



disaster preparedness report

8060 13th Street, Room 1326
Silver Spring, Maryland 20910
Attn: W/QM11 - Donald Wernly/
Linda Kremkau/Jim Belville/
Steve Harned
Telephone: (301) 427-8090

National Weather Service

July 1988

WHAT'S HAPPENING IN DISASTER PREPAREDNESS

PRIVATE SECTOR INITIATIVES

o Insurance Group Assists Hurricane Awareness The Texas Catastrophe Property Insurance Association (TCPPIA), interested in producing a brochure about hurricane safety, recently contacted Mike Pass, MIC WSO Houston, for assistance. The result was a 4-page public information pamphlet about hurricanes which will be distributed along the entire Texas Gulf Coast. The brochure describes common terms which are important in hurricane situations, such as hurricane warning and storm surge. It further describes actions to be taken before a hurricane threatens and actions when a hurricane watch and warning are issued. One full page is devoted to a hurricane tracking chart. NOAA Weather Radio broadcast locations and frequencies are provided as a source of weather information from the NWS.

Besides producing the brochure and making it available through insurance agents and others along the Texas coast, the TCPPIA has provided the NWS with nearly 5,000 brochures for distribution by NWS Texas Gulf Coast offices.

o CTW's Get Ready for Hurricanes Order forms are now available at Weather Service Headquarters for Big Bird Get Ready for Hurricanes Kit created by the Children's Television Workshop in New York City, New York. Individual copies are \$2.25 each. Orders of 100-500 can be obtained for \$2 each; for 600 and up, the cost will be \$1.75 each. A copy of this order form is attached to this DP report.

o Winter Storms Poster in Spanish Gene Hathaway, OIC, Newark, New Jersey, with help from two school teacher friends, translated the "Owlie Skywarn Winter Storms" poster into Spanish (see attachment). One thousand copies were printed at his expense and distributed to various parts of school systems in the New York and New Jersey metro area which undoubtedly benefited the large Hispanic population. Gene has tried many routes to have more copies printed but without success. If anyone is interested or know of a company that might want to reproduce this Spanish Winter Storm Poster, please contact Gene at FTS 341-6188.



Stimulating America's Progress
1913-1988

DISSEMINATION

o NOAA Weather Radio

-- Updated NOAA Weather Radio Brochure Weather Service Headquarters is in the process of updating the NOAA Weather Radio (NWR) brochure (NOAA/PA 76015). The changes to the brochure will be minor but will include correcting the number of NWR stations to 380, adding information for several new stations, and changing information for several existing stations. We are printing 200,000 copies. The updated NWR brochure should be available by early fall at the National Logistics Supply Center in Kansas City, Missouri.

-- Community Leaders Promote NOAA Weather Radio For the past 9 months, WSFO Miami has been involved in obtaining and airing promotional announcements on NWR made by various well-known personalities, most of whom live in the Miami and Fort Lauderdale metropolitan area. The individuals, who graciously volunteered their time, stated the importance of NWR in their lives and occupations. Some of the personalities included Jimmy Buffett, recording artist; Jimmy Johnson, Coach, University of Miami; Governor Bob Martinez; and Congressmen William Lehman and Dante Fascell.

The project, under the supervision of the MIC and DMIC, was developed and carried out by WSS Robert Ebaugh. He contacted prospective individuals who made the NWR promotional announcements. In many instances, he arranged for those who accepted the offer to come to the office to tape the message.

How much the project may have increased the Miami NWR listening audience is unknown; however, one strong benefit of Mr. Ebaugh's work was that those individuals who came to the office and made the promotional tapes were made more aware of NWS operations and the importance of NWR in their community.

-- Eveready Batteries to Promote Weather Radio The August issues of four major national magazines will be part of a multi-million dollar advertising campaign to promote Eveready batteries and flashlights. Part of the program will be a special offer of a weather radio for \$8.95 plus proof of purchase from any two Eveready flashlight or battery products. Large posters and freestanding displays will be put in stores of all types illustrating the need to be prepared in case of bad weather. Quotes from Dr. Neil Frank, former Director of the National Hurricane Center, are a centerpiece for the displays. This campaign will undoubtedly generate a lot of new interest and listeners to the weather radio program. John Feldt, Lead Forecaster at WSFO St. Louis and former WPM at WSFO Louisville, was instrumental in helping bring this campaign to a successful conclusion.

o NOAA Weather Wire Service (NWWS)

-- The implementation of the all-new NWWS, based on satellite broadcast technology, is set to begin late this fall. Starting with the upgrade to the Weather Service Forecast Offices (WSFO) at Washington, D.C., and Raleigh, North Carolina, which serve the District of Columbia, Maryland, Virginia, Delaware, and North Carolina, the rest of the contiguous United States will be upgraded over about a year's period averaging about four states per month. (Puerto Rico, Alaska, and Hawaii will be upgraded after the contiguous states are completed.) Contel ASC of McLean, Virginia, the contractor, will be installing send/receive satellite dishes at each of the WSFO's, the NWWS data-entry points, and small, lightweight receive-only dishes at end user sites.

The new nationwide system will be much faster (1200 bps), much less error-prone, and allow all end users access to all NWS products from all data-entry points, while keeping costs to a quite reasonable \$90-\$110 a month depending on the particular options selected by users. And importantly, this state-of-the-art upgrade will be reflected in vastly improved service to users in which they will be able to key on Universal Generic codes for fast, site-specific delivery of not only watches and warnings, but eventually special and severe weather statements and other products.

