

Aware

Aware is issued by the National Oceanic and Atmospheric Administration to keep communications lines open within the Agency and with the natural hazards community

Summer/Fall 1999

Service, Science, and Technology

CUSTOMER SERVICE

NWS Aces All Y2K Readiness Tests

From its satellites 22,300 miles in the sky to its ground based weather radar systems, the NWS is confident that its weather-related systems and forecast offices will be up and running on January 1, 2000. NWS will continue providing the weather warnings and forecasts that help keep the public safe.

"The American public can depend on the National Weather Service to provide timely weather information as we enter the new millenium," said John J. Kelly, Jr., National Weather Service (NWS) Director. "All of our systems are tested and ready to go."

On September 15, Rep. Stephen Horn (R-CA), Chairman of the House Government Management, Information and Technology Subcommittee, graded the Year 2000 issue (Y2K) readiness of the 43 major federal programs including Medicare, the NWS, child nutrition and food inspection. NWS was cited as one out of seven agencies ready for Y2K.

Since 1996, NWS has worked to ensure that all of its mission critical systems are Y2K ready. Satellites, Doppler radars, automated ground sensors, sophisticated computers, and a network of weather forecast facilities throughout the country were assessed, renovated as necessary, and validated. Additional tests were successfully carried out to ensure that all weather systems are able to exchange and process weather data properly on January 1, 2000.

The Y2K issue is rooted in the way many computer systems handle dates. Weather products, such as forecasts, watches and warnings, are unaffected by the Y2K date change because they use a two-digit day of the month and a four-digit Universal Coordinated Time (also known as Greenwich Mean Time) hour in the header of each product. For example, on the 25th of any month at 1700 hours, the only date information in the header of the data would be 251700.

Because weather data is used and disseminated by many private sector organizations, the NWS has also worked with its partners, which include telecommunications and power companies, federal government agencies, private weather vendors, airlines and international institutions, to ensure uninterrupted service. Special tests which included many NWS partners were successfully completed, with all systems functioning properly.

"Regardless of what else the new century may bring," said Kelly, "the wide variety of data, products, and support provided by your National Weather Service will continue."

For more information, see the NWS Y2K Web site at www.oso1.x3.nws.noaa.gov/y2k/.

NOAA Public Affairs Office

Inside Aware

10
**National
Center
Issues**

11
**Community
Outreach
Activities**

17
**Publications,
Audiovisuals**

Attachments

**A Update on WSOM
Chapters**

**B WCM/SOO
Roster**

NWS Offers New Drought and Threats Assessment Products

In August/September 1999, the NWS introduced two new operational products: the Drought Monitor (www.drought.noaa.gov) and Threats Assessment (www.cpc.ncep.noaa.gov/) products. These new products signal a new level of service needed to protect life and property and reduce economic impacts of extreme weather.

NOAAPORT and the Emergency Managers Weather Information system (EMWIN) started broadcasting these new products in September. National Oceanic and Atmospheric Administration (NOAA), NWS and the U.S. Department of Agriculture (USDA) are providing maps and text summarizing the extent and intensity of drought nationwide and forecasts on whether the drought will strengthen or weaken over the next two weeks. The map uses a new classification scheme showing the drought intensity and type, similar to the schemes currently used to describe hurricanes and tornadoes. The map indicates if the drought is affecting agriculture, fire danger or public water supplies. Additional text information and data describing the drought is also available with the map.

The NCEP introduced the Threats Assessments map after an extensive two-year field test and evaluation. The maps depict forecasts for extreme conditions of temperature, precipitation, winds and drought for the next 3-10 days. The products are updated weekly or more frequently if events require. NWS anticipates the products major users will be emergency managers, local government officials, engineers, the media and the public.

Ron Gird, Customer Outreach Program Leader

Is Your Community StormReady?

The StormReady program encourages severe weather preparedness activities in communities and counties nationwide. The program also publicly recognizes communities achieving a notable level of preparedness. This public recognition comes in the form of accreditation when the community has met criteria set by emergency management and NWS officials. When an area successfully meets specific criteria, it earns the right to be called a "StormReady Community." NEXRAD Weather Service Office (NWSO) in Tulsa, OK, developed and piloted this innovative program.

The primary beneficiaries of the StormReady are the citizens of the accredited communities. These residents can take comfort in the fact that their community leaders have achieved a high level of skill in dealing with hazardous weather. StormReady has been such a success, it has been

added to the NWS Strategic Plan. NWS will implement it as a national program in the near future. The goal is to add 20 StormReady communities per year.

John Ogren, WCM Program Leader

Hurricanes: Community Preparedness Course Now Being Offered

NWS and the Federal Emergency Management Agency (FEMA) now have available IS 324: Community Hurricane Preparedness Course. This program is the latest in a series of joint NWS-FEMA training initiatives. The course is available through FEMA's Independent Studies Program on CD-ROM. Eligible officials may enroll online by following the "Enroll in Courses" link. Completing IS 324 is a prerequisite for FEMA's "Introduction to Hurricane Preparedness" workshop held annually at the National Hurricane Center (NHC). Course developers hope the program will quickly reach thousands of state and community decision makers.

The Course Goal: Given information on hurricane hazards, forecast limitations, and decision aids, participants will be able to reduce damage and loss of life in their risk areas by identifying mitigation and preparedness measures.

Enrollment Requirement: Because of limited quantities, the IS 324 CD-ROM is only available to members of

Aware

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Aware in PDF—www.nws.noaa.gov/om/public.htm
AwareNow: frequently updated html version:
www.nws.noaa.gov/om/awarenow.htm

the emergency management community and officials with decision-making responsibility at the local, state, or Federal levels in the following states: Maine, New Hampshire, Connecticut, Massachusetts, Rhode Island, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Hawaii, and US Trust Territories.

Technical Requirements: Windows 95, 98, or NT 4.0; Intel Pentium processor, 133 MHz or faster; Windows compatible sound card; 4x or greater CD-ROM drive; 16 mbs RAM. Netscape Communicator (4.x recommended) or Microsoft Internet Explorer (4.x recommended).

Herb White, Meteorologist

New WCM Program Leader Joins Customer Service Core

John Ogren is the new NWS Headquarters Warning Coordination Meteorologist (WCM) Program Leader. John's previously served as a WCM, assistant WCM, pre-AWIPS program leader, AFOS program leader, and Weather Service Evaluation Officer in Wichita, KS. He was also involved in the Central Region team that reviewed characteristics of what makes "Top Gun" offices. Aside from his meteorological qualifications, John studied broadcasting in college. His responsibilities in the Customer Service Core include:

- Managing the WCM program and Post Storm Data Acquisition activities
- Identifying WCM training needs
- Serving as the NWS liaison to FEMA
- Helping to set requirements and policy for internal and external warning and forecast coordination
- Supporting FEMA's Federal Response Plan, Continuity of Government Program and Hurricane Liaison Team
- Supporting the Subcommittee for Natural Disaster Reduction of the Committee on Environment and Natural Resources
- Assisting with NOAA/FEMA joint emergency manager training courses.

Here's a brief sketch of how the WCM program leader functions fit with other personnel in the core.

Outreach Program Manager Ron Gird develops outreach themes for the agency. Ron works with Linda Kremkau to provide awareness and preparedness materials including the tri-logoed materials done with the American Red Cross, FEMA, and the U.S. Geological Survey (USGS).

Service Evaluation Meteorologist Bill Lerner fields teams following extreme events to assess NWS performance and measure customer satisfaction. Bill also handles the confirmation of services process.

Scott Kiser is the focus for significant event notification information, running our meteorological watch office and conducting partner workshops.

Education Outreach Meteorologist Henry Robinson provides materials WCMs need to effectively work with teachers and educational administrators.

Herb White assists the WCM program manager, focusing on forecast coordination and communications systems such as EMWIN and the Local Data Acquisition and Dissemination.

John Ogren, WCM Program Leader

OK/KS Tornadoes Assessment Ready

On May 3, one of the largest tornado outbreaks in history struck west-central Oklahoma and southern Kansas, killing 48 people, leaving thousands homeless and resulting in over \$1 billion in property damage.

OM conducted a Service Assessment to examine the effectiveness of NWS warnings and other services. This report was released to the public on September 1. You can access it at www.nws.noaa.gov/om/omdis.html. For a single printed copy, please contact me at 301-713-0090 x 118 or e-mail Linda.Kremkau@noaa.gov.

Linda Kremkau, Managing Editor

NSF Funds Wild Weather Exhibit

The National Science Foundation awarded a three-year \$1.6 million grant to the Science & Technology Interactive Center in Aurora, IL. The grant allows the group to expand its Midwestern Wild Weather exhibit to science museums in Indiana and Michigan. NOAA and NWS have representatives on the Wild West Advisory Panel.

This grant covers the cost of creating five sets of nine interactive weather exhibits describing severe weather common in the Midwest. The exhibits will include materials developed from a previous grant, demonstrations, and new teaching materials. Students will learn the basics of:

- Calculating dew point
- How Doppler weather radar works
- How snow fences work
- Estimating the distance of a thunderstorm.

A traveling components will continue the "Museums in a School" program. The school component is expected to reach close to 80,000 students and 3,000 teachers.

Ron Gird, Customer Outreach Program Leader

INTEGRATED HYDROMETEOROLOGICAL SERVICES

RFCs Gains Hurricane Hotline Link

Six River Forecast Centers (RFCs) now have telephone lines and handsets that connect to the Hurricane Coordination Hotline (HCH). The RFCs with hydrologic responsibilities for the Atlantic and Gulf Basins now on the HCH are: Taunton, MA; State College, PA; Wilmington, OH; Atlanta, GA; Slidell, LA; and Ft. Worth, TX. The change will bring new expertise into the hurricane coordination process and help ensure there are no flood surprises this hurricane season.

The increased service reflects new research by Ed Rappaport, National Hurricane Center (NHC), showing more people die due to freshwater floods spawned by hurricanes and tropical storms than from storm surge, winds, and waves. Not all landfalling tropical cyclones produce catastrophic flooding but many do. This August marks the 30th anniversary of Hurricane Camille. Nearly half (106) of the 245 deaths caused by Camille were a result of freshwater flooding.

Glenn Austin, Deputy Chief, OH

New Forecast Product Passes Tests

A 4-month test of the Collaborative Convective Forecast Product (CCFP), ending August 31, has proved a success. CCFP improves convective forecasts using a collaborative decision-making process. The goal is to enhance traffic flow in the National Airspace System. As part of this test, the Aviation Weather Center (AWC) produced a first-guess graphical convective forecast, posted it on the Web, and hosted a chat room on a password protected Web page. The collaborators were the AWC, Center Weather Service Units, the FAA and air carrier meteorologists. The AWC acted as facilitator and arbiter in the chat room and in decisions leading to the final forecast product.

FAA Air Traffic Control System Command Center and air carrier users said they liked the process and product. They made strategic routing decisions based on the forecasts. Planning is underway for a 6-month CCFP demonstration in 2000. NCEP staff has been asked to develop a plan to support CCFP as an operational product.

Dorothy Haldeman, Aviation Program Manager

TECHNOLOGY AND FORECAST SYSTEMS

Mt. Baker Sets New Snowfall Record

Mt. Baker, WA, has set a new record for the most snowfall ever measured in the United States in a single season. The Mt. Baker Ski Area in northwestern Washington reported 1,140 inches of snow for the 1998-99 snowfall season. The figure was scrutinized by the National Climate Extremes Committee, responsible for evaluating potential record-setting events. The committee, composed of experts from NOAA, the American Association of State Climatologists, and a regional expert from the Western Regional Climate Center, unanimously recommended NOAA's National Climatic Data Center accept the new figure.

The previous U.S. seasonal snowfall record was 1,122 inches, set during the 1971-1972 snowfall season at Mt. Rainer/Paradise, a station located at 5,500 feet on the slopes of Mt. Rainer, about 150 miles south of Mt. Baker. Snowfall can be extremely difficult to measure accurately because it settles, melts, and during times of wind, drifts from place to place. The committee reports that the measurements met NWS snowfall observation standards and practices.

