Glasgow, MT, the following day to help Mayor Willie Zeller and Valley County Commission-

ers Eleanor Pratt and Marlene Erickson, designate that city as StormReady too.

Lewis and Clark County was the second Montana county declared StormReady. In July, the Billings StormReady

Advisory Board presented Yellowstone County and Billings, MT, with their road signs—marking the first StormReady sites in the Western Region.



*Pictured from left are Rick Seiler, Disaster and Emergency Services Coordinator of Glasgow, NWS Director Jack Kelly and Glasgow WCM Kim Bailey.*

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## Live Online System Sparks Interest in StormReady, EMWIN

NWS sparked interest at the 34th Annual Wisconsin Governor's Conference on Emergency Management last fall with an exhibit highlighting the StormReady program and the Emergency Manager's Weather Information Network (EMWIN). The NWS booth featured a live, online system. The 90-minute presentation focused on the 2000 severe weather season in Wisconsin and introduced attendees to the StormReady program.

Many people who attended the presentation or stopped by the booth expressed considerable interest in StormReady and EMWIN. Representing NWS were Rusty Kapela, WFO, Milwaukee, WI; Todd Shea, WFO La Crosse, WI; and myself, WCM Jeff Last, WFO Green Bay, WI. Green Bay, WI,

I presented Certificate of Recognition plaques to Richard Payne, Owensboro-Daviess County Emergency Management Director, Reid Haire, Daviess County Judge Executive, and Waymond Morris, Owensboro Mayor. Also taking part in the ceremony was Ronn Padgett, Director of the Kentucky Division of Emergency Management.

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## Laramie County Is StormReady

At a brief ceremony on January 19 at WFO Cheyenne, WY, Laramie County was recognized as StormReady. Laramie County was the first community in Wyoming to receive this distinction.

William T. Parker, Meteorologist in Charge of the Cheyenne office, began the ceremony with some opening remarks. I gave a brief description of the StormReady program. Marty Luna, Emergency Manager for Laramie County, was then presented with the StormReady road signs. Luna spoke of the outstanding cooperation between the NWS in Cheyenne and Laramie County.

Several dignitaries from the local community attended the ceremony including Cheyenne Mayor Jack Spiker and Laramie County Commissioner Jack Knudson. In addition, representatives from the Wyoming Emergency Management Agency and the American Red Cross were also on hand.

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## "Ask a Meteorologist" Reaches Out to Web Surfers

In late September, WFO Goodland, KS, added a link to its Home Page called "Ask a Meteorologist." This new option gives visitors the opportunity to ask questions about local weather history, weather terms or phenomena, school meteorology projects and even career opportunities in the NWS. Questions are received via e-mail, and just about everyone on the Goodland staff takes some of their time to answer a question or two.

"Ask a Meteorologist" received 50 messages in its first month, almost two per day, so it goes to show how valuable the NWS Web sites are. It looks as if this link has proven to

be a great tool with which to serve our customers in a slightly different way! Let me know what you think. To see the site, go to [www.crh.noaa.gov/gld/index.htm](http://www.crh.noaa.gov/gld/index.htm).

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## Four New Projects Enhance Marine Forecasts

WFO Eureka, CA, has an extensive marine customer outreach program (see "Reaching Mariners with Donuts, Clipboards and Sneakers"). The office's location, adjacent to the largest port on the North Coast, provides insight into the marine community, resulting in enhanced marine forecast products. Projects, both completed and ongoing, include the following:

- **Extended Seas Forecast:** Customer feedback to WFO Eureka in early 1998 revealed that although the extended wind forecast was helpful, additional seas information was needed. Eureka staff determined how to provide this information and after coordinating with Regional Headquarters, became a test site for this forecast, undergoing testing, evaluation and verification. WFO Eureka now routinely issues the extended seas forecast as part of the coastal waters forecast.
- **Small Craft Advisory for Hazardous Seas:** A project started in December 1999 looked at the standard 10-foot criteria used to issue Small Craft Advisory for Hazardous Seas on the West Coast. Numerous customers stated the hazard is not dependent on sea height but rather steepness and boat size. A study was undertaken using a predominate wave period and sea height forecast with verification from nearby buoys. The goal was to develop a steepness index to serve as the criteria for issuing Small Craft Advisories for Hazardous Seas. A side benefit of this project was the skill demonstrated in forecasting wave period. This study led to temporarily setting aside the Small Craft Advisory project.
- **Forecast Period:** After the local study revealed the skill in forecasting period, a proposal was written with Regional Headquarters to test a period forecast. The test confirmed the period forecast skill. The swell period is now included in forecasts for Northern California coastal waters.



tral Command, General Tommy R. Franks; Governor of Arizona Jane D. Hull; the mayors of Phoenix and Tempe and numerous other international, national and local dignitaries.

