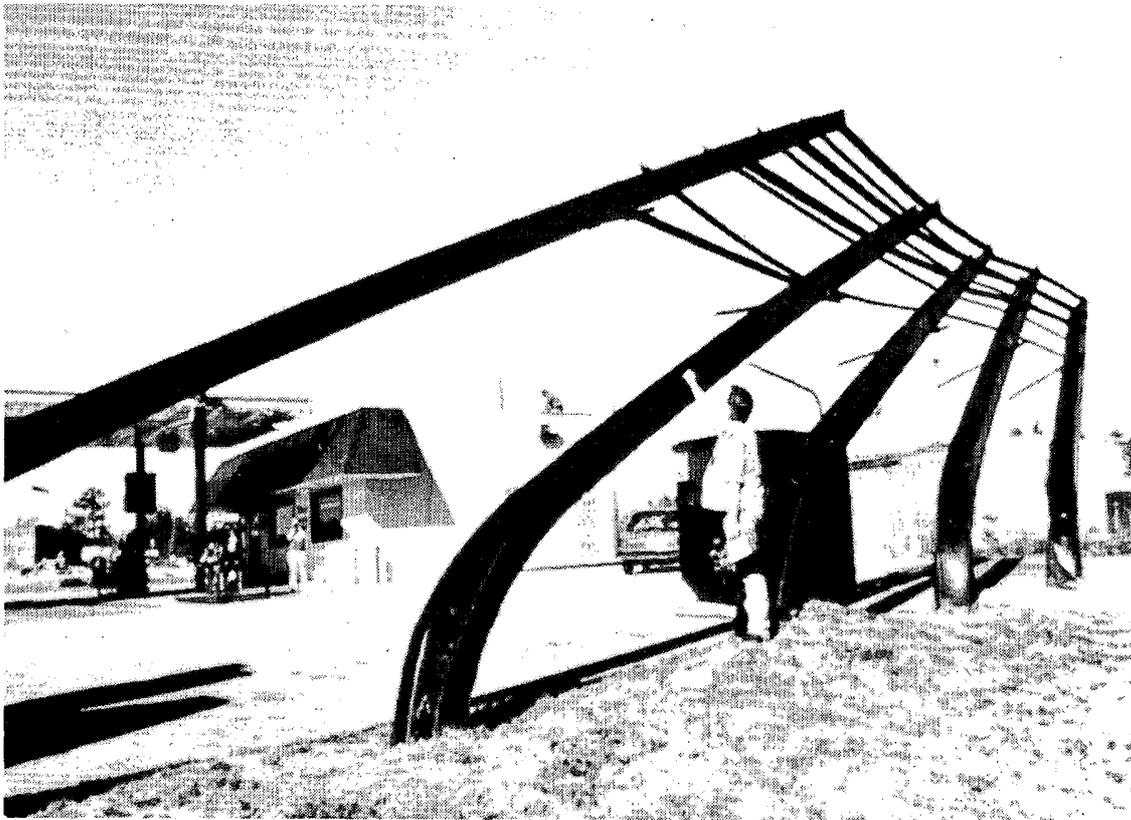


# STORM DATA



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28801

*Kenneth D. Haden*

DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

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**noaa**

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

/ NATIONAL ENVIRONMENTAL SATELLITE,  
DATA, AND INFORMATION SERVICE

/ NATIONAL CLIMATIC DATA CENTER  
ASHEVILLE, N. C.

## C O N T E N T S

Cover: A surveyor tests his strength on one of several bent, steel I-beam supports of a billboard along U.S. Highway 70 in Raleigh, North Carolina. The sign was wrenched over by the winds of an F4 tornado that passed through the northwest side of the city one hour after midnight on November 28th. (See TORNADOES in NORTH CAROLINA and VIRGINIA...., pages 26 through 35). ---Photo by Roy L. Britt of Richmond, Virginia.

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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.

Storm Data is published monthly by the National Climatic Data Center.

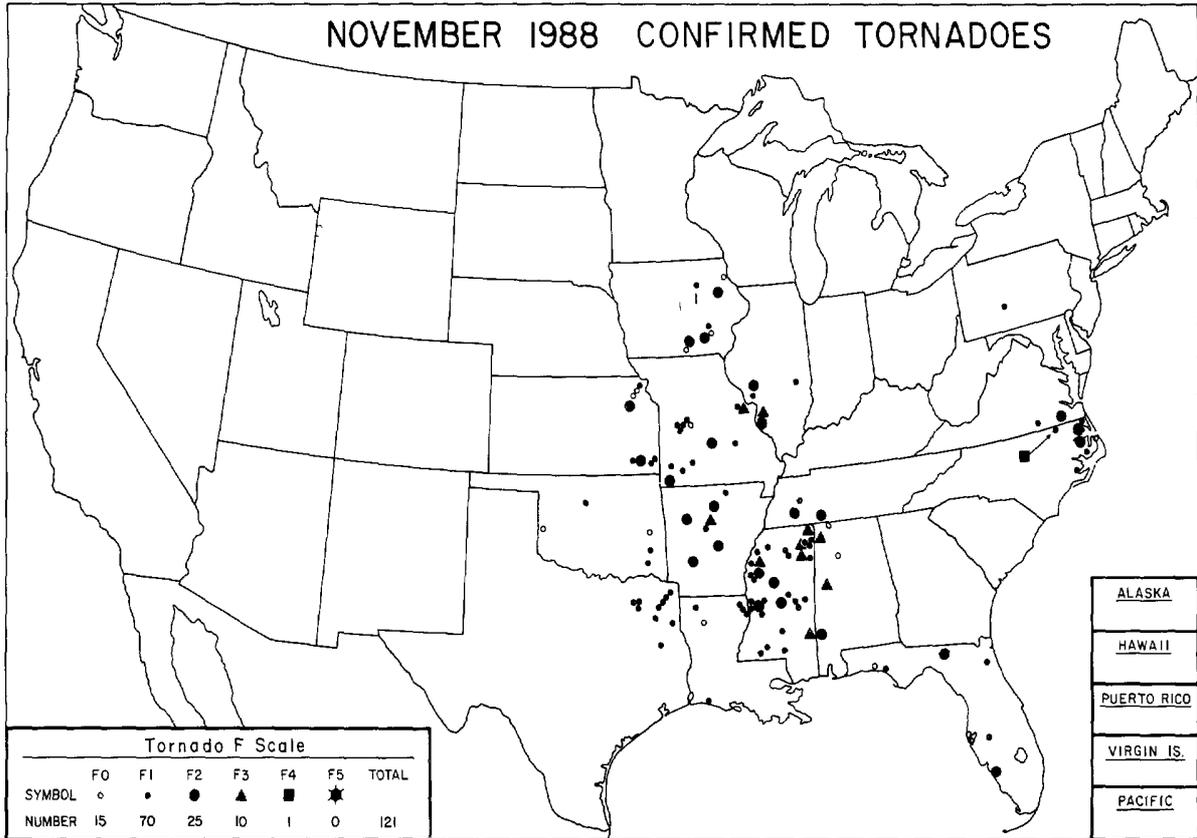
#### Publication Staff

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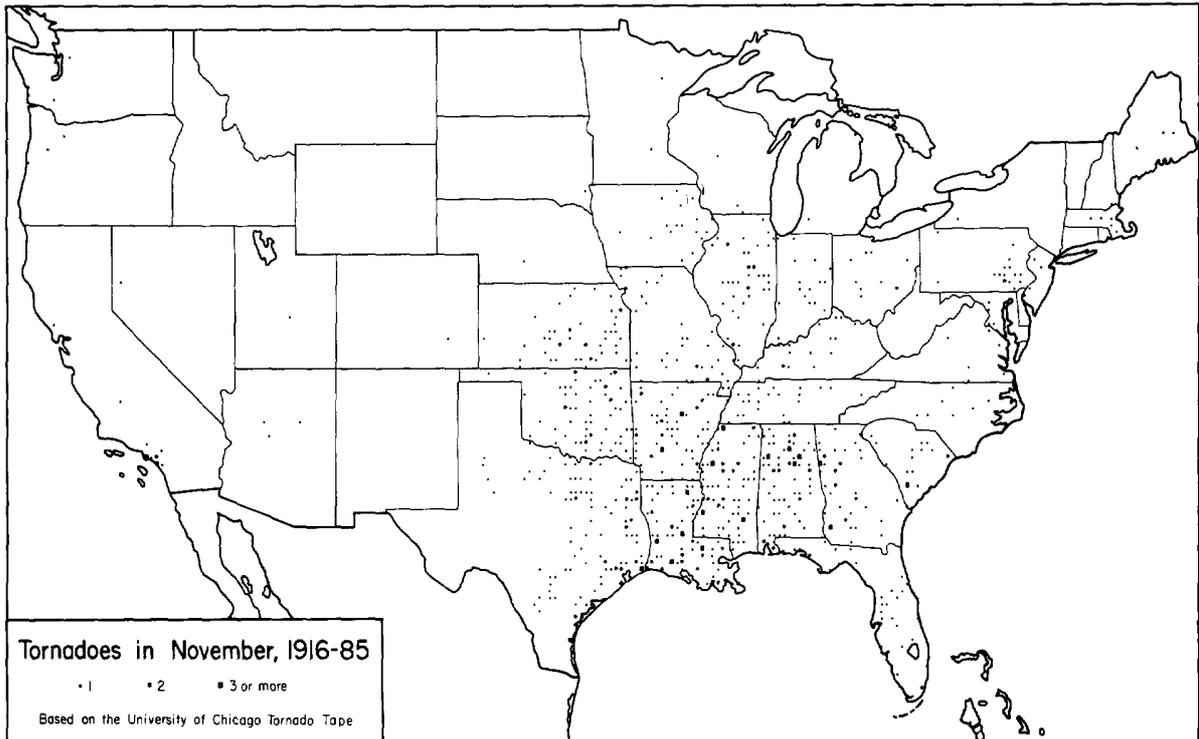
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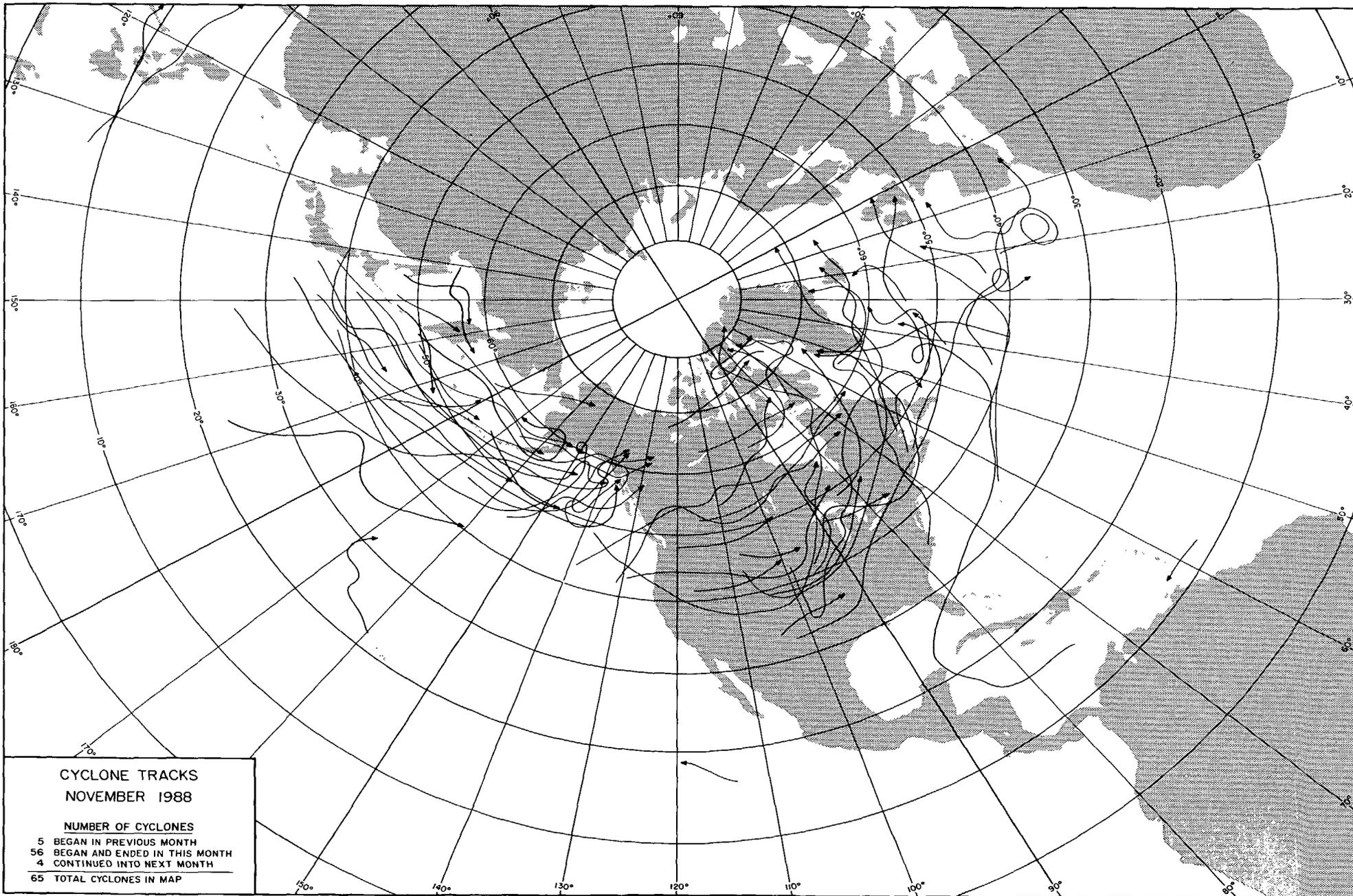
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Asheville, NC 28801-2696

# OUTSTANDING STORMS OF THE MONTH

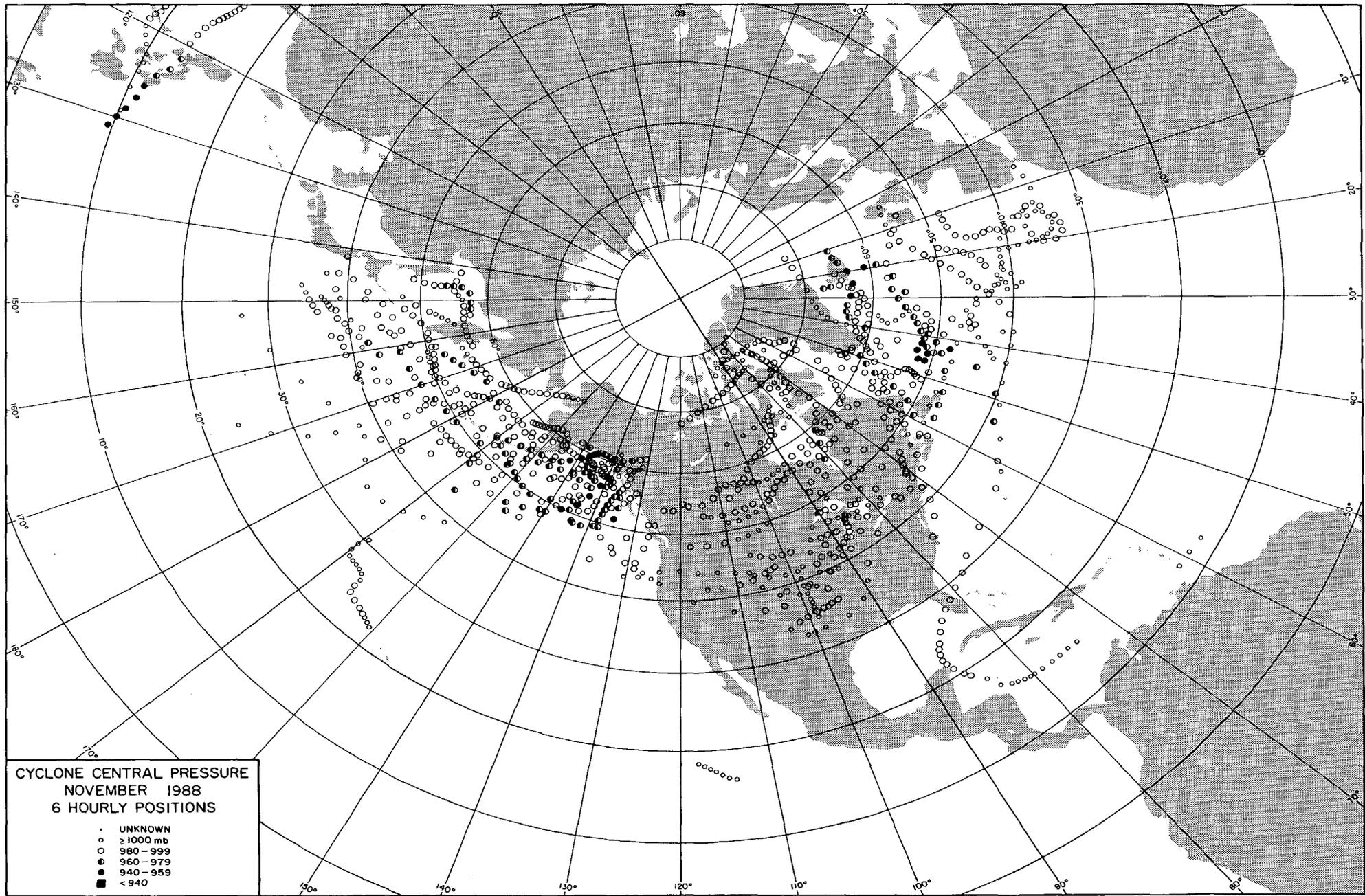


<ul style="list-style-type: none"> <li>● COMPLETE REPORT RECEIVED</li> <li>○ PRELIMINARY REPORT RECEIVED</li> <li>○ REPORT NOT RECEIVED</li> </ul> <p>(N) northern (W) western (S) southern (C) central (E) eastern (O) coastal (SE) southeastern</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <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>● 47WI</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>○ 49AK(N)</td><td></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> </tbody> </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)	● 47WI	● 52VI	● 4CA(S)	● 11IL	● 18MD	● 25NE	● 30NY(W)	● 36PA(W)	● 41TX(W)	● 48WY	● 53PC	● 5CO	● 12IN	● 19MA	● 26NV	● 31NC	● 37RI	○ 49AK(N)			● 6CT	● 13IA	● 20MI	● 27NH	● 32ND	● 38SC	● 43VT	● 49AK(S)	
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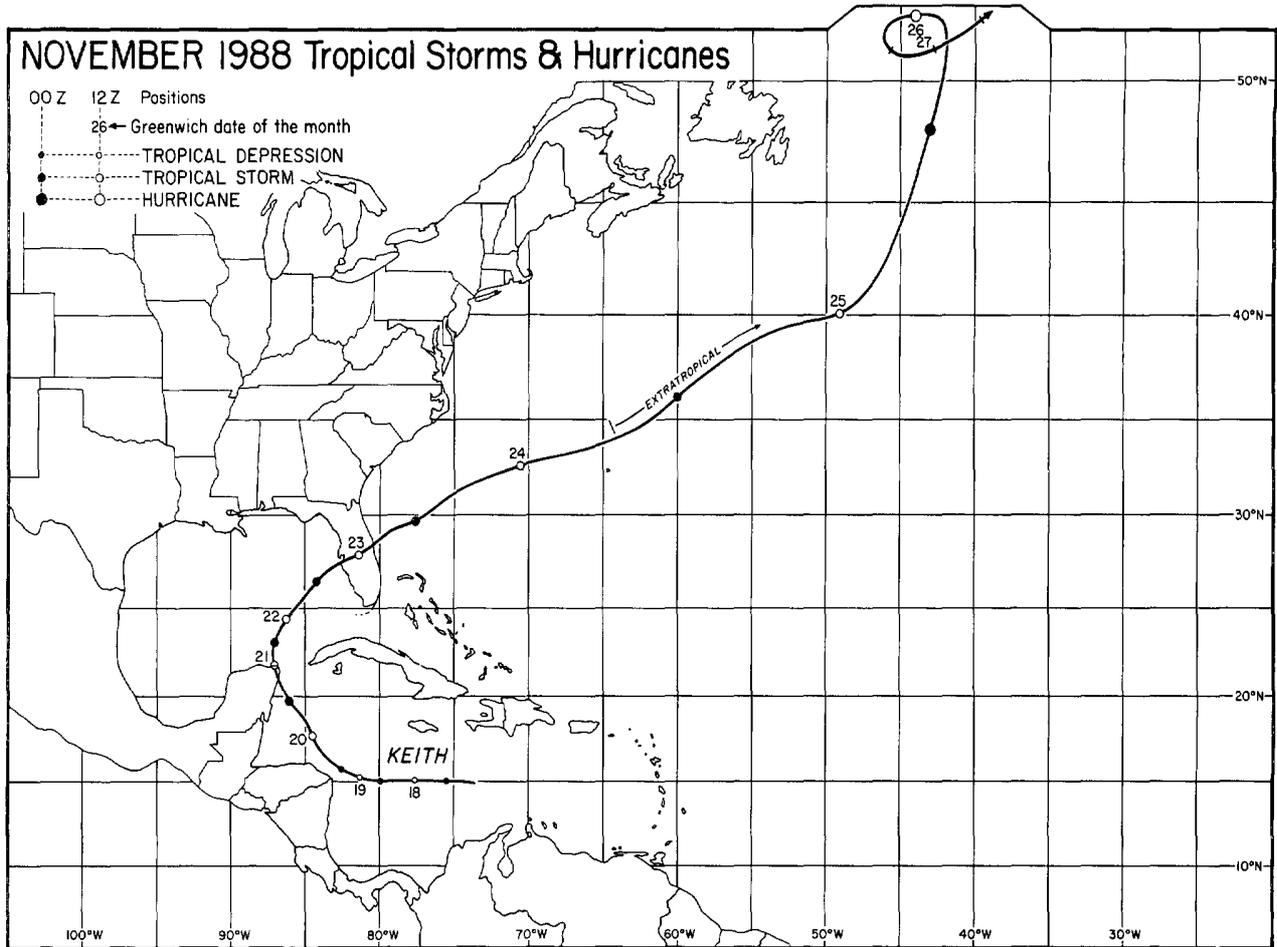




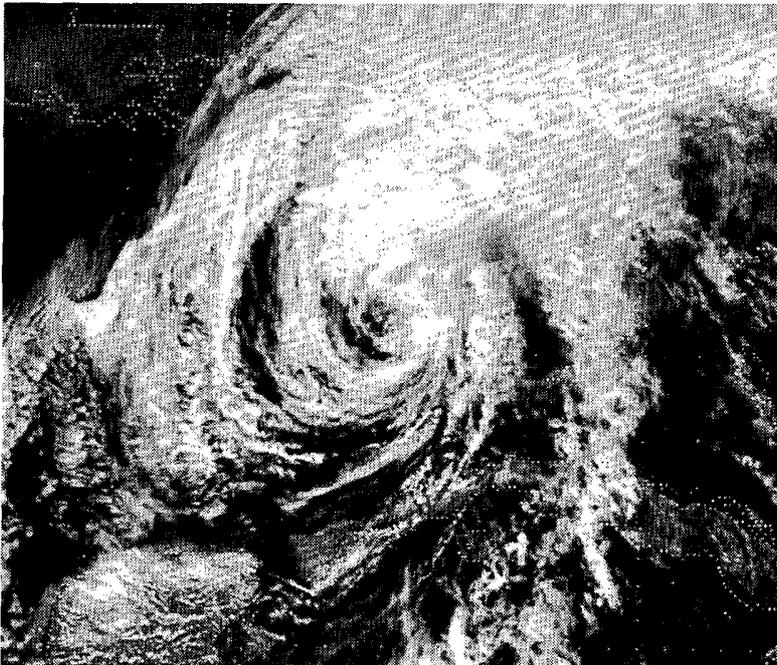
Mapped at the University of Chicago from NMC, cyclone track data



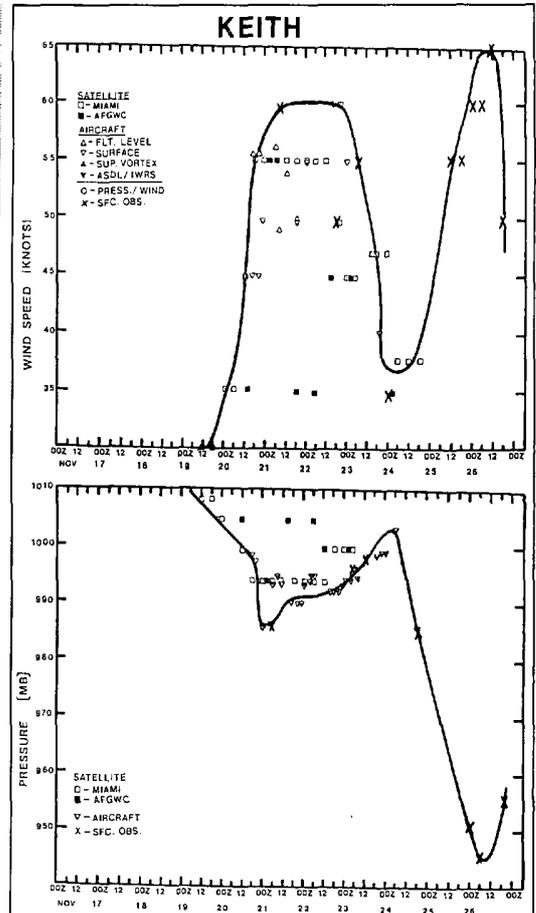
# TROPICAL STORMS and HURRICANES



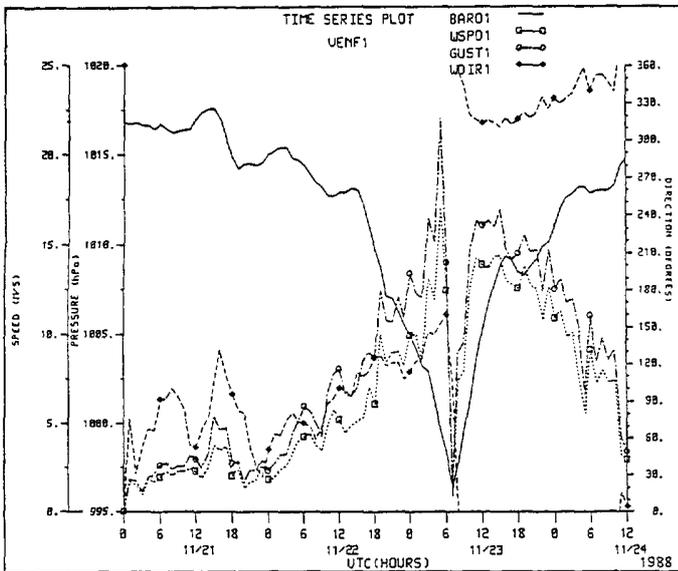
---Best track data from the National Hurricane Center, Miami, Florida.



Tropical Storm KEITH, seen off the west coast of Florida in this GOES 6 satellite, visible image taken at 1900UTC on November 22nd, was the only named tropical cyclone in either the Atlantic or Eastern Pacific during November, and was the last of the 1988 season. KEITH originated in the central Caribbean, clipped the northeast corner of the Yucatan Peninsula as it entered the Gulf of Mexico, and crossed central Florida on November 23rd before moving out into the Atlantic and becoming extratropical on the 24th. RIGHT: Plots of estimated maximum wind speed and minimum surface pressure versus time for Tropical Storm KEITH.



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



LEFT: A time series plot from a C-MAN station located on the west coast of Florida near Venice shows changes in pressure and wind (speed, gustiness and direction) associated with KEITH's passage during a 3 1/2 day period. ---Data courtesy of the National Data Buoy Center, Bay St. Louis, Mississippi.

LOCATION	TIDES (FEET)
Ballast Point	0.9 abv. nrm1.
Sarasota	4.5 abv. msl
Bradenton	6.0 abv. nrm1.
Charlotte	5.5 abv. msl
Fort Myers	4 to 6 abv. nrm1.
Daytona Beach	1 to 2 abv. nrm1.
Ft. Pulaski, Ga.	1.5 abv.

Miscellaneous maximum tide reports from Tropical Storm KEITH. Most of Florida's estimated 3 million dollars in total damage resulted from storm surge, which struck hardest along the Lee County coast where half of the total damage value was incurred.

LOCATION	STRONGEST WINDS (KT) DATE/TIME SUSTD PEAK	MIN PRESS. DATE/TIME	RAINFALL (IN) DATE 24 HRS	STORM TOTAL
<b>Florida</b>				
New Port Richey	---/44 60			5.00
Tampa (WSO)	23/0550Z 010/27 41	29.55 (1000.7) 23/0720Z	4.48 22/23	
Macdill (AFB)	23/0655Z 020/55 60			
Avon Park (Aux AFB)		29.49 (998.6) 23/1055Z		
St. Petersburg		29.50 (999.0) 23/0740Z		
Television Station WTVT (Svr Wx Net)				
Tampa (Leap)	23/0615Z ---/-- 70*			
Safety Harbor (McKnight)	23/0615Z ---/-- 65			10.00
Fetherston 3 1/2 ml. SSW of Sun City Cntr	23/0800Z ---/-- 50	29.53 (1000.0) 23/0800Z		2.25
Brandon (Brophy)		29.51 (999.3) 23/0800Z		4.45
Venice		29.38 (995.0) 23/0705Z		
5 miles south of Opfrey		29.45 (997.3) 23/0710Z		
Indian Rocks Beach (Terry Nixon)	23/0559Z ---/35 47	29.47 (998.0) 23/0557Z		
Fort Myers (Page Field)	23/0645Z ---/-- 46	29.49 (998.6) 23/0300Z		0.43
Bradenton	23/0500Z ---/45 --			
Naples	23/0250Z 200/38 61			
Naples (Court House)	23/05-06Z ---/45 60			
Flamingo	22/2150Z 180/27 --			
Key West (WSO)	22/1445Z 180/27 33	29.81 (1009.5) 22/2050Z & 23/0850Z		0.19
Boca Chica (NAS)	23/0255Z 270/32 42	29.81 (1009.5) 23/0855Z		
West Palm Beach (WSO)	23/1321Z 180/27 41	29.66 (1004.4) 23/1235Z	0.05/23	0.05
Vero Beach	23/1138Z ---/-- 37			0.27
Melbourne	23/0022Z 140/25 44			
Rockledge	---/-- 35			
Kennedy Space Cntr.	23/0955Z ---/-- 33			
Daytona Beach (WSO)	23/0939Z 090/27 36	29.62 (1003.1) 23/1010Z		5.89
<b>Georgia</b>				
Savannah Light Tower	23/1000Z 020/29 --	30.33 (1015.2) 23/1800Z		
Bermuda	24/1920Z 220/40 69	29.16 (987.5) 24/2055Z		

\* Observation point was 250 feet above the ground.

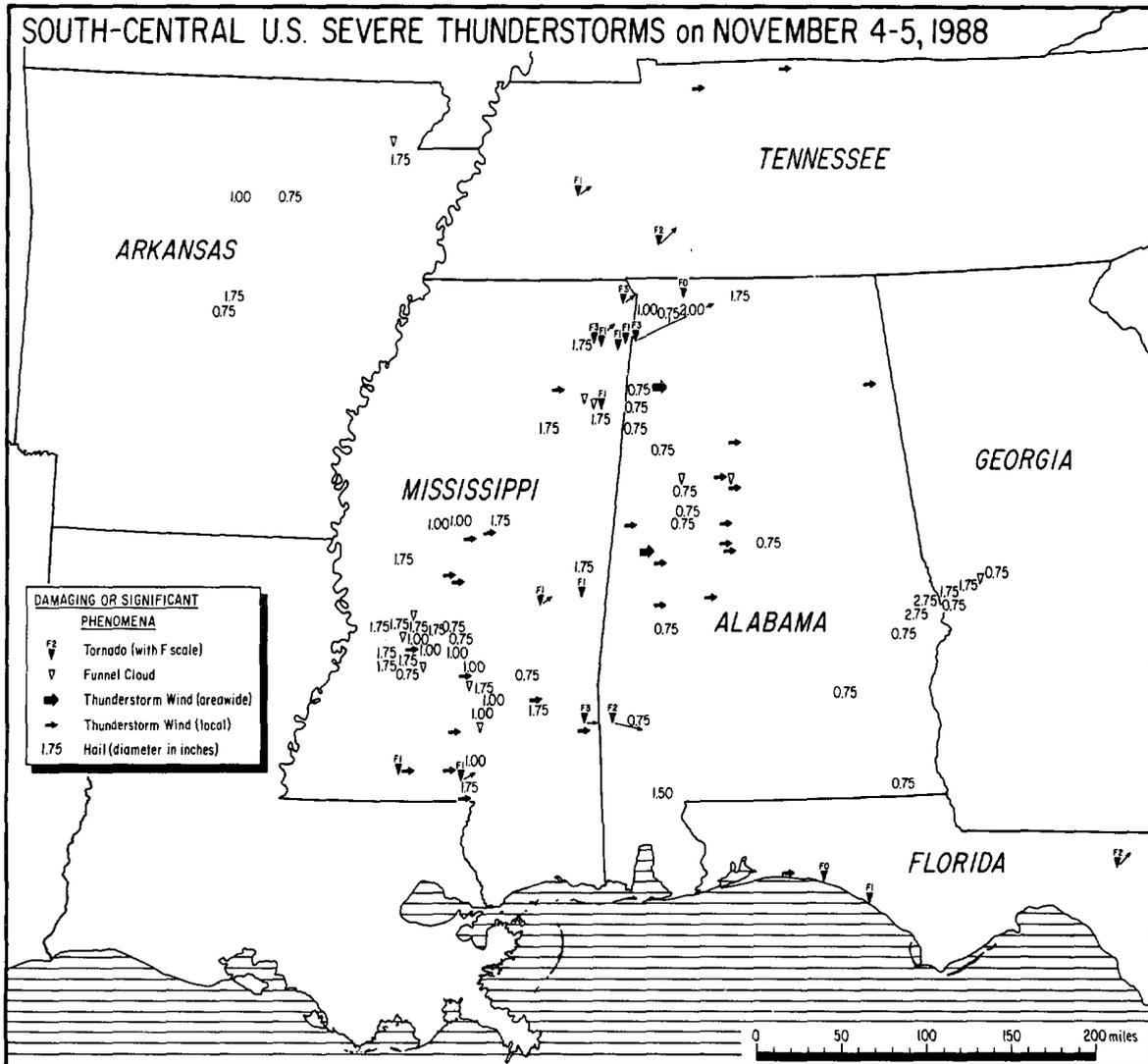
LOCATION	DATE/24 HOUR	AMOUNT	STORM TOTAL
<b>CUBA</b>			
Nueva Gerona			10.00
La Fe			6.00
Punta del Este			9.00
<b>FLORIDA</b>			
St. Leo (Pasco County) Co-op Obsvr.	22/23	9.26	10.25
Television Station WTVT Tampa (Severe Weather Network)			
SW Largo (Jenkins)			11.10
Largo (Gardner)			11.00
NW Clearwater (Shuttleworth)			10.50
Safety Harbor (Schultz)			10.00
NW St. Pete (Reynolds)			1.50
Sarasota			0.33
Bushnell			5.50
LeCanto			3.10
Wauchula			1.50
Titusville			7.71
Port Orange			6.51
Orlando	22/23	5.87	
West Palm Beach	22/23	0.05	
Miami	22/23	0.02	

Counterclockwise from above are tables of miscellaneous rainfall observations (in inches), selected meteorological and hydrological statistics, and selected wind and pressure reports (in knots and millibars, respectively) from ships; each chronicling weather conditions experienced in association with Tropical Storm KEITH. The great majority of the ship observations were made after KEITH became extratropical, a time during which KEITH's winds momentarily reached hurricane force.

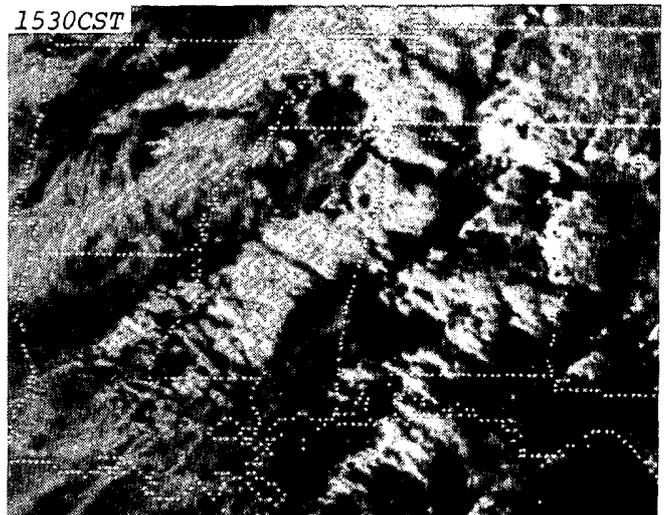
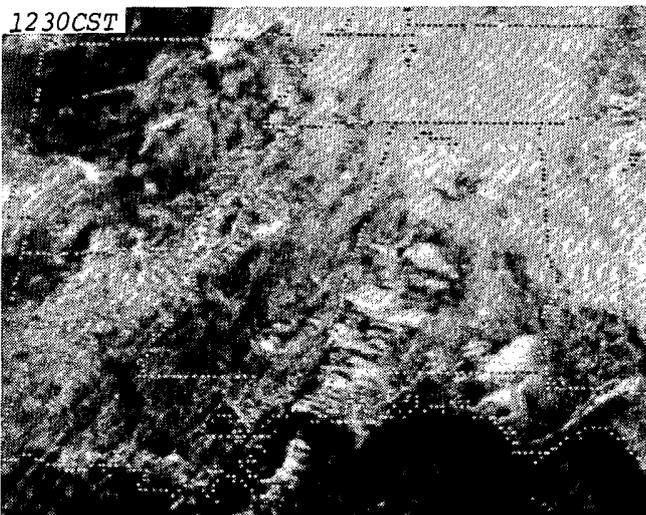
DATE/TIME (UTC)	REPORTING SHIP	POSITION LATITUDE LONGITUDE	WIND DIR/SPEED/GUSTS	PRESSURE
21/00-06	XDMH	Just west of Cozumel	---/-- 80	985.0
21/06-08	unknown	Puerto Morelos	---/60 80	
22/1800	ABRC	24.9 84.5	190/54	994.6
25/1200	4XLL	37.7 50.2	190/55	972.0
25/1200	RJUM	36.5 49.5	190/55	983.0
25/1200	IBKL	34.8 48.8	180/53	988.0
25/1800	BQDA	46.6 43.9	070/50	971.0
25/1800	GBQE	39.5 39.8	230/56	1018.0
25/1800	XCSG	40.3 41.9	180/60	978.5
25/1800	ORFB	45.5 42.7	140/52	964.0
26/0000	C6CS9	49.2 40.5	090/60	968.0
26/0000	RTZS	44.4 41.5	180/52	958.7
26/0000	UNRK	42.8 49.9	340/50	957.5
26/0600	C6CS9	49.3 42.7	180/60	945.0
26/0600	RNDB	49.7 41.0	200/55	947.6
26/0600	WPVD	46.8 39.8	220/60	973.0
26/1200	C6CS9	49.3 43.2	230/63	964.0
26/1200	RNDB	49.4 40.5	200/65	968.0
26/1200	JCLL	49.0 40.0	220/57	974.2
26/1800	C6CS9	49.3 43.1	220/55	972.0

# 1. SEVERE THUNDERSTORMS in the SOUTH-CENTRAL U.S. on November 4-5, 1988

With 121 tornadoes, the highest number of tornadoes for any November of record and well above the normal of 23, November 1988 will long be remembered for its unusually abundant severe weather. And, although the tornado occurrences were distributed throughout the month, the bulk of the activity erupted in a few major outbreaks concentrated in the South-Central U.S. The first of these outbreaks brought 19 tornadoes to the region on the afternoon of November 4th through the early morning of the 5th. The outbreak included four tornadoes of F3 intensity, three of F2 strength, ten F1 and two F0. Their distribution by state was Mississippi 11, Alabama 3, Florida 3 and Tennes-

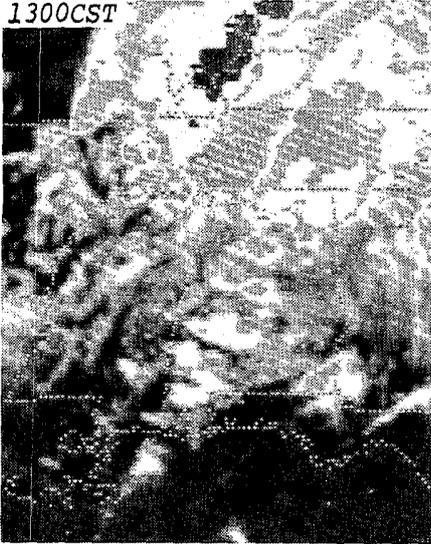


Distribution of reported severe thunderstorm phenomena occurring in the South-Central U.S. from the early afternoon of November 4th through the early morning of the 5th, 1988. ---Graphic by the University of Chicago from data supplied by NWSFO's at Birmingham, Alabama; Little Rock, Arkansas; Miami, Florida; Atlanta, Georgia; Jackson, Mississippi; and Memphis, Tennessee.

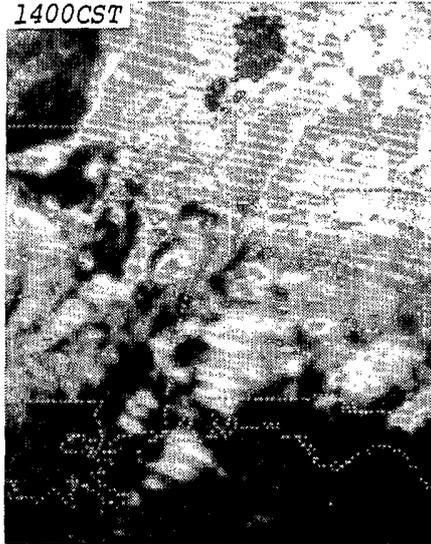


GOES 6 satellite, visible images taken as the storms formed on November 4th, show the cells to have popped up in numerous lines. ---Photos from NESDIS, Washington, DC.

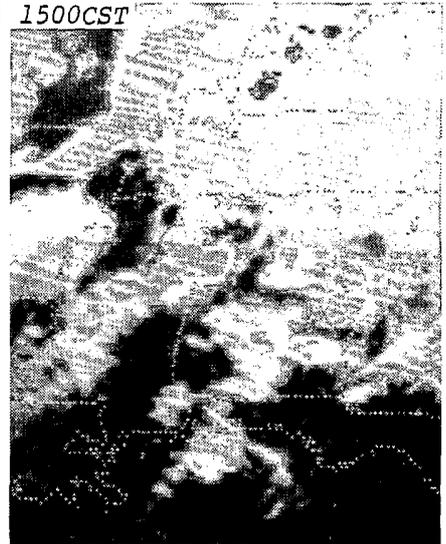
1300CST



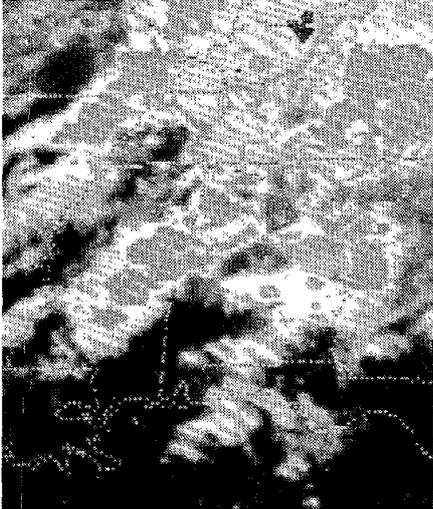
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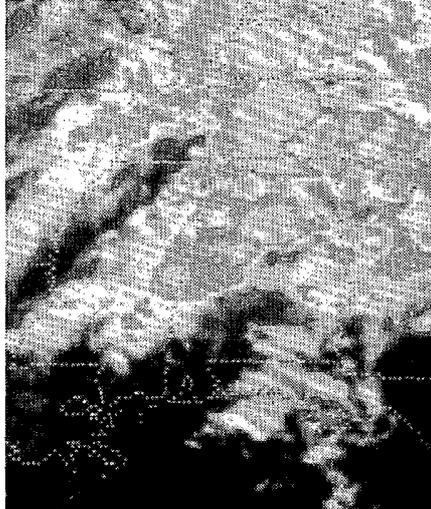
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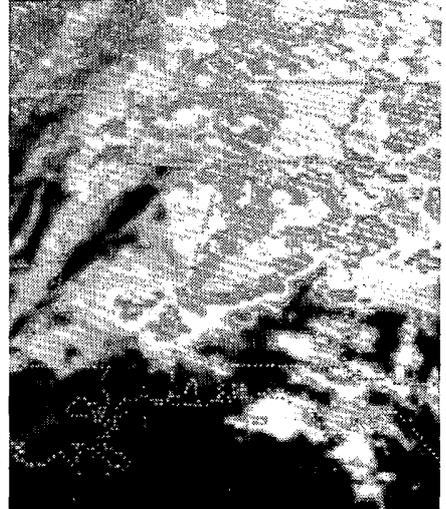
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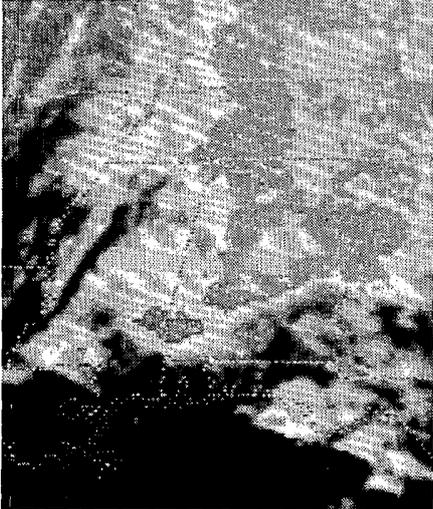
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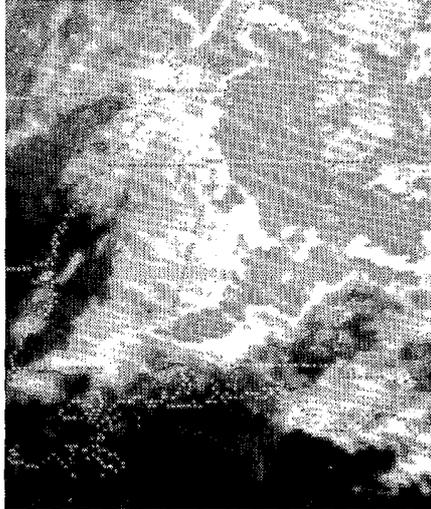
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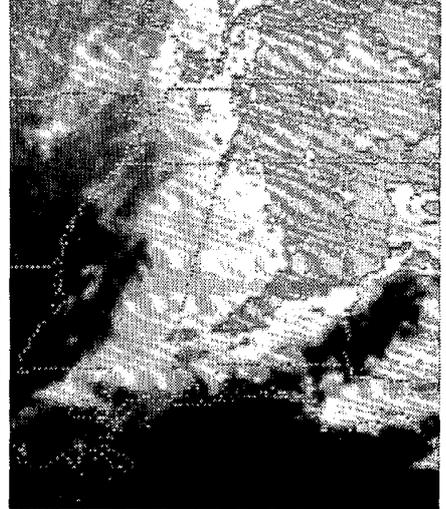
1900CST



2000CST



2100CST

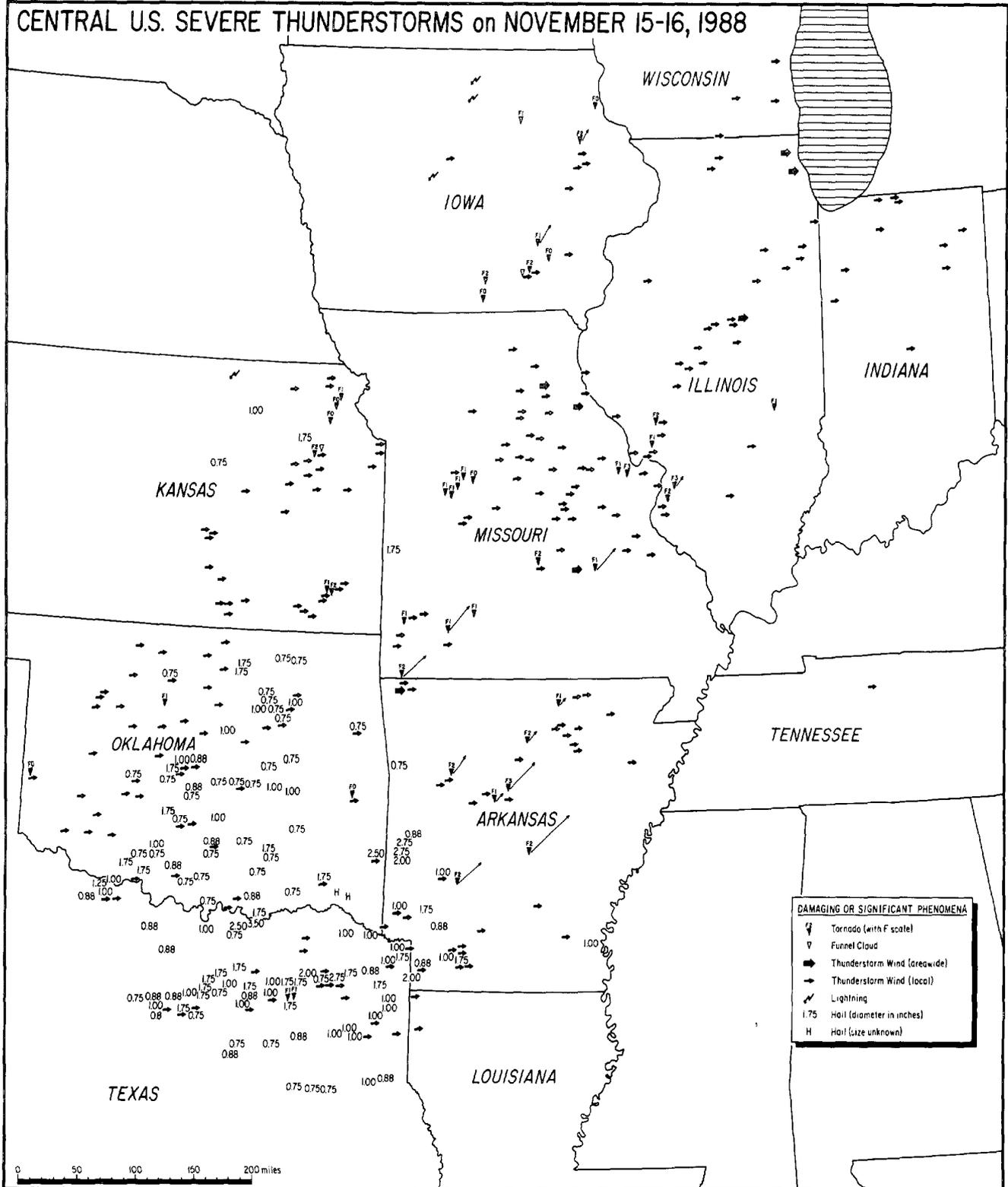


A sequence of hourly GOES 6 satellite, infrared imaged taken during the afternoon and evening of November 4th when most of the severe weather phenomena of the outbreak occurred. As seen by its prominence in the photos, the storm line that formed in central Mississippi became the most dominant and destructive, and thus accounted for most of the severe weather reports in the outbreak. ---Photos from NESDIS, Washington, DC.

see 2. The last tornado of the outbreak, an F2 that struck Lee, Florida during the early morning of the 5th, caused the first tornado fatality of the month as a woman in a mobile home was killed. Although the tornadoes were the most noteworthy feature of the outbreak, the storms also unleashed damaging thunderstorm winds and large hail, most of which affected the area during the late afternoon and early evening of the 4th.