The Mt. Baker Ski Area sits at 4,200 feet, nine miles northeast of the summit of the Mt. Baker volcano. The snowfall season ran from July 1, 1998, through June 30, 1999. The committee was concerned only with national records for the United States; however, this total also stands as a world record for a verifiable amount. The heavy snowfalls normally experienced in the Cascade Mountains of Washington State are the result of several factors:

- Winter is naturally the wettest season. The west-to-east planetary circulations expand southward and strengthen in speed, with storms striking the Pacific Northwest every few days.
- Air laden with moisture after its journey across the Pacific is forced to ascend the Cascade Range, dropping abundant precipitation.
- Freezing levels average about 4,000 feet in the winter, so near this altitude snowfall amounts increase very rapidly with just small increases in elevation.

This season, a moderately strong La Niña pattern accentuated this stormy pattern, with a much higher frequency of wet and cold weather systems strongly affecting the area from the Cascade Range westward. Freezing levels remained abnormally low throughout the winter.

Patricia Viets, John Leslie, NOAA/NWS Public Affairs

AWIPS Now Installed at All NWS Sites

AWIPS, the high-tech interactive weather computer and communications system, has been installed at all 152 NWS offices around the country, completing a decade-long effort to revamp weather services and significantly improve weather forecasting. AWIPS gives NWS forecasters access to other tools developed and installed under the modernization program, such as satellite imagery, Doppler radar data, automated weather observations and computer-generated numerical forecasts, all in one workstation.

At a July 28 media demonstration of AWIPS at the Baltimore/Washington Forecast Office in Sterling, VA, Commerce Deputy Secretary Robert Mallett, NOAA Administrator D. James Baker and NWS Director John J. Kelly Jr. said the end of the installation phase of the modernization was a start, not a finish, to the NWS drive to improve weather forecasting. "Our vision is to be America's no-surprise weather service and we are well on our way," Kelly said.

At the event, Kelly cited a string of modernization success stories. In May, AWIPS and Doppler radar helped forecasters in Norman, OK, detect tornadoes and rapidly issue severe weather warnings alerting people to the deadly tornado outbreak. In July 1998, the advanced graphic display capabilities of AWIPS helped forecasters in Salt Lake City see heavy rains in Zion National Park; a timely flash flood warning resulted and at least 40 hikers avoided a flooding canyon.

Mary Glackin, AWIPS program manager, said "The modernization program is a great example of teamwork between industry and government." She added: "The completion of AWIPS is a testament to years of hard work by hundreds of government and private sector individuals."

The AWIPS program has been recognized twice for its innovation. In June 1999, AWIPS earned a Computerworld/Smithsonian Award for using technology in an innovative way to benefit society, and in 1997 AWIPS earned a "Best of What's New" award from *Popular Science* magazine.

John Leslie, NOAA Public Affairs, WSH

Seasonal Hurricane Data Offers Extended Range Forecast on Web

NOAA now offers an official extended-range outlook for Atlantic Basin hurricane activity. This product is a joint effort between scientists at the Climate Prediction Center (CPC), the Hurricane Research Division, and the Tropical Prediction Center. The Outlook for the 1999 season was issued on May 27 and updated on August 10, well before the recent upturn in tropical storm activity. These Outlooks state that there is a strong likelihood of above-average tropical storm and hurricane activity over the North Atlantic and Caribbean Sea from August-November of this year.

In the future, extended-range outlooks likely will be issued in early June and August. The Outlooks serve as a guide to overall expected activity for the Atlantic Basin. They do not indicate whether a particular United States locality will be impacted by a tropical storm or hurricane. Residents and government agencies of coastal or near-coastal regions should always maintain normal hurricane preparedness.

This Outlook reflects our increased understanding of global climate factors on atmospheric circulation over the tropical North Atlantic. The Outlook also reflects how this control impacts tropical storm formation during peak activity, August-October. In particular, forecasters note that global patterns of tropical rainfall, such as the Asian summer monsoon and Pacific Ocean temperatures (El Niño and La Niña), strongly influence variations in the atmospheric wind and air pressure patterns throughout the global Tropics and subtropics.

The Outlooks assess global rainfall and ocean temperature patterns on North Atlantic seasonal atmospheric and oceanic conditions. Regional factors impacting North Atlantic hurricane development include:

- Change in winds with height (termed vertical wind shear) across the tropical Atlantic
- Surface air pressure and winds across the tropical Atlantic and Caribbean
- Structure and location of the African easterly jet, which provides energy to developing tropical systems as they propagate westward from the African coast
- Sea-surface temperatures across the tropical Atlantic and Caribbean Sea
- Transport of moist tropical air into the hurricane development region.

In response to the global conditions, these regional circulation features often vary in a coherent manner from one year to the next. For example, all of these parameters are

generally conducive to tropical storm formation in active seasons, while most are not conducive to tropical storm development in inactive years.

The hurricane season for the North Atlantic Basin (North Atlantic Ocean, Caribbean Sea and Gulf of Mexico) officially runs from June 1-November 30. Average number of storms for the August-November period are as follows:

- Tropical Storms: 8 (maximum sustained winds between 39-73 mph)
- Hurricanes: 5 (maximum sustained winds of at least 74 mph)
- Intense Hurricanes: 2 (maximum sustained winds exceeding 110 mph).

The extended range hurricane outlooks for 1999 can be found on the CPC Web site by clicking on "monitoring Atlantic hurricane potential" and then selecting "1999 Atlantic hurricane outlook." The address is www.cpc.noaa.gov/.

Dr. Gerald Bell, Meteorologist, CPC

Users Give High Marks to GOES Sounder

More than 600 respondents rated the Geostationary Operational Environmental Satellite (GOES) Sounder highly in an assessment conducted July 19-August 30. The survey included responses from 37 forecast offices, four national centers, and the National Environmental Satellite, Data and Information Service (NESDIS) Satellite Analysis Branch. NWS and NESDIS are working to get this data onto the Satellite Broadcast Network and integrated in Advanced Weather Information Processing System (AWIPS) Build 5. Until then, you can access GOES Sounder data at www.nws.noaa.gov/om/sat/index.html. Some noteworthy responses from the survey, broken out by predominant weather situation, follow.

- **Tornado Warning (8/9, Minneapolis, MN):** "Sounder Derived Product Imagery (DPI) helped alot anticipating convective development over southern Minnesota this evening. I looked through the DPIs over a few hours and saw a definite decreasing trend in the CINH [Convective Inhibition] from 19-21Z. It was only a matter of time before the convection fired into southern Minnesota. Impressive CAPE values [3500-4500J/KG] and LI's-10-12 pointed to the possible severity of the convection. We received many reports of funnels/brief
- tornado touchdowns across south-central Minnesota as the convection went through. We were about ready to give up on any serious development . . . It was quite late [after 8 p.m. CDT] before it developed. These products overlaid on surface maps/satellite/radar displays on AWIPS would be invaluable to the mesoscale forecaster."
- **Severe Thunderstorm Warning (7/24, Grand Rapids, MI):** "WINDEX Derived Product Imagery . . . proved very useful in determining the microburst potential."
- **Severe Thunderstorm Warning (8/5, Portland, OR):** "Looked at Lifted Indices dropping very low . . . also looked at sounding profiles and SWEAT index."
- **Flash Flood Warning (7/20, Grand Junction, CO):** "Edge of cloud shield revealed significantly higher Total Precipitable Water (TPW) values over the southeast portion of our area. Based on [the TPW] and back-building thunderstorms with heavy rain over southeast portion of the CWFA [County Warning and Forecast Area] indicated by radar . . . issued FFW."
- **Flash Flood Watch (7/26, Salt Lake City, UT):** "TPW product clearly identified the ETA model was handling the moisture over Arizona and Utah much better than the AVN. The AVN's PW analysis was as much as 50% off the actual over extreme southern Nevada 00Z this evening while the ETA was nearly right on. This prompted the issuance of an SPS for Flash Flood potential over southern Utah. For aviation users, we included lower ceilings and more thunderstorm activity for the southwest corner of Utah due to high TPW values."
- **Monsoon Precipitation (7/25, Grand Junction, CO):** "Isolated thunderstorm developed over higher terrain in an area where previous hour's data showed considerable Convective Inhibition (CINH) (value near -150J/KG). The next sounder-derived CINH image showed a significantly lower value of -34J/KG adjacent to where the storm developed. . . . This surprised me because I thought development would occur later over this area."
- **Monsoon Precipitation (8/1, Boise, ID):** "Used GOES sounding profiles to determine the upstream air mass was significantly more moist than the ETA model indicated . . . allowing a confident forecast of increased clouds and higher morning minimum temperatures when the air mass reached our area. More clouds than the model implied occurred with resultant higher morning minimum temperatures. Morning temperature forecasts and TAFs were improved using the sounder 12-24 hours before the period of concern."

- **Convection Anticipated (8/1, Portland, OR):** "Sounder data showed increasing instability and highlighted areas where convection would occur before it began."
- **Convection Anticipated (8/5, Amarillo, TX):** "GOES Sounding and DPI products indicated that convection would be confined to the eastern sections of the panhandles, which they were. We had forecasted more convection in the northwest sections of the panhandles on the midnight shift. The GOES Sounder products were right on target with their predictions."
- **Convection Anticipated (8/14, Salt Lake City, UT):** "GOES sounder TPW indicated approximately .25-.35 of an inch higher TPW than either ETA/AVN 6-hour model forecasts over western Arizona. This additional information helped in the forecast for adding more weather in southern Utah that night and Sunday."
- **Convection Anticipated (8/16, Chicago, IL):** "A front in Iowa showed up clearly with a CU field. [We were] concerned about possible thunderstorms forming in Iowa and then moving into Illinois. ADAP and MSAS showed very unstable [atmospheric conditions] and good moisture convergence. CAPE was 3000-4000 J/KG. The most important [tool] was the [GOES Sounder] CINH. It showed values of -70 to -110 J/KG so precipitation was removed from the forecast."

Andrew Noel, Satellite Program Meteorologist

GOES-L Launch Delayed

The GOES-L launch has been delayed until the booster motors are replaced. This means the earliest possible launch date will be near the end of November. Updates will be provided as more information becomes available.

James Heil, Satellite Meteorologist

NOAA Weather Radio 2000 Moves Toward Standard Configuration

OM is helping OSO12 set a nationally standardized formatter configuration for Console Replacement System (CRS). This standard would consist of current AWIPS formatters for CRS, supplemented by either one or more locally developed UNIX-based formatters.

This supplemental formatter would provide functionality not yet provided by AWIPS formatters, e.g., marine. OSO12 would provide telephone support for troubleshooting and maintenance of the supplemental formatter but not software upgrades. OSO12 is evaluating current formatters to assess which to make national. This effort may become part of the AWIPS commissioning requirements.

Concatenated Voice Seeks Talent

NWS Headquarters and two regions have found enough money to start concatenating all warnings and short-fused watches issued on CRS. OSO12, with help from OM and the field, will deploy prototype concatenation systems at two sites by mid-summer of 2000.

Initial recordings will include a parsed database from AWIPS warning scripts and an actual parsed database generated from one year of all archived NWS warnings and watches issued. In addition, geographic names for the two sites will be recorded. When the system is implemented nationally, recordings will be made for all sites.

Concatenation will limit use of free-text in the warning segment of short-fused warnings and in any product undergoing concatenation, while providing a true human voice for most critical products.

Spanish CRS Software

NWS conducted a successful Operational Test & Evaluation (OT&E) for CRS Spanish software in September. Spanish-speaking evaluators deemed the synthesized "canned" Spanish trailers used for NWR Specific Area Message Encoder (SAME) warnings "surprisingly" understandable after minimal adjustment to the rate.

NWS will distribute the Spanish software to CRS sites after completing OT&E changes. OM is developing A *Spanish Implementation and Outreach Guide* to help determine where to use the Spanish service and how to implement and advertise it. The Guide should be released in November.

Joanne Swanson, CRS Program Leader

Certification of New Company to Speed Transmitter Installation

Crown International transmitters have been certified as an acceptable source for NWR transmitters. The first production transmitter went on the air September 22 in Brunswick, GA. The Crown certification will result in nearly 100 new NWR stations on the air by April 2000.

More than 200 transmitters have been equipped with Remote Off Air Monitoring Systems (ROAMS), primarily in the Southern and Eastern Regions. ROAMS allows NWS to monitor individual stations in the NWR network via dial-in telephone and automatically reports station malfunctions to programming offices.

