

# Aware

Winter 1993-94

NATIONAL WEATHER SERVICE/*Warning Coordination and Hazard Awareness Report*

## Taking Stock

The start of a new year presents us with an opportunity to assess what we did in the past year and to set our goals for the future. The theme of this issue is "Taking Stock." The modernization is forcing a lot of changes. At times, these changes can be bewildering for both ourselves and our users. But change also brings opportunity. The challenge is to ensure that we manage the change properly.

The fall issue of the *Aware Report* highlighted the International Decade for Natural Disaster Reduction (IDNDR) and the preparations for the World Conference in Yokohama, Japan, where governments from around the globe will assess their capabilities to deal with natural hazards. Included this time is an invited comment from Dennis Mileti who is the new Director of the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder.

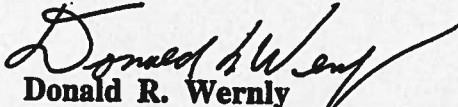
Dr. Mileti outlines the plan for an upcoming national assessment of natural hazards. The assessment will bring together researchers, Federal agencies, and hazard professionals from all disciplines to assess what do we know, how has that knowledge been applied, and what future research needs to be done? This project is affectionately known as the "Second Assessment."

The first assessment was conducted by Dr. Mileti's predecessor, Dr. Gilbert White at the University of Colorado in 1972. That assessment, according to Mileti, "...did more than accomplish its mission to

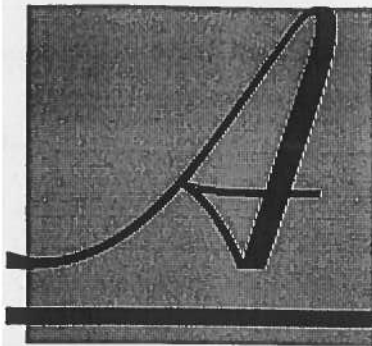
summarize knowledge, create a national hazards research agenda, and force interdisciplinary thinking—it forged the interdisciplinary approach to hazards for which the U.S. is now famous." (See Mileti, *Natural Hazards Observer*, January 1994.) The second assessment is expected to enhance our Nation's capability to plan for and cope with natural disasters in an integrated manner.

Concerning future products and services, the final assessment on the Short Term Forecast concept will be conducted this spring with a recommendation to the National Weather Service (NWS) directors on how this project should proceed. Similarly, working groups are being formulated to develop implementation strategies for forecast coordination, future dissemination policies, the decentralization of severe local storm watches, and backup for Weather Forecast Offices (WFO). Finally, outreach projects are being planned to work more closely with the volunteer Atmospheric Education Resource Agents (AERA) and to support warning services to the hearing impaired.

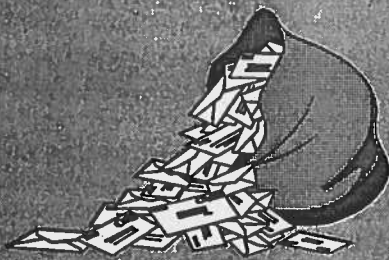
The commitment toward dealing with natural hazards has never been greater. During this decade, we all have an opportunity to make profound contributions. Lets make it so!

  
Donald R. Wernly  
Chief, Warning and Forecast Branch





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# International Decade For Natural Disaster Reduction

## An Assessment of Natural Hazards

The last several decades have witnessed the accumulation of much knowledge on natural hazards. Recent efforts have assessed some specialized aspects of what has been learned. Other specialized efforts are underway, and yet other important areas and priorities have yet to be assembled. It is time for the Nation to bring together all new knowledge, view it systematically, and consider hazards in their changed context in order to answer the questions: (1) "What do we know?" (2) "How has that knowledge been applied?" and (3) "What research should be undertaken next?" This work will redirect the Nation's hazards research agenda toward high priority topics, place hazards in a contemporary context, enhance the dissemination and application of existing knowledge, create a new generation of hazards research professionals, and give hazards a more general appeal and a topic of focus in new fields.

**A Model for the Assessment.** The assessment was recently conceptualized at a workshop, and the model produced will guide future work: the world has become increasingly complex and interconnected, this has created increased uncertainty and risk, and it is time to adjust to risk and cope with losses in ways that maximize the erection of a resilient society that rests on a sustainable environment. The assessment will also explore many factors—at the global, societal, and local levels—and linkages between them to answer the question "Where do natural disaster losses come from?" Losses are viewed as the result of interaction between: environmental factors, for example, climate; physical factors, such as construction practices and technology; and human use factors, for example, changes in where people live and the concentration of population in vulnerable urban centers.

**The Plan of Work.** The assessment has an ambitious work plan. It will synthesize existing knowledge in relevant fields including climatology, cultural property, communications, decision sciences, economics, engineering (coastal, cold regions, hydrological—floods and drought, structural—earthquake and wind, and soils—ground failure), forestry, geography, geology, geomorphology, hydrology, medicine, meteorology, oceanography, planning, political science, psychology, seismology, social psychology, sociology, and volcanology. The project will use what others have done or are doing in specialized hazards assessments and build on work we have already begun. Several dozen white papers prepared for the initiating workshop will be revised and expanded. A summary of knowledge in and across all fields of science and engineering will be prepared. The document will be appropriately reviewed and revised. A future research agenda that cuts across the full range of applicable fields will be developed. Proposed future research will be evaluated in terms of factors that include potential societal utility, potential contribution to advancements in basic theory in science and engineering, and the potential success of the research if performed.

The assessment will also answer special questions and support student research. A common local focus for student research will be selected that enables exploration of variation in environmental systems (wind, water and earth), physical and human use factors. Candidate areas include coastal areas of the United States where water

and wind hazards impose high risk—for example, the barrier islands, and/or a large urban center at risk to violent earth movements, such as southern California. This work will help to integrate and provide common threads that tie together the work of the many unique individuals and organizations affiliated with the project.

**Advisory Panel.** A project advisory panel was assembled in mid-1992. It provides insights from varied viewpoints, gives the project oversight and direction, and links the assessment to some key user groups. The panel is comprised of representatives from the National Science Foundation, National Earthquake Hazards Reduction Program, Bank of America, National Institute of Standards and Technology, Office of U.S. Foreign Disaster Assistance, State of California, U.S. Forest Service, Federal Emergency Management Agency, American Red Cross, Insurance Institute of Property Loss Reduction, City of Los Angeles, National Weather Service, National Institute of Mental Health, Army Corps of Engineers, U.S. Environmental Protection Agency, Tennessee Emergency Management Agency, Earthquake Engineering Research Institute, U.S. Geological Survey, and the Tennessee Valley Authority.

**The Project Team.** A team has been formed in the Natural Hazards Center at the University of Colorado at Boulder to lead and organize the assessment, and Federal agencies have been invited to send representatives to Boulder to work on the project. This spring, some 10 university-based experts from across the United States will be invited to make a fuller commitment to the work. They will be supplied with graduate students to tackle the central questions of the assessment in a more intense way. These persons will be selected to maximize the number of involved fields and to ensure representation from existing national centers as a way to tap their existing knowledge bases. Other hazards professionals will be invited to participate in the assessment in diverse ways.

**The Impact of the Work.** The assessment will synthesize knowledge regarding natural hazards. It will redirect the Nation's hazard research agenda toward high priority topics that enhance societal resiliency and environmental sustainability, and it will help to create a new generation of hazards researchers who we hope to permanently contaminate with the interdisciplinary perspectives they encountered in graduate school. The work will modernize our view of hazards and give hazards more general appeal. This will help hazards to become a focus in new fields. The project will also contribute to our Nation's effort in the Decade for Natural Disaster Reduction. The assessment will illustrate the Nation's continued leadership at interdisciplinary hazards approaches and enhance the odds that this innovation will spread to other nations.

The assessment is not proceeding in isolation, and it requires input from everyone in the hazards community. I encourage my interdisciplinary colleagues to contact us and participate in this effort to forge a future hazards agenda. ■

—Dennis Mileti, Director of the Natural Hazards Center.  
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## United States Student Art Contest


Dr. Olavi Elo, Director of the International Decade for Natural Disaster Reduction (IDNDR) Secretariat of the United Nations, invited all nations to participate in an exhibition of children's drawings. This has been planned as part of the United Nations World Conference on Natural Disaster Reduction in Yokohama, Japan, in May 1994. Each nation was asked to send three entries to Japan for display on a 7 foot tall by 3 foot wide panel. Each organization involved will be asked to hold local judging events and then forward the category winners to the Working Group for submission to a national panel. This national panel will judge and select the winning entries in each category to go to Yokohama.

The competition is divided into three age categories: (1) 5 to 8 years old; (2) 9 to 11 years old; and (3) 12 to 15 years old.

As a member of the Natural Disaster Awareness Day Working Group, I was asked to involve ten NWS offices and their partnership schools in this Student Art Contest. (Because the time frame to organize an art competition was very short, the Working Group recommended involving schools that NWS offices have already worked with, whether through a formal school partnership or a pilot

program or a long-term contact.) Early in January, an information packet was sent to each of the 10 NWS offices involved. This packet contained a letter, poster, instructions, certificate, etc., for distribution to their partnership school.

