

Climate, Water, Weather

Beyond Predictions: Toward a Full-Service Environmental Agency

NOAA's Strategic Plan, "New Priorities for the 21st Century" is out. The plan includes four mission goals:

- Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management
- Understand climate variability and change to enhance society's ability to plan and respond
- Serve society's needs for weather and water information
- Support the nation's commerce with information for safe, efficient, and environmentally sound transportation.

We in the National Weather Service should take pride in the fact that our efforts support all four mission goals. What we do ties into everything NOAA does. Given the new NOAA Strategic Plan, what does the future hold for the Weather Service? Ants Leetma, from NOAA's Fluid Dynamics Laboratory in Princeton, NJ, gave us a glimpse of our future challenges. At a briefing to the NWS Corporate Board, Dr. Leetma noted the following:

- Global population will increase to 9 billion by 2050
- About 4 billion people will live in mega cities with aging populations
- Food needs will require sustainable increases in food output per hectare of 300 percent
- Humans have appropriated 50 percent of the Earth's primary productivity
- We have doubled the global cycling of nitrogen and impacted the carbon cycle

As society becomes more complex, we will become more sensitive to both natural- and human-induced variability. This implies that we in NOAA and the NWS must look to how we can live in harmony with our environment while improving our nation's health, ecology, and economy. NWS observations and predictions can enable us to remain good environmental stewards. We in the NWS must understand how our data and information can be used by other NOAA components and our environmental

partners to make sound decisions. Similarly, we must increase our knowledge of other NOAA services so we can help our customers and partners better use NOAA capabilities.

Engage, advise, and inform is one of the NOAA strategies to help us meet NOAA's four mission goals. The necessity to engage, advise, and inform takes us beyond predictions. We are expected to engage our customers and outline the capabilities both we and NOAA can bring to bear to solve increasingly complex environmental issues. It's a big job. And, it's going to get bigger. *Engage, advise, and inform* is everyone's responsibility. Our future as a nation, our quality of life, and our legacy for generations are riding on the decisions society makes today. Let's use our capabilities to ensure our nation makes the right choices.

Gregory A. Mandt
Director, Office of Climate, Water,
and Weather Services

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Aviation

NWS Helps Celebrate 100 Years of Aviation

By Daniel Noah, WCM, WFO Tampa Bay Area, FL
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NWS Headquarters and WFO Tampa helped celebrate 100 years of powered aviation at the annual Sun-n-Fun Fly-In staged at Lakeland, FL, last spring. Our NWS booth was one of 500 exhibits and focused on aviation weather



safety. The booth had Internet access so pilots could keep up to date on weather conditions using the Aviation Weather Center Website. Mike Graf and Kate Schlachter from NWS Headquarters worked the week-long event, while six Tampa office members and I helped to staff the booth. The interaction between the NWS and pilots, as well as the NWS and commercial vendors, was robust. Attendance at the 7-day event was 250,000.

Aware

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Aware in PDF—weather.gov/om/aware.pdf
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Seafood and Aviation Weather Share Center Stage

By WCM Jon Rizzo, WFO Key West, FL
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WFO Key West served up hurricane and pilot safety at the Marathon Seafood Festival at Marathon Airport. Meteorologist in Charge Matt Strahan, Data Acquisition Program Manager Thomas Tarlton, Senior Forecaster Jim Bagnall, County Emergency Management Planner Jerry O'Cathey and I gave out NWS materials to more than 500 visitors. NWS staff met with flight instructors and Experimental Aircraft Association members as well as the county's Trauma Star helicopter pilot. Aviation buffs were pleased to learn that a brand new Terminal Forecast service for the Marathon Airport will begin April 15.

Free Aviation Weather News Online

By Melody Magnus, Editor

Looking for weather information related to Aviation? Try *The Front*, a free online newsletter on aviation weather topics. To download current and past editions, go to <http://aviationweather.gov/front/>.

Climate Services

Alaskan Native Americans Offer Climate Insight

By WCM John Lingass, WFO Fairbanks, AK
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Last May, WFO Fairbanks reached out to a new audience with a workshop entitled "Understanding Weather: A Workshop on Prediction, Impacts and Changes" in Huslia, AK, a rural village of about 300 people, 200 miles northwest of Fairbanks. The workshop was held in a rural Alaska village, an environment comfortable to the Native Alaska people to bring together Native Alaskans, social scientists and physical scientists.

The locals gave the visitors a warm welcome. During the workshop Alaskan natives shared the different ways they have seen the weather patterns change over time,

either from their own observations or from what elders have conveyed to them. Scientists from Alaska and NCAR's Environmental and Societal Impacts Group in Colorado shared their research on various topics related to climate change and its impacts.

I provided a description of NWS products and services and explained how to use and understand public zone forecasts and warnings. Biologists from nearby villages and cities shared information on weather sensitive fieldwork. We held these presentations and discussions on Friday and Saturday. On Sunday, interaction focused on future plans. Recommendations were developed to:

- Endorse the development of a numerical weather forecast model for the Arctic
- Have local students interview Native elders to better understand observations by elders related to weather forecasting and climate change
- Develop ways to educate the Native population regarding ongoing climate research
- Find out what weather parameters affect remote villages
- Involve local people in climate measurements
- Provide ongoing interaction with scientists on climate and weather
- Hold future workshops in a village to better ensure Native Alaskan participation.

The group agreed to hold another workshop in the winter to follow up on the recommendations

Wettest Spring on Record for Several East Coast States

Excerpted from the AMS Newsletter, July 2003

Parts of the East Coast, including Virginia and the Carolinas, experienced their wettest spring on record, according to the National Climatic Data Center. By contrast, Texas endured its second driest spring in the 109-year record. Regionally, spring 2003 was the 9th driest in the South; the Southeast had its 4th wettest spring.

"The increased storminess in the East this spring is linked to the jet stream, and a stubborn circulation pattern with a ridge of high pressure over the western United States," said James Laver, director of the Climate Prediction Center. "The jet stream's position helped bring up moisture from the Gulf of Mexico and led to record state-wide average rainfall in Virginia and the Carolinas."

The 2003 spring ranked as the 21st warmest March-May in the 109-year record for the nation, according to the NCDC. The preliminary national average temperature was about 53°F, which was 1.3°F above the long-term mean.