When ROAMS has an NWR receiver interface to CRS, NWS can immediately verify an NWRSAME transmission. A central monitoring facility will allow NWS to continuously monitor the NWR network and to report station performance metrics. The goal is to have ROAMS monitor every NWR station. All Crown transmitters will come installed with ROAMS. The Western and Southern Regions are working on adapting cellular phone technology to access sites served by UHF radios or microwave links.

NWR Information Source

OSO is developing a Management Information System (MIS) to provide an NWR database with management capability. The database will be able to collect, store, analyze, and make readily available information on individual stations. The new system will collect information onsite and station parameters, initial and recurring costs for operation and maintenance, performance metrics, network information, coverage maps, FIPS codes, and more using existing (EMRS, ROAMS, FACTS, contractor reports, radio frequency management, etc.) and new (ROAMS) systems. MIS reports will be available on the Internet to the extent possible, with links provided to associated Web sites (WFO, Regional, NWSH, receiver manufacturer Web pages).

NWS has revised the *NWR Special Interest Group Brochure* to serve as a guide for establishing new NWR stations. The brochure contains policy; a station description; initial cost and recurring cost estimates, worksheets, and examples; a listing of Regional and WFO NWR Focal Points; site survey forms; DOC approved Memoranda of Agreement for Cooperator donation or operation of stations; and the form needed to donate a station to the Weather Service.

Ken Putkovich, NWR National Program Manager

SCIENCE AND TRAINING

Input Sought on Hazardous Weather and Flooding Preparedness Course

With support from FEMA and NWS, the Cooperative Program for Operational Meteorology, Education and Training (COMET) is developing a version of the Hazardous Weather and Flooding Preparedness course to be available on CD or the Web. The class is now an on-site course taught by WCMs. The conversion will focus on background materials, leaving the on-site portion of the course to deal with local issues. The result should be a shorter, less expensive and more informative residence course, which will offer the CD or Web module as a permanent reference tool.

If you have experience giving the course or ideas on how it might be modified, contact COMET Project Manager Vickie Johnson at 303-497-8361 or vjohnson@comet.ucar.edu.

FEMA, NWS, and COMET also collaborated on the Community Hurricane Preparedness Course for emergency managers. All NWS offices received this course on CD earlier this year. The CD is available to emergency managers as a FEMA Independent Study course.

Vickie Johnson, COMET Project Manager

COMET Adds Two Severe Weather Events to Case Study Library

You can now access two new cases in the COMET Case Study Library at www.comet.ucar.edu/resources/cases. These cases cover regional aspects of forecasting convective weather and bring the library total to 18.

- **Case 17: Severe Weather in Southwest, August 7, 1997.** This case focuses on the unique characteristics of convective storm initiation and subsequent evolution in the southwest monsoon environment.
- **Case 18: Widespread severe weather from South Dakota to New York, May 30-June 1, 1998.** The case begins with the tornado that hit Spencer, SD, on May 30, 1998, and continues with a derecho event that moved through five northern states. This data set includes information from nine WSR-88D sites.

To stay informed on the latest developments in the COMET case study project, subscribe to our mailing list by going to www.joss.ucar.edu/cometCases/mailList.html.

Elizabeth Page, OM Case Study Meteorologist

COMET Releases New Satellite Training Module

In July, COMET released the Web module "Polar Satellite Products for the Operational Forecaster, Module 2: Microwave Products and Applications."

The module provides a review of capabilities, products, and applications available to operational weather forecasters using microwave instruments on NOAA and Defense Meteorological Satellite Program satellites. This module is available without restriction at meted.ucar.edu/ist/poes2/index.htm.

This module is part of the Integrated Sensor Training Professional Development Series. The course falls under Competency Unit #6, Satellite Data and Products. Principal science advisors were Dr. Stan Kidder of the Cooperative Institute for Research in the Atmosphere at Colorado State University and Ralph Ferraro of NESDIS, with significant assistance from Dr. Gary Hufford, NWS Alaska Region.

Tony Mostek, Satellite Training Program Manager

CSTAR Program Calls for Proposals

The NWS Collaborative Science, Technology, and Applied Research (CSTAR) Program issued its first request for proposals (RFP) to colleges and universities. The RFP, which appeared in the *Federal Register* June 10, focuses on applied collaborative research addressing the science needs of NWS regions and National Centers. CSTAR expects to fund between two and four proposals in 1999, two of which will address the science priorities of the NWS Eastern and Central Regions. Future CSTAR RFPs will rotate research focus on the science priorities of NWS regions and National Centers. The award amounts will be as large as \$125,000 and are renewable for up to two years, contingent upon the availability of funds and satisfactory progress.

Proposals must have been received by close of business October 1 to be considered. Proposals will be evaluated by representatives from the NWS Regions and NCEP; awards will be announced this fall. For more information, go to www.nws.noaa.gov/om/rfp99.htm.

Sam Contorno, Meteorologist

AWIPS Software Validation Online

One project at COMET is to validate software and displays in AWIPS. COMET's Web site provides:

- Reports on AWIPS validation
- Documentation for selected algorithms
- Links to current validation issues
- Means to report problems and provide comments.

This site provides a link to the Phase 1 report on basic fields found in the model browser. This fall, COMET will offer a broader, more user-friendly interface for the other features described. Staff will update this page frequently with hot topics and new information for AWIPS users. For instance, we're currently working on the AWIPS-derived thermodynamic variables, such as dew point, equivalent potential temperature and lifted index. The address for this COMET site is meted.ucar.edu/awips/validate/.

Craig Hartsough, COMET AWIPS Validation Project

Training Core Gains Field Expertise

Meteorologist Michael Dion joined the OM Science and Training Core in late August. Mike, who last worked at NWSFO Raleigh, NC, adds recent field experience to the core. Mike will be assisting Training Program Manager Eli Jack and working with the Proficiency Standards teams.

Mike has a B.S. in meteorology with a minor in mathematics from Lyndon State College in Vermont. He joined NWS as a Met Intern at NWSFO Boston/Taunton, MA, in 1993. He is a graduate of the Forecaster Development Course and the WSR-88D Residence Course. In 1998, he transferred to Raleigh as a Journeyman Forecaster.

At both offices, Mike served as Station Duty Manual (SDM) Program Leader, rewriting the SDMs. While at Boston, Mike conducted two NWR surveys for the five transmitters served. He also co-wrote a paper on "Tropical Cyclones to Affect Southern New England in the 20th Century."

LeRoy Spayd, Science and Training Core Chief

National Center Issues

SPC Issues National Fire Weather Outlooks

Online nationwide fire weather guidance is now available from the SPC. The new product is being produced in partnership with local NWS offices and the fire and land management community. The SPC fire weather guidance is similar to SPC Day 1 and Day 2 general and severe thunderstorm outlooks. The guidance covers the contiguous United States. The outlooks complements the fire weather forecasts issued by local NWS offices, which give smaller scale details of the fire conditions in a specific area.

Areas are designated at risk for wildfires based on high fire danger ratings, dry fuels and/or long-term drought, forecasted weather, temperature, humidity and wind. Because lightning starts many fires, the forecasts include dry thunderstorms—those producing lightning with little rainfall—along with links to the Specs Day 1 and Day 2 thunderstorm outlooks. Since May, fire-prone areas have been assigned a numerical risk category ranging from one (least severe) to five (most severe). These subjective ratings are based on the observed/forecast weather conditions.

The SPC fire weather product is issued daily at 4 a.m. Central time (Daylight or Standard, as appropriate) year round. It consists of two graphics (today and tomorrow) accompanied by a technical forecast discussion. In addition, the Web page also includes a set of model-based products geared specifically toward forecasting dry thunderstorms. The products and additional information are available at www.spc.noaa.gov/products/exper/.

SPC staff would appreciate comments from users of the fire weather outlooks via the e:mail address on the Web page. These products will become part of the NWS operational suite in early 2000.

Philip Bothwell, SPC

SPC Issues Probabilistic Convective Outlooks Online

As an experiment, the Storm Prediction Center (SPC) is issuing probabilistic Convective Outlooks on the Web. The Outlooks give the probability of an event occurring within 25 miles of a point. These probabilistic outlooks are subjective forecasts created by the SPC forecasters and not objective guidance created by a computer algorithm.

The experimental outlooks include three charts individually depicting occurrence probabilities of tornadoes, damaging thunderstorm winds and large hail. The outlooks also highlight areas vulnerable to extreme events: F2 or greater tornadoes, winds gusts of 75 mph or greater, hail 2 inches in diameter or larger.

The current Convective Outlooks don't discriminate between severe weather type or intensity. The forecast risk (Slight, Moderate, High) is based on the expected combined areal coverage of any type of severe convection. The probabilistic outlooks provide specific forecasts of the nature and type of severe convective weather expected while giving a better idea of the uncertainty involved with the forecast.

SPC started posting these outlooks online last March and will continue through the summer of 2000. Forecasts are issued at 1300 UTICA and 2000 UTICA. We would appreciate receiving comments on these products via e:mail via our Web site at www.spc.noaa.gov/fire.

Mike Kay and Rich Thompson, SPC

Community Outreach Activities

Vikings, Twins Players Featured in Weather Safety Promos

NWSO Sioux Falls, SD, and the Minnesota Vikings have developed a partnership to better educate the public on severe weather safety. Kailee Wong, starting linebacker for the Vikings, has recorded three Public Service Announcements (PSAs) on NWR and severe weather safety. Once the office received the recordings, a local radio station agreed to produce the PSAs and duplicate them for distribution to other radio stations in the area.

Our office also mailed a copy of the PSAs to all WCMs with responsibility in Minnesota and asked them to distribute the tapes to radio stations in their CWA. The tapes are available on our Home Page as wave files (audio files) for public download and reuse. The Vikings management and Kailee told us they enjoyed producing the tapes and looked forward to a long term relationship.



The Minnesota Twins have said they also will record PSAs for our office. Their community relations director told me that four to eight players have expressed a desire to take part in this partnership. The Twins PSAs will cover severe winter and summer weather, NWR and our successful pilot project "Ready, Set, Go!"

This is a great way to get safety messages to the public. It gives each of the parties credibility and provides the public a sense of both parties caring for their safety. These PSAs can be played across commercial and NWR airwaves at anytime and can also be at someone's finger tips on the Internet. These partnerships have been a huge success! Feel free to contact me if you have any comments or questions!

Todd Heitkamp, WCM, NWSFO Sioux Falls, SD

Great Falls Draw Thousands to "Summer of Outreach"

Outreach efforts by staff at Great Falls NWSFO culminated in August at the Montana State Fair where record crowds were drawn to the NWS booth. This event was the last in a series of significant outreach efforts for the office.

- In June, forecaster Joe Goudsward took part in the Montana Boy Scout "Camporee," attended by over 2,500 Boy Scouts. Joe signed activity cards for the scouts, discussed NWS programs and answered hundreds of questions. He also prepared the office display and provided handouts emphasizing requirements for the weather badge. Joe demonstrated weather experiments like the tornado chamber, clouds in a jar and the crushing can, which helps explain atmospheric pressure. His big event was an in-depth presentation on the NWS upper air program culminating in the release of a weather balloon, using a rejected radiosonde. The launch was attended by about 500 people.
- Joe then took part in the Muscular Dystrophy Association's (MDA) Camp Out. This special event was held for 53 young people afflicted with Muscular Dystrophy as well as counselors and support staff for total of more than 115 people. Joe presented a slide show highlighting the Great Falls NWSFO and available videos and overhead slides of extreme weather events. He also provided handouts for the attendees. He culminated the Camp Out with a simulated balloon release and a hands-on session with the tornado chamber.
- In July, Joe took part in the 65th annual Glacier/Waterton International Peace Park Hamfest, which received rave reviews. Joe was kept quite busy hosting the NWS booth visited by Ham radio operators from as far away as Germany and Australia. In addition to answering questions and handing out pamphlets, Joe gave two spotter talks, resulting in 50 new spotters. Again, he culminated a day's activities with a simulated weather balloon launch. Members of the Gallatin Ham Radio Club attending the event invited Joe to speak at their Hamfest this October.