STORM SPOTTER PROGRAM

o Colorado Highway Department Becomes Statewide Spotter Network Several months ago, officials of the Colorado Department of Highways (CDH) toured WSFO Denver. A discussion on how the two organizations could better help each other resulted in a commitment on the part of CDH to involve its field personnel in becoming trained severe weather spotters. District offices of the State Highway Patrol have direct radio communications with CDH personnel and have direct National Warning System (NAWAS) contact with the NWS offices in the State. The first training sessions were held in April at Limon with instruction by Maury Pautz, MIC(AM), WSFO Denver; Bill Kneas, WPTI, WSFO Denver; Mike Looney, DMIC, WSFO Denver; and Larry Tunnell, Hydrologist, WSFO Denver. A Denver TV station covered the first training sessions and another plans to cover the next sessions. The project should reach all 1,600 members of the road crews within the next couple of months.

AWARENESS CAMPAIGNS

o 1988 Ohio Tornado Safety Campaign On June 4, the 1988 Ohio Tornado Safety campaign came to a close with the awards ceremony for the Tornado Safety Poster Contest. Again this year, the campaign was an unqualified success as reported by Lynn Maximuk, WSFO Cleveland. Even though this has been a very quiet year severe weatherwise, we still received excellent media exposure about severe weather preparedness.

More than 45,000 Ohio school children in grades 1-6 entered the poster contest. Winners received passes to enter Sea World and prizes and certificates from the NWS, Ohio Disaster Services Agency, Ohio Insurance Institute, American Red Cross and the Ohio Department of Health. The poster contest continues to be an excellent education medium to teach students about severe weather safety.

During the safety campaign, Ohio NWS offices participated in nearly 200 radio and TV programs about severe weather. Our media packet which was mailed out in early March gained excellent visibility for the NWS and severe weather preparedness. Virtually every newspaper and magazine published in Ohio had articles about severe weather preparedness.

Another central focus of the safety campaign was severe weather education in elementary schools. The Ohio Insurance Institute (OII) along with the Ohio Department of Education assisted in this regard. A Tornado Safety Curriculum Guide was made available to teachers and the Ohio Insurance Institute provided funding for distribution of twister brochures to Ohio elementary school children. This is the 10th year the OII has funded this project. Again this year, we were amazed as over 1,300,000 brochures were distributed in Ohio.

o Flash Flood Awareness Week in Nevada Governor Richard Bryan signed a proclamation declaring the week of May 15-21 as Flash Flood Awareness Week in Nevada. The greatest effort focused on the Las Vegas and Reno areas, but NWR messages and media contacts were made by all offices. Although the lack of water remained a critical issue for parts of the state, it was felt the flash flood awareness week effort was needed and very successful.

Daily awareness messages were sent over NWS as well as public service announcements (PSA) aired throughout the week. In Reno, local TV and radio personalities recorded the PSA's. In Las Vegas, one newspaper, seven radio and two TV station representatives attended press conferences. Numerous radio and TV interviews were done by staffs at Nevada offices. The Nevada OIC's, especially Frank Taylor, and also Roger Lamoni, Mike Ekern, and Doug Armstrong from WSFO Reno deserve particular recognition for their effort in making this a success.

o Wyoming Hazards Awareness Week -- A Different Approach The state of Wyoming has contracted with a private company to develop a statewide Hazards Awareness Week in October 1988. Preliminary meetings and a Governor's proclamation have been completed. While the week will cover weather hazards, other topics such as hazardous spills, earthquakes, and dam failures will also be included. It will constitute the NWS Winter Weather Awareness Week, and as such, the NWS Wyoming offices will be heavily involved in supporting this venture.

o Hurricane Preparedness Activities Dr. Robert Sheets, new Director of the National Hurricane Center, was the featured speaker at a number of hurricane preparedness meetings along the Texas coast. The meetings went well as reported by Al Dreumont, MIC at WSFO San Antonio, who accompanied Dr. Sheets.

Dr. Sheets traveled to New Orleans to participate in the Hurricane Awareness Conference and participated in several hurricane preparedness meetings along the northwest Florida, Alabama, and Mississippi coasts. In addition to the public hurricane preparedness meetings, a table top exercise concerning the Mississippi coast was very successful and involved FEMA, Mississippi Emergency Management Agency (MEMA), local EMA's, and the NWS representatives.

o Hurricane Preparedness on TV Beaumont MIC, Louis Withrow, recently worked with the weathercaster from Channel 12 to assemble a three-part program on hurricane preparedness. The series was aired in May as part of the station's overall effort to improve hurricane awareness in the Beaumont-Port Arthur area.

o Hurricane Hotline Since its inception 3 years ago, the Hurricane Hotline Service has been quite popular. The hotline information benefits the public, and it helps our offices by reducing the inquiries during tropical weather situations. Up to 72,000 calls can be received simultaneously, or up to 216,000 calls per hour. Last year, 52,000 calls were made to the hotline when Hurricane Floyd and an unnamed tropical storm struck the U.S. coast. During an "active" year, such as 1985 when Hurricanes Gloria and Elena threatened the coastline, as many as 700,000 calls have been recorded. The hotline can be accessed by dialing 900-410-NOAA (non-AT&T subscribers must first dial 1-0-288-900). The first minute costs 50 cents, plus 35 cents for each additional minute.

