

STORM DATA



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NATIONAL CLIMATIC DATA CENTER, ASHEVILLE NORTH CAROLINA"
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C O N T E N T S

Cover: A quirk that can only result from one of nature's most violent and erratic phenomena, this truck was dropped into the den of a Shreveport, Louisiana home by a tornado on the evening of November 15th, while a man who had taken refuge under a coffee table inside the room survived uninjured. The tornado was one of 49 that ravaged the South-Central U.S. on November 15th and 16th, 1987 (see TORNADO OUTBREAK...pages 8 through 13). ---Photo by John Armistead, The Shreveport Journal; and supplied by Ernest S. Ethridge, NWSO at Shreveport, Louisiana.

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STORM DATA (ISSN 0039-1972)

The section on Outstanding Storms of the Month is prepared by Professor T. Theodore Fujita, editor, and Duane J. Stiegler, associate editor, the University of Chicago, with funding by the U. S. Office of Naval Research. The Storm Data and Unusual Weather Phenomena narratives, and summaries of Hurricanes/Tropical Storms are prepared by the National Weather Service. The National Climatic Data Center compiles statistics on deaths, injuries, damage and prepares the annual summaries of tornadoes and Lightning. This publication contains our best information on storms, but due to the difficulties inherent in collection of this type of data it is not all-inclusive. Late reports and corrections will be carried quarterly. Maps of zones used in the Storm Data and Unusual Weather Phenomena will be published in all editions.

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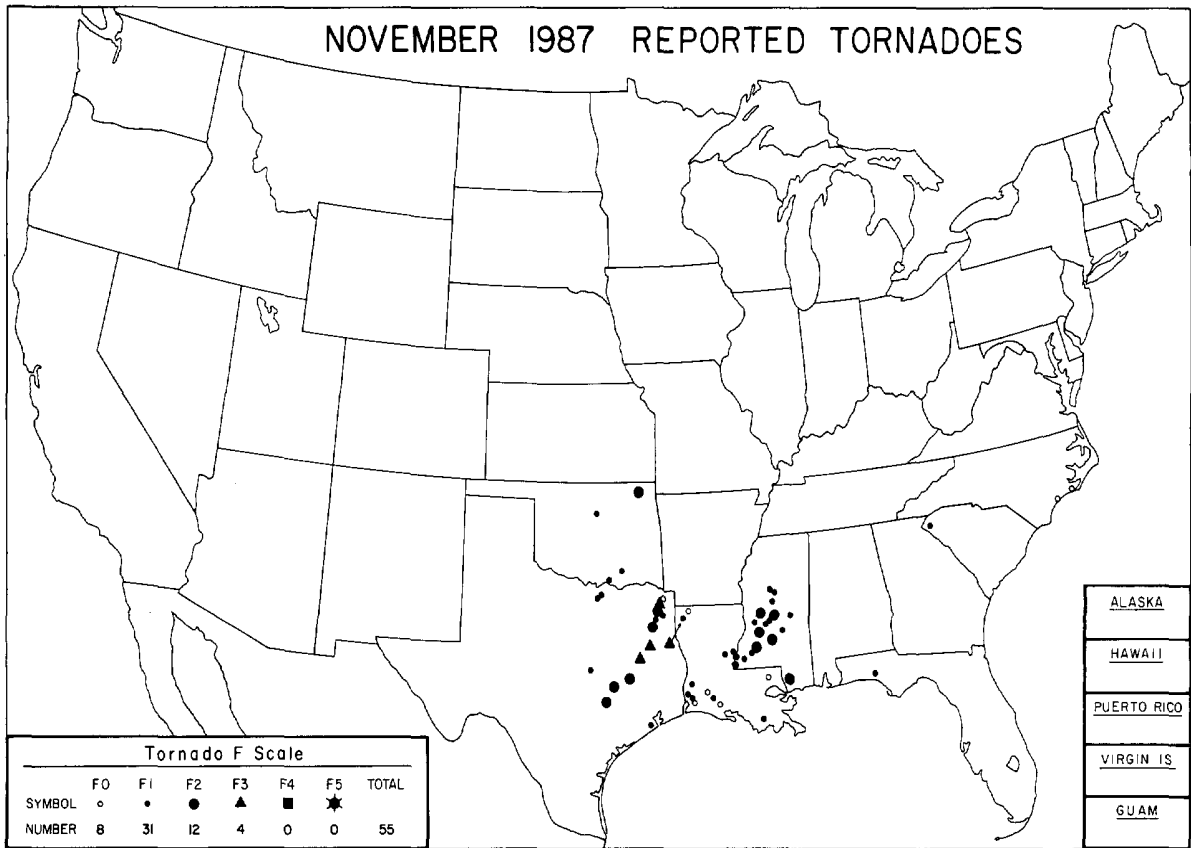
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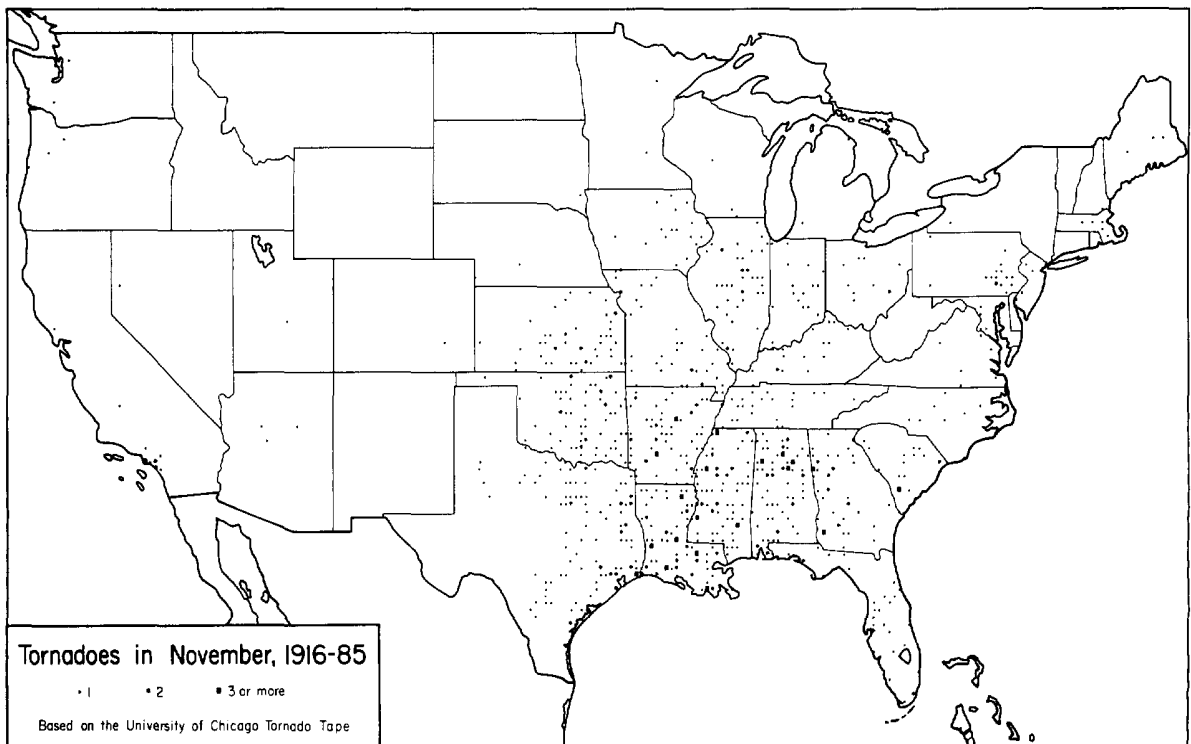
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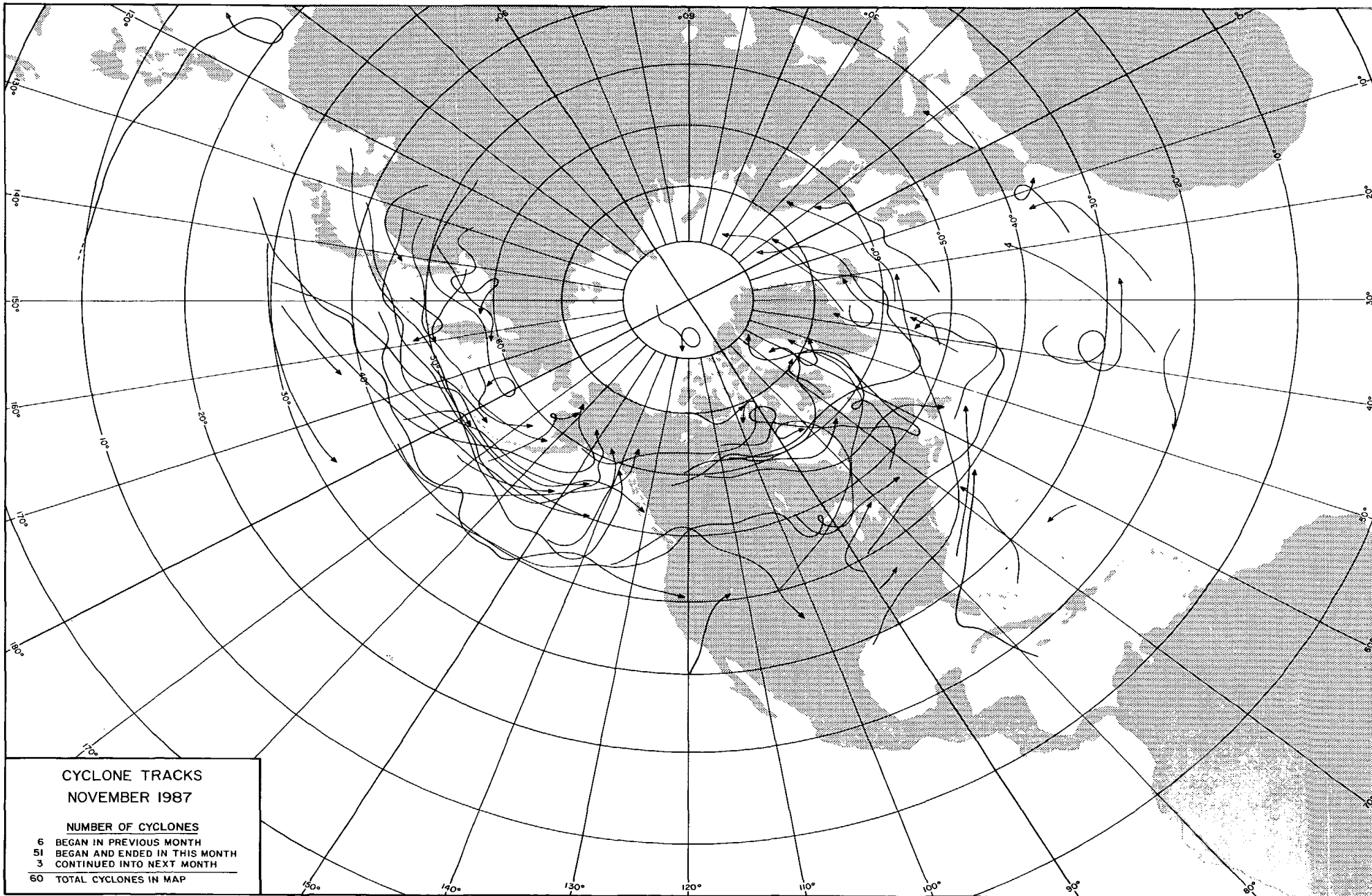
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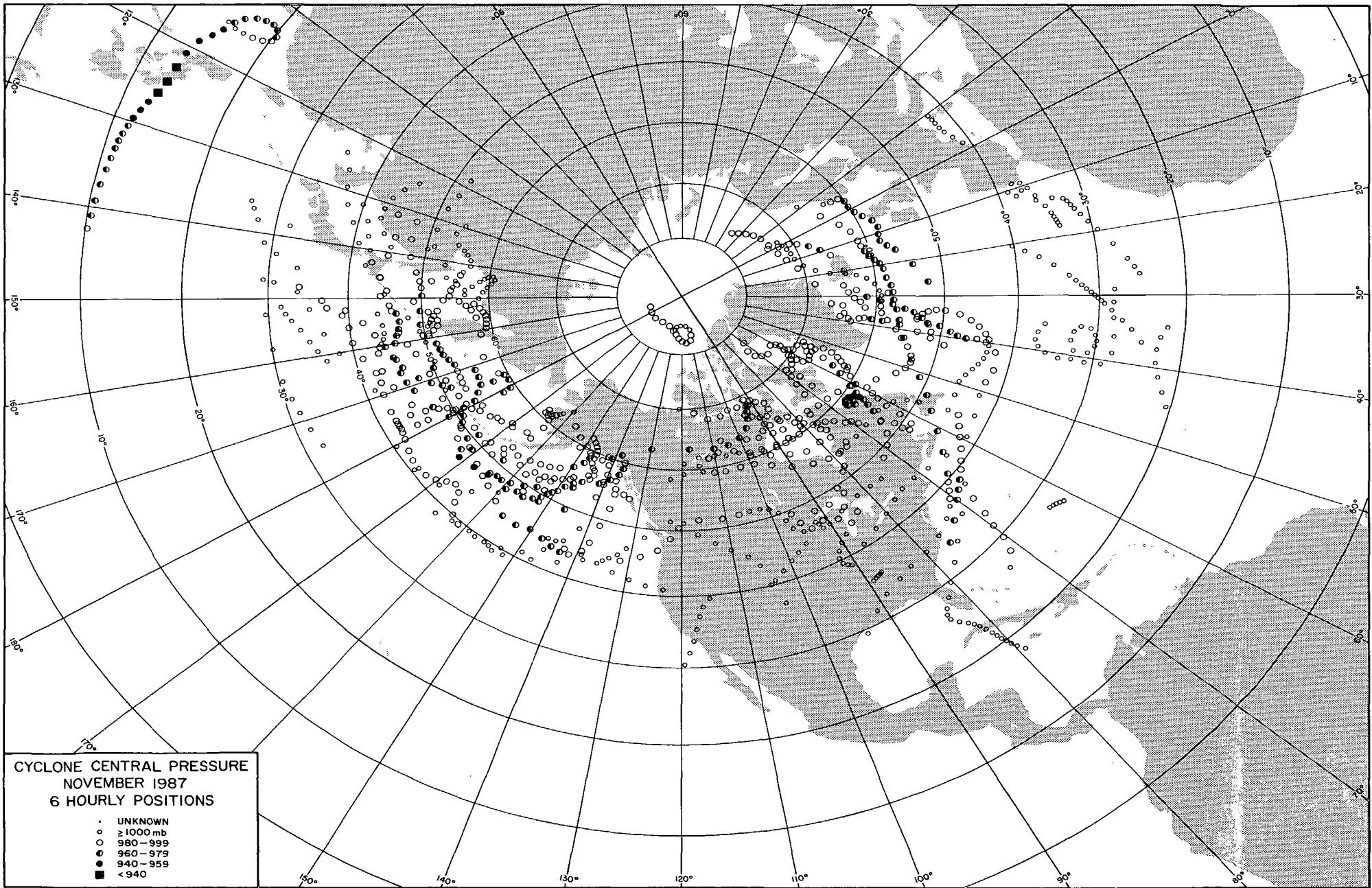
OUTSTANDING STORMS OF THE MONTH



<ul style="list-style-type: none"> ● COMPLETE REPORT RECEIVED ◐ PRELIMINARY REPORT RECEIVED ○ REPORT NOT RECEIVED <p>(N) northern (W) western (S) southern (C) central (E) eastern (O) coastal (SE) southeastern</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>● 1AL</td><td>● 7DE</td><td>● 14KS</td><td>● 21MN</td><td>● 28NJ</td><td>● 33OH</td><td>● 39SD</td><td>● 44VA</td><td>● 49AK(SE)</td></tr> <tr> <td>● 2AZ</td><td>● 8FL</td><td>● 15KY</td><td>● 22MS</td><td>● 29NM</td><td>● 34OK</td><td>● 40TN</td><td>● 45WA</td><td>● 50HI</td></tr> <tr> <td>● 3AR</td><td>● 9GA</td><td>● 16LA</td><td>● 23MO</td><td>● 30NY(O)</td><td>● 35OR</td><td>● 41TX(N)</td><td>● 46WV</td><td>● 51PR</td></tr> <tr> <td>● 4CA(N)</td><td>● 10ID</td><td>● 17ME</td><td>● 24MT</td><td>● 30NY(C)</td><td>● 36PA(E)</td><td>● 41TX(S)</td><td>● 47WJ</td><td>● 52VI</td></tr> <tr> <td>● 4CA(S)</td><td>● 11IL</td><td>● 18MD</td><td>● 25NE</td><td>● 30NY(W)</td><td>● 36PA(W)</td><td>● 41TX(W)</td><td>● 48WY</td><td>● 53PC</td></tr> <tr> <td>● 5CO</td><td>● 12IN</td><td>● 19MA</td><td>● 26NV</td><td>● 31NC</td><td>● 37RI</td><td>● 42UT</td><td>○ 49AK(N)</td><td></td></tr> <tr> <td>● 6CT</td><td>● 13IA</td><td>● 20MI</td><td>● 27NH</td><td>● 32ND</td><td>● 38SC</td><td>● 43VT</td><td>● 49AK(S)</td><td></td></tr> </table>	● 1AL	● 7DE	● 14KS	● 21MN	● 28NJ	● 33OH	● 39SD	● 44VA	● 49AK(SE)	● 2AZ	● 8FL	● 15KY	● 22MS	● 29NM	● 34OK	● 40TN	● 45WA	● 50HI	● 3AR	● 9GA	● 16LA	● 23MO	● 30NY(O)	● 35OR	● 41TX(N)	● 46WV	● 51PR	● 4CA(N)	● 10ID	● 17ME	● 24MT	● 30NY(C)	● 36PA(E)	● 41TX(S)	● 47WJ	● 52VI	● 4CA(S)	● 11IL	● 18MD	● 25NE	● 30NY(W)	● 36PA(W)	● 41TX(W)	● 48WY	● 53PC	● 5CO	● 12IN	● 19MA	● 26NV	● 31NC	● 37RI	● 42UT	○ 49AK(N)		● 6CT	● 13IA	● 20MI	● 27NH	● 32ND	● 38SC	● 43VT	● 49AK(S)	
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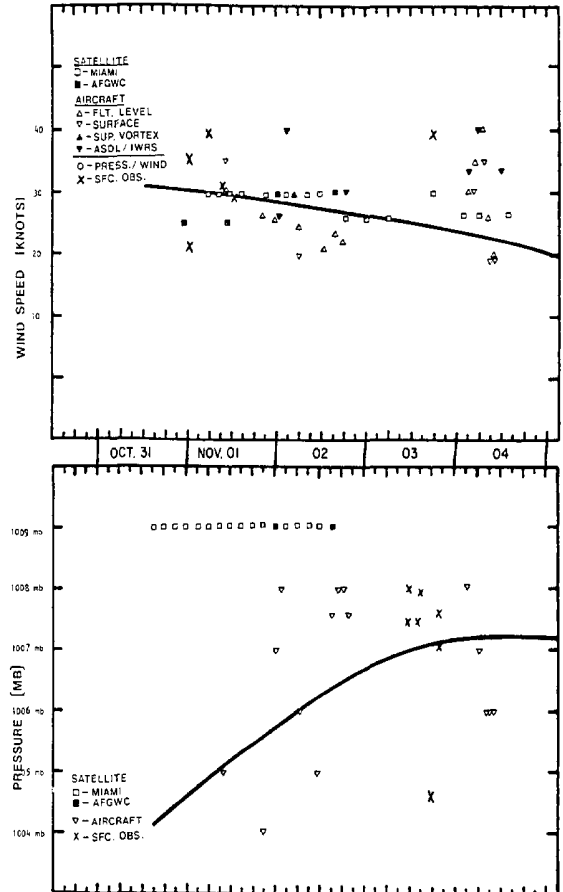
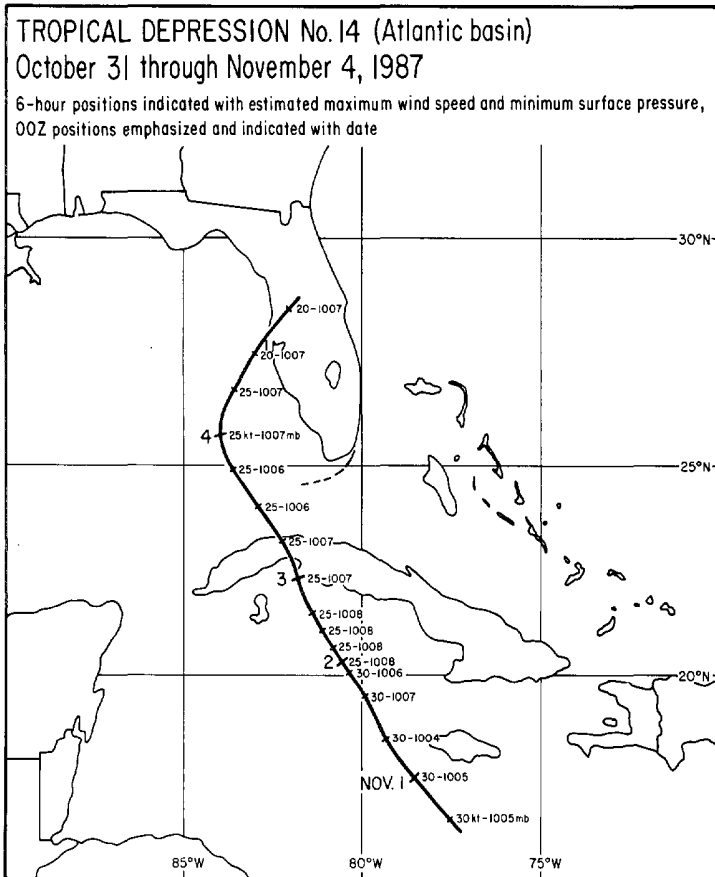


CYCLONE CENTRAL PRESSURE
NOVEMBER 1987
6 HOURLY POSITIONS

- UNKNOWN
- ≥ 1000 mb
- ◌ 980-999
- ◌ 960-979
- ◌ 940-959
- < 940

TROPICAL STORMS AND HURRICANES

Although there were no tropical storms or hurricanes during November 1987, Tropical Depression Number 14 was nonetheless noteworthy. It formed from a broad area of low pressure in the south-central Caribbean and moved north-northwestward from south of Jamaica, over western Cuba, to west of southern Florida on October 31st to November 4th, before turning northeast and passing over central Florida during the 4th. The system was most organized during its first day, after which it came under the influence of shearing which displaced the system's deep convection to the northeast of its center, leaving a swirl of only low-level clouds by which to identify its organization. Despite the system's weak organization, Florida experienced strong gradient winds and beneficial rains preceding and concurrent with its passage.



Path of the circulation center from best track data (left) and plots of estimated maximum wind speed and minimum surface pressure versus time (right) for Tropical Depression Number 14 (1987).

24-HOUR ENDING	JAMAICA		CUBA			FLORIDA							*12Z-12Z		
	Kingston*	Havana	Bahia Honda	Sagua La Grande	Key West	Conch Key	Clewiston*	HST	Miami	Miami Beach	Tavernier	Naples		Fort Myers	Orl
31/00Z	1.46														
01/00Z	6.38	0.03	2.39	2.12	0.04	0.33		0.06			0.45			TRACE	
02/00Z	1.13	MSG	MSG	MSG	0.12	1.90	0.13	1.01	1.66	0.35	3.51	0.59	0.61	0.62	0.06
03/00Z	1.23				0.18	MSG	0.42	MSG	1.54	0.40	1.66	0.36	0.62	0.17	TRACE
04/00Z					2.28	0.84	0.62	0.15	0.63	0.02	0.08	1.26	3.67	2.54	1.92
05/00Z						TRACE	4.28	0.51	0.59	1.08		0.17	0.01	1.13	TRACE
TOTALS	10.21				2.62		5.45		4.42	1.85	5.90	2.38	4.91	4.46	1.98

Daily and storm total rainfall (in inches) associated with Tropical Depression Number 14 of October 31 to November 4, 1987.