- Finally, NWS co-hosted a booth at the Montana State Fair with the Great Falls Area Amateur Radio Club and the Cascade County Disaster and Emergency Services. Almost every member of the NWSFO Great Falls office volunteered to staff this booth at one of best attended fairs ever. Videos were shown, questions were answered and pamphlets and brochures were handed out on NWR, weather safety, climatology, the NWSFO Great Falls Home Page, the Doppler Radar and AWIPS. Again, Joe Goudsward was instrumental in organizing and setting up the booth, developing a schedule for staffing the booth and creating many of the handouts.

During the past several months, tens of thousands of people have learned more about NOAA and the NWS because of Joe's excellent outreach efforts. And as summer begins to wane in the northern Rockies, plans are already underway for next year's "Summer of Outreach."

Rick Dittmann, WCM, NWSFO Great Falls, MT

E:mail Brings Instant Feedback To Wisconsin Office

NWSO La Crosse, WI, has started a Public Feedback Group via e:mail to get fast feedback from the public. We issued a press release to all newspapers in our area of responsibility and to a local e:mail distribution list of about 40 citizens. This e:mail group has agreed to respond to quick questions or surveys on product format or terminology. We are purposely seeking interested people who are not spotters, but do follow the weather on a daily basis. Typically, these questions will concern how the NWS words or presents a forecast to the public.

Individuals conscious of daily weather forecasts, but who do not have a strong interest in the science of weather, are actually preferred. Therefore, trained weather spotters and professional users of the NWS products are not a part of this group.

The press release states, "When the NWS is considering changing forecast products or services, or if they are considering new products, it is important that the general public be involved in this task. When asked, this public feedback group can provide the NWS with fair and non-biased feedback that will shape both current and future products and services for the local Upper Mississippi River Valley region. The questions will be sent no more than once a week and take no longer than 10 minutes to complete. If you would like to take part in this informal survey group, please send e:mail to: todd.shea@noaa.gov. The NWS will

contact those individuals for future collaboration." The service has a home page for more information: www.crh.noaa.gov/arx.

Todd Shea, WCM, NWSO La Crosse, WI

Grand Rapids Gains Funding for Mesonet

FEMA and Steelcase have agreed to a public/private partnership to fund an initial suite of automated observing equipment. To get the project off the ground, FEMA has authorized \$30,000 and Steelcase \$10,000. The money has already been sent to the Volunteer Emergency Services Support Agency (VESSA). The communications architecture will be a combination Packet Radio and Web data delivery system for NWSO Grand Rapids. The Web will be the primary means of redistribution from the NWS back to county Emergency Operations Centers. Cooperators in the project include emergency managers, Michigan state police, Michigan Departments of Agriculture and Transportation, Steelcase, NWSO Grand Rapids and VESSA. Needless to say, AWIPS will be integral to the success of this project. I have been working the NWS end of this endeavor.

Mike Heathfield, WCM, NWSO Grand Rapids, MI

Four Success Stories in Educational Outreach

Over the past few years, NWSFO Little Rock has steadily increased its educational outreach. The office is sponsoring three programs and a fourth, closely related, activity.

- **Datastreme** provides teachers with a concentrated, focused introduction to atmospheric sciences. The program is conducted by the American Meteorological Society (AMS) through a grant from the National Science Foundation. NWSFO Little Rock SOO George Wilken has been involved with this program for two years, providing mentors from the meteorologist staff. This successful program has graduated some 32 Arkansas teachers from across the state, who return to their school district as resource persons.

- **Vital Link** offers students a rich learning activity while showing how school subjects are useful in a variety of business endeavors. Although a national project, this program is sponsored by local business people. NWSFO Little Rock became involved in the program this year and has already received accolades from the first school district involved. Earlier this year, six 6th graders were provided a 5-day, 4-hour-a-day look at the atmospheric sciences. I conducted the course, which focuses on how the weather changes. The program provides 1-hour daily for review of the weather over the past 24 hours and then looks at a "concept of the day," such as map analysis, severe weather or hurricanes. Hands-on activities follow for the remainder of the morning. Students are provided with class materials and take part in such activities as hourly weather observations, weather observation on AWIPS, Doppler weather radar, and providing weather to the public via NWR. As much hands-on activity is provided as possible. At the end of the week, students write a 24-hour weather forecast and Arkansas Weather Summary.
- **Job Shadowing** is a program for high school students exploring university options. I meet with a student and parent or teacher and discuss colleges offering atmospheric science programs; what the criteria is for becoming an NWS meteorologist (based on the revised 1998 standards), and NWS job options. Next, I offer a tour of the office and the student and mentor sit in with a forecaster involved in compiling a forecast. The NWSFO has been involved in this program for more than two years. Students are encouraged to contact NWSFO personnel with questions that come up in their studies. After students enter college, the office provides follow-up to help students with their studies, to serve as an avenue for questions, and a resource for NWS summer programs, etc. This program already has mentored two new meteorologists.
- The Arkansas Chapter of the AMS/NWA serves about 50 members although Arkansas does not have a college offering a meteorology degree. The chapter includes not only NWSFO Little Rock staff but also storm spotters and HAM radio operators. Membership is guided only by interest in the science. Program offerings are diverse, providing less technical discussions of Doppler weather radar, storm-chasing and other weather topics. The chapter has an outreach program which is educationally oriented, providing speakers to schools and judging science fair entries. The chapter, formed in 1995, serves as an extension of our outreach efforts. Both the "Vital Link" and Arkansas Chapter activities are visible on our Web site.

George R. Wilkin, SOO, NWSFO Little Rock, AR

NWS Featured in Planetarium Show

NWSO Grand Rapids, MI, helped the Chafee Planetarium produce "The Restless Planet," a film already viewed by more than 3,000 people since its April debut. The show, which has received much positive feedback, was highlighted in the July issue of *Museum Magazine*. The film gives special credit to NWSO Grand Rapids staff for cooperation and technical oversight during the making of the multi-media production. On June 13, the Planetarium hosted an open house for NWSO Grand Rapids staff and their families and for the other technical people who made the show a success.

Mike Heathfield, WCM, Grand Rapids, MI

Nashville Gains 157 Spotters and Great Media Coverage

April 16 was the first anniversary of the disastrous Nashville, TN, tornado. The local TV stations wanted a way to commemorate the day. WSMV-TV (NBC) asked me to conduct two basic SKYWARN Spotter Classes. The station publicized the classes on air. One class drew 25 people to the First United Methodist Church in Hendersonville, TN; a second class brought in 40 people to the WSMV studio. Local TV Weathercaster Bill Hall introduced me.

WTVF-TV (CBS) asked me to hold a similar class on April 19 at Middle Tennessee State University at Murfreesboro, TN. TV Weathermen Ron Howes and Lelan Statom greeted the 30 students. WTVF taped my presentation and played it on the air at night on their local cable channel. Finally, WKRN-TV (ABC) arranged a basic SKYWARN spotter class at their studio on May 7. Meteorologist Davis Nolan and Weathercaster Lisa Patton introduced me to the 62 would-be spotters.

The combined efforts trained 157 new spotters. Some of these spotters enjoyed the basic class so much that they have already attended one of my advanced classes. Preregistration was required by the TV stations for attendance. These classes filled up after one day of running a promotional segment.

Jerry Orchanian, WCM, NWSFO Nashville, TN

NWS Earns Headlines with Hurricane Preparedness in Hawaii

In May, the Central Pacific Hurricane Center (CPHC)/Honolulu Forecast Office and Hawaii State Civil Defense led a statewide hurricane exercise. A fictitious hurricane simulated widespread devastation to the Hawaiian Islands. The exercise involved a broad cross-section of Federal, state, and county governments plus military, private, public and not-for-profit organizations. The annual exercise tests the preparedness of the agencies during the response and recovery phases of a major hurricane. The CPHC/Honolulu Forecast Office received praise for the exercise from emergency managers and military preparedness planners.

The CPHC/Honolulu Forecast Office kicked off the 1999 Hurricane Season with a press conference and briefing on May 17. Lt. Governor Mazie Hirono presented Jim Weyman, director of the center, with a proclamation signed by Governor Benjamin Cayetano declaring May 16-22 Hurricane Awareness Week in Hawaii. They were joined by officials from Hawaii State Civil Defense, the FEMA Pacific Area Office, and the Hawaii Hurricane Relief Fund, who emphasized the successful partnership of the agencies in managing natural disasters. NWR 2000 was demonstrated during the briefing and seemed to be well received--with assurance that NWS would continue to improve the automated voice. We held an open house at the forecast office on May 21-22. Public Service Announcements on hurricane preparedness were made available via FEMA Radio Network and five press releases were issued. These activities generated extensive local press coverage, including more than 26 minutes on TV news, and numerous radio interviews and newspaper articles.

During the summer, our MIC and I presented hurricane preparedness talks at 19 state libraries across Hawaii. The programs were cosponsored by NWS and the Hawaii State Public Library System. The talks included information on:

- When, where and how tropical cyclones form
- Tropical cyclone definitions such as hurricanes
- Tropical storms, depressions, watches and warnings
- Triple threat of storm surge and high surf, high winds, and flash flooding
- What to do to prepare for the devastating effects of tropical cyclones.

Tom Heffner, WCM, CPHC/NWSFO Honolulu, HI

Symbols Help Alert Public to Extreme Temperature Codes in Kansas

Working with a subcommittee of Butler County officials consisting of emergency management staff and representatives, NWSO Wichita staff has devised a simple way to alert adults, children, and special needs populations about extreme temperature conditions. NWSO staff, with input from the committee, set ranges to trigger an advisory and chose colors to represent hot and cold extremes.

In addition, a design subcommittee chose a symbol that will be easily understood by the visually handicapped or colorblind, attractive, easy to read, and easily understood. The design subcommittee recommended the following:

- **Heat:** Triangle, red and yellow with temperature indicators above
 - Red: 105 degrees plus (temperature + humidity)
 - Yellow: 100 degrees plus (temperature + humidity)
- **Cold:** Inverted triangle, white and blue with temperature indicators inside
 - White = 0 to 24 degrees (wind chill)
 - Blue = -25 degrees (wind chill)
- **Duration:** at least 2 hours

The Extreme Temperature Committee (ETC) thinks these symbols will be an efficient way to alert the public through print or televised sources. The symbols also are simple enough to be described by radio stations. Media sources can broadcast these symbols, and the corresponding safety tips, during normal weather informational segments.

The ETC decided NWSO Wichita will trigger the alerts and warnings by connecting to a "fax network" when one of the criteria has been or will be reached. The fax will notify groups such as Emergency Management Services, communications, hospitals, the media, fire departments, Bi-County Health, Department on Aging, law enforcement, Red Cross, Salvation Army and the school districts.

The plan is an excellent way to notify the public of anticipated hazardous weather and can be easily adapted for any region of the country. For more information, contact Chance Hayes at 316-942-8483 ext 726, or by e-mail at chance.hayes@noaa.gov.

Chance Hayes, WCM, NWSO Wichita, KS

Lightning Safety Magnet Attract Interest, Spark Attention

Forecaster Dave Metze and I, with expert input from Lead Forecaster Stephen Hodanish, developed lightning safety refrigerator magnets as a promotional item for the Colorado State Fair. The magnets were purchased from Promotional Products, Inc., at a cost of \$1,805 for 5,250 units: about 34 cents each. The cost was shared by WFOs Grand Junction, Boulder, Pueblo and Central Region Headquarters. We chose to go with a black on white design to hold down the cost.

The magnets were a terrific addition to our booth. We gave away 4,000 of the magnets at the fair offering us a better opportunity to meet our customers. We used a "lightning ball" to draw attention and then talked to each person about lightning safety. We handed them the refrigerator magnet. You could tell visitors were impressed by the design and the information.

Recently, we donated 300 magnets to the Lightning Strike and Electric Shock Survivors International, a non-profit organization that focuses on the survivors of lightning strikes and electric shock.

I have the artwork on file for anyone who might like to duplicate our effort. The Internet addresses at the top of the magnet can be changed easily. For more information, contact me at 719-948-9429 or william.fortune@noaa.gov.