o Second National Weather Service Winter Weather Workshop On September 26-30, the Second NWS Winter Weather Workshop will be held at the Velvet Cloak Inn in Raleigh, North Carolina. Tentative workshop exercises are planned on the following topics: Rapid Intensification of Coastal Lows; Satellite Interpretation of Winter Storms and Heavy Snow; Adjusting for Initialization Errors in NMC Analysis; and Heavy Snow Forecasting. In addition, a number of winter weather and winter storm papers by operational and research meteorologists are scheduled. Further information can be obtained by calling Laurence Lee, Program Chairman, or Robert Muller, MIC/AM WSFO Raleigh, North Carolina, at 919-840-0450 or FTS 672-4436.

o NWS Participates in 22nd Annual Wisconsin Governor's Conference on Emergency Management Elroy Jagler, MIC (AM), WSFO Milwaukee, and Fred Ostby, Director, NSSFC, each conducted workshops at the largest and oldest consecutive statewide conference on emergency management. The NWS has been a part of these programs for as long as anyone can remember, and the workshops are well attended. Three workshops were held which focused mainly on forecasting, reporting severe weather, and public response. Mark Egener and Bruce Wilson, emergency preparedness and safety officers from the city of Edmonton and province of Alberta, Canada, gave presentations on the Edmonton tornado. Praise on the quality and value of the presentations came from the media covering the event and participants, alike.

o WSFO Minneapolis Helps Canadian Neighbors with Preparedness The Edmonton, Canada, tornado has created a great deal of interest and demand for public preparedness in Canada. At the request of a neighboring Canadian equivalent WSFO, AES Winnipeg, WSFO Minnesota WPM, John Miller, loaned them various spotter and preparedness audiovisuals, pamphlets, and procedures used by local governments and the media to inform the public about the weather hazards and safety measures. The Canadians produced a very attractive and informative 4 x 7-inch booklet covering the entire range of severe weather affecting their area.

WARNING AND PREPAREDNESS BRANCH ACTIVITIES

o Natural Hazard Database National Weather Service Headquarters continues work on developing a National Hazard Weather Statistical database. Recently, a proposal was received from NSSFC to physically locate the system in Kansas City. This appears to be the most logical location because of the existing computer facilities, in-residence expertise on database management, and NSSFC is a primary user of the information.

A meeting is scheduled for late August with representatives of the University of Chicago concerning computerizing the publication Storm Data. The outcome of this meeting will in all likelihood determine the implementation schedule and format for the database. Additional information will be forwarded to the NWS field offices as it becomes available.

o Revised WSO Chapter C-49, Disaster Preparedness Program The Office of Meteorology has recently distributed draft copies of chapter C-49 to the field for review. This chapter has been completely rewritten largely on input from Dr. T. Michael Carter, Senior Social Scientist, at the National Weather Service Headquarters. The revised chapter includes guidelines on how to provide an adequate disaster preparedness program. The chapter should be issued by the fall of 1988.

o Warning Applications Programs The automated warning applications programs that use menus to produce severe weather warnings in weather service offices across the country are being modified for the 1989 severe weather season. GWARN (an AFOS based program) and SRWARN (a PC based program) will accommodate Special Marine Warnings and independent cities as well as those features that were programmed into the previous versions. To help NWS forecasters with special requirements of the upgraded NOAA Weather Wire, SRWARN will also include an option to add generic codes to the headers of Severe and Special Weather Statements.

o Weather Reconnaissance Study National Hurricane Center Director, Robert Sheets, plus Donald Wernly and Stephen Harned from the Warning and Forecast Branch, are working with the Department of Defense through the Joint Chiefs of Staff to document the civilian and military requirements for aircraft reconnaissance of tropical cyclones in the Atlantic Basin. The study is in response to a request from Congress to "...evaluate the operational uses of aircraft reconnaissance data with the primary goal of deciding the complimentary versus redundancy roles of aircraft and remoting sensing platforms;...". The study is expected to be completed in September.

o Hazards Research and Applications Workshop The National Weather Service was well represented this year at the Hazards Research and Applications Workshop held in Boulder, Colorado. The workshop was sponsored by the Natural Hazards Research and Applications Information Center of the University of Colorado. The intent of the workshop was to bring together all of those interested in the hazards field; such as the Federal Government, state and local agencies, emergency managers, academics, consultants, and the private sector; to explore common opportunities in hazard awareness, warning response, hazard mitigation, and technology transfer. Weather Service participants included: Bob Sheets and Brian Jarvinen, National Hurricane Center; Don Wernly, Steve Harned, and Mike Carter, Office of Meteorology, WSH; Gene Stallings, Office of Hydrology, WSH; Brian Peters, Southern Region Headquarters; Fred Finger, NOAA Climate Analysis Center; and Ric Coleman, WSFO Memphis. Weather Service presentations highlighted present and future warning and forecast programs with an emphasis on future initiatives to enhance the flow of critical information to local decision makers.

o Improved Hazardous Weather Dissemination Exercise On July 21-22, 1988, Maury Pautz (MIC/AM) and Mike Looney (DMIC) of WSFO Denver, Tom Schwein and Larry Krudwig from Central Region Headquarters and Don Wernly, Steve Harned and Mike Carter from Weather Service Headquarters (W/OMll) attended meetings with Denver area emergency management and law enforcement officials. As a result of the meetings, these local and state agencies will participate with WSFO Denver in an experiment beginning this coming winter to test improved hazardous weather dissemination between the NWS and local and state governments. This will be the first step in a risk reduction exercise examining dissemination to emergency management officials in the modernized National Weather Service.

o Additions and Changes to the 1987 Natural Hazards Statistics Included in the April issue of the DP Report was the summary of the Natural Hazard Deaths for 1987. If you hadn't noticed, the High Wind information was inadvertently left out of the summary. A separate section for the high wind statistics is included as an attachment to this DP report. Just separate it from this report and attach it to the April 1988 issue so you can have a complete compilation of data for 1987. Also, there is a change to the heat related death figures. The total number of deaths as a result of the heat is 40, not 38. The national total for 1987 is now 343. Please replace pages 1 and 10 of the Natural Hazard summary to reflect this change. NOTE: Concerning the heat and cold related deaths, these deaths are only those reported as direct cause of death; for example, heat stroke, hypothermia, etc. This does not count those deaths where weather is a major contributing factor, but not the only factor.

