AWARE

JANUARY 1990

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

INTRODUCING THE NEW *AWARE* REPORT

The decade of the 1990s will be the decade of change for both the National Weather Service (NWS) and our users. It will be a period marked by new technologies, a new field structure, and a new way of doing our job. Communication, both internally and externally, will be the key to success. From this need for better communication, AWARE was born.

The AWARE Report replaces the old Disaster Preparedness (DP) Report and is intended to highlight major changes to the public warning, forecast, dissemination, awareness and warning coordination programs of the NWS. It is expected to be a key resource for questions on modernization and how the Weather Service will interface with emergency managers, the media, the private sector, and the entire hazards community toward the provision of public warnings and forecasts.

The potential of the 90s for mitigating the effects of natural hazards is so high that it has led to the United Nations and the U.S. Congress to endorse the 1990s as an International Decade for Natural Hazard Reduction. Similarly, President Bush has announced his intention of being the Environmental President while Marilyn Quayle has become increasingly active in natural hazard mitigation efforts.

One of our Nation's major initiatives for the International Decade for Natural Hazard Reduction is the modernization and restructuring of the NWS and the forging of closer working relationships with the emergency management community. Every issue of the AWARE Report will contain sections on modernization, the International and U.S. Decades for Natural Hazard Reduction and significant local warning coordination and hazard awareness activities.

We hope all Weather Service personnel and emergency management officials will find the AWARE Report to be a vital information source. If you have any questions about the report or if you care to submit any articles for possible inclusion, please contact us. With your help, we can make the AWARE Report work for you!

Don Wernly

Donald R. Wernly
Chief, Warning and Forecast Branch

U.S. DEPARTMENT OF COMMERCE • National Oceanic and Atmospheric Administration

AWARE Report is an administrative document, issued by the National Oceanic and Atmospheric Administration, for the information and use of the agency and the natural hazard community.

MODERNIZATION

Warning Coordination Meteorologist (WCM) National Conference, Boulder, Colorado, July 9-13, 1990 - *Read, Kremkau*

We are pleased to announce the next WCM National Conference will be held at the Environmental Research Laboratory (ERL) in Boulder, Colorado, during the week of July 9th. The central theme for the conference will be the Modernization and Restructuring (MAR) of the NWS. The agenda will include sessions about:

-- plans for the MAR,
-- the role of the WCM in MAR,
-- advances in science and technology by the Boulder research community,
-- interaction with the media and emergency management communities in MAR, and
-- current programs, including Storm Data, verification, awareness materials, NOAA Weather Radio, etc.

As in the past, the conference will be designed to allow considerable discussion of topics by the attendees.

Our last conference in December 1987 was held at Norman, Oklahoma, where attendees were apprised of changes in the warning program due to NEXRAD. In Boulder, we will be given the opportunity to see how the scientific work conducted at ERL and NCAR as well as the development work for AWIPS by PROFS will be factored into the warning process.

Lodging for the conference will be at the Holiday Inn (address and telephone number below). The hotel has reserved a block of rooms at a rate of $48 plus tax for this conference. Each individual is responsible for making their own reservations. When making reservations, please identify yourself as associated with NWS WCM Conference.

Holiday Inn
800 28th St.
Boulder, CO 80303
Tel: (303) 443-3322

The Conference will commence on Monday afternoon in the Breckinridge Room at the Holiday Inn. Tuesday through Thursday, the meeting will be held at the conference room at ERL. And on Friday, we will wrap up the conference back at the Holiday Inn. We hope to have the tentative agenda ready for the next issue of the AWARE Report.

Needs of Emergency Managers in the Modernized and Restructured NWS - *Harned*

The Weather Service Headquarters has contracted with Dr. Chris Adams of the Cooperative Institute for Research in the Atmosphere, Colorado State University, to explore the needs of emergency managers in the modernized NWS. In addition to being a sociologist specializing in the sociology of natural disasters, Dr. Adams is a former Emergency Manager from the City of Denver.

The first part of his contract ended last fall, and the following recommendations were given to the Warning and Forecast Branch.

For Stage II - IOC, the following goals have been established:

Using the initial capabilities of AWIPS, improve spatial and temporal resolution of warnings.

Using the NOAA Weather Radio Upgrade and AWIPS - EOC links, improve dissemination of warning information.

Successfully reconfigure the public forecast program into the WFO structure.

For Stage II "End State," the following goals are envisioned:

Achieve integrated operations concept.

Disseminate graphical public products.

Transfer Severe Thunderstorm/Tornado Watch responsibility to the WFOs.

Establish storm coordination function at a National Center.

