

AWARE

JULY 1990

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

WARNING PREPAREDNESS METEOROLOGIST CONFERENCE

The Warning Preparedness Meteorologists (WPM) Conference was held in Boulder, Colorado, July 9-13, 1990. Over 80 people, including WPMs and other people involved in warning coordination and hazard awareness, attended sessions held at the Holiday Inn and at NOAA's Environmental Research Laboratory (ERL). Attendees received information on the transition to the modernized National Weather Service (NWS), the role of the Warning Coordination Meteorologist in the future, research and development aspects of new technology at ERL, plans for training, and the needs of the emergency management community. Sessions also were conducted on areas of current interest, such as Storm Data, verification, how to conduct a damage survey, interpretation of the advanced spotter slide series, status of brochures and audiovisual materials, and NOAA Weather Radio (NWR).

Dr. John Knauss, NOAA Administrator, stopped by to stress to the WPM's that the modernization was NOAA's number one priority. In keeping with that theme, Robert Landis, Deputy Assistant Administrator for Operations, addressed the WPM's concerning modernization and the important role the WPM will play in that process.

A highlight of the meeting was the demonstration of the PROFS/DARE workstation. As "luck" would have it, a large severe thunderstorm developed north of Boulder early in the session and moved southward across Boulder and Denver, where large hail caused hundreds of millions of dollars in damage and injured a number of people. This storm will likely go down as the costliest single thunderstorm in dollar damage. Everyone got a taste of the utility of the PROFS workstation and new technologies for diagnosing severe weather during the demonstration.

As in any successful conference, a great deal of interaction occurred among the attendees. The exchange of good ideas between the WPMs and the regional and national headquarters people should benefit all who participated.

On the social scene, in addition to enjoying the many nice restaurants and the scenery in and around Boulder, a barbecue dinner was held at NCAR. The NCAR center was open for touring which everyone found very interesting, especially the lecture on the Cray Computing Center.

Those of us in the Warning and Forecast Branch enjoyed meeting all the WPMs and sharing ideas and experiences.

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

Oklahoma City/Norman, Oklahoma, Risk Reduction Activities - Becker

To test the feasibility of the NWS's Weather Forecast Office (WFO) structure in the modernized era, WSFO Norman, Oklahoma, is preparing to undertake a critical WFO emulation. It is scheduled to begin with the operational availability of the WSR-88D radar (NEXRAD) and the "Pre-AWIPS" workstations early in 1991. This NWS internal WFO emulation will be a precursor to the Modernized and Associated Restructured Demonstration (MARD).

Many key risk reduction exercises will be conducted at Norman in support of the WFO emulation. These include WSR-88D to Pre-AWIPS interface, central data feed to Pre-AWIPS, staffing and workload, impact of the Area Weather Update (AWU), use of an Interactive Computer Worded Forecast (ICWF), service as an Associated User (to DOD WSR-88D), assumption of Cooperative Program Manager (CPM) duties by WFO hydrometeorologist technicians, hydrological activities, and workstation training for Norman staff.

Committees have been established to rigorously evaluate the results of the risk reduction exercises. These evaluations should begin in the summer of 1991. Toward that end, Gary Grice of Southern Region Headquarters chaired a working group of committee members and the PROFS Evaluation Team at Boulder, Colorado, the week of August 6. Goals, objectives, methodologies, and resources were discussed from which preliminary plans were drafted.

These draft plans are the first step toward a final, comprehensive and integrated blueprint for accomplishing the evaluations. Incorporated in this plan will be all required evaluation tools, including integrated questionnaires and shift logs, as well as requirements for interviews, on-site observations, and usage/problem logs.

NOAA Weather Radio - Berger

Work has begun by a committee of regional and national headquarters representatives on the product formatting requirements for the Console Replacement System (CRS). Comparisons of taped broadcasts and the source material is being made to identify an initial set of alphanumeric products that can be broadcast on the CRS with little or no manual modification, using the AWIPS Initial Operating Capability (AWIPS IOC). Some of the main candidates would include local forecasts, short-fuse warnings, hourly weather roundups, and climatic reports. Further work continues on determining this initial set of products.

