Aware

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

Summer 2000

Service, Science, and Technology

Help Us Help You!

Found at every local Weather Forecast Office (WFO), the Tropical Prediction Center and the Storm Prediction Center (SPC), Warning Coordination Meteorologists (WCM) are the National Weather Service's (NWS) service representatives. WCMs meet with our partners and customers, assess their requirements, and create services to meet user needs. This past June, the WCMs convened at a workshop in New Orleans. The workshop theme was improving customer service.

It's easy to talk customer service. It's another matter to do it. At the workshop, NWS Director Jack Kelly challenged our WCMs with the following questions. Are we giving our customers what they want? Or are we giving them what we think they want? Are we issuing information that is understandable and useful? Or are we issuing information only we understand? Do our forecasts communicate the full range of possibilities that could occur? Or are we providing predictions that create unrealistic expectations? Kelly made it clear it's everyone's duty in the NWS to reach out to partners and customers. This is where we need your help.

For our partners and customers, help us help you! Remember the movie *Jerry McGuire*? In the locker room, Tom Cruise, as sports agent Jerry McGuire, meets with a somewhat skeptical Cuba Gooding, the football player. In an emotionally charged scene, Jerry pleads, "Help me help you!" Cuba reluctantly agrees. The results are surprising for Cuba, the team and the sport. The scene is now a classic. A classic with implications for all of us. We, like Jerry McGuire, want to do what is right. We want you to get the information and services you want and expect. Work with us. Get to know your local WCM. Bring us your problems and your ideas. Help us understand your needs. *Help us help you.*

For our WCMs and field personnel, help me help you. The New Orleans WCM workshop was just a start. I want to hold these workshops every two years. Similarly, I will ensure the appropriate Headquarters staff attend each regional WCM workshop to better understand your needs.

John Ogren, our new national WCM program manager, has established WCM-talk on E-mail to support networking. He and WCM Program Analyst Amy Holman are working on a WCM resource center to provide you with one-stop shopping for multi-media presentations. John is also working with field WCMs to update the WCM Job Aid as well as the WCM course. But we need to go further. What is needed is a continuing education program for WCMs. In all of these activities, we need your help to give you the tools you need. *Help me help you.*

Improving customer service is the number one NWS priority. We need to provide services you can use and trust when you need them the most. Our products should be created with an eye toward clarity, consistency and purpose. Working together we can do this. ***Help Us Help You!***

Greg Mandt, Office of Meteorology

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CUSTOMER SERVICE

Hurricane Web Site Sports New Look

The NWS Office of Meteorology (OM) has updated the look of its Hurricane Awareness page to make it more useful and attractive to users. The updated site combines an attractive feel with professional graphics. The site offers links to:

- Ten brochures, guides and other safety publications
- NOAA Weather Radio (NWR) information
- NOAA news releases
- Advisories
- Current weather
- Tracking charts
- Tropical storm/hurricane service assessments
- Billion dollar tropical storm and hurricane reports
- Other organizations providing tropical storm/hurricane information.

The site is co-sponsored by the American Red Cross (ARC) and the Federal Emergency Management Administration (FEMA). To check out the site, go to **www.nws.noaa.gov/om/hurricane/index.html**.

Melody Magnus, OM Assistant Webmaster
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Updated NOAA Weather Wire System (NWWS) Goes Live

On June 22, all NWWS traffic shifted to the new Replacement (R)-NWWS system. NWS has disconnected the old two-way sites. The R-NWWS simultaneously supplies weather products to the old and new broadcast systems. This service overlap provided a 2-month simultaneous operation of the two systems. R-NWWS provides the following:

- Higher data transmission rates and reliability
- Graphical product capability
- More user friendly interface for product selection and display.

The system uses a C-band satellite for data collection and broadcast. Another benefit of the new system is an "open interface." which provides access to streaming weather data via an Internet browser or via a TCP/IP port.

To allow R-NWWS users ample time to work with products with World Meteorological Organization (WMO) headers, the R-NWWS will transmit messages with the existing PIL header format and the new WMO header format until May 2001. NWS has posted format conversion tools to assist in message header issues at **www.nws.noaa.gov/oso/oso1/oso15/newnwws.htm**.

R-NWWS was installed at designated state agency sites this summer by Dyncorp, the NWWS contractor. All sites should be upgraded by the end of August. If you are a commercial user, contact Dyncorp for installation schedules.

Commercial users who have not yet ordered R-NWWS and wish to continue receiving the NWWS data stream should immediately arrange alternate service delivery. The old NWWS will cease August 31. Contact Dyncorp for R-NWWS ordering and delivery information. Information on alternative systems are described on the Web site referenced above.

Contact Herb White with comments on the R-NWWS and inquiries about alternative NWS weather information dissemination systems: E-mail **om.wxwire @noaa.gov** or send a fax to 301-713-1598.

You are an important component of the NWS system to provide the American public with critical weather information. Thank you for your patience, understanding and continued support during this transition.

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Aware

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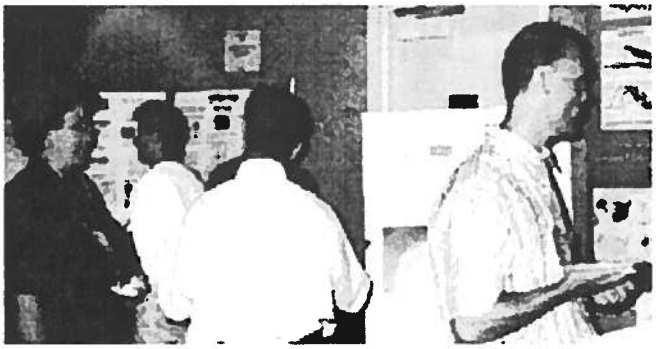
***Aware* in PDF—www.nws.noaa.gov/om/nwspub.htm**
***AwareNow*: Latest news in HTML format: www.nws.noaa.gov/om/awarenow.htm**

WCM's Break Drought in New Orleans; Set 35 Action Items

The WCM's finally broke their drought by having the first national WCM workshop in 5 years. They also brought much needed rain to the region Thursday night. What better setting than to be cruising down the Mississippi River during thunderstorms listening to author John Berry talk about the great Mississippi flood of 1927.

The 5-day workshop focused on improving customer service, improving coordination between the field and headquarters, and creating an action plan for the WCM program. The most important part of the workshop was the dialogue created on Thursday during the "Hot Topics" sessions. Panel



Barbara Watson, WCM, WFO Sterling, VA, and Jim Belles, WCM, Eastern North Dakota NWS office

discussions were conducted to explore topics WCMs are most concerned about. Panels were made up of social scientists, field, regional and national headquarters staff. Topics included StormReady, Advanced Weather Interactive Processing System (AWIPS)/Interactive Forecast Preparation System (IFPS) improvements, dissemination issues, product coding and future product suite, social impacts, watch by county, and SPC services.

The discussions resulted in 35 action items which will determine NWS priorities for the next year. Action items created by the WCM's include:

- Bringing StormReady in closer partnership with FEMA's Project Impact
- Improving intra-office coordination with the SPC during severe weather watch situations
- Creating an efficient method of producing reports and incorporating them into databases for headquarters.
- Reviewing and improving our product suite by using customer input to make changes customers really want rather than what NWS thinks they want.
- Using recommendations from social scientists to better communicate our warning and preparedness messages to the public
- Creating a WCM resource center to encourage sharing of ideas and materials within the WCM ranks.

This workshop was the launching pad to the future of the WCM program. Every WCM in the country has made a contribution in his or her local community. We want to harness the energy and ideas from individual offices to improve our services nationwide.

John Ogren, National WCM Manager

StormReady Rumbles Across the Nation: Sixteen Sites Now Enrolled

StormReady is taking the Nation by storm. After being launched in March as a national program, 16 communities and counties have been recognized as StormReady as of the end of July. It's not just in tornado country either. In addition to those in Oklahoma, there are now StormReady communities in Arkansas, Illinois, Indiana, Kansas, Mississippi, Missouri, Montana, North Carolina, and North Dakota. Many other states are developing statewide plans and creating advisory boards.