Increase temporal resolution in first period public forecast.

We discussed the goal for a short-range forecast product -- part of the Area Weather Update -- in the last issue (October 1989) of the DP Report. In following issues of the AWARE Report, we will discuss in detail one or more of the other goals.

WARNING AND FORECAST BRANCH INITIATIVES

Changes in Storm Data - *Read*

Rumors have been flying the past 2 months concerning the possible demise of Storm Data. Fortunately, this is not the case. The NWS recognizes the need for the information contained in Storm Data. We foresee an even greater requirement for information on hazardous weather events as we move into the NEXRAD era across the U.S.

As for the event that started the rumor...we were informed during the first week of December by Dr. Fujita that his role in the publication through the University of Chicago would end with the December 1989 issue. Three reasons were cited: the loss of funding from the Office of Naval Research, the loss of support from the University and the pending partial retirement of Dr. Fujita. As many of you know, Dr. Fujita has provided a valuable service to Storm Data during the 1980s. He and his assistants gathered input from all NWS Forecast Offices, created a camera ready copy and added features, such as Outstanding Storms of the Month, before sending the copy to the National Climatic Data Center (NCDC) for printing and distribution. All of us associated with Storm Data appreciate Dr. Fujita's contribution to the publication and wish him well in the future.

o NWS Operations Manual Chapter C-64 - *Berger*

The latest draft of WSOM Chapter C-64, NOAA Weather Radio Program, has been distributed for final review. It updates policies for programming, quality control, and WRSAME. The official date of issuance is expected this spring or summer.

It strongly encourages broadcasters to use the "process approach" in news broadcasting which is outlined in the Writing and Broadcast Seminars at the NWS Training Center. During routine broadcasting, this uses the "inverted pyramid" concept for setting up the broadcast cycle which starts with general information and then focuses on more specific information in both time and space as the cycle progresses. The idea is to have an integrated broadcast, not merely a "talking weather wire." This is especially important with the phase out of direct routine broadcasts on commercial radio by NWS personnel and consequent increase in rebroadcasts of the NWR programming.

The new chapter also places increased emphasis on the most effective programming techniques for warning situations to avoid confusion and allow greater flexibility when updating. The "rip and read" approach must be avoided. Information from watches, warnings, and other statements should be edited prior to broadcast to include only information relevant to the listening area.

With NWR being the official voice of the NWS and with its increasing use across the country, quality control is more important than ever. NWR program leaders should increase their efforts in this area. It is also strongly recommended that quality control include frequent on-shift monitoring of the broadcasts to note and correct problems and keep the broadcasts up to date.

As with any Operations Manual Chapter, appropriate flexibility is allowed in this draft for specific local requirements.

44th Interdepartmental Hurricane Conference - *Harned*

Representatives of Federal agencies involved in the Hurricane Warning Program met the week of January 8, 1990, at Homestead Air Force Base in Florida for the 44th Interdepartmental Hurricane Conference. Although several Federal agencies were in attendance, the primary agencies involved were the Department of Commerce (NOAA/NWS) and the Department of Defense (Air Force and Navy). NOAA/NWS attendees included Jim Travers (OM), Bob Sheets (NHC), Dick Hagemeyer (PR), Don Wernly (OM), Bill Proenza (SR) and Steve Harned (OM).

There will be only two minor changes in the NWS hurricane program this year. The Tropical Cyclone Discussion (TCD) will include wind speed forecasts and will be placed on the NOAA Weather Wire Service (NWWS) to reach local emergency managers. Also, probabilities will be returned to the marine advisories (TCM) on a trial basis. Parts of the marine community and some emergency managers missed having the probabilities on the marine advisory while the Navy preferred not having them on the product. The policy will be revisited at next year's conference to see if the probabilities should or should not remain permanently on the TCM.

Finally, for the first time in over a decade, the Air Force reconnaissance squadrons and NHC will arrange a week long series of visits to eastern Caribbean countries. These visits will include hurricane preparedness training for local officials, and the airplanes will be open for visits from the general public. Only countries that have expressed interest will be visited. If this project is successful, a trip through the western Caribbean will be arranged for 1991.

The objective of the International Decade is:

> to reduce through concerted international action, especially in the developing countries, the loss of life, property damage, and social and economic disruption caused by natural disasters, such as earthquakes, windstorms, tsunamis, floods, landslides, volcanic eruptions, wildfires, grasshopper and locust infestations, drought and desertification and other calamities of natural origin.