The theme for the contest mirrors the theme for the Decade: "Identifying Hazards and Disaster Vulnerable Communities." To help students understand the theme, it was rephrased as: "Natural Disasters—Awareness and Preparedness." What natural hazards might occur where they live? Students could picture themselves helping their families prepare for a natural disaster or assisting others after a natural disaster occurs.

It is the intention of the Natural Disaster Awareness Day Working Group to have students draw positive images that help empower children to do something to prepare for natural disasters. Judging is to be completed by March 1, 1994. The national judging hosted by the National Academy of Sciences is to be held March 16. 

—Linda Kremkau

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# Modernization

## Warning and Forecast Branch Reorganization

It seems as if change is everywhere, including the Warning and Forecast Branch! Following Therese Pierce's promotion to the Chief of the Marine and Applied Services Branch, it was decided to move the radar and Quantitative Precipitation Forecast program management functions to the Operations Division Chief's staff to support the concept that these programs cut across all other service

programs. Once this occurred, the Warning and Forecast Branch staff reviewed all of their responsibilities with the intent to more evenly distribute the work and to heighten the focus on the WCM program.

Following our deliberations, the reorganization fell out as follows:

### Mesoscale Meteorologist—*B. Alexander*

Severe Local Storm Program Manager

Flash Flood Program Manager

Modernization and Associated Restructuring (MAR) Scientist

WSR-88D Focal Point

### Synoptic and Dissemination Meteorologist—*R. Berger*

Winter Storm Program Manager

NOAA Weather Radio (NWR) Program Leader

Congressional Focal Point

WSR-88D Focal Point Assistant

### Warning Coordination and Tropical Meteorologist—*R. Dombrowsky*

Hurricane Program Manager

Warning Coordination Program Manager

Federal Emergency Management Agency (FEMA) Liaison

Automatic Surface Observing System (ASOS) Focal Point

### Social Scientist—*C. Adams*

External User Surveys

Internal and External Communications Projects

NOAA/FEMA Training Coordinator

### Public Weather Program Meteorologist—*R. Becker*

Public Weather Program Manager

Dissemination Program Manager

Modernization Planner


Private Sector Focal Point

### Program Assistant—*L. Kremkau*

Editor *Aware Report*

Hazard Awareness Focal Point

Budget Analyst

Disaster Survey Coordinator 

—Donald Wernly

## WFO Operational Coordination Working Group

One of the most pressing and complex issues facing the NWS for the MAR is coordination between offices and between the NWS and its external users. As serious an issue as it is currently, as the number of offices swells from 52 today to 116 in just a few years, the problem will compound dramatically. A working group is soon to be assembled which will develop an Operational Internal/External Coordination Plan for the NWS in the MAR era. I will be chairing this working group, which will include diverse representation from Weather Service Headquarters (WSH), National Centers, Regional Headquarters, field offices, and the external user community. The Office of Meteorology will solicit participation for the first working group meeting, which will be held at WSH. At that meeting, we will discuss the scope and methodology of how such a massive undertaking will be accomplished. A subset of the working group, consisting of 6 to 8 people, will be chosen to accomplish the primary effort of organizing thought, hammering out issues, and synthesizing a draft plan. Our goal is to craft a coordination plan that accommodates both intra-agency and external coordination; one that ensures each of us is informed and helps us to coordinate effectively with our users. By the time you read this, a memorandum from Dr. Lavoie, Director, Office of Meteorology, will have been distributed for response. By year's end, we hope to have the Plan in place. ■

—Bill Alexander

## Severe Local Storms Watch Decentralization

Another working group is developing an implementation plan to decentralize severe local storms watches. In essence, the idea is to shift the watch responsibility to WFOs while the Storm Prediction Center in Norman, Oklahoma, provides guidance. This will be accomplished in a series of "baby steps," beginning in January 1995 when watches will be issued by counties rather than "boxes." Ultimately, as field offices are able to integrate their data sets on the Advanced Weather Information Processing System (AWIPS), they will be ready to assume the watch function. As we go down this path, there will be issues of guidance products, WFO staff training, integration of new science and new technologies (hardware and software), and coordination to solve.

The decentralization working group is meeting January 31-February 4 to grind out the hard issues and create a draft implementation plan. This draft will be distributed to WSH, National Centers, and Regions for its initial review. Our users will also be folded into the process to ensure we give them what they want. By fall, we intend to have a Severe Local Storm Watch Decentralization Implementation Plan that we can all support. ■

—Bill Alexander

## WFO Backup

In December, a working group was formed to develop a plan for operational backup procedures for WFOs. The first product of this working group was a draft plan which institutes adjacent pairing of WFOs for all programs, based mostly on WSR-88D 10,000-foot coverage. This means that several adjacent WFOs will share program responsibilities for the disfunctionate WFO, rather than having all program responsibilities shifted to a single adjacent WFO. The draft backup plan was reviewed at WSH and National Centers in December and January. Most comments were very positive about the recommended plan. One consideration, however, was that gridded forecast fields from the National Meteorological Center would be of such high quality that they could be formatted by AWIPS into appropriate forecast products. That eases some concerns about backup office workload. One consideration not yet solved is the backup of the National Oceanic and Atmospheric Administration (NOAA) Weather Radio capabilities. A second draft will be distributed following the next working group meeting. Look for that draft, for Regional review, sometime by early spring 1994. ■

—Bill Alexander

## Short Term Forecast (NOW) and The Weather Channel (TWC)

TWC supports the short-term forecast concept, understanding that it would be of great benefit for its subscribers to view the NOW as written. As we go to press, TWC has not yet been able to solve certain software limitations required for product display. Here's what we do know at this time.

TWC is working to see if they can speed-up the timetable for routine display of the NOW on two screens or "pages" at the beginning of the 36-hour local forecast segment. Implementation was originally scheduled for a year or more from now but, pending the outcome of TWC software modifications, could be moved up to as early as this summer. This is their primary solution.

If this strategy cannot be implemented in a few months, TWC will, as a fall-back measure, try to modify other software that would allow the NOW to be "scrolled" once per new issuance (as is done with products like special weather statements), thereby blanking out the video during the scroll. TWC gets many complaints from subscribers (and from NWS employees as well) when the video (typically radar or forecasts) are blanked out. Therefore, TWC wants to reduce as much as possible these negative effects of scrolling.

For either strategy, one-time scrolling or permanent fixed-screen display of the NOW, TWC would require the following: that only seven lines of AFOS text (about 80 words) can be accommodated; and that a delimiter, such as the double dollar (\$\$) (or some other code yet to be determined), be used to separate this information from any other information in the NOW.

So, stay tuned. Over the coming months, we're hopeful you'll see NWS's new Short Term Forecast displayed on TWC to a potential audience of over 50 million viewers. ■

—Rod Becker

## Short Term Forecast (NOW) Evaluation

As one of the hallmark new services in the early stages of NWS modernization, the NOW product is being intensively evaluated. Offices issuing the NOW have provided input to regional headquarters, who have consolidated the data and are forwarding it to the Warning and Forecast Branch for review.

As Chairman of the Norman Area Weather Update (AWU) Risk Reduction Activity, I will incorporate these evaluations and the formal Norman Activity into the AWU Final Report this spring. The Report will document and provide findings and recommendations on all facets of the NOW, including workload and any necessary shift changes to accommodate the new duties, format, wording, user perceptions, etc.

As of this writing, preliminary indications are that workload can be significant, especially during active weather—but manageable, particularly when regional and local management places high priority on the NOW and shift duties are rearranged accordingly. Also, because of the traditional culture of NWS writing styles inherent in products like special weather statements (SPS) and radar narrative summaries (RNS), the shift in emphasis to the brief short-term forecast concept is requiring a period of adjustment at many offices. But as forecasters are getting used to the new style, the product is improving dramatically. Regarding user reaction, those who receive the product like it. But the problem is the lack of universal user availability because of such factors as (1) not wanting to "overload" user systems with frequent NOW issuances, (2) expense in receipt for certain users, or (3) continued traditional reliance on SPSs and RNSs. For this new program to be successful will require continued user education and forecaster experience.

NWS directors will use the AWU Final Report as a basis from which to make nationwide decisions on the operational viability of the NOW/AWU. If the AWU concept is approved (possibly by this summer), offices with commissioned WSR-88D radars will begin the conversion from the Short Term Forecast product to the Area Weather Update. The AWU, in incorporating information from the latest in sensing technologies, would continue to evolve, providing increased accuracy and timeliness, and would have the highest priority, after warnings, in the product suite.