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## Press Conference Saves Staff Time, Attracts Media Crowd

Early this fall, our hydrologic Program Manager Doug McDonnal suggested holding a press conference when a big weather event threatens our area rather than a series of time-consuming interviews.

Area TV assignment desk managers gave the concept thumbs up. Our first test of the new program was in an error in a weather.com temperature forecast error for our area as well as the historic surge in electrical power futures. Given our forecast for the coldest conditions in two years, we wanted to get out a clear message.

We contacted area TV assignment desks Friday morning to get a pulse on the issue. They were all planning to do weather stories. We invited the Seattle City Light Superintendent to discuss power supply and conservation measures and a King County Emergency Management representative to address resident and business preparedness.

We sent out a daybook notice at 10 a.m. for a 1 p.m. press conference. We faxed and e-mailed the notice to all area TV/cable stations, news radio stations, the Associated Press and regional daily newspapers. The conference featured a Corel Presentations show using simplified color AWIPS graphics and a graphic of where to monitor NWS forecasts via the Web and NWR. We also used a monitor to display our Web page and the latest Puget Sound area forecast.

The press conference ran about 45 minutes. The group was briefed on the invading cold air and potential for accompanying snow, with an outlook into next week. The City Light Superintendent discussed the power supply situation and urged a number of conservation measures. The King County EM addressed steps people can take to prepare for the cold and potential snow at home, at work, with their vehicles and even pets. Most of the questions were addressed to the City Light Superintendent. NWS provided a press kit.

All area TV stations attended as well as reporters from Associated Press, KIRO News Radio and the Seattle Times. The two most popular features of the conference were the

type of information provided and the timing. Reporters were able to obtain key information in one place from three different people/agencies and file their stories before deadlines. Also popular was our graphics show. Our forecast floor staff were able to focus on the forecast process with fewer interruptions.

Kudos to WFO staff members Jim Prange and John Werth, who set up the process to move AWIPS graphics to Corel Presentations. Kudos also to Doug McDonnal, who used that process and compiled the Corel show in short order while I dealt with the press conference logistics. Our next challenge is to streamline the preparation process.

*Ted Buehner, WCM, WFO Seattle, WA  
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## Little Rock WCM Teaches EM Class

Last fall, I was asked to be a guest instructor at an emergency management class at Arkansas Tech University by course professor Kyle Rhone. Previously, Rhone had asked me to teach storm spotting to fire fighters when Rhone served as training officer for one of the larger Arkansas fire departments. Arkansas Tech is one of only a handful of universities that offers a four-year college degree in emergency management. My class was part of the "Living in a Hazardous Environment" course, a beginning class for future emergency managers.

Using WCM equipment, including the laptop computer and a projector, I covered various weather hazards that affect the United States and the products the NWS issues to warn emergency managers and the public of these hazards. Also included in the presentation was a discussion of how WCMs interact with emergency managers at the local, county and state levels.

The class served as a great opportunity to introduce NWS products and services to people who will serve in the emergency management community for many years. A couple of weeks later, I returned to the university to teach a storm spotter class at the request of the professor and students.

*John Robinson, WCM, WFO Little Rock, AR  
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clude a booth at the marina we are visiting stocked with informational material, donuts and coffee. While a couple of staff members walk the docks, another stays with the booth. We've reached dozens of mariners in all of our major ports with this approach. We also use this approach at boat-launch areas where mariners are usually quite willing to talk while they prepare their boats for launching.

For direct outreach, timing is critical. For example, walking docks during the weekend is best for reaching recreational boaters, while weekdays are better for reaching professional mariners. We target commercial fishing operators between fishing seasons. On the North Coast, for example, early November is a good time because many boats are in port preparing for the beginning of the crab season in December.

WFO Eureka's indirect outreach centers around a Marine Weather Advisory Group, comprised of recreational boaters, sport and commercial fisher persons, tug boat operators, bar pilots, harbor masters and academia. This group passes NWS information to their respective sectors of the marine community and relays back the views of their constituents. In this way, a much broader audience can be reached with a minimal burden on WFO staff.