WARNING AND FORECAST BRANCH INITIATIVES

Welcome John Sokich! - *Wernly/Kremkau*

The Warning and Forecast Branch is pleased to announce that John Sokich has been selected to replace Steve Harned who is now the Meteorologist in Charge (MIC) at Raleigh, North Carolina. John Sokich comes from the National Meteorological Center (NMC) in Suitland, Maryland. John received his B.S. degree in Meteorology from the Pennsylvania State University (PSU) in the summer of 1981 after participating in the Cooperative Education Program between NWS and PSU. Immediately after graduation he began working in the Forecast Branch of NMC. His position there specialized in heavy rain and heavy snow forecasting for the lower 48 states and adjacent areas of Canada and Mexico. In addition, he has been the NMC Hurricane Focal Point since June 1987. As the Hurricane Focal Point, John drafted the NHC Hurricane Backup Plan which calls for NMC to assume the National Hurricane Center's (NHC) warning responsibilities if conditions warrant. He also represented NMC at the last three NOAA Hurricane Conferences. As the new Program Leader for the Hurricane and Winter Storm Programs, he brings to the job much knowledge and experience in both of these fields. We are extremely happy to have him on our team.

American National Red Cross - *Kremkau*

Lynne Filderman, who has worked for the American National Red Cross for 5 years now developing a national strategy for public education before disasters, was supposed to be a guest speaker at the WPM Conference. Unfortunately, she became ill and was unable to attend. She has provided a letter for the AWARE Report (attachment A) with a few thoughts to the WPMs on building coalitions and working with American Red Cross chapters. Some of you may remember Lynne when she worked with the Children's Television Workshop on the development of the Big Bird "Get Ready for Hurricanes" Kit.

Two NOAA Disaster Survey Teams Formed - *Read/Kremkau*

NOAA Disaster Survey teams were formed in recent months for two separate flooding events. April-May flooding in the four-state area of Oklahoma, Arkansas, Louisiana, and Texas prompted the first survey team. Another team was formed as a result of the flash flood that happened near Shadyside, Ohio, on June 14.

o **Four-state Flood Disaster Survey -- April/May 1990**

The first survey was conducted during the 8-day period beginning May 28 and ending on June 4. The purpose of the survey was to review the performance of NOAA's disaster warning system with the following three objectives: (1) to establish where the

A flood watch was issued about an hour ahead of the heavy rain. No warning was issued primarily because there was no radar indication of heavy rain and no available reports of rainfall or flooding in the watershed. There was widespread thunderstorms across southern Ohio and southwestern Pennsylvania which also produced considerable urban and small stream flooding but no other loss of life.

Many residents along the creeks were aware of the watch, but said they did not do anything primarily because there had not been a flood anywhere near this magnitude in their memory. The team felt that given the rapid onset of the flooding and speed with which it moved downstream, that a local flood warning system would be the most effective way to protect lives in the future.

There is considerable interest about this event outside the NWS. Bill Read briefed staff members from the Ohio congressional delegation on June 26. Also, the National Academy of Science team evaluating the MAR is interested in studying the results of the survey. The unique hydrological and meteorological features of this event has also sparked interest in the research community which, hopefully, will result in improved forecast techniques.

Emergency Broadcast System (EBS) - Becker

The National Association of Broadcasters (NAB) holds two conventions each year, a combination of the television and radio industries in the Spring and radio-only in the Fall. This Fall's NAB convention will be held in Boston, Massachusetts, in mid-September. The television and radio industries display their wares and conduct seminars on broadcasting techniques, marketing, and engineering. The NAB invites the Federal Communications Commission (FCC), the Federal Emergency Management Agency (FEMA), and the NWS to the conventions to participate in disseminating information on the EBS; the NWS also provides information on its NWR, NOAA Weather Wire Service, and modernization efforts. At past conventions, where FCC, FEMA, and NWS jointly gave seminars on the EBS and NWS matters, audience interest almost always focused on the NWS.