TROPICAL STORMS and HURRICANES ---- continued

LOCATION	PRESSURE (mb)	DATE/TIME(Z)	SUSTAINED WINDS(kt)	DATE/TIME(Z)	PEAK GUST (kt)	DATE/TIME(Z)
JAMAICA						
Kingston	1007.0	31/2100	090/039	31/1800	51	31/18Z
CUBA ‡						
Havana	1006.9	03/0900	NE/020**	01/0300	MSG	
Playa Giron	1006.5	02/2100	SE/015	02/2100	MSG	
Sagua La Grande	1008.7	02/2100	ESE/015**	01/0000	MSG	
FLORIDA						
Key West (EYW)	1006.8	03/0100	120/027	03/0850	33	03/0730
Boca Chica (NAS)	1005.0+	03/0600*	100/040	03/0724	55	03/0724
Cudjoe Key (AF)	1006.4	03/0320	NE/040	03/0320	60	03/0312
Miami (MLA)	1008.4	04/0350	NE026**	02/0030	30**	02/0030
Miami Beach			060/023**	01/2200	38**	01/2200
Flamingo			120/015	03/0900	30**	01/1800
Naples	1007.0	04/0900*	120/015	03/0400	28	03/2000

* one of several occurrences

** due to strong pressure gradient between tropical depression in Caribbean and high pressure over Eastern United States.

‡ from synoptic or 3 hourly data

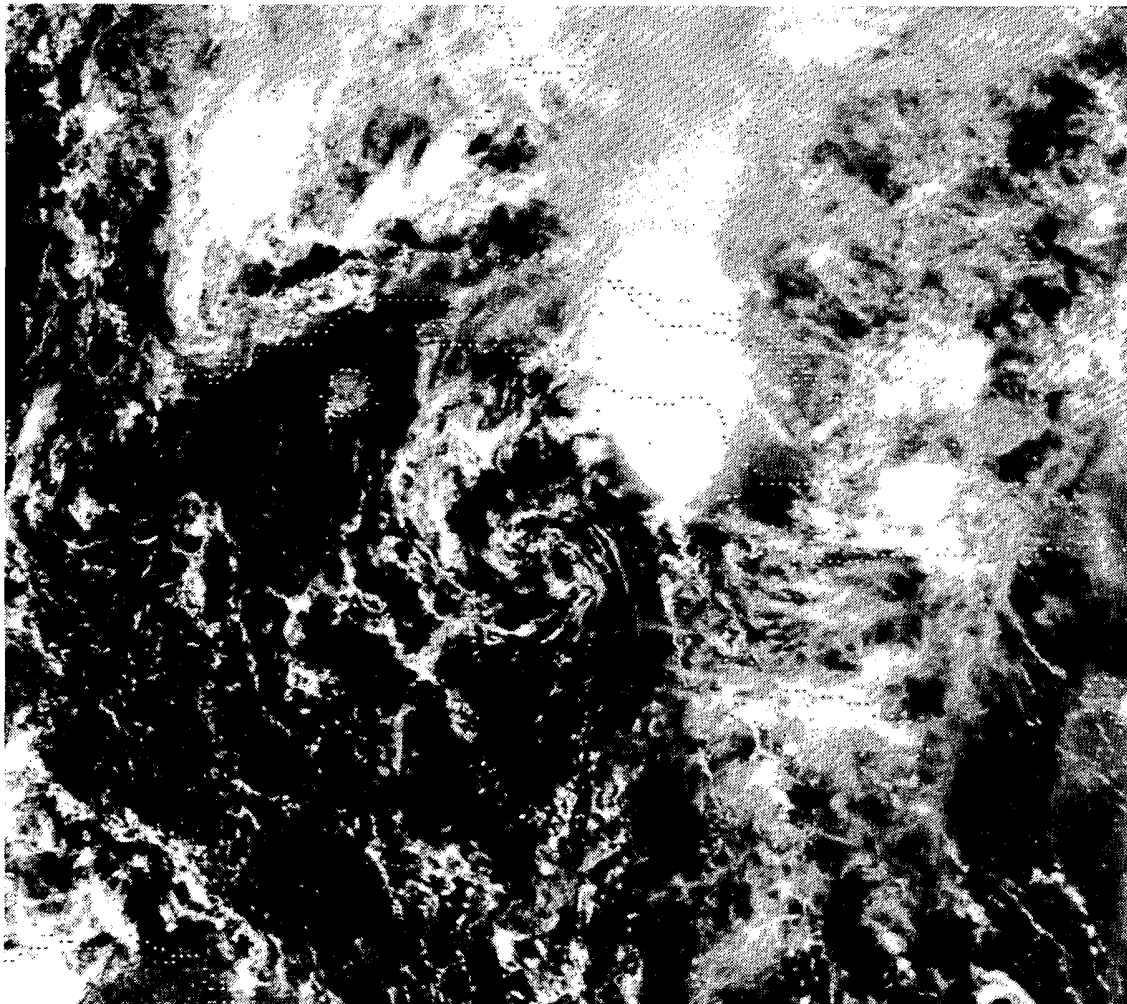
+ not calibrated

LEFT: Minimum pressures and maximum wind speeds and gusts associated with and at selected locations within the influence of Tropical Depression Number 14.

VESSEL CALL SIGN	LOCATION	PRESSURE (mb)	DATE/TIME(Z)	WIND* DIR SPEED(kt)	SEA (ft)	SWELL (ft)
SHIP	28.1N 78.9W	1015.5	01/1200	ESE/035		
7JYN	27.6N 74.6W	1014.2	01/2100	ESE/035	10.5	12.0
WGDB	25.5N 85.9W	1015.0	01/2100	NNE/035	10.5	10.5
1116	28.5N 78.8W	1018.0	02/0000	NE/035	8.0	20.0
1116	28.4N 78.6W	1016.2	02/0600	NE/035	8.0	20.0
ELBK	28.9N 80.3W	1014.3	02/1200	ESE/040	8.0	8.0
NBYO	28.0N 79.0W	1019.0	02/1800	ESE/050	32.5	24.5
KSLJ	31.8N 78.9W	1019.8	02/1800	E/035	9.5	12.5
1116	27.5N 77.4W	1013.2	03/0000	ESE/040	9.5	25.0
WGDB	28.9N 80.0W	1013.5	03/1800	ESE/035	11.0	11.0

* All ship data winds were produced by the strong pressure gradient between the tropical depression and the large high pressure over the eastern United States.

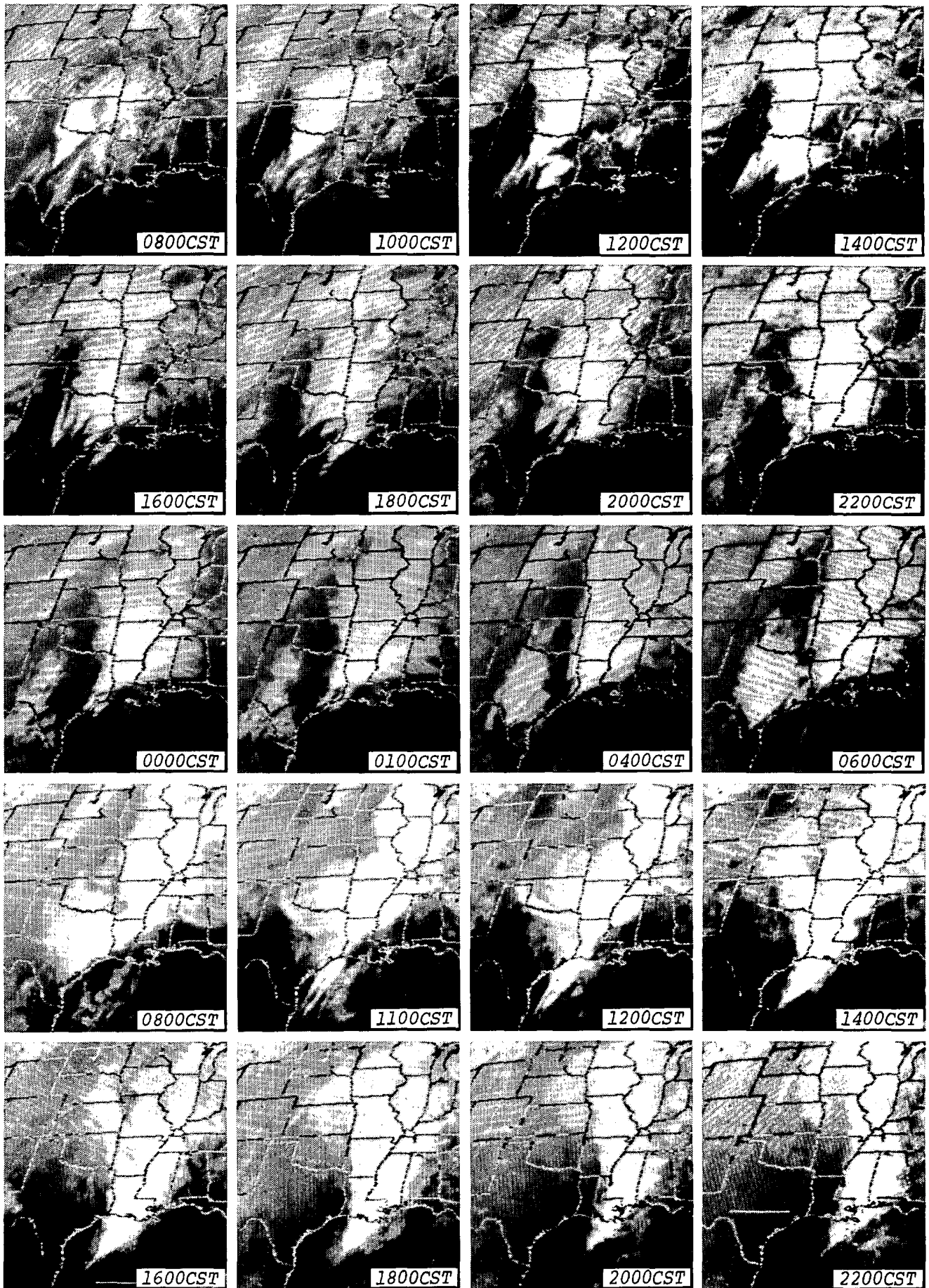
Ship reports of pressure, winds, and sea surface conditions experienced while within Tropical Depression Number 14's influence.



Just to the south of central Cuba in the Caribbean Sea, a swirl of low-level clouds reveals the circulation center of Tropical Depression Number 14 at 1701 UTC on November 1, 1987 in this GOES 6 satellite, visible image. Note that the deep convection is occurring over the Gulf of Mexico and central Cuba, to the north and northeast of the circulation center.

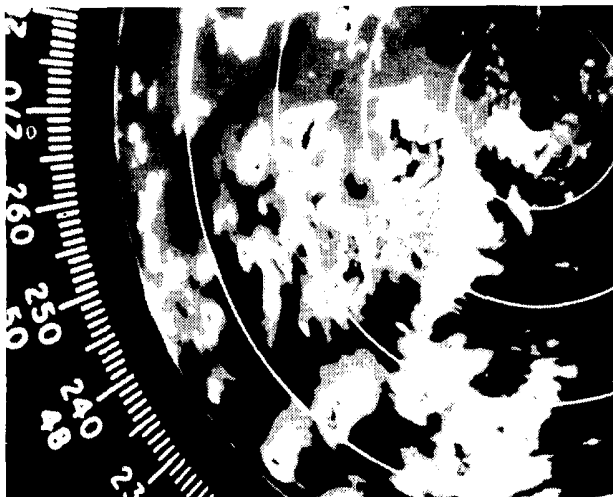
---All materials on pages 6 and 7 are from the National Hurricane Center and provided by AOML/Hurricane Research Division, both of Miami, Florida.

TORNADO OUTBREAK in the SOUTH-CENTRAL U.S. ---- continued

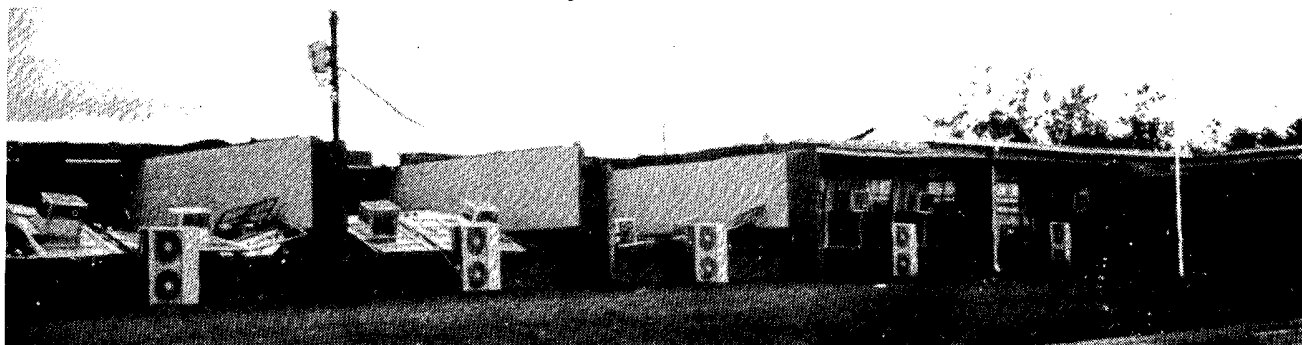


GOES 6 satellite, infrared images taken at approximately 2-hour intervals show the distribution, duration, and evolution of the storm cloud pattern over the South-Central U.S. during the outbreak of tornadoes on November 15 and 16, 1987. ---Photos from NESDIS.

TORNADO OUTBREAK in the SOUTH-CENTRAL U.S. ---- continued



LEFT: A Longview, Texas radar image taken at 1550CST on November 15th reveals a hook echo near Jacksonville, about 80 km at 240° from Longview. The echo was associated with an F3 tornado that traversed a 33.5 mile long path. RIGHT: Wreckage of a destroyed mobile home (foreground) where 4 injuries occurred at Diana, Texas. ---Both photos from the NWSMO at Longview, Texas.



Damage at the A.M. Story Elementary School in Palestine, Texas, near the end of a 10.5 mile long path of destruction produced by an F3 tornado. ---Photo from the NWSFO at Fort Worth, Texas; all above photos supplied by the NWSFO at Fort Worth.



One injury occurred when an F3 tornado destroyed this house (left), 12 miles north-northeast of Hughes Springs, Texas. Near the same location, a small piece of wood was driven into mortar between concrete blocks (right) about 150 yards west of the tornado's damage path. ---Both photo from The Monitor, Naples, Texas and provided by Ernest S. Ethridge, NWSO at Shreveport, Louisiana.

TORNADO OUTBREAK in the SOUTH-CENTRAL U.S. ---- continued



Exterior and interior views, top and bottom respectively, of a brick house that was destroyed by an F3 tornado near the Cross Roads community, southeast of Marietta in northwest Cass County, Texas. Three persons sustained injuries at the site. ---Both photos from The Monitor, Naples, Texas.

---All photos on this and the following three pages (11 through 14) are provided by Ernest S. Ethridge, NWSO at Shreveport, Louisiana; except where noted otherwise.

TORNADO OUTBREAK in the SOUTH-CENTRAL U.S. ---- continued



A farmer surveys the chaotic remains of his stead east of Paxton, Texas (left) and a few surviving chickens wander among the corpses of their fallen kin at a farm 4 miles west-northwest of Juquin, Texas (right). Both locations are near the start of the damage path produced by the longest-tracking tornado of the outbreak, an F3 that travelled 49.5 miles from 5 miles north of Center, Texas to the southeast portion of Shreveport, Louisiana. At the chicken farm, only 3 of 34,000 chickens survived. ---Both photos from the Logansport Enterprise, Logansport, Louisiana



A destroyed gas station/store along U.S. Highway 171 at the southern edge of Shreveport. Three people in the store hid under a desk when the tornado struck, after which it took two hours to free them. One person who did not make it into the store hung on to a nearby telephone pole and watched as two horses from a barn 250 yards southwest of the store flew by. ---Photo by Jack Barham, The Shreveport Journal.



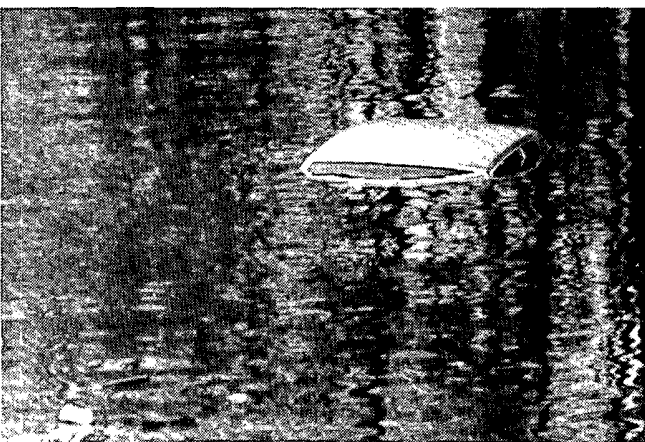
Like a crumpled piece of paper, the twisted remains at left are what resulted when a 9,700 pound front end loader in an open field was picked up by the Center-Shreveport tornado, rolled through the field, and eventually dropped in woods about 200 yards from the edge of the field. Its total distance of travel was 1,980 feet, or about three-eighths of a mile. One of the large wheels was sheared off. The location is in southwest De Soto Parish, about 19 miles south-southwest of Shreveport. ---Photo from the Logansport Enterprise, Logansport, Louisiana.



Scene at a mobile home park in southeast Shreveport where 35 of 41 units were destroyed. ---Photo by Ralph Fountain, The Shreveport Journal.



Aerial view of a home in southeast Shreveport that had its second floor destroyed. ---Photo by John Armistead, The Shreveport Journal.



A car is engulfed by floodwater of lower Cross Bayou in Shreveport after gates on Cross Lake were opened to release water from the storm's heavy rainfall (see map on next page). ---Photo by John Armistead, The Shreveport Journal.



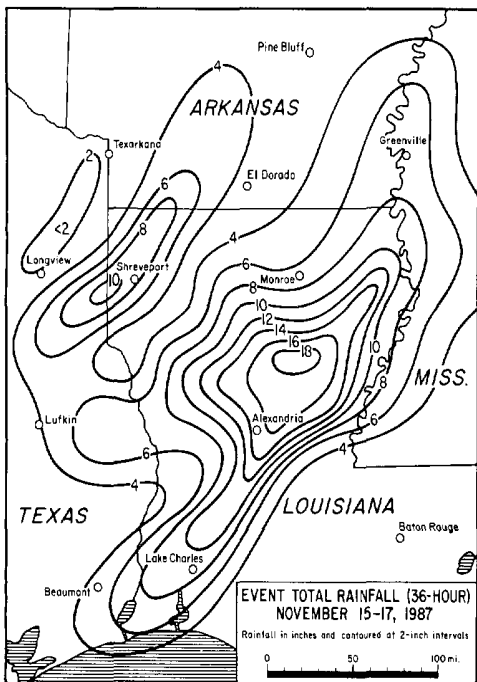
F1 damage sustained by the Reflection Point Apartments in Flowood, Mississippi, just east of Jackson. The tornado was one of four produced by a single storm. ---Photo by and provided by David Imy, NWSFO at Jackson, Mississippi.

1b. HIGH WINDS and HEAVY RAINS in LOUISIANA on November 15-16, 1987

The strong thunderstorms that moved through the South-Central U.S. on November 15th and 16th were not only responsible for the 49 tornadoes, but caused widespread damage from high winds and heavy rains as well. Most noteworthy were the heavy rains that fell overnight in Louisiana (see map below). An unofficial 21.21 inches fell 2.5 miles north of Olla. Pictures here are examples of the flood and wind damage that occurred in northeast Louisiana.



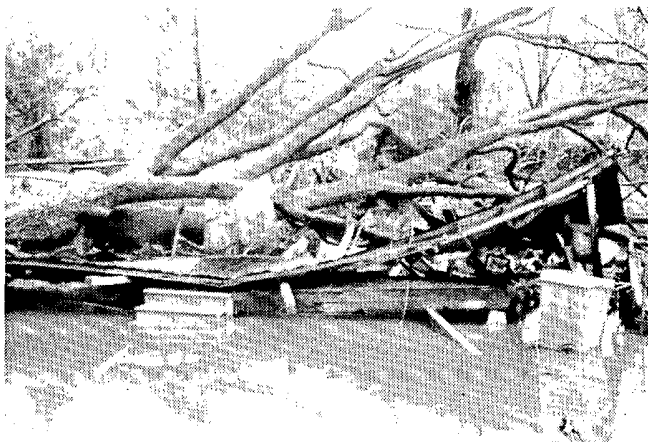
Thunderstorm wind damage in Franklin Parish, Louisiana that resulted from the November 16th storms. ---Photo from the Franklin Sun, Winnsboro, Louisiana.



---Map by Ernest S. Ethridge, NWSO at Shreveport, Louisiana.



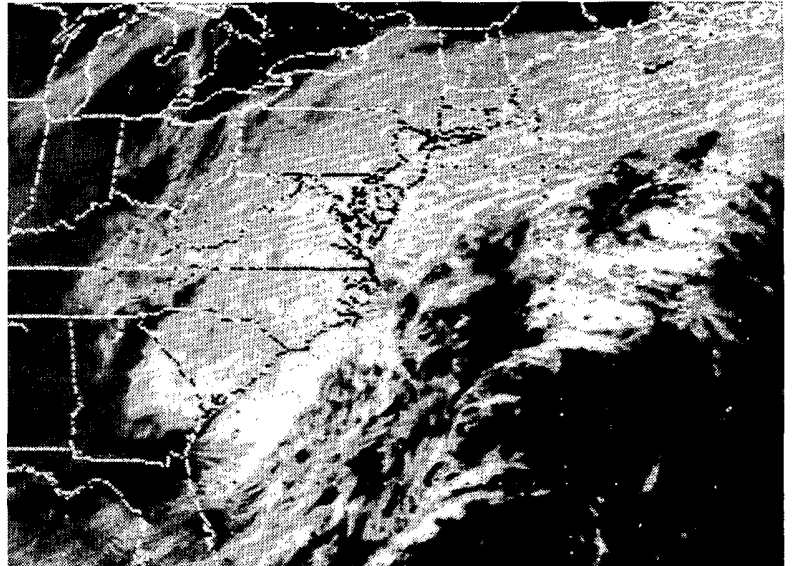
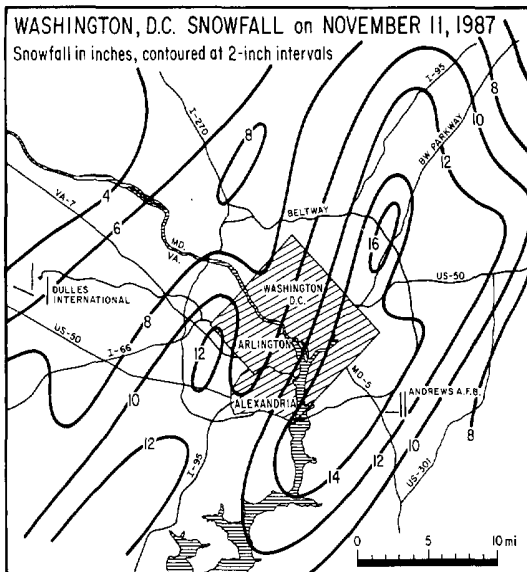
A student crosswalk is partially submerged by floodwaters at Tallulah, Louisiana. ---Photo from the Madison Journal, Tallulah, Louisiana.