NWS Provides Expanded Role in Disaster Simulation

*By Ted Buehner, WCM, WFO Seattle/Tacoma
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In mid May, the Departments of Justice and State held TOPOFF 2, a national disaster exercise for top officials. The 4-day, full-scale exercise involved a bioterrorism event in Chicago and a dirty radiological bomb event in the Seattle area. This was the largest terrorism response exercise of its kind. The exercise, mandated and funded by Congress, was a follow-up to the original TOPOFF exercise held in Portsmouth, NH, and the Denver, CO, areas in 2000.

WFO Seattle provided meteorological support to Washington state, King County, City of Seattle and Federal officials as outlined in the Federal Response Plan. NOAA/NWS officials at the exercise Master Control Center were periodically briefed on our exercise activities.

WFO staff provided weather information guidance to local response agencies and area media information sources. Our Incident Response Meteorologist Services staff member was deployed to assist the Incident Commander on the first day, assisted by our new fire weather forecaster. Meteorologist in Charge Chris Hill was interviewed at Virtual News Network, highlighting the NWS role in HAZMAT events, including all-hazards warning dissemination. WFO staff contacted the National Center for Environmental Prediction (NCEP) to obtain HYSPLIT trajectory output.

I was originally deployed to the regional joint information center to work as a Federal liaison and NWS representative; however, early in the event's first day, I was moved to the King County Emergency Operation Center (EOC) when the need for more weather information became apparent. I provided all involved EOCs with current and forecast weather conditions. Beyond the original scenario 36-hour canned weather, this information was critical to response and recovery personnel. I also provided stand-up EOC shift change weather briefings, hourly weather updates and individual briefings, primarily using our Internet weather briefing package. WFO staff provided remote overnight support. Our NWR test involved a special script for the TOPOFF exercise.

Lessons learned during this exercise will be compiled and actions will be taken to improve future NWS all-hazards meteorological support.

New Flood Awareness Program Urges: "Turn Around, Don't Drown"

Excerpted from the AMS newsletter, June 2003

NWS is working with the Federal Alliance for Safe Homes (FLASH) and other partners, to enhance public awareness of the dangers of driving or walking into flooded areas. They recently kicked off a nationwide flood-safety campaign: "Turn Around, Don't Drown" – designed to help reduce flood-related deaths in the United States.



Storm data records, accumulated over a 30-year period (1972–2001), show that the average annual death toll for floods is 127 – compared to 73 for lightning and 65 for tornadoes. Approximately 80 percent of those deaths occur when people drive or walk into moving water.

Colorful posters, depicting the Turn Around, Don't Drown slogan on barriers used to block access to flooded roadways, and small (4 in. x 4 in.) automobile window stickers were created for the campaign. The image will also appear on the flood-safety card in FLASH's weather-safety package distributed to partners in the government, insurance industry, and nonprofit community.

Program information, including links to the poster, signs, brochures and other materials is online at <http://www.weather.gov/om/water/turnaround.shtml>.

Visitors are encouraged to download, reproduce and distribute the images through community civic organizations, schools, government agencies, or private businesses.

The campaign concept originated with WCM Hector Guerrero, WFO San Angelo, TX. It began when he was teaching a SKYWARN storm-spotter training class.

Based in Tallahassee, FL, FLASH is a not-for-profit organization dedicated to preventing and minimizing personal injury and property damage suffered in natural or man-made disasters. Formed by a coalition of private companies and public agencies with expertise in disaster prevention and relief, FLASH was created in 1998 to educate and inform people about preparing for and dealing with disasters.

You can find the FLASH Website online at <http://www.flash.org>.

New Website Supports Emergency Managers When Hurricanes Threaten

*By Frank Richards, Meteorologist,
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This summer, NWS is developing a prototype one-stop Website for emergency managers preparing for hurricane impacts. The information will be provided as an Internet Map Service (IMS) using Environmental Systems Research Institute's ArcIMS. Only a Web browser will be needed to access the information.

IMS provides a number of capabilities found in geographic information systems (GIS), such as the ability to select information to be displayed on a map and the ability to zoom in to areas of interest.

Until now, emergency managers often have been unable to effectively incorporate rapidly changing weather and flood conditions into operational decision support systems. Increasingly, the emergency managers are using GIS systems with information such as road networks, population maps, evacuation centers, hospitals and other emergency response locations. Those who use GIS in their operations will be able to integrate NWS information into their existing operational environment.

The IMS server can feed data directly to a user's GIS system, allowing the user to interact directly with the data. This dissemination mechanism gives emergency managers the analysis power they need to be able to quickly answer questions such as, "Which roads are likely to flood in the next 3 hours?"

The NWS IMS prototype does not create new products – it only assembles and disseminates existing information in a consistent GIS framework. The prototype includes a limited set of NWS products providing information on phenomena associated with hurricanes and tropical storms (e.g., hurricane track, winds, flooding and severe weather). While the geographic scope of the prototype is limited to coastal states from Texas through the Carolinas, some information will cover the entire United States and adjacent oceans (e.g., satellite).

The experimental period for this prototype will be from September 2 through November 30, 2003, during which NWS hopes to obtain user feedback. Because the

service is experimental, NWS does not guarantee it will be continuously available throughout this period; however, every effort will be made to assure reliable provision of this service, particularly during times when storms affect the prototype area.

At the end of the test period, NWS will evaluate this new product to determine whether the service is useful enough to users to warrant a larger commitment of resources. NWS needs user comments to make this decision. This user input will also help NWS improve the new product to better serve user needs.

To ensure the initial design of the Website is easy to use and meets the needs of the emergency management community, NWS plans to work with selected emergency managers during August. If you are interested in more information or would be willing to help the NWS refine the Web interface and content, please contact me at (301) 713-1630 x164 or at Francis.Richards@noaa.gov.

NOAA Issues First Experimental Eastern Pacific Hurricane Outlook

Excerpted from the AMS Newsletter, July 2003

NOAA has issued its first experimental eastern Pacific hurricane outlook: It calls for slightly fewer than normal tropical storms and hurricanes this year. Scientists at NOAA predict there is a 50 percent probability of a below-normal eastern Pacific hurricane season during 2003, a 40 percent probability of a near-normal season and a 10 percent probability of an above-normal season.