The EBS is jointly managed by the FCC, FEMA, NWS, and the EBS Advisory Committee (comprised of industry personnel). A Memorandum of Understanding between the Federal agencies expands the use of the EBS from that of a nationally oriented system to a system responsive and useful to state and local officials. In fact, the NWS activates the EBS at the local level well over 90 percent of the time to warn primarily for tornadoes and flash floods.



INTERNATIONAL DECADE FOR NATURAL HAZARD REDUCTION

Decade Activities - *Ed Gross, Chief, Constituent Affairs and Industrial Meteorology*

- o The report of the Federal Subcommittee on Natural Disaster Reduction entitled "The U.S. Natural Disaster Reduction Program - Reducing Natural Disasters by the Year 2000" is in the final phases of completion. Bill Hooke, Chairman of the Subcommittee, briefed the Committee on Earth and Environmental Sciences on July 30, 1990. The next step in the process is to transmit the report to all agencies for their review and comments. The goal is to have this report appended to the President's 1992 budget.
- o A Decade exhibit is nearing completion and will be available by the end of the month. A brochure is also in the planning stage and will be available by fall 1990.
- o October 10, 1990, World Disaster Day is the planned date for the kickoff of the U.S. Decade Program.
- o The National Academy of Sciences report is also in its final review process and is expected to be released after the first of the year.

Briefing of Soviet Delegation - *Wernly*

On August 2, Don Wernly briefed the Deputy of the Soviet Meteorology Service, the Chief of their Civil Defense Organization, and the Chief of their committee in Support of the International Decade for Natural Hazard Reduction. Don made presentations on the Goals of the Modernized Weather Service, the Integrated Warning Program, and lessons learned from Hurricane Hugo. The Deputy Director of the Soviet Weather Services was especially interested in who had final authority for the evacuation of coastal residents during hurricanes. He stated that as in the United States, the Soviet Weather Service provided guidance on expected conditions and relied upon local officials to deal with evacuation decisions. The briefings for the Soviet Delegation were conducted under the auspices of the Office of Foreign Disaster Assistance at the State Department.

Kansas City Hosts Radio Relay League Convention

Kansas City, Missouri, was host to the 1990 National Convention of the American Radio Relay League (ARRL), held on June 9-10 at Bartle Hall. The ARRL is the largest society of Ham radio operators in the world. The NWS was one of over 100 exhibitors that participated in this year's convention. The NWS theme of the well-attended exhibit was "Uncle Sam Wants You to be a Severe Storm Spotter." The conference provided a unique opportunity for the NWS to recruit spotters and to answer questions (many about the NEXRAD Program) from the convention-goers.

Central Region Headquarters participants included Rich Augulis, Director; Jim Henderson, Deputy Director; Larry Krudwig, Jeff Last, and Ken Rizzo of MSD; and Dave Guenther of SOD. Jim Schroeder of SOD, a Ham radio operator himself, was on the convention committee.