StormReady prepares communities with an action plan that responds to the threat of all types of severe weather—from tornadoes to tsunamis.

The entire community—from the mayor, emergency managers, to business leaders and civic groups—can take the lead on becoming StormReady. WFOs work with communities to complete an application and review process. To be officially StormReady, a community must:

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

For more information about the StormReady program, please go to **www.nws.noaa.gov/stormready**.

John Ogren, National WCM Manager
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New Web Site to Offer National Clearinghouse of Disaster Resources

The International Association of Emergency Managers (IAEM), an active member of the National Disaster Education Coalition (NDEC), is developing a national clearinghouse of links to Internet disaster resources.

These resources will be posted on an NDEC Web site. The Web site will be housed on the IAEM server and is being developed by IAEM Communications Manager Karen Thompson, Roxanne Hawkins-Lamb, U.S. Geological Survey (USGS); and Ron Gird, NWS. The initial meeting produced a preliminary design of the Home Page including subsections. Members of the NDEC include FEMA, USGS, NWS, American Red Cross, U.S. Department of Agriculture (USDA), and others.

Ron Gird, NWS Outreach Manager
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NOAA Takes Part in EAA Airventure Fly-In Convention

NOAA took part in the 48th annual gathering of Experimental Aircraft Association (EAA) members and aviation enthusiasts at Airventure-2000 in Oshkosh, WI, July 26 to August 1. The event attracts 12,000 airplanes, 800,000 aviation enthusiasts. Sponsors included Ford Motor Company, Microsoft, John Deere, RR Group, Nestle USA and AeroShell.

Approximately 2,200 show planes were featured on the flight line and in the daily 3-hour air show. NOAA personnel provided publications and interactive demonstrations at the 20- by 48-foot NOAA exhibit and at the Education Forum. NOAA highlights included the AOC AC-5000 Strike aircraft (snowmapping operations) exhibit, the NWS Aviation Digital Data Service, the NWS Cooperative Observing Program, NWS severe weather publications and NOAA 30th anniversary material.

Ron Gird, NWS Outreach Manager
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NWS to Host Second Annual Ham Radio Event December 2

NWS will hold the second annual NWS/Ham Radio Special Event on December 2. The event was initiated last year to enhance the relationship between the NWS and the amateur radio community and to test backup communications for Y2K.

On the day of the event, local ham operators are invited to come to their local NWS forecast office and contact as many other offices around the country as they can within 24 hours.

Amy Holman, Program Analyst, WCM Program
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INTEGRATED HYDROMETEOROLOGICAL SERVICES

Marine Zone Responsibility Updated; Details in Revised Chapter

NWS has released Weather Service Operations Manual (WSOM) Issuance 00-04. The revision replaces Appendix B to WSOM Chapter D-51, Marine Services for Coastal, Offshore and High Seas.

The new Appendix B reflects the reconfigured marine zone responsibilities. Changes include:

- Reconfigured marine zone names, their respective Universal Geographic Codes (UGC) and the NWS office responsible for issuing those zone forecasts
- Brief description of the U.S. Coast Guard NAVTEX broadcast coverage area for each broadcast transmitter
- List of new Eastern Region (ER) marine zones. These new zones are adjacent to existing ER marine zones and extend 20 or 25 to 40 nautical miles from shore. They are used only for Special Marine Warnings
- Addition of UGCs to all coastal and offshore synopses
- A new and complete set of maps for all of the coastal marine zones.

We have posted the new marine zone maps on our home page at **www.nws.noaa.gov/om/marine.htm**. These marine zone maps will link to their respective marine zone forecasts.

Richard May, Acting Program Manager,
Marine Weather Services
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NWS Supports Marine Sanctuaries Through Marine Forecasts

OM is working with the National Ocean Service to improve awareness of the National Marine Sanctuaries. These safe havens were created to protect marine life and ecology.

There are currently 12 sanctuaries, extending from New England to American Samoa. Perhaps the most famous of these is the Monitor National Marine Sanctuary off the coast of North Carolina. NWS forecast offices near the sanctuaries have been supporting research efforts over the past 2 years as part of the Sustainable Seas Program.

To improve awareness, NWS is now including the names of the National Marine Sanctuaries in headers of appropriate marine forecasts. Since most of these forecasts are received via radio, we hope including the names will remind mariners that these sanctuaries exist and encourage all to treat them correctly.

In addition, OM has added a Web page providing links to the sanctuaries and giving the forecast for each one: **www.nws.noaa.gov/om/marine/sanctuary/sanctuary.htm**.

Bob Jacobson, Meteorologist
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Just How Big IS That Wave? You've Come to the Right Place

Training in observing, recording and submitting accurate marine observations has been an important objective of the NWS Marine Program for years. Learning how to judge true wind speed and direction, wave height and period, swell direction and many other parameters while at sea, is a necessity of good seamanship. The value of this training is realized when these observations are sent to the NWS for use in producing reliable, timely marine forecast products.

Teaching mariners proper observational techniques takes place in a variety of situations and locations: recurring training sessions at U.S. maritime academies and professional institutes, classroom situations for national and international organizations, and at-sea instruction.

Recently, the Living Classroom Foundation in Baltimore, MD, has trained crews for two of the tall ships, Pride of Baltimore and Kalmar Nyckel. This training took place at the Maritime Institute for Training and Graduate Studies in Baltimore, MD, at WFO Houston, TX, at Texas A&M University in Galveston, TX, and onboard the Texas Clipper during a training cruise for Texas A&M Maritime Academy.

Upcoming programs include classes at the New York Maritime Academy, Massachusetts Maritime Academy; and an international training program sponsored by the WMO in Cape Town, South Africa. For information on marine training, contact me at the E-mail address below.

Vince Zegowitz, Marine Observations Program Leader
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New Daily Climatological Report Offers Users Consistency

On July 1, NWS offices began issuing the new standard Daily Climatological Report (CLI) for the continental United States. Alaska and Pacific offices will start issuing the new report on September 6.

The new format provides uniformity for a report that varied from office to office. The standard source of data meets the requirement expressed by our national customers and partners. The new system meets local requirements by adding a "free text" section to the report allowing offices to include data germane to their users.

The CLI is issued at least twice daily, in the early morning (after midnight) and before morning local newscasts. Local offices can issue intermediate reports at additional agreed upon times. No communications changes are required to receive the daily climate product in the new format.

If you are interested in receiving more information or have questions concerning this product, please contact me.

Esther Atkins, Public Program Manager
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TECHNOLOGY AND FORECAST SYSTEMS

NWS to Place 50 Technical Procedures Bulletins on the Web

NWS plans to have 50 Technical Procedures Bulletins (TPBs) on the Web by the end of the year. While TPBs are not the most exciting reading for everyone, they contain current information on centrally produced guidance products from the National Centers for Environmental Prediction (NCEP) data processing stream. Occasionally, a TPB will describe a product or procedure; however, most TPBs contain information on the changes made to the AVN, MRF, Eta, RUC, VAFTAD, Ensemble and other centrally run models and to Model Output Statistics. Further, TPBs show the effects the changes make in parallel runs by showing bias and verifications statistics. TPBs do not contain the full documentation of the models; however, they contain references to the literature.

The OM Industrial Meteorology Web page links to the TPB home page, allowing external users and technically-based customers ready access to the information, including drafts. Draft TPBs are used as background information for the members of the Committee on Analysis and Forecast Technique Implementation (CAFTI). This group provides scientific review of changes before they are implemented. Comments from CAFTI members generally require modification of the proposed change.

Before we posted TPBs on the Web, the time lag involved in preparing, printing and mailing often made the information old news. Now, the information is available at least one week before the CAFTI meeting. All users can access the material before the change is considered by CAFTI. For approved changes, the final version of the TPB is posted both as an HTML document and a high quality Adobe Acrobat document (PDF) as soon as the document is available from the authors, normally less than a month after the meeting.