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## Wheel of Disaster Hits Big in Idaho

The NWS Pocatello, ID, staff took part in "Idaho Goes Wild," August 4-5. This event, sponsored by NBC News Channel 6 and the Idaho Chapter of the Safari Club International, drew 15,000 attendees, mostly families. Activities included outdoor events, seminars and presentations ranging from living in bear country and dog sledding in Idaho to Sho-Ban Tribal Dancers, archery hunting techniques and the state elk calling championships.

WFO staff teamed up with the Idaho Bureau of Disaster Services to sponsor a booth providing weather information for outdoor enthusiasts. Our hottest giveaway was the "Natural Disaster Emergency Action Wheel," better known to locals as the "wheel of disaster!" On one side, the preparedness wheel provides information on how to prepare before a disaster occurs. On the reverse side, is information on how to act when a disaster actually occurs.

Safety topics on the wheel range from lightning and wildfire to winter storms, hurricanes and tornadoes. Because

Idaho recently has been hit by a large number of fires started by dry lightning storms, the large NWS lightning backdrop provided many comments and sparked several lively discussions.

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## History Channel Shoots "This Week in History" at WFO Paducah

WFO Paducah will be featured for a projected March airing of the History Channel's show "This Week in History." The event was the Great Tri-State Tornado of 1925. The filming included a tornado warning re-enactment performed by the following WFO Paducah staff members: Tri-State Tornado Team Leader and Forecaster Ryan Presley, Tri-State Tornado Deputy Team Leader and Lead Forecaster Chris Noles, Lead Forecaster Doug Boyette, Meteorologist Intern Christine Zagorski and myself, WCM Rick Shanklin. In addition, Peter Felknor, author of *The Tri-State Tornado—The Story of America's Greatest Tornado Disaster*, came down from Wisconsin for an extensive interview. Earlier in the day, the History Channel staff interviewed Tri-State Tornado survivors in Murphysboro, IL.

While the filming will likely not earn any acting awards for any WFO Paducah staff members, it did prove to be an interesting and rather exhaustive experience. The program is scheduled to air in mid-March. We will post the exact time in AwareNow.

*Rick Shanklin, WCM, WFO Paducah, KY  
ricky.shanklin@noaa.gov*

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## Weather Radio Awareness Month Campaign Held in Washington

Washington State Governor Gary Locke proclaimed September as Weather Radio Awareness Month. The awareness campaign goal was to have weather radios become as common as smoke alarms in homes and businesses throughout the state. The awareness campaign was conducted in partnership with Washington State Emergency Management. Campaign activities included awareness materials for schools

- Amateur Radio operators manning their equipment and describing their role during severe weather
- Grand Forks FAA/FSS, which brought pibal weather balloons to draw attention outside
- Boy Scout post, which handed out refreshments and information packets
- Raffle for an NWR, courtesy of Radio Shack, to a lucky participant at the end of the event.

The event drew guests from surrounding counties as well as a handful of visitors from the Netherlands, who gave the event an international twist.

*Greg Gust, WCM, WFO Grand Forks, ND  
gregory.gust@noaa.gov*

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## WFO Little Rock Takes Part in Tornado Exercise

WFO Little Rock, AR, recently took part in a tornado exercise for the city of North Little Rock. The drill involved a mock tornado striking the science building at one of the city's high schools.

The WFO was contacted with the basic scenario and prepared realistically-worded tornado warnings and statements to fit the drill. I got the drill underway by phoning the warnings to the city's communications center via 911. Some of the city's emergency services knew only that there would be a drill. They were not told the date, time or location of the exercise in order to make response times more realistic.

The drill was months in the planning stage. The science building was chosen so that the emergency services would have to deal with a simulated hazardous materials spill in addition to the tornado damage and mock injuries to a number of students.

More than half the city's fire department, seven ambulances and numerous police officers took part in the exercise. The scene was realistic enough that neighbors near the school thought that a real emergency in progress.

The exercise was graded by emergency managers at the city, county and state levels. The WCM assisted by photographing the exercise for the city and taking part in the debriefing after the drill.

*John Robinson, WCM, WFO Little Rock, AR  
john.robinson@noaa.gov*

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## NWS Web Sites Win Kudos at Cuban-American Heritage Festival

WFO Key West meteorologists Tom Birchard and Ernesto Morales hosted a NWS booth at the Cuban-American Heritage Festival in Key West on November 4. Approximately 60 people stopped by the booth.