Hurricane Preparedness Activities

- o WSO Tampa Bay, MIC Robert Balfour, has had a busy hurricane preparedness season. In mid-May, he presented several major programs to western Florida communities. For example, during two 3-hour sessions at Fort Myers and Fort Myers Beach, he spoke to a total of 683 people. The shocking statistic from this group is that 95 percent of the attendees had moved into the area during the last 3 years. Only five (total, not percent) had any knowledge of hurricanes. The next day in Charlotte County, he presented the same program in three sessions to a total attendance of 2,140. Once again, only 35 of the attendees had any knowledge of hurricanes, and only ten had lived in Florida longer than 2 years! Finally, about 2 weeks later, 445 people showed up for a 2-hour preparedness program at the Cape Coral Yacht Club. Once again, the mass influx was apparent; only five of the attendees were native Floridians and 90 percent were new residents (with 90 percent of those elderly). These are frightening statistics, considering the booming population, the SLOSH model output, and the projected evacuation times.
- o San Juan MIC/AM Israel Matos took part in the Annual Hurricane Conference that was sponsored by the Commonwealth Department of Natural Resources in early June. Israel was the opening speaker to an audience of over 100. He presented a review of the 1989 hurricane season.
- o Ron Stagno, WPM Houston, and Scott Kiser, MIC Houston, were interviewed on radio talk shows twice about hurricane preparedness along the upper Texas coast. The first program, by Houston station KPRC, featured call-in questions from the public. Approximately 200,000 people likely tuned in. A few days later, radio station KODA interviewed Ron, again about hurricane preparedness. The 1-hour program was likely monitored by 300,000 Houstonians.
- o The New York State comprehensive Hurricane Evacuation Study is slated to be completed next year. In conjunction with the Study, and June having been declared Hurricane Awareness Month by Governor Mario Cuomo, a 3-day preparedness workshop was held on May 22 (Long Island), May 23 (New York City), and May 24 (Westchester County). Bud Dorr, Ed Heidelberger, and Harvey

Division of the State Department to ensure that the resulting translation will be grammatically correct and in the idiom most understandable to Spanish-speaking persons residing in the U.S. Once we receive the version from the State Department, we will circulate it to the regions for review before we have the final version printed. The final product should be available by December 1990.

Federal Emergency Management Agency (FEMA) Publications - *Kremkau*

Our office has received many requests for FEMA publications, so we contacted FEMA Public Affairs to find out how to obtain their brochures. If you are interested in obtaining a FEMA catalog, contact Ms. Wade Weytini at FEMA (address below). For FEMA brochures, please write to Ms. Peg Maloy (address below).

Catalog:

Ms. Wade Weytini
Chief of Publications
FEMA
Washington, DC 20742

Brochures:

Ms. Peg Maloy
Office of Public Affairs
FEMA
P.O. Box 70274
Washington, DC 20742

AWARE Report Roster - *Kremkau*

Please note changes to the AWARE Report Roster (see attachment C). Feel free to detach it from the report and post nearby for quick reference. In addition, if there are any changes to personnel or phone numbers or if you have an article of interest that you would like to include in the AWARE Report, please contact Linda Kremkau at FTS 427-8090.

NATURAL HAZARD STATISTICS

1989 Summary of Natural Hazard Deaths - *Kremkau*

The following Summary of Natural Hazard Deaths for 1989 has finally been completed. For 1989, the statistics show that there was a total of 501 deaths and 3,033 injuries due to severe weather. This total is significantly higher than the 1988 statistics with 316 deaths. These statistics demonstrate that cold deaths (121) was the number one killer in 1989. WSH has been accumulating these statistics for only a 2-year period whereby we see a dramatic increase in hypothermia deaths. Seventh-eight percent of the cold-related deaths were males and 55 percent were between the ages of 50 and 89.

In addition, when we combine flash flood and river flood deaths for a total of 85, flooding appears to be the next highest followed by lightning with 67. Tornado deaths were moderately higher this year with 50 compared to 1988's total of 32.

Lightning Deaths - 1989

Since compiling natural hazards statistics at Weather Service Headquarters the last 4 years, Florida has led the list with the most lightning fatalities: 1989 and 1988 with 9 deaths each; 1987 - 11; and 1986 - 10. In 1989, 55 percent of the people were out in the open and over 4 times more males than females were killed by lightning. The 10-49 age group tended to be the most susceptible to the dangers of lightning with 79 percent of fatalities falling into that range.