—Rod Becker

## NWS Information Exchange and Dissemination Policy

An effort to develop a comprehensive NWS policy for information exchange and dissemination was initiated this past June. The gathering of information about relevant previous policy documents and various program directions enabled the broad scope of a policy to take shape. Several meetings with members of NWS senior management helped to formulate specific areas of emphasis that the policy would require. In October 1993, a team of diverse program managers from Headquarters and the field participated together in an intense 1-week effort to draft a policy statement and an outline of the implementation plan. This "meeting-of-the minds" produced both.

The draft policy statement, description of user and communication trends and annotated outline for a transition plan are undergoing evaluation by NWS management. A presentation and review of the draft policy, its implications, and some specific recommendations from the working group was presented at the November Director's Conference. The target date to have the draft policy and implementation plan circulated internally is February 1994.

—Gary Charson, Services Development Branch

## Proper Use of Universal Generic Codes (UGC) in Products

Several users, including The Weather Channel and First Alert Weather Warning Systems based in Olathe, Kansas, have brought to our attention a persistent problem regarding NWS overuse of the UGC in several products, particularly statements and longer range watches and advisories.

It seems that products, like severe weather statements and special weather statements, are too often overcoded with UGCs for the office's entire county warning area or the entire state, even if the affected area is much smaller. This adversely affects users, including TWC, as their subscribers are complaining that the programming is being blanked out too frequently by the "scrolling" of statements and other products that don't affect them. And products like flash flood watches and winter weather watches, warnings, and advisories are sometimes coded with the "ALL" option of the UGC, again even when the entire area is not affected. The above are done to save time, reduce workload, or let a wide-ranging audience that uses the UGC to get the product.

To understand the problem more fully, let's review the reasons for adoption of the UGC and how the code's misuse can lead to user problems. The UGC was designed specifically to identify or "paint" the affected area (which can include those adjacent or downstream areas that forecasters think might also be affected within the valid time of the product). It shouldn't normally be used just as an expedient to save time (especially for longer range products) or to provide users well outside an affected area the information because the forecaster is put into the position of deciding who should and shouldn't get the product.

Regarding the use of "ALL" in the UGC, by current definition, "ALL" should be used only by WSFOs who have forecast responsibility for all zones in a state. For example, WSFO Omaha, Nebraska, would not use ALL in any products because three zones in northeast Nebraska are under WSFO Des Moines' forecast area of responsibility. Many WSFOs are in this category and should not be using ALL. Also, considering that in the modernized NWS, WFO areas of responsibility will be less than an entire state (typically parts of two, or more states), ALL in the UGC will not be used. It might be best, therefore, to consider eliminating ALL from the UGC in current operations and replace it with the appropriate zones. This would require the use of the ">" in the UGC string(s) in place of the ALL. For many offices currently using ALL, this would only require a few more characters in the UGC string. In any case, many products would only require a preformat replacement for the current ALL.

Another problem occurring with UGCs is the use of wrong expiration date/times. The killer errors are those where the expiration time is before the issuance time and/or the wrong date is used. For these errors, products are not displayed on TWC and presumably adversely affect other user systems. NWS people need to use automated message creation software, e.g., SRWarn or a new program expected to be released to the field in the near future. This new program, the "Weather Information Statement Editor (WISE)," is similar to SRWarn but is specifically geared to issuing statements.

We will be working with regional offices on these issues to ensure that users are properly served. If we use the UGC correctly, vendors can provide users with appropriate and requested information, as market forces dictate. The UGC, in effect, would rightly take the forecaster out of the business of trying to make these kinds of user decisions, some of which may adversely affect users in ways not intended. ■

—Rod Becker

## Network Radar Observations from Commissioned WSR-88Ds

The NWS has been dealing with the problem of editing the WSR—88D Radar Coded Messages (RCM) to produce acceptable derived radar observations to support the National Radar Summary Chart. Final decisions regarding implementation of such radar observations from commissioned WSR-88Ds are being finalized. The objective is to implement an automated program that does not require local or manual intervention.

Derived WSR-88D radar observations will have the same appearance and use the same category (ROB) as the manually produced radar observations taken from conventional radars. These additional ROBs will be available for distribution on FAA and the Family of Services systems. These derived ROBs, however, will contain the remark "AUTO" to indicate their automated origin, with implications on accuracy as discussed below. Automation will allow the derived ROBs to be sent twice an hour, at H+00 and H+30.

A two-step RCM editing program will be centrally run at the National Severe Storms Forecast Center (NSSFC). An ROB will be produced for each WSR-88D from the edited high resolution composited and gridded RCM data. The program will be run on NSSFC's IBM 4381 once each hour.

Tests have indicated that the two steps remove about 95 percent of erroneous RCM data. A request for change (RC) is being submitted to the Data Review Group (DRG) for dissemination of additional derived ROBs for each WSR-88D site, including Department of Defense WSR-88Ds. The additional ROBs will be incorporated into the National Radar Summary Chart.

As additional RCMs become available with the WSR-88D commissionings, high resolution composited and gridded RCM data will have other potential uses. The gridded data can be transmitted twice an hour for a more enhanced future national radar summary chart, as input for national and local office mesoscale models, for heavy precipitation monitoring by River Forecast Centers, and other weather watch activities at field offices. ■

—Ron Berger

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# Partnerships

## Florida Demonstration Project

The NWS continues to work with Florida's Division of Emergency Management. Their efforts have focused on the development of a pre- and post-event NOAA Weather Radio/NOAA Weather Wire Service (NWWS) capability. The initiative calls for the creation of preformatted broadcast scripts. These new scripts will provide local and state emergency management officials the ability to provide pre- and post-event information to the public over NWR and NWWS.

Another aspect of the demonstration project calls for the creation of a PC to PC exchange of information capability. This communications capability would allow the state's Emergency Operations Center (EOC) to communicate and exchange information with Florida NWS offices. Prior to Hurricane Emily's skirting of the east coast, an interim PC to PC communications capability was established between the Tallahassee Weather Service Office (WSO) and the state EOC. The state is currently working to link other Florida NWS offices to this interim network. Mike Rucker of Florida's DEM has targeted February 1, 1994, for the establishment

of PC to PC capability to the Miami and Tampa Bay offices. Others will follow, and it is expected that all offices, including Weather Service Forecast Office (WSFO) Birmingham which has warning responsibility for segments of Florida, are on line prior to the start of the 1994 hurricane season. The state is also planning further enhancements to include a point to multi-point satellite-based 2-way communications capability. The system will include full broadcast capability simultaneous to all sites, and private single point, peer to peer, and county to county communications.

The Florida Plan calls for the following communications improvements.

- The creation of a statewide Communication Plan emphasizing the need for redundancy.
- The securing of NAWAS and High Frequency Radio capability for each county prior to the beginning of the 1994 hurricane season.
- The installation of a new Statewide Satellite Communications System to be installed in each of Florida's 67

counties, the six designated WFOs of the modernization, Florida's three nuclear power plants, and all twelve CPCS-1 Emergency Broadcast System (EBS) stations.

- The state's two Mobile Emergency Communications Centers be upgraded with satellite and portable 800 MHz communications capability.
- Review of Florida's EBS procedures.

The Warning and Forecast Branch will provide periodic updates on the progress of the project both internally and through publications, such as the *Annex Report*.

—Rainer Dombrowsky

## NWS Modernization and Classroom Education

The NWS is obtaining some assistance in getting the modernization word out to the Nation's schools. A cadre of teachers (one of which is a Presidential Award winner) is taking the time to assist their fellow teachers to bring modern meteorology into the classroom—called Atmospheric Educational Resource Agents (AERA). The AERAs have been selected based on their demonstrated leadership in teaching, curriculum development, and in-service training of fellow teachers. Each AERA has shown an interest in the atmospheric environment and has received special training at a summer institute produced by the American Meteorological Society (AMS), sponsored in part by the NWS and an initial National Science Foundation grant, at the NWS Training Center in Kansas City.

Most students are naturally interested in the weather, especially in ways it might affect them. Some teachers have found that the action and patterns in live satellite imagery and real-time weather observations in the classroom cause some reluctant pupils to be curious about what they see. This curiosity, channeled effectively by teachers, can lead to investigation and dramatic development of scholastic skills.

The AERAs are points of contact for teachers seeking information on atmospheric-related educational matters to channel that interest into real science. The AERA's commitment is to help promote study in science, mathematics, and technology in the elementary and secondary schools through the use of the atmospheric-related topics, information, and data. Each AERA is a resource for teachers in their own schools in the surrounding area and may include teachers in nearby states. This year, the Mid-Atlantic State AERAs are planning a March 5, 1994, Hazardous Weather Conference for Educators, targeting interested teachers in Virginia, North Carolina, Maryland, Delaware, and New Jersey.

There are about 50 AERAs, at least one in each of 43 states, who are volunteering their precious time and their considerable skills to aid the NWS in getting good meteorology instruction in their classrooms. While this may seem too few, networks of fax users and the "Electronic Highway" of Internet are being used as a powerful tool to get the information out.

Much has been written about changes in the NWS during the MAR. These changes need to be highlighted in the classroom.

Change in the classroom isn't easy because the textbooks in print take decades to change. Many states have statewide adoption procedures so texts are written to the lowest common denominator of requirements.