LEFT: Remains of a wood and sheet metal structure destroyed by a falling tree sink into pooled floodwater southeast of Tallulah. RIGHT: A travel trailer rests on its roof after being overturned by high winds southwest of Tallulah. The sheet metal came from a nearby hay barn that was partially destroyed. ---Both photos from the Madison Journal, Tallulah, Louisiana.

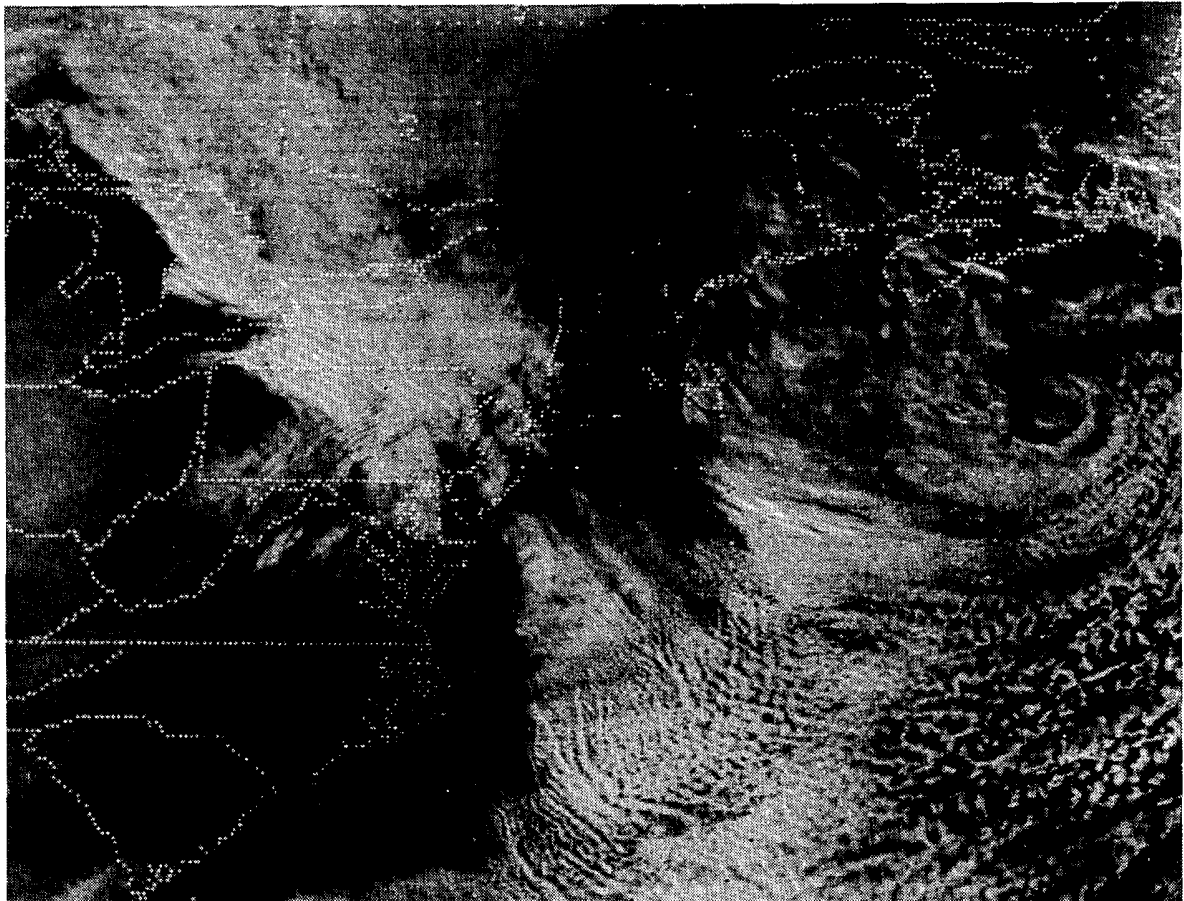
2. SNOWSTORM in the EAST-CENTRAL U.S. on November 11-12, 1987

On November 11th and 12th, a deepening low pressure system brought early-season snow to much of the East-Central U.S. and southern New England. The snow was particularly noteworthy in the Washington D.C. area where amounts that fell, as high as 17 inches, would have been considered unusual enough in mid winter let alone mid fall. The heavy, wet snow, accompanied by lightning and thunder for long periods, caused the usual traffic havoc and school and airport closings.



---Map from the Metropolitan Washington Climate Review; and supplied by Thomas Blackburn, NWS Headquarters, Silver Spring, Maryland.

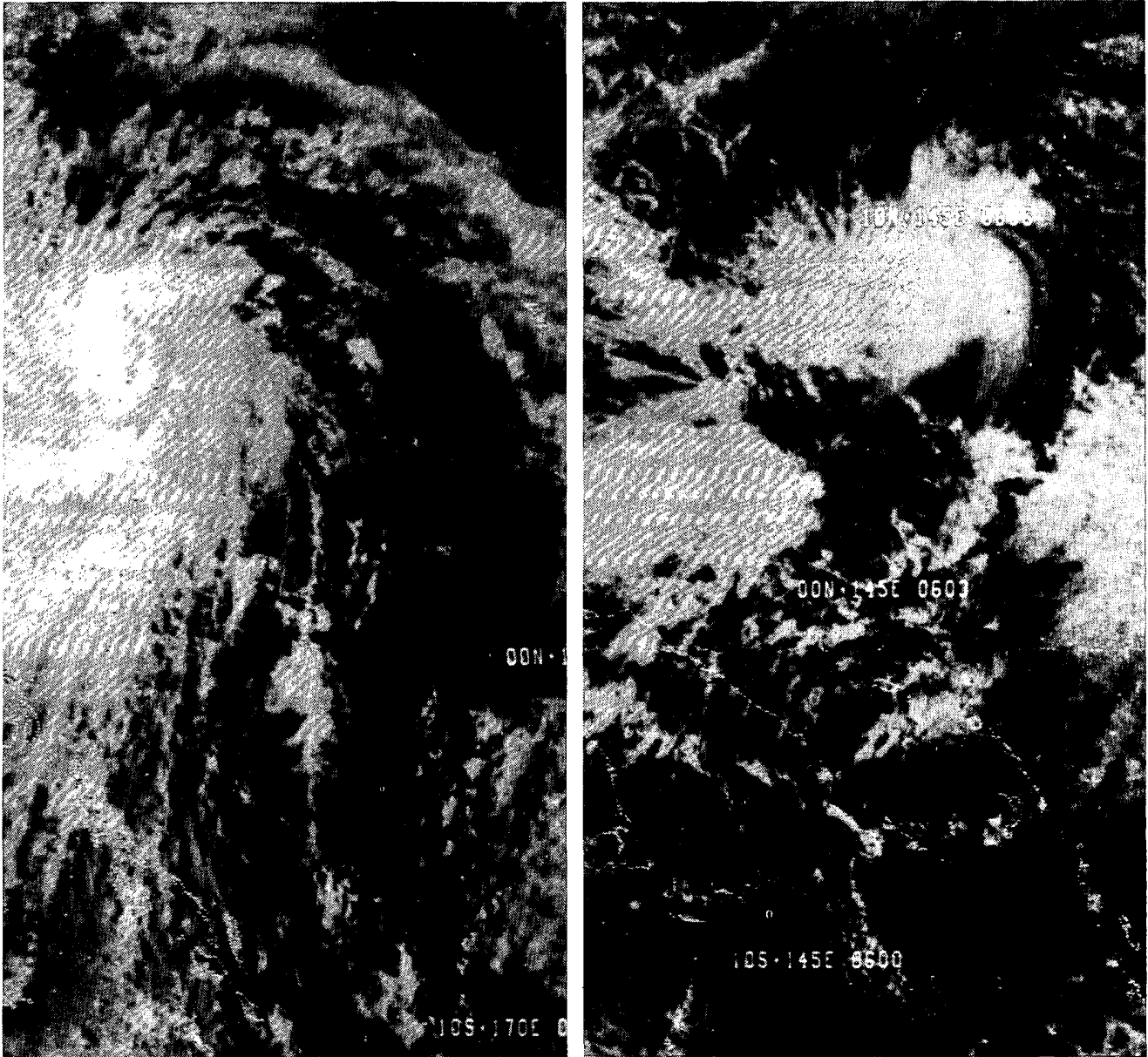
ABOVE: The cloud pattern of the East Coast snowstorm as seen at 1031EST on November 11th, while heavy snow was in progress. BELOW: At 1331EST on November 12th, the storm is seen after undergoing a major intensification as it moved out to sea.



---Both above photos are GOES 6 satellite, visible images from NESDIS.

3. TYPHOON NINA in the WESTERN PACIFIC, November 19-30, 1987

During the last week and a half of November 1987, Typhoon NINA formed in the low latitudes of the Western Pacific, trekked west-northwest over U.S. territorial Truk Island (7.4°N, 151.7°E) on the early morning of the 21st, passed through the Philippines on the 25th, and finally dissipated while making a large loop in the South China Sea on the 27th to the 30th. On Truk, 5 people were killed and most of the island's buildings were destroyed. Although still classified a tropical storm at the time, NINA was nevertheless intensifying rapidly as it passed over the small island, bringing with it torrential rains and winds gusting to 95 mph. These events were considered quite unusual since, by virtue of the island's proximity to the equator, tropical cyclones visiting Truk rarely exhibit such organization and intensity. Later, NINA did major damage in the Philippines as well.



NOAA polar-orbiting satellite, visible images show NINA at 0430UTC on November 20th (left) and 0600UTC on November 21st (right) as the storm, in tropical storm stage, passed over Truk. ---Photos from the National Environmental Satellite Data and Information Service, Washington, D.C.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
1 ALABAMA									
Lamar County	16	1730CST			0	0	?	?	TSTM Wind Trees and power lines were blown down 4 miles east of Sulligent.
Pickens County	16	1740CST			0	0	?	?	TSTM Wind Numerous trees and power lines were blown down 2 miles south of Gordo and 3 miles east of Aliceville.
Tuscaloosa County	16	2040CST			0	0	?	?	TSTM Wind Several trees were blown down in the City of Tuscaloosa. At Abernatt a tree was blown onto an automobile and carport.
Jefferson County	16	2050CST			0	0	?	?	TSTM Wind
	16	2110CST			0	0	?	?	TSTM Wind In Hueytown at 2050CST several limbs were ripped off trees and windows were blown out of several houses. In Hoover at 2110CST a truck was turned over and an automobile was blown into another automobile by high winds. Wind also blew out the window of a car dealership and damaged the roof of a car. Also several permanent signs were blown down.
Mobile County	16	2140CST			0	0	?	?	TSTM Wind In the Tillman's Corner area of Mobile about 6 miles southwest of downtown Mobile, a damage path 2 miles long and about half a mile wide was produced by straight-line winds from a thunderstorm downburst. Although most of the damage was sustained by trees, one house received heavy roof damage. The damage was consistent with sustained winds of 90 to 110 mph.
Elmore County	16	2340CST			0	0	?	?	TSTM Wind At Kowalliga 2 miles northeast of Jordan near Lake Martin, trees were blown across roads while several lake cabins received roof damage. Several boats were blown away and a travel trailer was turned over. Two miles north of Wetumpka two 80 Foot high 115X voltage towers received damage.
Tallapoosa County	16	2345CST			0	0	?	?	TSTM Wind In Dadeville a roof was damaged at a car repair shop and numerous tree limbs were blown down. Several sheds and part of a barn were destroyed.
Cullman County	26	1850CST			0	0	?	?	TSTM Wind A permanent sign was blown down and small hail fell in the Jones Chapel Community in western Cullman County.
2 ARIZONA									
Maricopa County Williams AFB	01	0100 MST			0	0	4	?	Hail (1.00)
Pinal County Queen Creek	01	0200 MST			0	0	4	5	Thunderstorm Winds Power poles downed in Queen Creek. High winds accompanied small hail which resulted in considerable crop losses.
Maricopa County Gila Bend	01	0119 MST			0	0	4	4	Hail (1.00) Funnel Cloud
Maricopa County 14 NW Phoenix	01	0205 MST			0	0	0	0	Funnel Cloud Pilot reported a small funnel cloud near 75th Ave & Cactus Road. At Sky Harbor Airport, the observer on duty noted several small protuberances from a wall cloud to the west.
Maricopa County Gila Bend	01	0310 MST			0	0	4	4	Thunderstorm Winds Hail (1.00) Flash Flooding Thunderstorms developed rapidly and strong winds uprooted trees and knocked out windows. Winds also damaged the Sheriff's substation. All of U.S. 80 north from Gila Bend under water.
Maricopa County Cave Creek	01	0510 MST			0	0	4	?	Thunderstorm Winds Flash Flooding Some mobile home porches ripped out by strong winds and all of Bell Road from Cave Creek eastward was under water.
Mohave County Bullhead City	01	0531 MST			0	0	4	0	Flash Flooding Major flooding resulted in the western portion of the county. Washes were reported filled with water up to 4 feet deep. Numerous cars stuck in sand and water. Route 95 closed due to flooding.
ARIZONA									
Graham County Ft. Thomas	01	1040 MST			0	0	?	5	Hail (0.75)
Maricopa County Scottsdale	01	1225 MST			0	0	?	0	Flash Flooding Numerous roads under water due to very heavy rain. Heaviest rainfall rate .0.65 inch in 15 minutes.
Maricopa County Scottsdale	06	1200 MST			0	0	0	0	Funnel Cloud The funnel cloud was first observed by controllers at Scottsdale Municipal Airport. It moved over open land near Pima Road and Shea Boulevard with no damage reported.
3 ARKANSAS									
Little River County	15	1900CST			0	0	3	-	Thunderstorm Wind A hay barn was destroyed and a mobile home was unroofed at the Hicks Community, two miles north of Ashdown.
Hot Spring County	15	2300CST			0	0	?	-	Thunderstorm Wind Trees and power lines were blown down by a thunderstorm, that moved through Malvern.
Pulaski County	16	0025CST			0	0	-	-	Thunderstorm Wind Trees and power lines were blown down in Little Rock.
Jefferson County	16	0040CST			0	0	3	-	Thunderstorm Wind Civil Defense reported winds up to 65 mph in Pine Bluff. Trees were downed and there were scattered power outages in Pine Bluff and Whitehall.
Lonoke County	16	0100CST			0	0	4	-	Thunderstorm Wind The press box at the Little League Field in England was blown down. A concession stand was blown apart as well. Many trees, limbs, and power lines were knocked down in England.
Grant County	16	0110CST			0	0	4	-	Thunderstorm Wind A mobile home, located eight miles south of Sheridan, was blown off its foundation. It also received damages from a felled tree.
Prairie County	16	0130CST			0	0	3	-	Thunderstorm Wind In Hazen, a steeple was knocked onto the roof of a church. Trees, limbs, and power lines were knocked down as well. In Des Arc, trees and light posts were blown down.
Cleveland County	16	Early Morning			0	0	3	-	Lightning Lightning struck the gymnasium roof at the Kingsland Public School. Two large holes were opened by the strike, allowing rain to cause some water damage to the inside of the structure.
Prairie County	16	0500CST			0	0	3	-	Flash Flooding About six inches of rain fell over the southern section of the county causing flash flooding. A bridge was washed out along Honey Creek, south of De Valls Bluff. Several highways in the county had water over the roadways.
Ashley County	16	1325CST			0	0	?	-	Flash Flooding Many county roads were flooded from heavy rains, primarily around Crossett. Crossett schools ended classes early to allow for the longer time required to bus students using routes to avoid the flooded areas.
Desha County	16	1330CST			0	0	?	-	Flash Flooding Heavy rain caused extensive flooding of roadways around Rohrer and Kelso. Also numerous streets flooded in McGehee.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
— ARKANSAS									
Chicot County	16	1400CST			0	0	-	-	Flash Flooding
			The State Police reported street flooding downtown Dermott. Also, streets and outlying roads were flooded in Lake Village.						
Pulaski County	16	1410CST			0	0	?	-	Flash Flooding
			Heavy rains caused street flooding in the Little Rock area near Fourche Creek. The golf course at Hindman Park was flooded.						
Crittenden County	16	1530CST			0	0	4	-	Flash Flooding
			Six inches of rain fell in an 18-hour period across the county. Numerous cars stalled due to high water at intersections in West Memphis, Marion, Turrell, and Edmondson. No homes or businesses were reported flooded.						
4 CALIFORNIA, Northern									
Inyo Co., Bishop	24	1200PST					3		High Winds
			Gusty post frontal winds gusted to 57 knots at Mammoth Lakes Airport and in the Owens Valley. Two airports flipped over and several small signs were damaged.						
4 CALIFORNIA, Southern									
Riverside-Southwest of Victorville	2	1435pst			0	0	0	0	Funnel Clouds
			Funnel clouds were reported near March AFB (RIV), and Southwest of Riverside. Radar indicated a few showers and a thundershower 5 miles south of Mount Wilson.						
CAZ-011-012 013-015-016 017-020 Coastal-Mountain-Antelope Valley	4	1430pst			0	0	2	0	Thunderstorms
			There were numerous reports of heavy rain and small hail. Many intersections and roadways were flooded but no major damage was reported.						
Lancaster	4	1530pst			0	0	2	0	Hail (0.75)
			At 1500 pst, WS Radar indicated an echo of intensity level VIP 4. The approximate top was near 35,000 feet. By 1530 pst there was a BWER east of Lancaster (WJF). Within fifteen minutes hail, ranging in size from 0.50" to 0.75" was reported a WJF. After 20 minutes the storm had moved toward Sandberg with gusty winds and heavy rain.						
Coastal Mountains Los Angeles Basin, Valleys	5	all day			0	0	2	0	Thunderstorms
			Rain through the night saturated the soil and rain during the day began to collect in all the streets. Minor street flooding and of low lying areas posed no significant threat.						
L.A. Airport Control Tower	5	0918pst			0	0	0	0	Waterspout
			A waterspout was sighted 5 miles west of the Airport. The spout was moving toward the shore. Radar reports indicated extreme intensity (VIP 5). Thunderstorms in a line from 5 miles north-west of Torrance to the coast near Point Dume. Several bands of heavy precipitation formed behind this the first line.						
Coastal Waters	5	1145pst			0	0	0	0	Funnel Clouds Waterspout
			Radar indicated a line of extreme thunderstorms 10-15 miles west of the Los Angeles International Airport. There several heavy thunderstorms which combined and moved slowly north-northwest. Closer observation of the radar screen indicated several small "hook echoes". Minutes later, several funnel clouds and a waterspout were spotted from the roof of the Federal Building before heavy rain obscured the view. A line of thunderstorms formed along a line from San Clemente (MUC) to Santa Monica Pier. As this line moved to the north, heavy rain and several funnels were reported.						
— CALIFORNIA, Southern									
Los Angeles County Coastal Plain	5	1620pst			0	0	1	0	Heavy Rain
			A line of thunderstorms plowed into the coast. Total rainfall was near to 0.20 inches, which fell within 15-20 minutes. In the mountains the total rain was near 1.20 inches.						
Death Valley	5	1600pst			0	0	5	0	Flash Flood
			Rain all day saturated the ground, but as the Upper-Level Low moved inland the rain intensified, causing flooding in the Death Valley Nation Park. Approximately five to eight thousand people were stranded due to washed out roads. Furnace Creek Ranger Station reported the following wash-outs: i) SR-190 between Furnace Creek and Death Valley Junction was covered with water, rocks, and debris. A 5 mile stretch was closed from 1600pst on the 5th to 1100 pst on the 6th. ii) An 8 mile stretch of SR-190 between Stove Pipe and Furnace Creek was closed. 30 vehicles were stranded. The road was re-opened by 1300 on the 6th. iii) National Park Service (NPS) Rt 1 (Badwater Road) was closed due to high water and debris. The road was reopened by 11/7/87. iv) NPS-RT 5, connection between SR-190 and Scotty's Castle was closed but reopened by 11/7/87. Rainfall at Scotty's Castle was 1.20 inches. v) Shoshone reported 0.50"-0.75" hail. Additionally, 16 students were stranded when high water closed access into the area. The people stranded in the area were visiting the park for a recreational encampment held every first weekend in November.						
Riverside County	23	0630pst			1	19	5	0	Dense Fog
			Fog formed in the inland valleys overnight and by morning visibilities were below 10 feet at times. A stretch of I-215 between Temecula and Sun City was the scene of several multi-vehicle collisions which began at 0630 pst and ended at 0730 pst. The total number of vehicles involved was 42. The freeway was closed until 1045 pst. In a separate fog related accident on the Romona Freeway, on person died. M54V.						
5 COLORADO									
Mountains, East COZ002-004-008-010 thru 017	14-15				0	0	0	0	Snow, wind
			The first major snowstorm of the season hit almost all spots on the Eastern plains and in the mountains of Colorado. The snow combined with wind to force closures of Interstate 70 east of Denver, and Interstate 25 between Denver and Colorado Springs. Snowfall accumulations ranged from 6 to 9 inches in the Denver area; about 7 inches fell to the north in Fort Collins. Southeast Colorado also had significant accumulations, with 7 inches at Walsenburg and 6 inches at Lamar. All mountain areas had snow; most accumulations were in the 8 to 16 inch range. The heaviest snow fell in the foothills and mountains east of the Continental Divide. 10 to 20 inch accumulations were common all through this area from north to south across the state. The heaviest snowfall measured during the storm was 37 inches at Echo Lake, at about 11000 feet elevation in Clear Creek county. Strong winds accompanied the snow, particularly south of the Palmer Divide. A gust of 59 mph was clocked at Colorado Springs at 0754 MDT on the 15th, and Pueblo recorded 68 mph at 1022 on the same day. Pueblo had 60 mph gusts for six consecutive hours that day.						
Northern, Central Mountains COZ 002-004	17-18				0	0	0	0	Heavy snow
			Snow fell at many spots in the mountains. Accumulations were only 3 to 6 inches in most places, but 14 inches fell at Steamboat Springs, and 21 inches buried Monarch Pass.						
Mountains, East COZ 002-004-008 thru 017	26				0	0	0	0	Snow
			A Thanksgiving snowstorm brought 1 to 5 inches to almost all of Eastern Colorado; 5 inches fell in Denver. Most spots in the foothills received about 6 inches, but Divide, west of Colorado Springs, had 13 inches. Up to 10 inches fell in the mountains, and 5 inches fell in the San Luis Valley at Monte Vista.						