## 2. SEVERE THUNDERSTORMS in the CENTRAL U.S. on November 15-16, 1988

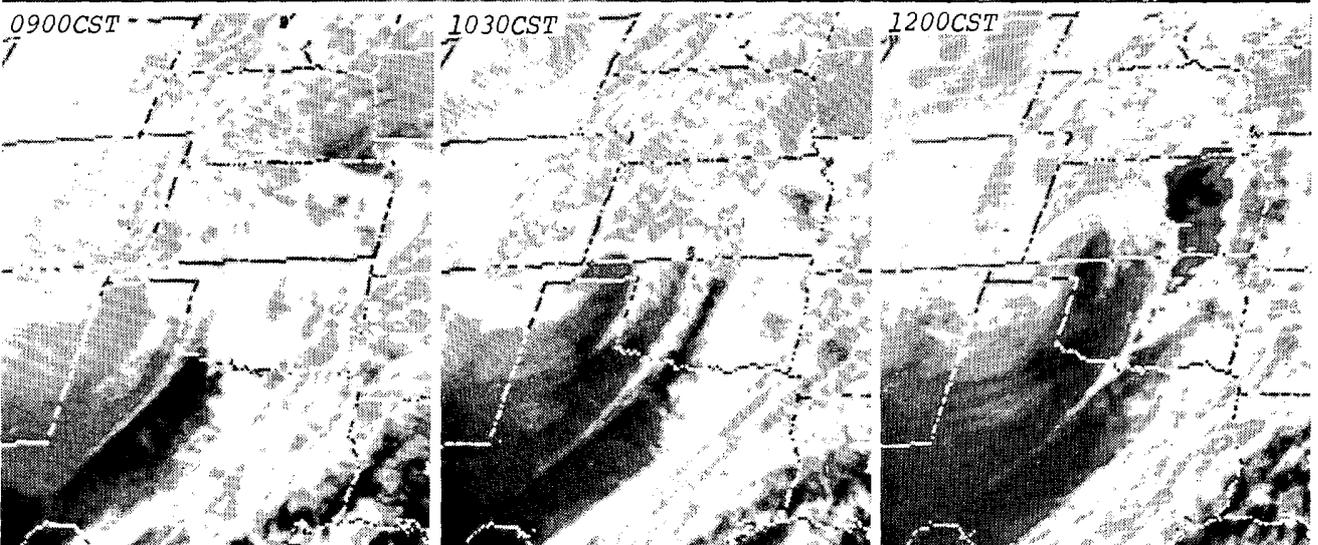
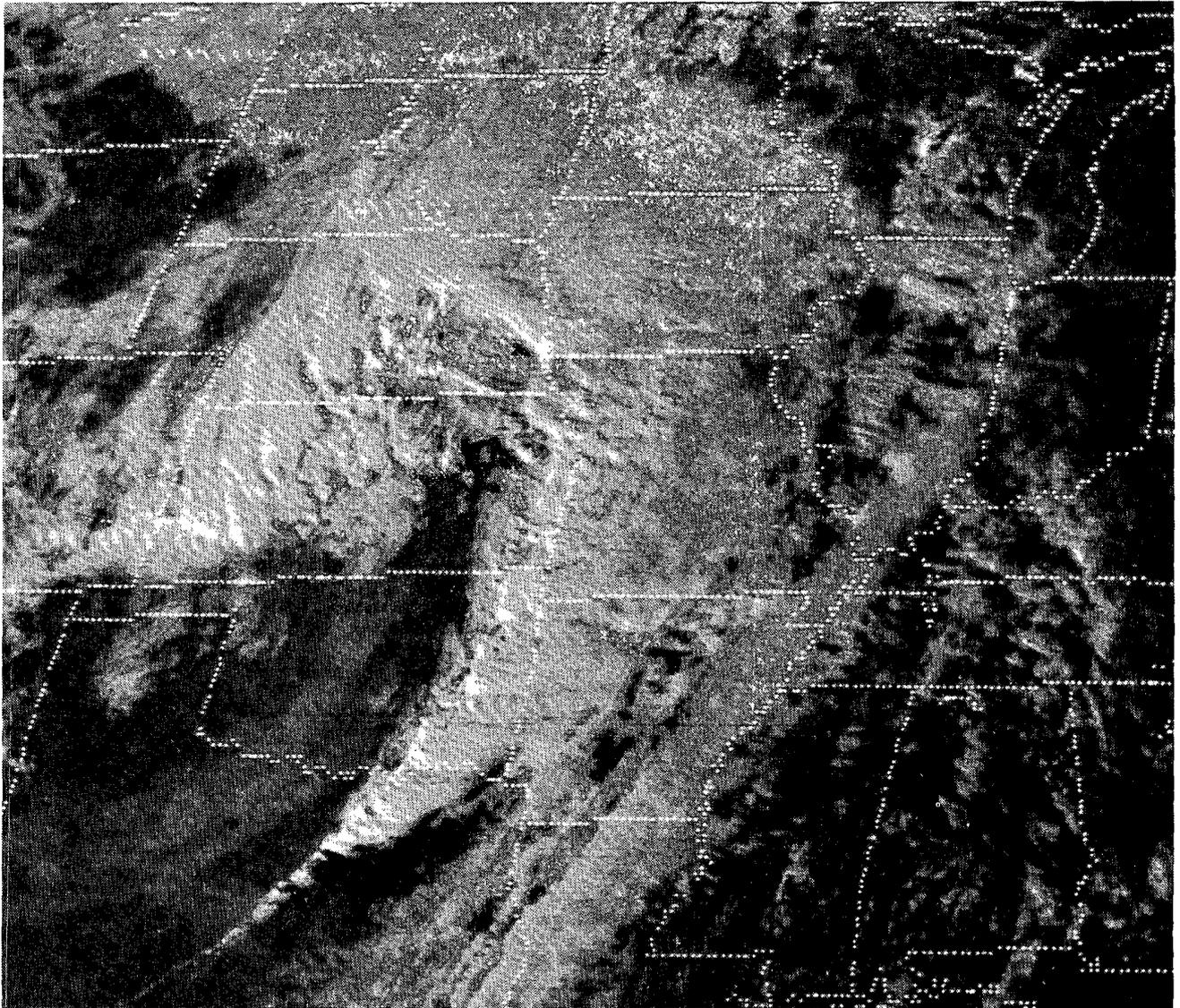
The largest outbreak of severe weather during November 1988 occurred in the nation's midsection at mid month from the mid morning hours of November 15th through the predawn hours of the 16th. The outbreak was triggered by a rapidly intensifying, mid-latitude cyclone as it made its way northeast from the Oklahoma Panhandle to Minnesota. The storms formed along a single dry line that pushed its way east and northeast from western Texas, with its severe thunderstorm phenomena occurring in a large oval-shaped area extending from northeast Texas to the southern Lake Michigan region (see map below). The phenomena consisted of large hail, mainly in the southwest third of the affected area, 44 tornadoes that were most prevalent in the middle third of the area, and damaging thunderstorm winds that were spread throughout the area. Some of the tornadoes caused deaths, injuries and extensive damage, especially in Arkansas. Some of the more significant tornadoes are featured on following pages.



Geographic distribution of reported severe thunderstorm phenomena occurring in the Central U.S. from mid morning on November 15th to the predawn of the 16th. ---Graphic by the University of Chicago from data supplied by NWSFO's at Little Rock, Arkansas; Chicago, Illinois; Indianapolis, Indiana; Des Moines, Iowa; Topeka, Kansas; Slidell, Louisiana; St. Charles, Missouri; Norman, Oklahoma; Memphis, Tennessee; Fort Worth, Texas; and Milwaukee, Wisconsin.

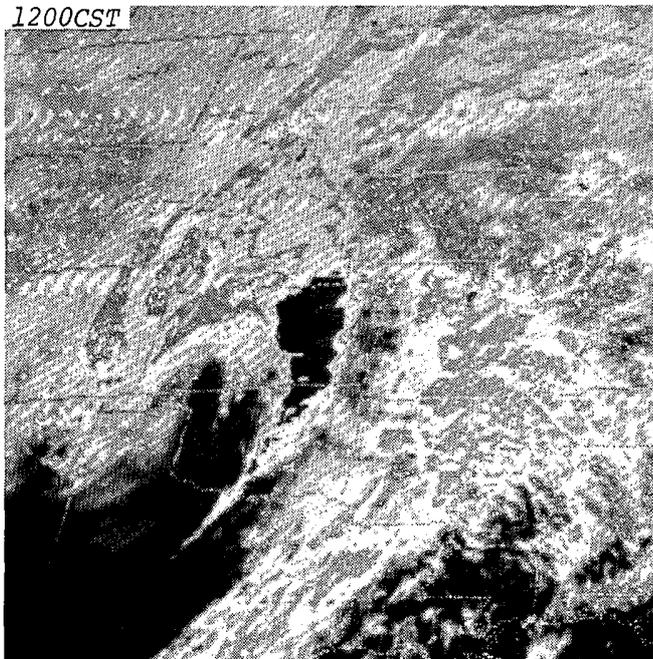
	F3	F2	F1	F0	T	Deaths	Inj.
Arkansas	1	4	2	0	7	6	88
Illinois	1	2	2	0	5	0	0
Iowa	0	3	2	3	8	0	4
Kansas	0	2	2	2	6	0	22
Missouri	1	2	9	1	13	1	23
Oklahoma	0	0	1	2	3	0	0
Texas (N)	0	0	2	0	2	0	0
Total	3	13	20	8	44	7	137

LEFT: Distribution of November 15-16, 1988 tornadoes by state and maximum F scale intensity, with related deaths and injuries by state. BELOW: A GOES 6 satellite, visible image taken at 1530CST on November 15th depicts the large comma cloud of the cyclone over the nation's midsection, for the most part consisting of anvil material produced by the well-defined line of storms that stretch from the Dallas-Fort Worth area northeastward to central Iowa. ---Photo from NESDIS, Washington, DC.

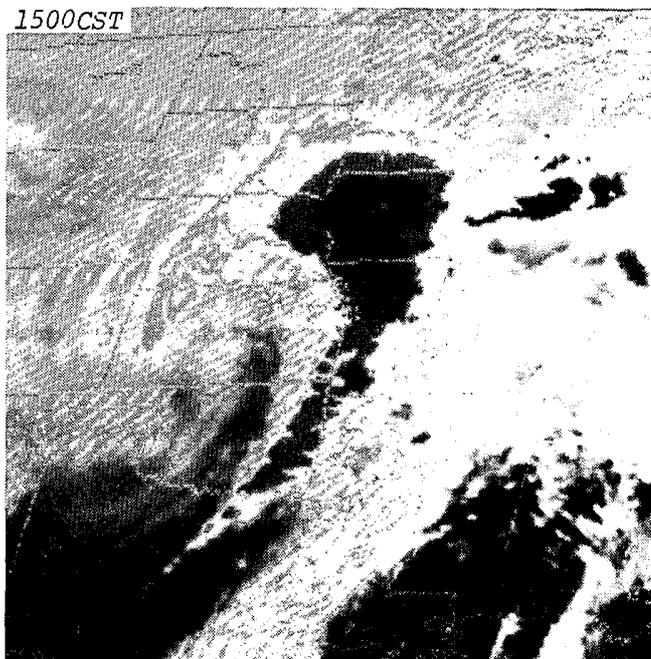


Above, the developing stage of the thunderstorm line is depicted in three GOES 6 satellite, infrared images taken during the morning of November 15th. The young, growing storms were already producing a bevy of severe thunderstorm phenomena across the western half of Oklahoma (excluding the panhandle) during the period. On the following two pages, a sequence of similar satellite images taken hourly between 1200 and 2300CST on the 15th, follow the storm line's progress and development through its most active period. ---All satellite photos from NESDIS, Washington, DC.

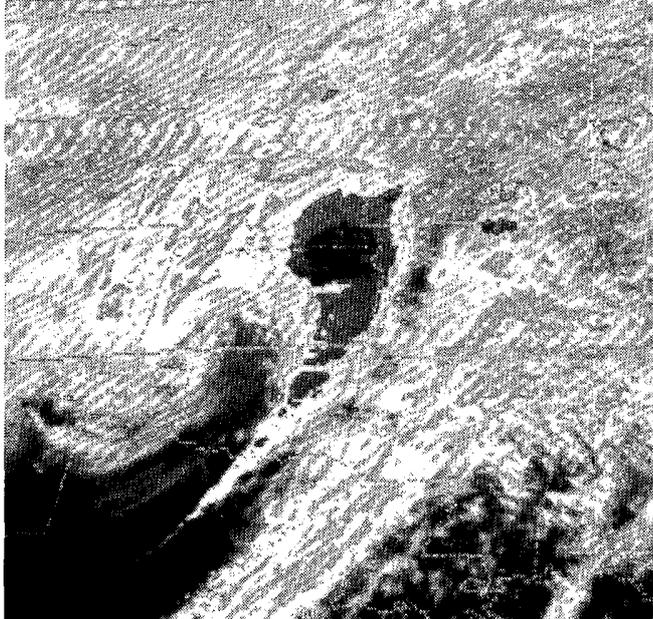
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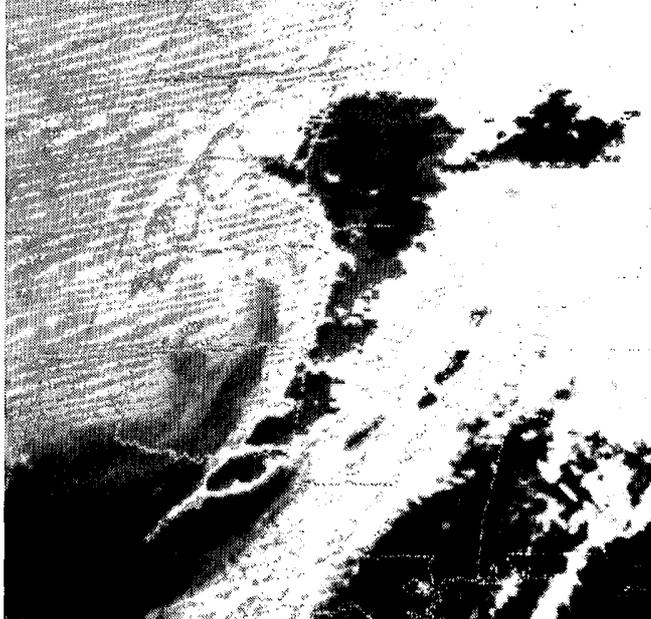
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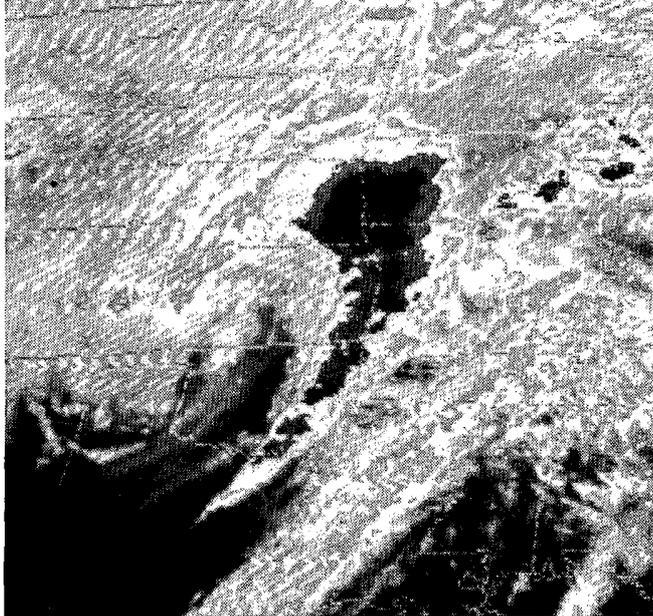
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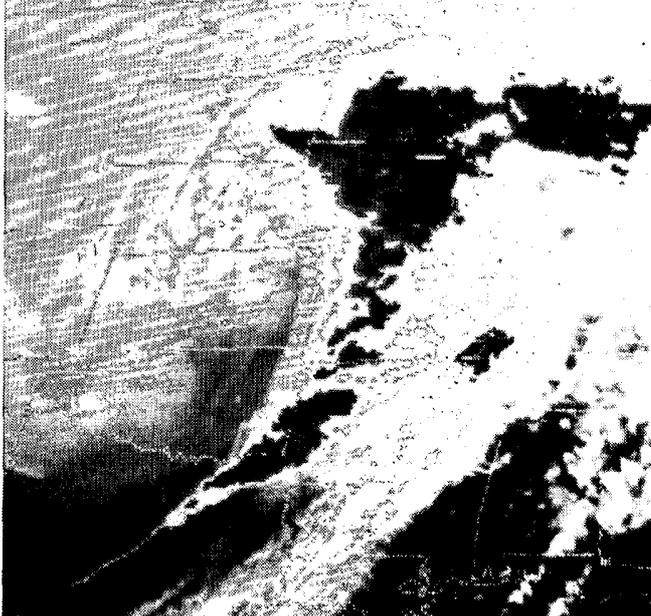
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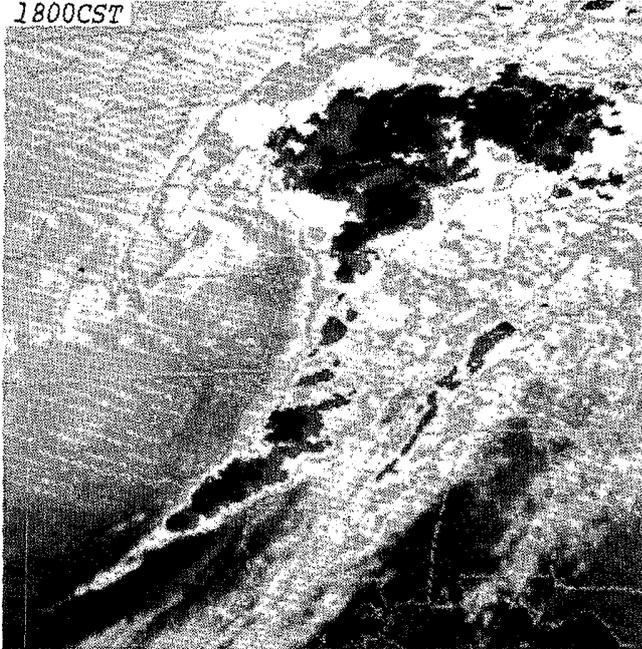
1400CST



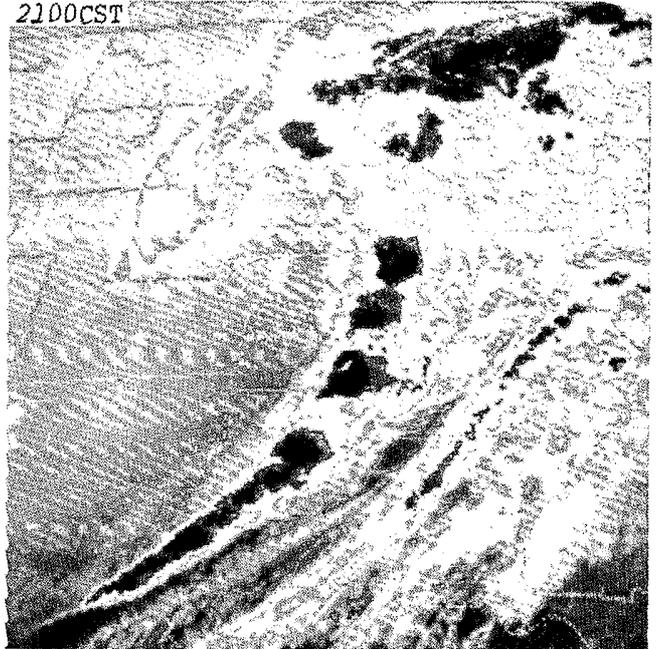
1700CST



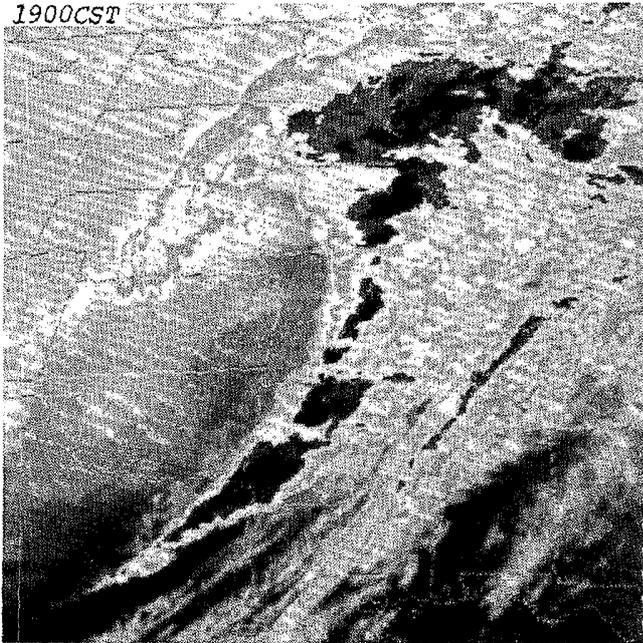
1800CST



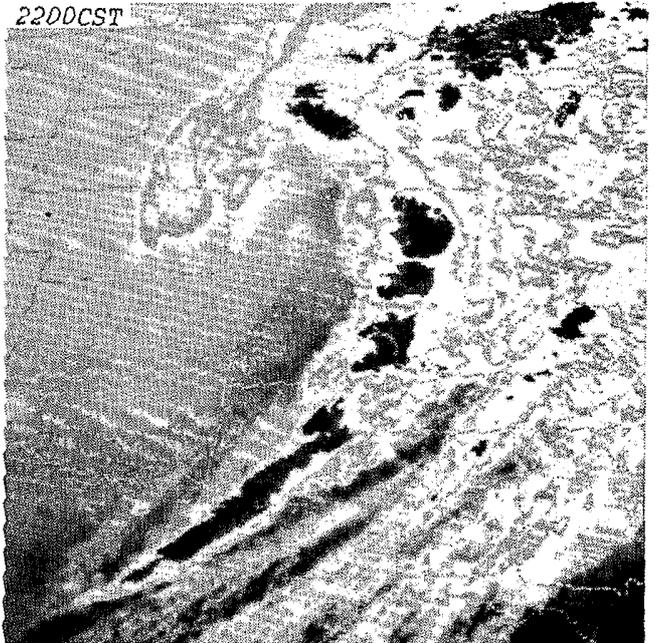
2100CST



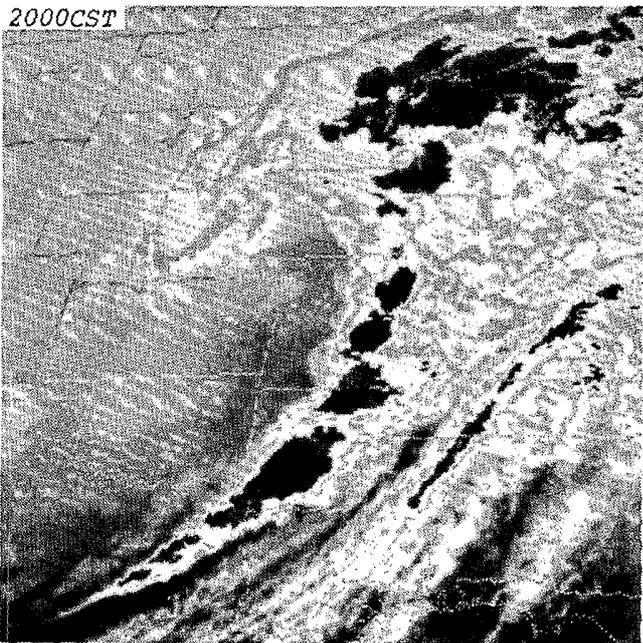
1900CST



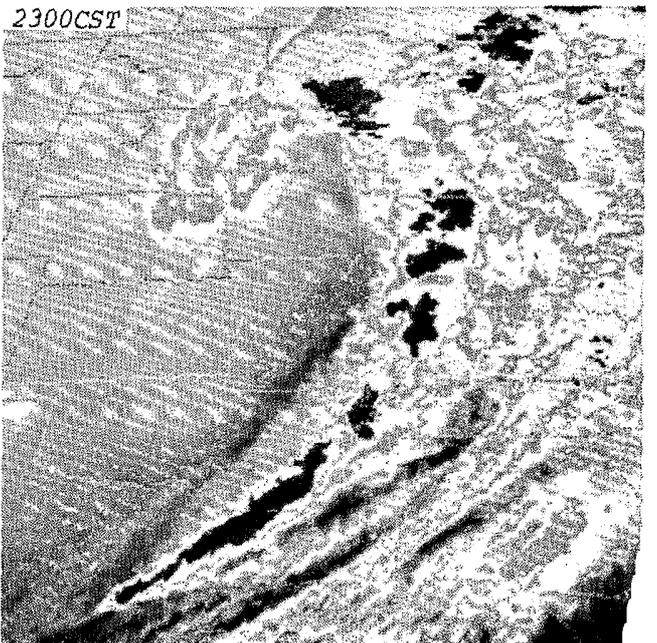
2200CST



2000CST



2300CST



Shown on this and the following page is damage caused by a tornado that touched down in southwest Topeka at 1406CST on November 15th. The narrow but at times strong (F2) tornado moved northeast through the urban area along a 5 mile path, but was only in contact with the ground about 30% of the time. The tornado did 3.9 million dollars in damage and caused injury to 22 people. The damage pictured from top to bottom at right includes: 1) a telephone pole near Topeka West High School that was snapped off about two feet above the ground; 2) a street sign that was bent nearly to the ground, a fence across the street that acted as a debris catchment, and an Arby's restaurant (background) with roof and sign damage; and 3) an aluminum light pole and wooden power pole outside of a shopping center that were bent to the ground and snapped off 6 feet above the ground, respectively. ---All three photos by Bill Barlow, NWSFO at Topeka, Kansas.

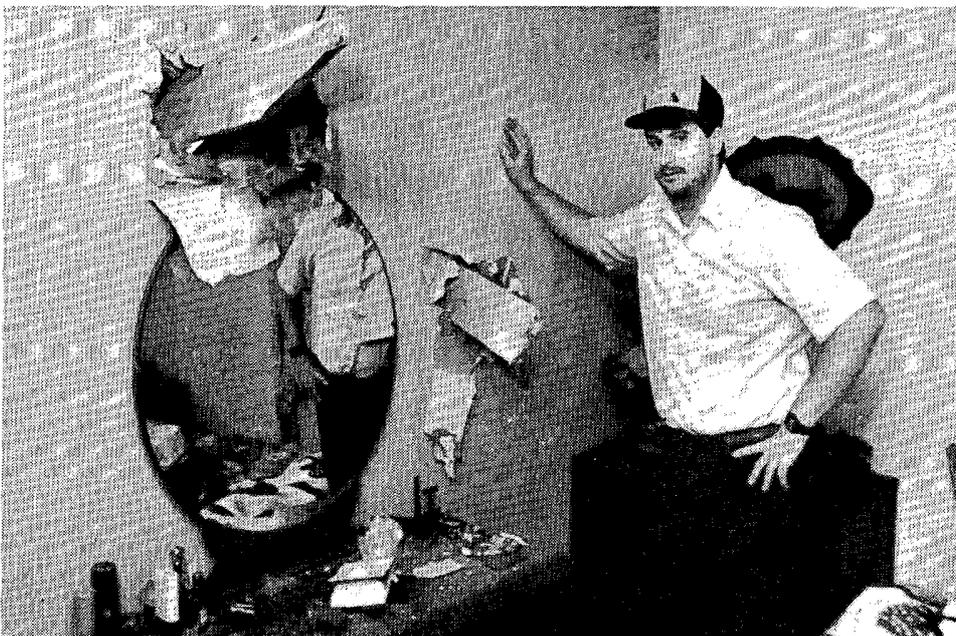




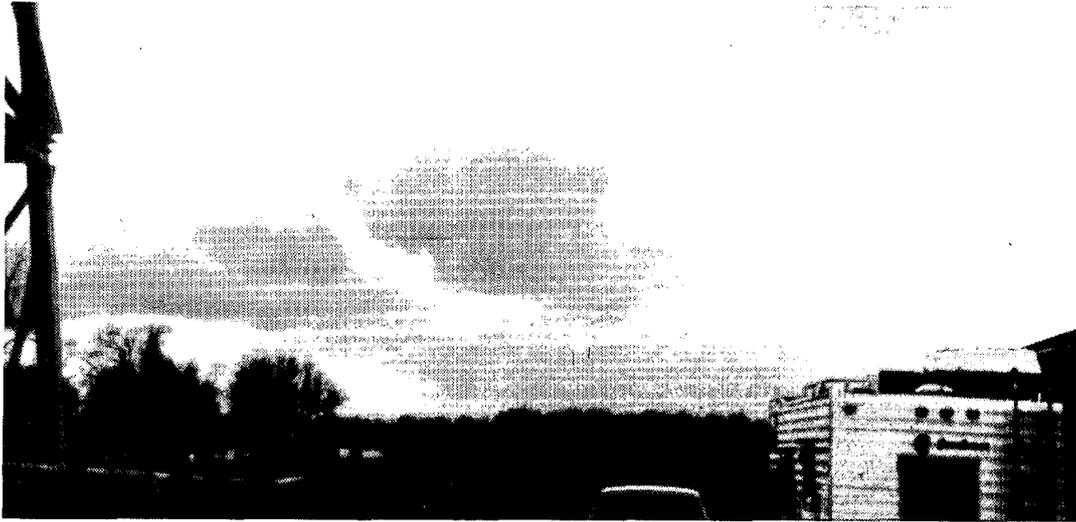
Damaged cars outside of a Topeka apartment building. The car in the foreground had a 2x4 inch board driven through its rear window, and was pushed over the curb and nearly into the window of a lower-level apartment. ---Photo by Bill Barlow, NWSFO at Topeka, Kansas.



An example of some of the worst damage caused by the Topeka tornado, this flipped over and crumpled roof was torn off of one home and thrown into the back yard of another. Damage to the home in the background, including the hole in its roof, was mainly caused by the flying debris. ---Photo by Bern Ketchum, The Topeka Capital-Journal; and supplied by the NWSFO at Topeka, Kansas.



A Topeka homeowner examines the damage done by 2x6 inch boards that were thrust into the south wall of his home by the tornado. The boards seen protruding from the wall are the former airborne missiles and not part of the wall. ---Photo by Thad Allton, The Topeka Capital-Journal; and supplied by the NWSFO at Topeka, Kansas.



Above and at left are standard and telephoto shots, respectively, of the Topeka tornado's funnel as it passed by to the north of the National Weather Service Forecast Office. At the time, the condensation funnel was visible above treetop level, but there was no apparent tornado vortex circulation extending all the way to the ground. ---Both photos by Bill Barlow, Warning and Preparedness Meteorologist at the NWSFO at Topeka, Kansas.



An empty oil drum that was driven three-quarters of the way into a tree trunk (left) and a 3 inch diameter branch that was driven through the windshield of a car (right) are two examples of airborne missile damage caused by a November 15th tornado that struck near Galesburg in southeast Kansas. ---Both photos by Steve Haulser, The Parsons Sun; and supplied by the NWSFO at Topeka, Kansas.



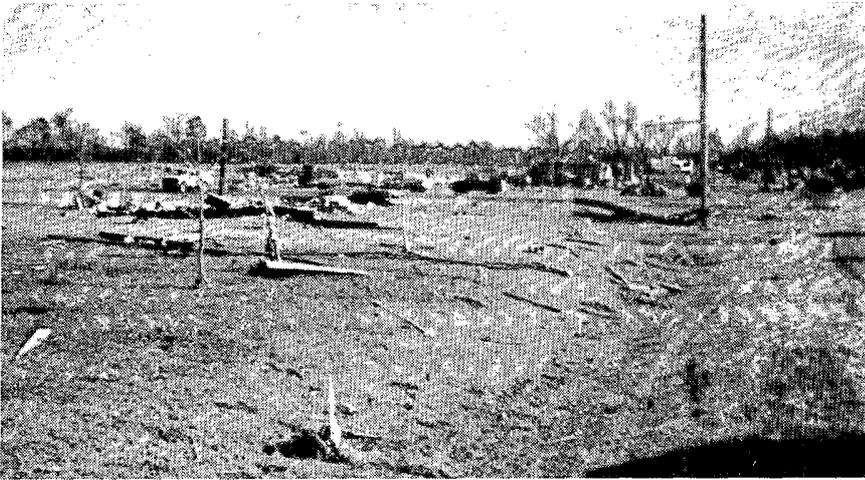
Examples of some of the damage caused by tornadoes in Arkansas on November 15th include above, the destroyed gymnasium of the Southside High School about 45 miles north of Little Rock, its other buildings already under repair as the photo was taken several days after the F3 tornado's occurrence; and at left, a home two miles west of Bismarck that was lifted and overturned by an F2 tornado, this taking place about 60 miles southwest of Little Rock.



An aerial view of the north end of "Old River" in Scott, Arkansas, about 12 miles east-southeast of Little Rock. The area was struck by an F2 tornado, the longest tracking tornado of the outbreak, that touched down south of Little Rock and traveled 27 miles to the northeast, passing through the towns of Scott and Lonoke. The tornado's path on the photo is from the left to right edge. Three fatalities occurred along the street at the photo's right edge.



Left and below are the remains of two homes along Old River Drive in Scott. Both received some of the strongest destruction dished out by the Scott-Lonoke tornado, in this case very strong F2 intensity although appearing F3, taking into consideration the construction standards of the structures.



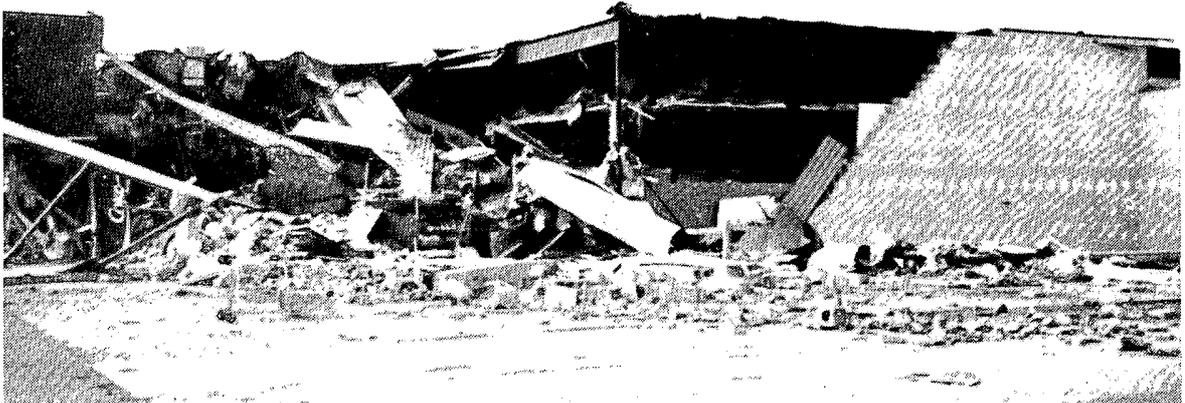
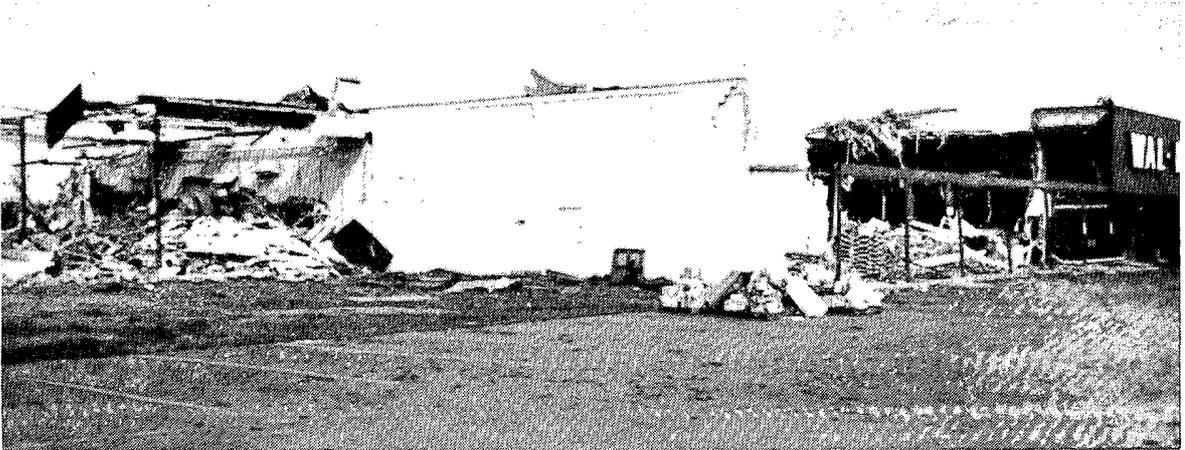
At left center of this photo is the site where a mobile home had stood along Old River Drive in Scott. It was swept away by the tornado, resulting in the death of three occupants. All that remained were the cement stairs leading up to the home. The view is toward the east.



Damaged and destroyed grain bins just west-southwest of Lonoke on Arkansas Highway 31. A large grain elevator in Lonoke was hit also.



*An aerial, eastward view of a Wal-Mart store in Lonoke that, although not totally dismantled, was essentially destroyed by the Scott-Lonoke tornado as it moved over the structure from lower right to upper left in the photo. A nearby Pizza Hut restaurant (upper left) suffered only a few ripped up shingles.*

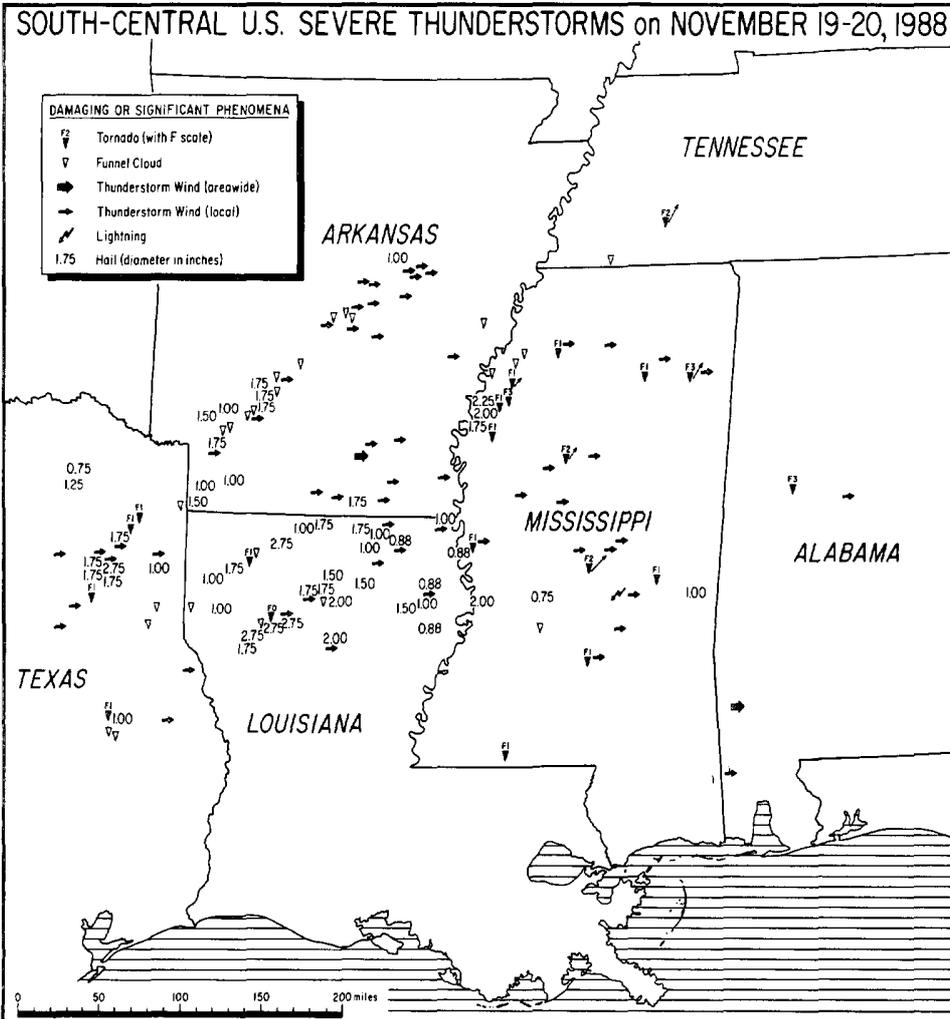


*Ground-level views of the Wal-Mart shopping complex show the southeast corner of the Wal-Mart (top) and the front of an attached supermarket (bottom).*

*---All photos on pages 17 through 19 are by Bill Lawrence, NWSFO at Little Rock, Arkansas.*

### 3. SEVERE THUNDERSTORMS in the SOUTH-CENTRAL U.S. on November 19-20, 1988

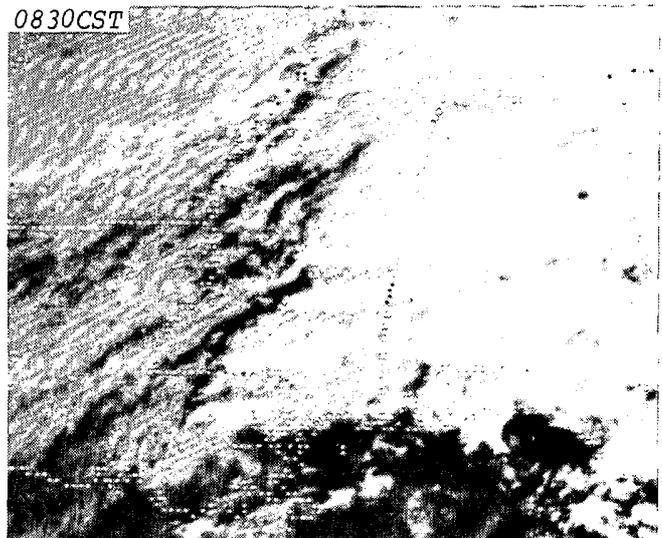
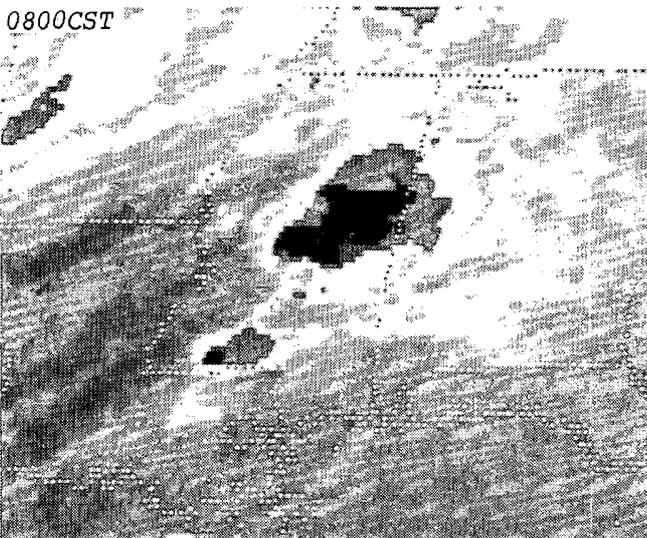
In a little over three days after the mid November outbreak, another major outbreak of damaging thunderstorms occurred from about mid morning on November 19th through the wee hours of the 20th, this time striking once again in the South-Central U.S. Along with their bounty of large hail and damaging winds, the storms spawned 21 tornadoes in five of the six affected states, including three tornadoes of F3 intensity. Damage from two of the more noteworthy tornadoes, an F3 that killed two people and injured 11 in Lee County, Mississippi and another F3 that struck the south side of Tuscaloosa, Alabama at nearly an hour past midnight, is featured on following pages.



	F3	F2	F1	F0	T	Deaths	Inj.
Alabama	1	0	0	0	1	0	8
Louisiana	0	0	1	1	2	0	0
Mississippi	2	2	9	0	13	2	16
Tennessee	0	1	0	0	1	0	1
Texas (N)	0	0	4	0	4	0	0
<b>Total</b>	<b>3</b>	<b>3</b>	<b>14</b>	<b>1</b>	<b>21</b>	<b>2</b>	<b>25</b>

Distribution of November 19-20, 1988 tornadoes by state and maximum F scale intensity, with related deaths and injuries by state.

Geographic distribution of reported severe thunderstorm phenomena occurring in the South-Central U.S. from mid morning on November 19th to the early morning of the 20th, 1988. ---Graphic by the University of Chicago from data supplied by NWSFO's at Birmingham, Alabama; Little Rock, Arkansas; Slidell, Louisiana; Jackson, Mississippi; Memphis, Tennessee; and Fort Worth, Texas.