1989
LIGHTNING DEATHS
BY STATE AND LOCATION

STATE	BALL IN/NR			CAMP/			VEH/ ICLE	PERM HOME	COMM BLDG	OUT/ SIDE	TOTAL	
	FLD	BLDG	BOAT	ING	GOLF	OPEN						TREE
AL	0	2	0	0	0	0	0	0	0	0	2	
AZ	0	0	0	0	0	1	0	1	0	0	2	
AR	0	0	0	0	0	2	0	0	0	0	2	
CA	0	0	0	0	0	1	0	0	0	0	1	
CO	0	0	0	0	0	1	2	0	0	1	4	
FL	0	1	0	0	1	7	0	0	0	0	9	
IL	0	0	0	0	1	0	1	0	0	0	2	
IA	0	0	0	0	0	2	0	0	0	0	2	
KS	0	0	0	0	0	1	0	0	4	0	5	
KY	0	1	0	0	0	2	0	0	2	0	6	
LA	0	0	0	0	0	1	0	0	0	0	1	
MA	0	0	0	1	0	0	0	0	0	0	1	
MI	0	0	1	0	0	3	0	0	0	0	4	
MS	0	0	0	0	0	3	0	0	0	0	3	
NJ	0	0	0	0	0	1	0	0	0	0	1	
NM	1	0	0	0	0	1	0	0	0	0	3	
NY	0	0	0	0	0	2	2	0	0	0	4	
NC	0	1	1	0	0	2	0	0	0	0	4	
OH	0	0	1	0	0	1	0	0	0	0	2	
SC	0	0	0	0	0	2	0	0	0	0	2	
TN	0	0	0	0	0	1	1	0	0	0	2	
TX	0	0	0	0	0	1	0	0	1	0	2	
UT	0	0	0	0	0	1	1	0	0	0	2	
WV	0	0	0	0	0	1	0	0	0	0	1	
TOTAL	1	5	3	1	2	37	7	1	7	1	67	
PERCT	2%	7%	4%	2%	3%	55%	10%	2%	10%	2%	3%	100%

1989
LIGHTNING DEATHS
BY AGE AND GENDER

	FEMALE	MALE	TOTAL	PERCENT
0 TO 9	1	1	2	3%
10 TO 19	3	10	13	19%
20 TO 29	1	11	12	18%
30 TO 39	1	17	18	27%
40 TO 49	2	8	10	15%
50 TO 59	0	4	4	6%
60 TO 69	1	2	3	4%
70 TO 79	1	0	1	1%
80 TO 89	1	1	2	3%
90 TO --	0	0	0	0%
UNKNOWN	1	1	2	3%
TOTAL	12	55	67	99%*
PERCT	18%	82%	100%	

(* - rounding to the nearest percent forces the column to sum to less than 100%)

Tropical Cyclones - 1989

During the 1989 hurricane season, there were 11 named storms -- 7 hurricanes and 4 tropical storms. On the average, 10 tropical storms and 6 hurricanes develop annually. Hurricane Hugo, by far the worst hurricane of the season, struck the Virgin Islands, Puerto Rico, and South Carolina killing 49 people. (This total included deaths in the Leeward Islands and also in North Carolina, Virginia, and New York where remnants of Hugo caused additional fatalities.) With damage estimates around \$7 billion, Hugo is now the costliest hurricane in U.S. history.

The statistics below are only those deaths listed in Storm Data.

1989
TROPICAL CYCLONE DEATHS
BY STATE AND LOCATION

<u>STATE</u>	<u>BOAT</u>	<u>OPEN</u>	<u>VEH/ ICLE</u>	<u>PERM HOME</u>	<u>MOB HOME</u>	<u>SWIM/ MING</u>	<u>TOTAL</u>	<u>PERCENT</u>
LA	0	3	0	0	0	0	3	8%
MA	1	1	0	0	0	0	2	5%
MS	1	2	0	0	0	2	5	13%
NC	0	0	0	0	1	0	1	3%
NY	0	0	1	0	0	0	1	3%
SC	5	1	1	2	4	0	13	34%
TX	0	2	3	0	0	3	8	21%
PR	2	0	0	0	0	0	2	5%
VI	0	0	1	2	0	0	3	8%
TOTAL	9	9	6	4	5	5	38	100%
PERCT	24%	24%	16%	11%	13%	13%	101%*	