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

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					KILLED	INJURED	PROPERTY	CROPS	
6 CONNECTICUT									
CTZ002-003-005-006	11- Evening 12 Morning				0	0	0	0	Heavy snow
A coastal type storm moving northeastward to the south east of the state brought a heavy early season snowfall to portions of the state. Accumulations of from 4 to 8 inches were common in central and northern portions with several inches in the coastal areas. The heavy, wet snow combined with gusty winds to knock down tree limbs and wires with 40,000 power outages reported statewide. About half of these outages occurred in the New Haven area and the Milford area.									
7 DELAWARE									
DEZ003 Northern DE	11 1300EST				0	0	4	0	Winter Storm
Snow began around midday on the 11th, with the heaviest snowfall in the late afternoon. Newark received 3 to 4 inches of snow. Brisk northeast winds associated with the storm raised water levels and caused minor flooding at Lewes and Bethany Beach.									
8 FLORIDA									
Monroe Co., Key West	03 0224EST				0	0	0	0	TSTM wind (55)
A wind gust of 55 knots was reported at Boca Chica Naval Air Station.									
Charlotte Co., Punta Gorda	09 1800EST				0	1	3	0	TSTM wind (55)
A gust of wind blew in windows at an Elks Club. One person suffered minor injuries from the glass debris.									
Jackson Co., Malone (2mi S)	17 0345CST				0	0	4	0	Lightning
Lightning started a fire which destroyed a house.									
Bay Co., Ebro	17 0402CST	1.0	30		0	0	4	0	Tornado (F1)
A tornado destroyed a small church of concrete block construction.									
Putnam Co., Palatka	17 UNK				0	0	4	0	Lightning
Lightning struck a tree which fell on to an automobile destroying the vehicle.									
9 GEORGIA									
Decatur County, Bainbridge	17 0500EST				0	0	5	0	Tstm Wind
Thunderstorm winds destroyed one aircraft and damaged 7 others as well as damaged several buildings at the Decatur County Industrial Air Park. Trees were downed in the area as well. Damage was estimated at \$250,000.									
10 IDAHO									
Bonneville Co., just north of Idaho Falls	2 1645MST				0	0	0	0	Funnel Cloud
A small funnel cloud was seen by the Idaho Falls Flight Service Station.									
IDZ006, IDZ009	16 0600- 1700MST				0	0	0	0	Heavy Snow
Three to six inches of snow fell over the North Central Idaho mountains. Four inches fell at Mullan and Headquarters; five inches at Powell and six inches at Pierce.									
11 ILLINOIS ————— NONE REPORTED									
12 INDIANA									
Monroe County, 25W Bloomington	16 2330 EST				0	0	2	0	Wind
Marion County, Castleton	16 2330 EST				0	0	0	0	Wind (50)
Hamilton County, Westfield	16 2359 EST				0	0	0	0	Wind (56)
Strong gradient winds produced isolated wind gusts approximately 60 to 65 mph. Just southwest of Bloomington a few trees were downed and some power outages were reported.									
13 IOWA									
IAZ004-005-009-012- SDZ018-NEZ010 Western Iowa	28 1200 CST 29 0000 CST				0	0	4	0	Heavy Snow
An early season snow storm moved into Western Iowa during the afternoon and evening hours of the 28th. Snowfall amounts were generally in the 4 to 10 inch range over the Western third of the State. The Southwest was the hardest hit with 7 to 10 inches common. Damage was mainly limited to trees and power lines. Automobile accidents were very numerous and traffic was slowed to a crawl.									
IAZ013 - South Central Iowa	28 All Day 29 Evening				0	0	3	0	Flooding
Between 1 1/2 and 3 inches of rain fell over Central and South Central Iowa between the 27th and the 29th. This resulted in minor flooding of mainly agricultural land along the Chariton River.									
14 KANSAS									
KSZ001-002-003- 004-005-006-007- 008-009-010-011- 012-013-014-015- 016- Much of Kansas	26- 1800 to 28 2400CST				2	3	3	0	Snow
Snow fell intermittently across much of Kansas from late afternoon on the 26th through midnight on the 28th. The heaviest snow fell across central Kansas from 1800 on the 27th through 1200 on the 28th. Snowfall amounts in this region included 6 inches at Burr Oak; 5 inches at Wichita, Concordia and Belleville with 4 inches at Salina, Russell and Emporia. Elsewhere across the state, amounts from the storm ranged from 5 inches at Goodland, 4 inches at both Garden City and Dodge City to 2 inches at Topeka. Two teenagers were killed shortly after midnight on the 28th after their car lost control while going over an icy bridge and slammed into a power pole. Three other persons were injured in the accident and required treatment at area hospitals. The accident occurred on Highway 183 2 miles south of Phillipsburg. M19V, M19V.									
15 KENTUCKY ————— NONE REPORTED									
16 LOUISIANA									
Natchitoches Parish, Provençal	08 1705CST				0	0	0	0	Hail (1.00)
Bienville Parish, Liberty Hill	08 1815CST				0	0	0	0	Hail (0.88)
Jackson Parish, Clay	08 1824CST				0	0	0	0	Hail (1.00)
Severe thunderstorms produced hail over portions of northwest Louisiana.									

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					KILLED	INJURED	PROPERTY	CROPS	

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LOUISIANA

DeSoto and Caddo Parishes from 5 NW Longstreet to Shreveport	15	1835CST-1935CST	33	500	1	96	7	?	Tornado (F3)
<p>Severe thunderstorms developed in advance of a trough of low pressure moving into the state from the west. A cluster of severe thunderstorms spawned a violent tornado which crossed from Panola County, TX into DeSoto Parish, LA about 5 miles northwest of Longstreet, LA at approximately 1835 CST. The tornado moved rapidly northeast across Keatchie and finally into the south and southeast sections of Shreveport. The tornado destroyed 16 mobile homes and 8 houses, and damaged many other buildings in DeSoto Parish. One man was killed in Keatchie when his mobile home was destroyed, and 23 persons were injured in the parish. In Caddo Parish, 35 mobile homes were destroyed as the tornado plowed into a mobile home park in the south portion of Shreveport. Additionally, 6 houses were destroyed. Miraculously, no deaths occurred in the Shreveport area, but 73 people were injured with the majority of injuries occurring in the mobile home park. The tornado was classified as F3 through much of its path and no breaks in the damage path greater than one mile were observed. The width of the damage path varied from 150 yards to 900 yards with multiple vortices indicated where damage was most severe. In southwest DeSoto Parish, a 9,700 pound tractor with a front end loader was lifted and carried 1980 feet before being deposited in a heavily forested area. See the Storm Data for North Texas for further description of the tornado before it entered Louisiana. M37M</p>									
Bossier Parish, Bossier City	15	1940CST	0.50	75	0	0	3	0	Tornado (F1)
Bossier Parish, 10 SE Benton	15	1950CST			0	0	?	?	TSTM Wind
Webster Parish, 5 NE Cotton Valley	15	2015CST	short ?		0	0	0	?	Tornado (F0)
<p>The thunderstorm complex which spawned the F3 tornado described above weakened but continued to move rapidly northeast. A tornado touched down briefly in north Bossier City, taking the roof off a house. An apparent downburst toppled numerous trees near Benton while a weak tornado briefly set down near Cotton Valley, downing trees.</p>									
Calcasieu Parish, Sulphur	15	1930CST			0	1	0	0	Lightning
Calcasieu Parish, 2 W LCH	15	1940CST			0	0	2	0	TSTM wind
Calcasieu Parish, 3 NW LCH	15	1945CST			0	0	4	0	TSTM wind, Hail (1.00)
Calcasieu Parish, 1 NW LCH	15	1950CST	0.50	25	0	0	3	0	Tornado (F0)
Calcasieu Parish, 7 NW LCH	15	2000CST			0	0	2	0	TSTM wind
Calcasieu Parish, 4 NW LCH	15	2003CST	0.50	25	0	0	3	?	Tornado (F1)
Allen Parish, Oberlin	15	2100CST			0	0	2	?	TSTM wind
Catahoula Parish, Manifest	16	0015CST			0	0	?	?	Hail (0.75)
Concordia Parish, Ferriday	16	0030CST			0	0	?	?	TSTM wind
Catahoula Parish, 2 E Harrisonburg	16	0040CST			0	0	?	?	TSTM wind
Franklin Parish, 2 W Bakers	16	0100CST			0	1	4	?	TSTM wind
Tensas Parish, New Light	16	0125CST			0	0	3	?	TSTM wind
Franklin Parish, Gilbert and Wisner	16	0200CST			0	0	4	?	TSTM wind
Franklin Parish, Swampers, Crowville	16	0230CST-0240CST			0	0	5	?	TSTM wind
Beauregard Parish, Oretta	16	0300CST			0	0	3	?	TSTM wind
Calcasieu Parish, Egerly	16	0315CST	2.5	50	0	2	5	?	Tornado (F1)
Tensas Parish, 5 SW Newellton	16	0400CST			0	0	3	0	TSTM wind
Madison Parish, Tallulah	16	0525CST			0	0	5	0	TSTM wind
<p>The line of intense thunderstorms which produced severe weather over northwest Louisiana early in the evening continued moving southeast across the state before becoming nearly stationary from northeast to southwest across the state in the predawn hours of Monday, November 16. Several tornados were reported in the southwest portion of Lake Charles, just northwest of the Lake Charles airport (LCH), damaging trees and a few house roofs. In Sulphur, a 25 year old man working at a water plant was injured when lightning struck nearby and passed through a metal railing which the man was holding. Near the community of Bakers, one person was injured as thunderstorm winds demolished 3 mobile homes and heavily damaged 7 others. Additionally, 2 homes were destroyed and ten homes heavily damaged by wind gusts. In Swampers, 3 mobile homes and 2 houses were destroyed and the high school's roof was partially torn off as thunderstorm winds raked the area. An apparent downburst in Tallulah destroyed 3 houses, with 50 other houses and several commercial buildings suffering damage. Near Egerly, 2 children</p>									

LOUISIANA

FLO3-06 LaSalle, Grant, Madison, Winn, Natchitoches, Rapides, Caldwell, and Franklin Parishes	15	1800CST-20 1800CST	0	0	7	?	?	Heavy Rain, Flash Floods, Floods	
<p>The trough of low pressure which spawned severe thunderstorms over the northwest half of the state described in above sections became nearly stationary from late on Nov. 15th to mid day on Nov. 16th producing copious rainfall amounts. A large swath of rainfall amounts exceeding 8 inches stretched from northeast to southwest Louisiana. Storm totals exceeding 14 inches fell over central and northeast sections in an area from Franklin Parish to northwest Rapides Parish. The greatest official rainfall observed in the two day period was 17.76 inches at Jena while 14.46 inches fell at Olla on the 16th. An unofficial storm total for the 15th and 16th of 21.21 inches was reported 2.5 miles north of Olla. Most of the rain fell on the night of the 15th and morning of the 16th. Widespread flooding was reported in many communities as drainage systems could not handle the tremendous runoff from the torrential rains. Many rural highways and roads were inundated and several bridges washed out. Flood waters caused major damage to hundreds of houses in central and northeast Louisiana while hundreds more had minor damage. The hardest hit area was Rapides Parish and in particular, the south part of Alexandria where up to 10 feet of water inundated residential areas as drainage systems were overwhelmed by the runoff. In Rapides Parish, 244 homes suffered major damage and over 1,000 people were evacuated. The only significant river flooding occurred along the Little River where the stage at Rochelle rose from a stage of 4.5 feet on the 15th to 41.1 feet on the 19th; 10 feet above flood stage. More widespread river flooding would have occurred if the dry weather had not persisted in the preceding few months, thus rivers were quite low at the onset of the rain. Total damage was estimated at \$ to 6 million dollars, mostly from flash flooding.</p>									
Caddo Parish, Shreveport	16	1005CST			0	0	?	?	TSTM wind
Thunderstorm winds toppled several trees.									
Calcasieu Parish, entire parish	16	1030CST-1115CST			0	0	5	?	TSTM Wind
Beauregard Parish, Singer	16	1030CST	0.50	75	0	1	5	0	Tornado (F1)
Vernon Parish, Leesville	16	1035CST			0	0	?	?	TSTM wind
Beauregard Parish, Longville	16	1040CST			0	0	4	?	TSTM wind
Calcasieu Parish, LCH	16	1058CST			0	0	0	0	TSTM wind (60)
Cameron Parish, Grand Lake	16	1100CST			0	0	3	?	TSTM wind
Jefferson Davis Parish, 5 W Jennings	16	1145CST	short 20		0	0	4	0	Tornado (F0)
Jefferson Davis Parish, L. S. N. Jennings	16	1150CST			0	0	3	0	TSTM wind
Acadia Parish, 1.5 W Crowley	16	1155CST	short 30		0	0	5	0	Tornado (F1)
Allen Parish, Oakdale, Mittie, Kinder	16	1200CST-1215CST			0	0	5	?	TSTM wind
Evangeline Parish, Vidrine, Pine Prairie	16	1200CST			0	0	5	?	TSTM wind (60)
Saint Landry Parish, Eunice	16	1210CST			0	0	4	?	TSTM wind
Catahoula Parish, Jonesville	16	1235CST	0.75	150	0	0	6	?	Tornado (F1)
Avoyelles Parish, northwest section	16	1245CST-1300CST			0	1	5	?	TSTM wind
Saint Landry Parish, Opelousas	16	1245CST			0	0	?	?	TSTM wind
Catahoula Parish, Sicily Island	16	1245CST			0	0	5	?	TSTM wind
Vermillion Parish, Kaplan	16	1250CST			0	0	3	?	TSTM wind
Vermillion Parish, Abbeville	16	1300CST	0.75	50	0	0	5	?	Tornado (F0)
Lafayette Parish, Lafayette	16	1300CST			0	0	2	?	TSTM wind
Concordia Parish, Vidalia	16	1300CST	2.5	75	0	1	5	?	Tornado (F1), TSTM wind
Franklin Parish, Wisner, 5 E Winnsboro	16	1315CST			0	0	5	?	TSTM wind
Point Coupee Parish, Morganza	16	1345CST			0	0	4	?	TSTM wind
Madison Parish, 12 E of Tallulah	16	1350CST			0	0	4	?	TSTM wind
West Feliciana Parish, Wakefield	16	1350CST			0	0	4	?	TSTM wind
Iberville Parish, 5 S Ramah	16	1355CST			0	0	3	?	TSTM wind
Iberia Parish, New Iberia	16	1400CST			0	0	5	?	TSTM wind