The goals are:

(a) to improve the capacity of each country to mitigate the effects of natural disasters expeditiously and effectively, paying special attention to assisting developing countries in the assessment of disaster damage potential, and in the establishment of early warning systems and disaster-resistant structures when and where needed;

(b) to devise appropriate guidelines and strategies for applying existing scientific and technical knowledge, taking into account the cultural and economic diversity among nations;

(c) to foster scientific and engineering endeavors aimed at closing critical gaps in knowledge in order to reduce loss of life and property;

(d) to disseminate existing and new technical information related to measures for the assessment, prediction, and mitigation of natural disasters;

(e) to develop measures for the assessment, prediction, prevention, and mitigation of natural disasters through programs of technical assistance and technology transfer, demonstration projects, and educational and training, tailored to specific disasters and location, and to evaluate the effectiveness of those programs.

Participating governments are called to:

(a) formulate national disaster-mitigation programs, as well as economic, land use and insurance policies for disaster prevention; and particularly in developing countries, to integrate them fully into their national development programs;

(b) participate during the decade in concerted national action for the reduction of natural disasters and, as appropriate, establish national committees in cooperation with the relevant scientific and technological communities and other concerned sections with a view to attaining the objective and goals of the Decade;

(c) encourage their local administrations to take appropriate steps to mobilize the necessary support from the public and private sectors and to contribute to achieving the purposes of the Decade;

(d) keep the Secretary-General informed of the plans of their countries and of assistance that can be provided so that the United Nations may become an international center for the exchange of information and the coordination of international efforts concerning activities in support of the objective and goals of the Decade, thus enabling each state to benefit from the experience of other countries;

WARNING COORDINATION AND HAZARD AWARENESS BULLETIN BOARD

Disaster Awareness Activities

Bill Alder, Utah Area Manager, recently attended a workshop comprised of Federal, state, and local officials who gathered to prepare a hazard mitigation plan for Emigration Canyon. A large wildfire in the canyon last summer created a serious potential for mudslides and related maladies. The NWS contingent in Arizona recently concluded a successful winter weather conference in Prescott, Arizona. Co-hosting the meeting was the Yavapi County Emergency Services. Topics of interest were wide-ranging and included a discussion on using Packet Radio as a communication tool for weather spotters.

ASFPM 14th Annual Conference

The Association of State Floodplain Managers 14th Annual Conference will be held June 11-14, 1990, in Asheville, North Carolina. As the major floodplain management conference in the country, this yearly event attracts a broad audience including Federal, state, and local officials, consultants, engineers, planners, representatives from non-profit organizations, researchers, educators and involved citizens -- all of whom have an interest or role in flood hazard reduction activities. For further information concerning this conference, please contact:

Conference Director - Berry Williams
NC Div. of Emergency Management
116 West Jones Street
Raleigh, NC 27603-1335
Tel: (919) 733-3867

Oregon "Passing Out"

Offices in the State of Oregon continue to take the lead in distribution of NOAA Weather Radio (NWR) pamphlets to the public. This, along with articles in marine newsletters and other publications, yearly participation at the Oregon State Fair, and other positive steps, has strengthened the NWR program considerably and improved the National Weather Service image in that state. We commend the Oregon offices for their aggressive approach and hope other offices in the region can equal or exceed their high standard.

NOAA Weather Radio and Boating Safety

Marian Peleski, MIC WSO Wilmington, Delaware, recently produced a wallet-size card on NOAA Weather Radio and boating safety (attachment A) for inclusion in the 1990 Delaware state boating registration renewal forms. It's a nifty little card with useful marine weather information for the recreational boater. Nice job, Marian!

Pennsylvania Farm Show

The NWS had a booth at the annual Pennsylvania Farm Show which is held every January. This year, the Harrisburg Radio Lab, a retail electronics outlet has donated two weather radios to the NWS to be given away as prizes. Winners will be chosen by drawing. A NOAA Weather Radio listening survey will be undertaken, and it is hoped that the radio giveaway will entice more people to answer the questionnaire. Al Peterlin, Warning Preparedness Hydrologist, is also looking to the future. He has contacted the Radio Shack District Office in Harrisburg, Pennsylvania, and they have promised to participate in a more vigorous promotion of the weather radio at the 1991 State Farm Show.