1989
TROPICAL CYCLONE DEATHS
BY AGE AND GENDER

	<u>FEMALE</u>	<u>MALE</u>	<u>TOTAL</u>	<u>PERCENT</u>
0 TO 9	0	2	2	5%
10 TO 19	1	10	11	29%
20 TO 29	1	3	4	11%
30 TO 39	0	7	7	18%
40 TO 49	2	0	2	5%
50 TO 59	1	5	6	16%
60 TO 69	2	3	5	13%
70 TO 79	0	0	0	0%
80 TO 89	0	0	0	0%
90 TO --	0	0	0	0%
UNKNOWN	0	1	1	3%
TOTAL	7	31	38	100%
PERCT	18%	82%	100%	

(* - rounding to the nearest percent forces the column to sum to more than 100%)

Wind-related Deaths - 1989

In 1989, wind-related fatalities occurred over a wide range of states but North Carolina, New Jersey, and Texas all tied with 4 each. This year, boats (13) and vehicles (11) caused the most wind-related deaths. Almost twice as many males than females were killed and 58% of the deaths occurred between the ages of 20 and 39.

1989 HIGH WIND AND TSTM WIND DEATHS BY STATE AND LOCATION

STATE	IN/NR BLDG	BOAT	CAMP/ ING	OPEN	TREE	VEH/ ICLE	PERM HOME	MOB HOME	OTHER	TOTAL
AK	0	0	0	0	0	0	0	0	1	1
CA	0	1	0	0	0	0	0	0	0	1
CT	0	0	1	0	0	0	0	0	0	1
DE	0	2	0	0	0	0	0	0	0	2
GA	0	0	0	0	1	2	0	0	0	3
IA	0	0	0	1	0	0	0	0	0	1
ID	0	0	0	1	0	0	0	0	0	1
IL	0	0	0	0	0	0	1	0	0	1
IN	0	1	0	0	0	0	0	0	0	1
KY	0	1	0	0	0	0	0	0	0	1
MA	1	0	0	0	0	1	0	0	0	2
MD	0	0	0	0	0	0	1	0	0	1
MI	0	0	0	0	0	2	0	0	0	2
NJ	0	2	0	1	0	1	0	0	0	4
NY	0	0	0	2	0	0	0	0	0	2
NC	0	2	0	0	0	1	1	0	0	4
OH	0	0	0	0	0	1	0	0	0	1
OK	0	0	0	0	0	0	0	1	0	1
OR	0	3	0	0	0	0	0	0	0	3
PA	0	0	0	0	0	1	0	0	0	1
SC	0	0	0	0	0	1	0	0	0	1
TX	0	1	0	1	0	0	0	2	0	4
VA	0	0	0	0	0	1	0	0	0	1
WV	1	0	0	0	0	0	0	0	0	1
WI	0	0	0	0	0	0	0	1	0	1
TOTAL	2	13	1	6	1	11	3	4	1	42
PERCT	5%	31%	2%	14%	2%	26%	7%	10%	2%	99%*

1989 WIND-RELATED DEATHS BY STATE

STATE	HIGH WIND	TSTM WIND	TOTAL
AK	1	0	1
CA	1	0	1
CT	0	1	1
DE	0	2	2
GA	0	3	3
IA	1	0	1
ID	0	1	1
IL	0	1	1
IN	0	1	1
KY	1	0	1
MA	0	2	2
MD	1	0	1
MI	1	1	2
NJ	0	4	4
NY	1	1	2
NC	0	4	4
OH	1	0	1
OK	0	1	1
OR	3	0	3
PA	1	0	1
SC	0	1	1
TX	0	4	4
VA	0	1	1
WV	0	1	1
WI	0	1	1
TOTAL	12	30	42