Yet, the AERAs represent a major avenue of incorporating ideas that will spark the curiosity of our children while, at the same time, provide more recent understanding of the atmospheric sciences. AERAs are trained to engage in special leadership roles in their local and state educational systems and in the teachers' associations on the national, state, and local level.

In an era where public discussion of the various theories of Global Warming is being debated outside academia, teaching sound scientific concepts of how the atmosphere works are needed now more than any time in this century.

The NWS does not have the resources to mount a large public education campaign. Even if the budgets were dramatically raised by orders of magnitude, finding the right people within the Federal establishment or contractors would be almost impossible. Coupled with that problem is the ongoing discussion of the relative roles of Federal government, the states, and the private institutions in the governance of education.

The AERAs are there. They are unfettered by these restrictions and represent a real resource for effective and creative ways of transferring knowledge to the classrooms of the states and ultimately into the textbooks. They have the experience of the classroom and know what they and their fellow teachers need. And, they have the willingness to experiment with new ideas.

AERAs often do not have the access to real-time data. Even if they did, the press of the responsibility of the classroom, and other non-teaching duties may make it impossible for the AERA to monitor a particularly good case for use in the classroom. Nor do they have the sophistication in the advanced concepts of the atmospheric sciences which are even now being developed as the new data are coming on line to be able to see the interplay of physical processes needed to explain the cases.

Each NWS office has a responsibility to alert the public of dangerous weather. This responsibility includes a need for educating the public as to the nature of these dangers. As knowledge is developed within the WFOs, the Regions, and National Centers, the AERAs need to know about it in a way they can understand. AERAs understand the needs of a classroom teacher; meteorologists understand the processes of the atmosphere.

As the NWS and AERAs continue to cooperate, a synergy of activity, which will benefit both parties, can develop. Working together, they can produce more effective results rather than both groups working separately. The AERAs have agreed to have their home addresses and telephone numbers listed (usually they can receive faxes on the same numbers) so that the various WPMs, WCMs, and NWS outreach staff can contact them directly (see attachment A). Do so. These are resources to make your job easier and more effective.

—Hank Robinson, Services Evaluation Branch



## Announcing Release of Hurricane Wind Damage Brochure and Video

Five organizations have recently teamed up to produce a video and brochure designed especially to help homeowners mitigate the effects of hurricane wind damage.

Consisting of an 18-minute video and companion brochure, "Against the Wind: Protecting Your Home From Hurricane Wind Damage" helps homeowners inspect their roof from inside the attic for potential areas where it could be damaged and provides information for securing garage doors, double-entry doors, and windows.

Lessons learned from Hurricane Andrew and a FEMA report on the damage Andrew caused were used to develop these materials. These items were developed through a joint effort from the Federal Emergency Management Agency (Region IV), the American Red Cross, the Home Depot, the National Association of Home Builders, and the Georgia Emergency Management Agency.

To obtain brochures or the video, write to: FEMA, Office of Public Affairs, 500 C Street, SW, Washington, DC, 20472. You may also contact your local or state office of emergency management or American Red Cross chapter. ■

—Rocky Lopes, Disaster Services, American Red Cross National Headquarters

## Update of the American Red Cross Hurricane Awareness Brochure

The American Red Cross is updating its 2-page, 4-color pamphlet entitled, "Are You Ready for a Hurricane?" With cooperation from the Warning and Forecast Branch, WSH, it is intended that this revised brochure be used to raise awareness and provide brief instructions for hurricane preparedness. The brochure has been available from local Red Cross chapters since September 1990. The revision will take into account the increased cooperation between the National Weather Service and the American Red Cross and will feature the logos of both organizations.

The revised brochure is NOT available at this time. When it becomes available, you will be notified in a future edition of the *Aware Report*. Meanwhile, you may still obtain copies of the current version from your local American Red Cross chapter. ■

—Rocky Lopes, Disaster Services, American Red Cross National Headquarters

## Emergency Management Guide for Business and Industry

The Emergency Management Guide for Business and Industry has just been released by the American Red Cross. This 78-page guide provides step-by-step advice on how a business can create and maintain a comprehensive emergency management program. It also contains specific sections giving mitigation recommendations regarding natural and technological hazards. It can be used by retailers, manufacturers, corporate offices, utilities, or any organization where a sizeable number of people work or gather.

This guide's development was funded by the FEMA's Emergency Public Information Program. The Disaster Services Preparedness Division at Red Cross national headquarters, in addition to 11 other manufacturing organizations, trade associations, and emergency management professional organizations, were involved in developing and reviewing this guide.

Over the years, the Red Cross has been asked for information that local businesses, organizations, and manufacturing facilities can use for guidance on planning for disasters and developing emergency management procedures. This guide serves that purpose. Your local Red Cross chapter may be able to provide further assistance in disaster planning and preparedness for business and industry by offering seminars, presentations, or participating in local emergency management meetings, planning sessions, or exercises.

The Emergency Management Guide for Business and Industry is available by contacting your local American Red Cross chapter. Please provide the title and stock number (ARC 5025) when requesting a copy. If the chapter does not have any in stock, they can order them for you for delivery within a few weeks. Since local chapters must pay for shipping, assistance to defray these expenses would be appreciated.

For further information about resources available from the American Red Cross, contact your local Red Cross chapter. ■

—Rocky Lopes, Disaster Services, American Red Cross National Headquarters

# Operations and Services

## Weather Service Operations Manual (WSOM) Chapter C-40, Severe Local Storms Watches, Warnings, and Statements

WSOM Chapter C-40 will require more reworking during the next couple of months in order to be ready to distribute in July. The implementation of the Nowcast Operations Manual Letter (OML) to WSOM Chapter C-21, Local and Regional Statements, Summaries, and Tables, significantly modifies the conceptual model of our special and severe weather statements. With so many of our offices now issuing Nowcasts but a significant number not doing so, both concepts of products need to be addressed in this Chapter. It is important to remember that the WSOM is a dynamic document, and that is especially true during these early stages of the MAR. Expect several OMLs to C-40 during the coming years to implement such concepts as decentralizing severe local storms watches, changing statements, changing warnings, etc. To support the current effort on C-40, Gary Woodall (W/SR1x4) will take a week off his duties at Fort Worth to write example statements and warnings for the new chapter. [A]

—Bill Alexander

## NOAA Hurricane Conference/Status of WSOM Chapter C-41, Hurricane Warnings

The NOAA Hurricane Conference brings together representatives from NOAA line offices that support the Hurricane Program. In addition, representatives from hurricane-prone NWS regions are invited to participate. The assembly reviews and evaluates the preceding hurricane season. The group also reviews items that may be considered problems to the operational effectiveness of the hurricane program. These are discussed and resolved to the satisfaction of the assembly. In many instances, the solution requires some change to WSOM Chapter C-41.

The latest NOAA Hurricane Conference was held December 6-9, 1993, in Coral Gables, Florida, hosted by the National Hurricane Center. This year's Conference was considered unique in that NOAA invited FEMA and state and local emergency management officials to participate. Their participation provided NOAA line offices an opportunity to ask their customers how NOAA could better support them. In addition, FEMA's participation provided us the opportunity to evaluate and better define our role under the new FEMA led National Hurricane Program. The national program is projected to reach a fully funded level of approximately \$11.8 million over the next 5 years. [A]

—Rainer Dombrowsky

## Review of WSOM Chapters C-42, Winter Weather Warnings/C-44, Non-Precipitation Weather Hazards

As we approach the end of the 1993-94 winter season, we will have experienced two full seasons since the development of WSOM Chapter C-44 and the reorganization of WSOM Chapter C-42. The Warning and Forecast Branch will be asking the regions to review the chapters and solicit field comments. Once compiled, all field concerns and comments will be evaluated and appropriately incorporated into each chapter. [A]

—Ron Berger

## WSOM Chapter F-42, Storm Data and Related Reports

The Storm Data chapter is at the union for review as of this writing. Its support software, the Paradox Runtime Version 4.5, is ready to go and awaiting only approval of the chapter by the union and Dr. Friday. Once union approval and Dr. Friday's signature have been obtained on the chapter, the software will be distributed along with its User's Guide. Hopefully, we should see the approval by late February, with distribution in time to meet the Storm Data deadline for the January 1994 data set. Users of the new Paradox will find its structure somewhat different than the usual word processing software, but a brief acclimation should be all that is necessary. [A]

—Bill Alexander

## OML to WSOM Chapter G-52, Local Emergency Communications Planning—Purchase of Amateur Radio Equipment

I have forwarded for Regional review an OML that modifies WSOM Chapter G-52 to allow field offices to purchase amateur radio equipment. Currently, the chapter forbids such purchases, ostensibly because of cost factors. However, many offices now are developing close synergistic relationships with the amateur radio community, and such hardware acquisitions are advisable. The OML allows for the purchase of transceivers and peripheral equipment and provides maintenance for amateur radio and citizens band equipment, provided the equipment is operated within Federal Communications Commission (FCC) guidelines. Reviews of the OML were solicited from Regions and are due back to me by February 11. Hopefully by spring, field offices will have the go-ahead to make these purchases. [A]

—Bill Alexander

**(Editor's Note:** For all the updates to the WSOM chapters, see attachment B.)

## Work Underway Toward a New WSOM Aviation Chapter

Work has begun by the WSH Aviation Services Branch, both international and domestic sections, to converge the contents of WSOM Chapter D-37, International Aerodrome Forecasts, and WSOM Chapter D-21, Aviation Terminal Forecasts, into a new chapter. Cessation of the "North American" aviation weather code on January 1, 1996, will result in use of the Aviation Routine Weather Report (METAR) format. The Terminal Forecast (FT) will be replaced by the new International Aerodrome Forecast (TAF) on that date. The new TAF is currently being prepared by more than 80 airport locations in the United States that have international responsibilities. Over 250 observations are already being converted via software to the new METAR code for international distribution.