Several people, both local residents and visitors to the Keys, mentioned that they loved the NWS Web sites both local and national. In particular, a couple from Chicago mentioned that they frequently visit the Chicago office's Web site, and that the "NWS had the best weather info available on the Web."

*Wayne Presnell, WCM, WFO Key West, FL  
wayne.presnell@noaa.gov*

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## IcePak Project Promote Winter Weather Safety

Project IcePak is a winter weather safety campaign aimed at motorists. The project, organized by the American Automobile Association Chicago Motor Club, sponsored press conferences during Illinois Winter Weather Preparedness Week in late November. Groups taking part in the IcePak news conferences included the Red Cross, Illinois Department of Transportation, state police and NWS. All major television stations were represented as well as radio stations and newspapers.

The new Website, [www.icepack.org](http://www.icepack.org), was heavily promoted as "a one-stop shopping" site for severe winter weather information.

*Jim Meyer, WCM, WFO Davenport, IA  
james.meyer@noaa.gov*

For more information on these displays or to borrow one, contact your Regional MSD office. Your NWS Headquarters contact is Stan Johnson at 301-713-1736 x190 or me at 301-713-0090 x118.

*Linda Kremkau, Managing Editor  
linda.kremkau@noaa.gov*

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## New AHPS Video

"Water Predictions for Life's Decisions, The Advanced Hydrologic Prediction Services (AHPS)" is the latest NWS video. Using the Midwest Great Flood of 1993 as the catalyst, the NWS set out to aggressively improve water prediction with AHPS products and services.

The video improves internal awareness of AHPS capabilities and concepts and illustrates plans to improve water prediction in the near future. Multiple copies of this 20-minute video will be distributed to all NWS regional and field offices. A 4-minute version of the video will be sent to each office a few weeks later.

Beginning this year, NWS offices in parts of the upper Midwest and Ohio Valley will receive AHPS products. As funding becomes available, AHPS will expand into other parts of the country.

The Hydrologic Services Division (HSD) is interested in your comments and those of your partners and customers on this and past videos produced by this office. HSD also would like to receive any suggestions for additional outreach material. Please send your comments to me at the e-mail address below.

*Larry Wenzel  
larry.wenzel@noaa.gov*

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## Red Cross Updates Lists of Disaster Education Materials

The American Red Cross (ARC) recently updated its listing of available public education materials you can order through any local Red Cross chapter or download from the ARC Web site. An easy-to-use list, organized by type of product and users, is now online. Paper copies of ARC materials are provided at cost. The listings are divided into categories as follows:

- For the Media
- Subject Index
- General Disaster Preparedness
- For teachers and schools
- Videos
- Presenter's materials
- Materials for children
- Materiales en Español
- Materials in other languages.

For more information, go to [www.redcross.org/disaster/safety/cde.html](http://www.redcross.org/disaster/safety/cde.html).

*Rocky Lopes, ARC  
lopesr@usa.redcross.org*

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## New Curriculum Currents, Masters of Disaster Brochure, Released

The winter 2001 edition of *Curriculum Currents* is now posted on the Red Cross Web site at [www.redcross.org/disaster/masters/](http://www.redcross.org/disaster/masters/). Click on the image of "Curriculum Currents" in the left frame or the title of the document in the Table of Contents on this page. Some of the articles included in this issue are:

- Project Impact communities back Masters of Disaster
- Tips on how to start implementing the curriculum
- Presentations as a means to success
- Masters of Disaster wins an award.

*Curriculum Currents* is best viewed online or printed on a post script printer. To print in post script, visit the Web site of your printer manufacturer (HP.com for Hewlett-Packard). Search for "post script," and in most cases, you will find you can download a free driver. If you cannot open this file, you can request a hard copy for e-mailing your address to [curric@usa.redcross.org](mailto:curric@usa.redcross.org).

## Masters of Disaster Brochure

For a small fee, you can now order a new "Masters of Disaster" marketing brochure, developed by the American Red Cross of Greater Chicago, through local Red Cross offices. Use the brochure to explain the curriculum to teachers, school administrators, parents, etc. It's great for distribution at exhibits and other places where teachers may gather. Thanks for your continued interest and support of Masters of Disaster!