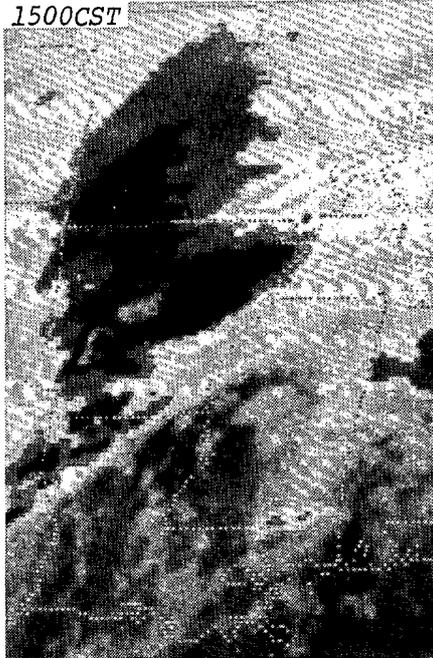


Early contributors to the outbreak were a few thunderstorms in Mississippi that popped up in a small line well ahead of the main line of storms that formed farther west. The storms, seen here in GOES 6 satellite, infrared (left) and visible (right) images taken on the morning of November 19th, produced flash flooding in several counties of central and south-central Mississippi and were responsible for the three F1 tornadoes in the south-east third of the state. ---Photos from NESDIS, Washington, DC.

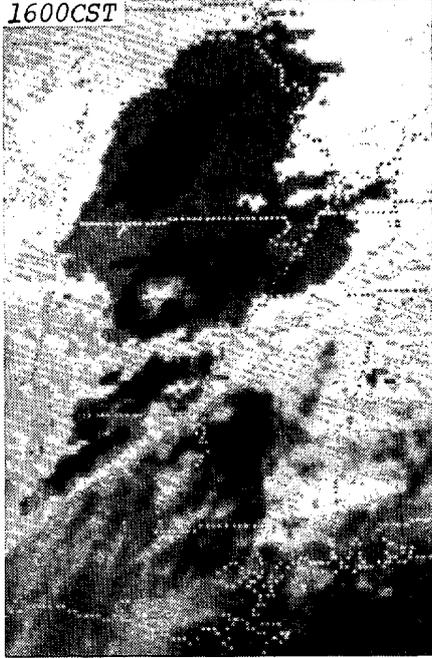
1400CST



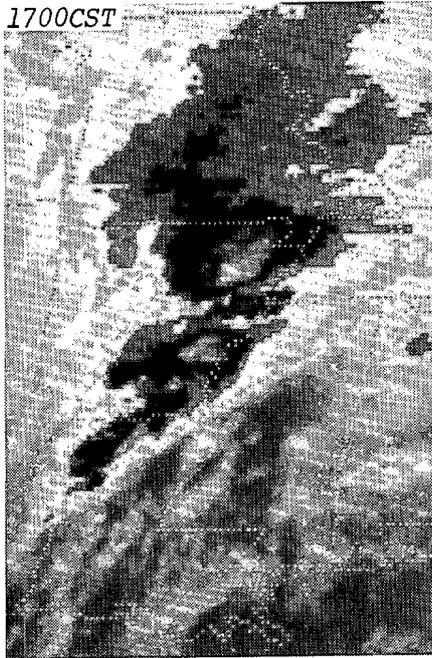
1500CST



1600CST

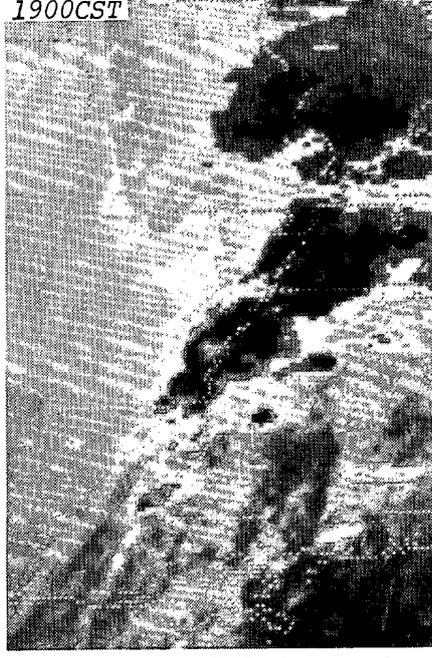


1700CST

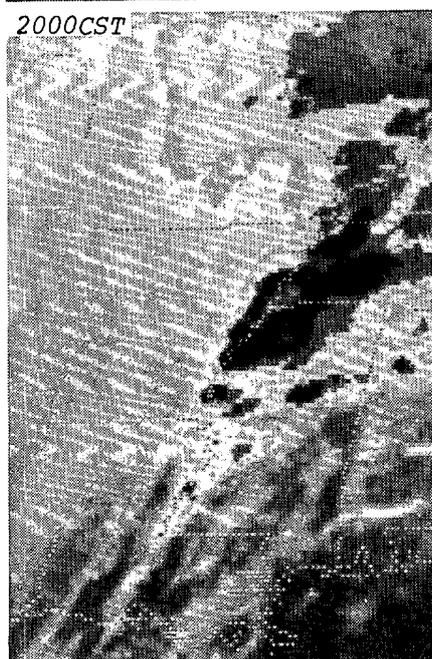


The development and movement of the outbreak's main storm line can be followed in these GOES 6 satellite, infrared images taken hourly from 1400 to 2200CST on November 19th, the period during which most of the severe phenomena occurred. The storms had spread east and northeast from northeast Texas through the Lower Mississippi Valley. The image for 1800CST is not available. ---Photos from NESDIS, Washington, DC.

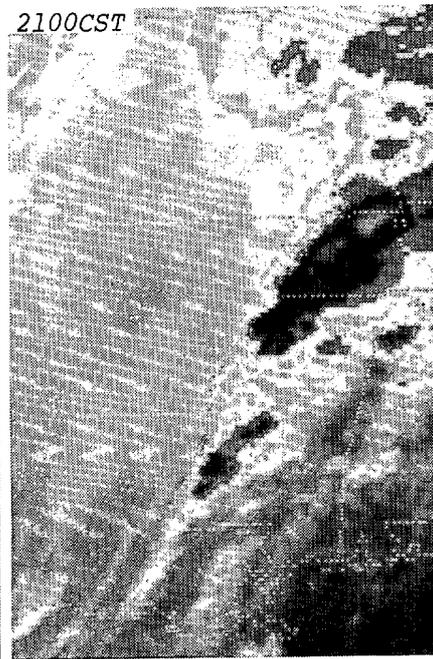
1900CST



2000CST



2100CST



2200CST



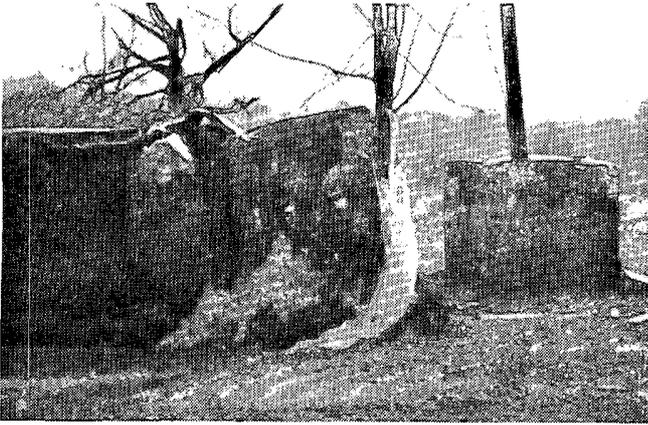
Featured below and on the following page is damage caused by the F3 tornado that struck in southeastern Lee County of northeast Mississippi at 2215CST on the 19th. The tornado destroyed 5 houses, 7 mobile homes and two businesses along a 12.5 mile path, causing an estimated 542,000 dollars in damage. Two persons were killed and 11 were injured. The shown damage is from the Temple Grove and Kedron Hills communities along Mississippi Highway 6 north of Nettleton. ---All photos on both pages by David Imy, NWSFO at Jackson, Mississippi.



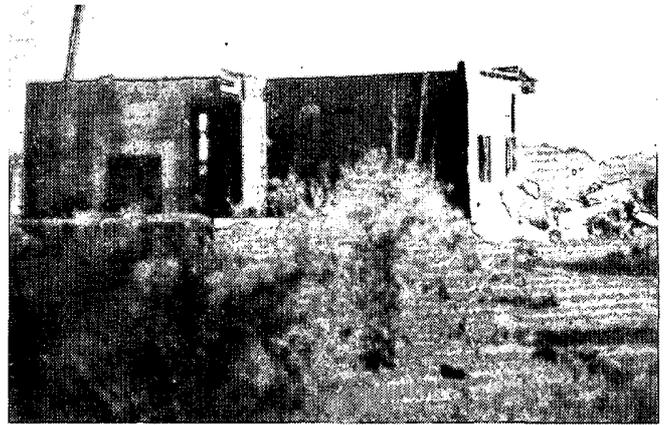
Remains of one of the seven mobile homes that were destroyed.



The site where a wood-frame house on blocks had once stood. The house was totally dismantled, its debris being spread several hundred yards to the northeast.



*A pickup truck and car lie on their sides after being tossed around like toys by the tornado.*

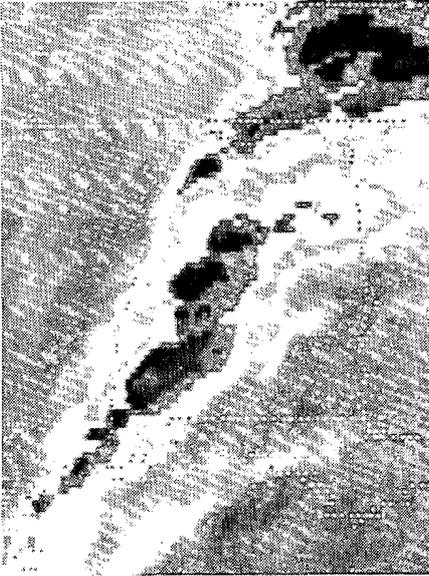


*A house with only a few of its walls left standing.*



*Two more of the 5 houses that were destroyed, these wood-frame homes had only interior walls remaining after the tornado was through with them.*

On this and the following page is damage caused by the F3 tornado that carved a short but devastating, half mile long path through the Southwood subdivision on the south side of Tuscaloosa, Alabama. Occurring at 0053CST on the 20th as the storms were becoming less active, the middle-of-the-night tornado was the last of the 21 tornadoes in the outbreak, yet the most damaging. An estimated 1.2 million dollars in damage was done by the tornado as it destroyed 12 to 15 homes, caused light damage to 20 to 25 more, and slightly affected up to 50 others. Surprisingly, there were no deaths and only 8 injuries. ---All damage photos on both pages by Calvin Hannah, Amy Kilpatrick and Wade Collins, The Tuscaloosa News, Tuscaloosa, Alabama. Satellite photo from NESDIS, Washington, DC.



A GOES 6 satellite, infrared image taken at 0100CST on November 20th, seven minutes after the Tuscaloosa tornado had touched down.



Neighbors of the Southwood subdivision, somewhat oblivious to the overturned Ford Torino nearby and eager to swap stories, gather for coffee being served from a van during the morning following the storm.



National Guardsmen assist a homeowner in removing furnishings from what was his home on 37th Place in Southwood.



*Counterclockwise from above, a young girl and her grandmother search through the splintered remains of the grandmother's home, other subdivision residents gather the few salvagable pieces of furniture from their home that they can find, and a woman and her mother-in-law discover their "Home Sweet Home" clock still ticking in the ruins of their home.*

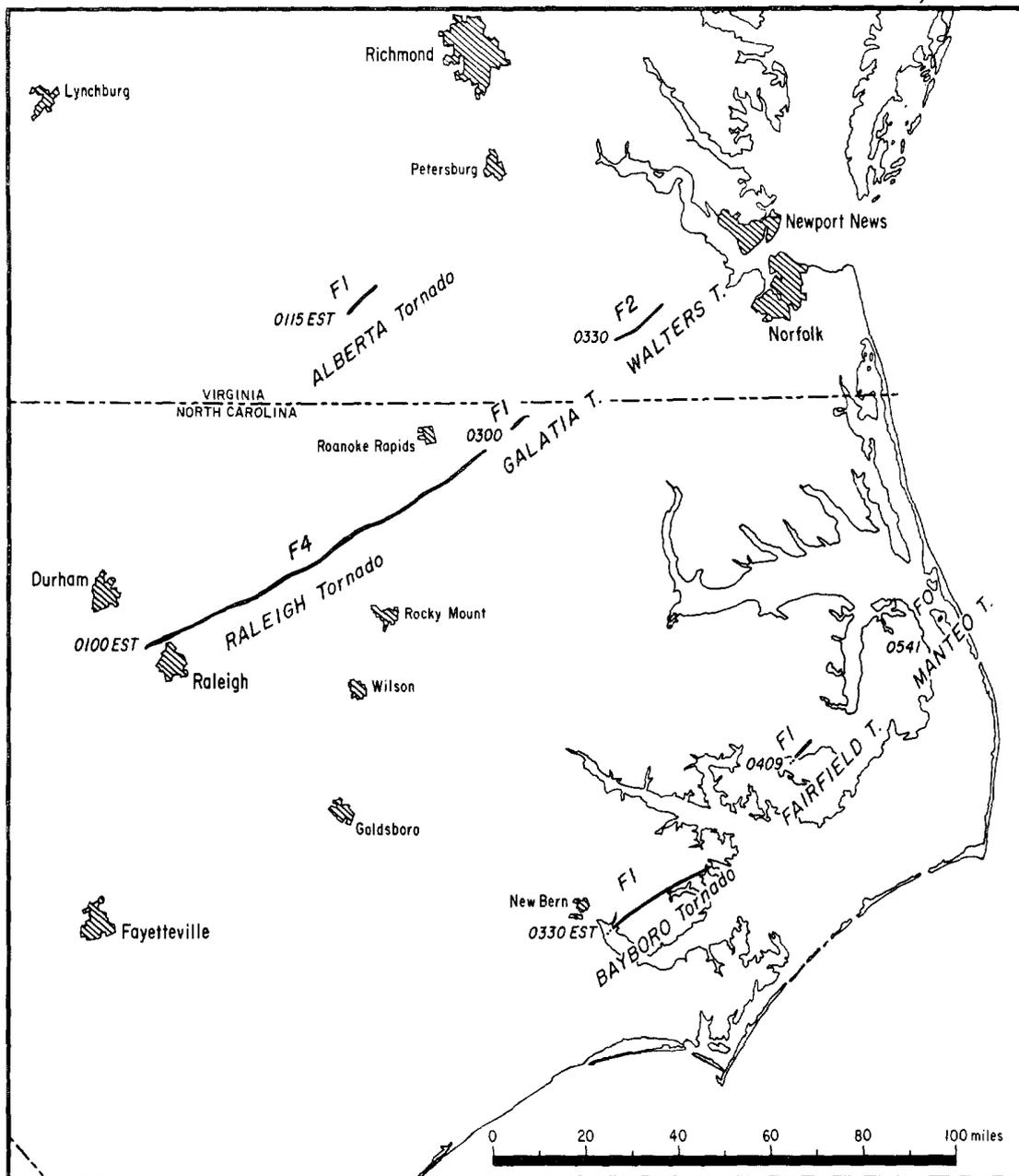


#### 4. TORNADOES in NORTH CAROLINA and VIRGINIA on November 28, 1988

As November 1988 was in its waning days it had already far surpassed its previous record for tornado production. Even so, the month had not yet closed, and its end would be highlighted by the most unusual outbreak of all, an odd-season, odd-hour, odd-location outbreak of seven tornadoes that struck eastern North Carolina and southeastern Virginia during the nighttime hours November 28th. Even more outstanding was the fact that one of the tornadoes passed through a highly urbanized area of northwest Raleigh causing a tremendous amount of destruction. This tornado, moving at approximately 50 mph, reached a maximum intensity of F4 while in the Raleigh area and traveled a total distance of 83 miles, making it one of only three F4 tornadoes to occur this year and also the longest-tracking tornado of the year\*. The worst of its damage was inflicted shortly after the tornado had touched down 3 miles southeast of the Raleigh-Durham Airport, along a four mile portion of its path extending northeast from where it crossed U.S. Highway 70. In all, the tornado moved through five North Carolina counties, causing 4 deaths, 154 injuries and an estimated 77.2 million dollars in damage. A total of 426 residences and 78 businesses were destroyed, and another 2057 residences were damaged.

The other tornadoes in the outbreak were far less dramatic and destructive than the Raleigh tornado, but were none-the-less significant to those who were affected. Two struck in Virginia, an F1 at Alberta and an F2 that moved through Walters and Windsor. The additional four in North Carolina included three F1's that passed near or through Galatia, Bayboro and Fairfield, and an F0 that hit Manteo on Roanoke Island. The Raleigh, Galatia and Walters tornadoes were family tornadoes, all being produced by a single parent storm, as were the Bayboro, Fairfield and Manteo tornadoes in far eastern North Carolina. The Alberta tornado was a loner. Interestingly, there were no other reports of severe thunderstorm phenomena accompanying the tornadoes, except for one of a damaging thunderstorm wind that downed trees and destroyed a mobile home.

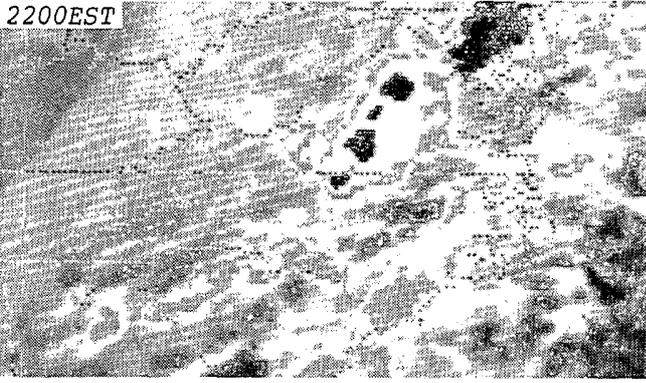
#### NORTH CAROLINA-VIRGINIA TORNADOES on November 28, 1988



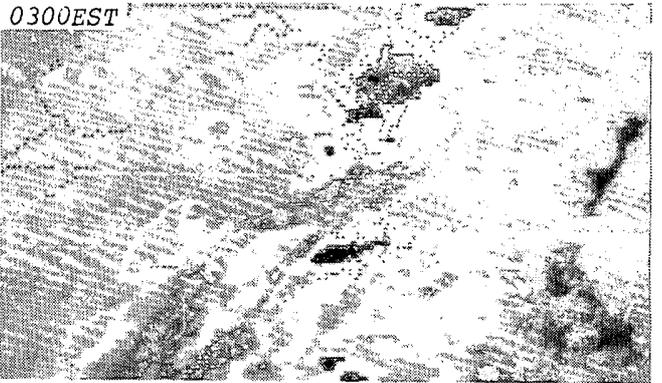
Mapping from aerial survey conducted 11/29 to 12/01 by the U of C, and additional National Weather Service data.  
Wind Research Laboratory, University of Chicago

\* With consideration taken of preliminary but complete data received for December 1988.

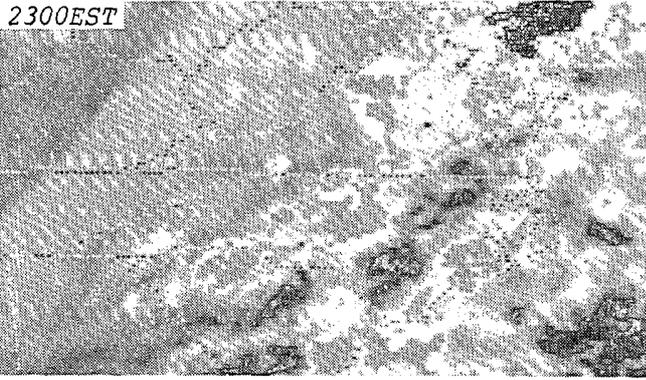
2200EST



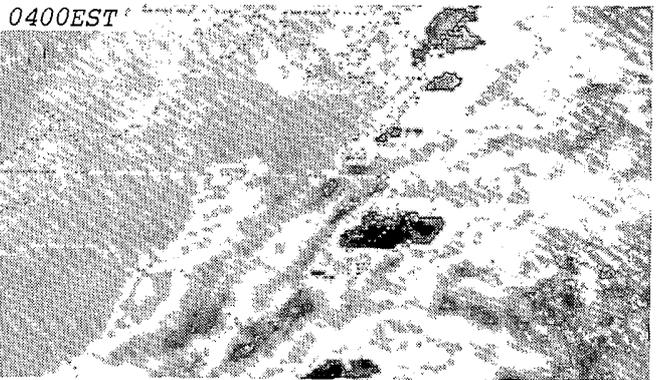
0300EST



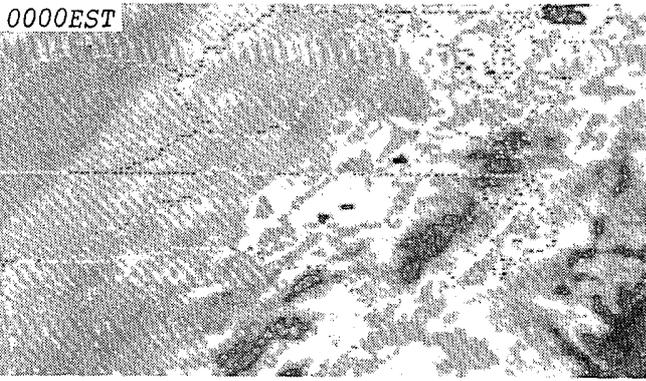
2300EST



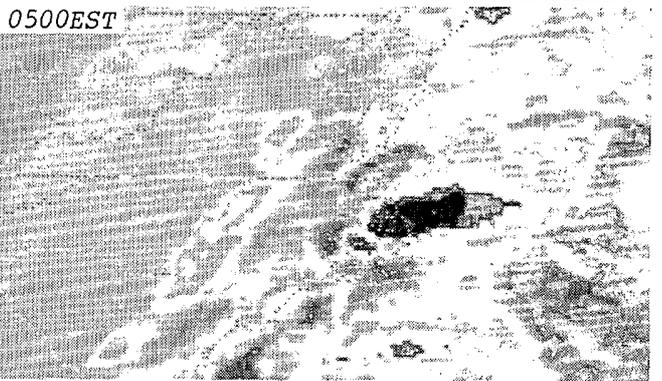
0400EST



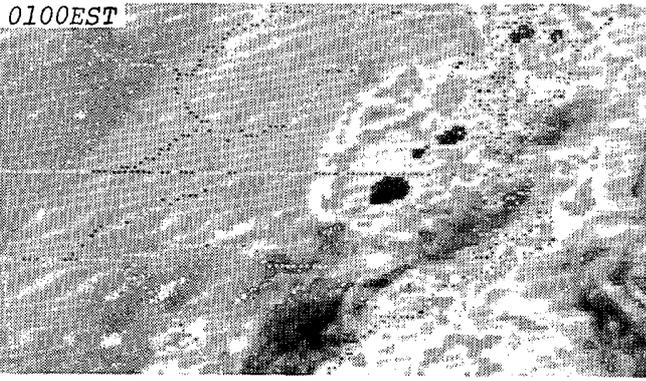
0000EST



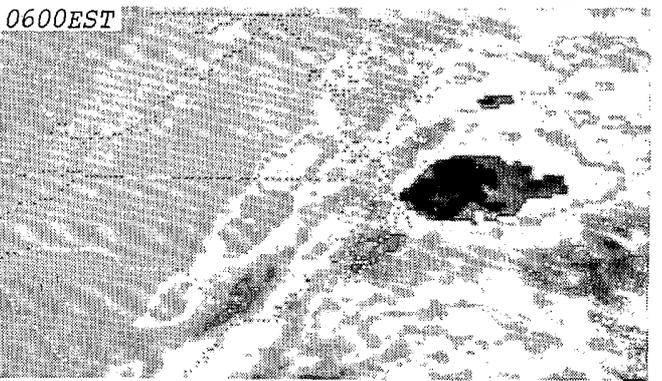
0500EST



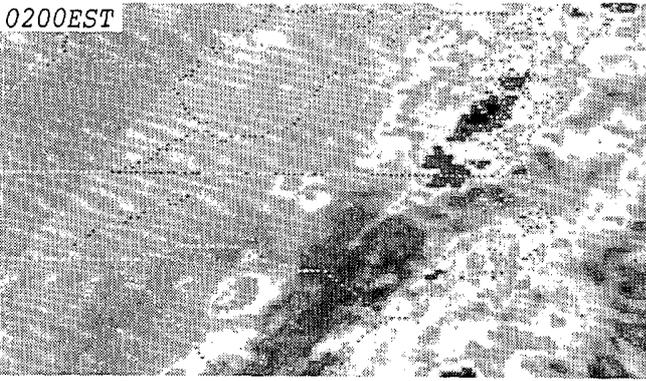
0100EST



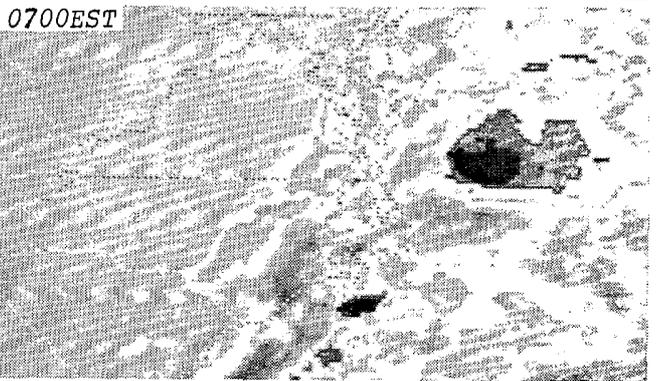
0600EST



0200EST



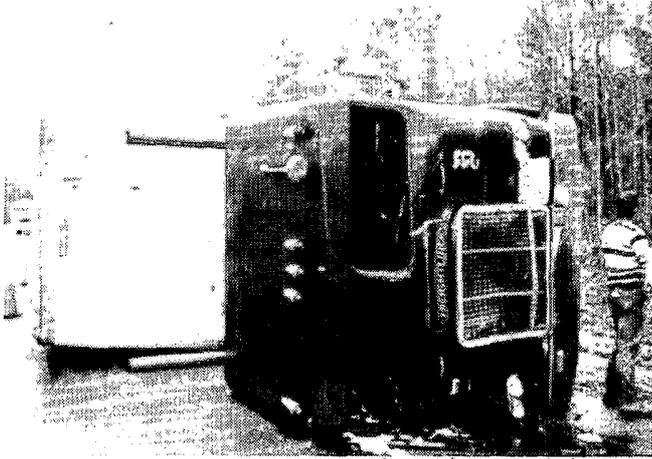
0700EST



In GOES 6 satellite, infrared images taken hourly between 2200EST on November 27th and 0700EST on the 28th, the fast-moving, tornado-producing storms are shown by their enhanced, cloud top temperature patterns which were ever changing as the storms passed through the Carolinas and Virginia and eventually out into the Atlantic.

---Photo credits for pages 28 through 35:

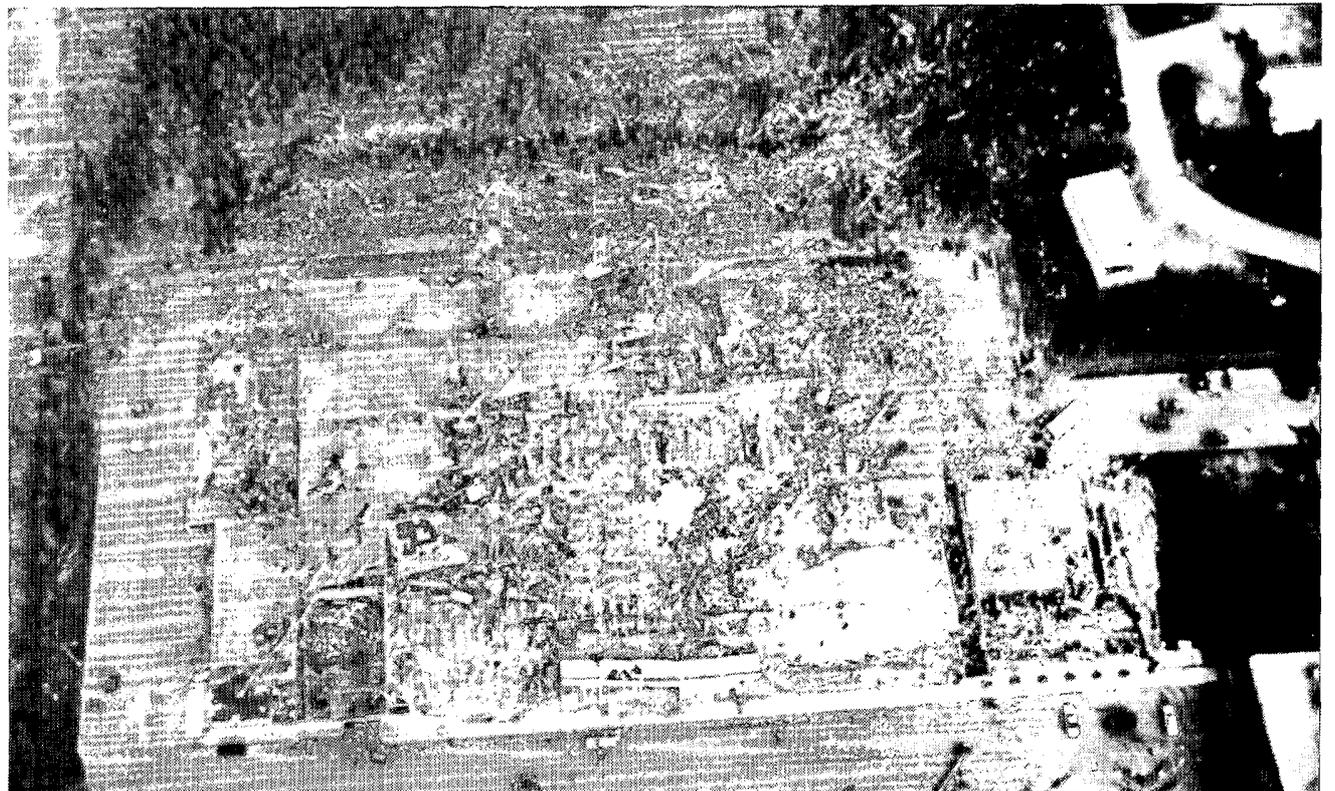
Ground-level photos marked (UC) and all aerial photos by Duane J. Stiegler, The University of Chicago, Chicago, Illinois; all other ground-level photos by Roy L. Britt of Richmond, Virginia.



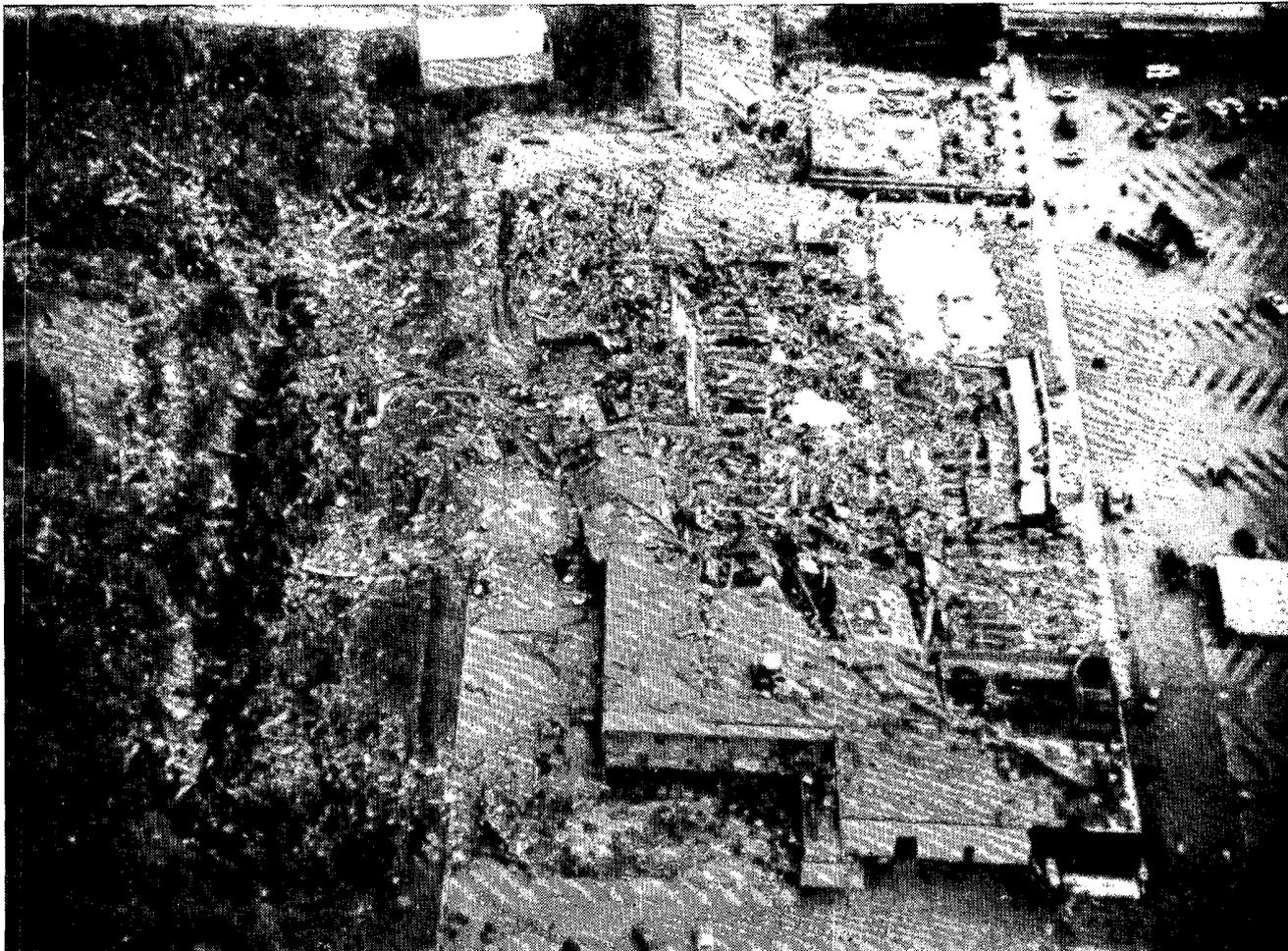
Victims of the Alberta, Virginia tornado were this tipped over tractor-trailer truck on Interstate 85 near Virginia Highway 46 southwest of Alberta (left) and a two-story farm building that was destroyed on the west end of Alberta (right).



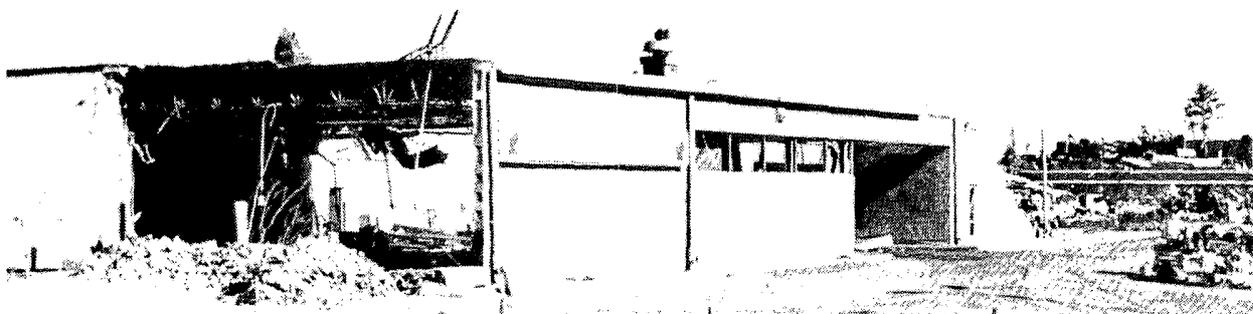
North (left) and northwest views of damage done to a building housing a lighting service company on U.S. Highway 70 in northwest Raleigh. All following photos through page 32 are also of damage in northwest Raleigh.



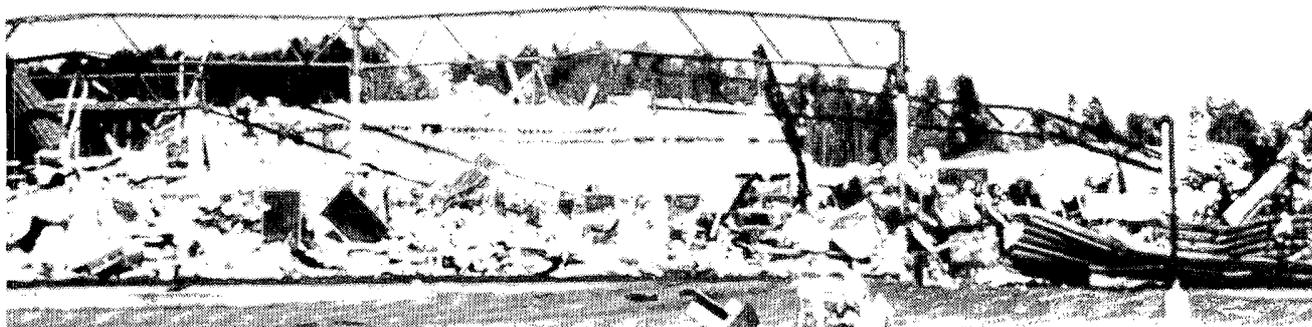
Viewed toward its front which faces south, this K mart store along U.S. 70 was ripped to shreds by the tornado as it moved over the structure from lower left to top in the photo.



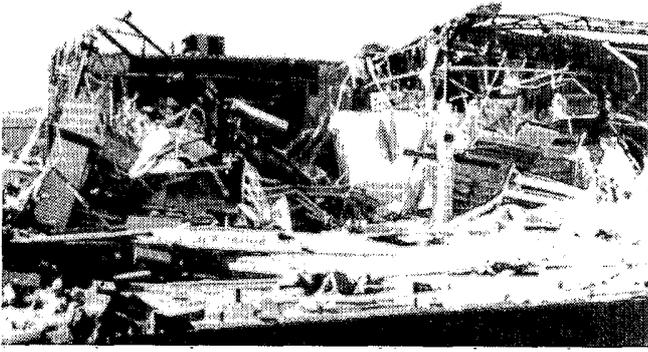
*An additional aerial view of the K mart building from its west side. The open fetch of the parking area and wind-dowded entranceway, both on the upwind side of the building, most likely contributed to the wind's ability to infiltrate the structure and peel away the roof.*



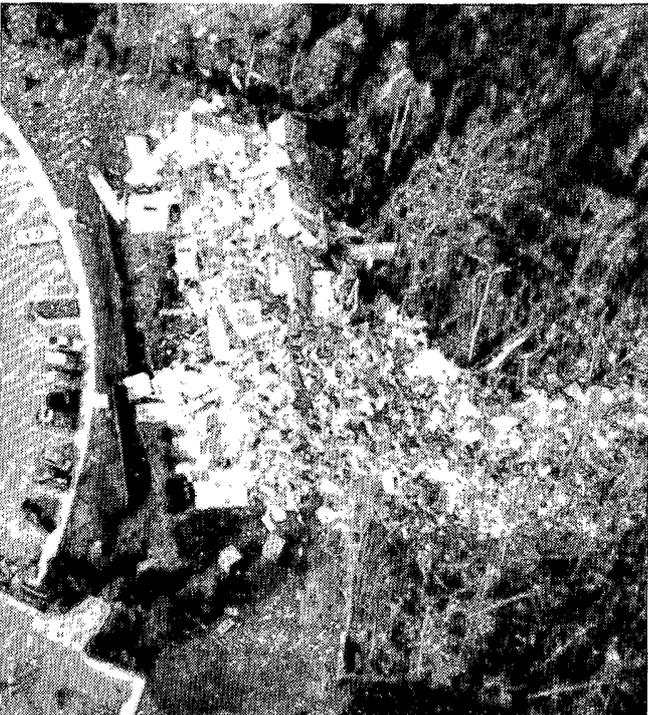
*At ground level, a portion of the K mart's west wall is seen to have blown outward at the southwest corner of the building. The front entranceway located at the right edge of the photo is gone.*



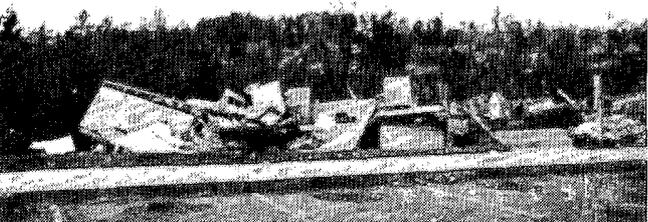
*The K mart as viewed from the front parking area.*



Westnorthwest (left) and west views of the east side of a row of four small stores adjacent to the K mart in the Townridge Square shopping center. The concrete block, east wall (left, foreground) was blown outward.



These Cooper's Pond apartment buildings show a similar pattern of damage to those in the photos at left, a completely collapsed building adjacent to others with far less damage. The pattern suggests the possibility that the tornado may have had suction vortices within its wall, or that the buildings were merely constructed to a standard such that they survive intact or totally fail based on a certain threshold of horizontal force. In this case the tornado's wind would have to have been at that threshold. Below, homes further along the tornado's path tend to support the suction vortex theory.



Just northeast of the Townridge Square shopping center, the Cooper's Pond Apartments received varying degrees of damage as seen in the top photo. The totally demolished units at the left edge of the photo also appear in the middle photo. At bottom is a ground level view of the front of the building.



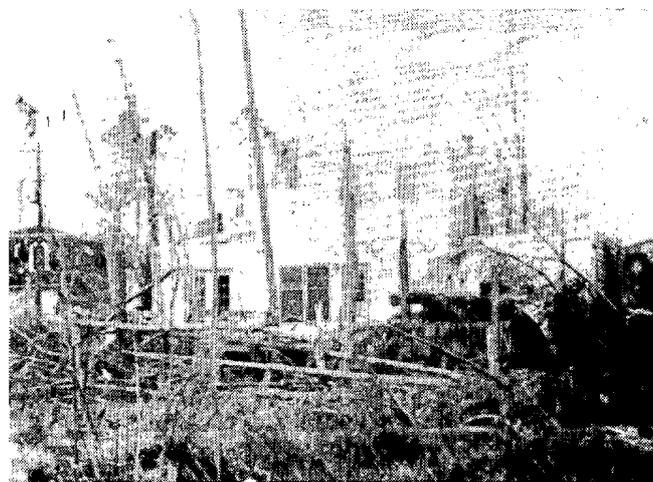
Three rows of townhouses in the Pickwick Village area of northwest Raleigh that for the most part suffered the loss of roofs. The units leftmost in the photo however, lost many walls as well and were shoved off of their foundation.



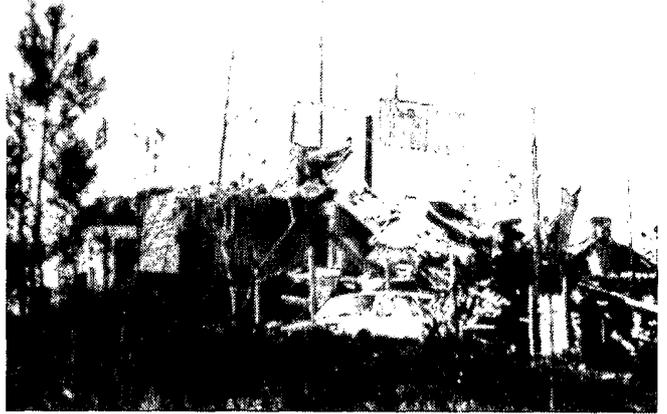
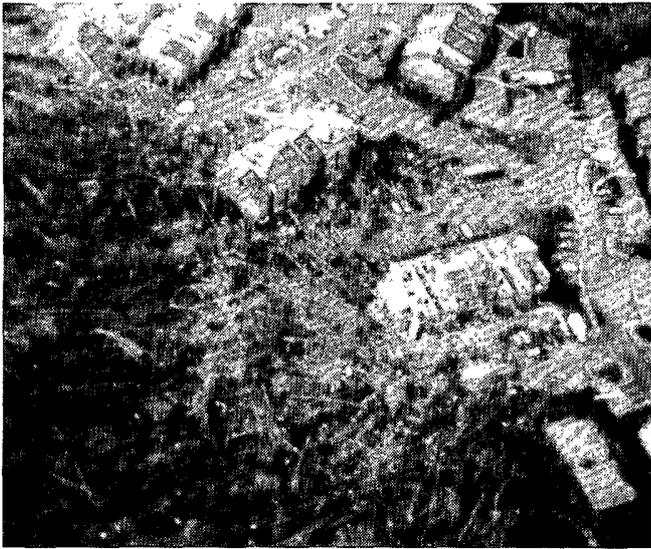
The easternmost unit of the townhomes that had slid off their foundation as seen in the aerial photo above.



A snapped pine near the Pickwick Village townhomes. ---(UC)



Two homes just east of the Pickwick Village townhomes, one with that "bombed out" appearance created by the impact of flying debris (left) and the other missing its roof which was ripped away (right). ---Left photo (UC).



*Apartments along Jeffreys Road that received mostly roof damage of F1 to F2 intensity. Note that in the large forested area next to the apartments nearly every tree, both pine and deciduous, was either snapped off or uprooted.*



*Above are aerial and ground-level views of damaged and destroyed homes in the Hampton Oaks subdivision of northwest Raleigh, just north of Lynn Road and west of Creedmore Road (NC Highway 50). The large portion of a home shown in the bottom photo was impaled on the stump of a tree that had been snapped.*



Among the most expensive homes destroyed by the Raleigh tornado were these along Valley Lake in the Hidden Valley subdivision north of the city. As substantial as they were, a few were completely dismantled and/or swept from their foundations.



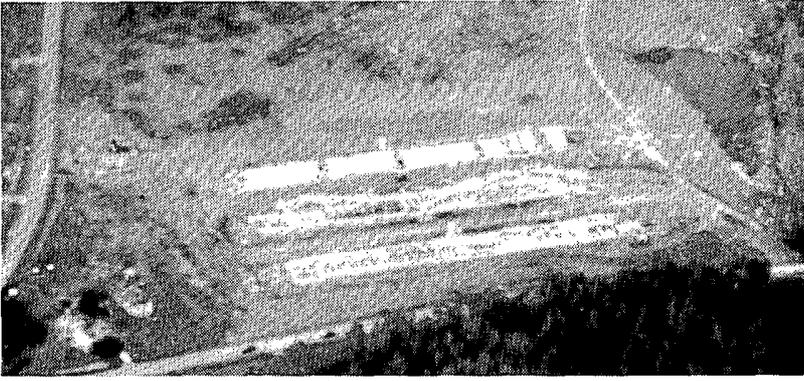
Just east of Six Forks Road along Morning Dove Drive in north Raleigh, many homes surrounding this cul-de-sac were totally destroyed as the tornado underwent a momentary reintensification, all nearby homes having received far less damage. One home was blown off its foundation and ended up mostly intact but in the middle of the street; the next home downwind was completely dismantled and blown clean away from its foundation. The view is toward the north; the tornado moved from the lower left to upper right corner of the photo.



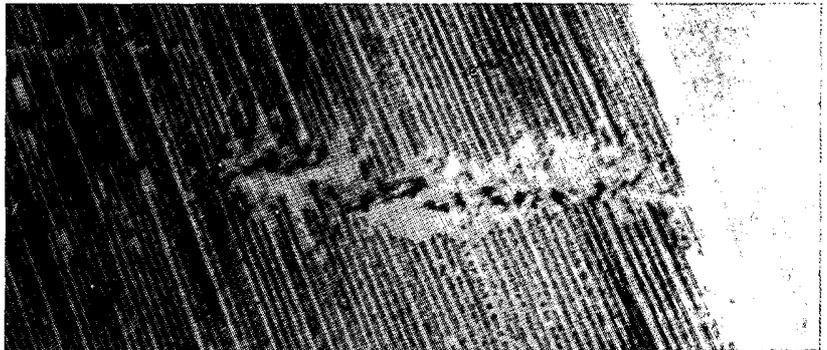
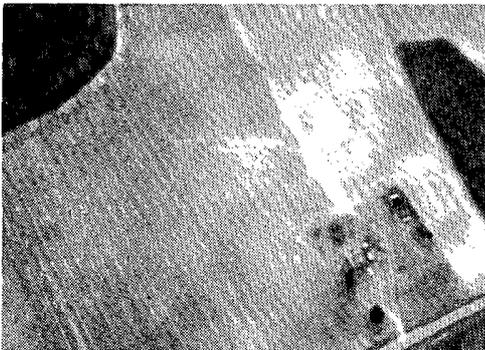
Tree damage near a farm northeast of Raleigh, just east of NC Highway 96 and west of the Franklin County line between U.S. 401 and NC 98.