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LOUISIANA																																																																					
Saint Martin Parish; Cecilia, 3 N St. Martinville	16	1430CST			0	0	4	?	TSTM wind																																																												
West Baton Rouge Parish, Lobdell	16	1430CST			0	0	?	?	TSTM wind																																																												
East Baton Rouge Parish, Baton Rouge	16	1430CST-1500CST			0	0	5	?	TSTM wind																																																												
Port Hudson																																																																					
East Feliciana Parish, Clinton	16	1510CST			0	0	?	?	TSTM wind																																																												
Livingston Parish, Port Vincent	16	1538CST			0	0	?	?	TSTM wind																																																												
Ascension Parish, Gonzales	16	1620CST			0	0	?	?	TSTM wind																																																												
Terrebonne Parish, 1 N Chauvin	16	1740CST	0.25	25	0	0	5	0	Tornado (F1)																																																												
Saint Tammany Parish, 5 NW Folsom	16	1745CST	short	?	0	0	4	0	Tornado (F0)																																																												
			<p>Severe thunderstorms redeveloped over southwest Louisiana at mid morning and spread rapidly northeast and east across the state. Damaging tornadoes touched down, and there was widespread damage due to straight-line winds. At Singer, a tornado destroyed 2 mobile homes, causing one minor injury; and near Jennings, another tornado demolished a mobile home. A tornado near Crowley destroyed a large barn, flipped a tractor-trailer rig, and caused damage to the local high school. At Jonesville, a tornado destroyed 3 mobile homes, caused major damage to 5 houses, tore away part of the high school roof, and caused minor damage to nearly 200 houses. A tornado at Abbeville damaged 2 mobile homes and took the roof off of a commercial building. A tornado at Vidalia snapped electrical transmission towers just south of the town, then moved north-northeast and touched down near the high school, demolishing an unoccupied portable classroom, shattering 50 windows, and tearing off a portion of the gymnasium roof. Luckily there were no injuries in the school. However, one man was injured as the auto he was in was thrown 100 feet by the tornado. A tornado destroyed a net shop and damaged other buildings near Chauvin, and near Folsom, a barn was heavily damaged by a tornado. Straight-line thunderstorm wind gusts inflicted widespread damage to mobile homes, roofs, outbuildings, and trees as the individual thunderstorm cells moved east and northeast at speeds of 40 to 50 mph. Wind gusts of 69 mph (60 knots) were reported at the Lake Charles Airport (LCH) and a radio station at Vidrine, respectively. The wind gust at Lake Charles tied the highest wind gust recorded at the airport, a gust that occurred during Hurricane Audrey in 1957. The most significant damage associated with straight-line winds occurred in northwest Avoyelles Parish from near Bunkie to the parish line north of Marksville, as severe thunderstorms produced downburst(s) which destroyed 3 mobile homes while seriously injuring one occupant. The strong wind gusts ripped several roofs off houses and caused widespread property damage in the northwest portion of the parish. Several electrical transmission towers east of Talullah were snapped and twisted by thunderstorm wind gusts. In Baton Rouge, thunderstorm wind gusts caused major damage to 9 homes and damaged a portion of a shopping center.</p> <p>Total damage across the state due to the inclement weather on Nov. 15th and 16th was estimated at approximately 20 million dollars, exclusive of agricultural damage which was not considered significant at this time. Damage from flash floods and floods accounted for 5 to 6 million dollars, with the remainder caused by thunderstorm winds and tornadoes.</p>																																																																		
Calcasieu Parish, 10 S Lake Charles	25	1130CST			0	0	?	?	TSTM wind																																																												
Cameron Parish, Cameron	25	1343CST			0	0	2	0	TSTM wind																																																												
			<p>Thunderstorm wind gusts toppled trees south of Lake Charles and ripped the roof off a small building in Cameron.</p>																																																																		
17 MAINE																																																																					
MEZ 013-014	06	MRNG EST			1	0	4		Icy Roads																																																												
			<p>Rain changed to snow giving southwest Maine accumulations of a trace to two inches, making roads slippery. One woman was killed in Falmouth when her car slid off the Blackstrap Road and hit a tree. Several minor accidents were reported throughout the area.</p>																																																																		
MEZ 001-002	20-21	2200EST 0800EST			0	0	4		Heavy Snow																																																												
			<p>Low pressure formed off the middle Atlantic coast and intensified as it moved northeast, passing over Nova Scotia and the Gulf of St. Lawrence. This storm brought heavy snow to northeast Maine with lesser amounts elsewhere across the northern half of the State. Several minor accidents were reported. Following is a list of snowfall amounts in inches by zone.</p> <table style="width: 100%; border: none;"> <tr> <td>.....ZONE 001.....</td> <td>.....ZONE 002.....</td> </tr> <tr> <td>Caribou 7</td> <td>Houlton 6</td> </tr> <tr> <td>Presque Isle 7</td> <td>Patten 4</td> </tr> <tr> <td>Ft. Fairfield 7</td> <td>Grand Lake 4</td> </tr> <tr> <td>Portage 5</td> <td>.....ZONE 005.....</td> </tr> <tr> <td>Ft. Kent 4</td> <td>Ripogenus 3</td> </tr> <tr> <td>.....ZONE 003.....</td> <td>Telos Lake 3</td> </tr> <tr> <td>Forest City 4</td> <td>Lock Dam 2</td> </tr> <tr> <td>Vanceboro 2</td> <td>Allagash 2</td> </tr> </table>						ZONE 001.....ZONE 002.....	Caribou 7	Houlton 6	Presque Isle 7	Patten 4	Ft. Fairfield 7	Grand Lake 4	Portage 5ZONE 005.....	Ft. Kent 4	Ripogenus 3ZONE 003.....	Telos Lake 3	Forest City 4	Lock Dam 2	Vanceboro 2	Allagash 2																																										
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MEZ 002-003-004-005-006-007-009-010-012	26	0000-1900EST			2	1	5		Heavy Snow																																																												
			<p>Low pressure over Indiana moved to southern New England and then east over the Gulf of Maine and south of Nova Scotia. The first major snowstorm struck a wide area of the State on Thanksgiving Day. Traveling was difficult over most of the State, even outside of the heavy snow area. In Greene, an Auburn man died when his car slid on icy Route 202 and slammed into another car. A Rumford doctor died in Dixfield when he lost control of his car on snowpacked Route 2 and struck an oncoming car. In southern Maine, falling temperatures caused wet roads to ice over. Numerous accidents were reported across the State. A 4-mile section of Interstate Route 295 between Portland and South Portland was closed about 700 PM EST after more than 2 dozen vehicles slid on the icy surface of the Fore River bridge. In Cape Elizabeth, a woman was sent to the hospital because of injuries received when the car she was driving was hit by a skidding car at the intersection of Bowery Beach Road and Spurwink Avenue. The following are snowfall amounts in inches by zone.</p> <table style="width: 100%; border: none;"> <tr> <td>.....ZONE 002.....</td> <td>.....ZONE 004.....</td> </tr> <tr> <td>Grand Lake 8</td> <td>Machias 12</td> </tr> <tr> <td>Houlton 5</td> <td>Eastport 7</td> </tr> <tr> <td>.....ZONE 003.....</td> <td>.....ZONE 005.....</td> </tr> <tr> <td>Grand Falls 11</td> <td>Ripogenus 9</td> </tr> <tr> <td>W. Grand Lake 10</td> <td>Telos Lake 7</td> </tr> <tr> <td>Calais 10</td> <td>Clayton Lake 3</td> </tr> <tr> <td>Forest City 8</td> <td>Allagash 1</td> </tr> <tr> <td>.....ZONE 006.....</td> <td>.....ZONE 007.....</td> </tr> <tr> <td>Moosehead 16</td> <td>Bangor 13</td> </tr> <tr> <td>Guilford 16</td> <td>Milford 13</td> </tr> <tr> <td>Barnard 13</td> <td>W. Enfield 12</td> </tr> <tr> <td>Milo 12</td> <td>Newport 11</td> </tr> <tr> <td>Millinocket 11</td> <td>.....ZONE 008.....</td> </tr> <tr> <td>Medway 11</td> <td>Ellsworth 6</td> </tr> <tr> <td>.....ZONE 009.....</td> <td>Bar Harbor 5</td> </tr> <tr> <td>Flagstaff 20</td> <td>Belfast 5</td> </tr> <tr> <td>Eustis 17</td> <td>.....ZONE 010.....</td> </tr> <tr> <td>Wyman Dam 16</td> <td>Skowhegan 12</td> </tr> <tr> <td>Upper Dam 16</td> <td>Harmony 10</td> </tr> <tr> <td>Aziscohos 15</td> <td>Waterville 10</td> </tr> <tr> <td>Middle Dam 15</td> <td>Augusta 9</td> </tr> <tr> <td>Harris Dam 15</td> <td>Livermore Falls 7</td> </tr> <tr> <td>Brassua 14</td> <td>Lewiston 2</td> </tr> <tr> <td>Kingfield 14</td> <td>.....ZONE 012.....</td> </tr> <tr> <td>Pittston Farm 13</td> <td>New Sharon 12</td> </tr> <tr> <td>Phillips 13</td> <td>Rumford 10</td> </tr> <tr> <td></td> <td>Bethel 8</td> </tr> <tr> <td></td> <td>W. Paris 6</td> </tr> <tr> <td></td> <td>Love11 6</td> </tr> </table>						ZONE 002.....ZONE 004.....	Grand Lake 8	Machias 12	Houlton 5	Eastport 7ZONE 003.....ZONE 005.....	Grand Falls 11	Ripogenus 9	W. Grand Lake 10	Telos Lake 7	Calais 10	Clayton Lake 3	Forest City 8	Allagash 1ZONE 006.....ZONE 007.....	Moosehead 16	Bangor 13	Guilford 16	Milford 13	Barnard 13	W. Enfield 12	Milo 12	Newport 11	Millinocket 11ZONE 008.....	Medway 11	Ellsworth 6ZONE 009.....	Bar Harbor 5	Flagstaff 20	Belfast 5	Eustis 17ZONE 010.....	Wyman Dam 16	Skowhegan 12	Upper Dam 16	Harmony 10	Aziscohos 15	Waterville 10	Middle Dam 15	Augusta 9	Harris Dam 15	Livermore Falls 7	Brassua 14	Lewiston 2	Kingfield 14ZONE 012.....	Pittston Farm 13	New Sharon 12	Phillips 13	Rumford 10		Bethel 8		W. Paris 6		Love11 6
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STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
18 MARYLAND and D.C.									
MD2001-002-003 -004-005-006 Southeastern MD	11	0300EST			0	0	4	0	Winter Storm
<p>Snow began falling early Wednesday, November 11, and became heavier during the day. Thunderstorms developed in the afternoon, mainly over southeastern counties. The heaviest snow, 12 to 15 inches, fell in the District of Columbia and Prince George's County. Amounts elsewhere were: Baltimore County, 10 inches; Charles County, 6 to 10 inches; Washington County, 4 to 6 inches; Frederick and Dorchester counties, 2 to 3 inches. Areas further south received rain early in the day then changed over to sleet, snow and freezing rain, with lesser amounts. A major traffic gridlock occurred in Prince George's County from stuck and abandoned vehicles; some motorists spent all Wednesday night in their vehicles on I-295 South and the Woodrow Wilson Bridge. Students were stranded at schools and on the roads; some did not make it home at all that night. A 45 year old man died in Baltimore County when he fell 35 feet off an icy bridge railing while trying to get away from a skidding car; a 44 year old homeless man died in Baltimore City; 2 other men died in traffic accidents.</p>									
MD2009 Western MD	20	2200EST			0	0	?	0	Winter Storm
<p>Snow began late Friday the 20th, with 8 inches accumulation. A cold front moved through Saturday the 21st, followed by brisk northwest winds to 30 knots and falling temperatures.</p>									
19 MASSACHUSETTS									
MA2001-002-003- 004-007-008-009	11- 12	Evening morning			0	0	0	0	Heavy snow
<p>A coastal storm brought a record heavy early season snowfall to eastern and southeastern portions of the state. A total of between 8 and 14 inches fell along the coast from Boston to Plymouth. The heavier accumulations were centered in central and southern Plymouth county. This was the earliest on record for this amount of snow including the 8 inches which fell at Boston. Snow amounts of 3 to 6 inches fell over the western portion of Cape Cod. The heavy, wet snow combined with winds gusting to 30 to 50 MPH downed power lines especially in the southeastern portion of the state where up to 8000 thousand lost power in the Plymouth area and up to 15,000 went out on Cape Cod. The islands of Nantucket and Martha's Vineyard received only rain but very strong winds. Snowplow operators were not prepared for this early season storm and this resulted in considerable delay in getting streets cleared of snow. Most schools were cancelled and many businesses did not open. There were dozens of auto accidents. Central and western Massachusetts got from 4 to 8 inches of snow but there this storm was not unusual for this early in the season.</p>									
20 MICHIGAN ————— NONE REPORTED									
21 MINNESOTA ————— NONE REPORTED									
22 MISSISSIPPI									
Warren County, 16 NW Vicksburg	16	0444CST			0	0	4	0	Thunderstorm Winds
<p>Strong winds knocked down trees and blew in windows in the Eagle Lake area 16 miles Northwest of Vicksburg.</p>									
Adams County, 4S Natchez	16	0801CST	.5	40	0	0	3	0	Tornado (F1)
<p>A small tornado touched briefly south of Natchez. Mostly trees were damaged, but tin was blown off a roof and a 3-wheeler was blown over.</p>									
Warren County, Vicksburg	16	1030- 1500CST			0	0	6	0	Flash Flood
<p>Heavy rains began in Vicksburg around 0600CST and continued through the day with rainfall totals up to 9 inches. A total of 87 homes were flooded causing 2.5 million dollars in damage. Total storm damage was estimated at 3.3 million dollars.</p>									
Hinds County, 2SE Edwards	16	1113CST	1.5	50	0	0	4	0	Tornado (F1)
<p>A small tornado touched down 2 miles southeast of Edwards, damaging a home and a few outbuildings.</p>									
Hinds County, 5SE Edwards	16	1119CST			0	0	6	0	Thunderstorm Winds
<p>Strong winds at a chicken farm destroyed 6 large chicken houses and damaged 20 others. Damage to the structures was estimated at 700,000 dollars. Thirty-five thousand chickens, valued at 300,000 dollars, were killed.</p>									
Yazoo County, Bento to Bentonia	16	1135CST			0	0	?	0	Hail (1.75)
Madison County, Yazoo County; Flora to 18ESE Yazoo City	16	1135- 1158CST	21	75	0	0	5	0	Tornado (F2)
<p>A tornado developed in Flora, destroying 2 unoccupied house trailers. The tornado tracked north-northeast through completely wooded areas and crossed into Yazoo County at 1145CST. The tornado tracked mostly through wooded areas and dissipated around 1158CST, 18 miles east-southeast of Yazoo City. Two small communities, Scotland and Linwood, were hit by the tornado. Nine homes suffered major damage while 20 others suffered minor damage. In Linwood, the roof was lifted off the library, windows were blown out across town, and cotton trailers were overturned.</p>									
Madison County, 3NW Madison	16	1155CST			0	0	4	0	Thunderstorm Winds
<p>Strong winds damaged a few roofs, cars and one boat in the Mansdale area, 3 miles northwest of Madison.</p>									
Claiborne County, Port Gibson	16	1200- 1600CST			0	0	4	0	Flash Flood
<p>Rain amounts of over 8 inches fell during the day. Major streets flooding occurred with water getting into 6 homes.</p>									
Madison County, Flora	16	1200- 1600CST			0	0	5	0	Flash Flood
<p>Nearly 9 inches of rain caused extensive flash flooding in Flora. About 75 homes near the Black River were flooded. Water was waist deep in some homes and businesses.</p>									
Hinds County, 10N Utica	16	1315CST			0	0	0	0	Funnel Cloud
Adams County, 8NNE Natchez	16	1315CST			0	0	?	?	Thunderstorm Winds
<p>Numerous trees were blown down in Pine Ridge, located 8 miles north-northeast of Natchez.</p>									
Wilkinson County, 16NNW Woodville to 16N Woodville	16	1320- 1330CST	6	70	0	0	4	0	Tornado (F1)
<p>A tornado moved through northern Wilkinson County, damaging mostly trees. Several roofs in the area were damaged and a mobile home was flipped over.</p>									
Adams County, Natchez	16	1335CST			0	0	0	0	Funnel Cloud
Wilkinson County, Centreville	16	1345CST			0	0	5	0	Thunderstorm Winds
<p>Strong winds damaged roofs, knocked down trees and destroyed out-buildings in Centreville.</p>									
Franklin County, BSW Meadville	16	1345CST	2.5	70	0	0	?	0	Tornado (F1)
<p>A tornado downed numerous large trees about 8 miles southwest of Meadville.</p>									
Franklin County, Kirby and 4W Meadville	16	1350CST			0	0	0	0	Thunderstorm Winds
<p>Trees and power lines were blown down in Kirby and 4 miles west of Meadville.</p>									
Claiborne County, Port Gibson	16	1350CST			0	0	4	0	Thunderstorm Winds
<p>Roofs were damaged in Port Gibson by strong winds.</p>									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
MISSISSIPPI									
Issaquena County, 5S Fidler	16	1400CST			0	0	?	?	Thunderstorm Winds
Trees and power lines were blown down in deer camps 5 miles south of Fidler.									
Sharkey County, Rolling Fork and Anguilla	16	1410CST			0	0	?	?	Thunderstorm Winds
Strong winds blew down trees and power lines.									
Franklin County, McCall Creek to 3NE McCall Creek	16	1425-1429CST	3	100	0	0	5	0	Tornado (F1)
A tornado in eastern Franklin County damaged 7 homes and numerous trees.									
Lincoln County and Copiah County, 11W Brookhaven to 2NE Wesson	16	1435-1500CST	20	150	0	2	5	0	Tornado (F2)
A tornado moving northeast through rural northwestern Lincoln County destroyed 1 mobile home and 2 dairy barns, and damaged 4 mobile homes and 1 home. Extensive timber damage was noted along the track. The tornado crossed into Lincoln County near Wesson at 1455CST. The heaviest damage occurred at a Junior College where damage was estimated at 160,000 dollars. Many homes in Wesson suffered roof damage.									
Hinds County, Rankin County; 5 WSW Terry to Flowood	16	1430CST-1447CST	27	150	0	5	6	0	Tornado (F2)
Hinds County, Clinton	16	1435CST			0	0	?	0	Thunderstorm Winds (660)
Hinds County, Jackson	16	1440CST			0	0	?	0	Hail (.75)
Rankin County, Richland to Flowood	16	1443-1551CST	9	120	0	0	6	0	Tornado (F1)
Hinds County, Jackson	16	1450CST			0	0	5	0	Thunderstorm Winds
Rankin County, Flowood to 2N Fannin	16	1450-1457CST	10	100	0	0	4	0	Tornado (F1)
Rankin County, Jackson	16	1452CST			0	0	?	0	Thunderstorm Winds (660)
Rankin County, 3 SW Sandhill to 3NW Sandhill	16	1459-1502CST	4	100	0	0	5	0	Tornado (F2)
A very intense thunderstorm with a large wall cloud developed an F2 tornado in extreme south-central Hinds County at 1435CST. The tornado tracked at 80mph or more north-northeast into extreme western Rankin County at 1440CST. At about this time another tornado (F1) developed under the eastern side of the wall cloud and moved northeast through Flowood. The original tornado dissipated in northern Flowood near Lakeland Drive and the second about 1 mile north of Lakeland Drive. A third tornado developed to the east of the previous two tracks on Lakeland Drive and tracked northeast through mostly wooded areas and along the east side of the Ross Barnett Reservoir. Shortly after this tornado dissipated, a 4th tornado (F2) developed near the northern end of the Ross Barnett Reservoir. Although the tornado track was shorter than the other tracks, it was rather strong. In total, over 300 structures were damaged with nearly 20 destroyed. Estimate of damage was 2.1 million dollars in Hinds County and 4.5 million dollars in Rankin County.									
Pike County, Summit	16	1450CST			0	1	6	0	Thunderstorm Winds (675)
Winds estimated at over 80 mph damaged 15 homes and 6 businesses. Windows were blown out across town. Two homes suffered major damage and one church lost its roof. Damage was estimated at one million dollars.									
Attala County, 12NW Kosciusko	16	1524CST	2	80	0	0	4	0	Tornado (F1)
A tornado moved through rural Attala County 12 miles northwest of Kosciusko. A few roofs were heavily damaged, and there was considerable timber damage.									
Simpson County, 4 SW Pinola to Martinville	16	1528-1555CST	20	100	0	0	5	0	Tornado (F2)
A tornado moved through mostly wooded areas of Simpson County. One home and a mobile home were destroyed and 5 other structures damaged. A chicken house in Martinville was destroyed. Several barns and a dairy farm also suffered major damage between Pinola and Martinville.									
Carroll County, Vaiden	16	1530CST			0	0	4	0	Thunderstorm Winds
Strong winds damaged roofs, trees and power lines in Vaiden.									
Montgomery County, 1 SW Winona to 3 NW Winona	16	1530-1536CST	4	100	0	0	5	0	Tornado (F1)
A tornado moved through the western portion of Winona. A hotel suffered major damage, many roofs were damaged, and a sawmill was also heavily damaged.									
MISSISSIPPI									
Montgomery County, 3 SSE Winona to 2 E Winona	16	1535-1545CST	5	120	0	0	5	0	Tornado (F1)
A tornado touched down initially near the Winona airport and then tracked northeast just east of Winona. Two hangars were completely destroyed, one heavily damaged and 3 airplanes damaged. Extensive roof and tree damage was observed along the track of the tornado.									
Lafayette County, Oxford	16	1545CST			0	0	?	0	Thunderstorm Winds
Numerous trees and power lines were blown down in Oxford and across the county.									
Grenada County, 2 E Gore Springs	16	1545CST			0	0	?	0	Thunderstorm Winds
Numerous trees and power lines were blown down on Mississippi Highway 8.									
Calhoun County, Calhoun City and Bruce	16	1600CST			0	0	5	0	Thunderstorm Winds
Strong winds in Calhoun City and Bruce damaged roofs, blew down signs and knocked down trees and power lines.									
Smith County, 5 NW Raleigh to 9NNE Raleigh	16	1600-1608CST	5	70	0	0	?	0	Tornado (F1)
Considerable tree and powerline damage occurred along a tornado path through northern Smith County.									
Union County, New Albany	16	1600CST			0	0	?	0	Thunderstorm Winds
Trees were blown down in New Albany.									
Leake County, 10 NW Carthage	16	1600CST			0	0	4	0	Thunderstorm Winds
A roof was blown off a house in the community of New Providence, located 10 miles northwest of Carthage. Some utility poles and trees were also knocked down.									
Newton County, 10 SW Union to 4 WSW Union	16	1615-1625CST	6	75	0	0	?	0	Tornado (F1)
This tornado tracked through wooded areas, blowing down trees and utility poles.									
Chickasaw County, Houston, New Houlika and Thorn	16	1615CST			0	0	5	0	Thunderstorm Winds
An eight foot fence blew into a parking lot damaging cars. Several trees also blown down in Houston. A radio antenna was blown down in New Houlika. Barn roofs were ripped off in the town of Thorn.									
Pontotoc County, 3 W Pontotoc and 4S Pontotoc	16	1620CST			0	0	?	0	Thunderstorm Winds
Trees were blown down on Mississippi Highway 8 and Mississippi Highway 15.									
Newton County, Newton	16	1625CST			0	0	?	0	Thunderstorm Winds
Trees and power lines were blown down in Newton.									
Winston County, Louisville	16	1625CST			0	0	?	0	Thunderstorm Winds
Trees and power lines were blown down in Louisville.									
Neshoba County, 3 E Philadelphia	16	1640CST			0	0	3	0	Thunderstorm Winds
Strong winds damaged a carport and a shed.									
Lauderdale County, 2 E Chunky	16	1650CST			0	0	?	0	Hail (.75)
Lee County, Plantersville	16	1655CST			0	0	4	0	Thunderstorm Winds
Several large trees were blown down in Plantersville. One tree fell on and heavily damaged a house trailer. Trees and power lines were also downed throughout the county.									
Prentiss County, Booneville and 6 S Booneville	16	1715CST			0	0	5	0	Thunderstorm Winds
Strong winds did minor roof damage in Booneville and blew several signs over. A baseball dugout was completely demolished in Booneville. Trees were blown down in Booneville and on U.S. Highway 45 South of Booneville.									
Monroe County	16	1720CST			0	0	?	0	Thunderstorm Winds
Numerous trees blown down across highways and roads throughout county.									
Monroe County, New Hamilton	16	1730CST			0	0	0	0	Funnel Cloud
Alcorn County, Southern and Eastern Portions	16	1730CST			0	0	4	0	Thunderstorm Winds
Strong winds blew down trees and power lines. A roof was blown off the Rienze City Hall in the extreme southern portion of the county.									
Itawamba County, Ratliff, Tremont and SW Fulton	16	1740CST			0	0	?	0	Thunderstorm Winds
Trees and power lines were blown down.									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM																		
					KILLED	INJURED	PROPERTY	CROPS																			
MISSISSIPPI																											
Hancock County, 7 NW Kiln to 7 N Kiln	16	1910-1915CST	3	75	0	0	5	0	Tornado (F2)																		
									A tornado moved through a sparsely inhabited portion of Hancock County. The tornado, however, passed across Mississippi Highway 603 destroying a brick home and a barn. The house was valued at 80,000 dollars.																		
23 MISSOURI																											
Greene		24 1900 CST			0	0	5	0	FLASH FLOOD																		
									Flash flooding reported along small streams and the Little Sac River. Numerous streets and underpasses were closed.																		
24 MONTANA ————— NONE REPORTED																											
25 NEBRASKA																											
NEZ011 Panhandle Nebraska	15-16	1800CST-0600CST			0	0	1	1	Heavy Snow																		
									Six inches of snow fell around Kimball closing some roads.																		
NEZ002-003-006-012 Southwest and North Central Nebraska	15	2000CST			0	0	1	1	Heavy Snow																		
									Snow of 6 inches or more fell in about a 40 mile wide band from near Ogallala northeast to Springview. Heavier amounts included 12 inches at Nullen and 10 inches at Valentine Lakes Game Refuge. The weight of the snow broke tree limbs and snow closed some roads.																		
NEZ009-014-015-018-019 South Central and East Central Nebraska	28	0000CST-			0	0	1	1	Heavy Snow																		
									Snow of 6 inches or more fell in an area bounded by Red Cloud to Ragan to Schuyler to Fairbury. Heaviest snowfall was 11 inches at Shickley followed by 9 inches at David City and Dewese.																		
NEZ010-020 East Central Nebraska	28	0200CST-2200CST			0	0	1	1	Heavy Snow																		
									Six inches or more of snow fell east of a line from Decatur to Fremont to Nebraska City. Some amounts included 8 inches at Fremont and 7 inches at Omaha and Lyons.																		
26 NEVADA																											
Clark County	01	0330-0500PST			0	0	0	0	Urban Flooding																		
									Locally heavy thunderstorms produced minor street flooding in and around Las Vegas.																		
Clark County	05	0200-0500PST			0	0	3	0	Urban Flooding																		
	05	0845PST			0	0	?	0	TSTM WIND(59)																		
	05	0900PST			0	0	?	0	Hail(.75)																		
	05	0915PST			0	0	?	0	Hail(1.0) Flash Flood																		
	05	1110PST			0	0	?	0	Flash Flood																		
	05	1150PST			0	0	?	0	Flash Flood																		
	05	1230PST			0	0	4	0	Hail(1.0)																		
Nye County	05	1300PST			0	0	?	0	Flash Flood																		
									A strong closed upper low centered just off the Southern Cal. coast generated severe thunderstorms and flash flooding in its northeast quadrant as it moved slowly east. Numerous reports of large hail and water over roadways one to two feet deep were received from Clark County through midday and from Nye County during the afternoon. Heavy road damage occurred in the Overton area northeast of Las Vegas from flash flooding and a two foot wall of water moved down a wash in the Las Vegas metro area. Large hail even cracked the windshield of a DC-9 jetliner on take-off from the Las Vegas airport.																		
NEVADA																											
NVZ003-004-005	20	1500PST			2	0	3	0	WIND																		
									Sustained winds of 25 to 35 mph with locally stronger gusts developed across Western and Central Nevada during the day ahead of a weakening cold front. In the west, winds picked up suddenly shortly after noon when the surface inversion broke. On Pyramid Lake, about 30 miles northeast of Reno, the sudden onset of wind caught boaters by surprise and two fishermen drowned when their small boat capsized. M640,M720.																		
NVZ002	24-25	2200-1000PST			0	0	0	0	Heavy Snow																		
									Up to 18 inches of snow fell above the 8000 foot level in the Ruby Mountains east of Elko and up to 8 inches in the Lawville area at the 6000 foot level along the base of the range. 6 inches fell along the northern border in the Jarbidge area.																		
27 NEW HAMPSHIRE																											
NHZ 001	25-26	2200EST-1300EST			0	3	4		Heavy Snow																		
									Low pressure over Indiana moved to southern New England and then east over the Gulf of Maine and south of Nova Scotia. The first major snowstorm struck a wide area of the State on Thanksgiving Day. Traveling was difficult in the northern third of the State. In Whitefield, a pickup truck northbound on Route 116 went out of control on ice and struck a stone wall. Three people were injured with multiple cuts and bruises. Snowfall amounts in inches by zone were:																		
									<table style="margin-left: 20px;"> <tr> <td>.....Zone 001.....</td> <td>.....Zone 002.....</td> </tr> <tr> <td>Errol 18</td> <td>No. Conway 5</td> </tr> <tr> <td>Big Diamond PD 12</td> <td>Tamworth 2</td> </tr> <tr> <td>First Conn LK 11</td> <td>Cornford T</td> </tr> <tr> <td>No. Stratford 10</td> <td>Lincoln T</td> </tr> <tr> <td>Pittsburgh 9</td> <td></td> </tr> <tr> <td>Berlin 6</td> <td></td> </tr> <tr> <td>Gorham 5</td> <td></td> </tr> <tr> <td>Dalton 3</td> <td></td> </tr> </table>Zone 001.....Zone 002.....	Errol 18	No. Conway 5	Big Diamond PD 12	Tamworth 2	First Conn LK 11	Cornford T	No. Stratford 10	Lincoln T	Pittsburgh 9		Berlin 6		Gorham 5		Dalton 3	
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28 NEW JERSEY, Northern																											
NJZ001 Northwest New Jersey	10-11	2200EST-0400EST			0	0	0	0	Heavy Snow																		
									A low pressure area moving northeastward along the coast deposited 4-6 inches of snow over sections of Northwest New Jersey. Newton police reported the highest amount with 6 inches. Traveling was quite hazardous with many minor accidents being reported.																		
NJZ001 Northwest New Jersey	11	2000EST			0	0	0	0	Heavy Snow																		
									Northwestern New Jersey is hit with its second winter storm in less than 24 hours. This resulted from another low pressure area that formed to the south and then tracked northeastward along the coast. Snowfall ranged from 4-7 inches. Greenwood Lake reported an additional 6.5 inches and Hainsville 7 inches with this storm. Traveling was again quite hazardous with many minor accidents being reported.																		
28 NEW JERSEY, Southern ————— NONE REPORTED																											