Similar to the Atlantic hurricane season, one of the major factors in eastern Pacific hurricane development is the El Niño–Southern Oscillation (ENSO) climate phenomenon. This month, NOAA scientists report the dominant trend is for cooling in the tropical Pacific to continue and for La Niña to develop during summer 2003.

“La Niña tends to suppress Pacific hurricane development in contrast to increasing Atlantic hurricane activity,” said Muthuvel Chelliah of the NOAA Climate Prediction Center. “The expected activity is based on a 70 percent likelihood that La Niña conditions will develop during the next few months, combined with the overall reduced hurricane activity observed since 1995.”

This is the first year NOAA has issued an experimental outlook for the tropical eastern Pacific region. This outlook covers the tropical North Pacific east of 140°W latitude. The eastern Pacific hurricane season officially begins on May 15 and ends on November 30. The peak of the season is around September 30. NOAA’s experimen-

tal hurricane outlook for the eastern Pacific region is expected to become official beginning with the 2005 season.

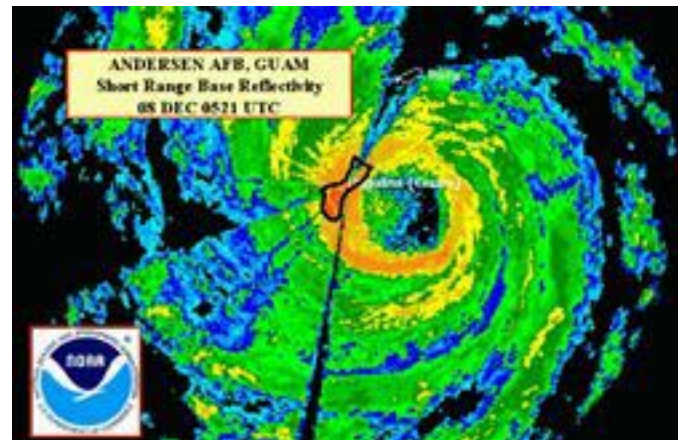
Service Assessment for Super Typhoon Pongsona Released

*By Linda Kremkau, Managing Editor (Retired)
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NWS released its service assessment report for Super Typhoon Pongsona, which devastated Guam in December 2002.

Super Typhoon Pongsona was one of the worst typhoons to ever strike Guam. It resulted in one indirect death, 193 injuries and an estimated \$700 million in damage. Typhoon force winds and torrential rains pounded the Island of Guam for almost 5 hours.

According to the assessment report, WFO Guam did a good job in communicating information as track and intensity forecasts changed and provided excellent coordination to partners in government and the media. WFO Honolulu provided excellent backup when communica-



tions on Guam failed. The team developed 11 recommendations for communications, dissemination, science and internal and external procedures.

The report details support provided by NWS to Guam Civil Defense, the media, other agencies and organizations and the public. For a copy, go to <http://www.nws.noaa.gov/om/assessments/index.shtml>.

Marine Services

New Wave Model Guidance on AWIPS

*By Richard May, Meteorologist, Marine and Coastal Branch
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The capability to ingest Great Lakes Environmental Research Laboratory (GLERL) wave guidance has been deployed to NWS Great Lakes offices. AWIPS Operating Build 1 makes it possible to edit wave model grids in the Interactive Forecast Preparation System. The GLERL wave model is the only source of wave guidance for Great Lakes marine forecasters. GLERL wave guidance is the Significant Wave Height, Significant Wave Period and Significant Wave Mean Direction going out to 36 hours. This capability should extend to 48 hours and beyond in the next year.

Three New Marine Training Modules Presented at Workshop

*By Richard May, Meteorologist, Marine and Coastal Branch
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Marine and Coastal Services held the marine Professional Development Series (PDS) workshop at the University Corporation for Atmospheric Research facilities in Boulder, CO, last spring. The marine PDS producers outlined five modules scheduled to go on-line. The first three modules are:

- Wave Characteristics and Terminology
- Wave Life Cycle I: Generation
- Wave Life Cycle II: Propagation and Dissipation.

These modules should be on-line by fall 2003. The wave subject matter experts are Scott Stripling, Forecaster In Charge (FIC) at WFO San Juan, and Dan Sobien, FIC at WFO Tampa Bay, FL.

In addition, the following marine wind modules should be on-line by early 2004:

- Winds in the Marine Boundary Layer 1: Stability Effects
- Winds in the Marine Boundary Layer 2: Isallobaric Winds.

Weather Kiosk Aids Mariners

*By John Lovegrove, WCM, WFO Eureka, CA
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Mariners traveling through Humboldt Bay in northern California now have instant access to weather information thanks to a marine weather kiosk. The waters off northern California are some of the most hazardous in



Kevin Collins of the F/V Rae Ann (left) and Phil Glenn of the R/V Celtic inspect the new marine weather kiosk. Photo by Troy Nicolini, NWS.

the continental United States. The wave and wind climate, along with an exposed coastline, results in a particularly dangerous environment for mariners.

The kiosk is located in the lobby of the Woodley Island Marina and was partially funded by a grant from the National Safe Boating Council. The project was a collaboration between NWS and the Humboldt Bay Harbor, Conservation and Recreation District.

The grant was written by project leader Troy Nicolini, WFO Eureka, after information on the program was provided by the NWS Marine and Coastal Weather Services Branch. The grant was used to purchase a touch screen monitor and uninterruptible power supply. The County

of Humboldt provided the kiosk housing and the computer was surplus from the NWS. I developed the Website powering the kiosk, WFO Eureka. The Humboldt Bay Harbor District provides the Internet connection, location and security.

The kiosk, installed on April 17, met with rave reviews from local mariners. A variety of information is available through the kiosk including satellite images, radar, jet stream, text forecasts and buoy reports. The kiosk Website can be found at <http://www.wrh.noaa.gov/Eureka/kiosk>.