Bill Fortune, MIC, NWSO Pueblo, CO

Make Your Own Tornado Kit

Need a visual aide for school and other public presentations on tornadoes? NWSO Wichita has put online its step-by-step instructions for creating a "Tornado in a Box. Check out the site for more information: www.crh.noaa.gov/ict/torbox/TORBOX.htm

Chance Hayes, WCM, NWSO Wichita, KS

Learning Channel Film Crew Taps NWS for Waterspout Chase

Dr. Joe Golden, NOAA senior meteorologist and waterspout researcher, was in the Florida Keys from August 10-16 conducting a waterspout chase. He was accompanied by members of Pioneer Productions, a company filming Golden's chase for a show airing on The Learning Channel (TLC) in February 2000. The TLC show will focus on tornadoes but will include about 10 minutes on waterspouts.

On August 10, the crew filmed Golden in the operations area of NWSO Key West, preparing his chase strategy. The crew also filmed some of the staff performing shift duties. From August 11-16, Golden and the crew came into the NWSO, looked at data from the office and planned their strategy for chasing waterspouts.

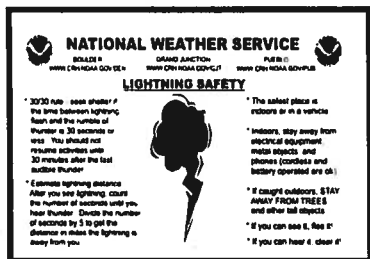
The forecasters on duty briefed them on the weather conditions expected for the day and advised them on the potential for waterspouts. Golden would then plan a flying route to chase the waterspouts in a small plane. If it was not a good day for waterspouts, he gave slide presentations to the staff on the massive waterspout research he has done. This was invaluable to the Key West staff as waterspouts are the most frequent type of severe weather phenomena in the Florida Keys and its coastal waters.

Unfortunately, the conditions were not optimal for widespread waterspout development that week. On two days, there were large-scale subsidence and relatively stable air with little cumulus cloud development. The remaining days were almost too disturbed for waterspout development with several features combining to create widespread shower and thunderstorm activity over the area. The crew saw four waterspouts on August 12, but was worried they did not get enough quality footage for the production. Golden plans to use archive II data from the Key West WSR-88D radar during this chase to find some signatures to waterspout development. During his last study in 1993, this data was not available.

The best waterspouts footage came from a trained severe weather spotter for the Key West office, Jim Edds. Edds, a freelance photojournalist, captured two waterspouts on video just offshore of Marathon in the middle Keys. He even videotaped a waterspout from its initial stage, the dark spot. This type of footage is normally only caught from the air. The film crew also interviewed Pete Worthington, a commercial fisherman and storm spotter for the Key West office, on his encounters with waterspouts during his many years of fishing in the coastal waters of the Florida Keys.

Despite the lack of waterspouts that week, NWSO staff is definitely more knowledgeable about this phenomenon now. Our thanks to Golden and Pioneer Productions for allowing the office to assist them.

Wayne Presnell, WCM, NWSO Key West, FL



NWS Backs Sustainable Seas Expedition

National Geographic and NOAA are conducting some high visibility dives and experiments at the National Marine Sanctuary between Key West and the Dry Tortugas. The NOAA ship Ferrel traveled between Key West and the Dry Tortugas from mid to late August. NWS is supporting these missions nationwide with weather information.

NWSO Key West is providing weather support via e:mail. Throughout the expedition, the office will send public and marine forecasts with long-range outlooks for the area twice per day; between midnight and 4 a.m. and between 9 a.m. and noon. The office will send hourly wind observations from the Dry Tortugas and Sand Key C-MAN stations between 4 a.m. and 7 a.m. and 11 a.m. and 2 p.m. daily. We will also send the previous 24-hour wind observations from each of these stations with the first forecast package of the day. Finally, the office sends short-term forecasts, warnings/statements and other needed products to the Commanding Officer of the NOAA ship Ferrel.

The system has run very smoothly to date. We have invited Captain Moen and his crew to tour the office to learn more about our operations.

Wayne Presnell, WCM, NWSO Key West, FL

NWS Marks Second Weather Radio Awareness Month in Washington

Washington State Governor Gary Locke proclaimed September as the second annual Weather Radio Awareness Month in the state. The campaign's goal is to make weather radios as common as smoke alarms in Washington homes and businesses. The awareness month was a partnership between the NWS and Washington State Emergency Management. The campaign was timed to take advantage of preparedness activities in advance of the area's second consecutive La Niña winter. The awareness campaign will focus on NWR features, such as its:

- "All-hazards" warning system capability, used not only for flood and weather-related events, but also hazards like tsunamis, volcanic activity, and hazardous releases
- Warning alarm feature, instantly alerting the listener to the fast-breaking warning message around the clock
- Use of batteries in case of power outages
- Importance as part of all home and business disaster preparedness plans, including Y2K

- Role as an integral part of the Emergency Alert System, providing broadcasters and the public with emergency warning information
- Broadcasts of the latest weather forecasts and conditions 24 hours a day on over a dozen stations.

The awareness month activities included:

- Governor Locke's Proclamation of Weather Radio Awareness Month
- NWR Public service announcements featuring Vice President Gore
- Awareness materials distributed to schools and the emergency preparedness community
- Discounts or incentives on weather radios offered by selected manufacturers.

Washington State Emergency Management also provided a Web site for the campaign. Media, emergency management agencies, NWS offices, and others around the state linked their Web pages to the awareness campaign link at www.wa.gov/mil/wsem/.

Ted Buehner, WCM, NWSFO Seattle/Tacoma, WA

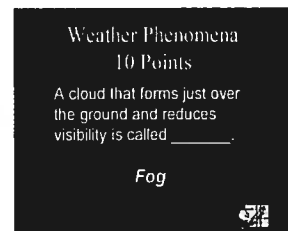
Play Weather Knowledge Jeopardy

Want an innovative, enjoyable way to present basic weather facts to a variety of audiences? WCM Bob Goree, NWSO Tallahassee, FL, has created the Weather Knowledge game with a Jeopardy like format. A participant selects from five categories:

- Weather Phenomena
- Meteorology
- Weather Instruments
- Severe Weather
- Weather Safety

Like jeopardy, selects an answer for \$10 to \$50. The next slide in this Powerpoint and Internet product gives the answer in bold, easier to read text. To see this great product, go to www.nettally.com/bgoree/game/Weather%20Game_files/frame.htm or contact bob.goree@noaa.gov.

Bob Goree, WCM, NWSO Tallahassee, FL



Publications and Audiovisuals

How to Get NWS Publications

Some emergency managers do not know how to get NWS preparedness materials or negatives for printing large quantities of NWS publications. Here are some suggestions to assist you in working with emergency managers.

Internet! Find It Online Fast

Need a copy of an NWS brochure fast? Download it off the OM Home Page. Publications available are listed on the Page 23. The publication Web site is at: www.nws.noaa.gov/om/nwspub.htm. When you access this Web site, you'll notice that we have added columns showing formats available. The underlined publications can be viewed on-line.

Negatives! Reprinting Made Easier

Do you have emergency managers or other customers who need more than 300 copies of a publication? We can supply negatives to private companies who want to print large quantities. Our only request is that they supply the local NWS office with copies. Local sponsors are encouraged to add their logo to the back page of the brochure to show their support for consistent safety messages relayed to the public. NWS cannot endorse consumer products or services. The following statement must appear when NWS materials are printed on commercial products: *"As Agencies of the Federal Government, the Department of Commerce and its NOAA National Weather Service as well as the private nonprofit agency, the American Red Cross, do not endorse consumer products or services."*

The American Red Cross! For Larger Quantities

Got a group that can't afford to print copies? Red Cross chapters stock NWS tri-logo publications plus many others. The NWS has supplied the Red Cross Headquarters with negatives, and they have printed millions of copies. Red Cross chapters can supply the public with copies for a *small fee*. If NWS offices receive requests from the private sector wanting quantities more than 300 copies, suggest they contact their *local* Red Cross chapter.

Reprint from New CD-ROMs!

Four of the six tri-logo brochures are available on CD-ROMs for easy reprinting. Customers can make a negative using the print files from the CD-ROM, add their logo and then reprint as many copies as they wish. We still would

have available negatives of other NWS publications to loan out if it is needed by a private company. The four publications are:

- NOAA PA 92050 Flash Floods and Floods . . . The Awesome Power
- NOAA PA 92052 Tornadoes . . . Nature's Most Violent Storms
- NOAA PA 92053 Thunderstorms and Lightning . . . Nature's Most Violent Storms
- NOAA PA 94050 Hurricanes . . . Unleashing Nature's Fury

These CD-ROMs will be sent to the Regions for distribution to field office by early November 1999.

Cut Out the Middle Person!

For NWS offices ONLY: Want to avoid the headquarters middleman when ordering publications in bulk? Order them directly from the National Logistics Supply Center (NLSC). Submit the Stores Requisition Form (NOAA Form 37-4) to NLSC by mail or by fax: 816-926-7901.

National Logistics Supply Center
1510 East Bannister Road, Bldg. 1
Kansas City, MO 64131-3009

You can order up to 300 copies per publication. Requests over that amount must be approved by Linda.Kremkau@noaa.gov. NLSC will ship rush requests overnight if you mark urgent on the form. Requests from outside the Government must go through OM or an NWS office. Questions concerning how to order NWS publications, feel free to contact me at 301-713-0090 x 118.

Linda Kremkau, Managing Editor

Use of DOC/NOAA/NWS logos

NWS can only use DOC and NOAA emblems on printed documents. Only cabinet agencies, such as NOAA, FAA, USGS, etc., have emblems. OMB sets these regulations, not the Department of Commerce. *The NWS logo cannot be used in any way on a document printed with government funds.* In fact, there is no *official* NWS logo. Commerce regulations state that there can be no emblems for subagencies, such as NWS. We will continue to place only DOC's and NOAA's logos on printed documents.

Linda Kremkau, Managing Editor

Bulk Copies Available of 11 NWS Publications

OM has reprinted 11 NWS brochures this summer and all should be available at NLSC by October 1999. Remember, the maximum amount you can order for any one particular brochure is 300. By NOAA PA numbers, they are:

- 82004: Watch Out Storms Ahead
- 86001: Natural Hazard Watch/Warning Poster
- 91002: Winter Storms . . . The Deceptive Killers
- 92050: Flash Floods and Floods . . . The Awesome Power
- 92051: SKYWARN Decal
- 92052: Tornadoes . . . Nature's Most Violent Storms
- 92053: Thunderstorms and Lightning . . . The Underrated Killers
- 92055: Advanced Spotters' Field Guide
- 94050: Hurricanes . . . Unleashing Nature's Fury
- 96072: Atlantic Hurricane Tracking Map
- 97050: Basic Spotters' Field Guide

If you have any questions concerning the ordering or availability of these publications, contact me at 301-713-0090 x 118 or e-mail at Linda.Kremkau@noaa.gov.

Braille Booklets

NWS has translated "Winter Storms...The Deceptive Killers," into Braille. The booklets were shipped to the Regions for distribution to the field offices in September. Content of this booklet is the same as the original except that photographs and graphs are described in Braille. In all, five Braille publications are available:

- Tornadoes . . . Nature's Most Violent Storms
- Thunderstorms and Lightning...The Underrated Killers
- Flash Floods and Floods...The Awesome Power
- NOAA Weather Radio
- Winter Storms . . . The Deceptive Killers

We wish to thank Carolyn Gurney for her diligence in completing this extensive project. To borrow a Braille copy of any of the above publications, contact your local NWS Office, Regional MSD or me at WSH. Any questions regarding these booklets may be directed to Carolyn Gurney at NWS Office, 2170 Overland Avenue, Billings, MT, 59102 (405-652-0851 x 229), Carolyn.Gurney@noaa.gov.

Linda Kremkau, Managing Editor

WCMs Like *Aware Report* But Find Room for Improvement

In June, OM sent a questionnaire to all the WCMs concerning *Aware*. We received 90 responses. We want to thank each WCM for taking the time to respond. Listed below is a summary of the responses.