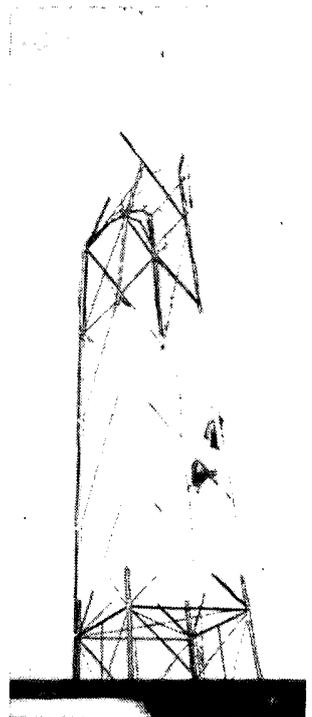
An unroofed home just north of NC Highway 98 about 2.5 miles west of New Hope in Franklin County.



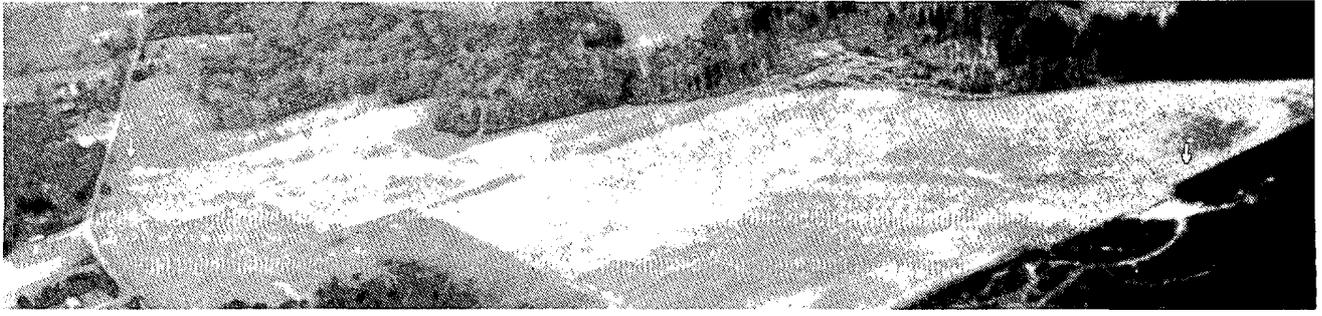
Left and below are aerial and ground-level views, respectively, of a demolished chicken farm at Ita in Halifax County. Both views are toward the north, and the chicken house below is the same as that lowermost in the photo at left.



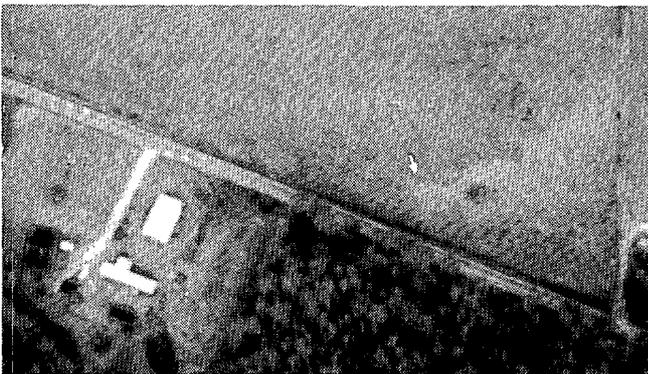
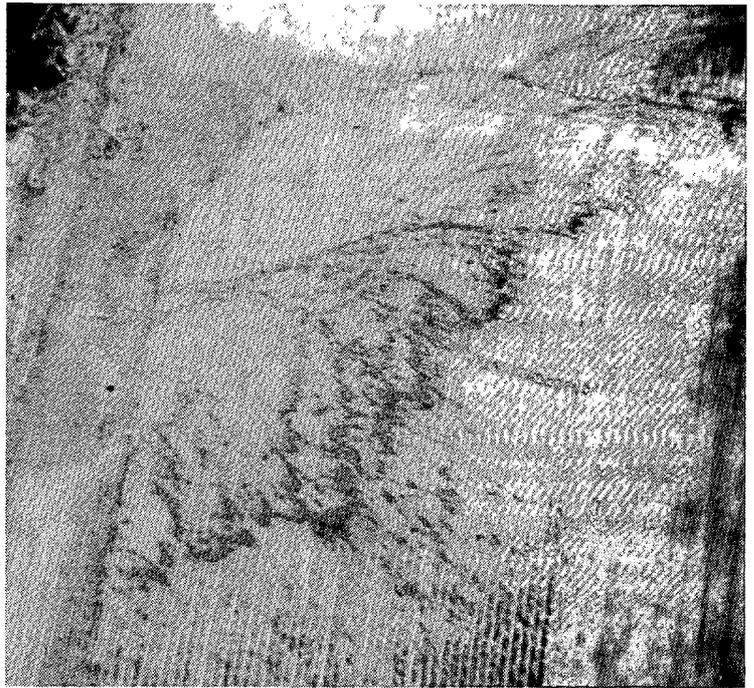
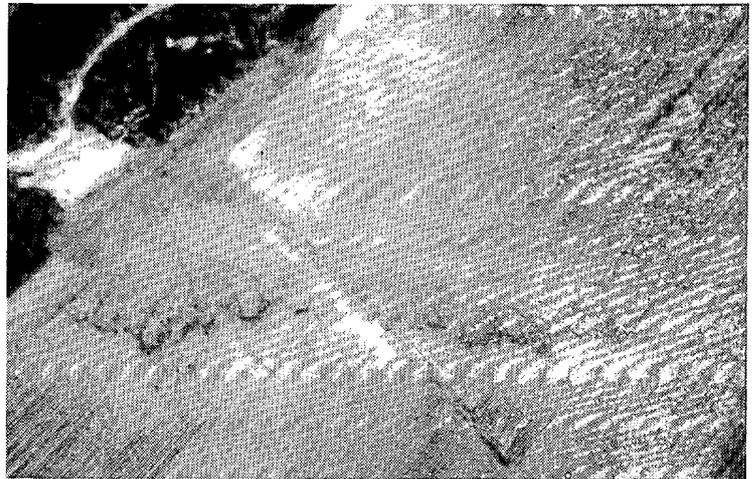
Two overhead views of a farm field show a pattern left in cut and tilled crops by the Galatia tornado while in its final, rope stage about one mile northwest of Lewters Crossroad in Northampton County. The small vortex turned right toward the southeast in its final moments and, upon entering the field, gathered the crop into a line that abruptly ended as the tornado dissipated, precisely marking the end of its path. Southwest is toward the top of each photo.



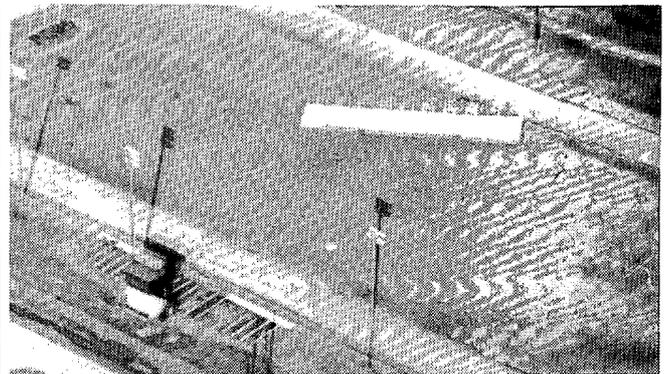
Damage caused by the Walters, Virginia tornado included a destroyed, 100 year old house on U.S. Highway 460 on the northwest side of Windsor (left) and a clipped off tower of the Community Electric Cooperative in Windsor (right).



Clockwise from above are northwest, southeast, south and southwest views of the first half mile of the path of the Walters, Virginia tornado, and suction swath marks contained within it. The tornado started at the left arrow and moved toward the right one in the photo above. Before moving into a deforested area, it began producing suction vortices which created the looping swath marks of gathered crops that had been cut and teded in the field.



An overhead view of the starting or touchdown point (arrow) of the Walters tornado shows how narrowly it missed coming down on a farmstead with a mobile home.



Interesting damage caused by the Bayboro, North Carolina tornado was this set of bleachers that was picked up and thrown into the athletic field at the Pamlico County High School in Bayboro.

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	

## ALABAMA

Cherokee County	04 1305CST				0	0	?	0	TSTM Wind	A portion of a nursing home roof was blown off at Centre. Trees and power lines were also blown down nearby.
Houston County	04 1338CST				0	0	0	0	Hail (0.75)	Dime size hail fell at Rehobeth.
Baldwin County	04 1345CST				0	0	0	0	Hail (1.50)	Walnut size hail fell three miles north of Stockton.
Pickens County	04 1515CST				0	0	0	0	Hail (0.75)	Dime size hail fell at Kirk.
Lamar County	04 1525CST				0	0	0	0	Hail (0.75)	Dime size hail fell at Detroit and Sulligent.
Russell County	04 1545CST				0	0	?	0	Hail (2.75)	Baseball size hail fell in north Russell County. There was hail damage to vehicles.
Lee County	04 1545CST				0	0	?	0	Hail (2.75)	Baseball size hail fell in southern Lee County about five miles west of Phenix City.
Colbert County										
Barton	04 1600CST				0	0	0	0	Hail (1.00)	
3 W Tusculumbia	04 1630CST				0	0	0	0	Hail (0.75)	
Muscle Shoals	04 1650CST				0	0	0	0	Hail (2.00)	
Fayette County	04 1620CST				0	0	0	0	Hail (0.75)	Dime size hail fell in the City of Fayette.
Franklin, Colbert and Lawrence Counties	04 1620CST-1725CST	60	200	0	16	6	0	0	Tornado (F3)	The tornado touched down just inside the Alabama line at the junction of Colbert and Franklin counties. It then continued northeast touching down on the southeastern edge of Tusculumbia. The tornado then moved into northern Lawrence County touching down four miles north of Town Creek on Highway 101. The tornado lifted in extreme northern Lawrence County near the junction of Lauderdale, Lawrence, and Limestone counties. The worst damage occurred at a truck stop in Colbert County at the intersection of Highways 20 and 133. Fuel pumps, a service building, and a restaurant were demolished. Four people were injured in a car wreck due to the storm and twelve people were injured when the restaurant was destroyed. There were no deaths. Over the entire path about 9 homes were totally destroyed, 13 received major damage and 25 received minor damage. One business was totally destroyed. Several mobile homes were destroyed. Two tractor trailers were destroyed and 12 were damaged. Numerous barns and outbuildings were damaged or destroyed. Numerous trees were uprooted. Total damage estimates were placed at 2 million dollars in Colbert County and 200 thousand dollars in Lawrence County.
Lauderdale County	04 1630CST	0.3	200	0	0	?	0	0	Tornado (F0)	A small tornado touched down at Murphys Chapel about 12 miles northwest of Florence and moved east-southeast a short distance. Two houses were damaged. Trees and power lines were also downed.
Tuscaloosa County	04 1639CST				0	0	0	0	Hail (0.75)	
	04 1639CST				0	0	-	-	Funnel Cloud	
	04 1640CST				0	0	0	0	Hail (0.75)	
	04 1700CST				0	0	0	0	Hail (0.75)	
	At 1639CST dime size hail fell and a funnel cloud was seen at Samantha in northern Tuscaloosa County. Dime size hail fell in the City of Tuscaloosa at 1640CST. At 1700CST dime size hail fell 8 miles south of the Tuscaloosa airport.									
Pickens County	04 1715CST				0	0	0	0	TSTM Wind	Trees were blown down in the City of Aliceville.
Walker County	04 1725CST				0	0	0	0	TSTM Wind	Trees were blown down at Sumiton.
Jefferson County	04 1733CST				0	0	-	-	Funnel Cloud	
	04 1740CST				0	0	0	0	TSTM Wind	
	At 1733CST a funnel cloud was seen at Oak Grove about 10 miles northwest of Bessemer. At 1740CST trees were blown down at Oak Grove and the Warrior River area of western Jefferson County.									
Greene County	04 1740CST				0	0	0	0	TSTM Wind	
	04 1745CST				0	0	0	0	TSTM Wind	
	At 1740CST trees were downed at scattered locations in Greene County. At 1745CST power lines and trees were blown down 3 miles east of Eutaw.									
Bibb County	04 1800CST				0	0	0	0	TSTM Wind	Power lines were blown down at West Blocton.
Marengo County	04 1808CST				0	0	?	0	TSTM Wind	A large tree blew down and blocked a street in Demopolis. Also an awning was blown off a service station in the same area.
Limestone County	04 1815CST				0	0	0	0	Hail (1.75)	Golf ball size hail fell about 10 miles northwest of Athens.

## ALABAMA

Marengo County	04 1825CST				0	0	0	0	Hail (0.75)	Golf ball size hail fell in the Linden area.
Chilton County	04 1830CST				0	0	0	0	Hail (0.75)	Dime size hail fell at Jewison.
Perry County	04 1840CST				0	0	0	0	TSTM Wind	Several trees were blown down 5 miles south of Marion.
Bibb County	04 1845CST				0	0	0	0	TSTM Wind	
	04 1850CST				0	0	?	0	TSTM Wind	
	At 1845CST power lines were blown down about 2 miles north of Centreville. At 1850CST trees and power lines were blown down in Centreville causing slight damage to a home.									
Marion County	04 1850CST				0	0	0	0	TSTM Wind	
	04 1850CST				0	0	0	0	Hail (0.75)	
	Trees were blown down at scattered locations in Marion County. Dime size hail fell 7 miles west of Hamilton.									
Russell County	04 1900CST				0	0	0	0	Hail (0.75)	Dime size hail fell at Hurtsboro.
Washington County	04 1905CST-1915CST	12.0	200	0	0	0	0	0	Tornado (F2)	
	04 2010CST				0	0	0	0	Hail (0.75)	
	A tornado touched down one-fourth mile north of Millry and moved east-southeast 12 miles to Saint Stephens. There were no injuries. Large trees were uprooted. At 2010CST dime size hail fell at Saint Stephens.									
Pike County	04 2035CST				0	0	0	0	Hail (0.75)	Dime size hail fell in the City of Troy.
DeKalb County	05 1350CST				0	0	0	0	Hail (1.75)	Golf ball size hail fell at Fort Payne.
Lamar County	12 1756CST				0	0	0	0	TSTM Wind	Large trees were uprooted near Vernon.
Pickens County	12 1805CST				0	0	0	0	TSTM Wind	Trees were blown down at scattered locations throughout Pickens County.
Tuscaloosa County	20 0053CST	0.5	400	0	8	6	0	0	Tornado (F3)	
	A tornado touched down in the south part of the City of Tuscaloosa and moved northeast about one-half mile. There were no deaths, but eight persons were injured. There were 12 to 15 homes totally destroyed. Another 20 to 25 houses received light to moderate damage. Another 40 to 50 homes were considered slightly affected. The path width varied from about 200 yards in the initial stage to about 600 yards at the maximum width. Final damage estimates were placed at 1.2 million dollars.									
Washington County	20 0100CST				0	0	?	0	TSTM Wind	Numerous trees were blown down. One large tree moderately damaged a mobile home.
Fayette County	20 0123CST				0	0	0	0	TSTM Wind	Trees were blown down at Wayside in northern Fayette County.
Mobile County	20 0130CST				0	0	0	0	TSTM Wind	Trees were blown across a road about 8 miles north of Wilmer.
Bibb County	20 0200CST				0	0	0	0	TSTM Wind	Trees and power lines were blown down in northeast Bibb County near Montevallo.
Walker County	26 1755CST	0.3	15	0	0	?	0	0	Tornado (F0)	
	A small tornado touched down in the Macedonia Community about 9 miles north of Jasper. It moved northeast about one-third mile. The tornado destroyed a barn, blew the top from a mobile home, and uprooted trees. There were no injuries.									

## ARIZONA

AZZ005 Mogollon Rim Flagstaff	14 2010 MST				1	0	?	0	Snow	
	A strong cold front moved through Northern Arizona during the late afternoon. Temperatures fell from 41 degrees to 27 degrees in just 2 hours. Rain changed to snow in a short time while roads quickly became slippery. At the airport, only an inch of new snow was reported. However, I-40 became very icy. A van struck an icy patch between Butler Ave. and Country Club Road, slid off the pavement and overturned. One man died in this traffic accident. MB4W									
AZZ005 Mogollon Rim Flagstaff	18 0900 MST				0	0	?	0	Snow	
	Snow and icy roads made travel very difficult along I-40 and I-17. Department of Public Safety officials reported at least 67 mostly minor traffic accidents throughout the day that were due to slippery roads.									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>3 ARKANSAS</b>									
Van Buren Co. Fairfield Bay	04	1347CST			0	0	?	?	Hail (1.00)
Independence Co. Floral	04	1430CST			0	0	?	?	Hail (0.75)
Pulaski Co. 1-430 Little Rock	04	1438CST			0	0	?	?	Hail (0.75)
Pulaski Co. Markham Street - Little Rock	04	1442CST			0	0	?	?	Hail (1.75)
Greene Co. 12 WSW of Paragould	04	1505CST			0	0	0	0	Funnel Cloud
Craighead Co. 6 NE of Jonesboro	04	1520CST			0	0	?	?	Hail (1.75)
			A very cold layer of air at mid-levels in the atmosphere allowed large hail to fall to the ground as thunderstorms rolled through the state.						
Crawford Co. Mountainburg	09	2015CST			0	0	0	?	Hail (0.75)
Sebastian Co. 2 E of Hackett	09	2034CST			0	0	0	?	Hail (0.88)
Johnson Co. 1 N of Clarksville	09	2120CST			0	0	?	?	Thunderstorm Wind
			High winds downed trees just north of Clarksville.						
Johnson Co. Coal Hill	09	2120CST			0	0	0	?	Hail (0.88)
Pope Co. Dover	09	2140CST			0	0	0	?	Hail (0.75)
			Severe thunderstorms moved through western Arkansas and dropped large hail at various locations.						
Yell Co.	09	2155CST			0	0	4	?	Thunderstorm Wind
			Thunderstorm winds heavily damaged two homes and destroyed two chicken houses and a camper trailer. The damage occurred 2 1/2 miles northeast of Belleville. Numerous trees were also destroyed. Damage estimate was \$20,000.						
Pike Co.	09	2230CST			0	0	3	0	Lightning
			Nine head of cattle were lost as lightning struck a tree under which they were standing. The storm killed the cattle on a farm in Glenwood. Damage was estimated at \$3,000.						
Howard Co.	09	2300CST			0	0	4	?	Thunderstorm Wind
			Damaging thunderstorm winds tore the brick front off a recreation hall in Nashville. Other businesses also sustained minor wind damage. Trees and power lines were also downed in Nashville.						
Garland Co.	09	2325CST			0	2	3	0	Thunderstorm Wind
			Violent winds that accompanied a severe thunderstorm uplifted a house trailer and threw it 50 feet onto an adjoining home. A woman inside the trailer suffered a crushed hip, while her daughter had a leg broken as both were trapped briefly by the damage. This storm hit along Highway 5, near the Saline County line.						
Cleburne Co.	12	0705CST			0	0	?	?	Thunderstorm Wind
			High winds downed a few small trees on Highway 337 and at the intersection of Highways 25 and 107, both just south of Heber Springs.						
Benton Co.	15	1555CST			0	0	6	?	Thunderstorm Wind
			Violent winds from severe thunderstorms tore through Benton County causing significant damage to several communities. Bella Vista was hit hardest. Countless trees were downed and several homes were damaged. A number of barns and outhouses were destroyed. Most of the damage to homes was to the roof or carports. One large recreational vehicle was overturned by the violent winds as the carport overhead was destroyed. Total damage county wide was estimated at \$500,000.						
<b>— ARKANSAS</b>									
Benton Co. Bentonville	15	1627CST			0	0	0	0	Thunderstorm Wind (55)
Crawford Co. 5 N Van Buren	15	1630CST			0	0	0	0	Hail (0.75)
Polk Co. 5 S of Mena	15	1729CST			0	0	5	3	Hail (2.00)
5 S of Mena	15	1738CST							Hail (2.75)
8 N of Mena	15	1753CST							Hail (2.75)
			A severe thunderstorm, which later produced tornadoes, dropped hail as large as baseballs in several spots in Polk County. Baseball size hail was reported five miles south of Mena and eight miles north of Mena, while golfball size hail fell in Mena itself. Numerous cars in and around the Mena area were damaged, some with broken windshields. At one car dealer alone, 67 vehicles were damaged. The hail accumulated three to five inches deep in some spots. Minor damage also occurred to some homes as the large hail broke windows. Insurance agents reported claims from almost all of Polk County.						
Logan Co.	15	1750CST			0	0	4	?	Thunderstorm Wind
			A severe thunderstorm ripped through Logan County with very high winds that destroyed a barn and two vacant mobile homes in the Brownsville Community.						
Scott Co. "Y" City	15	1800CST			0	0	0	0	Hail (0.88)
Logan Co.	15	1805CST			0	0	5	?	Thunderstorm Wind
			Spotty storm damage was observed around much of northern Logan County as a severe thunderstorm moved through. The storm damage started a few miles northeast of Paris and extended eastward towards Scranton. Heavy damage occurred a few miles north of Subiaco. This same storm later produced a tornado in Johnson County. In Logan County, an elderly woman's house was completely destroyed by the winds, but the woman was not injured. Eleven other homes in northern Logan County were damaged. Numerous trees and power lines were also downed.						
Johnson Co.	15	1828CST	16	150	0	9	6	3	Tornado (F2)
			A small but violent twister touched down along the Arkansas River near the Spadra Marina three miles southeast of Clarksville. A near continuous path of damage then stretched to the northeast for sixteen miles. Thirteen homes were destroyed while twenty-five others were damaged. Three of the four worst injuries occurred when the twister picked up and threw a car 200 feet. The car landed upside down. Elsewhere, two chicken houses were destroyed along with 40,000 chickens. The worst structural damage occurred at the Mount Olive and Spadra Communities. As the twister passed over Interstate 40, a large tractor trailer was overturned. At the Spadra Marina, four travel trailers were overturned as well as a number of boats being damaged. The tornado lifted just east of Highway 123, nine miles north of Hagrville. Total damage from the storm exceeded two million dollars.						
Little River Co.	15	1830CST			0	0	3	?	Thunderstorm Wind (65)
			Seventy to seventy-five mph winds took the roofs off two chicken barns five miles west of Foreman.						
Sevier Co.	15	1840CST			0	0	?	?	Hail (1.00) Thunderstorm Wind (50)
			Several trees were downed at Central.						
Howard Co. 5 SW of Nashville	15	1855CST			0	0	?	?	Hail (1.75)
Yell Co.	15	1855CST			0	0	?	?	Thunderstorm Wind
			Thunderstorm winds gusted over 60 mph at Centerville. Marble size hail accompanied the storm, and fell for ten minutes.						
Sevier Co.	15	1900CST			0	0	?	?	Thunderstorm Wind
			Numerous trees were blown down between Falls Chapel and Ben Lomond.						
Howard Co.	15	1905CST			0	0	4	?	Thunderstorm Wind
			Two barns were damaged, a mobile home overturned, and a carport and roof damaged on other homes as a severe thunderstorm passed through just west of Nashville.						

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					KILLED	INJURED	PROPERTY	CROPS	KILLED	INJURED	PROPERTY	CROPS	
<b>— ARKANSAS</b>													
Pope Co.	15	1915CST			0	2	5	3					Thunderstorm Wind
					A severe storm struck a farm on Highway 105 south of Atkins. The storm damaged a house, destroyed a barn and heavily damaged farm equipment in the barn. Two occupants of the house received minor cuts from flying glass. The high winds were accompanied by small hail. Trees were also uprooted in the area.								
Conway Co.	15	1920CST- 1930CST	9	100	0	0	5	4					Tornado (F1)
					Three buildings were destroyed by a small tornado that touched down along the Arkansas River, five miles west of Morrilton. Over ten farm animals were killed as the tornado destroyed a barn. The tornado traveled in a northeast direction for nine miles causing mostly minor damage. However, more significant damage occurred on U.S. Highway 64 as the tornado destroyed a water conditioning plant and then another barn.								
Conway Co.	15	1924CST			0	0	?	?					Thunderstorm Wind
					Trees and power lines were downed at Plumerville.								
Pike Co.	15	1930CST			0	0	?	?					Hail (1.00) Thunderstorm Wind
					High winds blew down trees ten miles southwest of Glenwood.								
Miller Co.	15	1935CST			0	0	?	?					Hail (0.88) Thunderstorm Wind
					Several trees were uprooted by high winds at Fouke. Nickel size hail fell from the storm.								
Hempstead Co. 10 NW of Hope	15	1940CST			0	0	?	?					Hail (0.88)
Van Buren Co.	15	1940CST			0	0	3	?					Thunderstorm Wind
					A supermarket in Clinton was damaged by high winds. An overhang on the front was lifted up by the winds, and this caused the roof to bend and leak. Damage was estimated at \$3,500.								
Conway Co. Faulkner Co. Van Buren Co. Clebune Co.	15	1941CST	24	400	1	10	6	5					Tornado (F3)
		15	1948CST										
		15	1950CST										
		15	2006CST- 2015CST										
					A strong F3-rated tornado touched down 1-1/2 miles east of Cypress Valley on Highway 9 in Conway County. Damage for the first seven miles was mostly light with the tornado varying between F0 and F1 strength. The tornado moved northeast, parallel and about one mile northwest of Highway 124. The tornado became more intense (F2 and F3) just northwest of Martinville, at the Cove Creek Boy Scout Camp, with extensive timber damage noted. The storm clipped the extreme northwest corner of Faulkner County, and then headed towards Southside (Van Buren County). It was in Southside that the tornado killed one man as it destroyed his house. The Southside High School gym was totally destroyed, and significant damage was done to other of the school's buildings. As the storm continued to the northeast, significant damage occurred at Morganton, along and just south of Highway 92. After Morganton, the damage path was lighter and more intermittent. The storm's last damage occurred at the western end of Greers Ferry Lake (south portion) near Highway 16 - about three miles southwest of Higden in Cleburne County. All in all sixteen houses and six mobile homes were destroyed. Sixteen other homes were damaged. Total damage was 2.2 million dollars of which 1.2 million occurred at Southside High School. Since the tornado passed over a rural area, property damage was held to a minimum. One fortunate note: The Southside basketball team was playing away this night. Had the game been played at home, the destroyed gym would have been filled with over 400 fans. M69P								
Stone Co.	15	1945CST- 2004CST	13	400	0	4	5	4					Tornado (F2)
					A tornado touched down 2-1/2 miles southwest of Fox and traveled to the northeast for 13 miles. As the storm passed over Highway 263 north of Fox, a large radio antenna was destroyed. However, the storm passed over a relatively sparsely populated area, thus injuries were held to four. Three of the injuries occurred at one house, 4-1/2 miles north of Fox. One young girl was picked up and thrown 50 yards as the twister passed over, demolishing her home. The storm lifted 3-1/2 miles east-northeast of Newnata. Countywide, damage was estimated at \$200,000. This does not include a large amount of timber which was destroyed.								
<b>— ARKANSAS</b>													
Clark Co. Hot Spring Co. Garland Co.	15	2000CST	27	400	0	4	6	5					Tornado (F2)
		15	2012CST										
		15	2026CST- 2031CST										
					A moderate tornado of F2 intensity touched down in a heavily forested area three miles south of Alpine in Clark County. After touching down, the tornado traveled northeast in a narrow path and downed hundreds of trees. After passing over DeGray Lake, the storm hit more populated areas and the path of damage widened somewhat. The storm passed between Lambert and Bismarck causing significant damage. Five houseboats were destroyed on Lake DeGray while 25 houses/mobile homes were destroyed in the Lambert area. Thirty other homes were damaged. Two miles north of Bismarck, the tornado began lifting from the ground from time to time and damage became intermittent. More significant damage occurred again near Highway 290 just south of Lake Hamilton. A fire station was destroyed and five fire trucks damaged. Damage at the station alone was \$300,000. The last report of damage was at Carpenter Dam, at the eastern end of Lake Hamilton.								
Izard Co.	15	2010CST			0	0	?	?					Thunderstorm Wind
					AP&L reported trees and power lines were down from Guion to Highway 69.								
Lafayette Co. Lewisville	15	2020CST			0	0	0	0					Hail (1.00)
Columbia Co. Lumber Lumber Lamarine	15	2030CST			0	0	?	?					Hail (1.75)
	15	2030CST			0	0	?	?					Thunderstorm Wind
	15	2045CST			0	0	?	?					Thunderstorm Wind
					High winds and large hail accompanied severe thunderstorms that passed through Columbia County. Trees and power lines were down at both Lumber and at the Lamarine Community, located three miles north of Waldo.								
Independence Co. Cushman 1 SE Batesville	15	2030CST			0	0	?	?					Thunderstorm Wind
	15	2035CST			0	0	?	?					Thunderstorm Wind
					High winds downed trees and power lines at Cushman and one mile southeast of Batesville.								
Izard Co.	15	2030CST- 2040CST	10	300	0	1	5	3					Tornado (F1)
					A tornado touched down at Larkin and traveled to the northeast passing through Horseshoe Bend. At least 12 homes were seriously damaged, as well as a number of barns and outbuildings. Part of the tornado's path was in a heavily forested area, and timber damage was substantial. One lady received minor injuries as the tornado tore the roof off her house while she was asleep.								
Nevada Co.	15	2035CST			0	4	4	?					Thunderstorm Wind (70)
					Seventy-five to eighty-five mph winds rolled a mobile home and destroyed it at Falcon. Four people inside the home were injured, one seriously. The winds also took the roof off two other homes in Falcon. In Willisville, more damage occurred as high winds damaged barns, carports and trees.								
Ouachita Co.	15	2055CST			0	0	?	?					Thunderstorm Wind
					High winds downed trees at Chidester.								
Sharp Co. Cave City Hardy Cherokee Village	15	2055CST			0	0	?	?					Thunderstorm Wind
	15	2055CST			0	0	?	?					Thunderstorm Wind
	15	2055CST			0	0	?	?					Thunderstorm Wind
					A severe thunderstorm ripped through Sharp County and downed trees and power lines at several spots in the county.								
Independence Co.	15	2103CST			0	0	3	?					Thunderstorm Wind
					High winds blew a portion of a roof from a mobile home in Salado. Several trees were also downed in the area.								
Lawrence Co.	15	2130CST			0	0	3	?					Thunderstorm Wind
					High winds from a severe thunderstorm blew a large tree onto a house at Portia.								



# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>— ARKANSAS —</b>									
Saline Co.	19	1530CST			0	0	?	?	Thunderstorm Wind
									High winds downed power lines on Puckett Road in Benton.
Pulaski Co.	19	1550CST			0	0	?	?	Thunderstorm Wind
									Trees and power lines were downed by high winds just south of Little Rock.
Saline Co. East End	19	1552CST			0	0	0	0	Funnel Cloud
Saline Co. Viny Ridge	19	1555CST			0	0	0	0	Funnel Cloud
Saline Co. 1 NE Benton	19	1601CST			0	0	0	0	Funnel Cloud
Pulaski Co. Little Rock Adams Field	19	1601CST			0	0	0	0	Thunderstorm Wind (50)
Jefferson Co.	19	1610CST			0	0	?	?	Thunderstorm Wind
									AP&L reported power lines downed due to winds at Wright.
Union Co.	19	1610CST			0	0	?	?	Thunderstorm Wind
									AP&L reported trees and power lines downed in El Dorado.
Saline Co.	19	1615CST			0	0	?	?	Thunderstorm Wind
									High winds downed a large tree onto a mobile home at East End.
Lonoke Co.	19	1630CST			0	3	5	?	Thunderstorm Wind
									A severe windstorm struck the city of Carlisle destroying five mobile homes. Other homes were damaged as large trees fell onto them. Minor roof damage was widespread in Carlisle. One man sustained minor injuries when a tree fell onto his car he was driving. He was trapped by the wreckage for over an hour. Two other minor injuries occurred in one of the mobile homes that was destroyed.
Pulaski Co.	19	1630CST			0	0	3	?	Thunderstorm Wind
									Wind damage occurred to fences and windows at Briarfield Cove in Jacksonville.
White Co. Beebe	19	1635CST			0	0	?	?	Hail (1.00)
Pulaski Co.	19	1640CST			0	0	4	?	Thunderstorm Winds
									A severe thunderstorm moved through southeast Pulaski County causing damage in Scott and along Faulkner Lake Road. Trailers were overturned near Scott and a house and barn were damaged on Faulkner Lake Road. Roof damage also occurred at the Fourche Creek Treatment Plant along the Arkansas River.
Arkansas Co.	19	1645CST			0	0	?	?	Thunderstorm Wind
									High winds downed several trees eight miles east of DeWitt.
Drew Co.	19	1647CST			0	0	?	?	Thunderstorm Wind
									AP&L reported trees and power lines downed at Monticello.
Union Co.	19	1713CST			0	0	?	?	Thunderstorm Wind
									AP&L reported trees and power lines down at Urbana.
Prairie Co.	19	1730CST			0	0	5	?	Thunderstorm Wind
									Severe thunderstorms moved across northern Prairie County and caused significant damage to several communities. Hardest hit was Spring Lake and Horn Lake. In Spring Lake, a mobile home was completely destroyed and another home received minor damage as a tree was blown onto it. At Horn Lake, two mobile homes were damaged and several boat docks destroyed. Numerous trees were uprooted at both spots. Damage was estimated at \$100,000. Other spots around the county reported trees down as well as minor wind damage. These spots included Des Arc and Hickory Plains.
Bradley Co.	19	1735CST			0	0	?	?	Thunderstorm Wind
									Trees were down at several locations in Bradley County. Most numerous were trees down in Warren.
<b>— ARKANSAS —</b>									
Union Co.	19	1735CST			0	0	?	?	Hail (1.75)
									A 10-mile path of golfball size hail fell from Highway 275 to the Felsenthal Wildlife Refuge.
Ashley Co.	19	1750CST			0	0	?	?	Thunderstorm Wind
									AP&L reported trees and power lines down at Crossett.
Phillips Co. 1 SE Marvell	19	1805CST			0	0	0	0	Funnel Cloud
Ashley Co.	19	1835CST			0	0	?	?	Thunderstorm Wind
									Trees were downed five miles south of Fountain Hill on Highway 81.
Chicot Co.	19	1915CST			0	2	?	?	Thunderstorm Wind
									High winds overturned a pickup truck and mobile home, injuring two people in Lake Village. One person had a broken arm while another suffered minor back pains.
Sebastian Co.	25	1907CST			0	0	0	0	Thunderstorm Wind (52)
									Winds gusted to 60 mph at Fort Smith Airport as a line of storms passed through.
Crawford Co. Franklin Co.	25	1930CST			0	0	?	?	Thunderstorm Wind
	25	1930CST			0	0	?	?	Thunderstorm Wind
									Winds downed trees at Mulberry in Crawford County and five miles east of Mulberry in Franklin County.
Washington Co.	25	1930CST			0	0	?	?	Thunderstorm Wind
									High winds downed power lines on Highway 45 west of Fayetteville.
Sevier Co.	25	2025CST			0	0	?	?	Thunderstorm Wind
									Six trees were downed by winds near U.S. Highway 71 in DeQueen. In Gilliam, a carport was blown down and the roof of a chicken house was damaged. A mobile home on U.S. Highway 71 sustained substantial damage.
Montgomery Co.	25	2110CST			0	2	5	?	Thunderstorm Wind
									A severe thunderstorm moved through central Montgomery County and caused damage to a number of residences. Minor wind damage first occurred around Black Springs on Highway 8. A house was completely destroyed along Highway 27, two miles north of Norman. Other houses suffered minor wind damage. Numerous trees were downed, and at one spot on Highway 8, it took two hours for crews to clear the road. Two injuries occurred, both in one house that was heavily damaged. One man was trapped when a stove overturned on him, and his dad was thrown from his bed. Damage was estimated at \$200,000 countywide.
Pope Co.	25	2115CST			0	0	4	0	Thunderstorm Wind
									High winds at Russellville damaged two buildings south of town on Highway 7. Eight storage units had their roofs blown off and a store sustained severe roof damage.
Garland Co.	25	2152CST			0	0	?	?	Thunderstorm Wind
									Trees were downed by high winds on Highway 7 at Hot Springs Village.
Hempstead Co.	25	2210CST			0	0	?	?	Thunderstorm Wind
									Trees and power lines were downed by high winds just northwest of Fulton.
Hempstead Co.	25	2220CST			0	0	5	?	Thunderstorm Wind
									A very severe thunderstorm passed through the Oakhaven area just north of Hope. Numerous large trees were downed onto houses causing damage to at least eight homes. A plane at the Hope Airport was flipped over and a hangar damaged. Elsewhere, trees were downed and outbuildings destroyed as far north as Blevins.
Clark Co.	25	2257CST			0	0	0	0	Funnel Cloud
									A funnel cloud was spotted by a trained spotter five miles west of Arkadelphia.

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					KILLED	INJURED	PROPERTY	CROPS	
<b>— ARKANSAS</b>									
Clark Co.	25	2300CST			0	0	?	?	Thunderstorm Wind
			High winds downed trees near Highway 7 around eight miles southeast of Arkadelphia. Other trees were downed at Gurdon.						
Faulkner Co.	25	2330CST			0	0	4	?	Thunderstorm Wind
			A windstorm ripped apart a house under construction in the Naylor Community. A barn and shed were also damaged as well as a neighboring farm house.						
Grant Co.	26	0005CST			0	0	3	?	Thunderstorm Wind
			High winds from a severe thunderstorm moved through Sheridan downing trees. The winds also destroyed the awnings along several store fronts and caused minor roof damage to a few stores.						
Fulaski Co.	26	0005CST			0	0	?	?	Hail (1.75)
			Golfball size hail was reported at Sweet Home.						
Jefferson Co.	26	0015CST			0	0	?	?	Thunderstorm Wind
			High winds up to 60 mph downed trees and power lines at Redfield.						
Jefferson Co.	26	0030CST			0	0	?	?	Thunderstorm Wind
			AP&L reported trees and power lines down at Pine Bluff.						
Lonoke Co.	26	0030CST			0	0	?	?	Thunderstorm Wind
			AP&L reported trees and power lines downed due to high winds at England.						
All of Arkansas	April-September				0	0	?	?	Drought
	Generous rains across all of Arkansas during October and especially November brought to an end a summer drought. The dry weather started early with an abnormally dry spring. June was another very dry month. Despite this, scattered July rains helped save many crops from failure. Overall, the main effect of the drought was the higher cost of production rather than actual crop losses in Arkansas. Since surface water supplies are relatively abundant in Arkansas, farmers were lucky in that many could irrigate. Conservative estimates of the higher production costs topped 20 million dollars. Hardest hit crops were corn, grain sorghum, and hay. Hay was especially scarce causing farmers to buy elsewhere or bring their cattle to market early. Increased costs for hay alone were conservatively estimated at at least another 20 million dollars. Overall drought losses exceeded 100 million dollars.								
<b>4 CALIFORNIA, Northern</b>									
CAZ009 Sierra Nevada	13 14	1200PST- 0300PST			0	0	0	0	WINTER STORM
			An intense Pacific low pressure system combined with cold air advection to produce between 6 and 12 inches of snow below 7000 feet and over a foot of snow above 7000 feet. Truckee reported sustained winds of 25 to 35 mph with gusts to 53 mph and visibilities frequently dropping to less than 1/4 mile. Numerous traffic accidents resulted from this storm.						
CAZ003 Morro Rock, San Luis Obispo County	14	1030PST			2	1	0	0	HEAVY SEAS
			Large surf, the result of heavy swells produced by several Pacific storms, swept 3 fishermen from the Morro Rock jetty, drowning 2 and injuring the other. Ocean swells were estimated between 6 and 8 feet at the time.						
CAZ009 Sierra Nevada	23 24	1730PST- 2330PST			0	0	0	0	WINTER STORM
			A vigorous winter storm dropped snow levels to about 3000 feet in the Sierra Nevada, with 24 hour snowfall accumulations of between 8 and 12 inches of snow over the Sierra Nevada below the 7000 foot level, and between 1 and 2 feet at the higher elevations.						
<b>4 CALIFORNIA, Southern</b>									
All Zones	13	2000PST			0	0	4	0	Rain & Wind
			Although the weather was not severe, the event is of note, this was the first major storm of the season soaking Southern California and dumping more than a foot of snow in the Sierras. The storm swept across Southern California late Sunday night and early Monday morning. Rainfall amounts included: 0.85 ins. Silverado Canyon 1.00 ins. the Los Angeles area & parts of Orange County 2.25 ins. Mount Wilson 2.75 ins. Crestline 3.20 ins. Arrowhead, Running Springs, Arrowbear, and Green Valley Winds gusted to 48 mph in Daggett and to 50 mph at George Air Force Base near Victorville. Power outages hit about 9000 Department of Water and Power customers in the Los Angeles area Sunday night at 8 pm. Early morning showers caused numerous freeway accidents on rain-slickened pavements, including smashups that delayed rush-hour commuters for several hours. No injuries were reported. Also Sunday night, a ten car pileup occurred on the Hollywood Freeway in the San Fernando Valley. Once again no major injuries were reported. Property damage was minimal, although about 80 residents of two Los Angeles apartment buildings were forced to take shelter elsewhere when rain leaked through roofs of buildings being renovated to meet earthquake standards.						
<b>5 COLORADO</b>									
Mountains, East COZ002-004-008- 009-010-011- 014-016	15				0	0	0	0	Snow, wind
			The season's first snowstorm hit the Front Range, dropping 2 to 5 inches of snow in the Denver area and causing numerous traffic snarls and accidents. Most spots in the mountains had 8 to 12 inches. A two day total of 18 inches fell on the 14th and 15th in Rocky Mountain National Park in Larimer County, along with wind gusts estimated as high as 90 mph early on the morning of the 15th. Up to 7 inches of snowfall whitened the San Luis Valley. Wind gusts reached 66 mph in Pueblo at 0830 MST. During the morning La Junta clocked gusts to 67 mph, with 58 mph measured at Colorado Springs.						
Larimer County COZ011	22	0300 MST			0	0	0	0	High winds
			A gust of 80 mph occurred in Poudre Canyon, 36 miles west-northwest of Fort Collins.						
Gilpin County COZ002	22	0634 MST			0	0	0	0	High winds
			A gust of 88 mph was measured at Rollinsville.						
Mountains COZ002-004-008- 010	23-25				0	0	0	0	Snow, high wind
			A strong storm brought high winds and heavy snow to many mountain areas. During the morning of the 24th, winds of 60 to 80 mph were clocked at numerous spots including Berthoud Pass, Breckenridge, Arapahoe Basin, Mary Jane, and Telluride ski areas. A gust of 95 mph was recorded at 0342 MST on the top of Mines Peak, above Berthoud Pass on the Grand-Boulder county line. Large amounts of snow fell in the high country. Most spots in the northern and central mountains had 8 to 18 inches, but the heaviest snow fell in the San Juans. Wolf Creek Pass was buried by 27 inches in just 24 hours on the 23rd and 24th; 20 inches fell at Telluride in the same period. Three day totals included 40 inches at Wolf Creek and 32 inches at Telluride.						
Clear Creek County COZ002	27	afternoon			0	0	4	0	High winds
			Wind gusts blew a 4000 square foot section of aluminum roofing off the Clear Creek County courthouse in Georgetown. The flying roofing slightly damaged a nearby truck.						
Larimer County COZ011	28	evening			0	0	0	0	High winds
			A gust of 70 mph occurred at Waverly at 1921 MST; at 1940, gusts reached 76 mph on the Colorado State University campus in Fort Collins.						

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<b>6 CONNECTICUT</b>									
Litchfield County, Woodbury	20	1700EST			0	0	3	0	Lightning
A house was damaged by fire after being struck by a bolt of lightning.									
Litchfield County, Litchfield	20	2000-2015EST			0	0	4	0	Thunderstorm Winds (45)
Thunderstorm winds associated with an eastward-moving squall line uprooted a few trees, knocked down a silo on a farm, and resulted in electric power loss for some homes.									
Fairfield County, Bridgeport	20	2024EST			0	0	3	0	Thunderstorm Winds (53)
Thunderstorm winds of 53 knots were recorded at the National Weather Service office. Trees were downed and power was out in the area.									
CTZALL Entire State	20	1800EST-0900EST			0	0	5	0	High Winds
High winds gusting up to around 50 mph brought down tree limbs and wires, causing power outages that affected up to 35,000 electric customers statewide. Many of those who lost power had electric service restored in a few hours.									
<b>7 DELAWARE</b>									
Kent County	20	1920EST			0	0	?	0	Thunderstorm Winds (42kt)
Heavy rain and winds associated with a line of thunderstorms caused some power outages and downed limbs in Dover.									
New Castle County	28	0600-0700EST			0	0	0	0	Flash Flood
Heavy rains from thunderstorms resulted in the Christiana River rising to flood stage about 4 am, peaking at 1 1/2 foot above flood stage between 6 and 7 am. Levels dropped below flood stage by 9:30 am.									
<b>8 FLORIDA</b>									
Lee Co., Fort Myers	04	0115EST	1.5	400	0	0	6	0	Tornado (F2)
A tornado damaged 109 homes and destroyed 2 homes and caused major damage to 7 homes. Eight cars and 3 boats were damaged. Many trees were downed including 80 royal palms along a scenic boulevard.									
Clay Co., Green Cove Springs	04	0230EST	1.0	40	0	0	4	0	Tornado (F1)
A tornado destroyed 3 gunset huts at an industrial park. Four semi tractor trucks were damaged.									
Bay Co., Panama City Beach	05	0005CST	1.0	30	0	0	5	0	Tornado (F1)
A tornado caused major damage to a motel and to 3 houses. The damage was to roofs and porches. A sheriff's patrol car was lifted and moved 5 feet by the tornado.									
Ocala Co., Fort Walton Beach	05	0015CST			0	0	3	0	TSTM wind (55)
High wind damaged 3 portable classrooms and downed 4 large trees.									
Walton Co., Santa Rosa Beach	05	0044CST	1.0	30	0	0	4	0	Tornado (F0)
A tornado damaged the roofs of 2 businesses. Several trees were uprooted, a fence was damaged and a barn was damaged.									
Madison Co., Lee 4mi. SW to 4mi. NE	05	0115EST	8.0	50	1	3	4	0	Tornado (F2)
A tornado destroyed 6 homes and damaged 10 others. One woman was killed in one of the homes. One business was damaged. F2RM									
Levy Co., Cedar Key	05	0805EST			0	0	0	0	TSTM wind (62)
A wind of 62 knots was recorded.									
Citrus Co., Inverness	05	0830EST			0	0	2	0	TSTM wind (55)
High wind downed several trees and power lines.									
<b>FLORIDA</b>									
Putnam Co., Satsuma	05	0830EST			0	0	3	0	TSTM wind (55)
High wind blew the roofs of two carports off, downed power poles and trees and destroyed several sheds.									
Polk Co., Fort Meade	05	1035EST	1.0	30	0	0	4	0	Tornado (F1)
A tornado destroyed the roofs of several homes and businesses. A wood-frame business was destroyed. Several large trees were downed. Several sheds were destroyed.									
Volusia Co., Ponce Inlet	05	1040EST			0	0	2	0	TSTM wind (65)
A wind gust of 65 knots was reported at the U.S. Coast Guard station. Power lines were downed.									
Osceola Co., western Osceola (24N AGR)	5	1120EST-1232EST			0	0	3	0	TSTM wind(60)
Thunderstorm winds damaged the roof of a jail under construction as well as downing numerous trees, power lines and signs.									
Polk Co., Lakeland	05	1130EST			0	0	3	0	TSTM wind (60)
High wind caused roof damage and downed trees and power lines. Several sheds were destroyed.									
Escambia Co., Molino	20	0400CST			0	0	4	0	TSTM wind (60)
High wind damaged the roof of a house. Trees were downed that caused damage to a house roof.									
FL2010-011-012-013-014-015-016-017-018-019 central Florida	23	0200EST-1000EST			0	0	6	?	Tropical Storm Keith
Pinellas Co., St. Petersburg	23	0032EST	1.0	30	0	0	3	0	Tornado (F0)
Pinellas Co., St. Petersburg	23	0050EST	1.0	30	0	0	3	0	Tornado (F0)
Tropical Storm Keith moved across the Florida Peninsula entering near Sarasota at 0200EST on the 23rd and exiting just north of Melbourne at 1000EST on the 23rd. Most of the convection had been sheared off before the storm crossed Florida. Most of the weather associated with Keith was to the north of the track. Maximum rainfall was 11 inches at Largo. Most rainfall totals were 4 to 7 inches to the north of the storm track and under one inch to the south of the storm track. A storm surge of nearly 6 feet maximum and 3 to 4 feet generally accompanied the storm on the Florida west coast south of the track as far south as Naples. Damage was near \$3 million, mostly due to the storm surge. In Lee County alone, \$1.5 million was the damage estimate. Two tornadoes touched down just before landfall in Pinellas County. Damage was done to hangar doors at Albert Whitted Airport and damage was noted near St. Petersburg Airport.									
<b>9 GEORGIA</b>									
Muscogee County: 2N Columbus 3N Columbus Harris County, 2SE Ellerslie	04	1650EST			0	0	?	0	Hail (0.75)
	04	1700EST			0	0	?	0	Hail (1.75)
	04	1720EST			0	0	?	0	Hail (1.75)
A strong thunderstorm produced dime to golf ball size hail across northern Muscogee and southeast Harris County. Hail damage to autos and a few homes was reported.									
Talbot County: 2SW Talbotton Talbotton	04	1815EST			0	0	0	0	Funnel Cloud
	04	1820EST			0	0	0	0	Hail (0.75)
A funnel cloud was sighted southwest of Talbotton and nickel size hail fell in Talbotton.									
Pierce County, 6SW Blackshear	05	0530EST			0	0	4	0	TSTM Winds
Thunderstorm winds heavily damaged a house and two mobile homes. Part of the roof of the house was blown off. Six other homes and numerous camper tops were damaged by the winds or flying debris. A few pine trees were blown down. All the damage was along a half mile stretch of U.S. Highway 82.									