1989 HIGH WIND AND TSTM WIND DEATHS BY AGE AND GENDER

	FEMALE	MALE	TOTAL	PERCENT
0 TO 9	0	1	1	2%
10 TO 19	1	0	1	2%
20 TO 29	5	7	12	29%
30 TO 39	3	9	12	29%
40 TO 49	1	2	3	7%
50 TO 59	1	4	5	12%
60 TO 69	0	2	2	5%
70 TO 79	1	0	1	2%
80 TO 89	1	0	1	2%
90 TO --	0	0	0	0%
UNKNOWN	2	2	4	10%
TOTAL	15	27	42	100%
PERCT	36%	64%	100%	

1989 WIND-RELATED DEATHS BY GENDER

	HIGH WIND	TSTM WIND	TOTAL
FEMALE	5	10	15
MALE	7	20	27
TOTAL	12	30	42

(* - rounding to the nearest percent forces the column to sum to less than 100%)

1989
COLD DEATHS
BY STATE AND LOCATION

1989
COLD DEATHS
BY AGE AND GENDER

STATE	IN/NR BLDG	OPEN	VEH/ ICLE	PERM HOME	OTHER	TOTAL		FEMALE	MALE	TOTAL	PERCENT
AL	0	2	0	3	0	5	0 TO 9	0	3	3	2%
AK	0	0	0	0	6	6	10 TO 19	0	2	2	2%
AR	0	0	0	6	1	7	20 TO 29	1	7	8	7%
CO	0	2	0	0	0	2	30 TO 39	1	8	9	7%
FL	0	5	1	3	0	9	40 TO 49	2	9	11	9%
GA	0	1	0	0	0	1	50 TO 59	2	13	15	12%
IN	0	1	1	0	0	2	60 TO 69	5	16	21	17%
IA	2	0	0	0	0	2	70 TO 79	8	7	15	12%
LA	0	2	0	0	3	5	80 TO 89	8	9	17	14%
MI	0	3	0	1	0	4	90 TO --	0	2	2	2%
MN	0	1	0	0	0	1	UNKNOWN	0	18	18	15%
MS	0	1	0	1	0	2					
MT	0	6	0	1	0	7	TOTAL	27	94	121	99%*
NE	0	1	0	0	0	1	PERCT	22%	78%	100%	
NC	0	0	0	1	0	1					
OK	0	8	0	3	0	11					
OR	0	2	0	0	0	2					
PA	0	0	0	0	10	10					
SC	0	4	0	3	26	33					
SD	0	1	0	0	0	1					
TN	0	1	0	0	0	1					
TX	1	3	0	4	0	8					
TOTAL	3	44	2	26	46	121					
PERCT	2%	36%	2%	21%	38%	99%*					

* * * * *

1989
HEAT DEATHS
BY STATE AND LOCATION

1989
HEAT DEATHS
BY AGE AND GENDER

STATE	OPEN	VEH/ ICLE	PERM HOME	TOTAL		FEMALE	MALE	TOTAL	PERCENT
AZ	1	0	0	1	0 TO 9	0	0	0	0%
AR	0	0	1	1	10 TO 19	0	0	0	0%
OK	1	0	0	1	20 TO 29	0	0	0	0%
SC	2	0	0	2	30 TO 39	0	1	1	14%
TN	1	1	0	2	40 TO 49	0	1	1	14%
					50 TO 59	0	0	0	0%
TOTAL	5	1	1	7	60 TO 69	1	0	1	14%
PERCT	71%	14%	14%	99%*	70 TO 79	1	2	3	43%
					80 TO 89	0	1	1	14%
					90 TO --	0	0	0	0%
					UNKNOWN	0	0	0	0%
					TOTAL	2	5	7	99%*
					PERCT	29%	71%	100%	

(* - rounding to the nearest percent forces the column to sum to less than 100%)

ATTACHMENT A

American Red Cross

National Headquarters

TO: Warning Preparedness
Meteorologists and Focal Points,
National Weather Service

DATE: July 30, 1990

FROM: Lynne D. Filderman

RE: Building Community
Coalitions

My apologies for not being able to attend the conference in Boulder. However, I still would like to offer a few thoughts on building community coalitions and working with American Red Cross chapters.