1. **Do you read the *Aware*?**
47 % thoroughly, 10% glance, 43% peruse.
2. **What WCMs liked best about *Aware*.**
WCM initiatives, sharing ideas, HQ/OM updates, WCM/SOOs list, chapter updates, Customer Service section and status of NWR initiatives.
3. **Features disliked.**
Infrequent inconsistent publishing schedule, items that require quick response, out-of-date articles, need to contribute ideas, long length of each edition, science and technology section, self-promotion, poor organization, repetition of Monthly OM Activity Report.
4. **Is information in *Aware* valuable to you?**
Yes, 77%; Somewhat, 8%; Other, 16%.
If yes, how is it valuable?
Sharing ideas, getting ideas to improve WCM program, update on OM and NWS policies, brochures/chapters/Roster/Web sites/outreach materials, stats, CRS, NWR and EMWIN.
5. **What would you like to see added, changed?**
 - Nothing
 - Promises to be kept and services to be added
 - More hazard statistics updates
 - Hot topics/what's new
 - AWIPS success stories
 - e-mail addresses on all articles
 - MIC names on Roster list
 - More WCM articles (*we publish all we get*)
 - Organize by hazard
 - More hurricane-related issues
 - Feedback column
 - Better Table of Contents/Index,
 - More info on OM Customer workshop
 - Congressional legislation affecting NWS
 - Product changes/status of new products
 - More verification numbers
 - More Headquarter's updates
 - Tips for helping WCMs do their job
 - surveys/Internet resources)
 - customer satisfaction section
 - WCM forum section
 - Add slides on CD to build marine/wildfire/heat
 - Hazard awareness programs
 - More field information

- More national projects
- Short, concise articles

5. *Does the Aware provide insight into OM's operations/ programs?*

Yes, 69%; No, 3%; Somewhat, 26%; Other, 2%.

6. *Did you know we include articles from WCMs, emergency managers, other related professionals in Aware?*

Yes, 97%; No, 3%.

Have you ever submitted an article for Aware?

Yes, 49%; No, 51%.

7. *Does the Hazard Forum section in Aware help you with ideas for developing private sector partnerships?*

Yes, 85%; No, 15%.

9. *Do you share Aware outside your office?*

Yes, 18%; No, 81%

If yes, with whom? EMs, place in spotter newsletter, tell EMs how to subscribe, COMET research partners, Johnson Space Center Emergency Management office

10. *Do you keep past versions of the Aware on station?*

Yes, 96%; No 4%.

11. *Would you like to see Aware continue?*

Yes, 96%; No, 1%.

If yes, should we continue to publish it quarterly?

Yes, 83%; No 1%.

Linda Kremkau, Managing Editor

Revised Mariners Guide Now in Stock

Two new Mariners Guide brochures are now available at the National Logistics Supply Center (NLSC) in Kansas City. You can order up to 500 copies at a time.

- *Mariners Guide to Marine Weather Services - Great Lakes* (NOAA PA 98053)
- *Mariners Guide to Marine Weather Services - Coastal, Offshore, and High Seas* (NOAA PA 98054)

These brochures are also posted on the OM Publications Web page at www.nws.noaa.gov/om/nwspub.htm.

We gratefully acknowledge the contributions we received from forecasters at NWS forecast offices serving marine areas. A special thanks to Production Editor Melody Magnus for her hard work and patience.

Richard May, Assistant Manager, Marine Weather Services

Thunderstorms/Lightning and Tornadoes Brochures to Be Joined

WCM James Meyer, NWSO Davenport, IA, spent time last summer combining the tri-agency brochures on Thunderstorms/Lightning and Tornadoes. American Red Cross and FEMA staff will review the brochure and provide additional technical content. The new version will strengthen sections on determining risk, getting more information, and responding to risks. The goal is to have the new brochure printed for the spring 2000 severe weather season.

Ron Gird, Customer Outreach Program Leader

NWS Strategic Plan Released

The new NWS Strategic Plan: "VISION 2005: National Weather Service Strategic Plan for Weather, Water, and Climate Services 2000-2005" is now online at www.noaa.gov/sp/index.htm. The plan builds on NWS' past; recognizes its values; supports its mission, purpose, and vision; and will guide the agency well into the 21st century.

NWS is seeking input from its customers and employees. If you have any questions or comments about the Plan, please send your e:mail to the Director of the Office of Strategic Planning and Policy, edward.johnson@noaa.gov.

Edward Johnson, Director, Office of Strategic Planning

Chapter Updates, Roster Now Online

Attachment A is the WSOM Chapter updates. The WSOM chapters are now available to all NWS employees at tgsv6.nws.noaa.gov/wsom/. This site is meant for NWS employees. Please do NOT link this site from other Web sites.

Attachment B is the *Aware* Roster: a list of WCMs and SOOs in each NWS Region. Telephone numbers are listed numbers for an office, NOT the direct number. If you know of a name or telephone number change, please notify me at 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.

You can find the most up-to-date version of the WCM/SOO roster at www.nws.noaa.gov/om/nwspub.htm.

Melody Magnus, Editor

Partner's Forum

Disaster Safety Talking Guide Debunks Old Myths

The American Red Cross is helping to present consistent disaster safety messages through its publication "Talking About Disasters: Guide for Standard Messages." The Guide is a product of the National Disaster Education Coalition (NDEC). This guide, released in May, and heavily advertised through industry and media sources, is reaching a growing audience. ABC radio news credited the guide in reports on safety during Hurricane Bret in August.

Web-based information managers from various state and local emergency management offices, regional and local newspapers, and private companies have contacted us indicating that they have modified, updated, or replaced safety information on their Web pages to make their information consistent with the messages in the Guide.

As we all know, the public shops around for safety advice. If people get conflicting information, they tend to choose the cheaper alternative or to do nothing at all. For example, many people still tape windows in case of a hurricane or drive a car to an underpass when threatened by a tornado. The Guide not only gives the proper message, but also explains to other safety groups why the message should be written that way.

If you have a good story about how the Guide has been used, please let me know. On behalf of the NDEC, we are keenly interested to know how the Guide is being put to used. Chapters can order copies from the Red Cross warehouse, stock number A4461M; cost to chapters \$3.00 each, plus shipping. E:mail: LopesR@usa.redcross. Phone: 703-206-8805. Fax: 703-206-8849.

Rocky Lopes, Disaster Services Department, ARC

NWS at the IAEM Annual Conference

NWS has exciting plans for the International Association of Emergency Managers (IAEM) Annual Conference, November 13-16, 1999, in Louisville, KY.

We'll be looking back at the 1998-99 La Niña event, evaluating mitigation and preparedness efforts taken to reduce adverse impacts. Next, we will look at the forecast for next season's hazardous weather patterns.

NWS Warning Coordination Meteorologists and a Service Hydrologist will present three case studies of abnormal weather events and their interactions with local emergency managers.

Concurrent sessions will highlight the latest in weather and flood forecasting and warning information and communications tools. NWS's new StormReady community recognition program will be presented with an opportunity for attendees to provide input into the program's recognition criteria. The NWS exhibit will include the Advance Hydrologic Prediction System (AHPS), Emergency Manager's Weather Information Network (EMWIN), StormReady, NOAA Weather Radio (NWR) and the Storm Prediction Center (SPC).

Herb White, Meteorologist

Severe Weather Communication Essential as Country Faces Drought

Severe weather throughout the United States and the droughts affecting many offer a good opportunity for us the emergency management community to share ideas. We need to compile information on what people should do during severe drought because many Americans have no memory of such problems. In addition, patterns of dependence on water have changed in the 30 or 40 years since the last droughts of this severity.

States issue the basic rules and regulations for water use during a severe drought. The states involved are drawing on the knowledge of such experts as the USDA/State Extension Services.

Local Drought Details Wanted

CFP is asking for any information you can send us about special applications of those rules, inventive ways people find for coping with the problem, and things they find they can do on their own or cooperating with neighbors. Further, rules affect people differently depending on their par-

particular situation and vulnerability. We would like to hear anecdotal accounts as well as the principle involved in how people cope. For example, a colleague in Virginia told me he stopped watering his grass, even though he had pumped the water from his own 400 foot well, when the water table got so low that two neighbors' wells, not so deep, ran dry and damaged their electrical pumps.

To help the schools, FEMA Associate Director Kay Goss and Maryland Emergency Management Agency Director David McMillion are developing a national model program and package of all-hazard disaster preparedness curriculum materials for grades K-12. If you know of other hazard awareness and disaster preparedness programs for schools, please send us a copy.

FEMA staff is also working on earthquake and multi-hazard curriculum materials, and the co-logged FEMA, ARC, NWS and USGS materials used in classroom presentations. ARC is developing a K-8 natural hazard curriculum project.

Finally, look for opportunities to get involved in "America Goes Back to School" events in your area. It may provide you an opportunity to associate yourself with people sensitive to school preparedness for any disaster. Offer to give presentations in classrooms using FEMA's basic CFP brochures, in class and for students to take home. Available publications include:

- Your Family Disaster Supplies Kit (L-189)
- Your Family Disaster Plan (L-191), Emergency Preparedness Checklist (L-154)
- Emergency Preparedness Coloring Book (FEMA-243).

To share your ideas, you can use the CFP mailing list (cfp@emforum.org) or e:mail Kellye Junchaya at kjunchaya@emforum.org or Ralph Swisher at ralph.swisher@fema.gov.

Kellye Junchaya, Community Education Coordinator, EIIP

Y2K Offers Unique Opportunities

Y2K offers a unique opportunity to enhance preparedness programs. Y2K offers lots of media attention and a unique feature: a known "disaster" date. The media attention can help us get preparedness messages out while warning the public against rash actions such as taking all of their money out of bank accounts.

FEMA is asking people to do preparedness for Y2K, just like they would for other potential disasters. FEMA recommends being self-sufficient for 3-7 days.

One of the big concerns for Y2K is "man-made" disaster triggered by public overreaction. Another big concern is the ripple effect from less technologically developed countries that are not Y2K compliant.

We must encourage preparedness without creating panic or misuse of equipment and supplies (i.e., storing fuels improperly or using gas burners indoors). We need to be aggressive with responsible public reporting and downplay media hype. It will also be a challenge to convince people to prepare for all kinds of emergencies, not just Y2K.

The lists of things that have already been done by organizations and states is impressive. The many Web sites, brochures, public relations programs and education efforts are helping to achieve that balance we are looking for.

For more information or to send information to the *Update*: contact Ralph Swisher, FEMA CFP Program Manager. Phone: 202-646-3561, Fax: 202-646-4371, e:mail: ralph.swisher@fema.gov.

Ralph Swisher, FEMA

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.

- Look Up! Sky Awareness
- Climate: A World of Weather
- Hurricanes
- Extremes in Water Cycle
- Sun, Seasons and the Sky
- Forecasting: Then & Now
- Tornadoes
- Water: Oceans to Air
- Air in Motion
- Thunderstorms: The Weather Machine
- Look Up! Sky Awareness
- Climate: A World of Weather
- Hurricanes
- Extremes in Water Cycle