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<b>— GEORGIA —</b>										<b>11 ILLINOIS</b>																																				
Cobb County, 3E Marietta	05	1345EST			0	0	?	0	TSTM Winds	Morris, Grundy County	4	0830CST			0	0	5	0	Lightning																											
Cherokee County, Woodstock	05	1350EST			0	3	4	0	TSTM Winds										Lightning from thunderstorms struck several buildings in the Morris area. A church sustained \$70,000 damage from a lightning strike and resulting fire. Lightning was also a cause of a fire that destroyed a garage. Five other reports of lightning strikes resulted in minor damage.																											
Hall County, 105W Gainesville	05	1410EST			0	0	4	0	TSTM Winds	Quincy, Adams County	15	1940CST			0	0	?	0	Tstm.wind (56)																											
A fast-moving line of thunderstorms caused scattered damage across northern Georgia from the Marietta and Woodstock area to Lake Lanier. Several trees and power lines were downed in Marietta. Three people were injured when construction debris from a building site was blown across the parking lot of a discount store in Woodstock. Falling trees and limbs damaged 22 homes in Woodstock. Several sailboats were sunk and others dismantled or blown ashore by the winds as the storms swept across Lake Lanier where 250 boats were participating in a multirace regatta.																						WGEM recorded wind gusts to 65 mph.																								
Catoosa County	05	1430EST			0	0	?	0	TSTM Winds	Pleasant Hill, Fike County	15	2000CST			0	0	?	0	Tstm.wind																											
Whitfield County, Cohutta	05	1430EST			0	0	?	0	TSTM Winds										A trailer was blown off its foundation and trees and power lines were blown down by strong straight-line winds.																											
Thunderstorm winds downed trees and powers lines at scattered locations across Catoosa County and near Cohutta.										Petersburg, Athens; Mearns County	15	2100CST			0	0	4	0	Tstm.wind																											
Lowndes County, Valdosta	27	1915EST			0	0	?	0	TSTM Winds										Windows were broken in a Petersburg house and the front porch of another house in Athens was blown off by high winds.																											
Trees and power lines were downed by chunderstorm winds in Valdosta. Several homes received minor damage by falling trees and limbs.										Greenfield, Greene County	15	2100CST			0	0	5	0	Tstm.wind																											
																			Strong straight-line winds blew the roof off a house on Wright Road near Greenfield.																											
										Jersey County	15	2100CST			0	0	5	0	Tstm.wind																											
																			High winds caused scattered damage throughout Jersey County. Most of the damage occurred in Grafton, Dow and Kemper and consisted of damage to power lines, some power poles and trees.																											
										Batchtown, Calhoun County	15	2100CST			0	1	4	0	Tstm.wind																											
																			One person was injured when a mobile home was overturned by strong winds.																											
										Galesburg, Knox County	15	2105CST			0	0	?	0	Tstm.wind (50)																											
																			The station manager for Continental Express Airlines measured winds to 58 mph. Some power outages were reported in Galesburg.																											
<b>10 IDAHO</b>										Jerseyville, Jersey County	15	2115CST	0.2	50	0	0	5	0	Tornado (F1)																											
Bingham County, near Riverside	02	1000MST			0	0	3	0	High Wind										A small tornado hit the Jerseyville Aviation Center and damaged 12 aircraft and severely damaged 7 hangars. Six aircraft were totally destroyed.																											
A "large gust of wind" destroyed a potato cellar.										W Greenfield, Greene County	15	2130CST	0.1	50	0	0	5	0	Tornado (F2)																											
IDZ006 West-Central Mountains	08	0000- 0800MST			0	0	0	0	Heavy Snow										A tornado briefly touched down 1 mile west of Greenfield and demolished a home. Power lines and sheds were also reported down in the area.																											
Five inches of snow fell at Powell.										Waterloo, Monroe County	15	2130CST			0	0	4	0	Tstm.wind																											
IDZ004-010 East-Central Mountains and Southeast Mountains	12	0800- 1800MST			0	0	0	0	Heavy Snow										Scattered damage occurred throughout Monroe County from straight-line winds. Two sheds were destroyed and some utility poles were reported blown over in Waterloo.																											
Nine inches of snow fell at Island Park and five inches fell at Driggs.										Columbia, Monroe County	15	2145CST			0	0	?	0	Tstm.wind																											
IDZ004-006-007-008 Southeast Idaho, West-Central Mountains and Clearwater Valley	13- 14	1800- 0800MST			0	0	0	0	Heavy Snow										Strong thunderstorm winds destroyed sheds, broke tree limbs and blew down power lines 3 miles south of Columbia. Also a roof was lifted off a warehouse in Columbia.																											
A major winter storm brought heavy snow to a large section of Idaho. Snowfall reports (in inches) included:										25 Hopedale, Minier; Tazewell County	15	2200CST			0	0	4	0	Tstm.wind																											
<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Zone 4</td> <td style="width: 25%;">Zone 6</td> <td style="width: 25%;">Zone 7</td> <td style="width: 25%;">Zone 8</td> </tr> <tr> <td>Weston 6</td> <td>Elk City 7</td> <td>Fairfield 7</td> <td>Lewiston 5</td> </tr> <tr> <td>Soda Springs 5</td> <td>Yellow Pine 9</td> <td>Ketchum 12</td> <td></td> </tr> <tr> <td></td> <td>Deadwood 13</td> <td>Bald Mtn. 17</td> <td></td> </tr> </table>										Zone 4	Zone 6	Zone 7	Zone 8	Weston 6	Elk City 7	Fairfield 7	Lewiston 5	Soda Springs 5	Yellow Pine 9	Ketchum 12			Deadwood 13	Bald Mtn. 17																			Strong downburst winds destroyed a hog building on a farm. Part of the roof of the farmhouse was torn off by the winds. In Minier a roof was blown off a house during a severe thunderstorm.			
Zone 4	Zone 6	Zone 7	Zone 8																																											
Weston 6	Elk City 7	Fairfield 7	Lewiston 5																																											
Soda Springs 5	Yellow Pine 9	Ketchum 12																																												
	Deadwood 13	Bald Mtn. 17																																												
IDZ004 Southeast Idaho	17	0000- 0800MST			0	0	0	0	Heavy Snow	New Holland, Elkhart; Logan County	15	2200CST			0	0	5	0	Tstm.wind																											
Six inches of snow fell at Bear Lake.																			Strong downbursts broke windows and badly damaged a New Holland house where residents were trapped for a time in their basement. A farm in Elkhart was reported heavily damaged by high wind.																											
IDZ006-007 West-Central Mountains	22- 23	1800- 1800MST			0	0	0	0	Heavy Snow	Berlin, Sangamon County	15	2200CST			0	8	5	0	Tstm.wind																											
More heavy snow fell in the west-central mountains. Snowfall reports (in inches) included:																			Winds estimated to around 80 mph overturned five unanchored mobile homes and caused considerable damage and injured 8 persons.																											
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IDZ002-003-004-006- 007-010 Central Mountains, Upper and Middle Snake River Valley, and Southeast Idaho	27- 28	1800- 1200MST			0	0	0	0	Heavy Snow	W Millstadt, St. Clair County	15	2212CST	0.4	50	0	0	5	0	Tornado (F2)																											
Another winter storm produced heavy snow over most of central and southeast Idaho. Some snowfall reports (in inches) were as follows:																				A tornado briefly touched down about 4 miles north of Millstadt near the intersection of Imbs Station Road and Illinois Route 163. The tornado destroyed a large home and blew down trees and power lines in its path. The tornado traveled for less than 1/2 mile to the northeast before lifting.																										
<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Zone 2 -- Gooding area</td> <td style="width: 25%;">5-7</td> </tr> <tr> <td>Zone 3 -- Idaho Falls</td> <td>4</td> </tr> <tr> <td>Dubois</td> <td>5</td> </tr> <tr> <td>St. Anthony</td> <td>12</td> </tr> <tr> <td>Zone 4 -- Soda Springs</td> <td>6</td> </tr> <tr> <td>Zone 6 -- Yellow Pine</td> <td>8</td> </tr> <tr> <td>Zone 7 -- Fairfield</td> <td>8</td> </tr> <tr> <td>Zone 10-- Island Park area</td> <td>10-12</td> </tr> <tr> <td>other locations</td> <td>8-10</td> </tr> </table>										Zone 2 -- Gooding area	5-7	Zone 3 -- Idaho Falls	4	Dubois	5	St. Anthony	12	Zone 4 -- Soda Springs	6	Zone 6 -- Yellow Pine	8	Zone 7 -- Fairfield	8	Zone 10-- Island Park area	10-12	other locations	8-10																			
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# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>ILLINOIS</b>									
3N Fairview Heights to E Collinsville to SE Troy in St. Clair and Madison Counties	15	2228CST	9.0	200	0	?	6	0	Tornado (F3)
<p>A strong tornado first touched down about 3 miles north of Fairview Heights near Bethel Mine Road and then proceeded northeastward and moved just east of Collinsville, crossing at the intersection of Kirsh and Liberty Roads and then moved to the southeast edge of Troy. In St. Clair County several houses and businesses were seriously damaged. Total damage was near 1 million dollars in Madison County including damage to 19 structures in Collinsville and Troy. The tornado knocked down 3 steel transmission power line towers just to the southwest of Troy. The last report of damage occurred at 213 East U. S. Route 40 where part of a roof was ripped off a house. The most severe damage (F3) occurred when the tornado first touched down on Bethel Road where 3 houses were severely damaged.</p>									
2W Rockford, Winnebago County	15	2245CST			1	0	?	0	Tstm. wind (51)
<p>A woman was driving along Rockford Street when wind blew down a power line in front of her van and forced the van into a ditch. The woman was electrocuted when she stepped on the power line when exiting the van. In the west part of Rockford a garage and shed were demolished by high winds and part of the roof of the WTVO-TV studio building was blown off. Nearly 2500 utility customers lost power in the western part of Rockford. The Weather Service Office at the Rockford Airport recorded wind gusts to 59 mph at 2257 CST.</p>									
Mattoon, Coles County	15	2245CST	0.1	50	0	0	5	0	Tornado (F1)
<p>A small tornado briefly touched down and ripped parts of roofing and broke many plate glass windows at the Quality Inn. The night clerk said the tornado sounded like a train. The ESDA emergency director at Mattoon noted a circular pattern of twisted damage.</p>									
Wapella, De Witt County	15	2247CST			0	4	5	0	Tstm. wind
<p>Severe thunderstorm winds destroyed a large greenhouse at the Wapella High School and high winds damaged 9 houses. Four mobile homes were overturned by strong winds, injuring 4 persons.</p>									
Bloomington, McLean County	15	2300CST			0	2	?	0	Tstm. wind
<p>Two persons were hurt when high wind turned over their mobile home 3 miles south of Bloomington. Also, in Bloomington high winds damaged 2 restaurants. Sixteen farms in McClean County sustained damage mainly to barns and sheds.</p>									
Lake County	15	2300CST			0	0	?	0	Tstm. wind
<p>High winds uprooted trees and knocked down power lines over spotty areas in Lake County. Some roads were blocked by fallen trees.</p>									
Byron, Ogle County	15	2305CST			0	0	4	0	Tstm. wind
<p>High winds blew a roof off a home at Everett Lane in Byron.</p>									
Pontiac, Livingston County	15	2320CST			0	0	5	0	Tstm. wind
<p>Damaging winds tore through Pontiac's Vermillion Estates area ripping roofs from several buildings, uprooting trees, downing power lines and damaging sheds.</p>									
Mazon, Grundy County	15	2345CST			0	0	5	0	Tstm. wind
<p>Numerous trees were uprooted and snapped by thunderstorm downbursts in Mazon as reported by ESDA emergency services for Grundy County. Several homes in town were damaged by falling trees. Winds destroyed 2 barns in the area. Illinois Route 47 and the Santa Fe Railroad were closed for more than an hour due to debris from the storm. Some power outages up to 7 hours long occurred in the area as a high voltage 34KV power line was blown down by the winds.</p>									
Centralia, Marion County	15	2350CST			0	0	4	0	Tstm. wind
<p>Strong thunderstorm winds blew down a large section of the north brick wall of the Masonic Temple.</p>									
Kankakee, Kankakee County	15	2359CST			0	0	5	0	Tstm. wind (63)
<p>Wind gusts were measured up to 72 mph in downtown Kankakee. The high winds caused scattered damage in Kankakee. In addition, house damage was reported 5 miles south of Berscher and a nearby barn and machine shed were heavily damaged. A frame house in Manteno sustained damage when it shifted on its foundation.</p>									
Altamont, Effingham County	16	0010CST			0	0	5	0	Tstm. wind
<p>Very strong thunderstorm winds caused considerable damage to several farms in the west end of Effingham County. A TV transmitter tower was toppled in Altamont. Along I-70 high winds blew a few semi-tractor trailers off the roadway.</p>									
Lynwood, Cook County	16	0028CST			0	0	4	0	Tstm. wind
<p>The Alpine Village Mobile Home Park was hit by strong winds that severely damaged porches, sheds and parts of mobile homes in the park.</p>									
<b>INDIANA</b>									
Cook County	15-16	1400CST 0100CST			0	0	?	0	Tstm. wind, Heavy rain
<p>1/2 inch to over 2 inches of rain caused flooding of numerous Chicago underpasses and across parts of Lake Shore Drive. 50 mph winds late on the 15th and shortly after midnight on the 16th ripped through the northwest suburbs of Chicago in northwest Cook County and caused power outages to about 30,000 homes in the area.</p>									
12 INDIANA									
Wabash County, 3N Wabash	10	0212 EST			0	0	4	0	Tstm. Wind
<p>A mobile home was overturned by thunderstorm winds.</p>									
Allen County, 5S Fort Wayne	10	0255 EST			0	0	3	0	Tstm. Wind
<p>Trees and power lines were blown down 5 miles south of Fort Wayne.</p>									
Adams County, Decatur	10	0257 EST			0	0	3	0	Tstm. Wind
<p>Numerous trees were blown down 2 miles east of U.S. 33 just west of Decatur.</p>									
Benton County, 1W Fowler	16	0240 EST			0	0	0	0	Tstm. Wind
<p>State Police just west of Fowler estimated winds at 60-65 mph and reported marble size hail.</p>									
Jasper County, Rensselaer	16	0255 EST			0	0	0	0	Tstm. Wind
<p>State Police estimated winds at 70 mph and reported damage to a house in Rensselaer.</p>									
Laporte County, Hudson Lake	16	0320 EST			0	0	?	?	Tstm. Wind
<p>The County Sheriff reported numerous trees and limbs down over a wide area. There were power outages at Hudson Lake.</p>									
Starke County, 2E Hamlet	16	0325 EST			0	0	?	?	Tstm. Wind
<p>Large tree limbs and power lines were downed. A NWS electronics technician estimated winds at 60 mph.</p>									
St. Joseph County, South Bend	16	0328 EST			0	0	?	?	High Wind
<p>At WSO South Bend a wind gust of 74 mph was recorded while sustained winds were 55 to 65 mph for approximately 10 minutes.</p>									
St. Joseph County, South Bend	16	0350 EST			0	0	?	?	Tstm. Wind
<p>Civil Defense officials reported several trees and limbs down in the South Bend area. There were power outages in Clay Township, and traffic lights were knocked out at U.S. 33-31 and Cleveland Road.</p>									
Huntington County, Huntington	16	0435 EST			0	0	2	0	Tstm. Wind
<p>A shed and trees were blown down just north of Huntington.</p>									
Whitley County, Columbia City	16	0444 EST			0	0	0	0	Tstm. Wind
<p>The Columbia City Police reported winds to 60 mph.</p>									
Noble County, Laotto	16	0500 EST			0	0	3	0	Tstm. Wind
<p>Telephone poles and trees were downed by thunderstorm winds.</p>									
Hamilton County, Westfield	16	0624 EST			0	0	0	0	High Wind
<p>An intense surface pressure gradient caused wind gusts to 61 mph at Westfield. Numerous gusts over 50 mph occurred during the previous hour.</p>									
Switzerland County	20	1130 EST			0	0	?	?	High Wind
<p>A storm center and cold front that passed through southeast Indiana between 11 am and noon caused some tree damage and moved a house trailer in Switzerland County off its foundation.</p>									

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NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>13 IOWA</b>									
Boone County, Fraser	15	1530 CST			0	0	3	0	Lightning
Wayne and Appanoose Counties, 1W Centerville	15	1609 CST	0.1	10	0	0	2	0	Tornado (F0)
Hamilton County, Jewell	15	1620 CST			0	0	5	0	Tstm.Winds (61)
Monroe County, 5S Melrose to 3SE Melrose	15	1629 CST to 1633 CST	4.0	60	0	4	5	0	Tornado (F2)
Cerro Gordo County, Swaledale	15	1630 CST			0	0	3	0	Lightning
Cerro Gordo County, Mason City	15	1725 CST			0	0	4	0	Lightning
Keokuk and Iowa Counties, 1NE Sigourney to 1S Parnell	15	1825 CST to 1847 CST	16.0	50	0	0	5	0	Tornado (F1)
Keokuk County, 2W Richland	15	1850 CST	0.5	20	0	0	4	0	Tornado (F0)
Bremer County, Waverly	15	1850 CST	1.0	20	0	0	5	0	Tornado (F1)
Wapello County: 1W Ottumwa	15	1905 CST			0	0	0	0	Funnel Cloud
Ottumwa	15	1905 CST			0	0	4	0	Tstm.Winds (50+)
5N Agency	15	1910 CST			0	0	5	0	Tstm.Winds (50+)
4NE Ottumwa to 10NE Ottumwa	15	1908 CST to 1920 CST	6.0	65	0	0	5	0	Tornado (F2)
Washington County, 6S Washington	15	2000 CST			0	0	4	0	Tstm.Winds (50+)
Linn County: Cedar Rapids	15	2007 CST			0	0	4	0	Tstm.Winds (55)
1W Central City	15	2030 CST			0	0	4	0	Tstm.Winds (52)
Prairieburg	15	2030 CST			0	0	4	0	Tstm.Winds (50+)
Delaware County: Ryan	15	2045 CST			0	0	4	0	Tstm.Winds (50+)
3/4 W Manchester to 2NW Greely	15	2105 CST to 2115 CST	11.0	65	0	0	5	0	Tornado (F2)
Clayton County, 2N Garnavillo	15	2122 CST	0.2	20	0	0	4	0	Tornado (F0)
<p>A very strong cold front swept across the state during the afternoon hours. Ahead of the front, it was more like Spring than mid November, with temperatures in the 60s to around 70. During the early afternoon, a line of thunderstorms developed over Western Iowa. This line moved rapidly northeast across the state during the afternoon and early evening hours. During the early stages of the line's development, only numerous reports of pea to marble size hail were received. There were three noteworthy lightning strikes. The first was at Fraser, where lightning struck a house and set it on fire. The second at Mason City, where lightning struck a power substation. Power was knocked out for 2100 homes. The last was in Swaledale, where lightning struck a house, causing damage to appliances and a television. The first severe report came around 4 PM, when a small tornado touched down on the Wayne-Appanoose county line on Highway 2. Around 4:30 PM, a tornado touched down over southwest Monroe County. This tornado ripped through a mobile home development south of Melrose. Two mobile homes were destroyed along with a bait shop in the area. Three people were injured. A funnel cloud was reported west of Ottumwa around 7 PM. At about the same time, high winds blew down a garage on the west side of Ottumwa, and a barn roof was blown off just west of town. As the storm moved northeast, a tornado touched down northeast of Ottumwa. There were numerous reports of property damage, with the heaviest damage reported about 10 miles northeast of Ottumwa. Two houses were destroyed in that area. Farther northeast along the line, a small tornado touched down briefly in Waverly. Many windows were blown out, with some structural damage to several houses reported. The roof was lifted off one of them, while a side wall was blown in on another. Damage in Waverly was over \$250,000; caused mostly by flying debris. Two tornadoes touched down in the Keokuk and Iowa County areas. The first ripped through a 16-mile long path from near Sigourney to near Parnell. Considerable damage was done to farms in the area, including barns and corn cribs being destroyed. The tornado near Richland was small, and did only minor damage to a farmstead there. High winds of around 70 MPH accompanied a severe thunderstorm as it moved through the Jewell area. Several outbuildings and a hog confinement house were destroyed. Strong winds moved into the Cedar Rapids area around 8 PM. There were many wind gusts around 60 MPH reported over the northeast half of Linn County. These winds resulted in damage to trees and power lines. As the storm moved into Northeast Iowa, strong winds downed power lines and caused property damage in Delaware County. High winds also caused damage in Washington County, destroying a barn and several outbuildings. A tornado touched down west of Manchester, and moved northeast about 9 miles before lifting. Reported was damage to a car dealership west of Manchester where many cars were damaged. A mobile home was moved 150 feet off its foundation. Nine farms reported damage caused by the tornado. Preliminary damage estimates were placed around \$75,000. The last report of severe weather was north of Garnavillo where a small tornado touched down briefly. A pole shed was destroyed, and several power lines were downed in the area. As the cold front moved farther to the east, the rain</p>									
<b>IOWA</b>									
<p>changed to snow over Northwest Iowa. Three to six inches of snow fell across the northwest third of the state during the evening hours of the 15th into the early morning hours of the 16th. Icy roads resulted in numerous traffic accidents.</p>									
IAZ001-002-003-004-005-006-007-008-009-010-011-012-013-014-015-SDZ018-NRZ010-ILZ004	15	2100 CST to 1600 CST			0	0	4	0	High Winds
All of Iowa									
<p>Following a sharp cold frontal passage, strong winds swept across Iowa. They began over the northwest counties during the evening of the 15th, and spread to the eastern counties during the early morning hours of the 16th. Winds were generally in the 30 to 45 MPH range, with a few gusts of 50 to 60 MPH. Damage was limited to tree limb and power line damage.</p>									
IAZ001-002-003-005-006-007	29	0200 CST to 1800 CST			0	0	4	0	Snow and Heavy Snow
North Third of Iowa									
<p>A band of 4 to 10 inch snows fell across the north third of Iowa making for very difficult driving. The heaviest snow accumulation was reported in Clarion with 10 inches. Waukon and Storm Lake each received 8 inches.</p>									
<b>14 KANSAS</b>									
Labette Co. Parsons	09	1605CST			0	0	2	0	Hail (1.75)
Edna	09	1615CST			0	0	2	0	TSTM Wind
Montgomery Co. Independence	09	1609CST			0	0	0	0	Hail (1.50)
Coffeyville	09	1620CST			0	0	0	0	Hail (1.0)
Crawford Co. SW Pittsburg	09	1640CST			0	0	0	0	TSTM Wind (52)
<p>A broken line of severe thunderstorms formed along a cold front in southeastern Kansas. The storms produced large hail in the Parsons area and winds gusted to 60 mph between Girard and Pittsburg. A telephone pole was also blown down in Edna. The line of severe thunderstorms produced two tornadoes in the Pittsburg area that are listed below.</p>									
Crawford Co. GWSW Pittsburg	09	1650CST	.2	30	0	0	5	0	Tornado (F1)
Pittsburg	09	1653CST	3	50	0	2	5	0	Tornado (F1)
<p>A small tornado briefly touched down on a farm 8 miles west-southwest of Pittsburg, just south of the Junction of Highways 126 and 7. The tornado leveled a large barn and damaged several outbuildings and some farm equipment. Damage from the first tornado was estimated around \$200,000. The same parent thunderstorm then produced another small tornado that struck the extreme northwest corner of the city of Pittsburg. The tornado uprooted trees and damaged roofs and windows of houses and buildings in the path of the storm. The tornado lifted and touched down 4 more times along its 3 mile long path, damaging several more buildings. Two persons were injured in the city of Pittsburg by flying glass and debris, but were treated and released from a local hospital. Damage from the second tornado was estimated between \$250,000 and \$400,000.</p>									
Sedgwick Co. Wichita	15	1140CST			0	0	2	0	TSTM Wind (54)
Sumner Co. Oxford	15	1140CST			0	0	3	0	TSTM Wind
Butler Co. SE Rose Hill	15	1145CST			0	0	3	0	TSTM Wind
Harvey Co. 12NW Newton	15	1150CST			0	0	3	0	TSTM Wind
Newton	15	1155CST			0	0	0	0	TSTM Wind (59)
1.5SW Newton	15	1155CST			0	0	3	0	TSTM Wind
Dickinson Co. 14SSW Abilene	15	1152CST			0	0	3	0	Hail (.75)
Cowley Co. 7S Winfield	15	1200CST			0	0	3	0	TSTM Wind (70)
3NW Winfield	15	1200CST			0	0	4	0	TSTM Wind
1N Burden	15	1200CST			0	0	3	0	TSTM Wind
<p>A line of severe thunderstorms developed ahead of a strong cold front in central Kansas during the late morning hours. The storms produced strong, straight-</p>									

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NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>KANSAS</b>									
									line winds as they moved rapidly northeastward at 50 mph. Numerous trees were uprooted, roofs damaged, windows blown out and outbuildings blown over from the strong winds. A wind gust of 81 mph was measured south of Winfield. Three-quarter inch diameter hail also fell 14 miles south-southwest of Abilene. No injuries were reported from the severe thunderstorms, but damage was estimated at \$40,000 in Cowley County.
Riley Co. Randolph	15	1225CST			0	0	2	0	Hail (1.0)
Morris Co. .5E Burdick	15	1235CST			0	0	3	0	TSTM Wind
Shawnee Co. Rossville	15	1253CST			0	0	2	0	Hail (1.75)
Auburn	15	1355CST			0	0	2	0	TSTM Wind
Topeka	15	1412CST			0	0	0	0	TSTM Wind (50)
NE Topeka	15	1414CST			0	0	0	0	Funnel Cloud
Washington Co. 2N Washington	15	1300CST			0	0	4	0	Lightning
Montgomery Co. Elk City to 2S Independence	15	1310 to 1350CST			0	2	5	0	TSTM Wind
Osage Co. Lyndon	15	1320CST			0	0	3	0	TSTM Wind
Burlingame	15	1345CST			0	0	3	0	TSTM Wind
Carbondale	15	1405CST			0	0	2	0	TSTM Wind (52)
Lyon Co. SS Emporia	15	1328CST			0	0	3	0	TSTM Wind
2W Admire	15	1333CST			0	0	3	0	TSTM Wind
Brown Co. Hiawatha	15	1355CST			0	0	4	0	TSTM Wind
Baker	15	1400CST			0	0	3	0	TSTM Wind
Wabaunsee Co. Eskridge	15	1355CST			0	0	2	0	TSTM Wind (52)
Neosho Co. .5N Morehead	15	1358CST			0	0	3	0	TSTM Wind
1.5NE Morehead	15	1400CST			0	0	3	0	TSTM Wind
2W Galesburg	15	1410CST			0	0	2	0	TSTM Wind
2W Galesburg	15	1410CST			0	0	3	0	TSTM Wind
1E Erie	15	1415CST			0	0	3	0	TSTM Wind
Nemaha Co. Centralia	15	1420CST			0	0	3	0	TSTM Wind
Franklin Co. 2E Ottawa	15	1430CST			0	0	5	0	TSTM Wind
Wyandotte Co. Kansas City	15	1513CST			0	0	2	0	TSTM Wind (52)
Johnson Co. Olathe	15	1515CST			0	0	2	0	TSTM Wind (52)
Merriam	15	1515CST			0	0	2	0	TSTM Wind (52)
									The same line of severe thunderstorms moved across eastern Kansas during the early afternoon hours and produced widespread straight-line wind damage to farms, residences and businesses. The majority of the damage was to roofs and windows. Downburst winds caused extensive damage to buildings east of Ottawa where damage was estimated at \$100,000. A wide swath of downburst winds moved across Neosho County during the early afternoon hours. Two persons were injured in Independence by flying debris. Damage in Montgomery and Neosho counties was estimated at \$100,000. Lightning also struck a home near Washington, and the resulting fire destroyed the house and its contents. The storms in eastern Kansas spawned six tornadoes which are listed below.
Neosho Co. 3.5SE Thayer	15	1405CST	.1	20	0	0	4	0	Tornado (F1)
6SW Galesburg to 1.5NE Galesburg	15	1415CST	7.5	50	0	0	4	0	Tornado (F2)
									Two narrow tornadoes touched down in southwest Neosho County as severe thunderstorms moved through the area. The tornadoes damaged roofs and blew out windows to several farms and outbuildings. The tornado near Galesburg was on the ground about 30 percent of its 7.5 mile path length. Northeast of Galesburg, several missiles were generated by the tornado. A two inch diameter tree limb was driven into the windshield of a car and a metal trash can was driven one inch into the trunk of a tree. Both tornadoes traveled northeastward at 50 mph.
<b>KANSAS</b>									
Shawnee Co. Topeka	15	1406CST	5	70	0	22	6	0	Tornado (F2)
									A narrow but strong tornado touched down in the southwest portion of Topeka shortly after 2 pm CST. The tornado then moved northeastward at 50 mph, doing considerable damage to homes, cars and businesses in the area. The tornado was on the ground about 30 percent of its 5 mile long path. The majority of the damage was F0 to F1, but a few homes in the 29th and Wanamaker Road area had roofs completely torn off. Topeka West High School had many windows blown out with considerable damage to dozens of car windows in the school's parking lot. A total of 22 persons suffered minor injuries from flying glass and debris. Damage totals included 107 residences and 15 business units with an estimated dollar amount of 3.9 million.
Jefferson Co. 2W Valley Falls	15	1430CST	.1	20	0	0	2	0	Tornado (F0)
Atchison Co. Effingham	15	1445CST	.1	20	0	0	2	0	Tornado (F0)
Huron	15	1455CST	.5	40	0	0	4	0	Tornado (F1)
									The same thunderstorm that produced the Topeka tornado was also responsible for 3 more separate tornado touchdowns in Jefferson and Atchison counties. Small tornadoes briefly touched down near Valley Falls and Effingham with only minor tree and power pole damage. In Huron, several homes and businesses sustained roof and window damage, along with several trees being split. No injuries were reported with any of the above tornadoes. All three tornadoes moved rapidly northeast at 50 mph.
KSZ001-002-003- 004-005-007-010	15	1000 to 2300CST			0	0	4	0	Near Blizzard
Western and North- Central Kansas									The same storm system that produced severe thunderstorms and tornadoes in central and eastern Kansas also brought snow and near blizzard conditions to western and north-central Kansas during the afternoon and evening hours. Snow began falling in northwest Kansas during the late morning hours and spread gradually northeastward. Snowfall totals between 2 to 4 inches were common during the storm with Burr Oak in Jewell County picking up 5 inches. The snow was accompanied by strong northerly winds of 40 to 60 mph that caused severe blowing and drifting with visibilities reduced to near zero. Goodland measured a peak wind gust of 60 mph at 1219 CST, with Garden City and Dodge City clocking winds of 56 mph and 51 mph, respectively. Many roads and highways across the area were closed during the storm and several accidents resulted. Only minor injuries occurred in the traffic accidents.
KSZ012-016-017	19- 20	1700 to 0500CST			0	0	0	0	Snow
South-Central and Southeast Kansas									A low pressure system moved from southern Oklahoma into central Arkansas and produced a band of snow across south-central and southeastern Kansas. The snow began falling in south-central Kansas during the late afternoon hours on the 19th and finally ended across southeast Kansas in the early morning hours of the 20th. The heaviest snow fell between 2000 CST on the 19th and 0200 CST on the 20th. Generally 3 to 5 inches of snow fell across the area with some local amounts of 6 to 8 inches. Some snowfall totals from the storm included 8 inches at South Haven, 5 inches at Mound City, 4 inches at Anthony and 2 inches at Wichita. The snow was also accompanied by thunder and lightning in Cowley and Sumner counties during the evening hours of the 19th. No major travel problems were reported with the snow.
Labette Co. 9E Parsons	26	1800CST			0	0	4	0	TSTM Wind
									A line of strong thunderstorms moved across east-central and southeastern Kansas during the late afternoon and evening hours ahead of a cold front. One of the thunderstorms produced strong, straight-line winds that took the roof off a hay barn, severely damaged a cabin, broke a glass door and uprooted several pecan trees east of Parsons. The storms also dropped marble size hail at Winfield and produced 40 mph winds in Coffeyville.



# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM																																																																												
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<b>17 MAINE</b>																																																																																					
MEZ001-002-003-004-006-007-008-010-011-013-014 Northeast, Northern Interior, Downeast, Coastal, and Southwest Interior	01-02				0	0	5	0	High Wind																																																																												
	<p>A very deep low pressure center formed off the mid Atlantic coast and moved northeast as an intense ocean storm. This affected the state with high winds and some large rain amounts of which were mostly along the coast. Wind gusts of 70 mph at Southwest Harbor, 62 mph at Ellsworth, 60 mph at Rockland, 55 mph at Mount Desert Island, 50 mph at Eastport, and 46 mph at Presque Isle were reported.</p> <p>In the area offshore of Rockland to Camden, several boats were destroyed and many others sank. Damage was done to a church in Eastport, and power lines were downed throughout the affected area, causing scattered power outages.</p> <p>Rainfall of 4.52 inches was recorded in Portland during the 22 hours of the storm. Camden/Mirror Lake reported 4.30 inches. Numerous reports of 2.50 to 4.00 inch amounts were noted along the coast.</p>																																																																																				
MEZ001-002-005-009 Northeast, Northern Interior, Northwest, and Western Mountains	20-21				3	3	5	0	Heavy Snow																																																																												
	<p>A low pressure area moved into Canada and through the province of Quebec bringing heavy snow to north and west sections of the state. Lighter amounts were noted over much of the remainder of Maine.</p> <p>Several fatalities resulted from snow-packed roads, and one occurred on a lobster boat in rough water and icy conditions. Over 100 accidents were blamed on the storm, but this resulted in only three injuries to motorists. Spotty power outages were reported, but the number of customers affected in unknown. Snowfall in inches and by zone was as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Zone 001</u></td> <td></td> <td style="text-align: center;"><u>Zone 006</u></td> <td></td> </tr> <tr> <td>Fort Kent</td> <td style="text-align: center;">14</td> <td>Moosehead</td> <td style="text-align: center;">7</td> </tr> <tr> <td>Fortage</td> <td style="text-align: center;">11</td> <td>Greenville</td> <td style="text-align: center;">5</td> </tr> <tr> <td>Presque Isle</td> <td style="text-align: center;">10</td> <td>Blochard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Mara Hill</td> <td style="text-align: center;">6</td> <td>Guilford</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Caribou</td> <td style="text-align: center;">10</td> <td>Milo</td> <td style="text-align: center;">2</td> </tr> <tr> <td></td> <td></td> <td>Millinocket</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;"><u>Zone 002</u></td> <td></td> <td style="text-align: center;"><u>Zone 007</u></td> <td></td> </tr> <tr> <td>Houlton</td> <td style="text-align: center;">3</td> <td>Bangor</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;"><u>Zone 003</u></td> <td></td> <td style="text-align: center;"><u>Zone 009</u></td> <td></td> </tr> <tr> <td>Grand Lake</td> <td style="text-align: center;">10</td> <td>Eustis</td> <td style="text-align: center;">8</td> </tr> <tr> <td>Forest City</td> <td style="text-align: center;">2</td> <td>Brassua</td> <td style="text-align: center;">7</td> </tr> <tr> <td style="text-align: center;"><u>Zone 005</u></td> <td></td> <td>Flagstaff</td> <td style="text-align: center;">5</td> </tr> <tr> <td>Clayton Lake</td> <td style="text-align: center;">12</td> <td>Phillips</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Allagash</td> <td style="text-align: center;">11</td> <td></td> <td></td> </tr> <tr> <td>Churchill Dam</td> <td style="text-align: center;">10</td> <td style="text-align: center;"><u>Zone 010</u></td> <td></td> </tr> <tr> <td>Telos</td> <td style="text-align: center;">9</td> <td>Showhegan</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Ripogenus</td> <td style="text-align: center;">6</td> <td>Medway</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Comstock</td> <td style="text-align: center;">6</td> <td></td> <td></td> </tr> </table>									<u>Zone 001</u>		<u>Zone 006</u>		Fort Kent	14	Moosehead	7	Fortage	11	Greenville	5	Presque Isle	10	Blochard	3	Mara Hill	6	Guilford	3	Caribou	10	Milo	2			Millinocket	2	<u>Zone 002</u>		<u>Zone 007</u>		Houlton	3	Bangor	2	<u>Zone 003</u>		<u>Zone 009</u>		Grand Lake	10	Eustis	8	Forest City	2	Brassua	7	<u>Zone 005</u>		Flagstaff	5	Clayton Lake	12	Phillips	2	Allagash	11			Churchill Dam	10	<u>Zone 010</u>		Telos	9	Showhegan	2	Ripogenus	6	Medway	2	Comstock	6		
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<b>18 MARYLAND and D.C.</b>																																																																																					
Frederick County and Anne Arundel County, Annapolis	20	1900EST			0	0	?	0	Winds																																																																												
	<p>Strong winds associated with a cold front downed tree limbs and some power lines. Heavy rainfall accompanying the winds amounted to nearly two inches.</p>																																																																																				
<b>19 MASSACHUSETTS</b>																																																																																					
Northern Worcester County	20	2100-2130EST			0	0	4	0	Lightning																																																																												
	<p>A squall line which moved eastward through the region brought thunderstorms with lightning strikes that knocked out electric power in scattered locations from Petersham to Leominster. Lightning strikes also resulted in two house fires in Leominster.</p>																																																																																				
Hampden County, Palmer and Monson	20	2115-2130EST			0	0	4	0	Thunderstorm Winds (45)																																																																												
	<p>Winds associated with a squall line cut a swath some 15 to 20 yards wide and 200 yards long in Monson, toppling a few trees and downing electric wires. In Palmer, a similar occurrence knocked bricks from the corner of a building, damaging a few autos parked below.</p>																																																																																				
MAZ001-004-005-006-007-008-009	20	1800EST-0600EST			0	0	4	0	High Winds																																																																												
	<p>High winds gusting up to 50 to 60 mph in some locations and recorded at up to 62 mph at North Adams in the northern Berkshires knocked down many tree limbs and some trees, resulting in scattered power outages and generally minor damage to property.</p>																																																																																				
Bristol County, Attleboro	21	0345EST			0	0	3	0	Lightning																																																																												
	<p>Lightning struck the roof of a factory building, causing a fire which was confined to the outside of the building.</p>																																																																																				
<b>20 MICHIGAN</b>																																																																																					
MIZ017-020 Western Upper Peninsula	05-06				0	0	0	0	Snow																																																																												
	<p>Ten inches of snow fell at Marquette Airport, up to 24 inches fell in the mountains, and lesser amounts fell along the lakeshore. An auto accident resulted in one person being killed and another injured.</p>																																																																																				
MIZ001-022 Entire State	16	all day			0	0	5	0	Wind																																																																												
	<p>Many trees and power lines were downed. Fourteen freighters went to anchor. Buildings under construction were blown down in Oakland County and Isoco County. A car was destroyed by a falling tree in Dowagiac, houses were damaged in Sturgis and Constantine, a store was damaged in Ann Arbor, and two mobile homes were destroyed and a barn was damaged north of Niles. Gusts reached 65 mph at Benton Harbor at 0200EST, 60 mph at Eau Claire at 0332EST, and 68 mph at Detroit in the late forenoon.</p>																																																																																				
<b>21 MINNESOTA</b>																																																																																					
MNZ001-002 Extreme Northwest	14-15	1900CST			0	0	0	0	Heavy Snow																																																																												
	<p>Snow began in the northwest around 1900CST then continued through the night into the following morning. By 1130CST 6 to 10 inches accumulated in the extreme northwest tip of Minnesota.</p>																																																																																				
MNZ003-004-006-007-008-010-011-013-014 North-Central, Central, West-Central	15-16	1700CST			0	0	0	0	Heavy Snow																																																																												
	<p>A mixture of sleet, freezing rain and snow from north-central into west-central Minnesota changed over to snow Tuesday afternoon. Rain across southeast Minnesota Tuesday afternoon changed to snow during the evening. Snow continued across Minnesota Wednesday morning and winds increased creating near zero visibilities due to blowing snow in the northwest and west-central. A 60 mile per hour gust was recorded at Morris at 0500CST. Snow and blowing snow blocked roads, caused power outages and closed schools. Snow at many locations accumulated over a sheet of ice that coated roads from preceding rainfall. Eleven inches of snow fell at International Falls and 6 to 9 inches fell from north-central Minnesota south through Brainerd and St. Cloud to Willmar.</p>																																																																																				
MNZ003-004-005-006-007-008-009-010-011-013-014-015 Southwest to Northeast	26-27	0600CST			0	0	0	0	Blizzard, Heavy Snow																																																																												
	<p>Snow preceded by rain and sleet spread across southern Minnesota early Saturday morning. Heavy snow began in Minneapolis at 0646CST. By 0945CST snow had spread north through Brainerd and by 1115CST snow was falling through the arrowhead region. Winds increased across western Minnesota Saturday afternoon and evening. Sunday morning, whitout conditions developed from Detroit Lakes and Fergus Falls south through Marshall. Blizzard conditions stranded or forced thousands of travelers to seek shelters in local communities in southwest Minnesota Sunday afternoon and evening. Windon reported a gust to 63 miles per hour at 1600CST. Many roads were closed with drifts from 6 to 7 feet. I-90 was closed until 2100CST between Sioux Falls and Fairmont and I-94 was temporarily closed near Fergus Falls. Fourteen inches of snow fell at Aitkin. Snow in excess of 6 inches fell from Montevideo in the southwest, north as far as Bemidji and northeast through St. Cloud and Duluth into the arrowhead region.</p>																																																																																				
<b>22 MISSISSIPPI</b>																																																																																					
Issaquena County, Fittler	03	1545CST			0	0	?	0	Hail (.75) Thunderstorm Winds																																																																												
	<p>Tin was blown off of a shed.</p>																																																																																				
Holmes County, SW Lexington	04	1420CST			0	0	?	0	Hail (1.00)																																																																												
Holmes County, Lexington	04	1430-1450CST			0	0	?	0	Hail (1.00)																																																																												
	<p>Marble to nickel size hail fell for 20 minutes. High winds blew the hail up to one foot in some drifts.</p>																																																																																				
Hinds County, Edwards	04	1445CST			0	0	?	0	Hail (1.75)																																																																												
Lee County, Baldwin	04	1445CST			0	0	?	0	Hail (1.75)																																																																												
Chickasaw County, Houston	04	1448CST			0	0	?	0	Hail (1.75)																																																																												

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS		
<b>MISSISSIPPI</b>										
Prentiss County, 3NW Marietta to 15E Booneville	04	1450-1510CST	12.0	150	0	0	5	0	Tornado (F3)	A rather strong tornado cut a 12 mile path through southeast Prentiss County. Three homes were destroyed while 7 others were damaged. One mobile home was overturned. Several outbuildings were destroyed. The school at New Site was dismissing when the tornado approached. The students were rushed back to the hallways. The tornado struck the gym and destroyed the roof. Damage to the gym was estimated at 60,000 dollars.
Yazoo County, 5W Yazoo City	04	1500CST			0	0	?	0	Hail (1.75)	
Pontotoc County, 15SE Pontotoc	04	1500CST			0	0	?	0	Thunderstorm Winds	Trees were blown down in southeast Pontotoc County.
Hinds County, Bolton	04	1505CST			0	0	?	0	Hail (1.75)	
Hinds County, Clinton	04	1519-1525CST			0	0	5	0	Hail (1.75)	Many cars in Clinton's industrial park suffered heavy damage.
Tishomingo County, 5W Belmont	04	1525CST	2.0	100	0	0	?	0	Tornado (F1)	A tornado set down briefly in southwest Tishomingo County. The tornado cut a well-defined path through a very wooded portion of the county.
Hinds County, Utica	04	1525CST			0	0	?	0	Hail (1.75)	
Hinds County, Clinton	04	1525CST			0	0	0	0	Funnel Cloud	
Attala County, Sallis and Kosciusko	04	1530CST			0	0	?	0	Thunderstorm Winds	Trees were blown down in Sallis and Kosciusko.
Madison County, 12N Canton	04	1530CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down north of Canton.
Hinds County, Raymond	04	1531CST			0	0	0	0	Funnel Cloud	
Tishomingo County, Dennis to 8SE Tishomingo	04	1535-1542CST	5.0	100	0	0	5	0	Tornado (F1)	A tornado first touched down on Mississippi Highway 25 at Dennis and then moved northeast before dissipating. Trees were uprooted along the tornado's path. About 6 homes suffered minor damage, while 2 chicken houses and 1 barn were destroyed.
Tishomingo County, 4NW Iuka to 6NE Iuka	04	1540-1550CST	7.0	200	0	0	5	0	Tornado (F3)	The same storm which produced a tornado in Prentiss County developed a second strong tornado in northern Tishomingo County. A 4 bedroom home, 2 churches, 1 mobile home, and several barns were destroyed. About 15 other homes suffered minor to moderate damage. Trees along the path were splintered or uprooted.
Madison County, 10NE Canton	04	1545CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down northeast of Canton.
Simpson County, 5NW Magee	04	1545CST			0	0	?	0	Thunderstorm Winds	Trees were blown down northwest of Magee.
Hinds County, Utica	04	1545CST			0	0	?	0	Hail (1.75)	
Simpson County, 2NW Magee	04	1550CST			0	0	0	0	Funnel Cloud	
Simpson County, 4E Magee	04	1600CST			0	0	?	0	Hail (1.75)	
Hinds County, Byram	04	1600CST			0	0	?	0	Hail (1.00) Thunderstorm Winds	Strong winds damaged a roof in Byram and blew down several trees.
Hinds County, 4W Terry	04	1607CST			0	0	?	0	Hail (1.75)	
Hinds County, 3S Jackson	04	1608CST			0	0	?	0	Hail (1.00)	
Attala County, 15NE Kosciusko	04	1610CST			0	0	?	0	Hail (1.75)	
Hinds County, Terry	04	1615CST			0	0	0	0	Funnel Cloud	
Kemper County, DeKalb	04	1617CST			0	0	?	0	Hail (1.75)	
Rankin County, 6E Brandon	04	1620CST			0	0	?	0	Hail (.75)	
<b>MISSISSIPPI</b>										
Kemper County, 9S DeKalb	04	1630CST	2.0	75	0	0	4	0	Tornado (F1)	A tornado touched down 9 miles south of DeKalb. The tornado tracked entirely through a wooded area, so damage was confined to trees.
Smith County, 3SW Mize	04	1630CST			0	0	?	0	Hail (1.00)	
Prentiss County, 2N Marietta - 3NE Marietta	04	1635CST	2.0	70	0	0	4	0	Tornado (F1)	About an hour after the first tornado touched down in Prentiss County, another storm produced a second tornado that was nearly parallel and within 1 mile of the first tornado. Cleanup operations were already underway when many people saw the second tornado coming. Most damage was confined to wooded areas. An 18-wheeler was blown off the road.
Monroe County, Amory	04	1640CST			0	0	?	0	Hail (1.75)	
Monroe County, 3NW Amory	04	1645CST			0	0	0	0	Funnel Cloud	
Newton County, 3NW Little Rock to 7NE Little Rock	04	1645-1652CST	4.0	100	0	0	5	0	Tornado (F1)	A tornado moved through the extreme northeastern portion of Newton County. An unoccupied house was destroyed and another home under construction was heavily damaged. One other home received minor damage. Numerous trees were downed along the tornado's path.
Monroe County, Amory	04	1646CST	.5	30	0	0	4	0	Tornado (F1)	A weak tornado touched down briefly in Amory. The tornado blew down a large metal bank sign, tore the roofs off 2 stores, and took a roof off of a tin shed.
Jefferson Davis County, 7W SW Prentiss	04	1650CST			0	0	?	0	Thunderstorm Winds	Several trees were blown down in the western portion of Jefferson Davis County.
Hinds County, Jackson	04	1655CST			0	0	?	0	Hail (1.75)	
Lee County, Nettleton	04	1658CST			0	0	0	0	Funnel Cloud	
Covington County, 10W Collins	04	1700CST			0	0	?	0	Hail (1.00) Funnel Cloud	
Simpson County, 10NE Mendenhall	04	1705CST			0	0	?	0	Hail (1.00)	Nickel size hail fell for 15 minutes.
Rankin County, 12S Brandon	04	1705CST			0	0	?	0	Hail (1.00)	
Hinds County, Terry	04	1710CST			0	0	?	0	Hail (.75)	
Rankin County, 5N Brandon	04	1725CST			0	0	?	0	Hail (.75)	
Wayne County, 12S Waynesboro	04	1800CST			0	0	?	0	Thunderstorm Winds	Several trees and power lines were blown down.
Jones County, Laurel	04	1910CST			0	0	?	0	Hail (1.75)	
Wayne County, Winchester to 8E Winchester	04	1910-1930CST	8.0	200	0	0	5	0	Tornado (F3)	A rather powerful tornado moved eastward through the rural eastern portion of the county. Two homes, one a 4 bedroom, were totally destroyed. Three mobile homes were also destroyed while one church received significant damage. Numerous large trees and power lines were also blown down.
Pike County, McComb	04	1915CST	.25	50	0	0	4	0	Tornado (F1)	A tornado touched down briefly near an academy in western McComb. The tornado missed a filled football stadium by 300 yards. Several trees and power lines were blown down. Some homes suffered roof damage, and a few sheds were destroyed.
Pike County, 1E McComb	04	1920CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down just east of McComb.
Jones County, 5N Laurel	04	1925CST			0	0	?	0	Thunderstorm Winds	Several large oak trees were blown down.
Marion County, 5W Columbia	04	2015CST			0	0	?	0	Thunderstorm Winds	Several trees were blown down west of Columbia.
Marion County, 5S Columbia to SSE Columbia	04	2020-2030CST	4.0	40	0	0	4	0	Tornado (F1)	A tornado touched down intermittently through mostly wooded areas south of Columbia. Two homes in the path of the tornado were damaged.
Marion County, Columbia	04	2020CST			0	0	?	0	Hail (1.00)	