The index pages for the TPBs are available at **www.nws.noaa.gov/om/tpbpr.htm**, which is frequently updated. The proposed CAFTI agenda for the next meeting, draft TPBs and presentation slides are posted at **www.nws.noaa.gov/om/tpb/cafti.htm**, which is linked to the TPB index page.

Hank Robinson, Meteorologist
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SCIENCE AND TRAINING

Field Completes Review of Baseline Proficiency Standards

Selected NWS offices recently completed a 90-day field review of the Baseline Proficiency Standards (BPS). OM and the NWS Employees Organization consolidated comments from these offices and prepared a revised set of BPS.

This new version has been sent to the Regional Directors for their review and approval before the August Corporate Board meeting. The BPS Implementation Team also worked on a draft WSOM chapter for approval at the August meeting.

Mike Dion, BPS Program Leader
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FY 2001 Training Plan To Encompass Broader Scope of Training Options

The FY 2001 Training Plan for NWS staff will encompass a more diverse range of training than previous plans. The OM Science and Training Core (STC) developed the plan, working closely with the Regions, NCEP, the three NWS training facilities, and other personnel at NWS Headquarters. STC will release these new priorities this summer in its report entitled "FY 2001 Implementation Plan for Training" (IP01).

The broader plan reflects many hours of work done by teams of field experts, coordinated by OM/STC, to define training needs across the board. Most recently, STC assembled Professional Development Series (PDS) teams to identify training needs for marine forecasting, administrative support, fire weather forecasting and climate forecasting. IP01 identifies training, development and other activities in all of these areas. Other highlighted programs/courses in IP01 include the following:

- AWIPS Operations
- WFO Hydrologic Program Management for Service Hydrologists and Hydrologic Focal Points
- WSR-88D Open Systems Operations and Maintenance
- Use and Application of the Interactive Forecast Preparation System
- Management and Supervision.

The plan includes funds to continue successful programs offered by the NWS training facilities and contract providers in radar, integrated sensing, quantitative precipitation forecasting and numerical weather prediction.

Eli Jacks, Training Program Manager
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CSTAR Program Awards Four Major Grants for Collaborative Research

The Collaborative, Science, Technology, and Applied Research (CSTAR) Program has awarded four grants from its 1999 request for proposals (RFPs). Four proposals selected from the 2000 RFP are pending availability of funds and review by the NOAA Grants Management Division. The RFPs drew responses from 26 different colleges and universities. Proposals were required to be highly collaborative efforts addressing science needs and priorities of NWS Regions and National Centers. All U.S. colleges and universities are eligible for the CSTAR program, which awards 1- to 3-year grants of upwards to $125K a year. Information about the 1999 projects follows.

North Carolina State University: Improving Forecasts of Topographically-Forced Weather Systems in the Carolinas and Virginia

NC State has begun a 3-year research program to improve forecasts of weather phenomena related to the influences of hilly terrain of the Appalachians and the Atlantic Ocean. In particular, the investigation will focus on cold air damming, which can lead to damaging winter precipitation and coastal fronts, which impact precipitation and temperature forecasts.

Saint Louis University: A Proposal to Improve QPF within the NWS Central Region

Saint Louis University has begun a 3-year research project to develop a better understanding of precipitation systems within the central United States. The project will take a multifaceted approach to:

- Establish precipitation climatologies
- Describe climatology of elevated thunderstorms within weather systems affecting the central United States
- Establish the synoptic climatology of winter storms.

The project will use numerical weather prediction models to simulate numerous precipitation systems affecting the Midwest and to discover more about the production of precipitation in the models.

University of Rhode Island: Transition of the GFDL/URI Coupled Hurricane-Ocean Model to Operational Forecasting at NCEP

The University of Rhode Island has begun a 3-year project to improve the operational predictive capabilities of the NOAA/Geophysical Fluid Dynamics Laboratory (GFDL) hurricane model. URI will explicitly include the dynamical effects of air-sea interactions. The work will be conducted in collaboration with NWS/NCEP and NOAA/GFDL colleagues, building on the joint GFDL/URI coupled model research program.

University of Nevada/Desert Research Institute: Improvement of WSR-88D QPEs in the Inter-mountain West

The Desert Research Institute is conducting a 3-year project to improve estimates of summer and winter precipitation. The project will use WSR-88D radars sited in the complex terrain of the inter-mountain West. The results of the study are expected to provide corrections for some of the main problems plaguing radar sampling over complex terrain. The project is in collaboration with forecasters and hydrologists at WFO Reno, NV, and Western Region Headquarters.

Sam Contorno, CSTAR Program Manager
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COMET Offers Four New Severe Weather Case Studies

The Cooperative Program for Operational Meteorology, Education and Training (COMET) has posted four new events to its Case Study Library at **www.comet.ucar.edu/resources/cases/**. These cases expand the geographic coverage of the library and bring the total number of cases to 26.

- **Case 23:** November 8-11, 1998, **Winter Severe Weather**, follows the development of a strong extratropical cyclone that resulted in blizzard conditions over the Upper Midwest and severe thunderstorms over the Mississippi Valley.

- **Case 24:** January 15, 2000, **East Coast Explosive Cyclogenesis**, covers the formation and rapid intensification of a cyclone off of the southeastern U.S. coastline that moved almost due north and affected the Eastern Seaboard. In retrospect, this storm's intensity and position were not well represented by numerical models.

- **Case 25:** August 11, 1999, **Salt Lake City Tornado/ Long Island Flash Flood**, follows the F2 tornado that moved through downtown Salt Lake City and was responsible for 1 death and dozens of injuries. On the same day, flash floods impacted Long Island as clusters of thunderstorms formed along a warm front and moved very slowly eastward.

- **Case 26:** November 23-26, 1999, **Pacific Northwest Winter Storm**, illustrates the challenge of forecasting the effects of systems moving onshore in strong zonal flow. This storm brought heavy precipitation and strong winds to the coasts of Oregon and Washington that resulted in flooding and landslides with $4.7 million in property damage.

- In addition, COMET is providing information on the December 1999 **Venezuela floods** in the COMET case study library (**www.comet.ucar.edu/resources/cases/venezuela/**). On December 15-16, 1999, torrential storms struck the steep north coast of Venezuela bringing flash floods and landslides that resulted in an estimated 5,000 to 30,000 fatalities. The page includes satellite imagery and slides taken by the USGS disaster survey team.

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

Elizabeth Page, OM Case Study Meteorologist
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NWS Releases New SOOSAC Workstation Eta Model

On July 14, NWS released Version 1.1 of the Science and Operations Officer/Science Applications Computer (SOOSAC) Workstation Eta Model package. The updated version of the model incorporates a number of bug fixes, code changes, and enhanced options for real-time modeling in the forecast offices, such as:

- Improved mesoscale structure of precipitation field when running the BMJ scheme
- Upgraded land-sea mask
- Modified Eta level and radiation files
- Inclusion of GEMPAK executables in distribution, simplifying conversion of GRIB data to a viewable format. In addition, the program now allows 18,000 grids in a GEMPAK file
- Ability to download initialization data files from regional, Office of Systems Operations, and NCEP File Transfer Protocol servers
- Inclusion of fail-over option to automatically try to download initialization files from an alternate site when a primary server is down or data are not available
- Addition of component to send E-mail error message if model fails to run to completion
- Inclusion of a benchmark case to test the workstation Eta on a local machine and compare performance to other system configurations. Instructions for running the benchmark case have been included in the package. A few preliminary results from the 24-hour forecast are in the table below
- Addition of the following fields to the default output from the model:
  - 2m dew point
  - Storm relative helicity
  - u,v components of storm motion
  - CAPE
  - Convective inhibition
  - Surface sensible and latent heat flux
  - Turbulent KE on pressure surfaces
  - Boundary layer LI

The ability to view these data in AWIPS will be added in the near future. Work also has begun on building the non-hydrostatic version of model for use in the WFOs.