NWS Regions have been asked to comment on their field experiences with the new code by February 25. They have also been asked to provide any operational changes which should be considered by the Aviation Services Branch. The World Meteorological Organization (WMO) and the International Civil Aviation Organization (ICAO) will be reviewing the effectiveness of the new code by June 1994. We do not expect major changes to the code format.

—*Esther McKay and Dan Gudgel, Aviation Services Branch*

## Dodge City Terminal Forecast Responsibility Transfer On-Track

A risk reduction exercise began in September 1993 transferring the Aviation Terminal Forecast (FT) responsibility for Dodge City Regional Airport (DDC) and Garden City Regional Airport (GCK) from the WSFO at Topeka, Kansas, to the NEXRAD Weather Service Office (NWSO) at Dodge City, Kansas.

A series of recent user interviews were conducted by Dodge City Meteorologist in Charge (MIC) Steve Letro. As reported to the evaluation committee regarding this risk reduction activity, objectives continue to be met. In the very least, no trouble reports have been filed and the transfer appears to be transparent to most users. However, many comments indicate that an improvement in service to the aviation community has occurred. This improvement in the DDC and GCK FTs is likely the result of: (1) the "improved" FT which began in late June 1993, and (2) the fine work being done by the forecast staff at NWSO Dodge City.

The risk reduction activity now moves toward the warm season with its accompanying convective severe weather. The risk reduction should be completed in September 1994 with the final report due by the end of 1994.

—*Dan Gudgel, Aviation Services Branch*

## Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) Severe Local Storms Operations Plan Update

I chair the Severe Local Storms Working Group for the OFCM, and part of that responsibility is to maintain the Severe Local Storms Operations Plan. That Plan was last updated nearly 4 years ago so its terminologies and referenced personnel/technologies are far outdated. Upon soliciting reviews of the document from the Working Group members who represent the armed forces, the NWS, the Federal Aviation Administration, U.S. Army Corps of Engineers, U.S. Geological Survey, and others, we were able to begin work at providing a current Plan. Mr. Henry Newhouse of OFCM is integrating the changes into a new version which should be available before spring. A current Operations Plan is necessary to coordinate multiple agency operations during major severe local storm events.

—*Bill Alexander*

## Dr. Chester P. Jelesnianski



Dr. Jelesnianski died Jan. 20, 1994, in Fairfax, Virginia, from leukemia at age 71. Dr. Jelesnianski was an international expert in modeling and predicting storm surges from hurricanes. He was employed by the NWS's Techniques Development Laboratory. There, he developed two numerical computer models to forecast storm surges: SPLASH (Special Program to List the Amplitudes from Hurricanes) and SLOSH (Sea, Lake, and Overland Surges from Hurricanes). The

SLOSH model has become the basis for most coastal hurricane evacuation planning in the United States. Such plans can be credited with saving many lives in recent hurricanes—Hugo in South Carolina and Andrew in Florida.

Dr. Jelesnianski's work extended well beyond the coastline of the United States. Through his efforts, scientists from around the world came to the United States to be trained in his modeling techniques. He worked with scientists from the Bahamas, India, the Peoples Republic of China, Hong Kong, and Burma to apply the SLOSH model to vulnerable coastal areas. Dr. Jelesnianski also assisted several countries in evaluating their vulnerability to storm surge flooding.

Dr. Jelesnianski was honored with the Department of Commerce's highest award—the Gold Medal—for his outstanding work in storm surge modeling. He was also given the "Keys" to the City of New Orleans for evaluating that city's vulnerability to storm surges. In 1988, he received the Neil Frank award from the National Hurricane Conference for "Innovation and leadership in the field of hurricane storm surge forecasting." Dr. Jelesnianski authored a chapter on hurricane storm surge prediction for the American Geophysical Union as well as several landmark papers in hurricane

orm surge forecasting. He was elected as a Fellow to the American Meteorological Society in 1977.

Dr. Jelesnianski received his Bachelor and Master's degrees from the University of Chicago. He received a Ph.D. in Oceanography from New York University in 1969.

Those of us who worked with Chester found him a dedicated scientist, meticulous in his daily work, and tenacious in his efforts to better model storm surges. His work in storm surges will continue to benefit coastal residents worldwide. We extend our deepest sympathy to his wife, Sylvana, his son, Stefan, and other family members. [ ]

-Wilson Shaffer, Chief, Marine Techniques Branch, Office of Systems Development

## Nationwide Ski Reports

National Ski Condition Reports are now available on National Weather Service Dissemination Systems. Sno Country Reports (SCR), a national collection and distribution center for ski information, is now providing nationwide ski condition reports to NOAA Weather Wire Service (NWWS) and the Family of Services (FOS) Public Product Service (PPS). This is a convenient summary of ski conditions for a majority of ski areas all across the country.

The reports are transmitted twice a day via a connection to the Weather Service Forecast Office at Albany, New York. The reports are available on the NWWS product category ALBRECABL and FOS PPS identifier FWUS1 KALB at approximately 6 a.m. and 4 p.m., eastern time. The 6 a.m. report is not as complete as the 4 p.m. report.

SCR collects and transmits data each day of the ski season from mid-October to mid-May or until 10 or fewer ski areas in the country are open.

Partial sample of a nationwide ski report.

ALBRECABL  
TTAA00 KALB 022041

NATIONAL WEATHER SERVICE SKI REPORT  
SNO COUNTRY REPORTS WOODSTOCK VT  
341 PM EST WED FEB 2 1994

LATEST SKIING CONDITIONS AND INFORMATION AS SUPPLIED BY SNO COUNTRY REPORTS.

SKIING CONDITIONS ARE SUBJECT TO CHANGE DUE TO WEATHER, SKIER TRAFFIC AND OTHER FACTORS.  
BE AWARE OF CHANGING CONDITIONS.

KEY:

PDR = POWDER	WETGR = WET GRANULAR
PP = PACKED POWDER	WETSN = WET SNOW
HP = HARD PACKED	WETPS = WET PACKED SNOW
MGS = MACHINE GROOMED	SC = SPRING CONDITIONS
LSGR = LOOSE GRANULAR	CORN = CORN SNOW
FRZR = FROZEN GRANULAR	VC = VARIABLE CONDITIONS
WBLN = WIND BLOWN	ICY = ICY
GRMG = GROOMING	SM = SNOW MADE LAST 24 HRS

SKI AREA	NEW SNOW	SURFACE	BASE	DAY		SM	GRMG	NS	COMMENTS
				TRLS	LFTS				
CT									
MOHAWK MTN		LSGR	18- 90	23	4	SM	GRMG	NS	8:30A-10P
MT. SOUTHTON		MGS	20- 48	14	6	SM	GRMG	NS	9A-10:30P
POWDER RIDGE		PP	10- 40	12	5	SM	GRMG	NS	9A-10:30P
SKI SUNDOWN		LSGR	20- 50	15	4	SM	GRMG	NS	65 ACRES 9A-5:30P, 6:30P-10P
WOODBURY		LSGR	10- 50	12	2		GRMG		10:30A-6P 20 KM

(MESSAGE CONTINUES FOR ALL OTHER STATES WITH SKI CONDITION INFORMATION.)

For further information about this service, SCR can be contacted at the following address:

Wendy More  
Ski Area/Media Coordinator  
Sno Country Reports  
P.O. Box 401  
Woodstock, Vermont 05091  
Telephone: 802-457-3838  
FAX: 802-457-1550

—Ron Berger

## NOAA Weather Radio (NWR) Initiatives

### NWR for the Deaf

Dissemination of printed weather information is an effective method of distributing NWS products. However, the cost of receiving printed weather information has been prohibitive for most potential users. Technology is now available that will enable the NWS to provide lower cost, printed weather information in near real-time to more users, including the deaf community.

Based on the 1973 Rehabilitation Act and the Americans with Disabilities Act (1992), the NWS Western Region recently began testing a new technology to provide service to the deaf. To evaluate the effectiveness of digital data transfer over NWR, a test is being conducted at WSFO Salt Lake City in conjunction with Western Region Headquarters. Receivers and printers will be rotated every 2 months among a test group of the deaf, emergency service organizations, schools, and transportation companies. The test began in December 1993 and will continue until January 1995.