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NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>MISSISSIPPI</b>									
Jasper County, 2E Bay Springs	04	2025CST			0	0	?	0	Hail (.75)
Marion County, Sandy Hook	04	2030CST			0	0	?	0	Hail (1.75) Thunderstorm Winds Hail of golf ball size accompanied the winds.
Issaquena County, 2N Fittler	12	1515CST			0	0	?	0	Hail (.75)
Warren County, Vicksburg	12	1600CST			0	0	0	0	Funnel Cloud
Warren County, Vicksburg	12	1605CST			0	0	?	0	Thunderstorm Winds Several trees and power lines were downed.
Warren County, 8N Vicksburg	12	1608CST	.5	50	0	0	4	0	Tornado (F1) A small tornado touched down briefly in the Kings Community north of Vicksburg. Several trees were downed and a roof was blown off of a home.
Warren County, 3S Bovina	12	1615CST			0	0	?	0	Thunderstorm Winds (G70) Winds estimated up to 80 mph struck south of Bovina downing numerous trees and power lines.
Hinds County, 1W Edwards	12	1618CST			0	0	?	0	Hail (1.00)
Hinds County, 1W Edwards - 1E Edwards	12	1620-1628CST	4.0	40	0	0	4	0	Tornado (F1) A very weak tornado touched down sporadically as it moved eastward through Edwards, mostly uprooting or taking the tops out of trees. Some roof damage also occurred.
Hinds County, 3S Bolton	12	1630CST			0	0	0	0	Funnel Cloud
Hinds County, 2W Clinton	12	1642CST			0	0	0	0	Funnel Cloud
Hinds County, Jackson	12	1700CST			0	0	?	0	Thunderstorm Winds (G52)
Claiborne County, Rocky Springs	12	1700CST			0	0	?	0	Thunderstorm Winds Several trees were blown down in the extreme northeastern portion of Claiborne County.
Copiah County, 10NW Hazlehurst	12	1745CST			0	0	?	0	Thunderstorm Winds Several trees were blown down in Dentville.
Amite County, 10E Liberty	12	1830CST			0	0	?	0	Thunderstorm Winds Several trees were blown down in eastern Amite County.
Clarke County, Basic City	12	1900CST			0	0	?	0	Thunderstorm Winds Three trees were blown down and the roof was blown off of a pump house.
Clarke County, 1NW Sable	12	1910CST			0	0	?	0	Thunderstorm Winds Several trees were blown down and one fell and damaged one home.
Lauderdale County, 4W Meridian	12	1910CST			0	0	?	0	Thunderstorm Winds Trees were blown down west of Meridian.
Lauderdale County, 7W Meridian	12	1915CST			0	1	?	0	Thunderstorm Winds Several trees were blown down. One landed on a car and injured the occupant.
Hinds County, Jackson	19	0730CST			0	0	4	0	Flash Flood Rainfall amounts of 2-4 inches fell between 0600 and 0800CST. Several streets were flooded. Also, water got into several units of an apartment complex.
Amite County, Gillsburg to 2NE Gillsburg	19	0810CST	2.0	120	0	0	5	0	Tornado (F1) A tornado touched down in extreme southeast Amite County and blew the roofs off 2 homes. Another house was knocked off its concrete blocks. A barn and carport were demolished. Extensive timber damage occurred along the tornado's path.
Pike County, Summit	19	0830CST			0	0	4	0	Flash Flood Rainfall amounts of 5 to 6 inches fell between 0500 and 0900 CST. Several businesses flooded in the downtown area along with one grocery store.
Simpson County, Magee and Mendenhall	19	1000-1200CST			0	0	5	0	Flash Flood Flooding occurred in Magee and Mendenhall, closing many roads. Several homes and a nursing home received water damage. Up to 6 1/2 inches of rain fell between 0500 and 1100 CST.
<b>MISSISSIPPI</b>									
Rankin County, Cato	19	1000CST			0	1	0	0	Lightning A hunter, in his deer stand, was struck by lightning. The victim survived, although he spent several weeks in the hospital.
Simpson County, Magee	19	1145CST			0	0	5	0	Thunderstorm Winds About 25 homes suffered roof damage.
Simpson County, 3SW Magee	19	1148CST	2.0	40	0	0	4	0	Tornado (F1) A weak tornado destroyed 1 chicken house and blew down several trees and power lines.
Smith County, 5NE Raleigh	19	1220CST			0	0	?	0	Thunderstorm Winds Power lines were blown down.
Newton County, 2NE Lake	19	1255CST			0	0	?	0	Thunderstorm Winds Trees and power lines were blown down in west-central Newton County.
Scott County, Forest	19	1330CST			0	0	4	0	Lightning Lightning struck a building in downtown Forest. One building was heavily damaged.
Newton County, 8NW Decatur	19	1355CST	2.5	125	0	0	4	0	Tornado (F1) A tornado damaged a house and a barn and caused extensive timber damage.
Bolivar County, 5W Cleveland	19	1750CST			0	0	?	0	Hail (1.75)
Bolivar County, 7SW Cleveland	19	1800CST	.3	40	0	0	3	0	Tornado (F1) A tornado touched down briefly in an open field. The only damage was to a nearby home and car where the windows were blown out.
Bolivar County, Merigold/Mound Bayou	19	1805CST			0	0	5	0	Hail (2.00) Large hail broke out windows in homes and dented cars.
Bolivar County, 8N Cleveland	19	1810CST	.4	50	0	0	3	0	Tornado (F1) A second tornado developed in Bolivar County from the same thunderstorm. This tornado missed any standing structures, but did blow down some power lines.
Bolivar County, Winstonville	19	1812CST			0	0	5	0	Hail (2.25) Very large hail knocked windows out of cars and homes. Also, a number of automobiles were heavily dented.
Sunflower County, 2SW Parchman to 3N Parchman	19	1825-1830CST	4.0	100	0	3	5	0	Tornado (F3) A strong tornado moved through the open fields of northern Sunflower County. The tornado struck a well-built 42 year old home and totally destroyed it. The 5 occupants took cover in the middle of the home. Three of them were injured when glass and nails were driven into them. Two family cats were killed. Four other homes that were in the path of the tornado were also damaged. This was the same storm that produced the 2 tornadoes in Bolivar County.
Coahoma County, Rena Lara	19	1830CST			0	0	0	0	Funnel Cloud
Coahoma County, Davenport	19	1840CST			0	0	?	0	Thunderstorm Winds Several trees were blown down.
Coahoma County, Lyon	19	1845CST			0	0	0	0	Funnel Cloud
Coahoma County, Jonestown	19	1855CST			0	0	0	0	Funnel Cloud
Hinds County, Terry	19	1855CST			0	0	?	0	Funnel Cloud
Hinds County, Clinton, Western Jackson	19	1856CST			0	0	0	0	Hail (.75)
Holmes County, Lexington	19	1900CST			0	0	?	0	Thunderstorm Winds Trees and power lines were blown down.
Panola County, 8W Batesville	19	1915CST	1.0	50	0	0	4	0	Tornado (F1) A weak tornado touched down briefly in western Panola County. The tornado moved across one farm and damaged several buildings.
Panola County, 5SW Sardis	19	1930CST			0	0	3	0	Thunderstorm Winds Strong winds blew the roof off of a storage gin.

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS		
<b>MISSISSIPPI</b>										
Coahoma County, 85 Clarksdale to Mattson	19	1945CST	6.0	60	0	0	5	0	Tornado (F1)	A tornado moved through southern Coahoma County. Several sheds and barns were destroyed. Several homes suffered roof damage.
Scott and Leake Counties, 3NW Ludlow to 6SW Carthage	19	1945-2000CST	12.0	90	0	2	5	0	Tornado (F2)	A tornado touched down initially in the extreme northwest tip of Scott County and then moved northeast through the southwest portions of Leake County. Three mobile homes and a house at a hunting club were destroyed. Two homes had major damage. Seven other homes received minor damage.
Issaquena County, 4NE Fittler	19	1950CST	1.5	50	0	0	4	0	Tornado (F1)	A tornado touched down briefly northeast of Fittler and overturned a trailer, tore the roof off a mobile home and damaged another mobile home.
Sharkey County, Cary	19	2005CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Leake County, Carthage	19	2007CST			0	0	3	0	Thunderstorm Winds (G52)	In the southern portion of Carthage, winds estimated at 60mph blew down signs and a few trees.
Leake County, 8NE Carthage	19	2020CST			0	0	?	0	Thunderstorm Winds	Several trees were uprooted and the tops taken out of some trees on Mississippi Highway 25.
Humphreys County, Belzoni	19	2035CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
LeFlore County, Sidon	19	2100CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Carroll County, 5SW North Carrollton to 1N North Carrollton	19	2120CST	7.0	120	0	0	5	0	Tornado (F2)	One mobile home was destroyed and 30 homes suffered minor damage from a tornado that just clipped the northwest tip of North Carrollton. Six buildings on the city's school grounds were also damaged. The heaviest damage was to timber west and southwest of North Carrollton.
Lafayette County, Oxford	19	2140CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Montgomery County, Winona	19	2145CST			0	0	4	0	Thunderstorm Winds	Two schools were damaged and several trees were blown down in Winona.
Madison County, 15NE Canton	19	2200CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Lee County, 1NW Nettleton to Richmond	19	2215CST	12.5	120	2	11	6	0	Tornado (F3)	This powerful tornado moved northeast through southeast Lee County. The tornado did most of its structural damage in the Temple Grove and Kedron Hills communities. A total of 5 homes, 7 mobile homes and two businesses were destroyed. Fourteen other homes were damaged. One chicken house was destroyed along with several cars, farm equipment and outbuildings. Total damages to structures were estimated at 542,000 dollars. One man asleep in his mobile home was killed and carried 1/4 mile away by the tornado. His wife and 3 children had been at another location when the tornado struck. A 9 month old baby was also killed when he was tossed from the mobile home he was sleeping in. M39M MIM
Pontotoc County, Buckhorn	19	2230CST	.25	30	0	0	4	0	Tornado (F1)	A small tornado touched down briefly on Mississippi Highway 341 in southwest Pontotoc County. A semitrailer was overturned, 3 homes had roof damage and a shed and barn were destroyed.
Pontotoc County, 6E Pontotoc	19	2245CST			0	0	?	0	Thunderstorm Winds	Several trees were blown down.
Lauderdale County, Meridian	19	2303CST			0	0	?	0	Hail (1.00)	
Itawamba County, Evergreen	20	0025CST			0	0	?	0	Thunderstorm Winds	Several trees were blown down.
Bolivar County, 2S Boyle	26	0920CST	.25	25	0	0	3	0	Tornado (F1)	A tornado touched down briefly in eastern Bolivar County and heavily damaged a trailer shed.
<b>MISSISSIPPI</b>										
Sunflower County, Ruleville	26	0928CST	2.0	40	0	0	6	0	Tornado (F2)	The same storm that produced a tornado in Boyle developed another one in the middle of Ruleville. This tornado was quite a bit stronger and destroyed 3 homes and 1 mobile home. Another 38 homes were damaged and 7 of these sustained major damage. Both the Jr. High and High Schools suffered around 1 million dollars in damage. An additional half-million dollars of damage was estimated for other structures.
Lafayette County, 5E Oxford	26	1115CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Lafayette County, Yocona	26	1115CST	.25	33	0	0	4	0	Tornado (F1)	A tornado touched down briefly in Yocona and destroyed 1 barn, a carport and a front porch. Two homes suffered minor damage and a mobile home was lifted off its blocks.
Warren County, 5NW Vicksburg	26	1150CST			0	0	?	0	Thunderstorm Winds	Several roofs had minor damage. A few trees were also blown down.
Prentiss County, Thrasher	26	1200CST			0	0	0	0	Funnel Cloud	
Warren County, 2S Redwood to 2NE Oak Ridge	26	1200-1212CST	9.0	600	0	0	6	0	Tornado (F2)	A very wide tornado moved through a heavily wooded area of northern Warren County. At some points, the tornado width was up to 1/2 mile. Six homes and 2 businesses suffered minor damage, but were outside the core of the strongest winds. Most trees in the path were either splintered or uprooted. Tree damage was estimated at 1.2 million dollars.
Prentiss County, 7E Booneville	26	1213CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Prentiss County, Blackland	26	1215CST			0	0	0	0	Funnel Cloud	
Yazoo County, 2SW Phoenix to 3E Phoenix	26	1220CST	5.0	70	0	0	?	0	Tornado (F1)	The same storm that produced a tornado in Warren County developed another tornado in the extreme southern portion of Yazoo County. No structures were in the path of the tornado, but numerous trees were uprooted.
Yazoo County, Bentonla	26	1230CST			0	0	4	0	Thunderstorm Winds	A few power lines were blown down and a trailer was overturned.
Madison County, Canton	26	1258CST			0	0	0	0	Funnel Cloud	
Madison County, 5E Canton	26	1305CST			0	0	?	0	Thunderstorm Winds	Power lines were blown down.
Prentiss County, 5NW Booneville	26	1310CST			0	0	0	0	Funnel Cloud	
Madison County, 5N Madison	26	1310CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Hinds County, 2N Clinton	26	1325CST			0	0	0	0	Funnel Cloud	
Tishomingo County, Midway	26	1330CST			0	0	4	0	Thunderstorm Winds	Several trees were blown down. One fell on a mobile home and heavily damaged it.
Attala County, 12E Kosciusko	26	1340CST	2.5	65	0	0	?	0	Tornado (F1)	A weak tornado moved through southeastern Attala County. The tornado crossed Mississippi Highways 19 and 14, but only trees were damaged.
Madison County, 15NE Canton	26	1340CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down.
Winston County, 4NE Louisville	26	1435CST			0	0	?	0	Thunderstorm Winds	Trees were blown down on Mississippi Highway 25.
Itawamba County, 3N Fairview	26	1445CST			0	0	?	0	Thunderstorm Winds	Trees were blown down on Mississippi Highway 25.
Rankin County, Star	26	1455CST			0	0	0	0	Funnel Cloud	
Franklin County, 7SE Franklin	26	1512CST			0	0	?	0	Hail (1.75)	

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					KILLED	INJURED	PROPERTY	CROPS	
<b>MISSISSIPPI</b>									
Neshoba County, 11NE Philadelphia	26	1515CST		0	0	?	0	0	Thunderstorm Winds
				Several trees were blown down.					
Lincoln County, 5S Messon	26	1520CST		0	0	0	0	0	Funnel Cloud
Copiah County, Messon	26	1525CST		0	0	?	0	0	Thunderstorm Winds
				Trees and power lines were blown down.					
Amite County, Brookside	26	1620CST		0	0	?	0	0	Thunderstorm Winds
				Several trees were blown down.					
Amite County, Thompson	26	1630CST		0	0	?	0	0	Thunderstorm Winds
				Several trees were blown down.					
<b>23 MISSOURI</b>									
Boone County, Columbia	4	0630CST		0	0	0	1	1	Hail (1.00)
				Hail ranged from 3/4 to 1 inch in diameter.					
Vernon County, 10N Nevada	9	1700CST		0	0	0	0	0	Hail (0.75)
Barton County, Lamar	9	1725CST		0	0	0	0	0	Hail (0.75)
Jasper County, Carl Junction	9	1745CST		0	0	0	0	0	Hail (0.75)
				Up to 1.5 inches of rain accompanied the hail which fell in a 30 to 40 minute period.					
Pettis County, 10SW Sedalia	9	1745CST		0	0	0	0	0	Hail (0.75)
Vernon County, 15NW Nevada	15	1435CST		0	0	3	0	0	Hail (1.75)
Newton County, Diamond	15	1540CST		0	0	4	0	0	TSTM Wind
				A roof was blown off of a house and trees were downed by strong straight-line winds.					
McDonald County, 4SE Jane to Barry County, Butterfield	15	1545-1640CST	28	25	1	12	6	0	Tornado (F2)
				A tornado touched down about four miles southeast of Jane and produced intermittent damage through southeast McDonald County and into west-central and northwest Barry County. Several buildings were destroyed and several others damaged southeast of Jane. The tornado produced damage to several buildings in Exeter as well. Damage also occurred 2 to 3 miles southwest of Butterfield. The most significant damage was in the Butterfield area. The tornado destroyed 18 houses and damaged 30. It also destroyed 15 mobile homes and damaged 5 others. A 69 year old woman was killed while in her mobile home. A man and his son were injured seriously when they drove their pickup truck into the storm. P69M.					
Jasper County, 6SE Carthage	15	1550CST	1	50	0	0	4	0	Tornado (F1)
				A tornado touched down 6 miles southeast of Carthage and destroyed several farm buildings. It took the roof off of one farm home.					
Newton County, Neosho	15	1552CST		0	0	2	0	0	TSTM Wind (52)
				Winds up to 60 mph occurred at Neosho.					
Jasper County, Avilla	15	1600CST		0	0	3	0	0	TSTM Wind
				Wind damage was done to farm buildings just northeast of Avilla.					
Chariton County, Triplett	15	1600CST		0	0	3	0	0	TSTM Wind
				Winds damaged a home and trees. Small hail was also reported.					
Henry County, Windsor	15	1655CST	0.5	50	0	0	4	0	Tornado (F1)
				A tornado touched down just north of Windsor and damaged a house and barn.					
<b>MISSOURI</b>									
Johnson County, Leeton	15	1655CST	0.5	50	0	0	5	0	Tornado (F1)
				A tornado touched down and damaged homes and outbuildings near Leeton. Trees and power lines were also downed.					
Lawrence County, White Oak	15	1655CST		0	0	2	0	0	TSTM Wind
				Minor wind damage occurred in White Oak.					
Benton County: Warsaw	15	1705CST		0	0	3	0	0	TSTM Wind
10NE Warsaw	15	1715CST		0	0	3	0	0	TSTM Wind
				Winds damaged trailers in Warsaw and a house 10 miles northeast of Warsaw.					
Pettis County: Greenridge	15	1710CST	0.5	30	0	0	4	0	Tornado (F1)
				A tornado touched down briefly to the north of Greenridge on Highway 127. Power lines and trees were downed. The roof was blown off of a house and two farm structures were damaged. Highway 127 was blocked by trees.					
Dresden	15	1730CST	0.5	30	0	0	4	0	Tornado (F1)
				A tornado touched down 1/2 mile south of Highway 50 near Dresden. Two 20 by 40 foot pole barns were destroyed. Trees and power lines were also downed.					
3.6E Sedalia	15	1730CST	0.5	30	0	0	0	0	Tornado (F0)
				A tornado was confirmed by the Highway Patrol at 3.6 miles east of Sedalia. The tornado was on the ground briefly and produced no damage.					
Christian County, Billings to Greene County, Springfield	15	1710-1735CST	21	30	0	0	7	0	Tornado (F1)
				A tornado touched down in the Billings-Clever area in the northwest portion of Christian County. It destroyed and damaged several buildings in this area before heading into Greene County. The tornado touched down again just southeast of Republic and finally moved to Fellows Lake just northeast of Springfield. It produced extensive damage to homes, businesses, and manufacturing plants. The damage was estimated at 25 million dollars.					
Pettis County, 2N Lamonte	15	1725CST		0	0	3	0	0	TSTM Wind
				A roof was blown off of a house and a pole barn was destroyed at 2 miles north of Lamonte.					
Greene County	15	1728CST	0.5	30	0	0	0	0	Tornado (F1)
				A tornado touched down in eastern Greene County at the intersection of Highways YY and 125.					
Stone County, Crane	15	1738CST		0	0	3	0	0	TSTM Wind
				Wind damage was reported at Crane.					
Cooper County, Boonville	15	1745-1755CST		0	0	6	0	0	TSTM Wind
				Winds produced widespread damage to homes, trees and cars.					
Morgan County, Versailles	15	1746CST		0	0	0	0	0	TSTM Wind (52)
Howard County, Fayette	15	1750-1755CST		0	0	5	0	0	TSTM Wind
				A garage was destroyed 5 miles southwest of Fayette and barns were blown over in the Fayette area. Trees and power lines were downed also.					
Moniteau County, Jamestown	15	1800CST		0	0	0	0	0	TSTM Wind (52)
Randolph County, Moberly	15	1810CST		0	0	4	0	0	TSTM Wind
				Wind damage occurred at Omar Bradley Airport. Hangar doors were blown on top of aircraft.					
Boone County, Midway	15	1810CST		0	0	2	0	0	TSTM Wind (60)
				Winds were 60 to 70 mph.					
Randolph County, Moberly	15	1815CST		0	0	5	0	0	TSTM Wind
				Strong downburst winds blew a semi-trailer truck over and produced considerable damage just north of Moberly. A roof was blown off of a house also. Most of the damage was along Highway 63 between Macon and Moberly.					
Boone County, Columbia	15	1820CST		0	0	2	0	0	TSTM Wind (53)
				Winds of 61 mph were recorded at the Columbia EOC.					

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<b>MISSOURI</b>									
Adair County, Kirksville	15	1820CST			0	0	0	0	TSTM Wind (69)
									KTVO TV reported winds of 60 mph and gusts to 80 mph. No damage was reported.
Macon County, Macon	15	1821CST			0	0	4	0	TSTM Wind (69)
									Trees and power lines were downed by 80-mph winds.
Knox County, Novelty	15	1835CST			0	0	5	0	TSTM Wind (69)
									Winds of up to 80 mph blew down trees, small buildings and carports.
Callaway County, Jefferson City Airport	15	1845CST			0	0	0	0	TSTM Wind (50)
									Wind gusts of up to 58 mph occurred at the Jefferson City Airport.
Pulaski County, Fort Leonard Wood	15	1845CST			0	0	0	0	TSTM Wind (51)
									Wind gusts of up to 59 mph occurred at the Fort Leonard Wood Weather Station.
Shelby County	15	1848CST			0	0	5	0	TSTM Wind
									Many trees were downed and roofs were blown off. Shingles and tin were blown off of buildings and a trailer overturned near Shelbyna. Damage was scattered throughout the county.
Boone County, Sturgeon and Centralia	15	1853CST			0	0	4	0	TSTM Wind
									Trees and power lines were downed in Sturgeon and Centralia.
Callaway County, Fulton	15	1855CST			0	0	0	0	TSTM Wind (52)
Monroe County, Paris	15	1855CST			0	0	3	0	TSTM Wind
									Trees were downed around Paris.
Osage County, Freeburg	15	1900CST			0	0	4	0	TSTM Wind
									A barn was destroyed one mile east of Freeburg.
Phelps County, Rolla	15	1920CST			0	0	3	0	TSTM Wind
									Trees were downed between Rolla and Jerome.
Ralls County	15	1920CST			0	0	4	0	TSTM Wind
									Scattered tree damage occurred across the county.
Pulaski County, St. Roberts	15	1930-1935CST	3	50	0	0	6	0	Tornado (F2)
									A tornado damaged a total of 40 structures at St. Roberts. Fifteen businesses and 5 homes were severely damaged. Trees and power lines were downed also. Damage was estimated at between 2 and 2½ million dollars.
Marion County, Hannibal	15	1930CST			0	0	4	0	TSTM Wind
									Trees were downed around Hannibal.
Audrain County	15	1930CST			0	0	4	0	TSTM Wind
									A barn was destroyed 8 miles southeast of Mexico.
Osage County, 4E Linn	15	1930CST			0	0	4	0	TSTM Wind
									Trees and power lines were downed about 4 miles east of Linn.
Osage County, Judge	15	1930CST			0	0	5	0	TSTM Wind
									Power lines and trees were downed and minor structural damage occurred in Judge, about 6 miles southeast of Linn on Route CC.
Gasconade County, Bland	15	1945CST			0	0	4	0	TSTM Wind
									Telephone poles were downed.
Montgomery County	15	1946CST			0	0	4	0	TSTM Wind
									Wind damaged the roof of a house one mile south of I-70 on Route 19, about 10 miles southeast of Montgomery City.
Franklin County, Beaufort	15	1950CST			0	0	0	0	TSTM Wind
									The sheriff reported high winds, heavy rain and small hail.
Gasconade County, Hermann and 10SW Hermann	15	1955CST			0	0	5	0	TSTM Wind
									Roofs were damaged and trees and power lines downed in Hermann and 10 miles southwest of Hermann.
<b>MISSOURI</b>									
Montgomery County, Jonesburg	15	1955CST			0	0	4	0	TSTM Wind
									A barn and garage were damaged and windows were blown out of a house near Jonesburg.
St. Charles County, Wentzville	15	2015CST	0.5	50	0	0	4	0	Tornado (F1)
									A small tornado struck the west edge of Wentzville and damaged a middle school. The tornado first touched down near Wilmer Road on the south side of I-70.
St. Charles County, O'Fallon	15	2025CST	1	200	0	10	6	0	Tornado (F3)
									A tornado touched down on the southwest side of O'Fallon, south of I-70. The tornado was on the ground for no more than a couple of minutes and for just a little more than a mile. The width was generally 150 yards but reached 200 yards at one point. The first damage was near Byron Road just southwest of O'Fallon. The tornado produced considerable damage on the northwest corner of the Osage Meadows subdivision, primarily to roofs, garages, fences and trees. The storm then produced extensive damage to the Sunset Acres Condominiums. Sixty-four of the 81 units were destroyed. The tornado also took the roofs off of three houses. A large window at a K-Mart store was blown out. Many trees were damaged or destroyed. Ten injuries were reported, of which 2 were hospitalized.
Dent County	15	2030CST			0	0	4	0	TSTM Wind
									Scattered wind damage occurred across the northern portion of the county.
St. Charles County, St. Charles	15	2040CST			0	0	3	0	TSTM Wind (57)
									Winds of up to 66 mph were measured at the National Weather Service Forecast Office. Minor damage was reported in the area.
Warren County, Jonesboro	15	2040CST			0	0	4	0	TSTM Wind
									Damage was done to a barn and windows were blown out of a house in the north side of town. A garage was also damaged.
Crawford and Washington Counties, 2.5W Dillard to 6.5W Potosi	15	2055-2130CST	24	75	0	1	7	0	Tornado (F1)
									A tornado touched down in a wooded area of southeast Crawford County about 2.5 miles southwest of Dillard and moved northeast to a point 3.2 miles northeast of Bunker Hill in Washington County, about 6.5 miles west of Potosi. One house and four other buildings in Dillard were destroyed. Timber was damaged from Dillard to just east of Brazil.
Lincoln County, Hawk Point	15	2100CST			0	0	3	0	TSTM Wind
									Several farm buildings were damaged.
Jefferson County, 10SW DeSoto	15	2105CST			0	0	0	0	TSTM Wind (52)
									Marble size hail accompanied 60 mph winds 10 miles southwest of DeSoto.
Franklin County, St. Clair	15	2105CST			0	0	3	0	TSTM Wind
									Trees were downed just east of St. Clair.
Washington County, Potosi	15	2109CST			0	0	4	0	TSTM Wind
									Trees were downed in and around Potosi.
St. Louis City	15	2130CST			0	0	2	0	TSTM Wind
									Tree damage occurred just southwest of the intersection of Grand and I-70 in the city.
Ste. Genevieve County	15	2255CST			0	0	4	0	TSTM Wind
									Tree damage and a power outage occurred in the western portion of the county.
Mississippi, Cape Girardeau, Carter, Ripley, Butler, Dunklin, Howell, Shannon, and Oregon Counties	18-20	2300CST-0400CST			0	0	7	0	Flash Flood and General Flood
									Heavy rains began falling over the area late Friday afternoon and continued on and off through Saturday the 19th. Additional rain fell late Saturday night and early Sunday morning. The ASCS stations reported 5 to 6 inches of rain in most cases. Some small streams flooded on Saturday evening. Dunklin County received 8 to 10 inches of rain in the vicinity of Kennett. Many roads were impassable due to water.

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>MISSOURI</b>									
Southwest, West, Central and East Missouri MOZ008-009-010-013-014-015-016-017	20	AM			0	0	?	?	Heavy Snow
Heavy snow began falling just after midnight from southern Kansas City to Cass County, Missouri. The snow spread to the Springfield area and northeast to Rolla, Jefferson City and finally the north and west portions of the St. Louis area. The northwest limit of the snow was downtown Kansas City, where 2 inches fell. Kansas City International Airport received only light snow. Most of the area from Southwest through East-Central Missouri received 3 to 6 inches of snow. Fulton, Missouri received 7 inches, and Rolla, Missouri received 8 inches. St. Charles and the northwest portion of St. Louis County received 3 to 4 inches of snow.									
<b>24 MONTANA</b>									
MTZ003 Northwest Chinook Zone	06	1152MST			0	0	0	0	High Wind (45 G60)
MTZ007 South-Central Montana	06	afternoon			0	0	0	0	High Wind (50 G65)
MTZ003-005 Northwest Chinook and North-Central Montana	14	1445MST			0	0	0	0	Heavy Snow
Heavy snow fell across the northern portion of the Northwest Chinook Zone (003) and all of the North-Central Zone (005). Shelby received 11 inches of snow, Malts had 8 inches, and Cut Bank and Havre each received 5 inches. Blizzard conditions were reported along the Canadian border during the afternoon.									
MTZ008 Northeast Montana	14	1700MST			0	0	0	0	Heavy Snow
Four inches of snow fell at Glendive.									
MTZ007 South-Central Montana	24	0500MST			0	0	0	0	Heavy Snow
Four inches of snow fell at Billings and a foot or more fell in the surrounding mountains.									
MTZ007 South-Central Montana	27	2200MST			0	0	0	0	High Winds (52 G65)
Interstate 90 was closed near Livingston due to strong winds.									
MTZ003 Northwest Chinook Zone	27	2335MST			0	0	0	0	High Winds (35 G41)
<b>25 NEBRASKA</b>									
NEZ015-018-019 South-Central and East-Central Nebraska	15-16	1500GST-0100GST			1	0	4	1	Heavy Snow
A narrow band of snow of around 6 inches fell from around Guide Rock and Superior northeast into the Seward area. Spotty snowfalls around 6 inches were also reported west of Ashland. North winds gusting around 50 m.p.h. caused near-blizzard conditions at times in snow and blowing snow. A retired farmer was found dead from exposure after the storm a half mile north of David City after apparently trying to walk to his home from his stalled vehicle. The winds also caused scattered power outages and a number of broken tree limbs. A period of freezing rain and sleet preceded the snow in areas, adding to the hazardous travel conditions. M700									
NEZ010 East-Central Nebraska	15	1800GST			0	0	4	1	High Wind (51)
A wind gust to 59 m.p.h. was recorded at a local Omaha television station. A large sign was blown over at a restaurant at the I-80 interchange east of Gretna damaging vehicles. Snowfall with the winds created near-blizzard conditions.									
<b>26 NEVADA</b>									
NVZ003 Extreme Western Nevada	03	0730PST-1100PST			0	0	3	0	High winds
High winds ahead of a strong Pacific storm roared through Extreme Western Nevada during the morning hours. Wind gusts in excess of 60 MPH were common in the Reno and Carson City areas. The strongest gust reported was 65 MPH in the Callahan Ranch area, a few miles south of Reno. In Washoe Valley, between Reno and Carson City, high winds overturned a truck.									
NVZ003 Extreme Western Nevada	05-06	2100PST-0100PST			0	0	0	0	High winds
High winds developed on the lee side of the Sierra Nevada ahead of a strong cold front. In the foothills of the Sierra, south of Reno, winds gusted to 75 MPH.									
NVZ003 Extreme Western Nevada	13	1400PST			0	0	0	0	Heavy Snow
NVZ006-007 South-Central and Extreme Southern Nevada	13	1430PST-1900PST			0	0	0	0	High Winds
NVZ005 East-Central Nevada	13-14	2330PST-1100PST			0	0	0	0	Heavy Snow
The first major snow storm of the season moved into western Nevada during the afternoon of the 13th. Six to eight inches of snow fell near the 6,200 foot level around the shore of Lake Tahoe and up to 18 inches fell in the mountains east of the lake. High winds developed ahead of the approaching cold front in parts of Southern Nevada. Winds gusting to 64 MPH were reported on the Nevada Test Site in the southwest part of South-Central Nevada and the northwest part of Extreme Southern Nevada. Four to seven inches of snow accumulation was reported across East-Central Nevada as the storm moved through the area.									
NVZ003 Extreme Western Nevada	16	1800PST-1945PST			0	0	0	0	High winds
NVZ002-005 Northeast and East-Central Nevada	17	0300PST-2000PST			0	0	2	0	Heavy Snow
High winds were reported on the lee side of the Sierra Nevada in advance of an approaching Pacific cold front. Winds gusting to 80 MPH were reported in the Reno-Carson City area. The strongest gust, 80 MPH, was measured in the southwest part of Reno. Gusts to 75 MPH in Verdi, just west of Reno, uprooted trees. The front moved into East-Central and Northeast Nevada in the early morning hours of the 17th. Three to six inches of snow fell in valley locations and up to 17 inches fell on mountain passes. In Austin 12 inches of new snow was measured, and in Ely three inches fell in just one hour.									
NVZ003 Extreme Western Nevada	22	1400PST-1930PST			0	0	0	0	High Winds
NVZ003 Extreme Western Nevada	23	0500PST-1900PST			0	0	0	0	Heavy Snow
NVZ002-005 Northeast and East-Central Nevada	23	1500PST-2100PST			0	0	0	0	Heavy Snow
A strong Pacific cold front moved across the state on the 23rd. High winds developed on the lee side of the Sierra Nevada during the afternoon and evening hours of the 22nd, ahead of the front. 60 to 80 MPH gusts were common in the Reno area. A 95 MPH gust was observed in the Callahan Ranch area just south of Reno. The front moved into the Sierra Nevada in the early morning hours of the 23rd and continued slowly eastward across Nevada. One and a half to two feet of new snow fell in the mountains of Extreme Western Nevada above 6,000 feet. Four to five inches fell in the Reno area between 1600PST and 1845PST. Four to six inches of snow fell in the lower elevations of East-Central Nevada and 6 to 8 inches fell in mountain passes. Up to 8 inches fell in the high valleys north of Elko.									
NVZ001 Northwest Nevada	25	0100PST-0800PST			0	0	0	0	Heavy Snow
NVZ005 East-Central Nevada	25	0500PST-1200PST			0	0	0	0	Heavy Snow
Four to eight inches of snow fell in parts of Northwest Nevada and five to seven inches fell in the Austin and Eureka areas of East-Central Nevada as a low pressure trough moved across the state.									
<b>27 NEW HAMPSHIRE</b> ----- NONE REPORTED									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>28 NEW JERSEY, Northern</b>									
NJZ001-015 Northern New Jersey	20	2050EST			0	0	?	0	High Wind
	A powerful low pressure system and its associated cold front moved through northern New Jersey. Damaging pressure gradient winds in excess of 50 knots downed several trees and power lines across Bergen, Hunterdon, and Morris counties.								
Bergen County, Lodi	20	2200EST			0	0	?	0	Flood
Somerset County, Manville	21	0400EST			0	0	?	0	Flood
Somerset County, Bound Brook	21	0700EST			0	0	?	0	Flood
	Record heavy rains on the 20th and its associated runoff into the early morning hours of the 21st caused river flooding at Lodi in Bergen County and at Manville and Bound Brook in Somerset County. Elsewhere across northern New Jersey, extensive street and highway flooding was reported.								
<b>28 NEW JERSEY, Southern</b>									
Burlington County: Palmyra	20	1910 EST			0	0	3	0	TSTM Wind
Mt. Laurel	20	1919 EST			0	0	3	0	TSTM Wind
McGuire AFB	20	1943 EST			0	0	?	0	TSTM Wind (52)
	Thunderstorm wind gusts downed trees and power lines in Palmyra. In Mt. Laurel Township a shed was blown over and siding was torn off of a house. Wind gusts were measured at 60 mph at McGuire Air Force Base.								
Camden County, 2SE Cherry Hill	20	1915 EST			0	0	4	0	ISTM Wind (61)
	Thunderstorm wind gusts uprooted trees in Cherry Hill Township and Vorhees Township, with trees falling on two houses. One tree fell on an automobile in Pennsauken. The wind gusts in Vorhees and Cherry Hill townships damaged siding on two houses, blew the chimney off of one house, blew in sliding glass doors on one house, blew over fences at four homes, damaged patio furniture at two houses, and damaged the roof on one house. The damage was discontinuous along a path about 1/2 mile wide and 5 miles long which extended from near Cherry Hill, southeast across Cherry Hill Township and into the northern portion of Vorhees Township. The highest wind gusts were estimated at 70 mph.								
Gloucester County, Sewell	20	1915 EST			0	0	3	0	ISTM Wind
	Thunderstorm wind gusts blew down a shed, a chimney, a fence and trees along a path 200 feet wide and 1/2 mile long.								
Atlantic County, Hammonton	20	1920 EST			0	0	?	0	TSTM Wind (57)
	Wind gusts were reported at 65 mph in Hammonton.								
Mercer County, Assumpink Creek	28	0515 EST			0	0	1	0	Flash Flood
	Rainfall amounts of around 1.75 inches, falling mostly within a 6 hour period, caused minor flooding along tributaries of the Assumpink Creek. The flooding covered the back yards of some homes.								
<b>29 NEW MEXICO</b>									
Dona Ana County	08	1700MST			0	0	?	0	Hail (1.75)
	A radio station reported that hail broke windows in Las Cruces.								
Otero County	08	1730MST			0	0	?	0	Hail (1.00)
	The same thunderstorm that struck Dona Ana County dropped hail as it moved across White Sands Missile Range.								
<b>30 NEW YORK, Coastal</b>									
Queens County	20	2043EST			0	0	0	0	Thunderstorm Wind (G60)
	A severe thunderstorm passed quickly across Kennedy Airport in Queens County. This thunderstorm was one of many that formed along and ahead of a cold front that moved across southeastern New York. Winds gusted to 60 knots at the time the thunderstorm was in progress at the airport. Very heavy rains accompanied the storms which did produce some street and highway flooding.								
<b>30 NEW YORK, Central</b>									
NYZ007-009 Herkimer County and St. Lawrence Valley	01	2200EST			1	0	4	0	Snow
NYZ008 Saranac Lake-Lake Placid region	01	2200EST			1	1	5	0	Snow
NYZ011 Champlain Valley	01	2200EST			0	0	4	0	Snow
NYZ018 Western Adirondacks	01	2200EST			0	0	5	0	Snow
	Heavy snow blanketed most of the Adirondacks. Widespread power outages were reported. Some homes were without power for more than three days. Emergency shelters had to be set up in many communities. The total accumulation of snow in the area exceeded 12 inches. M46V, M??Y								
NYZ013 Columbia County, countywide	05	1510EST			0	0	5	3	High Wind
Orange County, countywide	05	1745- 1915EST			0	0	5	0	Rain and High Wind
Ulster County, countywide	05	1915EST			0	0	5	0	High Wind
	Wind-driven rain caused a power transformer to fail, resulting in a massive power outage in Orange County. Strong non-convective winds blew down power lines later that evening in Ulster County. Winds gusting to 55 mph also took down trees and power lines in Columbia County.								
Ulster County, Esopus Creek	05	2100- 2300EST			0	0	3	0	Flood
	Very minor flooding was reported along the upper reach of the Esopus Creek.								
Essex County: East Branch, Little AuSable River (Jay to AuSable Fork)	06	0400- 1900EST			0	0	4	0	Flood
Bouquet River	06	0615- 1400EST			0	0	4	0	Flood
	A combination of melting snow and rain caused the AuSable River to flood. The flooding occurred between the hamlets of Jay and AuSable Forks, along State Route 9N. Floodwaters of the Bouquet River caused problems along the entire reach of the river. Small mountain streams which feed the Bouquet were responsible for washing out portions of State Route 73.								
Franklin County, Deer River	06	0600- ????EST			0	0	3	0	Flood
	Floodwaters of the Deer River washed out two county roads.								
Clinton County, Great Chazy River (Moors to Cham- plain)	06	0700- 1300EST			0	0	4	0	Flood
	Melting snow and nearly an inch of rain caused the Great Chazy River to flood between the hamlets of Moors and Champlain. Tributaries of the Great Chazy such as the Beaver Creek also flooded adjacent flood plains.								
NYZ020 Albany County	10	1330EST			0	0	5	0	High Wind
Schenectady County	10	1330EST			0	1	4	0	High Wind
Saratoga County	10	1530EST			0	0	4	0	High Wind
Warren County	10	1530EST			0	0	4	4	High Wind
Herkimer County	10	1702EST			0	0	5	3	High Wind
Oneida County	10	1702EST			0	4	4	3	High Wind
Hamilton County	10	1702EST			0	0	5	4	High Wind
Franklin County, 3SW Saranac Lake	10	1725EST			0	0	3	0	High Wind
Clinton County: 2N Lyon Mountain	10	2020EST			0	0	3	0	High Wind
2S Morrisville	10	2020EST			0	0	2	0	High Wind
Plattsburgh countywide	10	2032EST			0	0	3	0	High Wind
	10	2040EST			0	0	4	2	High Wind
	High winds were reported in much of the Adirondacks and the Mohawk and upper Hudson valleys. A streetlight pole in downtown Plattsburgh was blown over at a 45 degree angle, then ripped off its base. Over 25,000 homes in northeast New York were without power. In Latham a modular home that was being transported was blown over. Meanwhile, flying metal injured a woman in the city of Schenectady, and four persons were injured in Rome when a tree fell on a car.								

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>NEW YORK, Central</b>									
Greene County	20	2000EST			0	0	3	0	TSTM Wind
Sullivan County, Rock Hill	20	2011EST			0	0	3	0	TSTM Wind
Dutchess County	20	2015EST			0	0	4	0	TSTM Wind
Dutchess County	20	2030EST			0	0	3	0	Lightning
Ulster County	20	2030EST			0	0	4	0	TSTM Wind
Fulton County	20	2320EST			0	0	4	0	TSTM Wind
Montgomery County	20	2323EST			0	0	3	0	TSTM Wind
Sullivan County:									
Lumberland	21	0043EST			0	0	3	0	TSTM Wind
Fallsburg	21	0053EST			0	0	3	0	TSTM Wind
Monticello	21	0103EST			0	0	3	0	TSTM Wind
Highland Lake	21	0108EST			0	0	3	0	TSTM Wind
Monticello	21	0125EST			0	0	3	0	TSTM Wind
Swan Lake	21	0144EST			0	0	3	0	TSTM Wind
Woodbourne	21	0212EST			0	0	3	0	TSTM Wind
Highland Lake	21	0251EST			0	0	2	0	TSTM Wind
High winds took down several power lines and trees. A home in Palatine, Montgomery County was also damaged. Wind and lightning played havoc with trees and power lines in all of the lower Hudson Valley.									
All of Eastern New York	25	1846EST			0	0	?	0	Earthquake
<b>30 NEW YORK, Western</b>									
Erie County									
Youngstown	05	1052 EST			0	0	4	0	High Winds(63)
Newstead, N. Tonawanda	05	1245 EST			1	0	4	0	High Winds(50)
Hamburg	05	1345 EST			0	0	3	0	High Winds(50)
Cattaraugus County									
Dayton, Little Valley, Oleah	05	1430 EST			0	0	3	0	High Winds
Erie County									
Amherst	05	1500 EST			0	0	4	0	High Winds
Strong winds downed trees and power lines. In Newstead, a woman who was inside a toppled corn gondola machine was killed. F330.									
Chautauqua County									
Fredonia	10	1030 EST			0	0	3	0	High Winds
Niagara County									
Youngstown	10	1052 EST			0	0	3	0	High Winds(63)
Lockport	10	1100 EST			0	1	4	0	High Winds
Erie County									
Buffalo	10	1103 EST			0	0	3	0	High Winds(59)
Lancaster	10	1151 EST			0	0	4	0	High Winds(68)
Genesee County									
Batavia, Elba, Byron, etc.	10	Afternoon			0	0	4	0	High Winds(54)
Orleans County									
Medina	10	Afternoon			0	0	3	0	High Winds
Niagara County									
Lewiston	10	1300 EST			0	0	3	0	High Winds
Allegany County									
Cuba, Black Creek	10	1520 EST			0	0	3	0	High Winds
Very strong winds broke trees and power lines. In Lockport, a large tree crushed a car and injured the woman driver.									
Yates County									
Penn Yan	20	1600 EST			0	0	3	0	Lightning
Lightning ignited the roof of a house.									
<b>31 NORTH CAROLINA</b>									
Dare County, Buxton	05	1131EST			0	0	0	0	TSTM Winds (52)
Bertie County, 12 N Windsor	05	1145EST			0	0	4	0	TSTM Winds
Thunderstorms produced winds gusting to 52 knots at the National Weather Service office in Buxton. Twelve miles north of Windsor thunderstorm winds blew down trees and power lines and damaged several barns in the area.									
Pasquotank County, Elizabeth City	05	1215EST	2	50	0	1	5	1	Tornado (F2)
A fast-moving, narrow tornado touched down in the eastern part of Elizabeth City and moved northeast for about 2 miles. Most of the damage was in the first one-half mile of the track. The roof was blown off of a large warehouse, and three sheds were destroyed. An old house being used as a church was shifted off of its foundation. Four houses had major roof damage. An old automobile was turned upside down. Along the rest of the track damage consisted mainly of damaged roofs and downed trees. One man was injured when the tornado turned over the tractor-trailer rig he was driving.									
<b>NORTH CAROLINA</b>									
Currituck County, Moyock	05	1230EST	1.5	20	0	0	5	0	Tornado (F1)
A small tornado touched down near Moyock, damaging two houses and blowing down numerous trees along an intermittent 1.5 mile long track. The tornado moved to the northeast.									
Washington and Tyrrell Counties, Creswell to 1 N Columbia	17	0900EST	9	90	0	1	5	0	Tornado (F2)
A tornado touched down near Creswell in Washington County and moved northeast along an intermittent path into Tyrrell County to a point about one mile north of Columbia. In Washington County the tornado destroyed four mobile homes and damaged three others. Twelve houses were damaged. An 83 year old woman was injured when her mobile home was overturned. Hundreds of trees were blown down. At 9:15 AM, the tornado crossed into Tyrrell County where it blew down trees and destroyed three mobile homes and a brick home. Statistics on the tornado by county were as follows:									
<u>Washington County</u>									
	17	0900EST	2	50	0	1	5	0	
<u>Tyrrell County</u>									
	17	0915EST	7	100	0	0	5	0	
Currituck County, Point Harbor	17	1015EST			0	0	5	0	TSTM Winds
Thunderstorm winds blew down trees and power lines and overturned a small construction trailer near Point Harbor. The tin roof of a lumber company shed was blown off.									
Wake, Franklin, Nash, Halifax, and Northampton Counties 3 SE Raleigh-Durham Airport to 2 NW Jackson	28	0100-0248EST	83	250	4	154	8	5	Tornado (F4)
At 0100EST a powerful tornado touched down in Ulmstead State Park in the northwest part of Raleigh, 3 miles southeast of the center of Raleigh-Durham Airport. The tornado tracked across one of the most densely populated parts of the city of Raleigh, destroying hundreds of homes and damaging thousands of others. Two people were killed in Raleigh. The strongest damage, mostly F3 with some very weak F4, occurred along a 4 mile long portion of the path extending northeast from where it crossed U.S. Highway 70, four miles east of Raleigh-Durham Airport. Numerous businesses along U.S. Highway 70 were destroyed, including a K mart.									
From northwest Raleigh, the tornado continued northeast through Wake County and entered Franklin County near U.S. Highway 401. It stayed on the ground as it crossed the county, passing north of New Hope and Justice before exiting the county near N.C. 58. The tornado then cut across the northwest corner of Nash County between Castalia and Aventon, killing a man and a woman in a mobile home. Still on the ground, the tornado entered Halifax County near Ita and crossed Interstate 95 at the junction of N.C. 561. It then passed just south of the town of Halifax where it entered Northampton County. It continued through Northampton County for about ten miles and lifted near N.C. 305, two miles northwest of Jackson.									
The tornado destroyed a total of 426 residences and 78 businesses. It damaged 2057 residences, leaving 978 people homeless. Four people were killed and 154 were injured. Total damage was near \$77.2 million.									
The track of the tornado was almost continuous for 83 miles. It moved at 50 mph along the ground. Most people who were near the tornado reported hearing a loud roaring sound many minutes before the tornado passed.									
Statistics on the tornado by county are as follows:									
<u>Wake County</u>									
	28	0100EST	20	400	2	105	8	5	
<u>Franklin County</u>									
	28	0120EST	21	200	0	17	7	5	
<u>Nash County</u>									
	28	0155EST	10	200	2	22	6	?	
<u>Halifax County</u>									
	28	0208EST	22	200	0	10	6	4	
<u>Northampton County</u>									
	28	0235EST	10	100	0	0	6	5	
Northampton County, 1 NW Galatia to 1 NW Lewters Crossroad	28	0300EST	3	100	0	0	5	4	Tornado (F1)
A tornado set down one mile northwest of Galatia or 3 miles north of Faisons and moved northeast for about 3 miles to a point one mile northwest of Lewters Crossroad in northern Northampton County. The tornado was produced by the same storm that spawned the Raleigh tornado that carved an 83 mile long path of destruction northeastward from that city. It is possible that this and the Raleigh tornado were the same vortex, however, an 8.5 mile long gap between their respective damage paths, and the lack of a visual sighting of the vortex aloft over the gap — being that it occurred during the middle of the night — only serve to support the probability that they are not. Thus this is considered a separate tornado.									
Four houses received mostly minor damage from the tornado, a weak barn was completely destroyed, and about 100 trees were snapped or uprooted. The tornado made a right turn to the southeast while in its final, rope stage during the last hundred yards of its path which was evidenced in the disruption of cut crops in a field.									