DISASTER PREPAREDNESS ROSTER

NWS HEADQUARTERS STAFF

Donald R. Wernly, W/OM11
 James D. Belville, W/OM11
 Steve W. Harned, W/OM11
 Linda S. Kremkau, W/OM11

EASTERN REGION

Stan Wasserman
 Albert Kachic
 John Kwiatkowski
 Mary Jo Parker
 Martin Ross
 Dick Calcaterra
 Dennis Decker
 Rich Schwerdt
 Ralph Izzo
 Tim Scrom
 Dave Dilley
 Tom Dunham
 Bill Drzal
 Dave Sisk
 Fred Ronco/John Rinkunas

FTS - 427-8090

Chief, Warning and Forecast Branch
 Emergency Warnings Meteorologist
 Emergency Warnings Meteorologist
 Program Assistant

FTS

Regional (WPM) 649-5455
 Reg. Hydrologist 649-5464
 Cleveland (WPM) 942-4949
 Columbia, SC (WPM) 677-5501
 Philadelphia (WPM) 597-3696
 Parkersburg, WV (WPM) 923-1344
 Raleigh (WPM) 672-4436
 Washington (WPM) 763-8275
 New York (Focal) 662-5340
 Albany (Focal) 562-6586
 Boston (Focal) 835-4662
 Buffalo (Focal) 437-4800
 Pittsburgh (Focal) 722-2882
 Pittsburgh (Focal) 722-2882
 Portland (Focal) 833-3552

SOUTHERN REGION

Brian Peters
 Max Blood
 Charles Terrell
 Buddy McIntyre
 Ron Stagno
 David Imy
 Nelson DeVilliers
 Bill Alexander
 Richard Lane
 Don DeVore
 Bill Hare
 Francisco Torres-Cordero
 David Billingsley
 Frank Revitte
 Larry Lahiff

Regional (WPM) 334-2812
 Atlanta (WPM) 246-7586
 Birmingham (WPM) 229-0837
 Fort Worth (WPM) 334-8505
 Houston (WPM) 526-5834
 Jackson (WPM) 490-4639
 Little Rock (WPM) 740-5331
 Lubbock (WPM) 738-7362
 Memphis (WPM) 222-6441
 Oklahoma City (WPM) 736-5832
 San Antonio (WPM) 730-5025
 San Juan (WPM) 8-809-753-4893
 Albuquerque (Focal) 474-2170
 New Orleans (Focal) 682-6891
 Miami (Focal) 350-4303

CENTRAL REGION

Larry Krudwig
 Lee Larson
 R. Koeneman
 David Runyan
 Brian Dowd
 Jim Allsopp
 Norman Reitmeyer
 Guy Tucker
 Lee Anderson
 William Barlow
 Bill Kneas
 Paul Lauze
 John Miller
 Tom Zajdel
 Richard May
 Gary Wiese

Regional (WPM) 758-3239
 Regional Hydrologist 758-3229
 Chicago (Focal) 353-4680
 Ann Arbor (Focal) 378-2220
 Des Moines (Focal) 862-4496
 Indianapolis (Focal) 331-4035
 Louisville (Focal) 352-5210
 St. Louis (Focal) 279-7018
 Sioux Falls (Focal) 782-4244
 Topeka (Focal) 752-2630
 Denver (Focal) 564-0661
 Cheyenne (Focal) 328-2376
 Minneapolis (Focal) 725-3400
 Milwaukee (Focal) 362-3243
 Bismarck (Focal) 783-4224
 Omaha (Focal) 864-4207

WESTERN REGION

Richard Douglas
 Tony Haffer
 Scott Kiser
 Chuck Conway
 Mike Franjevic
 Don Northrop
 Bob Thompson
 Bill Alder
 Jan Null
 Lee Krogh
 Bob Sims

Regional (WPM) 588-4000
 Regional Hydrologist 588-5137
 Boise (Focal) 554-9860
 Los Angeles (Focal) 793-7215
 Phoenix (Focal) 261-3500
 Portland (Focal) 423-4340
 Reno (Focal) 470-5794
 Salt Lake City (Focal) 588-5133
 San Francisco (Focal) 466-7767
 Seattle (Focal) 392-6087
 Great Falls (Focal) 585-1311

ALASKA REGION

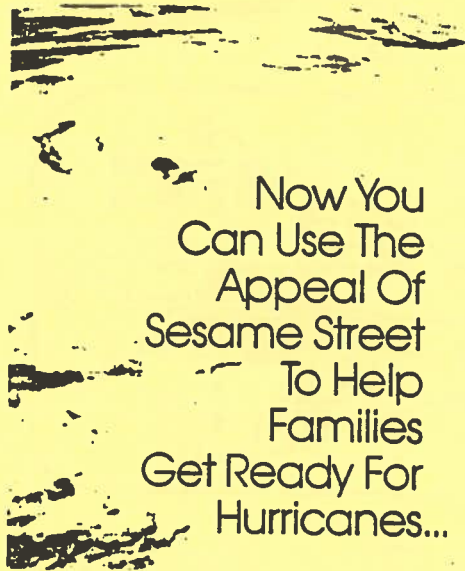
Gary Huffard

Regional (WPM) 8-907-271-3886

PACIFIC REGION

Vacant

8-551-1698



Now You
Can Use The
Appeal Of
Sesame Street
To Help
Families
Get Ready For
Hurricanes...