Robert A. Rozumalski,
National SOO/SAC Coordinator
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COMET Developing Web-Based NWP Training

COMET has been developing Web-based NWS forecaster training on Numerical Weather Prediction (NWP). This work is part of the continuing effort by COMET on the PDS for operational meteorologists. The NWP PDS will define the skills, knowledge, and abilities necessary for an operational forecaster to intelligently use NWP models in preparing WFO products.

The training has been broken down into four sections called Professional Competency Units (PCUs):

- **Understanding NWP Models and Their Processes:** general information about how NWP models work
- **Understanding Current Characteristics of Operational NWP Models:** specific information on current operational model configurations for NCEP and other models
- **Assessing the Model Initialization in the Forecast Process:** information about how data is incorporated into NWP models to determine the "starting point" for the model forecast, and the effect of the techniques used and errors made on the model forecast
- **Using Numerical Guidance in the Forecast:** information on how to use NWP guidance intelligently to determine the future sensible weather for the region of responsibility.

Preliminary Results from the 24-Hour Forecast

Platform CPU	OS	Memory	Compiler	Clock	Time
HP 715/64	64MHz	256MB	HPUX 10.20	HP/+O2	7hours 56min
HP C360	367MHz	256MB	HPUX 10.20	HP/+O	22hours 11min
HP C3000	400MHz	1GB	HPUX 10.20	HP/+O2	1hour 26min
HP C3000	400MHz	1GB	HPUX 10.20	HP/+O	1hour 20min
INTEL	500MHz	500MB	Redhat 6.0PGF		1hour 56min
INTEL	500MHz	500MB	Redhat 6.0ABSOF		1hour 50min

Each PCU is further divided into sections on Model Fundamentals, Model Structure and Dynamics, Model Physics (Precipitation and Cloud, Hydrology, Energy), Derived Products (such as Model Output Statistics or MOS), and Other Model Processes (e.g., Data Assimilation Systems).

PCU 2 will be a dynamically changing Web-document because model improvements are made every six months to one year. Two COMET researchers are now assigned to NCEP to develop the initial model specific training. After this task is complete, these scientists will keep the training information on NWP model configurations current.

As of late July, COMET personnel have completed the Model Fundamentals and Model Structure and Dynamics sections for PCUs 1 and 2. COMET was scheduled to complete the Precipitation and Cloud section for PCU 1 in September. The remainder of the Model Physics sections and Data Assimilation System sections are scheduled for completion by the end of the year.

Staff will complete PCU 2 model-specific training elements for these sections as time allows. Most, if not all, of the relevant AVN/MRF and Eta sections, should be complete by the end of this year. All of these materials are available to anyone online at the METED Web site: **www.meted.ucar.edu/nwp/pcu2/index.htm**.

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Two Phase Study of Displaced Real-Time Planned in Southern Region/FSL

NWS has outlined a two-phased plan to implement case study playback capability in displaced real-time (DRT). Phase 1 will expand the Southern Region DRT Demonstration Project. This Phase will use a PC running Linux to provide data in DRT to an AWIPS workstation.

Phase 2 will test system capability on a stand-alone PC running the Linux version of D2D. NOAA's Forecast Systems Laboratory (FSL) is now developing this version. For more information, go to **www.comet.ucar. edu/resources/cases/drt/**.

Elizabeth Page, OM Case Study Meteorologist
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NOAA WEATHER RADIO

NWR Voice Improvement Project

The prototype voice "concatenation" (human recorded words and phrases spliced together) systems are being tested at WFOs Glasgow, MT, and Fort Worth, TX. The Glasgow office has received positive public feedback on the voice. The contractor is working to eliminate restrictions in the current software engine.

As of August 3, NWS had funds to implement the voice improvement program nationally in 2001. On July 18, we issued a Request for Information (RFI) in the Commerce Business Daily to solicit information from potential bidders for voice improvment. The RFI was faxed directly to several potential vendors.

The Request for Proposal (RFP) is scheduled for release in November. Regional representation has been solicited for the proposal evaluation team. The voice quality evaluation will be done on at least two levels: first, specific blind vendor evaluation where a team approach has been recommended, team members to include, among others, the most vocal of the EAS affiliate opposition to synthesized voice; and second, begin evaluating some of the options now by various means including Web page demos.

Spanish Langauge in NWR

About 75 percent of those involved in the assessment of the Spanish language NWR (mostly non-bilingual hispanics and community leaders/emergency communications experts) found the synthesized voice unacceptable. Results also indicated a need for more terse, direct Spanish messages rather than literal translations from the English. Currently, NWS plans to implement Spanish language NWR with the improved English solution.

CRS Enhancements Planned

NWS continues to make critical enhancements to existing AWIPS Console Replacement System (CRS) formatters and to develop new formatters such as the NWR Editor capability within the Browser. This project remains a high priority after the recent realignment of AWIPS Build 5.x contents. For more information, contact your regional focal point.

Joanne Swanson, CRS Program Manager
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National Center Issues

Storm Prediction Center Issues Fire Weather Outlook

This spring, the Storm Prediction Center (SPC) began officially issuing the Fire Weather Outlook. This product provides national fire weather guidance for use by NWS and its partners in Federal, state and local government. The outlook delineates areas where pre-existing weather and fuel conditions will combine to create a threat for significant wildfires.

The SPC issues a Day 1 and Day 2 Outlook at 4 a.m. Central Time. The Outlook defines a "Critical Fire Weather Area" and an "Extremely Critical Fire Weather Area." SPC issues the Outlook when it believes a significant threat for wildfires exists.

These forecasts describe meteorological conditions which combined with fuel conditions would encourage rapid growth and spread of a fire should an ignition take place. The forecasts consider such parameters as:

- Departure from normal rainfall
- Occurrence of dry thunderstorms where lightning could ignite fires
- Strength of low-level winds
- Low relative humidities
- Steep lower level lapse rates where drier air and higher low-level winds would take place
- Critical fire weather patterns, such as the Santa Ana winds of California, that would enhance fire weather potential.

Fire weather forecasts are online at **www.spc.noaa.gov** or by using AWIPS header MKCFWDDY1 and MKCFWDDY2, graphics PMWE98 and PMWI98.

Dan McCarthy, WCM, SPC
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SPC Now Issues Severe Weather Probability Outlooks

This past spring SPC categorical outlooks issued for severe weather became operational. SPC now issues outlooks daily for Day 1 and Day 2 using the categories "Slight," "Moderate," and "High Risk." Over the past year, the forecasters have been issuing experimental probabilities for their Outlooks.

The probabilities not only outline the threat of severe weather but also forecast separate probabilities for tornadoes, hail and damaging winds. Probabilities define the separate threats for severe storms to occur within 25 nautical miles of any point defined by the outlook area drawn in the product. The probabilities outline an area of 5 percent, 15 percent, 25 percent, 35 percent and/or a 45 percent for tornadoes, hail or damaging winds. In addition, a hatched area defines areas in which "significant" severe weather could occur.

Significant severe weather is defined as tornadoes which may potentially result in F3-F5 damage, hail 2 inches in diameter or larger, and/or wind gusts 65 knots or greater.

The Day 1 Outlook consists of three separate graphics for tornadoes, hail and damaging winds; the Day 2 Outlook is overall probability of severe storms.

The Probability Outlooks and the Categorical Outlooks can be seen at the SPC Web page at **www.spc.noaa.gov**.

Dan McCarthy, WCM, SPC
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Community Outreach Activities

Alternative Verification Scheme Tested in Southern Region

Staff members at three NWS Southern Region offices (Norman and Tulsa, OK, and Melbourne, FL) are testing a new severe weather warning verification technique this spring and summer. The Warning Polygon Verification Project is designed to verify severe thunderstorm and tornado warnings. The system is based on the warning polygon constructed by forecasters using WarnGen.