*Rocky Lopes, ARC  
lopesr@usa.redcross.org*

## Upcoming Weather Awareness Weeks

<u>State</u>	<u>Weather Event</u>	<u>Date</u>
<b>Eastern Region</b>		
Maryland/DC	Severe	April 22-28
New York	Hazards	March 18-24
North Carolina	Severe	February 18-24
Ohio	Severe	March 25-31
Pennsylvania	Emer Prep.	March 18-24
South Carolina	Severe	February 18-24
Virginia	Severe	March 27
	Drill	March 27
West Virginia	Severe	March 25-31
	Drill	March 27
<b>Southern Region</b>		
Alabama	Severe	February 19-23
Arkansas	Severe	February 19-23
Florida	Severe	February 19-23
Georgia	Severe	February 19-23
Louisiana	Severe	March 4
Mississippi	Severe	February 19
Texas	Severe	March 4-10
Tennessee	Severe	February 19
<b>Central Region</b>		
Colorado	Severe/ Flash Flood	April 22-28
Illinois	Severe	March 4-10
Indiana	Severe	March 4-10
	Drill	March 7
Iowa	Severe	April 2-6
Kansas	Severe	March 12-16
	Drill	March 13
Kentucky	Severe	March
	Drill	March 27
Michigan	Severe	April 1-7
Minnesota	Severe	April 16-20
Missouri	Severe	March 12-16
	Drill	March 13
Nebraska	Severe	April 2-6
North Dakota	Severe	April 30-May 4
	Drill	May 3
Oklahoma	Severe	March 4-10
South Dakota	Severe	April 17-21
Wisconsin	Severe	April 16-20

## Western Region

Montana                      Severe                      April 2-6

*Linda Kremkau, Managing Editor  
linda.kremkau@noaa.gov*

## Weather Channel "Classroom"

The Weather Channel airs a series of programs offering insights into how weather happens. These commercial-free shows are 8 minutes long; they air from 4 a.m. to 4:30 a.m. The shows offer breaks for classroom discussion. Show topics are listed below. For online weather education, see [www.weather.com/education](http://www.weather.com/education).

- January 22-February 22: The Sky Show
- February 26-March 29: The Atmosphere
- April 2-May 3: Weather and Water
- May 7-June 7: Weather and Geography.

*Laura Buss, The Weather Channel*

## NWS Publications, Chapter Updates, Roster Now Online

Attachment A is a list of NWS Publications. Attachment B is the WSOM chapter updates. The WSOM chapters are available to NWS employees ONLY at [www.nws.noaa.gov/wsom/](http://www.nws.noaa.gov/wsom/). Please do NOT link this site from other Web sites.

Attachment C is a list of WCMs and SOOs in each NWS Region. Telephone numbers are *listed* numbers, NOT the direct number. If you have an update, please notify me at [melody.magnus@noaa.gov](mailto:melody.magnus@noaa.gov). If you know someone who would like to receive the *Aware*, please have him or her contact Linda Kremkau at [linda.kremkau@noaa.gov](mailto:linda.kremkau@noaa.gov).

You can find the most up-to-date version of the WCM/SOO roster at [www.nws.noaa.gov/om/wcm-soo.pdf](http://www.nws.noaa.gov/om/wcm-soo.pdf).