GET  READY!

This innovative kit has been designed by the Children's Television Workshop. It is for families to use together long before a hurricane hits.

Safety information and hurricane facts are presented through a:

- Colorful 16 Page Family Booklet (Essential Information Also In Spanish)
- Song "The Hurricane Blues"
- Family board game "Hurricane Force"

The emphasis is on helping parents and teachers talk to children about hurricanes in a way that is not frightening.

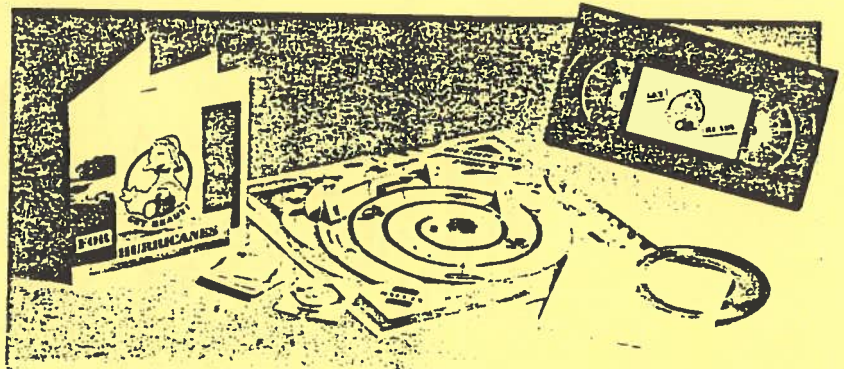
GET  SET

CTW's "Big Bird Get Ready For Hurricanes" kit can help you teach ● children ● teens ● adults how to prepare for a hurricane and stay safe during it.

The kit's overall message is - "plan ahead." There are suggestions on how to:

- Put together a family safety kit
- Plan for a hurricane "watch" or "warning"
- Learn what to expect in the recovery period

© 1987 Children's Television Workshop; Big Bird © 1987 Muppets, Inc. All Rights Reserved. Big Bird Get Ready is a trademark of CTW



GO  TO SAFETY

Ordering Information

| | |
|--|--------------------------------------|
| Big Bird Get Ready For Hurricanes Kit | |
| Individual Copies: | \$2.25 |
| Bulk Copies: | |
| Quantity | Cost per copy (postage and handling) |
| 100-500 | \$2.00 |
| 600-and up | \$1.75 |

Big Bird Get Ready Videotape (VHS) and Presenter's Guidelines
Each Tape \$19.95

Delivery approximately three weeks



The "Big Bird Get Ready For Hurricanes" kit can be used by:

- State And Local Emergency Managers
- Civil Defense And Public Safety Officers
- Firefighters
- Red Cross Staff
- National Weather Service & Broadcast Meteorologists and others, to heighten public awareness and interest in preparing for hurricanes.

The kit can be used with existing hurricane materials and information already in many communities. A presenter's package is available. It includes a videotape and guidelines to help you reach the widest range of people with this information.

These materials have been funded by the Federal Emergency Management Agency with additional support from the American Red Cross and the National Weather Service.

Order Form

Name: _____
 Address: _____
 City: _____
 Zip: _____ Area Code () _____
 No. of kits: _____ No. of Videotapes: _____
 Total payment of \$ _____ in
 Check _____ or Money order _____ enclosed

Send To: Children's Television Workshop
 Dept. CES/NH
 One Lincoln Plaza
 New York, New York 10023

Children's Television Workshop
 Dept. CES/NH
 One Lincoln Plaza
 New York, New York 10023

OWLIE ON SKYWARN Tormentos en el Invierno

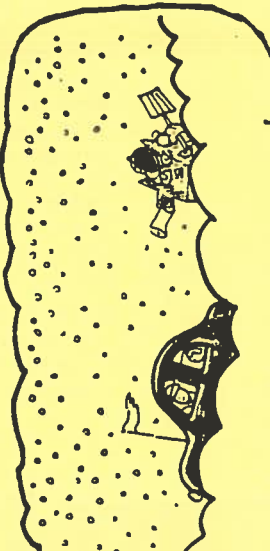


ESTAR DE GUARDIA, DE TORMENTAS DE INVIERNO

Alerja de posible temperatura de invierno (ventarosa, tormenta de hielo, fuerte nieve, fuerte aguarieve).

ADVERTENCIA DE TORMENTAS DE INVIERNO

Severa temperatura de invierno es inminente.



- Si quedas estancado en la nieve, levante la antena del carro alta.
- Amare una tela brillante en ella.
- Hagan ejercicio, aplauden, muevan sus piernas y sus brazos.
- Que desan en el carro.
- Mantengan la ventana un poquito abierta, para evitar de envenenarse con acido carbonico.

• Quedesen adentro, la electricidad puede que se apague. tenga una forma de cocinar y mantenerse calientes.

- Tengan agua provisto en emergencia.
- Tengan un radio de bateria.
- Tengan comida en su casa.



Use una capucha que cubra su boca.

Use varias piezas de ropas, una sobre la otra; no una sola pieza gruesa.