The new scheme should present a more realistic picture of forecaster skill when it comes to discerning severe storms and issuing warnings for the appropriate areas. The project's Web site contains an outline of the project. The site will include results from the three offices as they become available. The site address is **www.srh.noaa.gov/ftproot/msd/WARNINGS/polygons/Polygon_files/v3_document.htm**.

Richard Smith, Performance and Evaluation Meteorologist, Southern Region MSD, Fort Worth, TX
Richard.Smith@noaa.gov

Duration of Hot Weather Key Criteria for Heat Advisories/Warnings

For years, Heat Advisories/Warnings in Missouri have been based solely on the Heat Index. This summer, we are going to add a new factor: duration. Studies have shown the duration of an excessive heat event is as big a factor in the number of deaths and injuries as the intensity of the heat.

Recent history bears this out. In the Missouri portion of the St. Louis county warning area during the summer of 1999, there were 43 deaths from excessive heat, almost all during 2 weeks in late July. Yet during the entire heat event, WFO St. Louis issued only a Heat Advisory because the Heat Index did not reach warning criteria. (Heat Advisory issued for Heat Index [HI] of 105-114 with minimum HI at night of 80. Heat Warning for HI of 115 or higher and a minimum HI at night of 80).

This criteria just didn't make sense. Advisories are supposed to be for "inconveniences," while warnings are for "life threatening" events. These high heat events were life threatening and we were issuing advisories.

After meeting with state and local Health Department officials and coordinating with the other NWS offices covering Missouri, NWS Missouri offices adopted a new policy on when to issue Heat Advisories/Warnings.

In addition to current criteria, NWS Missouri offices will now issue a Heat Warning when the HI is expected to reach or exceed Advisory criteria (105) for at least 3 days. The warning can be issued anytime during the event based on forecaster confidence. If the forecaster has confidence that a heat event will last for at least 3 days, the warning will be issued on day 1. If the confidence level is not there, an advisory can be issued and later upgraded to a warning as necessary.

Why 3 days? Again, studies have shown that 36-48 hours into an excessive heat event seems to be critical in terms of the number of deaths. In Chicago during a 1995 heat wave, deaths from the heat rose dramatically on day 3.

It's true excessive heat is different from typical dangerous fast-moving weather events, i.e., thunderstorms, flash floods, hurricanes, etc., but heat is still a weather event that kills and severely impacts hundreds across the Nation every year. This summer, Missouri issues warnings . We hope this will raise the public's awareness of this weather killer.

James Kramper, WCM, WFO St. Louis, MO
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Web Innovations Speed Spotter Information to NWS

Webmaster Tom Hultquist, WFO Grand Rapids, MI, has added a number of new widgets to the WFO Web Page to simplify and speed operations. A new interface allows spotters to report information any time of day.

The Web page relays the report through LDAD and generates an AWIPS alert at the forecaster's workstation. In addition Tom has built an interface for the Michigan Department of Environmental Services to report Ozone Action Days. The interface also sends an alert to the forecaster's workstation on days when the office needs to issue an Air Quality Index.

Tom also created a Web interface that Michigan State Parks on the Lake Michigan Eastern Shoreline can use to report wave height, water temperature and safety conditions, i.e., whether the park is flying a green, yellow or red flag for the day. This report flows through LDAD and AWIPS. The report then sends

an alert to the AWIPS workstation which is transmitted over the Wide Area Network. Bob Dukesherer, WFO Grand Rapids, our marine focal point, worked with the Michigan State Parks to create this program.

Mike Heathfield, WCM, WFO Grand Rapids, MI
Mike.Heathfield@noaa.gov

NWS Binghamton Crosses State Lines to Protect Public

WFO Binghamton, NY, signed on as a partner in the "Valley" Project Impact on May 18. The "Valley" consists of the village of Waverly, Town of Barton, in New York, and the boroughs of Athens and Sayre and the township of Athens in Pennsylvania. This Project Impact is unique since it is the first one to cover two states and two FEMA regions. The community realized that natural disasters do not stop at state boundaries and there was a need to work together to make the valley disaster resistant.

The valley, which sits at the confluence of the Susquehanna and Chemung rivers has a long history of floods. The primary focus of the Project Impact Education Committee will be to educate the public regarding flooding and severe weather. In addition, the education committee will promote NWR to valley residents. As a native of the valley, I am excited at this unique opportunity to give something back to community in which I was raised.

David Nicosia, WCM, WFO Binghamton, NY
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Great Tri-State Tornado Anniversary

To remember the 75th anniversary of the worst United States tornado disaster on record, WFO Paducah formed a team to recognize this historic occasion.

This team, which I headed, included WFO Paducah staff members Ryan J. Presley (Deputy Team Leader), Jim Packett, Kevin Smith, Paul Witsaman and Ron Fields. WFO Paducah Administrative Assistant Debbie Mardis provided support; Meteorologist In Charge (MIC) Beverly Poole offered support and guidance as the anniversary date neared.

I began preparing for this event in September 1999 by writing a vision, mission statement and other supporting parameters.

The team met every other week. Team leaders started work on major areas, such as event research and information gathering, Web site development, media coordination, event promotion and commemoration ceremony preparation.

The Tri-State Tornado Team worked with state emergency management in Missouri, Illinois and Indiana, the three states devastated by the tornado. The team convinced policy makers to move the state severe weather campaigns to the week of the Tri-State Tornado. Much information was provided on the anniversary via NWR, Public Information Statements, spotter talks and other outreach activities, and via WFO Paducah's Tri-State Tornado Web page at **www.crh.noaa.gov/pah/1925**.

This Web site drew more than 3,500 hits in a 6-week period. As a result of the team's outreach, particularly via the Web page, the 75th year anniversary received widespread media coverage from such national media as CNN, CBS Radio, WGN, *USA Today*, *The Washington Post*, The Weather Channel and CBS Evening News.

The 75th year anniversary was highlighted with a commemoration ceremony on Saturday, March 18, attended by about 600 people, including several survivors of the tornado. The ceremony also was broadcast live via the Web. At 2:34 p.m., the exact time the tornado struck Murphysboro 75 years earlier—killing 234 people—a moment of silence was observed. This time was followed by a very touching 10-minute video montage of survivor interviews professionally developed by KFVS-12— the Cape Girardeau, MO, CBS affiliate, through partnership with the WFO Paducah team.

The ceremony included numerous booths and other activities and a very impressive amateur radio special event station manned by some 50 amateur radio operators. The Amateur Radio Special Event Station at the ceremony reached 279 stations in 41 states and 5 countries.

Rick Shanklin, WCM, NWSO Paducah, KY
Ricky.Shanklin@noaa.gov

Flood Warning Systems Video Available in English and Spanish

The Flood Warning Systems video is now available in English and Spanish. This 15-minute video is a good summary of flood warning systems. The video illustrates how they are used and how important they are to the weather warning system and public safety. To bring home its message, the video shows an example in which a flood warning is issued based on information from automated gages.

The tape was designed for officials and the public. The dual language product was produced jointly by NWS and the National Hydrologic Warning Council.

For a copy of the tape in either language, contact the San Diego office at NWS, 11440 W. Bernardo Ct., Suite 230, San Diego, CA 92127; call me at 858-675-8700 ext 223 or send an E-mail to the address below.

Ed Clark, WCM, NWSO San Diego, CA
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Spanish Web Help Updated

The latest information on creating a Spanish Web page has been published as a Western Region paper. It is vastly improved compared to the original. View the paper at **www.wrh.noaa.gov/wrhq/00TAs/0005/index.html** or to see the final product go to **www.wrh.noaa.gov/sandiego/espanol.html**. As always, please feel free to contact me if you'd like more information.