*Melody Magnus, Editor  
melody.magnus@noaa.gov*

## Attachment A: NWS Publications

<u>NOAA PA</u>	<u>NAME</u>	<u>NOAA PA</u>	<u>NAME</u>
70027	Survival in a Hurricane (Wallet Card)	94058	Safe Boating Weather Tips (Revised July 1998)
77014	Flash Flood (Wallet Card)	94059	River and Flood Program (Hydrologic Services Program)
82002	Dust Storm Driving Safety (Wallet Card)	94061	NOAA Weather Radio Frequency Pamphlet (Revised 3/00)
82004	Watch Out Storms Ahead	96051	National Centers for Environmental Prediction
85001	Heat Wave (Out of print)	96052	Key to New International Aerodrome Forecast (TAF) and New Aviation Routine Weather Report (METAR)(Card)
85002	Hawaiian Hurricane Safety Measures with Central Pacific Tracking Chart	96054	MSC-1, Eastport, ME, to Montauk Point, NY
85005	Tornado Safety Tips (Como Protegerse En Caso De Tornado) (WC)	99054	MSC-4, Cape Hatteras, NC, to Savannah, GA
85006	Survival in a Hurricane (Como Sobrevivir En Un Huracan) (Spanish 70027) (WC)	99053	MSC-5, Savannah, GA, to Apalachicola, FL
86001	Natural Hazard Watch & Warning Poster (English/Spanish)	96061	MSC-8, Mexican Border to Point Conception, CA
91002+	Winter Storms...The Deceptive Killers	96062	MSC-9, Point Conception, CA, to Point St. George, CA
91003*	Red Cross - Are You Ready for a Winter Storm? (Out of print)	99060	MSC-10, Point St. George, CA, to Canadian Border
91004	Red Cross - Are You Ready for a Winter Storm? (Spanish Version)	96064	MSC-11/12, Great Lakes
91005*	Red Cross Poster - Are You Ready for a Winter Storm? (English/Spanish)	96065	MSC-13, Hawaiian Waters
92050+	Flash Floods and Floods...The Awesome Power!	96066	MSC-14, Puerto Rico and Virgin Islands
92051	SKYWARN Decal	99064	MSC-15, Alaska Waters
92052+	Tornadoes...Nature's Most Violent Storms	96068	MSC-16, Guam and the Northern Mariana Islands
92053+	Thunderstorms and Lightning...The Underrated Killers!	96070+	NOAA Weather Radio Brochure
92054	FEMA's Emergency Preparedness Materials Catalog	96071	Atlantic Hurricane Tracking Map—8-1/2" x 11"
92055	Advanced Spotter's Field Guide	96072	Atlantic Hurricane Tracking Map—17" x 22" (Out of print)
92057*	Red Cross - Are You Ready for a Tornado? (Out of print)	96073	Pacific Hurricane Tracking Map—12" x 24"
92058	Red Cross - Are You Ready for a Tornado? (Spanish)	96074E	The Hidden Danger—Low Water Crossing (English)
92059*	Red Cross - Are You Ready for a Flood or Flash Flood? (Out of print)	96074S	The Hidden Danger—Low Water Crossing (Spanish)
92060	Red Cross—Are You Ready for a Flood or a Flash Flood? (Spanish)	96076	ASOS Guide for Pilots (Booklet)
92061*	Red Cross Poster—Are You Ready for a Tornado? (English/Spanish)	97050	Basic Spotters' Field Guide
93051*	Red Cross Poster—Are You Ready for a Thunderstorm? (Out of print)	98053	A Mariner's Guide to Marine Weather Services—Great Lakes
93052	Red Cross—Are You Ready for a Thunderstorm? (Spanish)	98054	A Mariner's Guide to Marine Weather Services—Coastal, Offshore and High Seas
93053*	Red Cross Poster—Are You Ready for a Thunderstorm? (English/Spanish)	99050	Thunderstorms, Tornadoes, Lightning
93056	A Pilot's Guide to Aviation Weather Services (replaces PA 71005) (Booklet)	20050	Saving Lives With an All-Hazards Warning Network
93059	A Change in the National Weather Service	20051a	NWR Decal (3" x 3")
93060	Spotter ID Card (Replaces 84001) (Out of print)	20051b	NWR Decal (5" x 5")
94050	Hurricanes . . . Unleashing Nature's Fury (Revised 3/96)	20051c	NWR Decal (7" x 7")
94052*	Red Cross—Are You Ready for a Heat Wave?	20052	Hurricane Flooding: Inland's Real Danger
94053*	Red Cross—Are You Ready for a Hurricane?	20053	StormReady
94054	Red Cross—Are You Ready for a Hurricane? (Spanish)	0002	NOAA Brochure
94055*	Red Cross Poster—Are You Ready for a Hurricane? (English/Spanish)		
94056	Red Cross—Are You Ready for a Heat Wave? (Spanish)		
94057*	Red Cross Poster—Are You Ready for a Heat Wave? (English/Spanish)		

+ Available in Braille. Contact your local NWS Office, Region, or Weather Service Headquarters.

\* Available from your local Red Cross chapter only.

Marine Weather Service Charts (MSCs) can be found on the Web at:

[www.nws.noaa.gov/om/marine/pub.htm](http://www.nws.noaa.gov/om/marine/pub.htm)

You can download most of these publications from:

[www.nws.noaa.gov/om/nwspub](http://www.nws.noaa.gov/om/nwspub)

You can obtain a single copy by writing:

NWS/NOAA

1325 East-West Highway, Rm #14370

Silver Spring, MD 20910

## Attachment C: WCM/SOO Roster

WCM	SOO	SID	Location	Telephone
<b>NWS Headquarters</b>				
John Ogren, National WCM Program Manager				301-713-0090 x140
Eli Jacks, National SOO Program Manager				301-713-1970 x188