The primary audience for this test is the deaf community. In addition to serving the deaf, this technology can enable the public to receive printed information from a local forecast office database at a low cost. An added benefit of this technology is the capability to transmit products to specific user groups, groups of receivers, or individual receivers in the NWR listening area. Users require no additional equipment other than the receiver and printer for this capability. A warning or special forecast can be transmitted to one receiver only, such as a receiver at a HAZMAT incident site. Since the information is transmitted as a compressed data file and addressed to a unique receiver, other users are not impacted by extraneous information. Another advantage of using compressed data is the capability to transmit simple graphics via NWR.

The technology being evaluated, called WEATHERCOPY, was developed by Dataradio Inc. of Montreal in collaboration with Environment Canada. Dataradio uses packet radio technology, combined with radio modem data compression techniques, to transmit text and simple graphics over standard weather radio frequencies. Transmission is accomplished via a short, audible data burst. This data burst is modulated to achieve high performance and to be less obtrusive to voice-only listeners. The audible data burst does not activate weather radio warning alarms. Data transfer rates are between 10,000 and 40,000 bits per second. This allows transmission of a 1-page text product in about one second!

WEATHERCOPY receivers can be connected to standard PC printers or monitors and are stand-alone units with no recurring communication costs. A WEATHERCOPY receiver (from Dataradio) sells for about \$500 at this time. According to Dataradio, WEATHERCOPY receivers could sell for a lower price (possibly \$200 to \$300) if production increases. The receivers provide users up to date printed and graphic weather information and are easily programmed to meet their specific needs, i.e., users receive printed copies of only what they need.

The receiver has an internal speaker and thus functions as a standard NWR receiver. The speaker can be turned off by the user. When warnings are transmitted over NWR, the WEATHERCOPY receiver will activate the tone alert (even if the speaker was disabled by the user) and then print the warning during the next data burst. The receiver can also operate directly from 12 volts (DC), making it a mobile system.

—Mike Campbell, Western Region Headquarters

### NWR Promotion

Several NWR initiatives are in action across the region as the new year begins. A special Central Region NWR "Creative Writing and Innovative Program Content" task group continues to pursue its goal of revamping NWR programming to meet the needs of our fast paced, high volume, information demand society. The task group members are: Paul Collar, WSO Waterloo; Pat Cooper, WSO Pleasant Hill; Walt Felver, WSO Muskegon; Tom Humphrey, WSO Sioux City; Tom Magnuson, NWS Training Center; Joe Sullivan, WSFO Des Moines; Steve Letro (MIC), WSO Dodge City; Janice Bunting, Bill Fortune, and David Runyan (program leader), Central Region Headquarter's Meteorological Services Division (MSD). The task group is exploring improved methods of determining real and potential NWR listeners through demographic studies, and how to maximize NWR programming to meet the needs of the broadcast service area.

Jim Belles, Warning Preparedness Meteorologist (WPM) Focal Point; Lee Anderson, Deputy MIC; and Jean Kallman, Met Intern, WSFO Des Moines, concluded a Christmas promotion for NWR, weather radio receivers. They composed a ready-for-newspaper article promoting weather radios as a Christmas gift idea—featuring NWR. The local (major) newspaper, Des Moines Register, sent a reporter to cover the "story." Many local commercial radio stations picked up the "story" from the register and featured it on their morning programs, too.

—David Runyan, Regional Communications and Warning Coordination Meteorologist, Central Region Headquarters

### Weather Radio Specific Area Message Encoder (WRSAME)

In response to the Great Flood of 1993, city officials in Des Moines, Iowa, have begun efforts to mitigate flood hazards to the citizens of the greater Des Moines metropolitan area. John Feldt, MIC/AM WSFO Des Moines and the Des Moines city manager office have reported a determination on the part of the city officials to purchase and install the Safety Alert Monitor (SAM) manufactured by the HollyAnne Corporation. The SAM system utilizes WRSAME and

consists of home/business receivers and a controller installed at the local cable company's transmission facility. When the system has been installed, it will cover approximately 20 jurisdictions, 17 cities, and 327,140 residents. Installation should begin later this

spring, and the city officials hope to meet the goal of complete installation in the following 12 months. ■

—David Runyan, Regional Communications and Warning Coordination Meteorologist, Central Region Headquarters



# Hazards Community Forum

## Storm Slides Wanted

I am revamping the introductory storm spotter training materials. The existing program was produced in the late 1970's and is becoming "stale" with regard to program content. Additionally, with the introduction of the advanced spotter training slides in 1988, quite a gap arose between the basic and advanced programs. Thus, the basic program is being revised not only to update the storm examples but to make the program more of an introduction to the advanced series.

I would like to include examples of storms from areas besides the Great Plains. This has been a common complaint of earlier spotter training programs. If you or your spotters have slides of storms which you feel are representative of what is experienced in your area, contact me at (817) 334-2812 or Rainer Dombrowsky at (301) 713-0090. Thank you in advance for your help. ■

—Gary Woodall, Warning Coordination Meteorologist, Southern Region Headquarters

## Operation Sierra Storm

Over 4 million people visit the Reno-Lake Tahoe area each year. The vast majority of these visitors are from northern California, especially the San Francisco and Sacramento areas. Most of these visitors, in turn, arrive by car and must cross highway passes over 7,000 feet in elevation through the Sierra Nevada. Weather can thus have quite an impact on tourism during the winter months. It is extremely important that NWS winter weather products be thoroughly and correctly disseminated to ensure that tourists know when they can travel safely between northern California and western Nevada. Likewise, it is important for the NWS to be sensitive to the needs of the tourism industry of the Reno-Lake Tahoe area.

In response to this need, WSFO Reno and the Reno-Sparks Convention and Visitors Authority sponsored a winter weather media workshop on October 23-24, 1993. Entitled "Operation Sierra Storm—Winter Weather and Tourism Working Together," the workshop brought NWS, highway department, tourism, and media personnel together to encourage cooperation and coordination during hazardous winter weather.

Jim Campbell, Western Region Deputy Director, opened the workshop with a discussion of the need for coordination between the NWS and the media. Gerald Kazura of the Office of Systems Operations provided the latest information on NWS modernization

and the installation of WSR-88D's. Norm Hoffman, Northern California Area Manager, and Steve Brown, Nevada Area Manager, discussed improvements in NWS products and services that will result from modernization. As the Nevada WPM, I discussed current products and services and presented a scenario of NWS response during a winter storm event. Rich Douglas, Deputy Chief of the Western Region MSD, rounded out the list of NWS speakers with a discussion of the Integrated Warning Program and how coordination between the NWS, public safety agencies, and the media is critical for the public to hear and heed weather warnings.

Other speakers included Ken May of The Weather Channel and representatives of the California Department of Transportation (CALTRANS), California Highway Patrol, Nevada Department of Transportation and the Nevada Highway Patrol. Lively panel discussions of winter weather's impact on tourism were also conducted by personnel from the Reno-Sparks Convention and Visitors Authority, the hotel/casino industry in the Reno-Lake Tahoe area, and Sierra ski resorts.

Throughout the workshop, it was repeatedly emphasized that a coordination warning message between public and private agencies as well as the media is imperative to ensure safe and comfortable travel by visitors to the Reno-Lake Tahoe area. Judging from participant responses, the workshop was a big success and plans are already underway for another workshop in the fall of 1994. ■

—Roger Lamoni, Warning Preparedness Meteorologist, WSFO Reno, Nevada

## National SKYWARN Packet Contact List

While working on Packet at home, I discovered the following list: a National List of SKYWARN Contacts. I coordinated with the Northeast New York Radio Amateur Civil Emergency Services (RACES) and entered myself under the Burlington, Vermont, NWS. Most of the list consists of Emergency Management contacts. Wouldn't this be a great way for emergency managers and WCM/WPMs to be in contact—on a national basis! The individual initiating this list is David Bodman. His packet address is as follows: "KD4CLJ@WB4WOR.#GSO.NC.USA.NA".