Miguel Miller, Forecaster, WFO San Diego, CA
Miguel.Miller@noaa.gov

Oak Ridge Boys to Develop NWR Public Service Announcements

MIC Bobby McDaniel, WFO Key West, FL, and Jon Mir, manager of the popular country music group, The Oak Ridge Boys, are developing local public service announcements for NWR. Bobby and Jon are friends from their high school days in Nashville, TN. Bobby asked Jon about supporting NWS recently on a visit to Nashville.

Jon has said that members of The Oak Ridge Boys are very interested in recording the announcements. Scripts, which highlight the importance and value of NWR, have been prepared by the Key West office and sent to Jon. The scripts were prepared with local information for the Florida Keys. Several scripts were sent to Jon and he hopes group members can record all of them. The recordings will be broadcast on NWR transmitters covering the Keys.

Wayne Presnell, WCM, WFO Key West, FL
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Safety Messages to Appear On 650,000+ Grocery Store Bags

Service Hydrologist Mark Walton, WFO Grand Rapids, MI, worked with D&W food stores this spring to get tornado safety information printed on the D&W paper bags. The bags should be showing up in stores across southwest lower Michigan this summer. They printed about 650,000 bags! Mark's work with D&W will bring tornado safety information home, in a real sense, to thousands of people across southwest Michigan this summer. Mark is working with D&W to get other seasonal weather safety information on the D&W bags.

Mike Heathfield, WCM, WFO Grand Rapids, MI
Mike.Heathfield@noaa.gov

Game Sparks School Student Interest in Weather Safety

Lead Forecaster Darrel Massie and I recently gave presentations to a 2nd and 3rd Grade class in two area elementary schools. We used a weather game developed by Patrick Verper, WFO Lubbock, TX. The program was presented in the Southern Region November 15, 1995, Technical Attachment "Elementary School Presentations: The Untapped Resources."

This game consists of having four kids hold signs reading **Hurricane**, **Severe Thunderstorms**, **Tornadoes**, and **It is a Joke**. Students line up behind the person they think the information on a card applies to, after which we went over the results. We also conducted an evaporation experiment, played two videos, "Snowbird" and "Tornadoes," and answered questions. Having two people at a school presentation was very helpful.

Jason B. Wright, Forecaster, WFO Nashville, TN
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WFO Key West Assists NOAA's Sustainable Seas Expedition

WFO Key West will assist NOAA's Sustainable Seas Expedition again this year during September. The NOAA ship *Gordon Gunter* will be researching the reefs and marine life in the Florida Keys Marine Sanctuaries between Sept. 3-21.The *Gordon Gunter* crew will begin their research near the Dry Tortugas (70 miles west of Key West) and conclude

in the Molasses Reef area offshore of the upper Keys. WFO Key West will provide the crew of the *Gordon Gunter* with weather information such as synoptic overview, air and sea temperatures, pressure, wind direction and speed wave conditions, visibility, 36-hour public forecast. The data will be sent to the ship via e-mail, twice daily.

Wayne Presnell, WCM, WFO Key West, FL
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Real-Time Weather and Road Show

At a recent SKYWARN spotter class in Camden, TN, Channel 4 brought its Weather Van for display. This storm chaser van is equipped with a ham radio, TV, VCR, a link to the Channel 4 and NWS radar. The van is also a portable weather station, providing real-time reports from the field of severe weather in the Nashville area. In June, the office's NWR and preparedness information reached more than 400 people at trade shows, fairs and parks.

Jerry Orchanian, WCM, WFO Nashville, TN
Jerry.Orchanian@noaa.gov

Local Zoo Adds Squawk to NWS Open House

NWS Billings, MT, hosted a successful Open House for the public on Saturday, May 20. More than 400 people visited the office. One of the attractions was Andrew the Screech Owl, a resident of ZooMontana, on loan for the event. Andrew changed his name to "Owlie Skywarn" for the day and helped promote Weather Safety for kids. NWS Billings had great media coverage from local television, radio, newspaper and Emergency Management constituents.

The event was a great way to showcase our new technologies to people from south-central and southeastern Montana and northern Wyoming. The day included a look at our fully modernized WFO including NWS Billings' newly commissioned AWIPS computer system.

Steve Kuhl, WCM, WFO Billings, MT
Stephan.Kuhl@noaa.gov

NWS Taunton Draws Thousands to Open House

WFO Taunton, MA, and the Northeast River Forecast Center (RFC) held an Open House May 20-21, drawing an estimated 3500-4000 visitors. Activities included:

- Tour of the forecast operations area
- Presentations on weather-related topics
- Weather balloon launches
- Children's area
- Displays by numerous organizations with vested interests in southern New England weather.

Activities were held outside in tents and in the conference room to minimize wait time. Every half hour, presentations featured topics on:

- A Day in the Life of a Forecaster
- Web Weather Resources
- Severe Storms
- Hurricanes
- Floods of the Century
- Floods and Droughts in the New Millennium.

Visitors could tour WFO and RFC operations, question staff and enjoy the "Wild Weather Gallery," NWR display, Weather Humor Board, El Niño/La Niña Displays, Mosaic of Digital Images on NERFC Activities, live demonstrations of how the NERFC prepares a forecast, equipment demonstrations and a radar loop of a squall line that occurred during the previous Open House in 1998.

The Open House featured a main canopy where we distributed weather information and brochures. The canopy also housed booths from organizations ranging from local schools and weather clubs to observers networks, SKYWARN Amateur radio operators and the American Red Cross.

Government booths included the U.S. Army Corps of Engineers, USGS, FEMA, Massachusetts Emergency Management Agency, Coastal Zone Management, Department of Environmental Management Office of Water Resources and Environmental Protection Agency Air Group.

The crowd pleasers were the daily weather balloon launch and the children's events. A local teacher held brief radiosonde demonstrations' and allowed children to help launch real weather balloons. A separate balloon launch transmitted a signal received by amateur radio enthusiasts up to 220 miles away. Children's events included face painting, cloud and instrument quizzes, and a coloring contest. Every child received a balloon, tattoos and stickers with agency logos.

Douglas Young and Robert Thompson
WFO Taunton, MA
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NWS Key West Assists on Study of Tropical Rainfall and Energy Release

WFO Key West will be assisting a joint mission between the National Aeronautics and Space Administration (NASA) mission and the National Space Development Agency of Japan. The mission goal is to monitor and study tropical rainfall and the associated release of energy. This energy helps power the global atmospheric circulation shaping weather and climate around the globe.

WCM Wayne Presnell, MIC Bobby McDaniel and ESA Paul Schaafsma met with Professor Mike Biggerstaff from Texas A&M University and John Gerlach from NASA in Wallops Island, VA, concerning NASA's Tropical Rainfall Measuring Mission (TRMM). Biggerstaff and Gerlach would like to implement the research of the TRMM in the Florida Keys during August and September 2001, with WFO Key West's assistance.

The TRMM Observatory carries five instruments. It will include the first spaceborne Precipitation Radar, the TRMM Microwave Imager, a Visible and Infrared Scanner, a Cloud and Earth Radiant Energy System and a Lightning Imaging Sensor. More information on TRMM can be found on the Web at **trmm.gsfc.nasa.gov**.

Bobby and I took Biggerstaff and Gerlach to potential sites in Key West and sections of the lower Keys in which they might be able to locate the mobile radars used in the study.

WFO Key West will help the mission by contributing WSR-88D digital data, upper air and surface observations and official rain gauge measurements gathered. The mission will use two mobile radars, operated by student volunteers from Texas A&M, and airplane observations. The mission will concentrate on rain areas north of the Keys. The mission pilot will not fly south of N 24, 30', due to fear of invading Cuban air space.

WFO Key West is looking forward to this opportunity to learn more about the tropical atmosphere and, we hope, to improve rainfall forecasts from the office.

Wayne Presnell, WCM, WFO Key West, FL
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WFO Billings WCM Steve Kuhl presents Yellowstone County with two StormReady Road Signs and a "Recognition Letter" at the Yellowstone County "Project Impact" signing ceremony. Standing left to right are: James Ziegler, Yellowstone County Commissioner; Judy Martz, Montana Lieutenant Governor; James Kraft, Director of Yellowstone County Disaster and Emergency Services; and Kuhl.