### Eastern Region

Rick Watling, Regional (Focal) WCM Program Manager				631-244-0123
Kenneth Johnson, Regional SOO Program Manager				631-244-0136
Solomon Summer, HSD Chief				631-244-0111
Dick Westergard	Warren Snyder	ALY	Albany, NY	518-435-9568
Barbara Watson-McNaught	Steve Zubrick	LWX	Baltimore, MD/Washington, DC	703-260-0107
Dave Nicosia	Jeff Waldstreicher	BGM	Binghamton, NY	607-770-9531
Glenn Field	James Lee	BOX	Boston, MA	508-823-1900
Stan Levine	Ed Mahoney	BUF	Buffalo, NY	716-565-0204
Stephen Hogan	Paul Sisson	BTV	Burlington, VT	802-862-2475
Hendricus Lulofs	Dan Cobb	CAR	Caribou, ME	207-496-8931
Vacant	Rich Grumm	CTP	Central Pennsylvania, PA	814-234-9412
Jerry Harrison	Steven Brueske	CHS	Charleston, SC	843-744-3207
Dan Bartholf	Dan Luna	RLX	Charleston, WV	304-746-0173
Mary Jo Parker	John DiStefano	ILN	Cincinnati, OH	937-383-0031
Gary Garnet	Robert LaPlante	CLE	Cleveland, OH	216-265-2370
Steve Naglic	Michael Cammarata	CAE	Columbia, SC	803-765-5501
Vince DiCarlo	Larry Lee	GSP	Greenville-Spartanburg, SC	864-848-1332
Jeff Orrock	Carin Goodall	MHX	Newport, NC	919-223-5122
Gary Conte	Jeff Tongue	OKX	New York City, NY	631-924-0037
Joe Miketta	Alan Cope	PHI	Philadelphia, PA	609-261-6600
Rich Kane	Josh Korotky	PBZ	Pittsburgh, PA	412-262-1591
John Jensenius	Joseph Fred Ronco	GYX	Portland, ME	207-688-3216
George Lemons	Kermit Keeter	RAH	Raleigh/Durham, NC	919-515-8209
Mike Emlaw	Steve Keighton	RNK	Roanoke, VA	540-552-0084
Bill Sammler	Hugh Cobb	AKQ	Wakefield, VA	757-899-4200
Tom Matheson	Reid Hawkins	ILM	Wilmington, NC	910-762-4289

### Southern Region

Larry Vannozi, Regional WCM Program Manager				817-978-2812 x106
Bernard Meisner, Regional SOO Program Manager				817-978-2671
Steven Cooper, HSD Chief				817-978-2674
Keith Hayes	Deirdre Kann	ABQ	Albuquerque, NM	505-243-0702
Steve Drillette	Richard Wynne	AMA	Amarillo, TX	806-335-1121
Barry Gooden	Gary Beeley	FFC	Atlanta, GA	770-486-1333
Larry Eblen	Jim Ward	EWX	Austin/San Antonio, TX	830-629-0130
Brian Peters	Kevin Pence	BMX	Birmingham, AL	205-664-3010
Hector Guerrero	Shawn Bennett	BRO	Brownsville, TX	956-504-1432
Donell Woods	Andy Patrick	CRP	Corpus Christi, TX	361-289-0959
Gary Woodall	Michael Vescio	FWD	Dallas/Fort Worth, TX	817-429-2631
John Fausett	Val MacBlain	EPZ	El Paso, TX	505-589-4088
Gene Hafele	Steve Allen	HGX	Houston/Galveston, TX	281-337-5074
James Butch	Alan Gerard	JAN	Jackson, MS	601-936-2189
Fred Johnson	Pat Welsh	JAX	Jacksonville, FL	904-741-4370
Howard Waldron	Steve Parker	MRX	Knoxville/Tri-Cities, TN	423-586-9040
Wayne Presnell	Jack Settlermaier	EYX	Key West, FL	305-295-1316
Roger Erickson	Felix Navejar	LCH	Lake Charles, LA	337-477-5285
John Robinson	George Wilken	LZK	Little Rock, AR	501-834-9102
Ed Calianese	Loren Phillips	LUB	Lubbock, TX	806-745-4260
Dennis Decker	Dave Sharp	MLB	Melbourne, FL	407-255-0212