In addition, we will be using the local bulletin board (BBS) to provide weather observing tips and information to our spotters in Northeast New York and Vermont. We don't have packet in the office yet, but I am working on that now. I'm sure weather safety tips could

also be sent out via the BBS. We've utilized the various amateur radio clubs around Vermont to publish winter and summer weather safety tips in the past in their newsletters. It provides for a wider distribution of information, maintains contact with our spotters on a routine basis, and saves on NWS postal costs! ■

—Steve Hogan, *Warning Coordination Meteorologist, NWSO Burlington, Vermont*

## Spotter of the Year Award

On November 23, 1993, Richard May (WPM) and I presented the "Mike Mankey Memorial—Spotter of the Year" Award to one of our own, Karl A. Silverman. Karl is a Lead Forecaster at WSFO Bismarck and is also an amateur radio operator and volunteer weather spotter. Congratulations, Karl! ■

—Donald Stoltz, *MIC, WSFO Bismarck, North Dakota*

## Central Region WPM Appears Before Minnesota House of Representatives

Todd Krause, WPM Focal Point at WSFO Minneapolis, appeared before the Minnesota House of Representatives, Housing Subcommittee on Manufactured Housing on January 19, 1994. Todd was invited to testify before the committee on the subject of known tornadic weather and its deleterious effects on manufactured structures. He presented a brief history of Minnesota tornado activity, NWS's warning process, and the existing communication systems that handles NWS's warnings. His presentation included dramatic slide pictures of mobile homes destroyed by tornadic winds (e.g., Cokato, Minnesota, 1992, tornado. The subcommittee was very impressed with Todd's presentation. While their recommendation to the general housing committee for revamping existing laws is pending, Todd is hopeful that meaningful safety legislation will result from his efforts. Todd did a lot of background research to accomplish this task. Excellent job, Todd! ■

—David Runyan, *Regional Communications and Warning Coordination Meteorologist, Central Region Headquarters*

## Amateur Radio News

The FCC has amended its rules to allow amateur radio operators more flexibility to provide communications for public service projects and to enhance the value of the amateur service in satisfying personal communications needs.

The rules and regulations for part 97 of the amateur service became effective September 15, 1993. Of major importance to the SKYWARN storm spotter community is Part 97.113(e) which states in part:

"No station shall retransmit programs or signals emanating from any type of radio station other than an amateur station, except propagation and weather forecast information intended for use by the general public and originating from United States Government stations...propagation, weather forecasts, and shuttle retransmissions may not be conducted on a regular basis, but only occasionally, as an incident to normal communications."

With this new privilege and hence responsibility, it is now possible for amateur radio repeater operators to transmit real-time important watch and warning information directly from the NWR station. This direct retransmission is an important time-saving function when spotters are active on the ham frequencies with severe weather nets. Previously, watch, warning, special/severe weather statements had to be hand written, ad libbed, or memorized before being passed.

Utilizing the retransmission privilege now means that precious seconds are saved, and this can be deadly important during a warning. Additionally, the message is unfiltered and comes directly from the source of origination—the National Weather Service office.

In the above paragraph, I have mentioned only retransmission of watch, warning, special/severe statements. While the rule states weather forecast information can be retransmitted, the part of "not on a regular basis, and only occasionally" can be abused. It is for this reason I feel that the most important, time sensitive, and life-threatening weather forecast information should be transmitted. Let the illegal and law breakers retransmit the routine forecast materials. You and I know that a few will do it anyway. (Thanks goes to Green Bay *Milwaukee Area Skywarn Association* [MASA] member Ken Cowan, The W5YI Report, ARRL Letter.) ■

—Skip Voros, *Director, MASA*

## Sky Awareness Week Slated for April 24-30, 1994

The Fourth Annual celebration of Sky Awareness Week will be held April 24-30, 1994. One state issued a proclamation in 1991; since then, a total of 28 separate state proclamations have been issued. The National Weather Service, the National Weather Association, The National Science Teachers Association, The Weather Channel, and the Triangle Coalition for Science and Technology all support Sky Awareness Week. Sky Awareness Week encourages people across the Nation to notice the myriad of cloud types above, ranging from fair weather cumulus puffs to high-flying cirrus streamers. Late spring is a time when most parts of the country will experience their most dramatic and changeable skies. By watching clouds, people will see how rapidly clouds change their forms and that the sky is not the same color blue every day. These changes, albeit subtle, are often tied to physical processes in the atmosphere, the movement of weather systems and accumulation and transport of atmospheric pollutants. The list of "things" in the sky is almost boundless (consider hot air balloons, birds, rainbows, airplanes, and the sun and stars). Even with our busy schedules, people of all ages can appreciate the sky and gain an upbeat feeling just by LOOKING UP!

In addition, we are trying to establish an educational network which will share weather and sky observations via electronic mail. We will be using only one school per state initially, as well as some school overseas. In 1995, we hope to broaden the effort, especially as Internet availability expands.

For more information on Sky Awareness Week 1994, contact Barbara G. Levine, President, THINK WEATHER, Inc., at (301) 762-SNOW. ■

—Barbara Levine, *President, THINK WEATHER, Inc.*

# Publications and Audiovisuals

## Update on New Publications

Below are several projects the WCM/WPMs are handling with the assistance from the Warning and Forecast Branch staff.

■ The NWS brochure "Thunderstorms and Lightning...The Underrated Killers!" (NOAA PA 92053) has been in the making for nearly 2 years. Finally, the completed brochure has been sent to the printer. We expect delivery by mid-April 1994. Because of the enormous back orders at the National Logistics Supply Center (NLSC), we are printing 150,000 copies. As per our agreement with the American Red Cross and FEMA, they both will receive a set of negatives, plus the American Red Cross will receive 10,000 copies for immediate distribution to selected chapters. In turn, the ARC will use their negatives to print greater quantities for their chapters. (Courtesy of the American Red Cross, our stock of both the in-depth tornado (NOAA PA 92052) and flash flood/flood (NOAA PA 92050) brochures was increased by 100,000 copies each.) The NWS is especially grateful to Rocky Lopes and the American Red Cross for their support in this effort! In addition, our thanks go to Bill Bunting, WCM, WSO Pleasant Hill, Missouri, for his diligence in undertaking and completing this monumental task.

■ Now that the thunderstorms and lightning brochure has been completed, *Todd Heitkamp*, WCM, WSFO Sioux Falls, South Dakota, will be focusing his attention on the thunderstorm and lightning presenter's guide and slide resource library. The American Red Cross and FEMA will have an opportunity to review this package in the near future. Also, a copy of the script will be sent to the regions for comments. This package should become available to the field offices by early June 1994.

■ A new brochure—"Hurricanes...The Greatest Storms on Earth"—is nearing completion. A color copy was sent to the NWS regions in mid-February for a final review. Both *Max Mayfield* from the National Hurricane Center and *Mary Jo Parker*, WCM, at Wilmington, Ohio, have spent a great deal of time and effort in putting this brochure together. Our goal is to have this publication available by May in time for the 1994 hurricane season. Once this publication is on deck, we will no longer print "Storm Surge and Hurricane Safety with North Atlantic Tracking Chart" (NOAA PA 78019). Incidentally, supplies of the Atlantic "Hurricane Tracking Chart" (NOAA PA 77020) are still available at NLSC. The "Naming of Hurricanes" (NOAA PA 79017) for the Atlantic storms will be revised in May and should be available around the first part of June 1994. Please contact Linda Kremkau (301-713-0090) for information on any of the hurricane publications. ■

—Linda Kremkau

## Other NWS Hazard Awareness Materials

- Now available from the National Audiovisual Center (NAC) (address below) is the "Hurricane Andrew Slide Presentation" which includes 111 slides and a printed script. The cost is \$70. To order, please contact NAC, Customer Services Section, at (301) 763-1896 and ask for "#A19393." The address is:

National Audiovisual Center  
Customer Services Section  
8700 Edgeworth Drive  
Capitol Heights, Maryland 20743-1896

- The following NWS brochures are scheduled for reprinting this spring.

Heat Wave, A Major Summer Killer	NOAA PA 85001
Natural Hazard Watch and Warning Poster	NOAA PA 86001
Hurricane! A Familiarization Booklet	NOAA PA 91001

The following brochure is out of stock at the National Logistics Supply Center (NLSC) in Kansas City, Missouri. Plans to print more copies are scheduled for FY 95.

Advanced Spotter's Field Guide NOAA PA 92055

Remember, the maximum number of copies one can order is 300. For NWS offices only, please fill out NOAA Form 24-12 and send to NLSC. NLSC will ship only the maximum quantity of 300. Any requests for over the 300 limit must be submitted to WSH, Warning and Forecast Branch. If approved, we will submit the request directly to NLSC. For those individuals outside the Weather Service who are interested in acquiring quantities of NWS brochures, please write to:

National Weather Service, NOAA  
Warning and Forecast Branch, W/OM11  
1325 East West Highway, Rm. 14370  
Silver Spring, Maryland 20910

If you have any questions concerning these brochures and/or their availability, please contact Linda Kremkau or Rainer Dombrowsky at (301) 713-0090.

- Recently, the Warning and Forecast Branch polled the Regions to find out what hazard awareness materials—slide sets, videotapes, films, etc.—are needed for the WCM/WPM/Focal Points in the field offices. The list is long. Many of the new WCMs are starting out with very few awareness materials on hand, and several just need additional copies of these items. Many of the slide sets here at Weather Service Headquarters are incomplete and are no longer usable. We are not able to provide extra copies at this time, but we do have the originals. It's just a matter of obtaining the necessary funding to reproduce enough copies for field use.