NOAA Weather Radio

WFO Norman Offers Live NWR Broadcasts

From NWS Focus

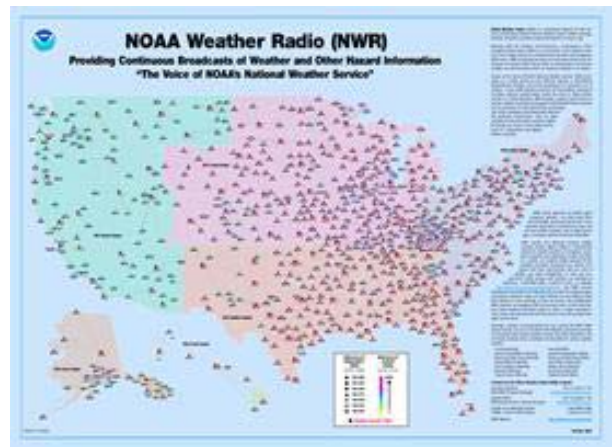
The Nation's busiest tornado outbreak in many years prompted officials at WFO Norman, OK, to make innovative use of Oklahoma's network of NOAA Weather Radios (NWRs). At 2:30 p.m. Central time on May 8, WFO Norman held a live severe weather forecast briefing on all ten of the NWR transmitters operated by the office. The live briefing lasted 10 to 15 minutes and included the latest thinking on the expected impacts, timing and locations of tornadoes, a real-time description of the first radar echoes forming, a review of tornado safety rules as well as preparedness and awareness information.

The briefing was advertised via a banner on the WFO's Website, NWR announcements and e-mail sent to all local emergency managers and media in its area of responsibility. KSWO-TV, the ABC affiliate in Lawton, OK, ran a crawl to advertise the briefing to its viewers.

Updated NWR Posted and Brochure Just Released

*By Marty Baron, NOAA Weather Wire Serv., Prog. Leader
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The NWR office has just released two updated products to help promote the weather radio program, a brochure and a poster. Users outside NOAA can download a soft



NOAA Weather Radio Poster

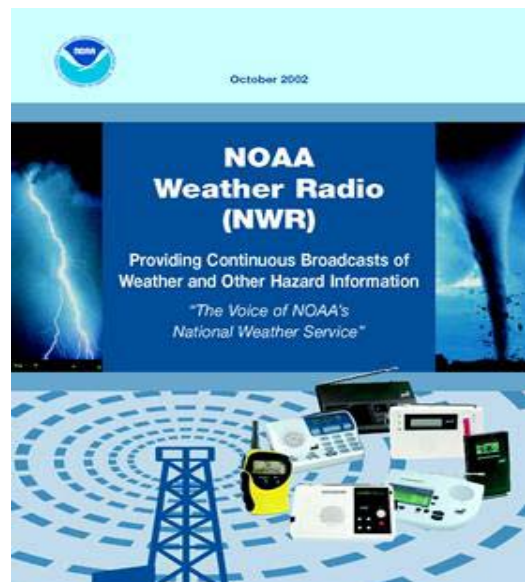
copy or order printed copies from the NOAA Outreach Office listed on the OCWWS publications page at: <http://www.nws.noaa.gov/om/brochures.shtml>.

NWS staff can order the poster and brochure from the National Logistics Supply Center in Kansas City, MO. Call NLSC at 816-926-3990 and provide NOAA stock numbers listed below and your local accounting information. fax orders to NLSC at 816-926-7901. Orders are limited to 50 copies. The stock numbers are:

NWR Poster: NOAA PA 200352

NWR Brochure: NOAA PA 200356

All six NWS Regional NWR focal points are receiving copies for distribution within their regions. We suggest field offices obtain initial copies from the regions because the number of copies stocked by NLSC is limited.



NOAA Weather Radio Brochure

New Western Region Spotter Video Focuses on Weather in the West

*By Mark Moede, Lead Forecaster, WFO San Diego, CA
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A new SKYWARN spotter training video, on CD-ROM, is now available for NWS offices. The video focuses on the weather found in the deserts, high plains and mountains of the West. It contains amazing footage of Western weather, including heavy snow and ice storms in winter, severe summer thunderstorms in the high plains and canyon and desert flash floods during the monsoon season.

The video, entitled *Eyes of the West: Be a Wild West Weather Spotter*, was created by Tanja Fransen, WCM Glasgow; Roger Lamoni, WCM Reno; Mark Moede, Lead Forecaster, San Diego; and Vern Preston, WCM Pocatello. The 11-minute video, produced using Adobe Premier Software, can be used for spotter training and outreach activities year-round. Western region offices contributed video sections as well as noted storm chasers Roger Hill, Brian Morganti and Tom Warner.

To get a copy of the video on CD-ROM, email Mark.Moede@noaa.gov or NWS Western Region Meteorological Services Division.

WFO Las Vegas Supports Local Citizen Corps Council Training

*By Andy Bailey, WCM Las Vegas, NV
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The city of Las Vegas has established the Las Vegas Citizen Corps Council to coordinate volunteer community safety programs operated by city departments and partner agencies such as NWS. Within the Citizen Corps Council, the city has formed the Community Emergency Response Team (CERT) to respond to emergency situations within the community.

As part of the CERT volunteer program, Las Vegas WFO Forecaster Heather Orow and WCM Andy Bailey held a training session to do two things: First, educate the CERT volunteers on the full spectrum of dangerous weather conditions experienced in the Las Vegas valley; second, describe what special products NWS produces to

warn the public about expected dangerous weather and how these products are disseminated.

As part of the training, Program Coordinator Rick Diebold, Las Vegas Fire and Rescue Department, arranged to have a Red Cross emergency response food service vehicle come to the WFO and serve dinner to the volunteers and the hungry NWS staff, as if they were dispatched on an actual emergency.

In the end, this training was not only an excellent means for the CERT volunteers to become better acquainted with their local NWS office and the area's hazardous weather, but also provided NWS staff valuable insight into the role these volunteers play during and after an emergency.

OS Digital Services Team Creates Brochure for Public Use

*By Ron Gird, NWS Outreach Program Manager
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The NWS Office of Services has created a National Digital Forecast Database (NDFD) tri-fold color brochure to explain the NDFD program and its benefits to emergency managers and other members of the public.

The brochure highlights the easily accessible text, grids, maps and other color graphics NDFD can offer customers. The brochure, released in July, incorporates ideas from NDFD test programs throughout the United States. The brochure is only available online. To download a copy to reprint, go to <http://onestop.noaa3.awips.noaa.gov/ndfd/resources/ndfd-trifold.pdf>.