• En una tormenta de hielo estan preparado para la fuerza electrica y los telefonos fuera de orden.



• El hielo hace imposible caminar y manejar.

UN MARGO VIENTO FRIO,
PUEDE CAUSAR FRIGID O
APROXIMAMENTE VESTIDO.

- Si tienes que palear, trabaje despacio.
- No te fatigues!

Prepare su carro... puedes que quedes estancado en una nieve profunda.



- MANSANA
- COMIDAS DO ALTA ENERGIA
- PAPEL DE SEDA
- CUCHILLO
- PAPER TOWEL
- TOLLAS DE PAPEL
- RASPADOR
- CUBO DE ARENA
- CABLES DE ALUMINUM
- LASSO A LA VIDA
- CADENA DE REMOLQUE
- VELAS
- FOSFOROS
- FRAZADA
- LINTERNA
- ESTUCHE DE PRIMEROS AYUDA
- MONEDAS DO TELEFONO PREGADA AL ESTUCHE
- GASOLINA
- PALA

- Siempre ten el tanke lleno de gasolina.
- Nunca viajes solo.

NATURAL HAZARD DEATHS IN 1987
in the United States

A Summary

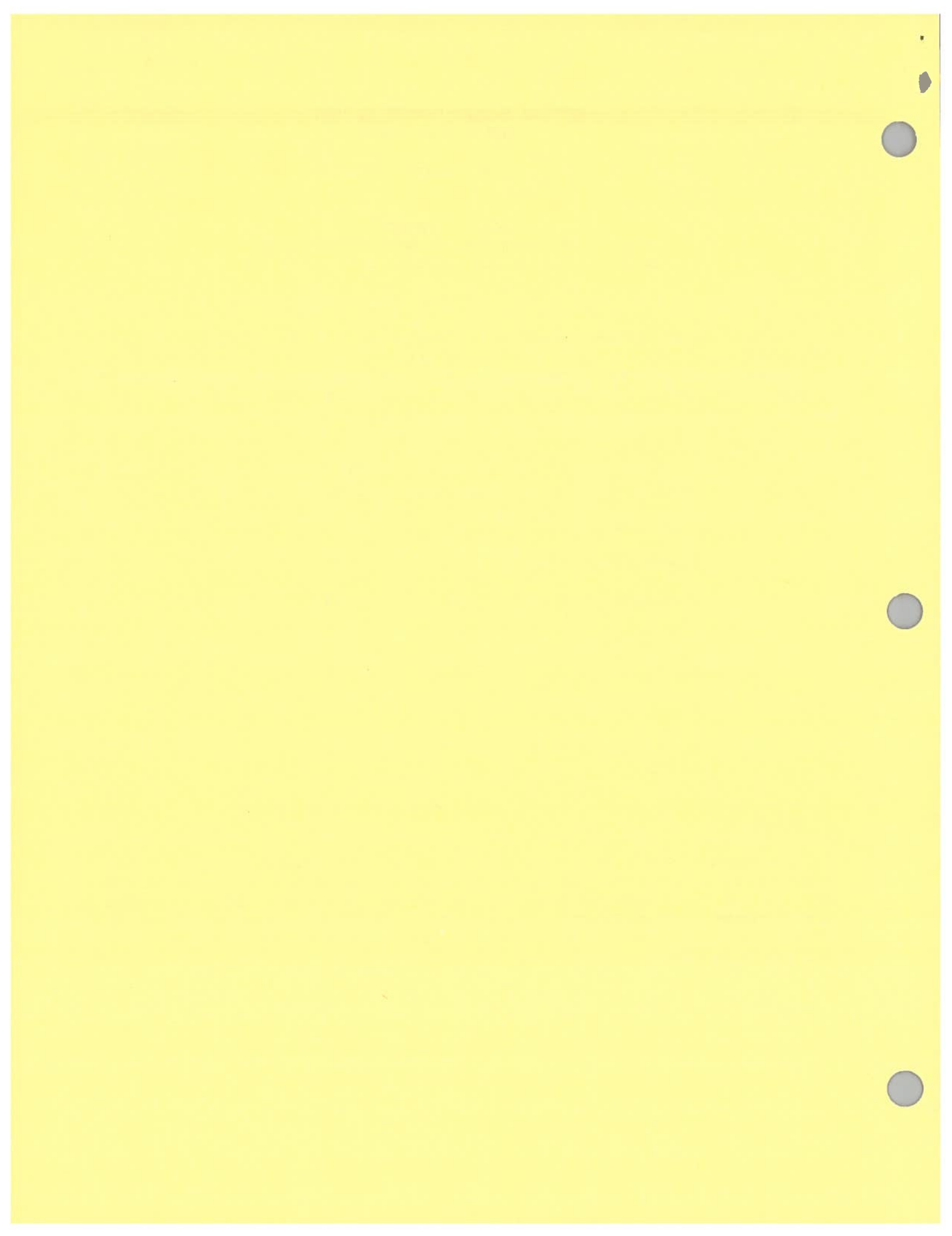
Brian E. Peters
Regional Warning Preparedness Meteorologist
Southern Region Headquarters, Fort Worth, TX

Information on weather-caused deaths collected from Storm Data shows that 343 people lost their lives in 1987, down slightly from the 349 total in 1986. As the table below shows, lightning led the list with 88 fatalities followed by floods/flash floods, tornadoes, wind, heat, and winter storms. There were no deaths directly attributable to hurricanes and tropical storms.

| <u>Weather Event</u> | <u>1987 Deaths</u> | <u>20-Year Normal</u> |
|-------------------------------|------------------------|---------------------------|
| Lightning | 88 | 97 |
| Floods/Flash Floods | 70 | 163 |
| Tornadoes | 59 | 98 |
| High Wind | 56 | --- |
| Heat | 40 | --- |
| Winter Storms | 30 | --- |
| Hurricanes/Tropical Storms | 0 | 33 |

(--- in the 20-Year Normal column indicates normal value not yet established.)