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NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>NORTH CAROLINA</b>									
Pamlico County, 6 S Olympia to S Hobucken	28	0330EST	25	100	0	5	6	0	Tornado (F1)
	A tornado touched down on the Neuse River six miles south of Olympia and immediately moved onshore at Sandy Point. The small, rapidly moving tornado traveled northeast on a continuous path passing just south of Scotts Store, through Bayboro and Swan Corner, and through the northern end of Maribel. Beyond Maribel the path became intermittent and ended just south of Hobucken. The tornado did about one-half million dollars in damage mostly between Bayboro and Maribel. Five people were injured, three required hospitalization.								
Hyde County, 1 SW Fairfield to 3 NE Fairfield	28	0409EST	4	50	0	1	5	0	Tornado (F1)
	A rapidly moving tornado touched down somewhere on the western end of Lake Mattamuskeet and moved ashore one mile southwest of Fairfield, continued northeast through Fairfield, and ended about 3 miles northeast of Fairfield. Having occurred at night, its exact touchdown point and distance traveled on the lake are unknown. The tornado blew down trees and damaged houses and mobile homes on the south and east ends of Fairfield. One woman in a mobile home was cut by flying glass.								
Dare County, Manteo	28	0541EST	1	50	0	0	5	0	Tornado (F0)
	A tornado moving rapidly to the northeast touched down for about one mile in Manteo, near the southeast corner of the Manteo Airport. The tornado damaged eight homes, nine mobile homes, 15 cars and one boat.								
Currituck County, Poplar Branch	28	0830EST			0	0	5	0	TSTM Winds
	Powerful thunderstorm winds blew down trees and destroyed a double-wide mobile home.								
<b>32 NORTH DAKOTA</b>									
NDZ009-012-013-014-015-016-017-018 Eastern and North-Central North Dakota	15	0500CST to 1400CST			0	0	4	0	Winter Storm Heavy Snow
	Snow combined with northwest winds of 25 to 45 mph to cause frequent visibilities near zero in snow and blowing snow. In addition, wind chill temperatures dropped to 20 below zero.								
	Heavy snow was sparse with this storm, and confined mostly to near the Canadian border, where up to 11 inches of snow fell in the northeast corner of the state.								
	The storm caused vehicle accidents and schools were closed.								
NDZ018 Southeast corner of North Dakota	26	1700CST			0	0	4	0	Winter Storm Heavy Snow
	Heavy snow and winds created near-blizzard conditions in extreme southeast North Dakota. The storm forced authorities in Wahpeton to erect barricades on roads leading out of the city. There were numerous vehicle accidents in the blinding visibilities.								
	27	1400 CST							
<b>33 OHIO</b>									
OHZ003 East Lakeshore	05	1000 EST			0	1	5	0	High Wind
	Winds gusting to between 40 and 50 mph occurred over a small part of Northeast Ohio. Trees and power lines were blown down. A woman was injured when a tree fell onto her car.								
OHZ001-002-003-004-005-006-007-008-010-011 Northwest, Central Lakeshore, East Lakeshore, Northeast Inland, Miami Valley, Central, East-Central, Southwest, West-Central and Central Highlands	10	0000 EST to 1100 EST			0	0	5	0	High Wind
	Winds gusting to between 40 and 60 mph occurred over most of the state. Trees, branches and power lines were blown down. Houses, vehicles and buildings were damaged. A tractor-trailer was blown off the road near Columbus.								
<b>OHIO</b>									
OHZ003-004-006-007-008-009 East Lakeshore, Northeast Inland, Central, East-Central, Southwest, South-Central	20	1100 EST to 1700 EST			0	6	5	0	High Wind
	Winds gusted to between 40 and 60 mph over Southeast Ohio. Numerous trees, branches and power lines were blown down. Two house trailers were blown over. One near Scio in Harrison County injured 3 people, and one near Byesville in Guernsey County injured 3 more people. Five barns were blown down. Four in Muskingum County and one in Delaware County. Numerous homes, vehicles and buildings were damaged.								
Carroll County	20	1410 EST			0	1	5	0	Thunderstorm Wind
Columbiana County	20	1423 EST			0	0	4	0	Thunderstorm Wind Hail (1.0)
Mahoning County	20	1438 EST			0	0	4	0	Thunderstorm Wind
Mahoning County	20	1448 EST			0	0	4	0	Thunderstorm Wind
	Thunderstorms moved through extreme Northeast Ohio producing damaging winds and hail. Numerous trees were blown down or topped near Leesville Lake, Carroll County. A tractor-trailer was overturned on Route 322, south of Carrollton. A garage roof was blown off and a house trailer was overturned near Carrollton, injuring one person. These all occurred in Carroll County. Seventy-two mph winds occurred at the Columbiana County airport, one-inch diameter hail fell in Glenmoor and trees were blown down in East Liverpool, all in Columbiana County. Trees and a large billboard were blown down southwest of Canfield. Shortly thereafter, the same thunderstorm blew down trees in Mill Creek Park and on Canfield Road just south of Youngstown, Mahoning County.								
Entire State	Entire Month				0	0	0	C	Drought
	Significant improvement in drought conditions occurred over much of Ohio during November. Precipitation for November averaged four and twenty-seven hundredths inches (4.27") for the state. This was 161 percent of normal.								
	South-Central Ohio received the most precipitation with four and seventy-three hundredths inches (4.73"), which was 171 percent of normal. Northeast Ohio received three and ninety-one hundredths inches (3.91"), which was 136 percent of normal. This was the state's lowest.								
	Only Northwest and South-Central Ohio remained under long-term drought. Those areas improved from the Extreme to the Severe category of the Palmer Drought Severity Index during November. Precipitation amounts of just over seven inches is needed to end the drought in those areas. The rest of Ohio was not experiencing long-term drought.								
<b>34 OKLAHOMA</b>									
Payne County, 2 SW Perkins	09	1541CST			0	0	?	?	Hail (0.88)
Nowata County, Nowata	09	1630CST			0	0	?	?	Hail (0.75)
Pawnee County, 2 S Terlton	09	1635CST			0	0	?	?	Hail (0.75)
Osage County, 3 E Prue	09	1645CST			0	0	?	?	Hail (0.75)
Creek County, Kelleyville Area	09	1650CST			0	0	?	?	Hail (0.88)
Craig County, 15 W Vinita	09	1650CST			0	0	?	?	Hail (0.75)
Tulsa County, W Tulsa	09	1700CST			0	0	?	?	TSTM Wind (52)
Tulsa County, Tulsa	09	1706CST			0	0	?	?	Hail (0.75)
Tulsa County, Glenpool	09	1723CST			0	0	?	?	Hail (1.75)
Creek County, S of Sapulpa	09	1728CST			0	0	?	?	Hail (2.25)
Muskogee County, Haskell	09	1730CST			0	0	?	?	Hail (0.75)
Muskogee County, S of Haskell	09	1730CST			0	0	?	?	TSTM Wind
Wagoner County, Coweta	09	1750CST			0	0	?	?	Hail (1.75)
Seminole County, Cromwell	09	1800CST			0	0	?	?	Hail (1.00)
Seminole County, Seminole	09	1804CST			0	0	?	?	Hail (0.75)
Seminole County, Wewoka	09	1810CST			0	0	?	?	Hail (1.75), TSTM Wind

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED <sup>1</sup> DAMAGE		CHARACTER OF STORM	PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED <sup>1</sup> DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS							KILLED	INJURED	PROPERTY	CROPS	
<b>OKLAHOMA</b>																			
Okfuskee County, 5 SW Okemah	09	1815CST			0	0	?	?	Hail (0.75)	Custer County, Clinton	15	0930CST			0	1	4	?	TSTM Wind
Hughes County, 3 W Holdenville	09	1820CST			0	0	?	?	Hail (0.75)	Dewey County, Seiling	15	0930CST			0	0	4	?	TSTM Wind
Hughes County, Holdenville	09	1825CST			0	0	?	?	TSTM Wind	Dewey County, Taloga	15	0930CST			0	0	4	?	TSTM Wind
Muskogee County, Muskogee	09	1825CST			0	0	?	?	Hail (1.50), TSTM Wind	Major County, 3 SE Chester	15	0952CST			0	0	?	?	TSTM Wind
Pittsburg County, McAlester	09	1920CST			0	0	?	?	Hail (1.75)	Blaine County, Canton	15	1015CST			0	0	?	?	TSTM Wind (52)
Pittsburg County, Hartsborne	09	1943CST			0	0	?	?	Hail (1.75)	Blaine County, Waconga	15	1020CST			0	0	4	?	TSTM Wind
Latimer County, 8 W Wilburton	09	1950CST			0	0	?	?	Hail (1.75)	Alfalfa County, Cherokee	15	1020CST			0	0	?	?	TSTM Wind (70)
Latimer County, 20 S Wilburton	09	2015CST			0	0	?	?	Hail (1.00)	Caddo County, Binger	15	1025CST			0	0	?	?	Hail (0.75)
Leflore County, Arkoma	09	2020CST			0	0	?	?	Hail (0.75)	Caddo County, Binger	15	1025CST			0	0	?	?	TSTM Wind (52)
Leflore County, Talihna	09	2024CST			0	0	?	?	Hail (0.88)	Caddo County, Fort Cobb	15	1025CST			0	0	5	?	TSTM Wind
Leflore County, Talihna	09	2040CST			0	0	?	?	Hail (1.75)	Caddo County, Anadarko	15	1025CST			0	0	3	?	TSTM Wind
Leflore County, Heavener	09	2044CST			0	0	?	?	Hail (1.75)	Comanche County, Cache	15	1025CST			0	0	3	?	TSTM Wind (61)
McCurtain County, near Valliant	09	2210CST			0	0	?	?	Hail (0.75)	Canadian County, El Reno	15	1030CST			0	3	5	?	TSTM Wind (70)
McCurtain County, near Valliant	09	2210CST			0	0	?	?	TSTM Wind (52)	Major County, Cleo Springs	15	1030CST			0	0	?	?	TSTM Wind (52)
<p>Thunderstorms developed along a line from east of Guthrie to Bartlesville and moved southeast across eastern Oklahoma. Wind damage was generally limited to blown down trees and signs while hail knocked out windows of businesses, homes and vehicles. At Kelleyville, significant damage occurred to a school administration building. Extensive hail damage occurred south of Sapulpa in the Keefer-Mounds-Kelleyville area.</p>										Kingfisher County, Kingfisher	15	1030CST	3	50	0	0	?	?	Tornado (F1)
Kiowa County, Hobart	11	2045CST			0	0	?	?	Hail (0.75)	Hennessey	15	1040CST			0	0	?	?	TSTM Wind (56)
Kiowa County, Hobart	11	2115CST			0	0	?	?	TSTM Wind (52)	Grant County, 5 NE Nash	15	1045CST			0	0	?	?	Hail (0.75), TSTM Wind (52)
Kiowa County, Mountain View	11	2120CST			0	0	?	?	Hail (0.75)	Garfield County, Enid	15	1045CST			0	0	?	?	Hail (1.75)
Caddo County, 3 NE Carnegie	11	2140CST			0	0	?	?	Hail (0.75)	Cotton County, Walters	15	1053CST			0	0	?	?	Hail (0.75)
Caddo County, 3 N Binger	11	2150CST			0	0	?	?	Hail (1.75)	Grady County, Tuttle	15	1057CST			0	0	?	?	Hail (0.75)
Canadian County, Yukon	11	2211CST			0	0	?	?	Hail (0.75)	Jefferson County, Hastings	15	1100CST			0	0	?	?	Hail (1.75)
Oklahoma County, Metro, Okla. City	11	2231CST			0	0	?	?	Hail (0.75)	Stephens County, Duncan	15	1100CST			0	0	?	?	Hail (1.00)
Caddo County, Fort Cobb	11	2240CST			0	0	?	?	Hail (0.75)	Canadian County, Mustang	15	1105CST			0	0	?	?	TSTM Wind (56)
Grady County, Minco	11	2255CST			0	0	?	?	Hail (0.75)	Oklahoma County, Oklahoma City	15	1105CST			0	0	?	?	TSTM Wind (55)
Oklahoma County, Del City	11	2255CST			0	0	?	?	Hail (0.75)	Canadian County, Mustang	15	1105CST			0	0	?	?	Hail (1.75)
Oklahoma County, Del City	11	2309CST			0	0	?	?	Hail (0.75)	McClain County, 2 E Goldsby	15	1110CST			0	0	?	?	Hail (0.75)
Cleveland County, near Moore	11	2310CST			0	0	?	?	Hail (0.75)	Kay County, 1 N Tonkawa	15	1110CST			0	0	?	?	TSTM Wind
Oklahoma County, Del City	11	2330CST			0	0	?	?	Hail (0.75)	Noble County, 5 N Parry	15	1110CST			0	0	4	?	TSTM Wind
Cleveland County, Stella	11	2330CST			0	0	?	?	Hail (0.75)	Oklahoma County, Oklahoma City	15	1113CST			0	0	?	?	Hail (1.00)
Grady County, Chickasha	12	0025CST			0	0	?	?	Hail (0.75)	Oklahoma County, Oklahoma City	15	1115CST			0	0	5	0	TSTM Wind
Grady County, Amber	12	0025CST			0	0	?	?	Hail (0.75)	Grady County, SW Oklahoma City	15	1115CST			0	0	?	?	Hail (1.75)
Cleveland County, Moore	12	0030CST			0	0	?	?	Hail (0.75)	Grady County, 1 W Alex	15	1115CST			0	0	?	?	TSTM Wind
Choctaw County, 5 N Hugo	12	0400CST			0	0	4	?	TSTM Wind	Cotton County, 4 E Taylor	15	1115CST			0	0	?	?	TSTM Wind
Pittsburg County, McAlester	12	0400CST			0	0	?	?	TSTM Wind	Cotton County, 7 SE Hulén	15	1120CST			0	0	?	?	Hail (0.75)
Latimer County, 2 W Talihna	12	0430CST	0.3	125	0	0	5	0	Tornado (F1)	Logan County, 1 S Crescent	15	1130CST			0	0	?	?	TSTM Wind
<p>Severe thunderstorms developed in the evening from Hobart to south of Kingfisher and moved southeast across the state during the night. Dime size hail was common over west and southern sections of the Oklahoma City Metro area. North of Hugo, winds overturned a mobile home and blew roofs off barns. Power lines and trees were blown down at McAlester. A tornado produced about \$150,000 damage to a motel and four homes near Highway 63.</p>										Garvin County, 3 S Lindsay	15	1130CST			0	0	?	?	TSTM Wind (52)
Beckham County, Erick	15	0840CST			0	0	4	?	TSTM Wind	Garvin County, 3 S Lindsay	15	1130CST			0	0	?	?	Hail (0.75)
Beckham County, Erick	15	0840CST	0.1	25	0	0	1	0	Tornado (F0)	Stephens County, Duncan	15	1130CST			0	0	0	?	Hail (0.75)
Jackson County, Altus	15	0900CST			0	0	5	?	TSTM Wind (60)	Cleveland County, near Norman	15	1139CST			0	0	?	?	Hail (0.88)
Kiowa County, Hobart	15	0920CST			0	0	5	?	TSTM Wind (64)	Payne County, 3 NW Stillwater	15	1145CST			0	0	4	?	TSTM Wind
Kiowa County, Cooperton	15	0920CST			0	0	3	?	TSTM Wind	Stephens County, Loco	15	1145CST			0	0	?	?	Hail (0.88)
Kiowa County, Snyder	15	0920CST			0	0	?	?	TSTM Wind	Kay County, 3 S Newkirk	15	1145CST			0	0	?	?	TSTM Wind
										Noble County, 8 E Marland	15	1145CST			0	0	?	?	TSTM Wind
										Oklahoma County, Oklahoma City	15	1156CST			0	0	?	?	Hail (0.88)
										Lincoln County, 1 NE Carney	15	1158CST			0	0	?	?	Hail (1.00)
										Garvin County, Maysville	15	1200CST			0	0	?	?	TSTM Wind
										Jefferson County, 5 N Ringling	15	1200CST			0	0	?	?	TSTM Wind (52)
										Logan County, 5 SSW Meridian	15	1205CST			0	0	?	?	TSTM Wind (56)
										Pawnee County, 3 NW Ralston	15	1210CST			0	0	?	?	Hail (1.75)
										McClain County, Byars	15	1215CST			0	0	?	?	Hail (1.00)
										Carter County, Wilson	15	1215CST			0	0	?	?	Hail (0.75)

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>OKLAHOMA</b>									
Pottawatomie County, 4 E Pink	15	1215CST			0	0	?	?	Hail (0.75)
Osage County, 1 W Fairfax	15	1215CST			0	0	?	?	Hail (1.75)
Murray County, 1 S Joy	15	1220CST			0	0	?	?	Hail (0.88), TSTM Wind (52)
Creek County, 10 W Mannford	15	1230CST			0	0	?	?	Hail (1.00)
Murray County, 5 N Davis	15	1235CST			0	0	?	?	Hail (0.75)
Carter County, 12 W Ardmore	15	1238CST			0	0	?	?	Hail (0.75)
Pottawatomie County, Earlsboro	15	1240CST			0	0	?	?	Hail (0.75)
Seminole County, 6 NW Seminole	15	1245CST			0	0	?	?	TSTM Wind (56), Hail (0.75)
Love County, Marietta	15	1245CST			0	0	?	?	Hail (0.75)
Pontotoc County, Fittstown	15	1255CST			0	0	?	?	Hail (0.75)
Lincoln County, Stroud	15	1300CST			0	0	?	?	TSTM Wind
Creek County, 10 NE Bristow	15	1300CST			0	0	?	?	TSTM Wind (56)
Creek County, 5 E Mannford	15	1305CST			0	0	?	?	Hail (0.75)
Osage County, Osage	15	1315CST			0	0	?	?	Hail (0.75)
Pawnee County, 1 E Terlton	15	1315CST			0	0	?	?	Hail (0.75)
Okfuskee County, Okemah	15	1318CST			0	0	?	?	Hail (0.75)
Washington County, 5 SW Bartlesville	15	1320CST			0	0	?	?	Hail (0.75)
Creek County, Sapulpa	15	1320CST			0	0	?	?	TSTM Wind (52), Hail (0.75)
Osage County, 5 SW Bartlesville	15	1320CST			0	0	?	?	Hail (0.75)
Hughes County, Wetumka	15	1320CST			0	0	?	?	Hail (1.00)
Tulsa County, West Tulsa	15	1323CST			0	0	?	?	TSTM Wind (50)
Okmulgee County, 7 S Okmulgee	15	1340CST			0	0	?	?	Hail (0.75)
Tulsa County, Owasso	15	1345CST			0	0	?	?	TSTM Wind (57)
Tulsa County, Tulsa	15	1345CST			0	0	?	?	Hail (1.00)
Coal County, 3 W Coalgate	15	1400CST			0	0	?	?	Hail (1.75)
Marshall County, Willis	15	1400CST			0	0	?	?	TSTM Wind (50)
Marshall County, 2 E Kingston	15	1410CST			0	0	?	?	TSTM Wind (61)
Johnston County, Coleman	15	1415CST			0	0	?	?	Hail (0.75)
McIntosh County, 2 SW Vernon	15	1415CST			0	0	?	?	Hail (1.00)
Coal County, Lehigh	15	1435CST			0	0	?	?	Hail (0.75)
Bryan County, 8 W Durant	15	1445CST			0	0	?	?	Hail (0.88)
Bryan County, Hendrix	15	1510CST			0	0	?	?	Hail (1.75)
Pittsburg County, 6 NE Kiowa	15	1510CST			0	0	?	?	Hail (0.75)
Cherokee County, Tahlequah	15	1515CST			0	0	?	?	Hail (0.75)
Cherokee County, Tahlequah	15	1530CST			0	0	?	?	TSTM Wind (54)
Haskell County, McCurtain	15	1530CST	0.5	50	0	0	4	?	Tornado (F0)
Haskell County, McCurtain	15	1530CST			0	0	5	?	TSTM Wind
Choctaw County, Boswell	15	1535CST			0	0	?	?	Hail (0.75)
Pushmataha County, Rattan	15	1620CST			0	0	?	?	Hail (1.75), TSTM Wind (52)
McCurtain County, Rufe	15	1625CST			0	0	?	?	Hail
McCurtain County, Wright City	15	1645CST			0	0	?	?	Hail
McCurtain County, Smithville	15	1655CST			0	0	?	?	TSTM Wind
McCurtain County, Smithville Area	15	1655CST			0	0	?	?	Hail (2.50)
Canadian County, Yukon	15	1700CST			0	0	3	0	High Winds
Stephens County, Comanche	15	1715CST			0	0	3	0	High Winds
Initial thunderstorm developed in Texas northeast of Wellington near 0830 CST. Analysis of radar data indicates the storm moved northeast at 80 mph across northwest Oklahoma. A line of thunderstorms formed rapidly from west of Altus to north of Woodward and moved east across the entire state at 40 to 50 mph. Individual storms traveled at 40 to 60 mph. Straight-line winds and downbursts of 70 to 80 mph occurred along the squall line and a few brief tornadoes were generated. Strong inflow winds ahead of the thunderstorms were followed by high gradient winds behind a cold front which trailed the squall line by a									
<b>OKLAHOMA</b>									
									few hours. Wind and hail damage to trees, vehicles, roofs, windows, and small outbuildings was common in most sections of the state.
									At Erick, a small tornado touched down briefly and uprooted a tree. Thunderstorm winds blew the steeple off a church, overturned a mobile home, and caused roof damage to the school. Around noon, high winds at Erick damaged fences and overturned a trash dumpster. Downburst winds damaged four mobile homes at Hobart. Two more were overturned at Canton and the school gym was damaged. At Altus, rock walls at an apartment complex were blown over into nearby cars. Damage to two hangars at Altus Air Force Base was reported.
									Near Seiling, a mobile home was destroyed and a 300 foot broadcast tower was blown over. At Clinton, wind damage occurred at a construction site at the hospital. About 60 cars suffered damage from blowing gravel and debris. One workman was injured while diving for cover.
									At El Reno, a downburst injured two workers when a wall blew over on them. A research scientist at Fort Reno was hit in the head by a 2x6 board. One railroad car was overturned and several others derailed from a slow-moving train.
									A tornado touched down on the north side of Hennessey and moved northeast. Several mobile homes were destroyed, and significant damage to several businesses and an apartment complex was also done.
									In southwest Oklahoma City, downburst winds destroyed two businesses and caused roof damage to an apartment complex, high school and 27 homes. In the destroyed shops, people escaped injury by taking shelter in a back room and restroom.
									Along Interstate 35, half of a double-wide mobile home was overturned and destroyed while being transported. About one mile north of the Information Center northwest of Blackwell, a semi-trailer was overturned.
									In Tulsa, hail and wind knocked out windows of numerous cars and a large plate glass window was destroyed at a downtown bank.
									In the town of McCurtain, a tornado and downburst winds combined to destroy three mobile homes, a construction shop, and office. Major damage occurred to a church and 15 homes received major roof and wall damage.
OKZ001-002-003-004-005-006-009	19	0200CST-0100CST			0	0	?	?	Heavy Snow
Northwest and North-Central Oklahoma									
									Heavy snow began in the northwest and spread into north-central sections after dark. Amounts reached 7 to 9 inches in the Panhandle. 5 to 7 inches were reported at Elk City, Perry and Blackwell. The snow was accompanied by sleet, freezing rain, and thunder. Brief blizzard conditions were reported in Woodward and Dewey counties when visibilities fell to less than 50 feet.
Carter County, Ardmore	25	1458CST			0	0	?	?	Hail (2.75)
Murray County, Dougherty	25	1522CST			0	0	?	?	Hail (0.75)
Johnston County, Mill Creek	25	1530CST			0	0	?	?	Hail (1.75)
Pontotoc County, Ada	25	1550CST			0	0	?	?	Hail (0.88)
Johnston County, Pontotoc	25	1600CST			0	0	?	?	Hail (0.75)
Love County, Marietta	25	1602CST			0	0	?	?	Hail (0.75)
Coal County, Centrahoma	25	1615CST			0	0	?	?	Hail (0.75)
Marshall County, 8 SE Durwood	25	1625CST			0	0	?	?	Hail (0.88)
Seminole County, 3 N Sasakwa	25	1630CST			0	0	?	?	Hail (0.75)
Hughes County, Holdenville	25	1640CST			0	0	?	?	Hail (0.75)
Sequoyah County, 2 W Sallisaw	25	1644CST			0	0	?	?	Hail (0.75)
Osage County, Skiatook	25	1645CST			0	0	?	?	Hail (0.75)
Pushmataha County, 3 E Cloudy	25	1656CST	1.5	70	0	0	4	?	Tornado (F1)
Leflore County, Leflore	25	1703CST			0	0	?	?	Hail (0.88)
Choctaw County, 3 E Hugo	25	1704CST			0	0	?	?	Hail (0.75)
Sequoyah County, near Vian	25	1820CST			0	0	?	?	Hail (0.75)
Leflore County, near Cowlington	25	1840CST			0	0	?	?	TSTM Wind (52)
Leflore County, Shady Pt.	25	1855CST			0	0	?	?	TSTM Wind

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>OKLAHOMA</b>									
									Thunderstorms formed west of Ardmore shortly after 2PM and moved east at about 40 mph. East of Cloudy, a tornado first destroyed a 60 x 75 foot barn. A home about a quarter of a mile away was damaged when a number of 2 x 4s were blown through the roofs and walls.
<b>35 OREGON</b>									
ORZ001-002-003 Oregon Coast	02	morning			0	0	5	0	High Wind
									As the first major storm of the season, low pressure developed off the coast and moved toward Vancouver Island. A cold front moved on shore during mid morning. Wind gusts to 95 mph were recorded at Cape Blanco, as were 70 mph gusts in Astoria and 69 mph gusts at Seaside. Numerous trees were uprooted causing considerable power line damage.
ORZ001-002-003 Oregon Coast	05	afternoon			0	0	?	0	High Wind
									A cold front moved on shore during the afternoon. The strongest winds, 55 to 60 mph, hit the north coast, and winds were 45 to 55 mph elsewhere along the coast.
ORZ001-002-003 Oregon Coast	09	morning			0	0	?	0	High Wind
									A cold front moved on shore during the late morning. The strongest winds were 67 mph at Cape Blanco.
ORZ006-013 Cascade Mountains	16- 17	evening morning			0	0	?	0	Winter Storm
									Low pressure moved onto the south coast on the morning of the 17th. Heavy snow was reported throughout the Cascade Range, resulting in 10 to 17 inches of new snowfall.
ORZ001-002-003-006-013 Oregon Coast and Cascade Mountains	21- 22	morning morning			0	?	5	0	Winter Storm, High Wind and Coastal Flood
									Low pressure deepened off the coast and moved toward Vancouver Island. Two fronts moved across Western Oregon. The first on the morning of the 21st and the second on the morning of the 22nd. Peak winds were 75 mph at Tillamook, 70 mph at Seaside, and 69 mph at Newport. The combination of very high tides at the same time as the peak winds and long ocean swells produced some local beach erosion. Up to 12 inches of snow fell in the Cascades.
ORZ001-002-006-013 North and Central Coast Range and the Cascades	24	morning- afternoon			0	?	?	0	Heavy Snow
									A vigorous cold front moved inland on the morning of the 24th dropping the snow level to a little below 1000 feet. Up to 12 inches of snow fell in the passes of the Coast Range. The heaviest snow of the month blanketed the Cascades. Timberline reported 19 inches of snow in less than 24 hours.
<b>36 PENNSYLVANIA, Eastern</b>									
Centre County, Bellefonte	05	1440 EST			0	0	3	0	TSTM Wind
									Thunderstorm wind gusts brought down about a dozen trees along a narrow path starting about one mile southwest of Bellefonte and ending in the town.
Delaware County, 3NW Media	20	1900 EST			0	0	3	0	TSTM Wind
									Thunderstorm wind gusts downed trees and power lines in the Upper Providence Township area to the northwest of Media.
<b>36 PENNSYLVANIA, Western</b>									
Clearfield County, 5 SW Clearfield	04	0130 EST			0	0	6	0	Lightning
									A dairy farm near Curwensville burned after being struck by lightning. Two silos and many prize cows were lost in the blaze which resulted in one-half million dollars in damage.
Beaver County, 3 E Beaver	05	1030 EST			0	0	5	0	Thunderstorm Wind
									Thunderstorm winds unroofed a gas station, blew windows out of a restaurant, and downed trees and power lines in East Rochester.
Blair County, 5 S Altoona	05	1335- 1337 EST	1.0	20	0	0	6	0	Tornado (F1)
									A tornado touched down briefly in Loop south of Hollidaysburg and traveled north for one mile. Front porches were ripped from houses, a roof was torn off of a mobile home, a garage was lifted from its foundation, and trees were sheared off halfway up their trunks.
Washington County, Washington	20	1440 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Washington.
Allegheny County, Pittsburgh	20	1450 EST			0	0	0	0	Thunderstorm Wind
									A thunderstorm wind of 58 mph occurred at the Greater Pittsburgh Airport.
Beaver County, 8 NW Beaver	20	1500 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Beaver.
Butler County, Butler	20	1500 EST			0	0	0	0	Hail (1.75)
Butler County, 15 NE Butler	20	1500 EST			0	0	5	0	Thunderstorm Wind
									Roofs were torn off houses in Karnes City.
Greene County, Waynesburg	20	1500 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Waynesburg.
Fayette County 8 W Uniontown	20	1503 EST			0	0	0	0	Thunderstorm Wind
									The roof was ripped off of a school in McClellandtown. A trailer was flipped over in nearby Cermantown.
Allegheny County, 6 N Pittsburgh	20	1505 EST			0	0	0	0	Hail (1.75)
									Hail of golf ball size fell at Sewickley.
Westmoreland County, 8 SE Greensburg	20	1505 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Mammoth County Park.
Indiana County, Indiana	20	1510 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Indiana.
Beaver County, 8 NW Beaver	20	1515 EST			0	0	0	0	Thunderstorm Wind (60)
									A thunderstorm wind of 69 mph occurred at the Beaver County Airport.
Beaver County, 11 N Beaver	20	1515 EST			0	0	0	0	Thunderstorm Wind
									Trees were downed in Ellwood City.
Butler County, 3 E Butler	20	1515 EST			0	0	0	0	Hail (0.75)
Fayette County 12 NE Uniontown	20	1515 EST			0	0	4	0	Thunderstorm Wind
									Trees fell into a house in Connellsville. Trees were also downed in Dawson.
Westmoreland County, 17 SW Greensburg	20	1515 EST			0	0	0	0	Thunderstorm Wind
									Large trees were downed in Rostraver.
Westmoreland County, Latrobe	20	1519 EST			0	0	0	0	Thunderstorm Wind (56)
									A thunderstorm wind of 65 mph occurred at Latrobe Airport.
Westmoreland County, 9 W Greensburg	20	1520 EST			0	0	0	0	Thunderstorm Wind
									Trees downed in Irwin blocked the Pennsylvania Turnpike.
Clarion County, 9 SW Clarion	20	1530 EST			0	0	5	0	Thunderstorm Wind
									A house trailer was flipped over, roofs were stripped, and telephone poles and trees were uprooted.

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED <sup>1</sup> DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
<b>— PENNSYLVANIA, Western</b>									
Jefferson County: 12 S Brookville	20	1530 EST			0	0	5	0	Thunderstorm Wind
14 S Brookville	20	1530 EST			0	0	0	0	Funnel Clouds
12 SE Brookville	20	1545 EST			0	0	0	0	Thunderstorm Wind
10 S Brookville	20	1545 EST			0	0	0	0	Thunderstorm Wind
5 SE Brookville	20	1545 EST			0	0	0	0	Thunderstorm Wind
7 N Brookville	20	1545 EST			0	0	0	0	Thunderstorm Wind
	Two houses were severely damaged and a barn was blown over in Ringgold at 1530EST. At the same time, two funnel clouds were sighted in Ringgold as well. At 1545EST, trees were downed in McCalmont, Northville, Emerickville and Sigel.								
Armstrong County, Kittanning	20	1540 EST			0	0	0	0	Thunderstorm Wind
	Trees were downed in Kittanning.								
Clarion County, 3 E Clarion	20	1550 EST			0	0	0	0	Thunderstorm Wind
	Trees were downed in Strattonville.								
Cambria County, Johnstown	20	1600 EST			0	0	0	0	Thunderstorm Wind (52)
	A thunderstorm wind of 60 mph occurred at Johnstown.								
Cambria County, 13 N Johnstown	20	1600 EST			0	0	0	0	Thunderstorm Wind
	Trees were downed in Belsano and blocked Route 422.								
Somerset County, Somerset	20	1600 EST			0	0	0	0	Thunderstorm Wind
	Trees were downed in Somerset.								
Somerset County, 15 S Somerset	20	1600 EST			0	0	4	0	Thunderstorm Wind
	A trailer roof was blown off in Meyersdale.								
<b>37 RHODE ISLAND</b>									
RIZALL Entire State	20	1800EST- 21 0600EST			0	0	4	0	High Winds
	High winds frequently gusting up to 40 to 55 mph caused scattered power outages when falling tree limbs felled electric wires. Mostly minor property damage was reported; a few trees fell on houses or autos.								
<b>38 SOUTH CAROLINA</b>									
Florence County: Florence	05	0545EST			0	0	5	0	Lightning
Florence	05	0545EST			0	0	2	0	TSTM Winds (G45)
	Lightning knocked out a substation, affecting 6000 customers. Thunderstorm winds broke tree limbs.								
Georgetown County: North Litchfield	05	0825EST			0	0	2	0	TSTM Wind
Pawley's Island	05	0830EST			0	0	4	0	TSTM Wind
	Thunderstorm winds blew down newly installed power lines on Pawley's Island and felled trees that cut power to North Litchfield. The Georgetown E.P.D. reported winds of up to 60 mph at about 0800EST.								
Horry County, Conway	05	0830EST			0	0	2	0	TSTM Wind
	A thunderstorm wind blew a tree down across a home in Conway.								
Horry County, North Myrtle Beach	05	1000EST			0	0	3	0	TSTM Wind
	Thunderstorm winds damaged the roof of the Hartford Inn. Trees were blown down and auto windows were broken.								
SC2001-002-003-004- 005-007	05	afternoon			0	0	4	0	High Wind
Western, Northern, and Northeastern South Carolina	High winds developed across western, northern, and northeastern South Carolina as an upper trough moved through following a rather strong cold front. High winds persisted from about 1400EST to 1900EST, and there were gusts estimated at up to 70 mph in Dillon, 60 mph near the mountains, and 45 to 50 mph elsewhere in the piedmont and northern and northeastern South Carolina. Numerous trees were blown across roads in the northern parts of Greenville and Spartanburg counties and in Abbeville and Newberry counties. Elsewhere, similar but less extensive damage was reported in many communities. There were power outages that lasted into the night in some towns. Showers, small hail, and thunderstorms accompanied the winds in some places, but the strong wind was the result of a strong pressure gradient and not from the thunderstorms.								
<b>— SOUTH CAROLINA</b>									
Greenville County, Greenville	05	1430EST			0	0	2	0	High Wind
Dillon County, Dillon	05	1455EST			0	0	4	0	High Wind
Florence County, Florence	05	1455EST			0	0	3	0	High Wind
Abbeville County, Abbeville	05	1600EST			0	0	4	0	High Wind
Newberry County, Newberry	05	1630EST			0	0	3	0	High Wind
Spartanburg County, Spartanburg	27	1815EST			0	0	2	0	TSTM Wind
	Strong thunderstorm winds blew down power lines near U.S. Highway 21 and Interstate 85, disrupting power to 150 customers.								
<b>39 SOUTH DAKOTA</b>									
Brown County, Aberdeen	19	0100 CST			1	0	0	0	Cold
	A man died of exposure in Aberdeen. M19D.								
<b>40 TENNESSEE</b>									
Madison and Henderson Counties, JUNE Jackson to 12NW Lexington	04	1540 to 1551CST	6.0	50	0	0	3	0	Tornado (F1)
	A tornado touched down in the northeast part of Madison County near Highway 20 and Law Road at approximately 3:40 PM. It moved northeast and crossed into the northwest part of Henderson County at Interstate 40 and continued to near Mt. Cilead. In Madison County a mobile home was damaged. The male occupant escaped unharmed, having run out of the mobile home for safer shelter when he saw the tornado coming. Numerous trees were uprooted or knocked down in both counties.								
Wayne County, 5SW Waynesboro to 8NE Waynesboro	04	1545 to 1601CST	13.0	75	0	0	5	0	Tornado (F2)
	A tornado touched down at 3:45 PM about 5 miles southwest of Waynesboro at Hog Creek Road, moved northeast through Waynesboro, and continued on to about 8 miles northeast of Waynesboro at Fortyeight Creek Road. The tornado had lifted up briefly a couple of times. The roof of the Wayne County Nursing Home was lifted off. A number of homes had sustained damage to roofs and porches, and numerous trees were uprooted.								
Montgomery County, Cunningham	04	1630CST			0	0	4	0	Thunderstorm Wind
Sumner County, Portland	04	1730CST			0	0	2	0	Thunderstorm Wind
	In Cunningham the roof was torn off of a large garage and the porch was torn off of a building beside the garage near Highway 48. Trees and power lines were downed as well. In Portland, thunderstorm winds knocked down a number of trees and one large tree fell on a car, destroying it.								
Grundy County, Tracy City	05	1130CST			0	0	2	0	Thunderstorm Wind
Franklin County, Winchester	05	1200CST			0	0	2	0	Thunderstorm Wind
Coffee County, Tullahoma	05	1230CST			0	0	2	0	Thunderstorm Wind
Polk County	05	1300CST			0	0	1	0	Thunderstorm Wind
Moore County	05	1300CST			0	0	2	0	Thunderstorm Wind
Bradley County, Cleveland	05	1325CST			0	0	4	0	Thunderstorm Wind
McMinn County	05	1345CST			0	0	2	0	Thunderstorm Wind
Marion County	05	1400CST			0	0	2	0	Thunderstorm Wind
Hamilton County, Chattanooga	05	1430CST			0	0	4	0	Thunderstorm Wind
Blount County	05	1500CST			0	0	2	0	Thunderstorm Wind
	A strong cold front produced severe thunderstorms with damaging wind in ten counties in the eastern half of Tennessee. Most of the damage consisted of knocked down trees and power lines and knocked out windows. The roof was ripped off of a small building in Cleveland, Bradley County. Near Lynchburg in Moore County, a roof on a home was damaged and car windows were broken out.								
Cheatham County	16	0400CST			0	0	3	0	Thunderstorm Wind
	Damaging thunderstorm winds knocked the gable roof off of a modified mobile home and broke out windows. No injuries were reported.								

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	

## — TENNESSEE

Fayette County, 4W Moscow	19 2030CST								Funnel Cloud
A funnel cloud was sighted between Rossville and Moscow by a deputy sheriff on Highway 57. The funnel cloud moved northeast.									
Hardeman, Chester and Madison Counties, 9NE Bolivar to 6NW Henderson	19 2100CST	12.0	90	0	1	5	0		Tornado (F2)
At around 9:00 PM a tornado touched down near Lake Lajoie in Chickasaw State Park in the northeast part of Hardeman County. It damaged approximately 500 acres of timber. Traveling northeast, it entered Chester County about two miles southwest of Deanburg. It damaged six homes in the Deanburg area, including three mobile homes. Three barns and a number of sheds were heavily damaged as well. It crossed into Madison County just east of Cain Road. As it continued northeast, it damaged four houses and two mobile homes, and totally destroyed one mobile home that was directly in its path. The woman that was in the mobile home ran outside and layed down just seconds before the trailer was destroyed. She sustained minor injuries.									
Carroll, Fayette, Gibson, Hardeman, Haywood and Madison Counties	19 2135CST			0	0	2	0		Flash Flood
Already swollen streams began overflowing their banks as a cluster of thunderstorms that produced very heavy rain moved over the area. Only minor property damage was reported, but many roadways were flooded throughout this six county area.									
TN2001-002-003-004-005-016	20 1430EST			0	0	4	0		High Wind
High winds associated with a fast-moving cold front caused widespread damage to the eastern part of Tennessee. Throughout the region the damage consisted mostly of knocked down trees and power lines. In Knox County, a 100 square foot section of roof was blown off of a hangar at McGhee Tyson Airpor's Air National Guard section. In Hawkins County, a 4000 gallon gasoline tank was ruptured by a large piece of metal that was blown into it. In Blount County, a newly built fire station was destroyed at Townsend. The building was nearly complete except for the doors. One fire engine was inside and sustained light damage.									

## 41 TEXAS, Northern

Lamar County 2.5 W Woodland	9 2137CST								Hail (1.75)
Red River County 2.0 W Woodland	9 2137CST								Hail (1.75)
Lamar County 2.5 W Woodland	9 2145CST								TSTM Wind (52)
Red River County: 2.0 W Woodland	9 2145CST								TSTM Wind (52)
1 W Pine Springs	9 2220CST								TSTM Wind (56)
Bowie County: 1.5 NE Spring Hill	9 2245CST								Hail (1.00) and TSTM Wind
DeKalb	9 2255CST								Hail (0.75) and TSTM Wind (61)
Cass County: Lindene	10 0005CST								Hail (1.00)
Kildare	10 0015CST								TSTM Wind
Thunderstorms developed along a cold front producing hail up to golf ball size and some wind damage. A downburst with winds up to 60 miles per hour downed trees and powerlines along the Lamar-Red River county line west of Woodland. Another downburst with winds up to 65 miles per hour occurred in northeast Red River County one mile west of Pine Springs. A downburst tore down a number of trees northeast of Spring Hill. Several roads were blocked for a time at DeKalb where numerous trees were uprooted. Trees and signs were downed by winds at Kildare.									
Knox County Munday	11 1830CST			0	0	?	?		Hail (1.75)
Golf ball size hail fell at Munday.									
Young County: 4 NW Olney	12 0136CST			0	0	?	?		Hail (1.75)
4 NW Graham	12 0250CST			0	0	?	?		Hail (0.75)
Wise County Decatur	12 0335CST			0	0	?	?		Hail (0.75)
Tarrant County: 5 N Fort Worth Meacham Arpt.	12 0555CST			0	0	?	?		TSTM Wind
Bedford	12 0605CST			0	0	?	?		TSTM Wind (52)
Collin County Plano	12 0610CST			0	0	?	?		TSTM Wind (52)
Dallas County Garland	12 0615CST			0	0	?	?		TSTM Wind
Thunderstorms developed along a cold front and produced golf ball size hail northwest of Olney and dime size hail northwest of Graham and at Decatur. Several power poles were downed by a downburst north of Fort Worth Meacham Airport. Winds of 60 miles per hour were reported at Bedford and Plano. Several small signs were blown over at Plano. Shingles were blown off a few roofs in Garland where several powerlines were also downed.									