Sojourner-Douglas College Initiative Promotes Weather Careers

*By Ron Gird, NWS Outreach Program Manager
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On June 18, the NWS Office of Services represented the NWS at the Sojourner-Douglass College Atmospheric Science Education Project. The project vision is "to create a multi-level pipeline of students who are motivated and academically prepared to seek careers in atmospheric science." Dr. Alice Thomas organized and conducted the meeting. There are three elements to the program:

- Kids College for K-12 students
- Summer Camp Program
- Teacher Training Program.

The NWS presentation focuses on Extreme Weather Awareness and developing education partnerships. The goal is to have the program operating in 2004.

National Disaster Education Coalition To Release New Public Products

*By Ron Gird, NWS Outreach Manager
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On June 12, the American Red Cross hosted the monthly National Disaster Education Coalition (NDEC) meeting. Escapes, Inc. presented its approach for developing and maintaining a new NDEC Website focusing on the "Talking About Disaster Guide for Standard Messages." Marlie Grilli, the consultant reviewing the guide, presented her findings and recommendations.

Each guide chapter will be distributed to appropriate NDEC members one final time for response to questions and comments from this current review. The goal is to print the revised guide by late 2003 or early 2004.

Also reviewed was the new NDEC/NWR publication under development by the Office of Operational Systems. Both the U.S. Geological Survey and the U.S. Department of Agriculture want to provide inputs to this revised publication and include their government logos on the front cover.

AMS WeatherFest 2004 Planning Committee Seeks Input

*By Ron Gird, NWS Outreach Program Manager
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In June, representatives from the AMS Meetings and Exhibits and NWS Outreach Program held their first planning meeting for the 2004 AMS WeatherFest Program to be held during the AMS annual meeting in Seattle, WA, January 12-15, 2004.

WeatherFest2004 will be on Sunday, January 11, from Noon until 4 pm. The focus will be on interactive exhibits featuring the practical aspects of meteorology, hydrology and oceanography.

The target audience for WeatherFest is the public: teachers, students, scouts and youth athletic organiza-

tions. Seattle TV meteorologists will be hosting segments of the activity.

The Seattle location gives NOAA an excellent opportunity to enhance its oceanography programs and support. The Planning Committee is also recruiting organizations to help sponsor the public event. Each year WeatherFest attracts a greater public response than the previous year. Please contact me if you are interested in participating in WeatherFest2004.

NWS Supports Next Generation Science Projects

*By Paul Eyssautier, WCM, WFO Elko, NV
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In March, local students in Grades 4-12 took part in the Elko County Science Fair. WFO Elko Meteorologist Intern Brandon Peloquin and Senior Meteorologist Zaaron Allen were among the judges for this event. Forecasters from WFO Elko have been judges in the Science Fair for



Spring Creek High School freshman Shawna Hume shows off her science project, "Freezing and Boiling Points," to WFO Senior Meteorologist Zaaron Allen.

several years. Science and Operations Officer Steve Apfel has been a science fair judge since 1996 and Senior Forecaster Brian Fehr has been a judge since 1999. Forecasters have been active in northeast Nevada teaching science classes and taking part in county fairs. Positions are also available for high school students in the summer, providing an opportunity to learn first hand about the scientific process.

Cockatoo Helps Spread Weather Safety Word

By Jon Rizzo, WCM, WFO Key West, FL
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Electronic Technician Don Byrd, his companion, Sidney, the Malluccan cockatoo, and I staffed the NWS Key West booth at Bahia Honda State Park. The park provides free admission to the various agencies and groups that support environmental education! Other groups present included the Dolphin Research Center, Long Key State Park, the Florida Keys Astronomy Club, U.S. Coast Guard Auxiliary of Big Pine and Marathon, and the Fish and Wildlife Service.

About 300 visitors stopped by the NWS booth, asking questions about hurricanes, marine forecast services and other weather hazards in Florida. In return, Sidney asked the visitors "Whatcha doin'?" and performed a little outreach of her own with an occasional, "Hello, pretty bird!" Visitors came from as far away as Puerto Rico, Switzerland and British Columbia.

IAEM November Meeting Targets Public Private Partnerships

By Steve Kuhl, National WCM Program Manager
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NWS is planning to give a presentation focusing on the "Use of NWS Technologies During the Columbia Space Shuttle Disaster," along with an update on our latest products and services at the 2003 IAEM Conference and EMEX Exhibit scheduled for November 15-19, 2003. The theme of this year's conference is "Connecting Communities: Comprehensive Emergency Management." The conference will stress the importance of private and public sector disaster preparedness and homeland security collaboration. Sessions will include:

- Public health and emergency management
- Profiles of successful corporate emergency management (EM) programs
- Pediatric considerations of disaster preparedness
- EM job opportunities
- Military resources for disaster preparedness
- Recent EM research.

Conference details are available at the IAEM Website:
<http://www.iaem.com>.

NWS Key West Stars in Comcast TV

By WCM Jon Rizzo, WFO Key West, FL
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In cooperation with the Comcast Cable, the WFO Key West Office launched an educational program with the local cable TV outlet to educate Florida Keys visitors and residents of the weather patterns and safety issues in the Keys. Last spring, 60-second weather feature describing the UV index aired on cable and a local tourist channel. The features will be expanded in April to six spots airing on a rotating basis in a 30 second and 60 second format.

All spots will change monthly to reflect weather and safety issues in the Florida Keys for that month. Dennis Feltgen, a journeyman forecaster in Key West and 28-year veteran of broadcast meteorology, is the writer, producer and talent for the features.

WFO Fairbanks on the Air During National Ham Radio Event

By Tim Shy, Senior Forecaster, WFO Fairbanks, AK
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WFO Fairbanks took part in the national Amateur Radio Field Day emergency exercise, June 28-29. The National exercise tests amateur radio communication under difficult conditions, as amateur radio operators used emergency power and portable antennas.



From left, Forecaster Tim Shy and ARES Emergency coordinator for the Fairbanks North Star Borough.
Photo by Larry Ledlow.

Although the event was a drill, some real weather information was passed to WFO Fairbanks during the event. Several ham radio spotters reported rainfall and thunder during a brief round of afternoon thunderstorms in the forecast area.