Laura Buss, The Weather Channel

Severe Weather Awareness Weeks

<u>State</u>	<u>Event</u>	<u>Date</u>	<u>Drill</u>
<u>Eastern Region</u>			
Maine	Winter Weather	Nov. 15-19, 1999	
Massachusetts	Winter Media Workshop	Dec. 11, 1999	
	Mass. EMWinter Workshop	Dec. 15, 1999	
New York	Winter Weather	Nov. 7-13, 1999	
New York	Severe Weather	Mar. 19-25, 2000	
Ohio	Winter Weather	Nov. 7-13, 1999	
Ohio	Severe Weather	Mar. 5-11, 2000	
South Carolina	Severe Weather	Feb. 21-25, 2000	
South Carolina	Winter Weather	Dec. 5-11, 1999	
Virginia	Winter Weather	Nov. 14-20, 1999	
<u>Southern Region</u>			
Alabama	Winter Weather	Dec. 6-10, 1999	
Alabama	Severe Weather	Feb. 21-25, 2000	
Arkansas	Winter Weather	Nov. 7-13, 1999	
Florida	Severe Weather	Feb. 21-25, 2000	
Georgia	Severe Weather	Feb. 21-25, 2000	
Mississippi	Winter Weather	Dec. 6-10, 1999	
Mississippi	Severe Weather	Feb. 21-25, 2000	
New Mexico	Winter Weather	Nov. 1-5, 1999	
New Mexico	Severe Weather	Apr. 3-7, 2000	
New Mexico	Flash Flood and Lightning	June 5-9, 2000	
Oklahoma	Winter Weather Day	Nov. 16, 1999	
Oklahoma	Severe Weather	Mar. 5-11, 2000	
Tennessee	Winter Weather	Nov. 16-18, 1999	
Tennessee	Severe Weather	Feb. 21-25, 2000	
<u>Central Region</u>			
Illinois	Winter Weather	Nov. 14-20, 1999	
Illinois	Severe Weather	Mar. 5-11, 2000	
Indiana	Winter Weather	Nov. 15-19, 1999	
Iowa	Winter Weather	Nov. 8-13, 1999	
Kansas	Winter Weather Day	Nov. 9, 1999	
Kentucky	Winter Weather	Nov. 15-19, 1999	
Michigan	Winter Weather	Nov. 7-13, 1999	
Minnesota	Winter Weather	Nov. 8-12, 1999	
Missouri	Winter Weather Day	Nov. 17, 1999	
Nebraska	Winter Weather	Nov. 8-13, 1999	
North Dakota	Winter Weather	Nov. 1-5, 1999	
South Dakota	Winter Weather	Oct. 25-29, 1999	
Wisconsin	Winter Weather	Nov. 8-12, 1999	Nov. 11
Wyoming	Winter Weather	Oct. 11-25, 1999	
<u>Western Region</u>			
Arizona	Winter Weather Workshop	Nov. 5, 1999	
California	Winter and Flood	Oct. 25-29, 1999	
Montana	Winter Weather	Oct. 24-30, 1999	Oct. 27
Oregon	Winter Weather	Nov. 7-13, 1999	
Washington	Annual Media/EM Workshop	Oct. 7, 1999	
Washington	Tsunami Education Meetings	Nov. 15-18, 1999	

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)
81011#	Spotter's Guide for Identifying and Reporting Severe Local Storms (Out of print)	94061	NOAA Weather Radio Frequency Pamphlet
82002	Dust Storm Driving Safety (Wallet Card)	96051	National Centers for Environmental Prediction
82004	Watch Out Storms Ahead	96052	Key to New International Aerodrome Forecast (TAF) and New Aviation Routine Weather Report (METAR)(Card)
85001	Heat Wave (Out of print)	96053	NWR Decal
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)	96055	MSC-2, Montauk Point, NY to Manasquan, NJ
85006	Survival in a Hurricane (Como Sobrevivir En Un Huracan) (Spanish 70027) (WC)	96056	MSC 3, Manasquan, NJ to Cape Hatteras, NC
86001	Natural Hazard Watch & Warning Poster (English/Spanish)	96057	MSC-4, Cape Hatteras, NC, to Savannah, GA
91001	Hurricane! A Familiarization Booklet (Out of print)	96058	MSC-5, Savannah, GA, to Apalachicola, FL
91002	Winter Storms...The Deceptive Killers	96059	MSC-6, Apalachicola, FL to Morgan City, LA
91003*	Red Cross—Are You Ready for a Winter Storm?	96060	MSC-7, Morgan City, LA to Brownsville, TX
91004	Red Cross—Are You Ready for a Winter Storm? (Spanish Version)	96061	MSC-8, Mexican Border to Point Conception, CA
91005*	Red Cross Poster—Are You Ready for a Winter Storm? (English/Spanish)	96062	MSC-9, Point Conception, CA, to Point St. George, CA
92050	Flash Floods and Floods...The Awesome Power!	99060	MSC-10, Point St. George, CA, to Canadian Border
92051	SKYWARN Decal	96064	MSC-11/12, Great Lakes
92052 +	Tornadoes...Nature's Most Violent Storms	96065	MSC-13, Hawaiian Waters
92053 +	Thunderstorms and Lightning...The Underrated Killers!	96066	MSC-14, Puerto Rico and Virgin Islands
92054	FEMA's Emergency Preparedness Materials Catalog	99064	MSC-15, Alaska Waters
92055	Advanced Spotter's Field Guide	96068	MSC-16, Guam and the Northern Mariana Islands
92057*	Red Cross—Are You Ready for a Tornado?	96070	NOAA Weather Radio Brochure (Out of print)
92058	Red Cross—Are You Ready for a Tornado? (Spanish)	96071	Atlantic Hurricane Tracking Map - 8-1/2" x 11"
92059*	Red Cross—Are You Ready for a Flood or Flash Flood?	96072	Atlantic Hurricane Tracking Map - 17" x 22" (Out of print)
92060	Red Cross—Are You Ready for a Flood or a Flash Flood? (Spanish)	96073	Pacific Hurricane Tracking Map - 12" x 24"
92061*	Red Cross Poster—Are You Ready for a Tornado? (English/Spanish)	96074E	The Hidden Danger—Low Water Crossing (English)
93051*	Red Cross Poster—Are You Ready for a Thunderstorm?	96074S	The Hidden Danger—Low Water Crossing (Spanish)
93052	Red Cross—Are You Ready for a Thunderstorm? (Spanish)	96076	ASOS Guide for Pilots (Booklet)
93053*	Red Cross Poster—Are You Ready for a Thunderstorm? (English/Spanish)	97050	Basic Spotters' Field Guide
93056	A Pilot's Guide to Aviation Weather Services (replaces PA 71005) (Booklet)	98053	Mariner's Guide to Marine Weather Services--Great Lakes
93059	A Change in the National Weather Service	98054	Mariner's Guide to Marine Weather Services--Coastal, Offshore and High Seas
93060	Spotter ID Card (Out of print)	0002	NOAA Brochure
94050	Hurricanes...Unleashing Nature's Fury (March 1996)		
94051	Aviation Modernization		
94052*	Red Cross—Are You Ready for a Heat Wave?		
94053*	Red Cross—Are You Ready for a Hurricane?		
94054	Red Cross—Are You Ready for a Hurricane? (Spanish)		
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)		

Not available from NLSC. Available on OM's Home Page (www.nws.noaa.gov/om/nwspub.htm) in text version only.
 + Available in Braille. Contact your local NWS Office, Region, or Weather Service Headquarters.
 * Available from your local Red Cross chapter only.

Marine Service Charts (MSCs) can be found on the Web at:
www.nws.noaa.gov/om/marine/pub.htm

You can download most of these publications from:
www.nws.noaa.gov/om/nwspub

You can obtain a single copy by writing:
 NWS, NOAA
 1325 East-West Hwy, Rm #14370
 Silver Spring, MD 20910

National Weather Service

Slide Sets and Videotapes

The NWS slide sets and videotapes can be purchased from the National Audiovisual Center (NAC) at the address below.

National Technical Information Service
 National Audiovisual Center (NAC)
 5285 Port Royal Road, Rm. 1008
 Springfield, VA 22161

Sales Desk -1-800-553-NTIS (6847) or 703-605-6000
 Customer Inquiry: 703-605-6050
 Fax: 703-605-6900 or 1-888-584-8332
 Web site: www.ntis.gov
 Handling fee: \$4 per order.

The NWS slide sets and presenter's guides available from NAC are:

<u>NAME</u>	<u>STOCK NO.</u>	<u>COST</u>
Winter Storms...The Deceptive Killers	AVA19250.SS00	\$100
Tornadoes...Nature's Most Violent Storms	AVA19540.SS00	\$95
Thunderstorms and Lightning...The Underrated Killers	AVA19778.SS00	\$105
Hurricane Hugo	AVA18529.SS00	\$130
Hurricane Andrew	AVA19393.SS00	\$95
Advanced Met. Spotter Training Slides	AVA17568.SS00	\$155
Concepts of Severe Storm Spotting	AVA19930.SS00	\$110
Flash Floods and Floods...The Awesome Power	AVA19997.SS00	\$120

The NWS videotapes available from NAC are:

"Terrible Tuesday," 1/2" VHS/23 minutes/color/1984	AVA11945.VNB1	\$50
"Hurricane," 1/2" VHS/28 minutes/color/1985	AVA12440.VNB1	\$50
"The Awesome Power," 1/2" VHS/17 minutes/color/1988	AVA17096.VNB1	\$50

Most of these videotapes and slide sets can be borrowed for presentations or school talks from Weather Service Headquarters (address below). For availability of these audiovisual materials, please contact Linda Kremkau, Customer Service, WSH, at 301-713-0090 x118.

National Weather Service, NOAA
 1325 East-West Highway, Rm. 14370
 Silver Spring, Maryland 20910

Other videotapes available from Customer Service are:

- "Moving Water: Adventure of Danger" 1/2" VHS/18 minutes/NWS Office of Hydrology/1999
- "The Hidden Danger—Low Water Crossings," 1/2" VHS/8 minutes/NWS Office of Hydrology/1996/ *Now also in Spanish*
- "StormWatch," 1/2" VHS/30 minutes/copyright by TESSA/1995
- "Surviving the Cold," 1/2" VHS/16 minutes/American Red Cross Video Network/1989
- "Minneapolis Tornado," 1/2" VHS/12 minutes/copyright by KARE-TV/1986

Those interested in using portions of the NWS videotapes should contact our NOAA Video Studio at 301-713-1479.

Attachment A—Update on OM's WSOM Chapters

- A-10 **Station Management**
Awaiting Union review.
- A-40 **Service Change Process**
Draft completed.
- A-63 **Service Evaluation**
Draft issued October 1999.
- A-99 **General Weather Service Definitions**
OML issued September 2, 1999.
- B-16 **Marine Reporting Station**
No updates before 2000.
- B-19 **Fire Weather Stations**
Will be updated and consolidated with D-06 in 1999.
- B-30 **Voluntary Observing Ship Program**
Due in 2000.
- B-90 **Special Warning Program Observations**
To be updated in 1999.
- C-11 **Zone and Local Forecasts and Appendix A (maps)**
Due December 1999.
- C-40 **Severe Local Storm Watches, Warnings and Statements**
OML issued April 1998.
- C-41 **Tropical Cyclone Program**
Completed and sent to field.
- C-42 **Combined Winter Storm and Non Precip Hazards**
- C-44 **OML under development. Due in 1999.**
- C-43 **Coastal Flood Program**
Due in 2000.
- C-45 **Meteorological Discussions and Forecast Coordination**
An OML to C-45 defining the state liaison office policy is being drafted for field review in 1999.
- C-47 **County Warning Areas, Appendix A**
Page changes to be issued by the end of 1999.
- C-49 **Warning Coordination and Hazard Awareness**
In field for review. Expected to be signed in November.
- C-60 **Radio/TV Dissemination;**
- C-61 **Telephone Dissemination;**
- C-62 **Newspaper Dissemination;**
Will begin updating and probably consolidating in 2000.
- C-63 **NOAA Weather Wire Service (NWWS)**
Update due 2000.
- C-64 **NOAA Weather Radio Program**
Chapter effective December 21, 1998.
- C-66 **Dissemination of Public Warnings**
Will consolidate into chapter C-49 in 2000.
- C-67 **News Wire Dissemination**
Will begin updating and probably consolidating in 2000.
- C-75 **National Verification Program**
To be finalized November 1999.
- D-06 **Fire Weather Services**
Will be updated in 1999 and consolidated with B-19, D-06, OML: Duties of IR Mets Requiring Exposure to Hazardous Situations.
- D-07 **Marine Weather Services**
No updates before 2000.
- D-20 **Aviation Area Forecasts**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Will begin updating chapter possibly combining with D-35 in 1999. New WMO headers/AFOS PILs for new areas being developed.
- D-22 **Domestic SIGMET**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Currently working on updating chapter combining D-22 and D-38.
- D-23 **Special Aviation Forecasts and Events**
- D-24 **Wind and Temperature Aloft Forecasts**
Final draft of new chapter in coordination/review.
- D-25 **Air Traffic Operations Support**
OML effective December 14, 1998 (new VOR chart). Pen and ink changes due after coordination with FMH-12 (PIREPs).
- D-30 **Transcribed Weather Broadcast Text Products**
OML effective Nov. 5, 1998.
- D-31 **Aviation Terminal Forecasts**
Page changes effective Nov. 5, 1998.
- D-35 **International Area Forecasts**
Should be combined with D-24; timing to be determined.
- D-36 **International/Aviation Service Arrangements**
Should be combined with D-24; timing to be determined.
- D-38 **International SIGMET**
Currently working on updating chapter combining D-22 and D-38. New WMO headers/AFOS PILs for new areas being developed.
- D-51 **Marine Services for Coastal, Offshore and High Seas, Appendix B**
Changes effective Nov. 30, 1999.
- D-52 **Marine Services for the Great Lakes**
OML effective Sept. 15, 1999.
- D-80 **Familiarization Flights**
Chapter in review.
- D-82 **Training Program for Pilot Weather Briefers**
Regional reviews of proposed revision received December 1998. Waiting for decision and funding commitments to implement alternate proposal to complete NWS PWB evaluations/certification responsibilities.
- D-90 **Support for Accident Investigation and Litigation**
Transmittal Memo issued July 15, 1997, #97-8.
- D-91 **Aviation Liaison and User Support Program**
Preliminary work to update, adjust and reassign the contents of these chapters has been completed. Awaiting resources to complete the job.
- F-42 **Storm Data and Related Reports**
An OML has been released to accommodate changes associated with Paradox II the new Storm Data software. Other minor changes also have been included.
- F-60 **Tsunami Warning Service**
OML issued effective April 1998.
- F-61 **Earthquake Reporting Program**
Chapter issued March 6, 1996.
- J-02 **Significant Hydrometeorological Events, Post-Storm Data Acquisition, and Service Assessments**
Chapter issued Sept. 28, 1998.
- J-05 **Backup Operations**
Draft to be issued January 2000.
- J-08 **Nuclear Emergency Response**
Chapter update in 2000.