SEVERE WEATHER AWARENESS CAMPAIGNS

State	Campaign	Date	Drill Date
Eastern Region			
South Carolina	Severe Weather	Feb. 26-Mar 3	Feb. 28
North Carolina	Severe Weather	Feb. 26-Mar 2	
New York	Severe Weather	Apr. 2-6	
Vermont	Severe Weather	Apr. 2-6	
Pennsylvania	Severe Weather	Apr. 2-6	
Ohio	Tornado Awareness	Mar. 25-31	
Central Region			
Michigan	Flood	Feb. 11-17	
Michigan	Severe Weather	Apr. 1-7	April 4
Nebraska	Severe Weather	Mar. 25-31	March 29
Iowa	Tornado, Severe Thunderstorm and Flash Flood	Mar. 25-31	March 28
Kentucky	Severe Weather	Mar. 19-23	March 19
Indiana	Severe Weather	Mar. 11-17	March 15
Kansas	Severe Weather	Mar 4-10	March 6
Missouri	Severe Weather	Mar 4-10	March 6
Illinois	Severe Weather	Mar. 4-10	March 6
Wyoming	Severe Weather	Apr. 2-6	April 5
South Dakota	Severe Weather	Apr. 2-6	April 5
Southern Region			
Louisiana	Severe Weather	Feb. 19-23	Feb. 21
Mississippi	Severe Weather	Feb. 19-23	Feb. 21
Alabama	Severe Weather	Feb. 19-23	Feb. 21
Florida	Severe Weather	Feb. 19-23	Feb. 21
Georgia	Severe Weather	Feb. 26-Mar 3	Feb. 28
Oklahoma	Severe Weather	March 4-10	March 6
Tennessee	Severe Weather	March 4-10	
Arkansas	Severe Weather	March 4-10	March 8
South Texas	Severe Weather	March 11-16	
West Texas	Severe Weather	April 8-14	
New Mexico	Severe Weather	April 2-6	
Puerto Rico/ Virgin Islands	Hurricane	July 22-28	
Western Region			
Arizona	Severe Weather	March 4-10	

Table of
Tornado Frequency and Deaths for the 80s and 70s

	Frequency	Deaths
1980-89	8173	520
1970-79	8580	998

Tornado Frequency

	1980-89			1970-79	
1	Texas	1406	1	Texas	1431
2	Florida	553	2	Florida	662
3	Oklahoma	487	3	Oklahoma	427
4	Iowa	379	4	Nebraska	381
5	Nebraska	349	5	Illinois	364
6T	Kansas	336	6	Iowa	304
6T	Colorado	336	7	Kansas	303
8	Louisiana	311	8	Mississippi	297
9	South Dakota	294	9	Louisiana	278
10	Mississippi	290	10	South Dakota	275

Tornado Fatalities

	1980-89			1970-79	
1	Texas	76	1	Mississippi	145
2	Pennsylvania	65	2	Texas	139
3	North Carolina	57	3	Alabama	124
4	Arkansas	42	4	Kentucky	83
5	Alabama	35	5	Tennessee	59
6	Mississippi	29	6	Oklahoma	55
7	Oklahoma	24	7	Indiana	54
8	Wisconsin	22	8	Ohio	49
9	Ohio	20	9	Georgia	33
10T	Florida	18	10T	Arkansas	31
10T	Illinois	18	10T	Kansas	31
10T	South Carolina	18			

ATTACHMENT A

SAFE BOATING DEPENDS ON KNOWING THE WEATHER!

Check U.S. National Weather Service Forecasts before getting underway. Marine weather forecasts are read on many commercial radio stations and are carried on VHF-FM radio direct from your local U.S. National Weather Service Office.

U.S. Department of Commerce NOAA WEATHER RADIO frequencies

LEWES, DE	162.550 MHz (WX 1)
SALISBURY, MD	162.475 MHz (WX 3)
BALTIMORE, MD	162.400 MHz (WX 2)
HEATHERSVILLE, VA	162.400 MHz (WX 2)
NORFOLK, VA	162.550 MHz (WX 1)
ATLANTIC CITY, NJ	162.400 MHz (WX 2)
NEW YORK CITY	162.550 MHz (WX 1) or 162.4[illegible] MHz (RIVERHEAD)

Scanners, VHF/FM marine multi-band radios, and in expensive weather boxes can be purchased in any radio or marine radio shop

The National Weather Service has the primary responsibility to broadcasting marine weather warnings. ***NOAA Weather Radio is the only reliable and timely source for marine warnings!*** Small Craft Advisories and gale winds of 25 knots or greater. Gale force winds are 34 knots or higher. Special marine warnings are issued when thunderstorm winds are expected to exceed 34 knots.

Thunderstorms and associated high winds, heavy seas, lightning and hail are summer boating's biggest threat. Thunderstorms often develop in the heat of the afternoon but can occur at any time of the day or night. Learn to recognize the thunderhead cloud whose shape resembles an anvil. Head for shore before the dark area underneath the thunderstorm threatens your safety.