WFO Fairbanks station KL7FWX operated for much of the 26-hour event with ham-licensed forecast staff and members of the Arctic Amateur Radio Club. The station contacted 27 other stations in 10 states spread out from Washington to Florida along with two Canadian provinces.

This is the first year that stations set up at government agencies were invited as a special category, testing their capabilities to receive radio communications from portable stations in the field. The exercise is particularly important in interior Alaska, where many places are not served by either in-place communications infrastructure or commercial sources of electric power. Amateur radio becomes a vital link to ensure emergency messages get through to agencies with emergency missions.

The event also featured special categories for ham operators getting on the air for the first time or holding inactive licenses, a valuable recruiting effort for new hams interested in emergency communications.

NOAA's National Weather Service Supports Homeland Security

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In July, Warning Coordination Meteorologists Bill Sammler, WFO Wakefield, VA, and I presented background and safety information on severe thunderstorms, tornadoes, flooding, wildfires and hurricanes to personnel from the DOD United States Northern Command (NORCOM) at Norfolk Naval Air Station, VA.

This training was organized through Standing Joint Force Headquarters as part of DOD/Department of Homeland Security operations. The presentations focused on the natural hazards for which the NORCOM Joint Operations Center staff will provide support during presidentially declared disasters requiring military activation.

Bill and I also shared critical Website information, advantages of manipulating the NWS digital database to customize products, and the importance of interagency relationships before, during and after disaster response.

Tornado Remembrance Features New Tornado Event

*By Richard Wagenmaker, MIC, WFO Detroit, MI
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On June 8, WFO Detroit and community partners commemorated the 50th anniversary of the "Flint-Beecher" tornado in a widely publicized event held at the site of one the worst natural disasters in the nation's history. A total of 116 lives were claimed on June 8, 1953, and over 800 people suffered injuries as the tornado passed through Beecher, a northern Michigan community. Fifty years later this event retains the unfortunate distinction of being the last single U.S. tornado to kill more than 100 people.

Nearly 500 people attended the commemoration at the Beecher High School Auditorium, the same facility that was nearly destroyed in the 1953 twister. The event featured keynote addresses from SPC Director, Joe Schaefer; FEMA Region 5 Director Ed Buikema; recollections from tornado survivors and an emotional reading of all 116 names of those who died.

The ceremony was preceded by a wreath-laying and memorial service at the Memorial Monument on the corner of Saginaw Street and Coldwater Road and was followed by a "Survivor Reunion" and reception in the Beecher High School Field House. The reception included an exhibit of scrapbooks, an extensive collection of historical photographs, displays, historic newspapers, informational booths and a tornado remembrance sculpture by Flint artist Dianne Kudza.

The entire ceremony was broadcast live and was covered by all major media in southeast Michigan, CNN and The Weather Channel. The *Flint Journal* ran special commemoration editions throughout the preceding week. All of these commemoration activities were the culmination of a year's worth of planning and preparation by WCM Rich Pollman and the Beecher 50th Anniversary Commemoration Committee he formed. The committee included the American Red Cross, *Flint Journal*, Heart of Flint Senior Citizen Services, Sloan Museum, Genesee and Lapeer County Emergency Management, the Salvation Army, Beecher Schools and the Flint Public Library.

Ironically, after the ceremony a tornado hit the area, causing substantial damage in the southern Flint community of Grand Blanc. Unlike the Beecher tornado

50 years ago, this tornado struck with 45 minutes advance warning and no deaths or injuries! For more information on the Flint-Beecher Tornado, go to: <http://www.crh.noaa.gov/dtx/1953beecher>.

Kentucky Recognizes NWS Severe Weather Work

By *Ricky Shanklin, WCM, WFO Paducah, KY*
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The West Kentucky Emergency Management Association, which comprises the eight western-most counties in Kentucky, honored WFO Paducah with a Certificate of Appreciation on June 16. The award was presented to the NWS in Paducah "For dedicated and outstanding service to the counties of western Kentucky" in consideration of the early May 2003 tornado outbreak and numerous other severe weather events to strike western Kentucky.

The May 4-6 Tornado Outbreak was the largest outbreak in the 58-county, four-state area served by WFO Paducah since NWS records began in 1950. There were 33 tornadoes confirmed during the 3 days, including a powerful F4 tornado that cut a two-thirds-of-a-mile swath of destruction for 33 miles. The magnitude of the early May record tornado outbreak resulted in 144 warnings and statements issued by WFO Paducah.



From left: Kent King, McCracken County Emergency Management Director (EMD); WCM Rick Shanklin; Jeff Steen, Calloway County EMD; Kristia Reynolds, Hickman County EMD; and Duane Hawes, Marshall County EMD.

Lightning Safety Strikes Golfers

By *Ted Buehner, WCM, WFO Seattle, WA*
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WFO Seattle sent the NWS/Professional Golf Association (PGA) partnership lightning safety poster to more than 100 western Washington golf course managers in May, as a part of the 2003 Lightning Safety Awareness Week effort. A cover letter and list of localized lightning



North Shore Golf Club Head Pro David Wetli and Seattle WCM Ted Buehner

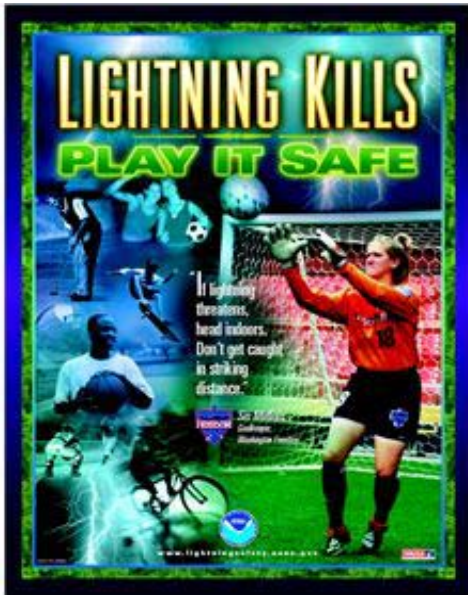
safety tips accompanied the poster, featuring PGA professional Rocco Mediate.