The survey revealed the following numbers:

<u>1/2" Videos</u>	<u>Copies Needed</u>
<b>Survival in the Cold (ARC)</b>	<b>30</b>
<b>Disaster Dudes</b>	<b>15</b>
<b>Terrible Tuesday</b>	<b>20</b>
<b>The Awesome Power</b>	<b>10</b>
<b>Hurricane</b>	<b>10</b>
<b>Neosho</b>	<b>5</b>
<b>Day of the Killer Tornadoes</b>	<b>25</b>

<u>Slide Sets</u>	<u>Sets Needed</u>
<b>Advanced Storm Structure (170 slides)</b>	<b>40</b>
<b>Tornado: A Spotter's Guide (156)</b>	<b>15</b>
<b>Tornado Safety in Residences (130)</b>	<b>15</b>
<b>Tornado Preparedness (67)</b>	<b>10</b>
<b>Look at Tornado and other storms (63)</b>	<b>15</b>
<b>Safest Places in Schools (140)</b>	<b>18</b>


Note, not all of these audiovisual materials are going to be reproduced. Several of these items are years old, and we want to provide the field with the most up to date materials available. Many of these preparedness slide sets will be replaced by the upcoming new presenter's guide packages for tornadoes, thunderstorms and lightning, flash floods/floods, and hurricanes. The "Advanced Storm Structure" slide set appears to be the most needed at this time. We will do our best to reproduce this slide set first. Also, the videotapes highlighted in bold are currently the ones we need to duplicate first. But again, the funding issue is our main concern at this time.

■ As mentioned earlier, Gary Woodall, Southern Region Headquarters, is revising the basic/intermediate spotter training slide program. This slide set will eventually replace the outdated "A Slide Series Supplement to Tornado: A Spotter's Guide." Due to the current fiscal climate, funding for this project will not be available until FY 95. This will be one of the first items addressed in next year's budget. If funding becomes available this year possibly from outside sources, then this new slide set can be reproduced and distributed earlier.

(Editor's Note: For information on upcoming NWS hazardous weather awareness weeks, see attachment C. 

—Linda Kremkau

## *Aware Report* Roster

Attachment D is the *Aware Report* Roster. Notice all the new WCMs. Please review the list of telephone numbers, and notify me at 301-713-0090 if there are any changes. Also, if you know of someone who would like to be placed on the *Aware Report* distribution list, please have him/her contact the Warning and Forecast Branch. 

—Linda Kremkau

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# Statistics

## Correction to the 1992 Summary of Natural Hazard Statistics

In January 1994, you were sent a revised version of the "Summary of Natural Hazard Deaths for 1992 in the United States," produced by the Warning and Forecast Branch. Two changes occurred in the summaries, which were on pages 1 and 3. They are:

- (1) On page 1, "A Summary of 1992 Weather Events, Deaths, Injuries, 30-Year Normals, and Damage Costs" — the dollar amount was changed in the damage category under Tropical Storms/Hurricanes from \$4,611.3 (M) to \$33,611.3 (M).
- (2) On page 3, "1992 Summary Report of Severe Weather Deaths, Injuries, and Damage Costs Listed by State" — the dollar amount under the damage category for the State of Florida was changed from \$1,089.2 (M) to \$30,089.2 (M).

This huge cost adjustment was mostly attributed to Hurricane Andrew. Our database was not capable of handling tens of billions of dollars in damage costs. This has been corrected. As a result of these cost modifications, the totals also changed for both summaries.

Additional copies can be obtained from the Warning and Forecast Branch. 

—Linda Kremkau



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# UPDATE ON THE OFFICE OF METEOROLOGY'S WSOM CHAPTERS

WSOM Chapters	Status
C-11, Zone and Local Forecasts (main section)	A draft revision will be prepared sometime in 1994.
C-12, 6- to 10-Day, 30-Day, and 90-Day Outlooks	The final version of the chapter was approved. Distribution is expected in March.
OML to C-20, National Public Weather Products	An OML will be issued this spring to include Canadian Urban Forecasts and additions to the Foreign Temperature and Weather Table.
C-40, Severe Local Storm Warnings	C-40 will require more reworking during the next couple of months in order to be ready for distribution by July 1994.
C-41, Hurricane Warnings	A draft of C-41 was distributed for field review the first week of February. The most significant change to C-41 addresses inland effects relating to landfalling tropical cyclones. In addition, we have attempted to improve the utility of the chapter through the enhancement of appendices and references to other supporting chapters. Field distribution remains on schedule for May 1994.
C-45, Meteorological Discussions and Forecast Coordination	The final version of the chapter was sent to senior management by early December. Distribution is expected this spring.
C-47, County Warning Areas	The revised chapter was distributed in late September. Necessary page changes to the appendix for current and modernization era county warning area (CWA) changes will be issued as needed on a quarterly basis.
OML to C-49, Warning Coordination and Hazard Awareness Program	An OML will be issued this spring to update section 6, Coordination During Transition to a Modernized NWS, and section 7.2, Non-NWS Material Requests.
C-60, Radio/TV Dissemination; C-61 Telephone Dissemination; C-62, Newspaper Dissemination; C-66 Dissemination of Public Warnings; C-67, News Wire Dissemination	Work will begin on updating and probably consolidating these chapters in 1994.
D-20, Aviation Area Forecasts	Draft OMLs to be filed with these chapters will make the current Aviation Area Forecast test procedures permanent and adjust AIRMET procedures. The draft OMLs have been sent to the NWS regions for final comments by the end of February with a target implementation date in late March 1994.
D-22, In-flight Aviation Weather Advisories	A revised portion of D-20 is in the process of being mailed to the regions. This mailed exhibit replaces petroleum grid names. Significant meteorological conditions in the Gulf of Mexico Area Forecast are now described using one or more of the following: (1) Latitude/longitude, (2) Selected airports, (3) Supplemental Aviation Weather Reporting Station platforms, (4) Data buoy locations.
D-21, Aviation Terminal Forecasts	The draft chapter composed by the FT Working Group (see Fall 1993 <i>Annex Report</i> ) was mailed to the NWS regions and other aviation community entities for comments. Adjudication of the comments received is underway with a projected distribution of the new chapter expected by April 1994.
D-23, Special Aviation Forecasts and Events	Work will begin on updating and adjusting the contents of this chapter in April 1994.
D-25, Support to Air Traffic Facilities	The field-composed draft chapter (see Fall 1993 <i>Annex Report</i> ) is under review with a formal draft to be ready for regional distribution in March 1994. Projected distribution of the new chapter is expected by July 1994.
D-51, Marine Services for Coastal, Offshore,	This chapter has cleared the union. Distribution is expected and High Seas Areas by spring.
D-79, NWS Flight Operations	The first informal draft of the chapter has been distributed for solicitation of comments from the NWS regions. With comments due by early March 1994, the new chapter is expected to be distributed by early May 1994.
F-42, Storm Data and Related Reports	This chapter is at the union for review. Implementation of F-42 is expected in March 1994.



**HAZARDOUS WEATHER  
AWARENESS WEEKS**

<u>State</u>	<u>Campaign</u>	<u>Date</u>	<u>Drills</u>
<u>Eastern Region</u>			
South Carolina	Severe Weather	Feb. 20-26, 1994	Feb. 23
North Carolina	Severe Weather	Feb. 20-26	
Ohio	Severe Weather	Mar. 13-19	
<u>Central Region</u>			
Illinois	Severe Weather	Feb. 27-Mar. 5, 1994	Mar. 1
Kansas	Severe Weather	Mar. 7-11	Mar. 8
Missouri	Severe Weather	Mar. 7-11	Mar. 8
Kentucky	Severe Weather	Mar. 13-19	Mar. 15
Indiana	Severe Weather	Mar. 13-19	Mar. 16
Nebraska	Severe Weather	Mar. 21-25	Mar. 23
Iowa	Severe Weather	Mar. 21-24	Mar. 21
Michigan	Severe Weather	Mar. 27-Apr. 2	Mar. 30
Wisconsin	Tornado	Apr. 10-16	Apr. 14
South Dakota	Severe Weather	Apr. 11-15	Apr. 13
<u>Southern Region</u>			
Louisiana	Severe Weather	Jan. 23-29, 1994	
Alabama	Severe Weather	Feb. 27-Mar. 5	
Arkansas	Severe Weather	Feb. 27-Mar. 5	
Georgia	Severe Weather	Feb. 27-Mar. 5	
Mississippi	Severe Weather	Feb. 27-Mar. 5	
Oklahoma	Severe Weather	Feb. 27-Mar. 5	
Tennessee	Severe Weather	Feb. 27-Mar. 5	
N. Texas	Severe Weather	Mar. 6-12	
S. Texas	Severe Weather	Mar. 6-12	
W. Texas	Severe Weather	Mar. 6-12	
New Mexico	Severe Weather	Apr. 3-9	
<u>Western Region</u>			
Idaho	Severe Weather Media Workshops	May 1994	
N. California	Warning Dissemination Test	May	
S. California	Thunderstorm	June	
Arizona	Flash Flood	June 5-11	
Nevada	Flash Flood	June	





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