Attachment B–WCM/SOO Roster

WCM	SOO	Location	Telephone
NWS Headquarters			
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			516-244-0123
Kenneth Johnson, Regional SOO Program Manager			516-244-0136
Solomon Summer, HSD Chief			516-244-0111
Dick Westergard	Warren Snyder	Albany, NY	518-435-9568
Barbara Watson	Steve Zubrick	Baltimore, MD/Washington, DC	703-260-0107
Vacant	Jeff Waldstreicher	Binghamton, NY	607-770-9531
Glenn Field	James Lee	Boston, MA	508-823-1900
Stan Levine	Ed Mahoney	Buffalo, NY	716-565-0204
Vacant	Paul Sisson	Burlington, VT	802-862-2475
Hendricus Lulofs	Dan Cobb	Caribou, ME	207-496-8931
Tom Dunham	Rich Grumm	Central Pennsylvania, PA	814-234-9412
Jerry Harrison	Steven Brueske	Charleston, SC	803-744-3207
Dan Bartholf	Dan Luna	Charleston, WV	304-746-0173
Mary Jo Parker	John DiStefano	Cincinnati, OH	937-383-0031
Gary Garnet	Robert LaPlante	Cleveland, OH	216-265-2370
Steve Naglic	Michael Cammarata	Columbia, SC	803-765-5501
Vince DiCarlo	Larry Lee	Greenville-Spartanburg, SC	864-848-1332
Laura Furgione	Carin Goodall	Morehead City, NC	919-223-5122
Gary Conte	Jeff Tongue	New York City, NY	516-924-0037
Joe Miketta	Alan Cope	Philadelphia, PA	609-261-6600
Rich Kane	Josh Korotky	Pittsburgh, PA	412-262-1591
John Jensenius	Joseph Fred Ronco	Portland, ME	207-688-3216
George Lemons	Kermit Keeter	Raleigh/Durham, NC	919-515-8209
Mike Emlaw	Steve Keighton	Roanoke, VA	540-552-0084
Bill Sammler	Hugh Cobb	Wakefield, VA	757-899-4200
Tom Matheson	Reid Hawkins	Wilmington, NC	910-762-4289

Southern Region

Gary Woodall, Regional WCM Program Manager			817-978-2812 x106
Bernard Meisner, Regional SOO Program Manager			817-978-2671
Jerry Nunn, HSD Chief			817-978-2674
Keith Hayes	Deirdre Kann	Albuquerque, NM	505-243-0702
Steve Drillette	Richard Wynne	Amarillo, TX	806-335-1121
Barry Gooden	Gary Beeley	Atlanta, GA	770-486-1333
Larry Eblen	Jim Ward	Austin/San Antonio, TX	830-629-0130
Brian Peters	Kevin Pence	Birmingham, AL	205-664-3010
Don Ocker	Shawn Bennett	Brownsville, TX	210-504-3354
Terry Huber	Andy Patrick	Corpus Christi, TX	512-289-0959
Jim Stefkovich	Mike Foster	Dallas/Fort Worth, TX	817-429-2631
John Fausett	Val MacBlain	El Paso, TX	505-589-4088
Gene Hafele	Steve Allen	Houston/Galveston, TX	281-337-5074
James Butch	Alan Gerard	Jackson, MS	601-936-2189
Fred Johnson	Pat Welsh	Jacksonville, FL	904-741-4370
Howard Waldron	Steve Parker	Knoxville/Tri-Cities, TN	423-586-9040
Wayne Presnell	Jack Settelmaier	Key West, FL	305-295-1316
Roger Erickson	Felix Navejar	Lake Charles, LA	318-477-5285
John Robinson	George Wilken	Little Rock, AR	501-834-9102
Larry Vannozzi	Loren Phillips	Lubbock, TX	806-745-4260
Dennis Decker	Dave Sharp	Melbourne, FL	407-255-0212

WCM	SOO	Location	Telephone
John White	Jerry Rigdon	Memphis, TN	901-544-0399
Jim Lushine	Jack Gross	Miami, FL	305-229-4522
George Mathews	Brian Francis	Midland/Odessa, TX	915-563-5006
Gary Beeler	Jeff Medlin	Mobile, AL	334-633-6443
Jerry Orchanian	Henry Steigerwalt	Nashville, TN	615-754-8506
Frank Revitte	Mike Koziara	New Orleans/Baton Rouge, LA	504-522-7330
Jim Purpura	Dave Andra	Oklahoma City, OK	405-366-6583
Buddy McIntyre	Greg Jackson	San Angelo, TX	915-944-9445
Rafael Mojica	Rachel Gross	San Juan, PR	787-253-4586
Bruce Burkman	Ken Falk	Shreveport, LA	318-631-3669
Bob Goree	Irv Watson	Tallahassee, FL	904-942-8999
Walt Zaleski	Charles Paxton	Tampa Bay Area, FL	813-645-2323
Steve Piltz	Steve Amburn	Tulsa, OK	918-832-4115

Central Region

Joe Sullivan, Regional WCM Program Manager			816-426-3239 x703
Preston Leftwich, Regional SOO Program Manager			816-426-5672
Ken King, HSD Chief			816-426-3220
George Marshall	Ken Harding	Aberdeen, SD	605-225-5547
Daniel Noah	Viggo Jensen	Bismarck, ND	701-250-4224
John Griffith	David Copley	Cheyenne, WY	307-772-2468
Jim Allsopp	Ken Labas	Chicago, IL	815-834-0600
James Meyer	Ray Wolf	Davenport, IA	319-391-6729
Robert Glancy	Eric Thaler	Denver/Boulder, CO	303-361-0661
Jeffrey Johnson	Karl Jungbluth	Des Moines, IA	515-270-4501
Darin Figurskey	Dick Wagenmaker	Detroit, MI	248-625-3309
Jeff Hutton	Steve Hunter	Dodge City, KS	316-227-7140
Carol Christenson	Gary Austin	Duluth, MN	218-729-0651
Jim Belles	Phillip Schumacher	Eastern North Dakota, ND	701-772-0720
Kevin Lynott	Llyle Barker	Goodland, KS	785-899-7119
James Pringle	Michael Meyers	Grand Junction, CO	970-243-7007
Mike Heathfield	<i>Vacant</i>	Grand Rapids, MI	616-956-5922
Jeff Last	Eugene Brusky	Green Bay, WI	920-494-5845
Steve Kisner	Rick Ewald	Hastings, NE	402-462-2127
David Tucek	John Kwiatkowski	Indianapolis, IN	317-856-0361
Jim Keeney	Michael Lewis	Jackson, KY	606-666-4856
Bill Bunting	Peter Browning	Kansas City/Pleasant Hill, MO	816-540-5147
Todd Shea	Dan Baumgardt	LaCrosse, WI	608-784-8275
Rod Palmer	Jeff Hedges	Lincoln, IL	217-732-4029
Norman Reitmeyer	Ted Funk	Louisville, KY	502-969-8842
Jack Pellett	Ed Fenelon	Marquette, MI	906-475-5782
Rusty Kapela	John Eise	Milwaukee/Sullivan, WI	414-297-3243
Todd Krause	Richard Naistat	Minneapolis, MN	612-361-6670
Gene Bowman	<i>Vacant</i>	North Platte, NE	308-532-4936
Brian Hirsch	Bruce Smith	NC Lower Michigan	517-731-3384
Jane Hollingsworth	Julie Adolphson	Northern Indiana	219-834-5178
Brian Smith	Steve Byrd	Omaha, NE	402-359-2394
Ricky Shanklin	Pat Spoden	Paducah, KY	502-744-6440
Tom Magnuson	Paul Wolyn	Pueblo, CO	719-948-9429
Susan Sanders	Brian Klimowski	Rapid City, SD	605-341-9271
Donald Noll	Derek Frey	Riverton, WY	307-857-3898
Todd Heitkamp	Ron Holmes	Sioux Falls, SD	605-330-4247
Steve Runnels	David Gaede	Springfield, MO	417-863-1456
Jim Kramper	Ron Przybylinski	St. Louis, MO	314-447-1876
Mike Akulow	George Phillips	Topeka, KS	785-232-1493
Chance Hayes	Peter Wolf	Wichita, KS	316-942-8483

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	Billings, MT	406-652-0851
Carl Weinbrecht	David Billingsley	Boise, ID	208-334-9860
Jim Dudley	Steve Apfel	Elko, NV	775-738-3018
John Lovegrove	Mel Nordquist	Eureka, CA	707-443-6484
Tyree Wilde	Michael Staudenmaier	Flagstaff, AZ	520-556-9161
Kimberly Bailey	Greg Gust	Glasgow, MT	406-228-2850
Rick Dittman	David Bernhardt	Great Falls, MT	406-453-2081
Ron McQueen	Kim Runk	Las Vegas, NV	702-263-9744
Tim McClung	Dave Danielson	Los Angeles, CA	805-988-6610
John Casad	Dennis Gettman	Medford, OR	541-773-1067
Peter Felsch	Tim Barker	Missoula, MT	406-329-4841
Dennis Hull	Jon Mittelstadt	Pendleton, OR	541-276-7832
David Runyun	Doug Green	Phoenix, AZ	602-379-4611
Vern Preston	Dean Hazen	Pocatello/Idaho Falls, ID	208-233-0834
Dan Keeton	Bill Schneider	Portland, OR	503-261-9247
Roger Lamoni	Mary Cairns	Reno, NV	775-673-8107
Kathy Hoxie	Scott Cunningham	Sacramento, CA	916-979-3041
Dave Toronto	Larry Dunn	Salt Lake City, UT	801-524-5113
Ed Clark	Ivory Small	San Diego, CA	619-297-2107
Charles Morrill	Dr. Warren Blier	San Francisco Bay Area, CA	831-656-1725
Dan Gudgel	Larry Greiss	San Joaquin Valley	209-584-0583
Ted Buehner	Brad Colman	Seattle/Tacoma, WA	206-526-6095
Ken Holmes	Ron Miller	Spokane, WA	509-244-0110
Paul Flatt	David Bright	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		
Jerry Nibler, HSD, HIC Chief	907-266-5151		
David Goldstein	Carven Scott	Anchorage	907-266-5117
John Lingaas	Kraig Gilkey	Fairbanks	907-458-3712
Robert Kanan	Carl Dierking	Juneau	907-790-6803
Bruce Turner	(no SOO position)	Palmer (ATWC)	907-745-4212

Pacific Region

Mark Jackson, Regional WCM Program Manager	808-532-6413		
Thomas Heffner	Paul Jendrowski	Honolulu, HI	808-973-5275
Tom Tarlton	Guam	671-472-7408	
Akapo Akapo	Pago Pago (Focal)	684-699-9130	

NCDC

Stuart Hinson	Asheville, NC	828-271-4437
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NCEP

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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	405-579-0700