The PGA provided a list of area golf course professionals. The database provided by the PGA was integrated into QuattroPro, from which mailing labels were made. A team of WFO Seattle staff members helped roll the posters, together with the cover letter and safety tips, into mailing tubes for distribution to area golf courses. This has proven to be a great way to get a really visual message out to a large audience at high risk of lightning injuries.

NWS Lightning Safety Awareness Week Proves Successful

By Steve Kuhl, National WCM Program Manager
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NWS, in partnership with other Federal agencies and private organizations, hosted its 3rd annual National Lightning Safety Awareness Week from June 22-28, 2003.



During this week, local WCMs and members of the NWS's Lightning Safety Awareness Team provided hundreds of national and local media lightning safety interviews across the country.

The focus of this year's campaign was to target athletes involved in outdoor sports, such as baseball and soccer. Siri Mullinix, goal keeper for the Washington Freedom women's professional soccer team, helped reach out to the ever growing number of kids playing soccer and other sports by appearing on a new poster and recording a Public Service Announcement, both available at: <http://www.lightningsafety.noaa.gov/multimedia.htm>

Through the Lightning Safety Awareness Week campaign, NWS and its partners hope that people will take the time to learn more about lightning risks and how to protect themselves from this deadly phenomena. In the United States, an average of 73 people are killed each year by lightning, more than the annual number of people killed by tornadoes or hurricanes.

To gain an overview of lightning safety and view a listing of our campaign partners, please visit the NWS National Lightning Safety Awareness Website at: <http://www.lightningsafety.noaa.gov>.

Storm/TsunamiReady

NWS StormReady Program Passes 600 Sites, Reaches 46 States

By Steve Kuhl, National WCM Program Manager
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The NWS StormReady Program now has more than 600 recognized communities in 46 states. This spring the program gained three new states with one or more recognized sites: New Hampshire, Virginia and Utah have joined the program.

Americans live in the most severe weather prone country on Earth. Potentially deadly weather can impact everyone. Americans cope with an average of 10,000 thunderstorms, 2,500 floods, 1,000 tornadoes and an average of 6 hurricanes each year.

StormReady was started in 1999 in Tulsa, OK, to help arm America's communities with the communication and safety skills needed to save lives and property, before and during a severe weather event. StormReady is designed to help community leaders and emergency managers strengthen their local safety programs. StormReady communities are better prepared to save lives from the onslaught of severe weather through better planning, education and awareness.

No community is storm proof, but StormReady can help communities save lives. For more information on how to have your community recognized as StormReady, go to: <http://www.stormready.noaa.gov>.

First Multi-State Community Deemed StormReady

By Dave Nicosia, WCM, WFO Binghamton, NY
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The "Valley," comprised of the communities of Waverly and Barton, NY, and Sayre, Athens and South Waverly, PA, were recognized as StormReady by WFO Binghamton this spring. At a ceremony on May 6, MIC Peter Ahnert and I presented both StormReady signs to the Valley Pre-Disaster Mitigation Committee Chairman Francis "Skip" Roupp. All the communities that make up



From left: MIC Peter Ahnert, WCM Dave Nicosia and Francis "Skip" Roupp, Valley Pre-Disaster Mitigation Committee Chairman.

the Valley decided to work together in a unified approach to prepare for and respond to natural disasters, and thus applied for recognition as one community. All the jurisdictions in the Valley share resources and have an excellent unified communication system. They also share an Emergency Operations Center. To date, the Valley is the only recognized multi-state community to attain StormReady recognition.

Kids Help New Hampshire Become StormReady

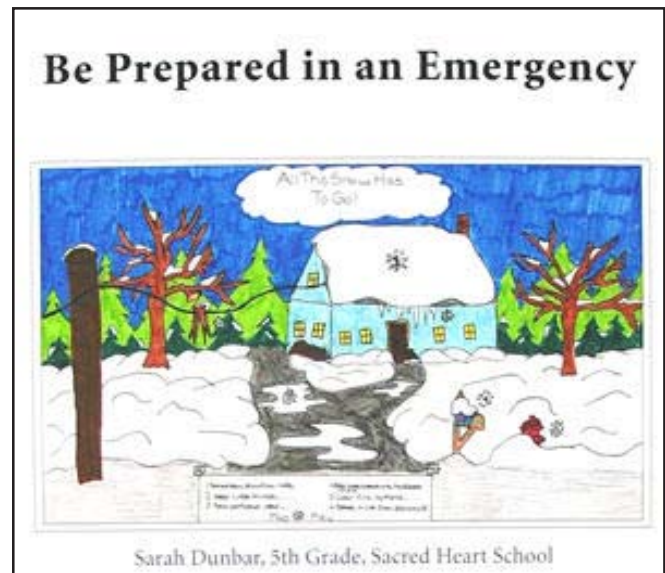
By John Jensenius, WCM, WFO Portland, ME
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On June 2, New Hampshire became the 44th state with one or more StormReady sites. The state's first site is Hampton, a town on the Atlantic Ocean. The presentation was made at a Board of Selectmen meeting. In addition to standard StormReady requirements, using Federal Emergency Management Agency's Project Impact funds, the town put together:

- An emergency preparedness guide for residents and visitors
- A 15-minute emergency preparedness video
- A contest in schools to design emergency preparedness pictures, which were later incorporated into posters and refrigerator magnets.

The recognition would not have been possible without the efforts of Emergency Management Director Chief Hank Lipe and Project Impact Coordinator for Hampton, Colleen Giordano. Through funds provided by Project Impact, the town purchased SAME-activated NWRs for numerous public buildings, including the town office, the public library, the police department, the fire stations, the school superintendent's office and all five schools in the town. When our office issues a warning for the Town of Hampton, NWRs in those buildings will automatically activate to alert people of the threat.

Through collaborative efforts of Federal, state and local agencies and the local newspapers, Hampton now has an excellent Emergency Preparedness Guide to help residents and visitors prepare for emergencies, including weather-related threats. Much of this information is also available on the town's Website.



To promote StormReady, New Hampshire kids took part in a contest to design posters on weather awareness. Show above is part of the winning poster.

Through our outreach efforts, many school children at Hampton Academy and the Marston School have had the chance to learn more about hazardous weather and what NWS does to alert people in cases of severe weather.