## Western Region

Tom Ainsworth, Regional WCM Program Manager .....			801-524-4000
Andy Edman, Regional SOO Program Manager .....			801-524-5131
Bob Tibi, HSD Chief .....			801-524-5137
Stephen Kuhl .....	Keith Meier .....	BYZ .. Billings, MT .....	406-652-0851
Carl Weinbrecht .....	David Billingsley .....	BOI .. Boise, ID .....	208-334-9860
Paul Eyssautier .....	Steve Apfel .....	LKN .. Elko, NV .....	775-738-3018
John Lovegrove .....	Mel Nordquist .....	EKA .. Eureka, CA .....	707-443-6484
Tyree Wilde .....	Michael Staudenmaier .....	FGZ .. Flagstaff, AZ .....	520-556-9161
Tanja Fransen .....	Eugene Petrescu .....	GGW .. Glasgow, MT .....	406-228-2850
Rick Dittman .....	David Bernhardt .....	TFX .. Great Falls, MT .....	406-453-2081
Ron McQueen .....	Kim Runk .....	VEF .. Las Vegas, NV .....	702-263-9744
Tim McClung .....	Dave Danielson .....	LOX .. Los Angeles, CA .....	805-988-6610
Jim Reynolds .....	Dennis Gettman .....	MFR .. Medford, OR .....	541-773-1067
Peter Felsch .....	Tim Barker .....	MSO .. Missoula, MT .....	406-329-4841
Dennis Hull .....	Jon Mittelstadt .....	PDT .. Pendleton, OR .....	541-276-7832
David Runyun .....	Doug Green .....	PSR .. Phoenix, AZ .....	602-379-4611
Vern Preston .....	Dean Hazen .....	PIH .. Pocatello/Idaho Falls, ID .....	208-233-0834
Dan Keeton .....	Bill Schneider .....	PQR .. Portland, OR .....	503-261-9247
Roger Lamoni .....	Mary Cairns .....	REV .. Reno, NV .....	775-673-8107
Kathy Hoxsie .....	Scott Cunningham .....	STO .. Sacramento, CA .....	916-979-3041
Dave Toronto .....	Larry Dunn .....	SLC .. Salt Lake City, UT .....	801-524-5113
Ed Clark .....	Ivory Small .....	SGX .. San Diego, CA .....	858-297-2107
Charles Morrill .....	Dr. Warren Blier .....	MTR .. San Francisco Bay Area, CA .....	831-656-1725
Dan Gudge .....	Larry Greiss .....	HNX .. San Joaquin Valley .....	559-584-0583
Ted Buehner .....	Brad Colman .....	SEW .. Seattle/Tacoma, WA .....	206-526-6095
Ken Holmes .....	Ron Miller .....	OTX .. Spokane, WA .....	509-244-0110
Paul Flatt .....	David Bright .....	TWC .. Tucson, AZ .....	520-670-5156

## Alaska Region

Greg Matzen, Regional WCM Program Manager .....			907-271-3507
Gary Hufford, Regional SOO Program Manager .....			907-271-3886
Larry Rundquist, Acting HSD, HIC Chief .....			907-266-5151
David Goldstein .....	Carven Scott .....	AFC .. Anchorage .....	907-266-5117
John Lingaas .....	Kraig Gilkey .....	AFG .. Fairbanks .....	907-458-3712
Aimee Devaris .....	Carl Dierking .....	AJK .. Juneau .....	907-790-6803
Bruce Turner .....	(no SOO position) .....	Palmer (ATWC) .....	907-745-4212

## Pacific Region

Mark Jackson, Regional WCM/SOO Program Manager .....			808-532-6413
Kevin Kodama, Regional Hydrologist .....			808-973-5270
Thomas Heffner .....	Paul Jendrowski .....	HFO .. Honolulu, HI .....	808-973-5275
Tom Tarlton .....	Frank H. Wells .....	GUA .. Tiyan, Guam .....	671-472-7423
Akapo Akapo .....		ASO .. Pago Pago (Focal) .....	684-699-9130

## NCDC

Stuart Hinson .....	Asheville, NC .....	828-271-4437
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## NCEP

Stacy Stewart .....	Dr. Jiann-Gwo Jiing .....	TPC .. Miami, FL .....	305-229-4463
Vacant .....	Peter Manousos .....	HPC .. Camp Springs, MD .....	301-763-8000x7307
Vacant .....	James Partain .....	MPC .. Camp Spring, MD .....	301-763-8097
Ron Olson .....	Fred Mosher .....	AWC .. Kansas City, MO .....	816-584-7237
Dan McCarthy .....	Bob Johns .....	SPC .. Norman, OK .....	405-579-0771