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
29 NEW MEXICO									
Valencia County, 5 ESE of Los Lunas	1	1700 MST			0	0	3	0	Thunderstorm Wind (61)
Evidence of a microburst was found 5 miles east-southeast of Los Lunas in Valencia County. A mobile home was first to be damaged as it was rolled onto its side. The home was sitting loose on concrete blocks. A few trees about one-quarter mile to the north of the mobile home were blown down. The damage pattern fit well with various reports of a strong microburst gust front along a line of thunderstorms moving from southwest to northeast across the state during the late afternoon. This line later produced strong winds at Santa Fe.									
Santa Fe County, Santa Fe Municipal Airport	1	1800 MST			0	0	2	0	Thunderstorm Wind (60)
Damage was minimal as only some power company equipment was affected at homes near the airfield.									
30 NEW YORK, Coastal									
NYZ014 Rockland Co.	11	2000EST			0	0	0	0	Heavy Snow
A low pressure area moving northeastward along the coast deposited 3-6 inches of snow over sections of Rockland County. The higher elevation sections received the most with accumulations ranging from 5-6 inches. Traveling was quite hazardous with many minor accidents being reported.									
30 NEW YORK, Central									
Area Wide	10- 11	Evening			1	?	5	0	Snow
A major winter storm spread over all of Eastern New York. Two (2) fatal auto accidents occurred in Broome County. The first fatality was the result of poor visibility and snow covered roads. A second fatality was the result of high speed during bad weather conditions.									
					M-17-V				
Oneida County	17	Late Evening			0	0	3	4	High wind
Herkimer County	18	0100EST			0	0	4	4	High wind
A cold front passing through Eastern New York produced a wind gust of 60 miles per hour at Utica-Rome Airport. More than 1000 homes were without power in the Herkimer, Oneida County Area.									
Delaware County Town of Kortwright	20	1915EST			1	7	4	0	Snow
Sudden snow squalls, in Delaware County, reduced visibility to near zero. The sudden drop in visibility resulted in three accidents in the Town of Kortwright, one was fatal.									
					M-17-V				
30 NEW YORK, Western									
NYZ002 Seneca County: Seneca Falls	05	Afternoon			0	1	4	0	High Wind
High winds with gusts greater than 60 MPH ripped the roof trusses of a church being renovated. A construction worker was injured.									
NYZ022 Cattaraugus County: Olean, Salamanca Allegany County: Friendship	06	Early Morning			0	0	4	0	Heavy Snow
From 4 to 6 inches of heavy and wet snow fell over portions of these counties. The heavy snow felled trees and power lines. It made roads very slippery. There were many vehicular accidents.									
NYZ002-004-005 Lewis, Jefferson, Seneca, Cayuga, & Onondaga Counties	06				0	0	4	0	Heavy Snow
Up to 7 inches of snow fell over portions of these counties. The snow glazed area roads. It was blamed for many accidents, some resulting in injuries or deaths to a few motorists.									
NEW YORK, Western									
NYZ001 Genesee County: LeRoy, Elba	17	1400 EST			0	0	4	0	High Winds
A large tree limb was blown down on Route 5 in LeRoy and struck a van. A pick-up truck flipped over when it hit the limb. A tree also was downed in Elba.									
Wyoming County: Bennington	17	2215 EST			0	0	3	0	TSTM Wind (44)
Strong winds knocked down two old silos.									
Erie County: Alden, Buffalo Airport	17	2222 EST			0	0	3	0	TSTM Wind (44) & Lightning
A few trees were uprooted in Alden. A lightning strike caused a power outage at the Buffalo International Airport.									
Niagara County: Wilson, Barker, Ransomville	17	2227 EST			0	0	3	0	High Wind
Power lines in Niagara County were severed by strong winds. A number of large trees were downed in Orleans County.									
Orleans County: Point Breeze									
Monroe County: Churchville	17	2240 EST			0	0	4	0	TSTM Wind (80)
Gusty winds damaged buildings and flipped over flat-bed trailers.									
Oswego County: Fulaski, Central Square	20	Afternoon			0	0	4	0	Heavy Snow
A lake-effect snowstorm dumped 10 to 12 inches of snow.									
NYZ003 Tompkins County: Trumansburg	21	Evening			0	0	3	0	High Winds
High winds of up to 60 mph toppled a chimney which smashed the windshield of a truck parked nearby.									
NYZ022 Allegany County: Wellsville	29	1330 EST			0	0	3	0	High Winds & Rain
Strong winds and rain knocked down power lines.									
31 NORTH CAROLINA									
Pender Co, Watha	10	1220EST			0	0	3	?	TSTM Winds
Onslow Co, Camp Lejeune	10	1245EST	.5	20	0	0	4	0	Waterspout- Tornado (F0)
Craven Co, SE of New Bern	10	1330EST			0	0	4	0	TSTM Winds
Carteret Co, Atlantic Beach to Morehead City	10	1415EST	2	20	0	0	5	0	Waterspout- Tornado (F0)
Carteret Co, Eastern	10	1432EST			0	0	0	0	Funnel Clouds
Intense thunderstorms developed in warm air along coastal sections of North Carolina during the early afternoon. At least 2 waterspouts developed and these came ashore causing quite a bit of damage. At Camp Lejeune, one large tree was uprooted, shingles were blown off a house, some living quarters were damaged, and a pavilion was damaged. At Atlantic Beach and Morehead City, several homes along the beachfront were damaged, and several boats were overturned. There were several other funnel clouds sighted, but no other waterspouts or tornadoes. There were reports of severe thunderstorm winds however. At Watha, 2 outbuildings and a barn were destroyed and several dozen large trees were uprooted. Southeast of New Bern, 2 mobile homes, a garage and a barn were destroyed, and tree tops were blown out.									
As a footnote: All confirmed tornadoes in North Carolina during 1987 were waterspouts that went ashore.									
32 NORTH DAKOTA ————— NONE REPORTED									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
33 OHIO									
OHZ07 Southeast Ohio	10	1200 EST			0	0	?	0	Heavy Snow
Four to 5 inches of snow fell at locations along the Ohio River. The snow commenced about 0700 EST on the 10th.									
CHZ02 North Central Ohio	20	1430 EST			0	0	?	0	Heavy Snow
Four inches of snow fell in the Medina area. The snow started at about 0500 EST, on the 20th and continued until about 2100 EST on the 20th, when around 8 inches had been received.									
OHZ03 Northeast Ohio	20	2330 EST			0	0	?	0	Heavy Snow
Six inches of snow were received in parts of Geauga County. The snow had started about 0500 on the 20th.									
OHZ04 Northeast Hills of Ohio	21	0700 EST			0	0	?	0	Heavy Snow
The Youngstown area received 4 inches of snow. The snow had started at 1900 EST on the 20th.									
34 OKLAHOMA									
Oklahoma County, Wm Oklahoma City	07	2142CST			0	0	?	?	Hail (0.75)
Oklahoma County, Luther	07	2215CST			0	0	?	?	Hail (1.75)
Lincoln County, 2 SW Carney	07	2230CST			0	0	?	?	Hail (0.75)
A thunderstorm produced hail up to golfball size and 50 mph winds as it moved across Oklahoma and Lincoln counties. No reports of damage were received.									
Comanche County, Lawton	15	0745CST			0	0	4	?	Lightning
Kay County, Ponca City	15	0900CST			0	0	3	?	TSTM Wind
Noble County, Perry	15	0900CST			0	0	4	?	TSTM Wind
Cleveland County, Norman	15	0900CST			0	0	?	?	TSTM Wind
Logan County, 4 SE Guthrie	15	0930CST	0.1	30	0	0	4	?	Tornado (F1)
Carter County, Lone Grove	15	0936CST			0	0	3	?	TSTM Wind
Carter County, Ardmore	15	0950CST			0	0	3	?	TSTM Wind (50)
Marshall County, 2 E Lebanon	15	1030CST	3.2	40	0	0	3	?	Tornado (F1)
Okfuskee County, 6 NE Okema	15	1045CST			0	0	3	?	TSTM Wind
Atoka County, 2 E Stringtown	15	1130CST	1.0	40	0	0	4	?	Tornado (F1)
Craig County, 1 NW Vinita	15	1254CST	1.5	50	0	1	4	?	Tornado (F2)
Delaware County, Bernice	15	1315CST			0	1	5	?	TSTM Wind
A line of thunderstorms oriented north-south moved eastward during the morning and afternoon. The thunderstorms produced some locally heavy rain and winds gusting up to 60 mph. The winds downed trees and power lines, destroyed or damaged several mobile homes, and destroyed several outbuildings. Strong winds hit a mobile home park on Grand Lake near Bernice, destroying two mobile homes and damaging several others. One woman was injured in one of the mobile homes. Damage was estimated at \$60,000. A tornado touched down briefly 4 miles southeast of Guthrie destroying a barn. A second tornado touched down at Powell, which is 3 1/2 miles southeast of Lebanon, and touched down intermittently as it moved northward for 3.2 miles to a point 3 miles northeast of Lebanon. The tornado caused roof damage in Powell and destroyed a barn east of Lebanon where 18 hogs are still missing. Damage was estimated at \$3,500. A third tornado set down 2 miles east of Stringtown and moved toward the northeast for 1 mile, downing trees, power poles and lines, destroying a barn, and damaging a house. Damage was set at \$40,000. A fourth tornado set down about 1 mile northwest of Vinita and moved toward the north for 1 1/2 miles. The tornado did considerable damage to a house where a man was cut from flying glass. The tornado also destroyed several outbuildings, as well as downing many trees and power poles. Damage was estimated at \$45,000.									
OKLAHOMA									
Cotton County, Temple	24	1613CST			0	0	?	?	Hail (1.00)
Stephens County, Meridian	24	1700CST			0	0	?	?	Hail (0.75)
Cotton County, Temple	24	1720CST			0	0	?	?	Hail (1.00)
Octawa County, Miami	24	1730CST-			0	0	5	?	Flooding/ Flash flooding
25	0430CST								
A line of thunderstorms moved across the state producing hail over the southwest and 5 to 7 inch rainfall amounts over the northeast. The heavy rain caused the Spring and Neosho rivers to exceed their flood stages by 3 to 5 feet. Tar Creek, which flows into the Neosho, flooded portions of Miami causing 20 families to be evacuated. Several homes had water 2 feet deep in them. The flooding caused several roads to be closed and one bridge was washed out. Damage was estimated at \$150,000.									
35 OREGON ————— NONE REPORTED									
36 PENNSYLVANIA, Eastern									
PAZ016	10	1700EST			0	0	4	0	Heavy Snow
PAZ009	10	2300EST			0	0	4	0	Heavy Snow
Lower Susquehanna Valley and the Pocones									
Rain and drizzle over Eastern Pennsylvania changed to snow over the north portion before daybreak, but did not change over to snow in the south until evening. The snow was intermittent and light most of the day over the north portions, but became heavier during the afternoon over the northeast. By 5 PM the Pocones had accumulated 6 inches of snow in many areas. Final amounts in the Pocones were 4 to 7 inches. The snow was heavy at times in the evening over west portions of the Lower Susquehanna Valley with 4 inches of accumulation by 11 PM. The final accumulations in the Lower Susquehanna Valley were 3 to 6 inches west and 3 inches to a dusting east. The snow was mixed with sleet or freezing rain at times which caused icy roads and brought down some tree limbs and power lines. Snow accumulations over the remainder of Eastern Pennsylvania were 3 to 6 inches over the Upper and Middle Susquehanna Valley and the Northeast Metropolitan Zone, 1 to 3 inches over the East Central Zone and a dusting or none at all Southeast. Slippery roadways caused many traffic accidents over Eastern Pennsylvania with at least 13 injuries and 4 deaths. The snow had mostly ended by 2 AM on the 11th except for some continued very light snow over the Upper and Middle Susquehanna Valley.									
PAZ008-009	11	1600EST			0	0	3	0	Heavy Snow
Lower and Middle Susquehanna Valley									
Very light snow had been falling over the middle Susquehanna Valley since the 10th, but did not begin falling heavily until mid day on the 11th. By 4 PM 6 inches of snow had accumulated and the snow ended by 7 PM. Final accumulations were around 6 inches. Over the Lower Susquehanna Valley the snow began around daybreak and was moderate at times in the morning, but the heaviest snowfall was in the afternoon. By 4 PM much of the area had accumulated 4 inches of snow with the final accumulations of 3 to 6 inches as the snow ended around 8 PM. The remaining portions of Eastern Pennsylvania had accumulations of from 1 to 4 inches. Slippery roadways caused many traffic accidents with at least 13 people being injured.									
36 PENNSYLVANIA, Western									
PAZ ALL	07-	1600EST			0	0	0	0	Smoke
Western	08	2100EST							
Smoke from forest fires in West Virginia and Kentucky spread northward to cover all off Western Pennsylvania. Smoke conditions improved late on the 8th with the passage of a cold front.									
PAZ 005-006-013-015	10	1500EST			0	0	0	0	Heavy Snow
South Central and Southwestern									
Six to seven inches of snow fell in south central and southwestern Pennsylvania.									
PAZ 002-003	20	2000EST			0	0	0	0	Heavy Snow
Six to eight inches of snow fell in interior northwestern Pennsylvania.									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
37 RHODE ISLAND									
RIZALL	11-12	Evening			0	0	0	0	Heavy snow
<p>A coastal storm brought a record heavy early season snowstorm to all of the state. Snowfall totals of between 6 and 12 inches were reported even in the coastal areas. The National Weather Service reporting station for Providence at Green State Airport in Warwick reported 9.7 inches which was the greatest amount of snow for so early in the season as well as for any November storm on record. Even Block Island reported from 2 to 6 inches, very rare for them so early in the season. Most schools were closed across the state as well as many businesses. Snow accumulated at a rate of over 1 inch per hour during the early morning hours along with winds which gusted to 30 to 40 miles per hour. Many roads were clogged with snow and impassable when the usual compliment of snowplow operators failed to show up because of the early date in the season. No major electric power outages were reported.</p>									
38 SOUTH CAROLINA									
Pickens County; Clemson, Gardens Subdivision	10	0615EST	0.7	150	0	0	4	0	Tornado (F1)
<p>A small tornado blew shingles off of several roofs and felled several trees. Two homes were damaged by falling trees.</p>									
Greenwood County	10	0615EST			0	0	3	0	TSTM Winds
<p>Thunderstorms winds blew down trees across highways SC 702 & SC 103 near the Saluda County line. Loud roaring noise heard.</p>									
York County Rock Hill	10	1845EST			0	0	5	2	TSTM Winds
<p>TSTM winds blew down several large trees in the Ebenezer Church area of Rock Hill. Scattered limb damage throughout the city causing considerable power disruption.</p>									
Charleston Co. Charleston City and Johns Island	17	1500EST			0	0	3	0	Urban Flooding
	17	1500EST			0	0	3	0	TSTM Wind
<p>TSTM winds blew down several large trees in Charleston. Streets and roads flooded in Charleston and on nearby Johns Island.</p>									
39 SOUTH DAKOTA									
SDZ005-011-012-017-018-019-020 Eastern SD.	28-29	0130 to 1100 CST			0	0	5	0	Ice Storm
<p>An ice storm coated many areas with up to an inch of ice which downed power lines in a few areas. Power outages lasted up to four hours in some locations. Numerous vehicle accidents occurred resulting in several minor injuries.</p>									
40 TENNESSEE									
Weakley Co	18	1803CST			0	0	?	0	Thunderstorm wind
<p>Strong damaging thunderstorm winds knocked down several trees and limbs and caused numerous electricity outages. Power outages were reported in the Greenfield, Sharon, Martin, Dresden, Gleason and Pillowville areas.</p>									
Campbell Co Good Hope	18	0500EST			0	0	?	0	High wind
<p>A large tree was blown down damaging a storage house. The wind also did minor damage to the roof of a woodshed, damaged a TV antenna and uprooted a green pine tree.</p>									
41 TEXAS, Northern									
Bell County: 10 SW Moody to 7 SW Moody	15	1208CST	3	100	0	0	5	?	Tornado (F1)
<p>A tornado damaged several houses and barns along a track from Moffat (10 miles southwest of Moody) to White Hall (7 miles southwest of Moody).</p>									
Coryell County: 10 NNW Copperas Cove	15	1635CST			0	0	?	?	Hail (0.75)
<p>Dime-size hail fell 10 miles north-northwest of Copperas Cove.</p>									
Leon County	15	(See Madison County tornado in South Texas)							
Anderson County: 10.5 SSW Palestine to Palestine	15	1503CST-1515CST	10.5	250	1	59	7	?	Tornado (F3)
Palestine	15	1512CST			0	0	?	?	Hail (1.00)
Cherokee County and Smith County: 9 SW Jacksonville to 8.5 ESE Tyler	15	1545CST-1640CST	33.5	500	4	81	7	6	Tornado (F3)
1 N Jacksonville	15	1555CST			0	0	?	?	Hail (1.00)
Smith County: 10 ENE Tyler to 15 NE Tyler	15	1645CST-1655CST	6	300	0	0	5	?	Tornado (F2)
Gregg County: Liberty City	15	1705CST			0	0	?	?	TSTM Wind
2 S Gladewater	15	1725CST			0	0	?	?	TSTM Wind
5 ENE Gladewater	15	1730CST	Short Narrow		0	0	?	?	Tornado (F1)
Rusk County: 3 N Overton	15	1712CST			0	0	?	?	TSTM Wind
Upshur County and Marion County: Gilmer	15	1720CST			0	0	?	?	Hail (1.75)
Diana	15	1733CST			0	0	?	?	Hail (1.75)
Diana to Ore City	15	1733CST-1755CST	7	900	0	9	6	?	Tornado (F2)
Ore City	15	1755CST			0	0	?	?	Hail (1.00)
Harrison County: 1 E Ashland	15	1745CST	Short Narrow		0	0	?	?	Tornado (F1)
Marion County: 6 SSE Lone Star	15	1815CST			0	0	5	?	TSTM Wind
Cass County: 5 NE Hughes Springs to 4 NE Marietta	15	1835CST-1855CST	12.25	200	0	0	5	?	Tornado (F3)
Bryan's Mill	15	1900CST			0	0	?	?	TSTM Wind
Bowie County: 7 W Maud	15	1910CST	Short Narrow		0	0	?	?	Tornado (F0)
2 E New Boston	15	1920CST			0	0	?	?	TSTM Wind
5 NE New Boston	15	1930CST			0	0	?	?	TSTM Wind
<p>A supercell thunderstorm moved out of Leon County and into Anderson County. It produced a tornado 10.5 miles south-southwest of Palestine which struck a mobile home and killed a 49-year-old man. The tornado moved into the Lakeview Conference Center (a Methodist Church camp) where the last of 600 campers had departed about 20 minutes earlier. The tornado continued into the southwest part of Palestine tracking just west of the downtown area before dissipating just northwest of downtown Palestine. Quarter-size hail fell in downtown Palestine at 1512 CST.</p> <p>In addition to the one fatality, 59 people were injured in Anderson County. Eighty-six Palestine businesses were damaged, 52 of them severely. Nearly 200 residences were damaged. One school was destroyed and another damaged. Damage was estimated at \$15 million in the City of Palestine with another \$4.3 million outside the city limits.</p> <p>The supercell thunderstorm produced another tornado near Pierce's Chapel (9 miles southwest of Jacksonville) in Cherokee County. This tornado traveled 33.5 miles (21.5 miles in Cherokee County and 12 miles in Smith County) on a northeast track which took it through the Mount Haven community just west of Jacksonville, Love's Lookout, and Mixon. The damage path ranged up to 3/4 mile wide. A two-month-old boy was killed in a mobile home in the Lakeview community just west of Jacksonville. A 77-year-old woman was killed in a mobile home in Mixon. One-inch diameter hail was reported one mile north of Jacksonville at 1555CST.</p> <p>In addition to the two fatalities, 75 people were injured in Cherokee County. Thirty-five mobile homes were destroyed in the county and 6 more were damaged. Thirty-three other residences suffered heavy damage and 40 had light to moderate damage. Three businesses were destroyed. Damage was estimated at \$13 million in the county. Timberland damage was estimated at an additional \$1.6 million as 3200 acres of pine timber was destroyed.</p> <p>The tornado crossed into Smith County about 4 miles west of Troup at 1615CST and moved northeastward through the eastern part of Whitehouse to near New Chapel Hill (8.5 miles east-southeast of Tyler) where it dissipated. A 69-year-old woman and her 45-year-old daughter were killed at Whitehouse. They were in a tied-down mobile home.</p> <p>In addition to the two fatalities, 6 people were injured in Smith County. Damage was estimated at \$5 million in the county as 25 homes were damaged from the tornado.</p>									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1987

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	

TEXAS, Northern

The supercell produced another tornado in Smith County near the Jackson community (10 miles east-northeast of Tyler). Fifteen houses were damaged around Jackson. The tornado produced intermittent damage to rural homes, outbuildings and trees as it travelled 6 miles before dissipating near the Oakdale community (15 miles northeast of Tyler).

Winds from the supercell downed trees in Gregg County at Liberty City at 1705CST and 2 miles south of Gladewater at 1725CST. Winds downed trees 3 miles north of Overton in Rusk County at 1712CST. The supercell produced a brief tornado 5 miles east-northeast of Gladewater at 1730CST which downed numerous trees.

Golf ball size hail fell at Gilmer in Upshur County at 1720CST. Another tornado was produced by the supercell thunderstorm at Diana in Upshur County and produced intermittent damage along a 7 mile track which ended at Ore City. Four people were injured in Diana and 5 people were injured in Ore City. Damage in Upshur County was estimated at \$3 million. Seven permanent residences were destroyed along with 10 mobile homes. Thirty-eight permanent residences and 3 mobile homes suffered major damage. Ninety-three permanent residences and 8 mobile homes had minor damage. Golf ball size hail fell at Diana at 1733CST and one-inch diameter hail fell at Ore City at 1755CST. The width of the damage path at Ore City was such that it extended east of Ore City across the Upshur County line and into Marion County where some trees were downed.

A brief tornado downed trees one mile east of Ashland in Harrison County at 1745CST.

The supercell thunderstorm moved through the western part of Marion County producing winds which ripped roofs off a beauty salon and office building and demolished a mobile home near the intersection of State Highway 155 and Farm-to-Market Road 729 (6 miles south-southeast of Lone Star).

The storm produced another tornado about 5 miles northeast of Hughes Springs in Cass County. It damaged the Crossroads Baptist Church and moved northeastward through a wooded area, producing considerable timber damage. The tornado destroyed 3 homes about one mile northeast of Marietta toward the end of its track. Six homes were damaged. The thunderstorm produced strong winds at Bryan's Mill at 1900CST which damaged a mobile home and downed trees.

The storm moved into Bowie County producing a brief tornado 7 miles west of Maud at 1910CST which downed trees. Thunderstorm winds downed trees and powerlines 2 miles east of New Boston at 1920CST and downed trees 5 miles northeast of New Boston at 1930CST. N49M, M1M, F77M, P69M, F45M

Shelby County:
Jericho
2 S Center
Center
Panola County:
5 NE Carthage

15 1815CST	0	0	6	?	TSTM Wind
15 1818CST	0	0	3	?	TSTM Wind
15 1820CST	0	0	6	?	TSTM Wind
15 1823CST	0	0	3	?	TSTM Wind

Another thunderstorm produced strong winds which damaged 4 chicken houses, several residences, and a store at Jericho. Thunderstorm winds damaged a store and 8 houses two miles south of Center and damaged a school and 4 stores at Center. Trees and powerlines were also downed in Center. Damage in Jericho and Center was estimated at \$500,000 each.

Several trees and powerlines were downed by thunderstorm winds 5 miles northeast of Carthage at 1823CST.

Shelby County and Panola County:
5 N Center to
18 ESE Carthage

15 1830CST-1845CST	16.5	200	0	20	6	?	Tornado (F3)
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A tornado travelled northward from 5 miles north of Center, generally along Farm-to-Market Road 699, to the Shelby-Panola county border about 4 miles west-northwest of Joaquin. It then continued through the southeast part of Panola County on a course which took it near the communities of Gallaway and Logan. The tornado exited the state near Logan (18 miles east-southeast of Carthage). It continued into Louisiana to the Shreveport area. The path length in Texas was 16.5 miles (8 miles in Shelby County and 8.5 miles in Panola County).

Fifteen people were injured in Shelby County where 16 houses, 67 outbuildings and 17 mobile homes were destroyed. Another 31 homes, 56 outbuildings and 3 mobile homes were damaged. Nearly 34,000 chickens were killed.

Five people were injured in Panola County where 8 mobile homes were destroyed and considerable timber damage occurred.

Harrison County

15 2300CST	0	0	?	?	Flash Flooding
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Flooding was reported along Interstate Highway 20 in eastern Harrison County.

TEXAS, Northern

Shelby County	16 0430CST	0	0	?	?	Flash Flooding
Panola County: 2 W DeBerry	16 0520CST	0	0	?	?	TSTM Wind
Panola County	16 0645CST	0	0	?	?	Flash Flooding
Anderson County	16 0700CST	0	0	?	?	Flash Flooding
Lamar County	16 0800CST	0	0	?	?	Flash Flooding
Delta County	16 0800CST	0	0	?	?	Flash Flooding
Smith County	16 0800CST	0	0	?	?	Flash Flooding
Cherokee County	16 0900CST	0	0	?	?	Flash Flooding

Low area flooding occurred in eastern Shelby County by 0430CST with a number of secondary roads flooded. A number of trees and powerlines were downed 2 miles west of DeBerry at 0520CST. Overnight rainfall flooded many roadways in east and northeast Texas during the morning hours of the 16th.

Cooke County:
1 SE Valley View
5 S Gainesville
Grayson County:
Whitesboro

24 1730CST	Short Narrow	0	0	?	?	Tornado (F1)
24 1745CST	Short Narrow	0	0	4	?	Tornado (F1)
24 1830CST		0	0	?	?	TSTM Wind

A tornado was observed briefly in open country one mile southeast of Valley View at 1730CST. A tornado damaged 2 houses, a barn and farm equipment 5 miles south of Gainesville at 1745CST. Thunderstorm winds downed power lines in Whitesboro at 1830CST.