The weather caused at least one death on 128 individual days in 1987; in other terms, approximately every third day someone died from a weather hazard. May 22nd was the single deadliest day in 1987 when a tornado killed 30 people and destroyed much of Saragosa, Texas. April 4th was the second deadliest day when flood waters caused a bridge to collapse on the New York State Thruway killing 11 people.



Winter Storm Deaths - 1987
by Age Group and Gender

| | | <u>Female</u> | <u>Male</u> | <u>All</u> | <u>Percent</u> |
|--|-------------|---------------|-------------|------------|----------------|
| A g e G r o u p | 0 to 9 | 1 | 0 | 1 | 3% |
| | 10 to 19 | 1 | 2 | 3 | 10% |
| | 20 to 29 | 0 | 5 | 5 | 17% |
| | 30 to 39 | 1 | 5 | 6 | 20% |
| | 40 to 49 | 1 | 7 | 8 | 27% |
| | 50 to 59 | 0 | 1 | 1 | 3% |
| | 60 to 69 | 1 | 3 | 4 | 13% |
| | 70 to 79 | 1 | 0 | 1 | 3% |
| | 80 to 89 | 0 | 1 | 1 | 3% |
| | 90 & above | 0 | 0 | 0 | 0% |
| | Total | 6 | 24 | 30 | 99% * |
| | Percent | 20% | 80% | 100% | |
| | Average Age | 49.6 | 48.4 | 48.7 | |

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

* * * * *

Heat Related Deaths - 1987

Eight states reported heat related deaths in 1987 including Georgia (16), Arkansas (9), Illinois (6), Iowa (4), Nebraska (2), New York (1), Oklahoma (1), and South Carolina (1).

The majority of deaths below 50 occurred in males doing strenuous physical activity during high heat times. The statistics also indicate that people above 60 are more susceptible to the stress placed on the body by high heat conditions.

Heat Related Deaths - 1987
by Age Group and Sex

| | | <u>Female</u> | <u>Male</u> | <u>All</u> |
|--|-------------|---------------|-------------|------------|
| A g e G r o u p | 0 to 9 | 0 | 0 | 0 |
| | 10 to 19 | 0 | 1 | 1 |
| | 20 to 29 | 0 | 2 | 2 |
| | 30 to 39 | 0 | 6 | 6 |
| | 40 to 49 | 1 | 4 | 5 |
| | 50 to 59 | 1 | 3 | 4 |
| | 60 to 69 | 7 | 4 | 11 |
| | 70 to 79 | 4 | 2 | 6 |
| | 80 to 89 | 4 | 1 | 5 |
| | 90 & above | 0 | 0 | 0 |
| | Total | 17 | 23 | 40 |
| | Percent | 43% | 58% | 101% |
| | Average Age | 68.9 | 47.8 | 56.8 |



Wind Related Deaths - 1987

Twenty states reported wind related deaths in 1987; Texas topped the list with nine total wind related deaths, while Michigan was second with seven, and Alaska and Oregon were third with six.

Boating activities remained extremely susceptible to the effects of wind, as 20 people died in boating related situations in 1987. Vehicles was a close second with 15 deaths; these deaths occurred primarily when falling objects such as trees, tree limbs, or power lines fell on vehicles.