Finally, the Town's Emergency Operations/Management Plan now includes guidelines for responding to a variety of weather threats, including hurricanes, tornadoes, floods and winter storms. The town is under contract to have an all-hazards mitigation plan completed by the end of this year.



In July, WFO Juneau, AK, welcomed Sitka as the 8th StormReady/TsunamiReady site in the United States. Shown above are materials used to promote Tsunami safety.

Sitka Named 8th TsunamiReady, StormReady Community

By Chris Maier, WCM, WFO Juneau, AK
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On July 7, Sitka, AK, became the 8th TsunamiReady and StormReady community. Kudos to Sitka Fire Chief and Emergency Manager Dave Miller and Safety Specialist Nathan Young on their hard work.

FEMA Region 10 Director John Pennington and Director of Alaska Division of Emergency Services Dave Liebersbach spoke at the ceremony commending Sitka for its level of preparedness for natural disaster. MIC Tom Ainsworth, WFO Juneau, presented Miller and Sitka City Administrator Hugh Bevan with the official certification and signs.

The NWS Tsunami Warning Center in Palmer, AK, issues tsunami Watches and Warnings for Alaska and the U.S. West Coast. It also issues statements when large earthquakes are not expected to trigger a tsunami. Paul Whitmore, Geophysicist In Charge at the West Coast/Alaska Tsunami Warning Center, commented, "Citizens in a seaside community such as Sitka, which is in an area prone to earthquakes, must understand the importance of moving inland and to higher ground immediately. When a disaster occurs, a StormReady or TsunamiReady community will be better prepared for its citizens."

So rest a little easier the next time you visit the beautiful city of Sitka. Their local emergency management officials have taken steps to ensure a swift, organized emergency response in the event of a natural disaster.

NWS Western Region WCM Workshop Focuses on Future

By Jeff Lorens, NWS Western Region MSD
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The NWS Western Region hosted a regional Warning Coordination Meteorologist (WCM) workshop at Reno, NV, June 9-13. This workshop provided a common forum for WCMs to share success stories and also to discuss common problems and concerns.

Staff from Western Region Headquarters and each of its 24 forecast offices attended as well as representatives from NWS Headquarters.

Pacific Region WCMs from Guam and Honolulu shared their perspectives on warning and outreach programs and on key technical issues such as the Integrated Forecast Preparation System.

Vickie Nadolski, Regional Director, Western Region, and Keith Meier, MIC, WFO Billings, gave a series of presentations on the roles of the WCM, on leadership, and on career development.

Other specific topics discussed at the workshop included the following:

- The National Digital Forecast Database and associated outreach programs
- NOAA Weather Radio
- StormReady and TsunamiReady program successes
- Weather warning issues
- Hydrological support
- Fire weather support
- National WCM program
- Public affairs
- Emergency Alert System
- Verification and performance measures
- Climate services
- Support to Homeland Security and response to hazardous materials spills.

The workshop concluded with a series of break-out sessions, focusing on marine/tsunami issues, mountain weather and severe weather.

NWS Updates One Stop Job Aid Site for WCMs

By Steve Kuhl, National WCM Program Manager
Stephan.Kuhl@noaa.gov

A new on-line version of the WCM Job Aid was developed in May 2003. The Website offers links, tips and detailed descriptions for NWS WCMs. Job Aid is available at: http://weather.gov/os/wcm_jobaid.

Rick Dittmann, WCM, WFO Great Falls, MT, Melody Magnus, Webmaster for Office of Climate, Water, and Weather Services, and I combined our skills to prepare this updated staff resource.

Rick Dittmann said "This new job aid will be of great benefit to our WCMs because it provides them with one-stop shopping capability for critical information about many of their duties and responsibilities. It gives our WCMs quick access to policy and procedural information, hazard, safety, outreach, awareness information and NWS dissemination information."

The new Job Aid is intended to be a living document. Several new links were added in June and July to further improve this dynamic site. WCMs are encouraged to provide feedback on the information they want to have added or removed from the guide, in order to make it the most useful resource for our WCM program.

Please send all inquiries, comments and suggestions to Rick Dittmann at: rick.dittmann@noaa.gov.

Weather Technology

New Supercomputer Advances Weather Forecasts

Excerpted from the AMS Newsletter, July 2003

In June, a new supercomputer that can make more than 450 billion calculations per second was dedicated. Operating as a parallel computer system known as "Frost" and "Snow," the new generation IBM supercomputer is poised to give NWS the ability to improve local and national forecast accuracy, as well as to extend watch and warning lead times for potential severe weather, such as winter storms, tornadoes, floods and hurricanes.

"Frost" handles the operational forecasting tasks, while "Snow" is assigned model development for weather, climate and ocean applications. Combined, the IBM supercomputer is a high-performance computing system designed to run the most sophisticated numerical models of the atmosphere and oceans and to improve weather, climate, flood and ocean forecasts.

By 2009, the supercomputer is expected to provide 48 times the computing power of the current IBM SP. The new machine is the foundation for all NWS weather and climate forecasts. It runs complex numerical weather models generating guidance products for meteorologists. The 9-year, \$224.4 million contract was awarded to IBM in 2002. The computer is part of NCEP.

Climate, Water, and Weather Links

MIC/WCM/SOO/DOH List:	http://weather.gov/os/wcm-soo.pdf
NWS Publications List:	http://weather.gov/os/pubslst.htm
NOAA Weather Radio Information:	http://weather.gov/nwr/
Aviation Weather:	http://aviationweather.noaa.gov/
Education/Outreach:	http://weather.gov/os/edures.htm
Flooding/Water:	http://weather.gov/os/water/index.shtml
Lightning Safety:	http://www.lightningsafety.noaa.gov/
Marine Weather:	http://weather.gov/os/marine/home.htm
Natural Hazards Statistics:	http://weather.gov/os/hazstats.shtml
Past Weather/Climate:	http://lwf.ncdc.noaa.gov/oa/ncdc.html
StormReady Home Page:	http://www.stormready.noaa.gov/
Severe Weather Safety and Awareness:	http://weather.gov/os/severeweather/index.shtml
Hurricane Safety and Awareness:	http://weather.gov/os/hurricane/index.shtml
Current Weather, NWS Home Page:	http://weather.gov