41 TEXAS, Southern

Central and Southeast Texas

15-16

Tornadoes and Tstm Winds

A very intense upper air disturbance and associated surface trough of low pressure moved eastward across Central and Southeast Texas during the afternoon and evening on the 15th and continued into Southeast Texas on the morning of the 16th. The atmosphere was made very unstable as a strong low level jet or warm tropical air fed into the system and severe thunderstorms erupted. The severe thunderstorms produced several tornadoes and damaging downbursts of wind. There were 4 obvious tornadoes with paths up to 10 miles long. The tornadoes killed 5 persons. The tornadoes and high winds injured another 35 persons. One death resulted from the high winds. No doubt there were other tornadoes which were not confirmed. The location and damage of known events is described below by counties:

Williamson CO

15 1110CST	0	1	?	0	Tstm Wind (65)
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High winds from a thunderstorm hit on the north side of the town of Jarrell. Several grain storage bins were heavily damaged. Mobile homes were blown off foundations.

Lee County,
1W Giddings to
1N Giddings

15 1130 to 1140 CST	1.5	200	0	8	6	?	Tornado (F2)
15 1140CST			0	0	5	?	Tstm Wind (?)

A tornado touched down on the west side of the town of Giddings and moved northeast across the northwest side of the town. The tornado did extensive (F2) damage with borderline (F3). 36 homes were totally destroyed and 49 suffered major damage. 6 mobile homes were destroyed while 3 were heavily damaged. There was minor damage to 82 homes. 2 commercial buildings received major damage. Many windows and front plate glass partitions were blown out of homes and businesses. Power lines, poles and trees were downed. There were 8 persons injured, one seriously. All persons that saw the devastation agreed that it was a miracle that no one was killed. The tornado lifted back into the cloud just northeast of Giddings. The severe thunderstorm that produced this tornado continued northeast to the Burleson County line. Severe wind damage from downbursts could be followed across the countryside for about 17 miles. Damage to trees, outbuildings and carparks was evident. Eventually, this severe thunderstorm moved into Burleson County and produced the tornado near Caldwell.

Burleson County and Milan County,
3N Caldwell to
13NNE Caldwell

15 1215 to 1240CST	10	500	2	12	6	?	Tornado (F2) Tstm Wind (?)
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A tornado touched down about 3 miles north of the town of Caldwell and moved north-northeast for about 10 miles to the extreme southeast part of Milan County. The tornado apparently did not cross the Brazos River. The debris path suggested that the tornado stayed on the ground most of the time. While the tornado was in rural areas, dozens of homes and mobile homes were totally destroyed. Acres and acres of trees were uprooted and snapped off at the their trunks. Many automobiles and trucks were damaged and totaled. 2 persons were killed in a mobile home about 7 miles north of Caldwell. 2 other occupants of the mobile home ran out of the home shortly before the tornado hit and were not hurt. There were several injuries, with 10 persons treated at hospitals. Several livestock were killed. From a point 3 miles north of Caldwell, where the tornado began, southwest to the Lee County line there was scattered damage to outbuildings and trees. In Milan County, the tornado was on the ground only for a short distance. 5 homes were destroyed in the 6 mile community which is south of the town of Gause. Other outbuildings were destroyed. A couple of fishing cabins in the Brazos River bottom were damaged. F54M, F27M

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					KILLED	INJURED	PROPERTY	CROPS	
TEXAS, Southern									
Madison County and Leon County, 10WNV Madisonville to BSSE of Centerville	15	1400 to 1430CST	10	200	3	2	6	?	Tornado (F2)
			A tornado touched down in western Madison County about 2 miles east of the town of Gerge and moved north-northeast to near Mecca and continued northeast to the Leon County line about 3 miles northeast of the town of Normangee. The tornado crossed the county line and stayed on the ground to 3 miles east of Leona and dissipated. In Madison County, the tornado hit a mobile home just northeast of Normangee and killed 3 of the 4 occupants. The location of the mobile home was near the county line as the debris from the home was blown over into Leon County. Several residences were heavily damaged. Trees were uprooted. 11 sheep and 4 horses were killed. A couple of the horses were injured and had to be shot. 4 homes were totally destroyed and 21 were damaged. Another mobile home was also heavily damaged. 10 barns were destroyed and 28 were damaged. 15 vehicles and trailers were destroyed. 79,200 feet of mostly barbed wire fence was taken out by flying debris. In Leon County, little damage, except to trees, power lines, poles and barns was reported. Extensive wind damage to trees was reported 10 miles east of Centerville. It is believed by NWS that the thunderstorm that produced this tornado produced the one at Palestine an hour later. M49M, M31M, M78M						
Grimes County Iola	15	1700 CST			0	0	?	0	Tstm Wind (?)
			High winds from a thunderstorm blew over outbuildings and did roof damage to homes.						
Robertson CO Hearne	15	2030 CST			0	0	0	0	Hail (1.00)
Kerr CO Ingram	16	0205 CST			0	0	5	0	Tstm Wind (?)
			High winds from a thunderstorm hit a shopping mall. The wind damaged a few of the stores. Storage units were destroyed. At least one home was damaged.						
Frio CO Pearsall	16	0340 CST			0	0	0	0	Hail (1.75)
Live Oak CO	16	0530 CST			0	0	4	0	Tstm Wind (?)
			High winds from a thunderstorm turned over a mobile home 8 miles southwest of Georgewest.						
San Patricio CO	16	0605 CST			0	0	4	0	Tstm Wind (?)
			High winds from a thunderstorm destroyed a mobile home just west of Sinton. High winds downed trees in Mathis.						
Brazoria CO	16	0615 CST			0	0	?	0	Tstm Wind (?)
			High winds from a thunderstorm destroyed a barn 3 miles southwest of Alvin.						
Bee CO	16	0625 CST			0	0	4	0	Tstm Wind (?)
			High winds from a thunderstorm turned over 2 mobile homes along U.S. Hwy 59 near Beeville.						
Victoria CO	16	0630 CST			0	0	?	0	Tstm Wind (63)
			High winds from a thunderstorm blew over trees and signs on the east and west side of the city of Victoria. Roof damage to some residences and mobile homes was reported. Other trees were blown over in the county.						
Mueces CO	16	0640 CST			0	0	?	?	Tstm Wind (52)
			High winds from a thunderstorm blew over signs and palm trees in the city of Corpus Christi.						
Walker CO	16	0700 CST			0	2	?	?	Tstm Wind (?)
			High winds from a thunderstorm toppled trees in Huntsville. 2 employees of the Texas Dept of Correctional Institution were hurt when one tower toppled over and from flying glass. A couple of homes were heavily damaged from fallen trees.						
Jackson CO	16	0722 CST			0	0	0	?	Tstm Wind (?)
			High winds from a thunderstorm downed trees near La Ward.						
Matagorda CO	16	0738 CST			0	0	4	0	Tstm Wind (?)
			A mobile home was destroyed by high winds from a thunderstorm near Wadsworth. Wind damage was also reported at the South Texas Nuclear Plant near Bay City.						
Wharton CO	16	0738 CST			0	0	?	?	Tstm Wind (?)
			High winds from a thunderstorm did considerable damage to roofs and trees west of El Campo.						
Harris CO	16	0831 CST			0	0	?	?	Tstm Wind (69)
			High winds from a thunderstorm or downburst did scattered damage in and around the City of Houston. Power lines and poles and some buildings were damaged at Webster in the southeast part of the county. A wind gust to 80 MPH was recorded at the Hobby Airport.						
TEXAS, Southern									
Brazoria CO	16	0839 CST			0	3	?	?	Tstm Wind (51)
			High winds from a thunderstorm did widespread damage in and around Alvin. Several residences suffered roof damage. NWS office in Alvin reported a wind gust to 58 MPH as did Angleton. A mobile home at Manvel, just northwest of Alvin, was destroyed and 2 of its occupants injured. Other mobile homes, trees and signs were damaged in the area. A barn was destroyed and one person hurt north of West Columbia.						
Galveston County and Harris County, 10SE Alvin to 15NE Alvin	16	0840 to 0855 CST	15	100	0	4	6	?	Tornado (F1)
			A tornado touched down 10 miles southeast of Alvin near Santa Fe and moved north into Harris County near the town of Seabrook. Several mobile homes were severely damaged in Santa Fe. Numerous car windows were knocked out by flying debris. At least 20 barns and outbuildings either collapsed or were heavily damaged. Plate glass windows were broken out of commercial buildings in Dickinson. Trees and power lines were downed in the area. The damage in Seabrook was viewed by NWS personnel.						
Matagorda CO	16	0848 CST			1	0	5	?	Tstm Wind (95)
			High winds from a thunderstorm hit just north of Bay City. A pipe line company located 3 miles north of Bay City reported winds to 110 MPH. Another plant located across the highway was demolished. A man was killed when the tower he was on blew over. M300						
Galveston CO	16	0850 CST			0	4	?	?	Tstm Wind (89)
			High winds from a thunderstorm did considerable damage over the county. A commercial building was severely damaged. Windows were blown out and trees downed. Power lines and poles were also downed. At least 80 automobiles lost windshields and windows from flying debris. At least one mobile home was destroyed. Fences were reported down in League City. The Union Carbide Plant in Texas City reported trees, power lines and poles down.						
Chambers CO	16	0905 CST			0	0	?	?	Tstm Wind (?)
			High winds from a thunderstorm toppled trees, power lines and poles at scattered points through the county. Several mobile homes were destroyed. There was also roof damage to homes and other mobile homes. Barns and sheds were heavily damaged at Anahuac.						
Jasper CO	16	0930 CST			0	0	5	0	Tstm Wind (?)
			High winds from a thunderstorm in the southern part of the county did major damage to some homes mainly in the Callier Loop area. One mobile home was totally destroyed. Trees, fences and barns were blown over. Trees were uprooted and roofs of homes damaged near Buna.						
Hardin CO	16	0930 CST			0	0	5	0	Tstm Wind (?)
			High winds from a thunderstorm destroyed at least 4 mobile homes in the Lambertson area. Several homes were damaged mainly from fallen trees. Between Kountze and Lambertson, utility poles and lines were blown over. Several mobile homes in the area were damaged. Roof damage to homes was reported at Silsbee.						
Jefferson CO Orange CO	16	0945 CST			0	4	5	?	Tstm Wind (?)
			High winds from a thunderstorm did scattered damage over the two counties. 90 MPH winds were reported by the Beaumont Fire Dept. Many homes in Beaumont and Pt Arthur had roof damage and broken windows. 3 homes were destroyed in Port Arthur. Power lines and poles were downed in the area. Many boats were heavily damaged at their moorings in Port Arthur. Around 230 homes received minor damage, mostly to roofs. 4 persons were hurt at the Chevron Plant in Port Arthur from flying debris. Homes were damaged in Vidor.						
Harris CO	16	0950 CST			0	0	?	0	Tstm Wind (?)
			High winds from a thunderstorm did damage to buildings in La Porte.						
Galveston CO	16	1010 CST			0	0	?	0	Lightning
			Lightning struck the City Hall building at Jamaica Beach. The resulting fire destroyed the building.						
Caldwell and Hays CO	24-25	Late 24-AM 25th			0	0	0	0	Flash Flooding
			Over 8 inches of rain fell on the drainage area of the Blanco River and flooded low lying areas and low water crossings near the river. Many roads were closed in the Wimberly because of the high water. In Caldwell County, near Martindale, high water from the river closed several roads.						
Wharton CO	25	0600 CST			0	0	?	0	Tstm Wind (?)
			High winds from a thunderstorm destroyed 2 mobile homes and uprooted trees 5 miles southwest of El Campo near the town of Hillje. One house was destroyed. High winds also struck the eastern part of the county where roof tops were damaged and stock trailers overturned.						

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PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
TEXAS, Southern									
Montgomery and Walker CO's	25	0605 CST			0	0	?	?	Flooding
			Heavy rains of 9 inches in Huntsville in Walker County and 6 inches at Conroe in Montgomery County flooded roads and inundated low lying areas. Several roads were closed due to high water including main thoroughfares.						
Harris CO	25	0700 CST			0	0	?	?	Tstm Wind (?)
			High winds from a thunderstorm did roof damage to mobile homes in the western part of the county near the intersection of SH 6 and IH 10.						
Matagorda CO	25	0700 CST			2	2	?	?	Tstm Wind (?)
			High winds from a thunderstorm rolled a mobile home over and killed 2 of the 4 occupants one mile east of Van Fleck or 6 miles east of Bay City. The wind also damaged roof tops and trees in the area. P23M, P08M.						
Harris CO	25	0800 CST			0	0	?	?	Flooding
			Heavy rain in the northern part of the county flooded the drainage areas of the Little Cypress Creek. The most serious flooding was in the Inverness community where 150 persons were evacuated. At least 20 homes had water in them.						
41 TEXAS, Western									
Potter and Randall Counties	07	0042CST			0	0	4	0	TSTM WIND
			Thunderstorm wind of unknown speed inflicted roof and tree damage and downed fences in southwest Amarillo.						
42 UTAH									
UTZ003 Wasatch Front	05	2116MST			0	0	1	0	High Wind
			Easterly canyon winds gusted to 60 mph at Centerville.						
UTZ011 Southern Mountains	14	0741MST			0	0	1	0	Heavy Snow
			The Brienhead Ski Resort received 12 inches of new snow overnight.						
UTZ006 Southwest Valleys	25	2110MST			0	17	4	0	Heavy Snow
			A spotter in Kenosh reported receiving 9 inches of snow during the daytime and early evening hours. Further south along the Black Ridge stretch of I-15, an undetermined amount of snow and ice buildup on the road contributed to a 40 car pile up. Many persons were injured.						
43 VERMONT ————— NONE REPORTED									
44 VIRGINIA									
VA2005-010-017 Northern VA	11	0100EST			0	0	4	0	Winter Storm
			Snow began falling early Wednesday the 11th, and became heavier during the day. The heaviest snow, 8 to 12 inches, fell in the suburbs just south of the District, mainly Fairfax and Prince William Counties. Four to 8 inches fell elsewhere within a 40 to 60 mile radius from the city. Students were stranded at schools and on the roads well into the evening. A massive traffic jam occurred near the Woodrow Wilson Bridge as vehicles came to a complete stop, some not moving for the entire night.						
VA2001-002-003 -004	11	1400EST			0	0	2	0	Winter Storm
			Snow began in the early afternoon Wednesday the 11th. The heaviest snow of 2 to 4 inches fell in a band just west of the Chesapeake Bay from Surry County north to Westmoreland County. Although only 0.3 of an inch was measured at Norfolk International Airport it was the earliest measurable snow since records began in 1889.						
45 WASHINGTON									
King County	20	2100 PST			0	0	4	0	High Wind
			Winds gusting to 35 miles an hour associated with a passing cold front were strong enough to blow a standing dead fir tree onto a neighboring house in the Maple Valley area, 15 miles SE of Seattle. The tree crashed into the garage destroying it and some of the contents inside. An interior wall, the roof, a patio and a car inside the garage all sustained damage.						
46 WEST VIRGINIA ————— NONE REPORTED									
47 WISCONSIN ————— NONE REPORTED									
48 WYOMING									
WYZ004 BIG HORN MOUNTAINS	2	2100 TO			0	0	0	0	SNOW
	3	0600MST							
			A WEATHER DISTURBANCE MOVED OVER THE BIG HORN MOUNTAINS BETWEEN THE EVENING OF THE 2 ND TO THE EARLY MORNING OF THE 3 RD. THIS DISTURBANCE DROPPED BETWEEN 4 TO 6 INCHES OF NEW SNOW AT BURGRESS JUNCTION IN THE BIG HORN MOUNTAINS.						
WYZ001 NORTHWEST MOUNTAINS	13	2100 TO			0	0	0	0	SNOW
	14	0700MST							
			A COLD FRONT MOVED INTO FAR WEST WYOMING AND DEPOSITED BETWEEN 4 TO 5 INCHES OF NEW SNOW OVER YELLOWSTONE NATIONAL PARK.						
WYZ002-009-010 NORTHWEST TO WIND RIVER MOUNTAINS AND BASIN	14	0730 TO			0	0	0	0	SNOW
		2000MST							
			THREE TO SIX INCHES OF SNOW WAS DEPOSITED FROM SUNSHINE SOUTH OF CODY TO SOUTH PASS ABOUT 21 MILES SOUTH OF LANDER. WINDS OF 15 TO 25 MILES AN HOUR WERE NOTED AT SOUTH PASS WERE BLOWING SNOW REDUCED VISIBILITIES BELOW ONE MILE.						
WYZ002-003-009-010-011-014-015-016 NORTHWEST TO SOUTHEAST WY.	14	2100MST			0	0	0	0	SNOW
WYZ009-010 WIND RIVER MOUNTAINS AND BASIN	14	2200 TO			0	?	?	0	WINTER STORM
	15	0500MST							
WYZ015 SOUTHERN	15	0030 TO			0	?	?	0	WINTER STORM
		0800MST							
WYZ011-016-017 CENTRAL AND SOUTHEAST WY.	15	1030 TO			0	0	0	0	SNOW
		1930 MST							
			A COLD FRONT PREVIOUSLY OVER FAR WEST WYOMING MOVED THROUGH SOUTH CENTRAL AND SOUTHEAST WYOMING DURING THE EVENING OF THE 14 TH THROUGH THE EVENING OF THE 15 TH. THIS COLD FRONT PRODUCED SNOW AND BLOWING SNOW FROM ROCK SPRINGS EAST TO CHEYENNE ASSOCIATED WITH WINDS SPEEDS OF 30 TO 35 MILES AN HOUR. THIS SNOW AND BLOWING SNOW CAUSED NUMEROUS ACCIDENTS. INTERSTATES 80 AND 25 WERE CLOSED FOR A TIME. SNOWFALL AMOUNTS FROM THIS STORM GENERALLY WERE FROM 3 TO 6 INCHES. THE WIND RIVER MOUNTAINS AND BASIN PICKED UP 4 TO 6 INCHES WITH 10 INCHES IN THE HIGHER MOUNTAINS. ANOTHER NOTICABLE SNOWFALL AREA EXTENDED FROM THE SOUTHERN MOUNTAINS NORTH TO THE NORTHERN END OF LARAMIE MOUNTAINS. THIS AREA HAD AROUND 8 TO 10 INCHES IN THE SOUTHERN MOUNTAINS ... 9 INCHES AT BRES FIELD IN LARAMIE AND 8 INCHES WAS REPORTED AT HOGADON SRI AREA SOUTHEAST OF CASPER.						

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					KILLED	INJURED	PROPERTY	CROPS	
WYOMING									
WY2001-002-004-007-009-010 NORTHWEST TO WEST CENTRAL WY.	16	0030 TO 0900MST		0	?	?	0	0	SNOW
A SNOW STORM MOVED THROUGH WEST WYOMING AND GENERALLY DEPOSITED BETWEEN 3 TO 6 INCHES. THE MOST NOTICABLE SNOWFALL TOTALS WERE IN THE STAR VALLEY OVER FAR WEST WYOMING AND AT BURGESS JUNCTION IN THE BIG HORN MOUNTAINS WERE 4 TO 6 INCHES WERE MORE COMMON.									
WY2011 CENTRAL PLAINS	16	2000 TO 17 0930MST		0	0	0	0	0	SNOW
SNOWFALL AMOUNTS OF 4 TO 6 INCHES WERE RECORDED AT MOUNTAIN VIEW.									
WY2001-002-003-007-008-0016-017 NORTHWEST TO SOUTHEAST WY.	17	0030 TO 1930MST		0	0	0	0	0	SNOW
A WEATHER DISTURBANCE MOVED INTO THE NORTHWEST MOUNTAINS ABOUT 0030 MST AND EXISTED THE SOUTHEAST CORNER AROUND 1930 MST. THIS DISTURBANCE DUMPED 3 TO 7 INCHES OF NEW SNOW IN ITS PATH. SOME NOTICABLE SNOWFALL AMOUNTS WERE 6 INCHES AT THE SOUTH ENTRANCE TO YELLOWSTONE NATIONAL PARK AND KEMMERER WITH 7 INCHES AT THERMOPOLIS.									
WY2009 WIND RIVER MOUNTAINS	18	0030 TO 0800MST		0	0	0	0	0	SNOW
FIVE INCHES OF NEW SNOW FELL AT SOUTH PASS DURING THE EARLY MORNING.									
WY2013 SOUTHWEST	25	0500 TO 1930MST		0	0	0	0	0	SNOW
A SNOW STORM MOVED INTO SOUTHWEST WYOMING AND DEPOSITED 3 TO 6 INCHES OF NEW SNOW.									
WY2010 WIND RIVER BASIN	25	1200 TO 26 0930MST		0	0	0	0	0	SNOW
SIX INCHES OF NEW SNOW FELL AT HUNT FIELD IN LANDER.									
49 ALASKA, Northern ————— NO REPORT RECEIVED									
49 ALASKA, Southern									
NORTH GULF COAST	01	0800AST		0	0	?	0	0	High Wind
A strong low in the northeastern Gulf of Alaska brought 55 mph winds to Yakutat.									
COOK INLET	12	1900AST		0	0	3	0	0	Heavy Snow
Heavy snow in the upper Cook Inlet accumulated 8 to 14 inches in Anchorage, 12 inches in Kenai, and 2 feet at Girdwood.									
ALEUTIANS	13	0500BST		0	0	?	0	0	High Wind
A strong storm brought 72 mph winds to Amchitka Island.									
COOK INLET	15	0500AST		0	0	3	0	0	High Wind
Chinook winds gusting to 77 mph hit the upper hillside area of east Anchorage.									
49 ALASKA, Southeastern									
All Southeast Alaska	11/2 and 11/6					5	0	0	High Winds
Two intense storm systems crossed the Southeast Alaska Panhandle in early November spreading hurricane force winds over the region. Minor power outages were reported as power lines were downed. The worst damage occurred in Juneau where falling trees caused by each storm crashed into homes.									
50 HAWAII									
Kauai	4	1000EST		0	0	0	0	0	Flash Flooding
Heavy showers cause minor flash flooding and overflow of rivers on Kauai.									
Hawaii	21	0800EST		0	0	0	0	0	Flash Flooding
Minor flash flooding along windward Big Island.									
51 PUERTO RICO									
PUERTO RICO	26	night				3	2	6	Flash Flooding
PR2-007-011-017-021-025 Eastern and Eastern Interior Sections	27	day							
An upper level trough became stationary just west of Puerto Rico causing severe weather over the eastern portion of the island. Heavy showers developed Wednesday evening and overnight causing flooding over the eastern interior portion of Puerto Rico. A total of 12.50 inches in 24 hours were recorded at a Cooperative Weather Station in the municipality of San Lorenzo and 12.28 inches in Juncos. Additional reports of 24 hour rainfall ranged from 6 to 10 inches. Early in the same week 4 to 6 inches of rain fell over the same area. Three persons drowned and two other were injured when their car was washed away by the rising waters of a creek over a small bridge near the town of Juncos. 349 persons were evacuated and 2850 houses were affected in 21 municipalities. 27 municipalities reported damages to roads and highways mainly due to landslides. The town of Humacao was severely affected when the main access, highway 30, was incommunicated by a landslide that washed away both lanes. Public assistance from local and federal agencies was needed as well as the activation of part of the National Guard to help in the relocation of families. Damages in terms of costs are estimated near the 6 million dollars. M67V, F37V, M12V									
52 VIRGIN ISLANDS ————— NONE REPORTED									
53 PACIFIC									
Truk	21	Morning			5	?	?	?	Typhoon Nina
Five people were killed and most of the buildings on Truk demolished when Tropical Storm Nina intensified rapidly over this small Pacific island during the early morning hours of November 21st. Winds were estimated to be gusting near 55 mph along with torrential rains. Most of the crops were wiped out. Truk at 7°N, 151.7E is rather close to the equator and tropical cyclones usually are not too intense and well developed at this latitude. Typhoon Nina went on to do major damage in the Philippines and also threatened Rainan Island and Hongkong.									