Keep a weather radio on board and listen to the hourly updates on thunderstorm development and movement. ***Static on your AM radio*** may be the first indication that thunderstorm activity is nearby especially if summer haze limits watching the sky for approaching storms.

Lighting commonly strikes where positive charges build up on points above the water surface. This makes boats on open water vulnerable, especially those with high masts. You should minimize damage from lightning strikes by installing a grounding system. Radio antennas need to be equipped with a lightning arrester in the lead-in cable.

WAVES are produced by local winds. The forecast WAVE HEIGHT is the vertical distance from trough (low point of wave) to crest (high point of wave) of the majority of waves. About 5 to 10 percent of the waves will be higher than those forecast because two or more waves combine. As a rule of thumb, maximum wind wave heights (in feet) will not get higher than the wind speed in knots. SWELLS are waves produced by winds that are some distance away

IF CAUGHT IN A STORM...

- **IF NOT ALREADY WEARING YOUR PERSONAL FLOTATION DEVICE... PUT ONE ON!!!**
- Make sure everyone is out of the water
- Bring in all protuding objects that can attract lightning such as fishing poles
- Head for shore.
- Do not touch any wet objects, metal, or electronic equipment such as the radio.
- Do not touch more than one grounded object at the same time (or you may become the shortcut for electrical surges).
- Know CPR! A lightning strike can interrupt a person's heartbeat. CPR should be tried to attempt to re-start the heart of someone struck by lightning!

WEATHER SUMMARY

- Check U.S. National Weather Service forecasts before leaving. Keep current while afloat with present weather updates on Weather (WX) 1, 2, or 3.
- Watch for approaching thunderstorm clouds or dark threatening skies and seek shelter before it is too late.
- Static on AM radio indicates lightning nearby.
- Be alert to any steady increase in wind speed...this promises a change for the worse in both weather and wave conditions.
- If caught in a thunderstorm:
  - -- put on your Personal Flotation Device.
  - -- stay below deck, or lie down as low as possible.
  - -- keep away from metal objects that are not grounded.
  - -- Don't touch more than one grounded metal object at the same time.
- Know CPR. You can help revive some lightning victims.
- The Red Cross, your local Power Squadron, and the Coast Guard Auxiliary all teach courses in weather and in handling small boats in bad weather.

U.S. DEPT. OF COMMERCE, NOAA, NATIONAL WEATHER SERVICE

ATTACHMENT B

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE Forecast Office
1200 Westheimer Drive, Room 101
Norman, OK 73069

SEVERE WEATHER SAFETY PLAN CHECKLIST FOR SCHOOLS

Use the following checklist for the evaluation or design of a severe weather safety plan for schools. The plan should be designed so that teachers and students anywhere on school grounds can be quickly alerted and then follow a pre-set plan of action to maximize safety.

1. Who is responsible for activating the plan? Is there a back-up?

2. What is/are the primary means of receiving severe weather information? (i.e., NOAA Weather Radio, commercial radio/television, etc)

3. What method do you employ to alert teachers and students? Is there a back-up that does not require electricity? (Electricity may be lost during a storm)

4. Make provisions for these problem areas:
   A. Students that are in mobile classrooms that may be far from the main building and that may be disconnected from an intercom system.
   B. Students that may be in the cafeteria or gymnasium during the storm.
   C. Learning-disabled students, or any other students who may be in a position to not hear the warning or alert. Assign a teacher to each student who needs special attention (such as a student in a wheelchair or who may be hearing-impaired) who will ensure that the student moves to the appropriate place of safety.
   D. Students who are outside. Remember, if you are close enough to hear thunder, then you are close enough to be struck by lightning. Also, students who are outside are at risk from the dangers of large hail and strong "straight-line" winds.

5. Five main problems for schools in a tornado:
   A. Forces caused by the wind and the airflow around the building.
   B. Forces caused by other objects (debris) impacting school walls.
   C. Pressure differences caused by the tornado (secondary to the first two forces).
   D. Gas leaks and electrical hazards after the storm. Have someone knowledgeable in turning off gas and electricity at school during school hours.
   E. "Wind Tunnel Effect." When blown by tornado-strength winds, debris (such as fragments of glass, wood, and metal) can cause serious injury when accelerated by the relatively narrow hallways in schools.

6. Other thunderstorm hazards: Are you prepared?
   A. Lightning-may pose a threat well before strong winds/rain affect the area.
   B. Large hail-the largest hail usually occurs near the most dangerous area of the storm for the development of tornadoes.

ATTACHMENT C

AWARE Report Roster

January 1990

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