NWS StormReady Program Overlaps Project Impact in Montana

On July 13, residents of Yellowstone County, MT, learned how the public and private sectors are teaming up to better prepare their communities and residents for weather-related disasters.

The WFO Billings officials from Yellowstone County unveiled road signs and a recognition letter designating the county as "StormReady." This new national program gives communities the skills and education needed to survive severe weather—before and during the event. StormReady helps community leaders and emergency managers strengthen their local hazardous weather operations.

The StormReady program is voluntary and provides communities with clear-cut advice from a partnership with the local NWS office and state and local emergency managers. The preparedness program uses a grassroots approach to help communities develop preparedness plans for local severe weather threats ranging from tornadoes to tsunamis.

The event announcing that Yellowstone County has met StormReady criteria was held jointly with the official signing ceremony designating the county as a FEMA "Project Impact" Community. StormReady complements Project Impact by focusing on communication and community preparedness to save lives. Yellowstone County is the first Montana location to be recognized by both Federal agencies for its disaster preparedness and severe weather educational activities.

Yellowstone County is the 15th location across the nation to achieve the "StormReady" designation since the program began last year.

Steve Kuhl, WCM, WFO Billings, MT
Stephan.Kuhl@noaa.gov

Publications and Audiovisuals

NWS Announces New "StormReady" Pamphlet

The new "StormReady" pamphlet (NOAA PA 20053) was released in June. The initial printing was 20,000 copies shrink-wrapped in packages of 100. The maximum you can order is one package. NWS offices can order a package by faxing a Stores Requisition Form 37-4 to NLSC at 816-926-3990.

Those outside the Government can download a copy from OM's StormReady Web site at **ftp://www.nws.noaa.gov/om/stmrdpdf.pdf**.

Our thanks to WCM Jim Purpura, WFO Norman, OK; WCM Steven Piltz, WFO Tulsa, OK; and John Ogren, Amy Holman and Rick Leach from NWS Headquarters for their time and effort in the creation of this new publication.

Linda Kremkau, Managing Editor
Linda.Kremkau@noaa.gov

Hurricane Floyd Service Assessment Released

The Office of Hydrology released the *Hurricane Floyd Floods of September 1999 Service Assessment* on June 28. Hurricane Floyd brought torrential rains and record floods to the East Coast, from the Carolinas to New England. The deadliest storm to hit the U.S. shores in more than 25 years, Hurricane Floyd underscored the dangers of inland flooding as a major threat from land-falling storms. The hurricane claimed 56 lives and inflicted damages estimated between $4.5 billion to more than $6 billion.

You can download the Hurricane Floyd Service Assessment in PDF format at **www.nws.noaa.gov/om/omdis.htm**. For a printed copy, contact **Larry.Wenzel@noaa.gov**.

Larry Wenzel, Hydromet Technician, OH
Larry.Wenzel@noaa.gov

New Brochure: Hurricane Flooding: A Deadly Inland Danger

The Office of Hydrology has produced a new safety brochure: "Hurricane Flooding: A Deadly Inland Danger." As the title implies, it briefly describes the flooding hazards associated with tropical storms. It includes facts, safety rules, and contacts for additional information. The brochure is available from NLSC in Kansas City, MO. Ask for NOAA/PA 20052.

Larry Wenzel, Hydromet Technician, OH
Larry.Wenzel@noaa.gov

American Red Cross Completes "Masters of Disaster" Project

The American Red Cross (ARC) has completed and distributed its Masters of Disaster (MOD) Project for children. The MOD was a 2-year, $1 million project resulting in a children's disaster safety curriculum. Funding was provided by the Allstate Foundation.

The education kit has three modules developed for Grades K-2, 3-5, and 6-8. Each module contains a teacher lesson plan workbook, an activities workbook for students, a video featuring students doing the activities, a poster with subject-matter questions and answers, student reward stickers and certificates.

NWS provided subject experts who were interviewed by project members and provided technical information. The modules are available at local Red Cross chapters for $45. The NWS was given several complimentary copies of the three module education kit. For more information, go to the Web site at **www.redcross.org/disaster/masters**.

Ron Gird, NWS Outreach Manager
Ron.Gird@noaa.gov

Energizing Hurricane Season with Energizer Batteries

The ARC has teamed up again this year with Energizer batteries in a promotion to help prepare families for severe weather. The relationship kicked off June 1, the first day of hurricane season, with the launch of a weather preparedness Web site for children.

The site is filled with games and stories to guide families, especially children, in preparing for any weather emergency. Energizer is supporting this initiative with media outreach, including a satellite media tour with ARC President Dr. Bernadine Healy, and a national press release. To see the site, go to **www.energizer.com/weatherbeat/**.

Rocky Lopes, Community Disaster Education, ARC
Lopesr@usa.redcross.org

Disaster Guide Wins Clarion Award

"Talking About Disasters: Guide for Standard Messages," available online at **www.redcross.org/disaster/safety/guide.html**, received the 2000 Clarion Award for online media.

The Clarion Awards are a renowned competition recognizing the best works from all communications fields. Entries are judged against the work of similar entries in size and budget to ensure everyone, from the largest ad agency to the smallest newspaper, is fairly considered. More information about the award is at **www.womcom.org/clarionwin2000.html**.

Rocky Lopes, Community Disaster Education, ARC
Lopesr@usa.redcross.org

Tornado Tube History and Instruction

I came across a biography of Craig Burnham, the Tornado Tube inventor, while looking for books for my library of school outreach ideas. You can find the biography at **www.nws.noaa.gov/om/twister.htm**. I've used Burnham's Tornado Tube in many demonstrations and have yet to meet the student (or adult) who isn't intrigued by it.

For those of you who do demonstrations, you can download a one-page sheet in WordPerfect to give students who aren't able to buy a Tornado Tube: **www.nws.noaa.gov/om/twister.wpd**. I make copies of the instructions, tape a washer on each sheet (3/8" flat washers at 25 washers for $2), and give them to students to take home and try. They disappear like hotcakes.

You can find this information in *Taming The Tornado Tube*, by Steve Spangler. The book has some interesting (weird and wacky, too) ideas on things you can use the Tornado Tube for other than the more conventional use as a science demonstration tool. The book sells for around $10 on the Web and is 125 pages; mine had a Tornado Tube attached to it with a piece of plastic cord.

Judy Koepsell, Physical Scientist,
AWIPS Operations Management Division
Judy.Koepsell@noaa.gov

Weather Channel "Classroom"

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

- August 21, 24: Tornadoes
- August 28, 31: Water: Oceans to Air
- September 4, 7: Hurricanes
- September 11, 14: Snow, Ice, Wind & Cold
- September 18, 21: Forecasting the Weather
- September 25, 28: Climate: A World of Weather

Laura Buss, The Weather Channel

Chapter Updates, Roster Now Online

Attachment A is the WSOM chapter updates. The WSOM chapters are available to NWS employees ONLY at **tgsv6.nws.noaa.gov/wsom/**. Please do **NOT** link this site from other Web sites.