STORM SUMMARY

NOVEMBER 1987

TYPE	ALABAMA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MAINE	MARYLAND & DC	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE
TORNADOES					0	0				0	0				0				0	0	0			0			
Number								1								14						18					
Days								1								2						1					
Deaths								0								1						0					
Injuries								0								0						7					
Property Damage								4								100						7					
Crop Damage								0								7						0					
HAIL																											
Deaths			0		0											0						0				0	
Injuries			0		0											0						0				0	
Property Damage			5		2											3						3				4	
Crop Damage			5		0											3						0				0	
THUNDERSTORM WINDS																											
Deaths	0	0	0	0				0	0							0						0			0	0	0
Injuries	0	0	0	0				1	0							2						1			0	0	0
Property Damage	3	5	5	0				3	5							6						6			3	0	0
Crop Damage	2	5	0					0	0							3						0			0	0	0
HIGH WINDS																											
Deaths					0							0														2	
Injuries					0							0														0	
Property Damage					3							2														3	
Crop Damage					0							0														0	
LIGHTNING																											
Deaths				0				0								0											
Injuries				0				0								1											
Property Damage				3				4								0											
Crop Damage				0				0								0											
FLASH FLOODS																											
Deaths		0	0	0												0						0	0			0	0
Injuries		0	0	0												0						0	0			0	0
Property Damage		4	4	5												7						6	5			4	0
Crop Damage		2	0	0												3						0	0			0	0
FLOODS																											
Deaths													0														
Injuries													0														
Property Damage													3														
Crop Damage													0														
HEAVY SNOWSTORMS AND BLIZZARDS @																											
Deaths							0						0				0	0							0		0
Injuries							0						0				0	0							0		0
Property Damage							4						4				5	4							2		4
Crop Damage							0						0				0	0							1		0
ICE STORMS #																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
HURRICANES AND TROPICAL STORMS																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
ALL OTHERS																											
Deaths				0																							
Injuries				0																							
Property Damage				7																							
Crop Damage				0																							

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM SUMMARY

NOVEMBER 1987

TYPE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOMA	OREGON	PENNSYLVANIA	RHODE ISLAND	SOUTH CAROLINA	SOUTH DAKOTA	TENNESSEE	TEXAS	UTAH	VERMONT	VIRGINIA	WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING	ALASKA	HAWAII	PACIFIC	PUERTO RICO	VIRGIN ISLANDS	NATIONAL DEATH & INJURY TOTALS	
TORNADOES	0				0			0		0						0			0	0		*	0		0			
Number				2			4				1			16														
Days				1			1				1			3														
Deaths				0			0				0			10													11	
Injuries				0			0				0			19													305	
Property Damage				5			5				4			5														
Crop Damage				0			3				0			?														
HAIL																												
Deaths							0							0														
Injuries							0							0														
Property Damage							?							?														
Crop Damage							?							?														
THUNDERSTORM WINDS																												
Deaths	0	0	0	0			0				0		0	3													3	
Injuries	0	0	0	0			1				5		0	15													20	
Property Damage	3	4	4	?			5				2		0	6														
Crop Damage	0						?						0	?														
HIGH WINDS																												
Deaths			0										0		0				0									2
Injuries			1										0		0				0								1	
Property Damage			4										?		0				4									
Crop Damage			4										0		0				0									
LIGHTNING																												
Deaths							0							0														
Injuries							0							0													0	
Property Damage							4							?													1	
Crop Damage							?							0														
FLASH FLOODS																												
Deaths							0				0			0													3	
Injuries							0				3			?													2	
Property Damage							5				0			?														
Crop Damage							?				0			?													0	
FLOODS																												
Deaths														0														
Injuries														0														
Property Damage														?														
Crop Damage														?														
HEAVY SNOWSTORMS AND BLIZZARDS @																												
Deaths			0			0			0																			
Injuries			5			?			0																			
Property Damage			0			0			4																			
Crop Damage			0			0			0																			
ICE STORMS #																												
Deaths																												
Injuries												0																
Property Damage												3																
Crop Damage												0																
HURRICANES AND TROPICAL STORMS																												
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Crop Damage																												
ALL OTHERS																												
Deaths																												
Injuries																												
Property Damage																												
Crop Damage																												

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

REFERENCE NOTES

STORM DAMAGE CATEGORIES

1	Less than \$50	0/Blank	None reported.
2	\$50 to \$500	*	Miles instead of yards.
3	\$500 to \$5,000	**	Yards instead of miles.
4	\$5,000 to \$50,000	@	Includes heavy sleet storm.
5	\$50,000 to \$500,000	#	Freezing drizzle and freezing rain, commonly known as glaze.
6	\$500,000 to \$5 Million	≠	Report incomplete.
7	\$5 Million to \$50 Million	≠≠	Report not received.
8	\$50 Million to \$500 Million	o/c	Indicates Crop Damage amount is included in the value given for property damage.
9	\$500 Million to \$5 Billion		

When reports are not received or are incomplete, the Storm Summary National Death and Injury totals may also be incomplete.

Definition of Fujita Tornado Scale (F scale)

(F0) Gale tornado (40-72 mph): Light damage
Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage sign boards.

(F1) Moderate tornado (73-112 mph): Moderate damage
The lower limit (73 mph) is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads.

(F2) Significant tornado (113-157 mph): Considerable damage
Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.

(F3) Severe tornado (158-206 mph): Severe damage
Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.

(F4) Devastating tornado (207-260 mph): Devastating damage
Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.

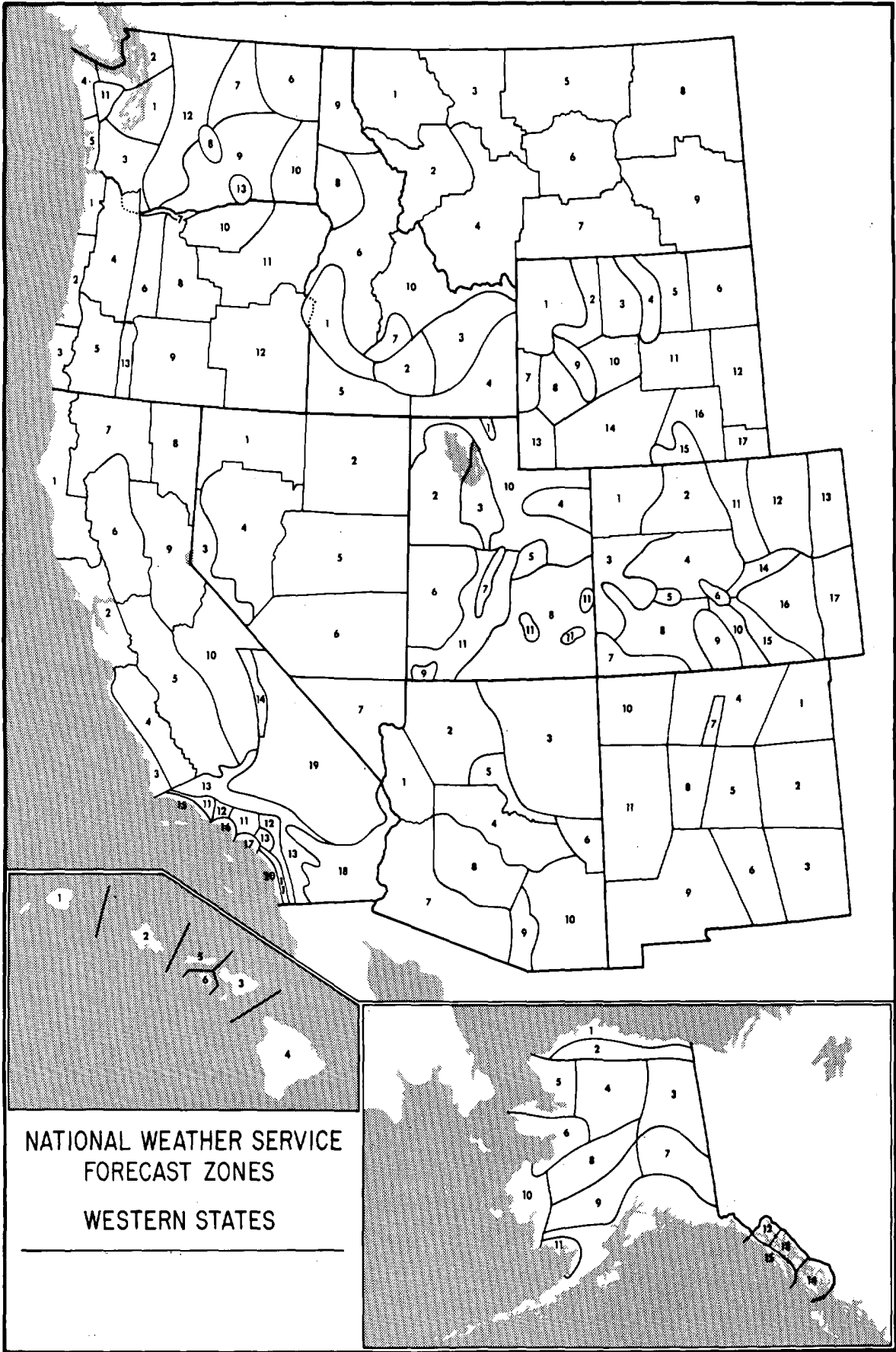
(F5) Incredible tornado (261-318 mph): Incredible damage
Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 m; trees debarked; incredible phenomena will occur.

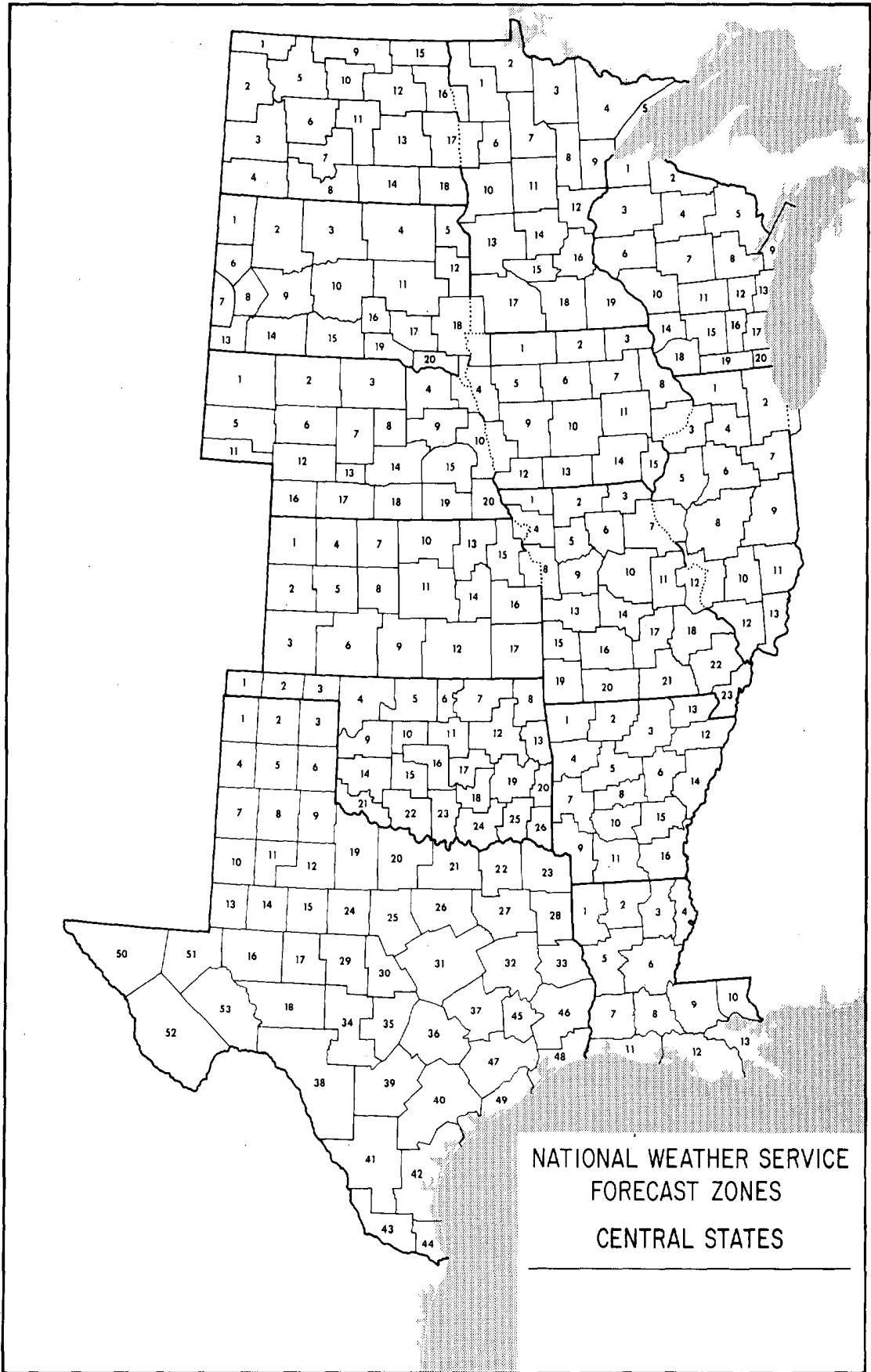
(F6-F12) (319 mph to Mach 1, the speed of sound):
The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

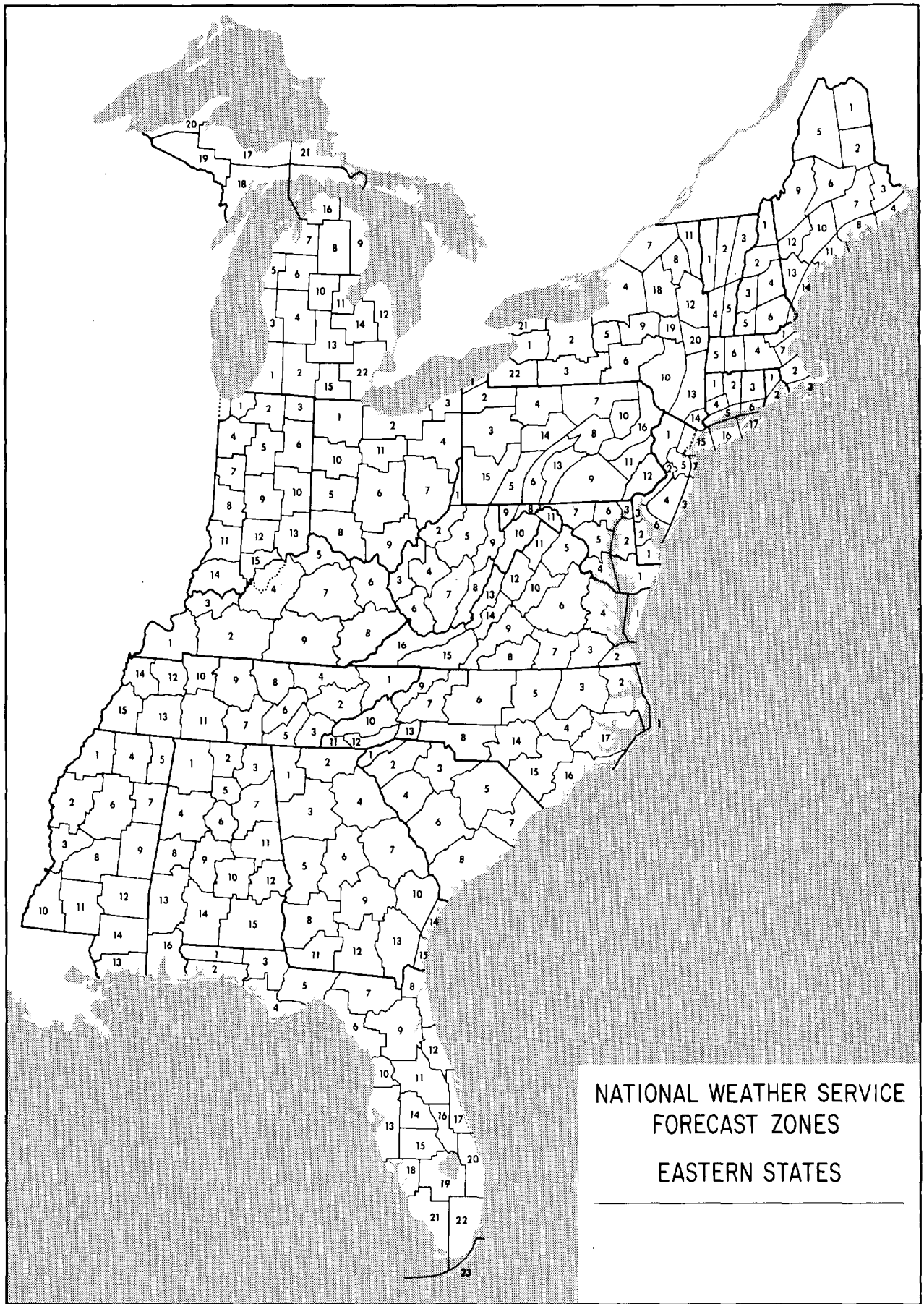
(F0+F1) *Weak Tornado*
(F2+F3) *Strong Tornado*
(F4+F5) *Violent Tornado*



From J. Atmos. Sci., August 1981, p. 1517-1519









Disaster Recovery and Mitigation

July 13-15, 1988

Practical Tools and Strategies

Location The J. F. Friedrich Center, 1950 Willow Drive, on the University of Wisconsin-Madison campus.

Workshop Objectives

People always talk about carrying community disaster response beyond the immediate post-disaster relief phase. This workshop will give you, the disaster management professional, an opportunity to learn some practical tools for doing just that—for many major disaster types. You will examine how to start from a traditional relief role and move on into recovery, rehabilitation, mitigation and preparedness. We will consider floods, tornadoes and earthquakes.

This program has three underlying objectives. We want to help you understand

- how to focus on community recovery programs
- what tools you should use, and when
- how to develop an integrated approach

Who Should Attend

This unique learning opportunity will be useful for state, regional and local government officials; engineers, architects and planners; public utility managers and public works directors; industry planners, safety engineers and insurance risk managers. We will limit enrollment to maximize your opportunity for individual attention. Enroll today!

What You Will Learn

During the three days of this intensive workshop, you will share your experience with other knowledgeable disaster management professionals. You will learn how to begin setting objectives for recovery programs, and move on to mitigation and preparedness. You will examine financing alternatives, learning how to rationalize the allocation of funds and responsibility and how to encourage private sector involvement in recovery/mitigation. You will learn strategies in the management of outside assistance, shelter and housing, and waste disposal. You will also discuss the important and often overlooked aspects of mental health in disaster recovery.

Experienced workshop leaders will guide you step-by-step through a simulated recovery process and share relevant community experiences. You will have the opportunity to begin your own action plan for implementing at home what you learn at Madison.

Experienced Workshop Leaders

Collectively, the speakers at this workshop have worked for more than 100 years in disaster management. They bring you perspectives from international, federal, regional and local experience and practice.

Daniel Alesch, Programs in Business Administration, University of Wisconsin-Green Bay

Ron Buddecke, Region V Disaster Assistance, FEMA, Chicago, IL

Don Hartsough, Clinical Psychology Training, Purdue University, West Lafayette, IN

Thomas Hirsch, Community Housing Alternatives Program, Wisconsin Department of Health and Social Services, Madison, WI

Larry Larsen, Association of State Flood Plain Managers, and Wisconsin Department of Natural Resources, Madison, WI

Philip O'Leary, Department of Engineering Professional Development, University of Wisconsin-Madison

Paul Thompson, INTERTECT, Dallas, Texas

French Wetmore, Illinois Division of Water Resources, Chicago, IL


Enrollment

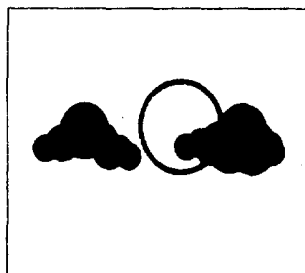
Fee: \$395 (2.0 CEU)

Mail To Engineering Registration
The Wisconsin Center
702 Langdon Street
Madison, WI 53706

Or Call Toll Free 800-262-6243 (608-262-1299 direct)
Ask for Engineering Registration
Wisconsin residents call 800-362-3020

Program Information Dial the Toll Free number above, ask for Engineering Information, request:
Program Directors, Don Schramm and
Rolf Killingstad
Program Assistant, Linda Hook
(Direct phone 608-262-2061)

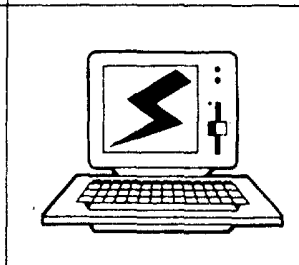
 The College of Engineering
University of Wisconsin-Madison



COMPUTATIONAL
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COMPUTATIONAL HYDROLOGY 88

*Second International Symposium on Computational Methods
In Flood Control Hydrology & Hydraulics, Surface &
Subsurface Hydrology, and Water Resources Engineering*

San Diego, California
July 10 - 13, 1988

Chief among the concerns of environmental impacts are the effects of storm runoff on existing and urbanized watersheds. Such concerns as stormwater management, surface runoff pollution, and methods for hydraulic and hydrologic modeling are only a few of the many problems faced by today's private engineering concerns and public agencies. This international conference, COMPUTATIONAL HYDROLOGY 88, aims at providing a forum for presenting the latest innovative and applied computational methods in flood control hydrology and hydraulics; surface and subsurface hydrology, and water resources engineering.

Objectives

The major objective of COMPUTATIONAL HYDROLOGY 88 is the creation of a proper forum of discussion among managers, scientists, and engineers involved in the creation, development of application of computer software to hydrologic problems. COMPUTATIONAL HYDROLOGY 88 will present the most recent developments and practical implementations in the theoretical, numerical and applicable aspects of computer analysis, simulation modeling, control and forecasting for hydrologic applications. The conference aims at the establishment of a useful connection between originators of hydrologic software programs and their possible users, thus reducing the present large duplication of effort in software development.

Conference Chairmen

T.V. Hromadka, Ph.D., Ph.D., P.E.
California State University, Fullerton
Department of Mathematics
Fullerton, CA 92634

J.J. DeVries, Ph.D., P.E.
Associate Director,
Water Resources Center
University of California, Davis

R.H. McCuen, Ph.D., P.E.
University of Maryland
Department of Civil Engineering
College Park, MD 20742

H.H. Chang, Ph.D., P.E.
Department of Civil Engineering
San Diego State University, CA

Disaster Recovery and Mitigation

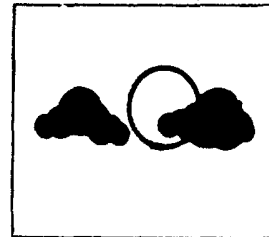
Practical Tools and Strategies

Community-based integrated disaster recovery management...emphasizing proven techniques for planning and policymaking, emergency operations, financial assistance and comprehensive mitigation

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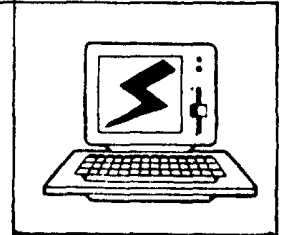
An important new professional development opportunity for managers at all levels...

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In Flood Control Hydrology & Hydraulics, Surface &
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SAN DIEGO, CALIFORNIA

JULY 10-13, 1988

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