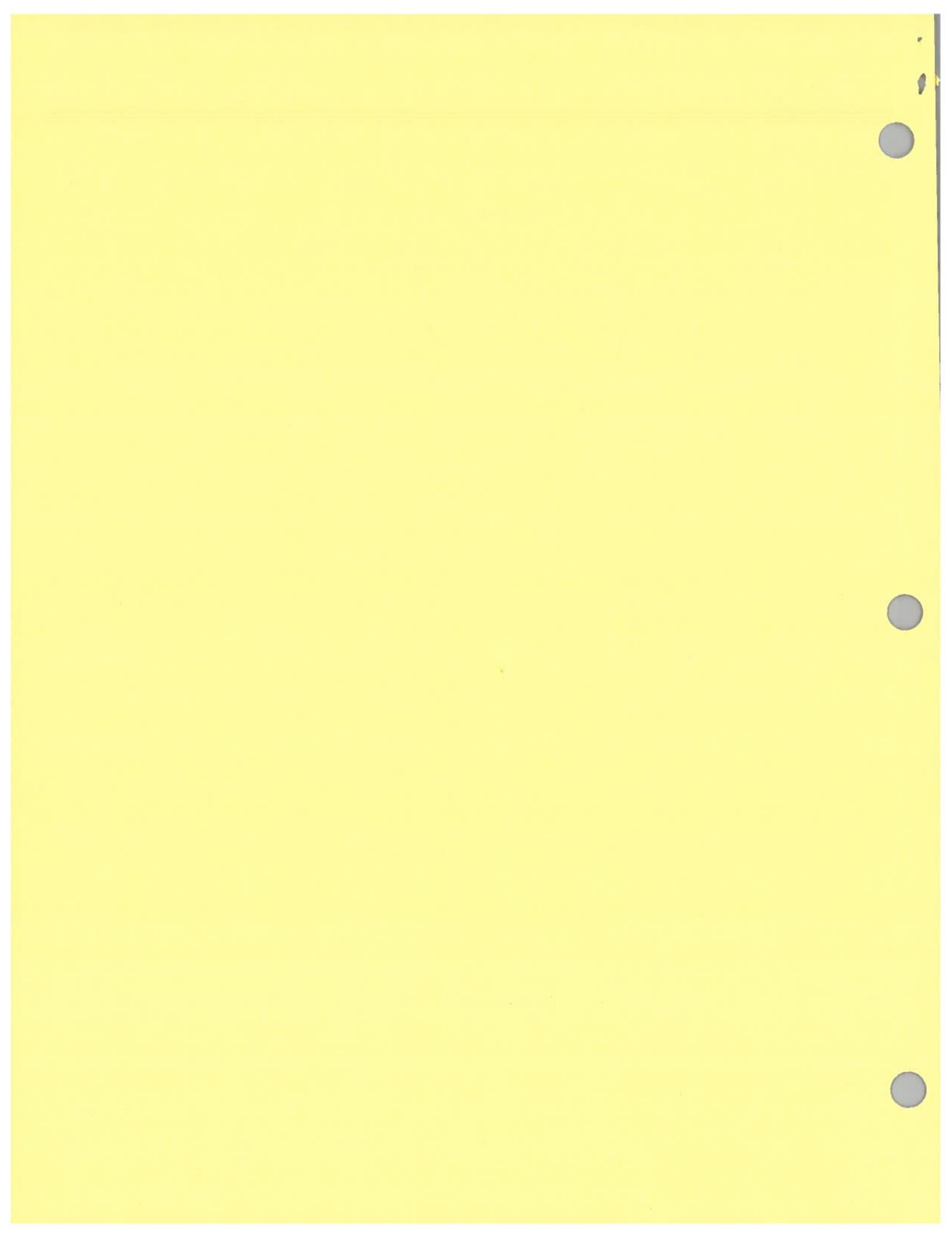
Seventy-two percent of wind related deaths occurred in people ages 39 and below (36 of 50 known ages).

Wind Related Deaths - 1987
by Age Group

| | | High Wind | TSTM Wind | All |
|--------------------------------------|-------------|--------------|--------------|------|
| A g e G r o u p | 0 to 9 | 4 | 2 | 6 |
| | 10 to 19 | 6 | 2 | 8 |
| | 20 to 29 | 5 | 4 | 9 |
| | 30 to 39 | 5 | 8 | 13 |
| | 40 to 49 | 0 | 2 | 2 |
| | 50 to 59 | 3 | 2 | 5 |
| | 60 to 69 | 3 | 3 | 6 |
| | 70 to 79 | 1 | 0 | 1 |
| | Unknown | 6 | 0 | 0 |
| | Total | 33 | 23 | 56 |
| | Percent | 59% | 41% | 100% |
| | Average Age | 43.7 | 35.3 | 40.3 |

Wind Related Deaths - 1987
by Gender

| | | High Wind | TSTM WIND | All |
|----------------------------|---------|--------------|--------------|-----|
| G e n d e r | Female | 6 | 8 | 14 |
| | Male | 25 | 15 | 40 |
| | Unknown | 2 | 0 | 2 |
| | All | 33 | 23 | 56 |



Wind Related Deaths - 1987
by State

| | High Wind | TSTM Wind | All |
|-----|--------------|--------------|-----|
| AK | 6 | 0 | 6 |
| AR | 1 | 0 | 1 |
| CA | 3 | 1 | 4 |
| CO | 0 | 1 | 1 |
| FL | 1 | 0 | 1 |
| GA | 1 | 0 | 1 |
| IL | 0 | 2 | 2 |
| LA | 2 | 1 | 3 |
| MA | 1 | 0 | 1 |
| MI | 0 | 7 | 7 |
| NM | 1 | 0 | 1 |
| NV | 2 | 0 | 2 |
| OK | 0 | 1 | 1 |
| OR | 6 | 0 | 6 |
| PA | 0 | 2 | 2 |
| TN | 1 | 0 | 1 |
| TX | 4 | 5 | 9 |
| UT | 4 | 1 | 5 |
| WI | 0 | 1 | 1 |
| WV | 0 | 1 | 1 |
| ALL | 33 | 23 | 56 |

Wind Related Deaths - 1987
by Location

| | High Wind | TSTM Wind | All |
|-----------------|--------------|--------------|-----|
| Boat | 16 | 4 | 20 |
| Mobile Homes | 1 | 5 | 6 |
| Outside | 5 | 4 | 9 |
| Permanent Homes | 0 | 1 | 1 |
| Swimming | 0 | 3 | 3 |
| Vehicles | 9 | 6 | 15 |
| Unknown | 2 | 0 | 2 |
| All | 33 | 23 | 56 |

Wind Related Deaths - 1987
by Month

| | High Wind | TSTM Wind | All |
|------|--------------|--------------|-----|
| Jan. | 2 | 0 | 2 |
| Feb. | 1 | 2 | 3 |
| Mar. | 1 | 1 | 2 |
| Apr. | 4 | 1 | 5 |
| May | 0 | 3 | 3 |
| Jun. | 3 | 6 | 9 |
| Jul. | 6 | 7 | 13 |
| Aug. | 0 | 0 | 0 |
| Sep. | 1 | 0 | 1 |
| Oct. | 5 | 0 | 5 |
| Nov. | 2 | 3 | 5 |
| Dec. | 8 | 0 | 8 |
| All | 33 | 23 | 56 |