The American Red Cross and the National Weather Service share a common goal: to reach the public with important safety information before a disaster strikes. The American Red Cross recognizes that it is essential the public know about the nature of hazards that can occur in their community, what the warning terms are and what they mean, and what planning and protective actions to take.

The Red Cross is committed to enhancing its community disaster education efforts so that it is a significant Red Cross service. It is also committed to strengthening its relationship with the NWS to help people avoid, prepare for, and cope with disasters.

In thinking about public education, there are many "publics" who need to be targeted, especially those at greatest risk. In order to effectively reach the public, community education works best using a variety of media along with having personal interactions. With this in mind, there are tremendous opportunities for the Red Cross and the NWS to work together at the local level.

Call the Disaster Director of your local Red Cross chapter and discuss how you might work together on community disaster education.

- Pool your resources and build a team whereby you can develop a plan to reach many segments of your community and can pass along the same messages.

- Work together to identify segments of the population who face greater risks, i.e., non-English speaking, senior citizens, children, coastal or floodplain residents, etc. and involve them in the planning stage and in your outreach efforts.

- Identify local volunteers who are interested in learning more about those disasters that can occur in your community and want to bring this information to the community through making public presentations or conducting educational programs.

ATTACHMENT B

PREPAREDNESS EFFORTS IN THE PERMIAN BASIN -- 1990

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The 1990 preparedness campaign in the Permian Basin was one of the most extensive in station history. New attempts were made to get the preparedness message to a broader cross-section of the population. Spotter training was increased to a level not seen before at WSO Midland.

I. PREPAREDNESS/SPOTTER VIDEO TAPES

The preparedness campaign actually began in November of 1989. In cooperation with Odessa College Cable TV Channel 10, we prepared a series of preparedness and spotter training video tapes. These tapes included:

SURVIVE! A Severe Weather Safety Handbook. This is our standard preparedness program, containing "The Awesome Power", the safety slides, and "The Minneapolis Tornado".

Shorter variations of the safety/preparedness program were composed and taped for Elementary and for Secondary school students.

OPERATION SKYWARN 1990. Our basic spotter training program consisted of "The Awesome Power", the basic spotter slides, and "The Minneapolis Tornado".

ADVANCED SPOTTER TRAINING. Our advanced spotter training program contained Doswell and Moller's advanced slide set with only a few modifications.

Response to these tapes has been very favorable so far. The Texas Education Commission (TEC) has made 50 copies of the students programs for use in the area school districts. Several local companies have borrowed the video tapes for use at their periodic safety meetings. The Odessa College TV station aired all of the presentations on the Odessa Cable System.

II. APARTMENT SEVERE WEATHER SAFETY

This year, we also attempted to reach the apartment community with our preparedness message. Apartments pose a special problem during severe weather in that they are high-density, usually multi-story living areas. The tenants themselves are quite often new to the area, and may be unaware of the severe weather safety rules. To reach the apartment tenants, we composed and sent a flyer to all of the apartment complexes in the Permian Basin. These flyers were produced at no cost by Reynolds Bros. Reproduction of Midland. This part of the campaign had only

V. CONCLUSIONS

An unprecedented effort went into our preparedness efforts this year. We trained a station record number of SKYWARN spotters, and broke new ground (for WSO Midland) with the video taping of our preparedness and spotter training presentations. We should have improved coordination this year between the NWS and various emergency management agencies.

Despite these accomplishments, there is still some room for improvement. Ideas are being considered for the increased organization of our now-large group of spotters. The basic spotter training program will be revamped during the off-season. The concept of the dissemination workshop may be expanded to include other communities in the Permian Basin. Finally, we must find ways to take our message to an even broader cross section of the Permian Basin population.