Attachment B is a list of WCMs and SOOs in each NWS Region. Telephone numbers are *listed* numbers, *NOT* the direct number. If you have an update, please notify me at **Melody.Magnus@noaa.gov**. 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
Melody.Magnus@noaa.gov

NWS Publications

NOAA PA	NAME
70027	Survival in a Hurricane (Wallet Card)
77014	Flash Flood (Wallet Card)
82002	Dust Storm Driving Safety (Wallet Card)
82004	Watch Out Storms Ahead
85001	Heat Wave (Out of print)
85002	Hawaiian Hurricane Safety Measures with Central Pacific Tracking Chart
85005	Tornado Safety Tips (Como Protegerse En Caso De Tornado) (WC)
85006	Survival in a Hurricane (Como Sobrevivir En Un Huracan) (Spanish 70027) (WC)
86001	Natural Hazard Watch & Warning Poster (English/Spanish)
91002+	Winter Storms...The Deceptive Killers
91003*	Red Cross - Are You Ready for a Winter Storm? (Out of print)
91004	Red Cross - Are You Ready for a Winter Storm? (Spanish Version)
91005*	Red Cross Poster - Are You Ready for a Winter Storm? (English/Spanish)
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!
92054	FEMA's Emergency Preparedness Materials Catalog
92055	Advanced Spotter's Field Guide
92057*	Red Cross - Are You Ready for a Tornado? (Out of print)
92058	Red Cross - Are You Ready for a Tornado? (Spanish)
92059*	Red Cross - Are You Ready for a Flood or Flash Flood? (Out of print)
92060	Red Cross—Are You Ready for a Flood or a Flash Flood? (Spanish)
92061*	Red Cross Poster—Are You Ready for a Tornado? (English/Spanish)
93051*	Red Cross Poster—Are You Ready for a Thunderstorm? (Out of print)
93052	Red Cross—Are You Ready for a Thunderstorm? (Spanish)
93053*	Red Cross Poster—Are You Ready for a Thunderstorm? (English/Spanish)
93056	A Pilot's Guide to Aviation Weather Services (replaces PA 71005) (Booklet)
93059	A Change in the National Weather Service
93060	Spotter ID Card (Replaces 84001) (Out of print)
94050	Hurricanes . . . Unleashing Nature's Fury (Revised 3/96)
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)

NOAA PA	NAME
94058	Safe Boating Weather Tips (Revised July 1998)
94059	River and Flood Program (Hydrologic Services Program)
94061	NOAA Weather Radio Frequency Pamphlet (Revised 3/00)
96051	National Centers for Environmental Prediction
96052	Key to New International Aerodrome Forecast (TAF) and New Aviation Routine Weather Report (METAR)(Card)
96054	MSC-1, Eastport, ME, to Montauk Point, NY
99054	MSC-4, Cape Hatteras, NC, to Savannah, GA
99053	MSC-5, Savannah, GA, to Apalachicola, FL
96061	MSC-8, Mexican Border to Point Conception, CA
96062	MSC-9, Point Conception, CA, to Point St. George, CA
99060	MSC-10, Point St. George, CA, to Canadian Border
96064	MSC-11/12, Great Lakes
96065	MSC-13, Hawaiian Waters
96066	MSC-14, Puerto Rico and Virgin Islands
99064	MSC-15, Alaska Waters
96068	MSC-16, Guam and the Northern Mariana Islands
96070+	NOAA Weather Radio Brochure
96071	Atlantic Hurricane Tracking Map—8-1/2" x 11"
96072	Atlantic Hurricane Tracking Map—17" x 22" (Out of print)
96073	Pacific Hurricane Tracking Map—12" x 24"
96074E	The Hidden Danger—Low Water Crossing (English)
96074S	The Hidden Danger—Low Water Crossing (Spanish)
96076	ASOS Guide for Pilots (Booklet)
97050	Basic Spotters' Field Guide
98053	A Mariner's Guide to Marine Weather Services—Great Lakes
98054	A Mariner's Guide to Marine Weather Services—Coastal, Offshore and High Seas
99050	Thunderstorms, Tornadoes, Lightning
20050	Saving Lives With an All-Hazards Warning Network
20051a	NWR Decal (3" x 3")
20051b	NWR Decal (5" x 5")
20051c	NWR Decal (7" x 7")
20052	Hurricane Flooding: Inalnd's Real Danger
20053	StormReady
0002	NOAA Brochure

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

* Available from your local Red Cross chapter only.

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

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 Highway, 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:

NAME	STOCK NO.	COST
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**
Chapter effective Dec. 28, 1999.

A-63 **Service Evaluation**
Chapter effective Dec. 21, 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 2000.

B-30 **Voluntary Observing Ship Program**
Due in 2001.

B-90 **Special Warning Program Observations**
To be updated in 2001.

C-11 **Zone and Local Forecasts and Appendix A** (maps)
Due December 2000.

C-40 **Severe Local Storm Watches, Warnings and Statements**
To be updated coinciding with Watch by County in 2001.

C-41 **Tropical Cyclone Program**
In headquarters for review.

C-42 **Combined Winter Storm and Non Precip Hazards**

C-44 OML under development; due in 2000.

C-43 **Coastal Flood Program**
To be updated in 2001.

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 2000.

C-47 **County Warning Areas, Appendix A**
To be updated in 2001.

C-49 **Warning Coordination and Hazard Awareness**
Signed in January 2000.

C-50 **Customer and Partner Outreach**
Chapter effective January 14, 2000.

C-60 **Radio/TV Dissemination;**

C-61 **Telephone Dissemination;**

C-62 **Newspaper Dissemination;**
Will begin updating and probably consolidating in 2001.

C-63 **NOAA Weather Wire Service (NWWS)**
Draft due by September 2000. Final due December 2000.

C-64 **NOAA Weather Radio Program**
OML for EAS update due summer 2001.

C-66 **Dissemination of Public Warnings**
Will probably be consolidated with C-67 in 2001.

C-67 **News Wire Dissemination**
Will probably be consolidated with C-66 in 2001.

C-75 **National Verification Program**
Chapter effective April 19, 2000.

D-06 **Fire Weather Services**
Will be updated in 2000 and consolidated with B-19, D-06, OML: Duties of IR Mets Requiring Exposure to Hazardous Situations.

D-07 **Marine Weather Services**
Combining D-51, D-52 into D-07 by September 2001.

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 2001. 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 awaiting FAA approval.

D-25 **Air Traffic Operations Support**
OML effective December 14, 1998 (new VOR chart).

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-51/52 **Marine Services for Coastal, Offshore and High Seas, Appendix B/Marine Services for the Great Lakes**
Combining D-51, D-52 into D-07 by September 2001.

D-80 **Familiarization Flights**
Under development.

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 in 2000.

J-08 **Nuclear Emergency Response**
Chapter update in 2000.

Attachment B–WCM/SOO Roster

NWS Headquarters

John Ogren, National WCM Program Manager	301-713-0090 x140
Eli Jacks, National SOO Program Manager	301-713-1970 x188

Eastern Region

WCM	SOO	SID	Location	Telephone
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George Lemons	Kermit Keeter	RAH	Raleigh/Durham, NC	919-515-8209
Mike Emlaw	Steve Keighton	RNK	Roanoke, VA	540-552-0084
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Brian Peters	Kevin Pence	BMX	Birmingham, AL	205-664-3010
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Terry Huber	Andy Patrick	CRP	Corpus Christi, TX	361-289-0959
Gary Woodall	Mike Foster	FWD	Dallas/Fort Worth, TX	817-429-2631
John Fausett	Val MacBlain	EPZ	El Paso, TX	505-589-4088
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James Butch	Alan Gerard	JAN	Jackson, MS	601-936-2189
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Wayne Presnell	Jack Settelmaier	EYX	Key West, FL	305-295-1316
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Frank Revitte	Mike Koziara	LIX	New Orleans/Baton Rouge, LA	504-522-7330
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Buddy McIntyre	Greg Jackson	SJT	San Angelo, TX	915-944-9445
Rafael Mojica	Rachel Gross	SJU	San Juan, PR	787-253-4586
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David Tucek	John Kwiatkowski	IND	Indianapolis, IN	317-856-0361
Jim Keeney	Michael Lewis	JKL	Jackson, KY	606-666-4856
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Todd Shea	Dan Baumgardt	ARX	LaCrosse, WI	608-784-8275
Rod Palmer	Jeff Hedges	ILX	Lincoln, IL	217-732-4029
Norman Reitmeyer	Ted Funk	LMK	Louisville, KY	502-969-8842
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Peter Felsch	Tim Barker	MSO	Missoula, MT	406-329-4841
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