## — TEXAS, Northern

Wichita County: 10 S Electra	15 1010CST								Hail (0.88)
2 SW Burkburnett	15 1010CST								Hail (1.25)
Burkburnett	15 1033CST								Hail (1.00)
Iowa Park	15 1036CST								Hail (1.00)
Iowa Park	15 1044CST								TSTM Wind
Wichita Falls	15 1045CST								TSTM Wind (51)
Montague County Mineral Wells	15 1208CST								Hail (0.88)
4 E Bellevue									
Palo Pinto County Mineral Wells	15 1305CST								Hail (0.75)
Wise County Alvord	15 1313CST								Hail (0.88)
Cooke County Gainesville	15 1318CST								Hail (1.00)
Parker County: 10 S Weatherford	15 1330CST			0	0	?	?		Hail (0.88)
10 NW Weatherford	15 1335CST			0	0	?	?		Hail (0.88)
Weatherford	15 1345CST			0	0	?	?		Hail (1.00) and TSTM Wind (56)
Tarrant County: 3 S Azle	15 1410CST			0	0	?	?		Hail (0.88)
3 N Keller	15 1425CST			0	0	?	?		Hail (1.00)
6 NE Keller	15 1440CST			0	0	?	?		Hail (1.75)
5 SE Fort Worth	15 1444CST			0	0	?	?		Hail (0.75)
5 SW Fort Worth	15 1455CST			0	0	5	?		Hail (1.75) and TSTM Wind
3 E Fort Worth	15 1503CST			0	0	?	?		TSTM Wind (69)
Grayson County: 2 W Sherman	15 1430CST			0	0	?	?		Hail (0.75)
Sherman	15 1440CST-			0	0	5	?		Hail (2.50)
1442CST									
8 E Denison	15 1500CST			0	0	?	?		Hail (3.50)
Denton County: 6 NE Keller	15 1440CST			0	0	?	?		Hail (1.75)
Lewisville	15 1442CST-			0	0	?	?		Hail (1.75)
1445CST									
7 NE Lewisville	15 1455CST			0	0	?	?		Hail (1.75)
Collin County: 5 W Plano	15 1500CST			0	0	?	?		Hail (1.00)
McKinney	15 1529CST			0	0	?	?		Hail (1.75)
Farmersville	15 1545CST			0	0	?	?		TSTM Wind
Dallas County: Carrollton	15 1520CST			0	0	?	?		Hail (0.75)
Mesquite	15 1601CST			0	0	?	?		Hail (1.00)
8 E Dallas	15 1655CST			0	0	?	?		Hail (1.00)
Ellis County 5 SW Ennis	15 1540CST			0	0	?	?		Hail (0.88)
Hunt County: 8 S Greenville	15 1600CST			0	0	?	?		Hail (1.00)
Quinlan	15 1640CST			0	0	?	?		TSTM Wind and Hail (1.00)
3 NE Lone Oak	15 1700CST			0	0	?	?		Hail (1.75)
Rockwall County: Rockwall	15 1610CST			0	0	?	?		Hail (1.75)
Rockwall	15 1705CST			0	0	?	?		Hail (0.88)
Kaufman County	15 1610CST			0	0	?	?		TSTM Wind (52)
4 NW Forney									
Lamar County 10 SW Paris	15 1620CST			0	0	?	?		TSTM Wind
Rains County: 10 NW Emory	15 1645CST			0	0	?	?		Hail (1.75)
8 WNW Emory	15 1714CST-	short narrow		0	0	?	?		Tornado (F1)
	1717CST			0	0	?	?		and Hail (1.75)
	15 1719CST	short narrow		0	0	?	?		Tornado (F1)
5.5 WNW Emory	15 1655CST			0	0	?	?		TSTM Wind
Delta County: Enloe									
Hopkins County: Sulphur Springs	15 1715CST-			0	0	6	?		Hail (2.00)
1720CST									
Pine Forest	15 1830CST			0	0	?	?		TSTM Wind
Saltville	15 1830CST			0	0	?	?		TSTM Wind
Red River County Clarksville	15 1730CST			0	0	?	?		Hail (1.00)
Ellis County Ennis	15 1730CST			0	0	?	?		Hail (0.75)
Franklin County: Purley	15 1815CST			0	0	?	?		Hail (0.75) and TSTM Wind
5 E Purley	15 1820CST			0	0	?	?		Hail (2.75) and TSTM Wind
Titus County Mt. Pleasant	15 1815CST-			0	0	?	?		Hail (1.75)
1820CST									
Camp County 8 SW Pittsburg	15 1820CST			0	0	?	?		TSTM Wind
Morris County Naples	15 1830CST			0	0	?	?		Hail (0.88)
Bowie County: Beaverdams	15 1855CST			0	0	?	?		Hail (1.00)
Redwater	15 1915CST			0	0	?	?		Hail (1.75)
Hooks	15 1915CST			0	0	?	?		Hail (1.00)
Maud	15 1918CST			0	0	?	?		TSTM Wind (52) and Hail (1.00)
7 NW Texarkana	15 1920CST			0	0	?	?		TSTM Wind (69)
Henderson County 8 NW Bustace	15 1900CST			0	0	?	?		Hail (0.75)
Van Zandt County Ben Wheeler	15 1900CST			0	0	?	?		Hail (0.88)

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					KILLED	INJURED	PROPERTY	CROPS	

## TEXAS, Northern

Cass County:									
5 NE Hughes Springs	15	1912CST			0	0	?	?	Hail (1.75)
Bloomburg	15	1930CST			0	0	?	?	Hail (2.00)
2 W Pruitt	15	2025CST			0	0	?	?	Hail (1.00)
Marion County:									
5 N Kellyville	15	1950CST			0	0	?	?	Hail (1.00)
Gregg County:									
Gladewater	15	1955CST			0	0	?	?	Hail (1.00)
White Oak	15	2000CST			0	0	?	?	Hail (1.00)
1 E Longview	15	2015CST			0	0	?	?	TSTM Wind (57)
Smith County	15	2000CST			0	0	?	?	Hail (1.00)
1 E Winona									
Harrison County:									
Harleton	15	2020CST			0	0	?	?	Hail (1.00) and TSTM Wind
Scottsville	15	2115CST			0	0	?	?	TSTM Wind (61)
Anderson County:									
Montalba	15	2030CST			0	0	?	?	Hail (0.75)
Neches	15	2045CST			0	0	?	?	Hail (0.75)
Cherokee County	15	2100CST			0	0	?	?	Hail (0.75)
5 S Jacksonville									
Rusk County	15	2140CST			0	0	?	?	Hail (1.00)
Shiloh									
Panola County	15	2205CST			0	0	?	?	Hail (0.88)
Lake Marval Dam									

Thunderstorms developed along a cold front producing widespread severe weather across North Texas. Hail fell across a number of areas. Utility sheds were damaged, a utility pole broken, and a 70 foot amateur radio tower toppled by the wind at Iowa Park. The wind gusted to 59 miles per hour at Wichita Falls and to 65 miles per hour at Weatherford during thunderstorms.

At 1455 CST golf ball size hail fell in southwest Fort Worth and a strong downburst damaged the roofs of eight businesses in a shopping center. The glass store fronts of two businesses were shattered at another nearby shopping center in southwest Fort Worth. Winds up to 80 miles per hour were recorded at KGAS-TV in east Fort Worth and the roofs of several businesses were damaged by the wind in the area.

Hail up to the size of tennis balls damaged vehicles and roofs in Sherman. Hail up to three and a half inches in diameter broke windshields out of vehicles eight miles east of Denison. A utility pole was snapped by the wind at Farmersville in Collin County leaving the community without power for over two hours.

In southern Hunt County a downburst took the roof off a building in Quinlan and broke windows at a nursing home. A downburst produced winds measured at 60 miles per hour at Lake Ray Hubbard Dam (4 miles northwest of Forney). A barn was destroyed by winds 10 miles southwest of Paris.

A storm chaser from Oklahoma University photographed two brief tornadoes northwest of Emory at 1714 CST and 1719 CST. A tree was blown onto a mobile home at Enloe in Delta County.

At least 900 homes and 825 vehicles in Sulphur Springs were damaged by hail, which ranged up to two inches in diameter. Damage was estimated at nearly \$2.5 million in Sulphur Springs. Downbursts destroyed two barns at Pine Forest and damaged trees and roofs at Salttillo in Hopkins County.

Trees were uprooted at Purley in Franklin County. Baseball size hail fell five miles east of Purley where a tree was blown onto an automobile. A tree was also uprooted 8 miles southwest of Pittsburg.

Winds to 60 miles per hour downed several trees at Maud. Winds to 80 miles per hour destroyed two outbuildings and unroofed a house at Wamba (7 miles northwest of Texarkana). A mobile home was also damaged at Wamba and numerous trees downed by the wind.

Winds to 65 miles per hour downed trees and powerlines at a shopping mall in east Longview. Trees were uprooted at Harleton and at Scottsville in Harrison County.

Hopkins County:									
Sulphur Springs	19	1118CST-1300CST			0	0	?	?	Flash Flooding
Saittillo	19	1200CST			0	0	?	?	Hail (1.25)
Wood County	19	1145CST			0	0	?	?	TSTM Wind (61)
6 ESE Mineola									
Franklin County	19	1220CST			0	0	?	?	Hail (0.75)
Haysport									
Smith County:									
12 SW Kilgore	19	1250CST	short narrow	0	0	?	?	?	Tornado (F1)
5 SW Gladewater	19	1250CST			0	0	?	?	Hail (1.75)
Whithouse	19	1355CST			0	0	?	?	TSTM Wind
Upshur County:									
3 NW Gladewater	19	1300CST			0	0	?	?	Hail (1.75)
6 N Gladewater	19	1305CST			0	0	?	?	TSTM Wind (61)
Union Grove	19	1305CST			0	0	?	?	Hail (2.75)
10 S Gilmer	19	1308CST			0	0	?	?	TSTM Wind
2 N Diana	19	1333CST			0	0	?	?	TSTM Wind
Gregg County	19	1305CST			0	0	?	?	Hail (1.75)
Gladewater									
Cherokee County	19	1330CST			0	0	?	?	TSTM Wind
12 NW Jacksonville									

## TEXAS, Northern

Marion County:									
8 SW Avinger	19	1328CST	short narrow	0	0	?	?	?	Tornado (F1)
2 E Ore City	19	1333CST			0	0	?	?	Hail (1.75)
Cass County:									
4 N Avinger	19	1340CST	short narrow	0	0	?	?	?	Tornado (F1)
5 SE Atlanta	19	1340CST			0	0	0	0	Funnel Cloud
Harrison County:									
2 N Woodlawn	19	1345CST			0	0	?	?	TSTM Wind
Marshall	19	1415CST			0	0	?	?	Hail (1.00)
Angelina County:									
4 W Lufkin	19	1351CST	short narrow	0	0	?	?	?	Tornado (F1)
Lufkin	19	1352CST			0	0	?	?	Hail (1.00)
Panola County:									
10 N Carthage	19	1438CST			0	0	0	0	Funnel Cloud
7 SW Carthage	19	1453CST			0	0	0	0	Funnel Cloud
Shelby County	19	1500CST			0	0	?	?	TSTM Wind
6 E Shelbyville									
Angelina County:									
LPK-Angelina Co. Airport	19	1510CST			0	0	0	0	Funnel Clouds
3 W LPK-Angelina Co. Airport									
San Augustine County	19	1545CST			0	0	?	?	TSTM Wind
2 NE Broadus									

Thunderstorms along and ahead of a cold front produced heavy rains, hail up to baseball size, downbursts, funnels and several brief tornadoes. Widespread street flooding stalled numerous vehicles in Sulphur Springs after heavy rainfall. Winds up to 70 miles per hour were reported six miles east-southeast of Mineola.

A pilot reported a brief tornado in Smith County 12 miles southwest of Kilgore. A downburst uprooted several trees at Whitehouse. Winds up to 70 miles per hour were observed 6 miles north of Gladewater. A downburst swept a mobile home off its support blocks and uprooted trees 10 miles south of Gilmer. Trees were uprooted by a downburst two miles north of Diana. A mobile home was blown off its foundation at Lake Palestine (12 miles northwest of Jacksonville).

A brief tornado blew down numerous trees 8 miles southwest of Avinger in Marion County. A brief tornado uprooted numerous trees 4 miles north of Avinger in Cass County. A downburst blew down numerous trees two miles north of Woodlawn. A brief tornado uprooted trees 4 miles west of Lufkin. Trees were uprooted by downbursts 6 miles east of Shelbyville and two miles northeast of Broadus.

Montague County:									
4 NW Bowie	25	1430CST			0	0	?	?	Hail (1.75)
Nocona	25	1435CST			0	0	?	?	Hail (0.75)
Johnson County	25	1458CST			0	0	?	?	Hail (0.88)
Cleburne									
Wise County	25	1530CST			0	0	?	?	Hail (1.00)
Paradise									
Bosque County	25	1531CST			0	0	?	?	Hail (1.00)
Clifton									
Parker County:									
4 W Weatherford	25	1532CST			0	0	?	?	Hail (1.75)
Weatherford	25	1600CST			0	0	?	?	Hail (1.75)
Hill County:									
Whitney	25	1545CST			0	0	?	?	Hail (1.50)
Lake Whitney	25	1615CST			0	0	?	?	Hail (1.75)
Irene	25	1745CST			0	0	?	?	Hail (0.75)
Kaufman County:									
Forney	25	1600CST			0	0	?	?	Hail (0.88)
Terrell	25	1630CST			0	0	?	?	Hail (0.88)
Denton County:									
Krum	25	1605CST			0	0	?	?	TSTM Wind (70)
Krum	25	1642CST			0	0	?	?	Hail (0.88)
Pilot Point	25	1700CST			0	0	?	?	Hail (0.75)
Fannin County	25	1630CST			0	0	?	?	Hail (0.75)
1 W Hazy Grove									
Lamar County	25	1640CST			0	0	?	?	Hail (0.75)
Tigertown									
Dallas County	25	1645CST			0	0	?	?	Hail (1.00)
5 SE Dallas									
Ellis County	25	1655CST			0	0	?	?	Hail (1.75) and TSTM Wind
Bristol	25	1740CST			0	0	6	?	Hail (2.75) and TSTM Wind
Kaufman County									
Kaufman									
Hopkins County:									
Sulphur Springs	25	1745CST			0	0	?	?	Hail (0.75)
8 W Sulphur Springs	25	1745CST			0	0	?	?	Hail (0.75)
Navarro County	25	1806CST			0	0	?	?	Hail (0.75)
2 N Corsicana									
Hunt County	25	1830CST			0	0	?	?	Hail (0.75)
1 W Lake Tawakoni									
Van Zandt County	25	1830CST			0	0	?	?	Hail (2.75)
Willis Point									
Rains County	25	1835CST			0	0	?	?	TSTM Wind
Emory									
Red River County:									
Clarksville	25	1835CST			0	0	?	?	Hail (1.75)
10 NE Clarksville	25	1854CST			0	0	?	?	Hail (1.75)
Hopkins County	25	1900CST			0	0	?	?	Hail (0.75)
Sulphur Springs									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>TEXAS, Northern</b>									
Van Zandt County: Canton	25	1845CST			0	0	?	?	TSIM Wind
0.5 W Fruitvale	25	1915CST	3.0	300	0	2	?	?	Tornado (F1) and TSIM Wind
Grand Saline	25	1940CST			0	0	?	?	Hail (3.50) and TSIM Wind
Wood County: Alba	25	1945CST			0	0	?	?	Hail (4.50)
Golden	25	2000CST			0	0	?	?	Hail (1.75)
Wimmsboro	25	2020CST			0	0	?	?	TSIM Wind
Rains County: Alba	25	1945CST			0	0	?	?	Hail (4.50)
Franklin County: Wimmsboro	25	2025CST			0	0	?	?	TSIM Wind
Bowie County: 6 W Dekalb	25	2025CST			0	0	?	?	TSIM Wind
Simms	25	2145CST			0	0	?	?	TSIM Wind
New Boston	25	2320CST			0	0	?	?	Flash Flooding
Hooks	25	2325CST			0	0	?	?	Flash Flooding
Titus County: Mt. Pleasant	25	2045CST			0	0	?	?	Hail (1.75)
Mt. Pleasant	25	2100CST			0	0	?	?	Hail (2.75) and TSIM Wind
Van Zandt County: 2 W Edom	25	2130CST			0	0	?	?	TSIM Wind
Upshur County: Gilmer	25	2220CST	0.3	50	0	0	?	?	Tornado (F1)
Cass County: 4 W Douglassville	25	2300CST	0.3	75	0	0	?	?	Tornado (F1)
Farrin County: Bonham	26	0230CST			0	0	?	?	Hail (0.88)
Van Zandt County: 2 W Fruitvale	26	0310CST			0	0	?	?	Hail (1.75)
Limestone County: Mexia	26	0352CST			0	0	?	?	Hail (1.75)
Freeestone County: 7 E Mexia	26	0410CST			0	0	?	?	Hail (1.75)
Panola County: Carthage	26	0550CST	short narrow	0	0	?	?	?	Tornado (F1)
<p>Thunderstorms developed along and ahead of a cold front as it moved through North Texas. The thunderstorms produced hail in numerous areas, isolated downbursts and several tornadoes. As the line of storms moved through Denton County a downburst produced winds measured at 80 miles an hour at Krum.</p> <p>Two supercell thunderstorms developed just ahead of the main squall line. The first thunderstorm to take on a supercell configuration did so near Lake Whitney in Hill County where hail up to golf ball size fell at 1615CST. The supercell moved northeastward into Ellis County producing golf ball size hail and an intense downburst at Bristol. The downburst tore the roof off a school in Bristol, damaged a barn and uprooted trees. Continuing northeastward into Kaufman County the supercell produced baseball size hail in Kaufman and winds which tore a metal roof from a downtown business at 1740CST. Windows in 3 schools in Kaufman were broken by the hail and damage to roofs and vehicles was estimated at just under \$5 million. Minor wind damage occurred to several other buildings in and near Kaufman and several trees were uprooted. As the supercell moved into northwestern Van Zandt County, baseball size hail fell at Willis Point at 1830CST. Downbursts from the supercell felled numerous trees in and near Enory in Rains County around 1835CST.</p> <p>A second supercell thunderstorm developed in western Van Zandt County at around 1830CST. Moving toward the northeast the storm uprooted several trees at Canton at 1845CST. This supercell produced a weak tornado and downbursts near Fruitvale. A train was derailed at the time of the storm near Fruitvale with at least 28 cars leaving the track. The train crew was in the process of stopping the train at the time of the derailment due to intense rainfall and high winds. Several trees were uprooted and powerlines down along a nearly 3 mile path which crossed the railroad track. Large limbs were broken from trees and the roofs of several nearby homes were damaged. A tanker car with the train ruptured, with the ensuing fumes injuring two motorists and prompting an evacuation of the immediate area. The supercell continued northeastward producing hail up to three and a half inches in diameter at Grand Saline at 1940CST and a downburst which broke limbs from trees. At 1945CST hail up to softball size fell at Alba on the Rains-Wood county border, damaging roofs and automobiles. The supercell downed numerous trees and some powerlines in Wimmsboro and then pounded Mount Pleasant with hail up to baseball size. The roof of a motel in Mount Pleasant was ripped off by a strong downburst.</p> <p>A downburst blew the windows out of a mobile home, damaged several barns, and uprooted trees six miles west of Dekalb. Trees and powerlines were blown down in Simms. Heavy rainfall from the thunderstorms flooded roads and highways in and around New Boston and Hooks.</p> <p>A strong thunderstorm uprooted a couple of trees about 2 miles west of Edom at 2130CST, moved through northwestern Smith County, and then produced a brief tornado in the west part of Gilmer in Upshur County. Two houses and several outbuildings were damaged in west Gilmer and several trees uprooted.</p> <p>A tornado demolished a store and gas station 4 miles west of Douglassville at 2300CST. A brief tornado also damaged a church and store in Carthage at 0550CST.</p>									
<b>41 TEXAS, Southern</b> ————— NONE REPORTED									
<b>41 TEXAS, Western</b>									
Culberson County	3	1312 MST 2048 MST			0	0	0	0	High Wind (52) High Wind (52)
<p>A west wind gusted to 52 knots at Guadalupe Pass, in the northwest corner of the county. Later, at 2048 MST, wind again gusted to 52 knots at the same location.</p>									
All of Western Texas	15	All Day							High Wind
<p>An intense surface and upper-level storm system moving out of the southern Rockies and through the Texas Panhandle brought gradient winds that exceeded hurricane force in places. Widespread, mostly minor damage was inflicted to business and residential structures, motor vehicles, trees, and power lines. The following list chronicles the damaging events.</p>									
Culberson County	15	0415 MST			0	0	3	0	High Wind (88)
<p>A sustained west wind of 52 knots gusted to 88 knots at Guadalupe Pass. The powerful gust damaged wind recording equipment at the automated weather station, causing a data interruption for nearly 10 hours.</p>									
Bailey County	15	0700 CST			0	0	3	0	High Wind
<p>The Sheriff's Office reported numerous traffic signs down across the City of Muleshoe and throughout the county. Damage was minimal but the signs frequently had to be cleared from roadways during the course of the morning and early afternoon.</p>									
Lamb County	15	0720 CST			0	0	4	0	High Wind
<p>Gradient winds snapped literally dozens of power poles between the communities of Amherst and Sudan, along U. S. Highway 84. Numerous trees were reported uprooted throughout the county.</p>									
Potter and Randall Counties	15	0730 CST			0	0	4	0	High Wind
<p>Gradient winds uprooted trees, downed power lines, and caused structural damage to residences and businesses across the Amarillo area. Wind gusts measured 52 knots at the Weather Service Office, Amarillo Municipal Airport.</p>									
Hutchinson and Carson Counties	15	0745 CST			0	0	4	5	High Wind (55)
<p>High winds roared from the morning through most of the afternoon, causing fires, automobile wrecks, and structural damage. In Carson County, a cattle truck was overturned by the wind five miles north of Panhandle. On the 6666 Ranch in northwest Carson County three grass fires resulted from snapped power lines and very low humidities. The fires required several hours to be contained, and scorched 1,500 acres of the 10,000 acre ranch.</p>									
Castro County	15	0800 CST			0	1	4	0	High Wind
<p>In southern Hutchinson County, several Berger businesses received substantial damage to windows, roofs, and awnings.</p> <p>Gradient winds of unknown speed rocked the county for much of the day, overturning a tractor-trailer rig three miles south of Hart on State Highway 168. The driver sustained minor injuries. A grain storage bin at LS Feed Yard, 2 miles northeast of Hart, was collapsed by the wind at about the same time.</p>									
Motley County	15	0807 CST			0	0	5	4	High Wind (70)
<p>Straight-line gradient wind associated with a strong dry line gusted to 70 knots through the city of Marador. Though thunderstorms were in the area, the wind was not convective in origin. The windstorm inflicted major roof, tree, and automobile damage. Among the worst hit sites was Billy Dean's Steakhouse, where the structure was unroofed. No injuries were reported, even though 12 patrons were in the facility at the time.</p>									
Floyd County	15	Est. 0830 CST			0	0	3	0	High Wind
<p>High winds of undetermined speed inflicted scattered roof and tree damage across the community of Floydada.</p>									
Potter County	15	Est. 0850 CST			0	0	4	3	High Wind
<p>The Sheriff's Office reported that gradient winds of unknown speed unroofed a house in northwest Amarillo. Other damage included snapped tree limbs, traffic lights turned around, and downed advertising signs.</p>									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>TEXAS, Western</b>									
Donley County	15	Est. 0900 CST			0	0	5	0	High Wind
		At approximately 0900 CST gradient winds following a strong dry line inflicted scattered but severe damage. Two mobile homes were destroyed, a carport collapsed on a boat, and light poles were downed in Clarendon.							
Hale County	15	Est. 0915 CST			0	0	4	0	High Wind (62)
		High wind caused damage to vehicles, roofs, trees, and windows across the county. The gradient wind, which gusted to 62 knots at Plainview Municipal Airport, was responsible for overturning a tractor-trailer rig 0.5 mile south of Hale Center on Interstate 27.							
Gray, Hemphill, and Wheeler Counties	15	0930 CST			0	1	6	4	High Wind (78)
		High winds blasted the three-county area with gusts at LeFors Field in Pampa (Gray County) that measured 78 knots. Other sites also measured extreme winds, including gusts to 52 knots at KPRR radio in Wheeler (Wheeler County). The intense windstorm damaged numerous mobile homes at Tumbleweed Acres Mobile Home Park in Pampa, where a woman was injured by flying metal from a disintegrating mobile home roof. Roofs of permanent homes lost shingles, trees were uprooted, and power lines downed over all three counties. In fact, a total of 29 power poles were snapped from Groom to Kingsmill (in the western fringe of Gray County) and from Canadian to Wheeler (in Hemphill and Wheeler Counties).							
Collingsworth County	15	1030 CST			0	0	4	4	High Wind (50)
		Gradient winds struck the county during the late morning and howled at damaging levels for much of the day. The force of the wind ripped shingles from roofs, uprooted trees, shredded weak structures, and inflicted substantial damage to cotton remaining in the fields. At Wellington, in the southern part of the county, a grain elevator was damaged, and several businesses reported roof damage. Tree damage was general in the area. At Dodson, in the southeast corner of the county, roofs, antennas, and trees were damaged.							
Ector and Midland Counties	15	Est. 1030 CST			0	0	4	0	High Wind (51)
		Gradient winds gusting to 51 knots at Midland Air Terminal ripped through the Midland and Odessa area, twisting metal siding, uprooting trees, and unroofing at least one mobile home.							
Hale County	15	1225 CST			0	0	4	3	High Wind (Est. 60)
		Gradient winds trailing a dry line gusted to an estimated 60 knots through the City of Plainview, resulting in scattered roof and tree damage. Hardest hit was the Medical Center Clinic on 24th Street, which lost a large portion of its roof. No injuries were reported.							
Lubbock County	15	1230 CST			0	0	4	4	High Wind (52)
		Wind gusts measuring 52 knots were registered at Lubbock International Airport, about one mile northwest of where a city-owned 100-foot-tall microwave tower tumbled from the force of the wind. The tower fell on and snapped Lubbock Power & Light transmission lines, knocking out five substations and interrupting electrical service in the north end of town. That part of Lubbock was without power for 40 minutes.							
Culberson County	18	1700 MST			0	0	0	0	High Wind (53)
		A southwest wind gusted to 53 knots through Guadalupe Pass at 1700 MST. No damage was reported at the remotely located site.							
Culberson County	25	0730 MST			0	0	0	0	High Wind (59)
		0945 MST			0	0	0	0	High Wind (60)
		1835 MST			0	0	0	0	High Wind (58)
		A west wind gusted to 59 knots at Guadalupe Pass. At 0945 MST, another gust reached 60 knots. Several hours later, at 1835 MST, a gust from the southwest hit 58 knots. No damage was noted.							
Culberson County	26	0915 MST			0	0	0	0	High Wind (53)
		A west wind gusted to 53 knots at Guadalupe Pass.							
<b>42 UTAH</b>									
Cache County Trenton	01	2235MST			0	0	1	0	Thunderstorm Wind (664)
		A thunderstorm downdraft gusted to 74 mph in Trenton.							
UTZ003 Wasatch Front	13	1230MST			0	0	1	0	High Wind (654)
		Strong south winds gusted to 62 mph in Sandy, with several reports of gusts in the 40 to 55 mph range in many of the western valleys of the state.							
UTZ007 Sevier Valley	14	0150MST			0	0	1	0	High Wind (652)
		The Richfield URP reported sustained wind speeds of 40 mph with gusts to 60 mph.							
UTZ001-010 Cache Valley and Northern Mountains	14	1030MST			0	0	1	0	Heavy Snow
UTZ003 Wasatch Front	14	1100MST			0	0	1	0	Heavy Snow
UTZ006-007 Southwest Valleys Sevier Valley	14	1400MST			0	0	1	0	Heavy Snow
		At 10:30 a.m. snowfall accumulations had reached 3 to 6 inches in the Cache Valley and up to 12 inches on some spots of the Northern Wasatch Mountains. By 11:00 a.m. snowfall accumulations in the 4 inch range had spread southward into Davis and Salt Lake counties. At 2:00 p.m. reports from Milford and Fairview indicated that much of southwest and central Utah had received 4 or more inches of snow.							
UTZ010 Northern Mountains	17	0615MST			0	0	1	0	Heavy Snow
UTZ003 Wasatch Front	17	0840MST			0	0	1	0	High Wind (653)
		A vigorous Pacific trough produced high winds in the northwest valleys and heavy snow in the Northern Wasatch Mountains. By early morning hours, several Wasatch Mountain ski resorts had received 8 or more inches of snow overnight. Near the same time, a wind gust to 61 mph was reported in Salt Lake City.							
UTZ010 Northern Mountains	18	0505MST			0	0	1	0	Heavy Snow
UTZ003 Wasatch Front	18	0540MST			0	0	1	0	Heavy Snow
		A localized area of heavy snowfall continued through the night in Little Cottonwood Canyon and produced 20 inches of new snow overnight at the Alta Ski Resort. During the same time Tooele received 6 inches of lake-effect snow between midnight and 5:40 a.m.							
UTZ003 Wasatch Front	23	1753MST			0	0	2	0	High Wind (652)
		A spotter in Tooele reported a gust to 60 mph, at which time a parked semi-trailer was tipped over.							
UTZ003 Wasatch Front	24	0035MST			0	0	1	0	Heavy Snow
UTZ010 Northern Mountains	24	0500MST			0	0	1	0	Heavy Snow
UTZ010 Northern Mountains	24	1650MST			0	0	1	0	Heavy Snow
		Four to six inches of snow had fallen in the valleys and bench areas along the Wasatch Front by shortly after midnight. A foot to 18 inches of new snow had accumulated in many of the Wasatch Ski areas by the early morning hours. By late afternoon an additional 8 inches of snow had fallen in a few ski areas in the Northern Wasatch.							
UTZ010 Northern Mountains	26	0330MST			0	0	1	0	Heavy Snow
UTZ003 Wasatch Front	26	0450MST			0	0	1	0	Heavy Snow
UTZ007 Sevier Valley	26	1000MST			0	0	1	0	Heavy Snow
UTZ010 Northern Mountains	26	1625MST			0	0	1	0	Heavy Snow
		Fifteen inches of new snow fell between 5 p.m. on the 25th and 3:30 a.m. on the 26th at the Alta Ski Resort. Other mountain resort areas received between 8 and 12 inches of new snow during the same time period. Along the Wasatch Front from 4 to 6 inches of new snow fell in Utah and Davis counties overnight. The Sevier Valley had 6 inches in the Elsinore area. An additional 16 1/2 inches fell at Alta during the daytime hours ending at 4:25 p.m.							
UTZ010 Northern Mountains	27	0430MST			0	0	1	0	Heavy Snow
		Twelve inches of snow fell at the Alta Ski Resort between 4:30 p.m. on the 26th and 4:30 a.m. on the 27th.							
UTZ010 Northern Mountains	29	0550MST			0	0	1	0	Heavy Snow
		Nine inches of snow fell at the Alta Ski Resort between 4:30 p.m. on the 28th and 5:50 a.m. on the 29th.							

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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					KILLED	INJURED	PROPERTY	CROPS	
<b>43 VERMONT</b>									
Chittenden County	05	1800EST			0	0	4	0	High Wind
			High winds downed power lines, leaving 2400 homes without power. Wind gusts were unofficially measured at about 50 mph.						
Franklin County, St. Albans Bay	10				0	0	4	0	High Wind
			Peak winds were measured at 73 mph by power company instruments. Many power lines along Route 36 were downed.						
Washington County, Montpelier	20	1915EST			0	0	4	0	Lightning
			Lightning struck a home and started a minor fire.						
<b>44 VIRGINIA</b>									
Shenandoah Co, New Market	5	1700EST			0	0	?	0	Thunderstorm Winds
Nottoway Co, Crewe	5	1715EST			0	0	?	0	Thunderstorm Winds
Stafford Co.	5	1800EST			0	0	?	0	Thunderstorm Winds (42kt)
Prince William Co.	5	1815EST			0	0	?	0	Hail (0.50)
			High winds knocked over a car wash in New Market. Several trees were uprooted in Shenandoah and Nottoway counties.						
Henrico Co, Richmond	20	2020EST			0	0	?	0	High Winds (44kt)
Roanoke Co, Roanoke	20	2147EST			0	0	?	0	High Winds (36kt)
Russell Co, St. Paul	20	Early evening			0	0	?	0	High Winds
			Moderate to strong gradient winds associated with a cold front attained average speeds of 15 to 25 knots, peaking to 44 knots in Richmond. Tree limbs and power lines were downed. Two radio stations were knocked off the air in Roanoke. In St. Paul, roofs were damaged, signs and some trees were blown down.						
Brunswick Co, Meredithville to Alberta	28	0115EST	7.0	55	0	1	?	0	Tornado (F1)
			A small tornado touched down 6 miles southwest of Alberta, on the west side of Meredithville, about one mile south of the intersection of I-85 and State Route 664. It moved northeast 7 miles to just north of Alberta, having passed through the west end of the town. Estimated wind speeds were 75 to 80 mph. Two tractor-trailers were overturned and one car was blown off the road on Interstate 85, causing one minor injury. Numerous trees were blown down onto the interstate, blocking traffic. Some trees were twisted off, some several feet above the ground. There was minor damage done to buildings. Classification: F1, F1, P2.						
Southampton and Isle of Wight Counties; 4 N of Franklin to Windsor	28	0320EST	12.0	200	0	0	5	0	Tornado (F2)
			A tornado touched down about 4 miles north of the center of Franklin, then moved northeast at 43 knots. It traveled approximately 2 miles, crossing into Isle of Wight County just north of SR611. It continued on for about 10 miles, ending 1/2 mile north of the intersection of Routes 460 and 258 near Windsor. The total track was approximately 12 miles, with some skipping likely. There were circular swaths in fields near the initial touchdown, indicating F2 strength. Most of the damage to buildings occurred in the last 8 miles from just south of Walters to Windsor, with the most significant damage over about 40 percent of that area. In Franklin, trees were blown down and there was some minor farm building damage. Between Walters and Windsor, the main damage was to trees, farm buildings, mobile homes and storage sheds. Classification: F2, P3, P3.						
<b>45 WASHINGTON</b>									
WAZ002-004-005 Washington Coast and Northwest Interior	02	late morning			0	0	3	0	High Wind
			A strong cold front associated with a deep low pressure center in the Gulf of Alaska brought strong winds over Western Washington during the morning hours. Scattered power outages were caused by falling trees, otherwise no damage was reported. Peak gusts included 69 mph at Ocean Shores and 55 mph at Blaine Harbor, north of Bellingham.						
WAZ00W Western Washington	05	midday			0	0	3	0	High Wind
			A warm front associated with a low pressure center making landfall north of Vancouver Island, British Columbia caused strong winds across Western Washington. Peak sustained winds were 48 mph at Destruction Island and Tatoosh Island on the Washington coast. Peak gusts included 61 mph at Ocean Shores, 63 mph at Pt. Wilson, near Port Townsend, and 65 mph at the Bellingham airport.						
WAZ001-004 North Washington Coast and Puget Sound	22	morning			0	0	3	0	High Wind
			A low pressure center moving towards the Queen Charlotte Islands swept a warm front over Western Washington with another bout of gusty winds. Scattered power outages occurred along with some minor tidal overflow on the coast due to the storm's arrival at a period of higher than normal tides. Peak gusts were 51 mph at Destruction Island on the Washington coast and 46 mph at the Hood Canal Floating Bridge.						
<b>46 WEST VIRGINIA</b>									
Pocahontas County	20	late afternoon			1	0	0	0	High Winds
			A man was crushed under an 18 inch diameter, 20 foot long limb severed from a nearby tree by violent winds during a thunderstorm. Wind gusts of 45 to 60 mph occurred as a strong cold front swept across the state.						
<b>47 WISCONSIN</b>									
WIZ001-002 Lake Superior Snowbelt	05	Early Morning into			0	0	?	0	Heavy Snow
	06	Late Evening							
			A powerful but slow-moving snowstorm dumped over a foot of snow in the Lake Superior Snowbelt. Snow amounts included 14 inches in Hurley (Iron County), 13 inches in Drummond (Bayfield County), 12 inches in Mellen (Ashland County), and 7 1/2 inches in Poplar (Douglas County). US Highway 2 was closed for a time on Sunday the 6th as winds drifted the wet heavy snow up to 3 feet high. Cars, trucks and buses became stuck in the snow and a few accidents were reported.						
Rock Co., 10W Beloit	15	2330CST			0	0	4	0	Thunderstorm Wind
Jefferson Co., Fort Atkinson	15	2355CST			0	0	?	0	Thunderstorm Wind (52)
Waukesha Co., Big Bend	16	0010CST			0	0	2	0	Thunderstorm Wind
Washington Co., 1S Jackson	16	0020CST			0	0	2	0	Thunderstorm Wind
			Severe thunderstorms produced gusty winds up to 60 mph which tore away part of a barn and damaged a house 10 miles west of Beloit. Several trees were downed near Big Bend and Jackson.						

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED <sup>1</sup> DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
<b>48 WYOMING</b>									
WY2001 NORTHWEST MOUNTAINS	03	0001 TO 1800MST			0	0	0	0	HEAVY SNOW
WY2012-016-017 EASTERN PLAINS, LARAMIE VALLEY, SOUTHEAST PLAINS	03	1200 TO 1800MST			0	0	0	0	HIGH WIND
		<p>A STRONG WESTERLY FLOW ALOFT COUPLED WITH AN EMBEDDED DISTURBANCE PRODUCED HEAVY SNOW ACROSS THE NORTHWEST MOUNTAINS OF WYOMING WITH HIGH WINDS OVER THE FAR SOUTHEAST PART OF THE STATE ON THE 3RD. IN YELLOWSTONE PARK, LEWIS LAKE RECEIVED ABOUT 12 INCHES OF SNOW WITH THE SOUTH ENTRANCE GETTING 8 INCHES. MOST WINDS ACROSS SOUTHEAST WYOMING WERE GENERALLY 30 TO 40 MPH WITH GUSTS TO 65 MPH. THE OCCURRENCES OF THESE WINDS INCLUDED THE CITIES OF WHEATLAND AND CHUGWATER, AND THE SUMMIT ON INTERSTATE 80 BETWEEN CHEYENNE AND LARAMIE.</p>							
WY2016-017 LARAMIE VALLEY, SOUTHEAST PLAINS	04	0900 TO 1800MST			0	0	0	0	HIGH WIND
		<p>DURING THE MORNING THROUGH THE EARLY EVENING OF THE 4TH, SUSTAINED WINDS OF 35 TO 45 MPH WITH GUSTS TO 60 MPH OCCURRED ON THE SUMMIT OF INTERSTATE 80 BETWEEN CHEYENNE AND LARAMIE, AS WELL AS IN THOSE CITIES. LARAMIE HAD A PEAK WIND GUST OF 47 MPH WITH CHEYENNE RECORDING A GUST OF 53 MPH. THESE WINDS DID CAUSE BLOWING SNOW ON INTERSTATE 80.</p>							
WY2001-002-009-013 NORTHWEST MOUNTAINS, NORTHWEST CHINOOK, WIND RIVER MOUNTAINS, SOUTHWEST	12 14	0001 TO 2359MST			0	?	?	0	HEAVY SNOW
WY2007-008-014 WESTERN MOUNTAINS, GREEN RIVER BASIN, RED DESERT	12 14	0001 TO 2359MST			0	0	0	0	SNOW
		<p>THE COMBINATION OF A SERIES OF MID- AND UPPER-LEVEL DISTURBANCES AND A FAST, VERY MOIST WESTERLY UPSLOPE FLOW TRIGGERED A PROLONGED SNOW EVENT OVER THE NORTHWEST AND WEST PORTIONS OF THE COWBOY STATE FROM THE 12TH THROUGH THE 14TH. MANY VALLEY FLOORS RECEIVED MORE THAN 1 FOOT OF NEW SNOW WITH NUMEROUS MOUNTAIN LOCATIONS ACCUMULATING MORE THAN 3 FEET. NEW SNOW AMOUNTS INCLUDED 16 INCHES AT JACKSON HOLE, 22 INCHES AT MORAN JUNCTION, AND A SKI AREA IN EXTREME NORTHWEST WYOMING MEASURED ABOUT 5 FEET ON THE TOP OF ONE OF ITS MOUNTAINS. BRIDGER TETON NATIONAL FOREST RECORDED ABOUT 30 INCHES OF SNOW IN THEIR MOUNTAINS WHILE MANY SECTIONS OF YELLOWSTONE PARK ACCUMULATED 10 TO 20 INCHES. THIS STORM CAUSED THE JACKSON HOLE AIRPORT TO BE CLOSED AND NUMEROUS AUTOMOBILE AND TRUCK ACCIDENTS. SOME OF THE ACCIDENTS DID CAUSE PERSONAL INJURIES. THE SNOWSTORM CONSIDERABLY EASED THE DROUGHT SITUATION THAT HAD BEEN GOING ON FOR ABOUT 2 YEARS. THE STORM WAS THE GREATEST SNOWFALL EVENT SINCE NOVEMBER, 1965.</p> <p>OTHER SNOWFALL AMOUNTS INCLUDED 2 FEET IN THE WIND RIVER MOUNTAINS AND 8 INCHES AT DUBDIS. FINALLY, EVANSTON ACCUMULATED 6 TO 7 INCHES OF SNOWFALL FROM THIS STORM. OTHER LOWER ELEVATION LOCATIONS OVER WEST-CENTRAL AND SOUTHWEST WYOMING GENERALLY PICKED UP 1 TO 6 INCHES OF NEW SNOW DURING THIS 3-DAY PERIOD.</p>							
<b>WYOMING</b>									
WY2016 LARAMIE VALLEY	22	0100 TO 0800MST			0	0	0	0	HIGH WIND
WY2002 NORTHWEST CHINOOK	22	0100 TO 0800MST			0	0	0	0	WIND
		<p>DURING THE EARLY MORNING HOURS OF THE 22ND, HIGH WINDS OCCURRED BOTH OVER EXTREME NORTHWEST AND SOUTHEAST WYOMING. CODY HAD SUSTAINED WINDS OF 30 TO 40 MPH WITH GUSTS TO AROUND 50 MPH. VEDAWOOD, NEAR THE SUMMIT ON INTERSTATE 80 BETWEEN CHEYENNE AND LARAMIE, HAD SUSTAINED WINDS OF 50 MPH WITH GUSTS TO 62 MPH.</p>							
WY2011 CENTRAL PLAINS	23	0001 TO 1200MST			0	0	0	0	HIGH WIND
		<p>DURING THE MORNING OF THE 23RD, STRONG WINDS OCCURRED IN THE CITY OF CASPER. SUSTAINED SPEEDS OF 30 TO 40 MPH WITH GUSTS TO 65 MPH WERE COMMON. ADDITIONALLY, AT 0525 MST, A PEAK WIND GUST OF 70 MPH WAS RECORDED IN SOUTHEAST CASPER.</p>							
WY2001-003-004 NORTHWEST MOUNTAINS, BIG HORN BASIN, BIG HORN MOUNTAINS	23 24	0001 TO 1201MST			0	0	0	0	HEAVY SNOW
		<p>DURING ABOUT A 36-HOUR PERIOD, SEVERAL SMALL BUT INTENSE UPPER-LEVEL STORM SYSTEMS EMBEDDED IN A MOIST WEST TO SOUTHWEST FLOW CAUSED MANY EPISODES OF HEAVY SNOW TO OCCUR ACROSS THE NORTHWEST AND BIG HORN MOUNTAINS OF WYOMING. ON THE 23RD, GRANT VILLAGE, IN YELLOWSTONE PARK, RECEIVED 12 INCHES OF NEW SNOW. DURING THE MORNING OF THE 24TH, BEAR LODGE AND ARROWHEAD LODGE, LOCATED IN THE BIG HORN MOUNTAINS, PICKED UP 6 AND 8 INCHES OF SNOW, RESPECTIVELY. ADDITIONALLY, GRASSY LAKE, LOCATED IN THE NORTHWEST MOUNTAINS, ACCUMULATED 12 INCHES OF NEW SNOW DURING THE MORNING OF THE 24TH. FINALLY, THERMOPOLIS MEASURED 7 INCHES OF SNOWFALL ON THE 24TH.</p>							
WY2016 LARAMIE VALLEY	27 28	1300 TO 0800MST			0	0	0	0	HIGH WIND
WY2002 NORTHWEST CHINOOK	27 28	1300 TO 0800MST			0	0	0	0	WIND
		<p>FROM THE AFTERNOON OF THE 27TH UNTIL THE MORNING OF THE 28TH, VERY STRONG WINDS BUFFETED THE LARAMIE RANGE BETWEEN THE CITIES OF CHEYENNE AND LARAMIE. ADDITIONALLY, HIGH WINDS OCCURRED ALONG THE EAST SLOPES OF THE ABSAROKA MOUNTAINS. VEDAWOOD, NEAR THE INTERSTATE 80 SUMMIT, LOCATED BETWEEN CHEYENNE AND LARAMIE, HAD FREQUENT WIND GUSTS GREATER THAN 60 MPH, WITH THE HIGHEST OF 78 MPH OCCURRING DURING THE EARLY MORNING OF THE 28TH. SUSTAINED WINDS DURING THIS PERIOD WERE FROM 50 TO 60 MPH. CODY, IN NORTHWEST WYOMING, RECORDED SUSTAINED WINDS FROM 25 TO 40 MPH WITH GUSTS AROUND 50 MPH. THESE WINDS CAUSED AREAS OF CONSIDERABLE BLOWING AND DRIFTING SNOW ON HIGHWAYS, ESPECIALLY OVER THE MOUNTAIN PASSES.</p>							
WY2001-002-007 NORTHWEST MOUNTAINS, NORTHWEST CHINOOK, WESTERN MOUNTAINS	27 28	2100 TO 1200MST			0	0	0	0	HEAVY SNOW
		<p>AS A STRONG UPPER-LEVEL SYSTEM EMBEDDED IN A MOIST NORTHWEST FLOW MOVED ACROSS THE ROCKIES, HEAVY SNOW OCCURRED OVER THE WESTERN AND NORTHWESTERN SECTIONS OF THE COWBOY STATE. JACKSON LAKE DAM PILED UP 15 INCHES OF NEW SNOW AND THE SOUTH ENTRANCE TO YELLOWSTONE PARK PICKED UP 11 INCHES. ADDITIONALLY, BEDFORD, LOCATED IN THE STAR VALLEY OF EXTREME WEST-CENTRAL WYOMING, RECEIVED 10 INCHES OF SNOW WHILE AFTON GOT 6 INCHES. FINALLY, THE SNAKE RIVER STATION ACCUMULATED 11 INCHES OF NEW SNOW.</p>							
WY2012-016 EASTERN PLAINS, LARAMIE VALLEY	28	0800 TO 1600MST			0	0	0	0	HIGH WIND
		<p>ON THE 28TH, SUSTAINED WINDS FROM 35 TO 40 MPH WITH GUSTS TO 60 MPH WERE RECORDED BETWEEN WHEATLAND AND CHUGWATER, ON THE PLAINS OF EXTREME SOUTHEASTERN WYOMING. WINDS OF THIS MAGNITUDE WERE ALSO REPORTED AT VEDAWOOD, BETWEEN CHEYENNE AND LARAMIE.</p>							

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1988

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	
<b>WYOMING</b>									
WY2011-012-014-016-017 CENTRAL PLAINS, EASTERN PLAINS, RED DESERT, LARAMIE VALLEY, SOUTHEAST PLAINS	28	1700 TO 2330MST			0	0	0	0	SNOW
WY2011-012-014-016-017 CENTRAL PLAINS, EASTERN PLAINS, RED DESERT, LARAMIE VALLEY, SOUTHEAST PLAINS	28	1700 TO 2330MST			0	0	0	0	WIND
<p>AS THE STORM SYSTEM THAT CAUSED THE HEAVY SNOW OVER NORTHWESTERN WYOMING EARLIER ON THE 28TH MOVED SOUTHEAST, LIGHT SNOW AND BLOWING SNOW DEVELOPED ACROSS ROUGHLY THE SOUTHEASTERN HALF OF THE COWBOY STATE THAT EVENING. WINDS WERE GENERALLY SUSTAINED FROM 25 TO 35 MPH, AND SNOW ACCUMULATIONS WERE MOSTLY IN THE RANGE OF 1 TO 4 INCHES. INTERSTATE 80 BETWEEN ROCK SPRINGS AND RAWLINS WAS TEMPORARILY CLOSED AT 1810 MST DUE TO THE WEATHER CONDITIONS.</p>									
49 ALASKA, Northern ————— NO REPORT RECEIVED									
49 ALASKA, Southern									
Aleutians	4	1600 AST			0	0	?	0	High Winds
A strong low in the western Bering Sea produced wind gusts to between 60 and 80 mph along the western Aleutians from Shemya Island to Adak Island.									
Kodiak Island and Alaska Peninsula	21	1200 AST			0	0	?	0	High Winds
A strong low in the northern Gulf of Alaska produced wind gusts to 60 mph around Kodiak Island and over the Alaska Peninsula.									
49 ALASKA, Southeastern									
Southern SE Alaska	27	Early Morning			0	0	4	0	High Wind
A strong low pressure system crossed the southern panhandle early on the morning of the 27th bringing winds gusting to over 50 mph from Sitka southward. Trees knocked over by the winds caused power outages lasting up to 5 hours in Sitka and Ketchikan.									
All SE Alaska	29-30	Evening-Morning			0	0	6	0	High Wind, Mud Slides
An intense late autumn storm moved northward along the coast of Southeast Alaska during the evening of the 29th and the morning of the 30th, raking the area with winds gusting to 100 mph and storm rainfall totals of up to 8 1/2 inches. Mudslides caused by the heavy rains washed out roads from Haines to Ketchikan. Strong winds blew over a wall under construction at a Sitka school. The strongest winds were measured in Ketchikan and, in consort with a mudslide, damaged or destroyed 4 mobile homes and 5 automobiles in a mobile home park on the north side of the borough. Urban flooding and a series of mudslides closed almost all roads into downtown Juneau.									
<b>50 HAWAII</b>									
All Islands	4-5				1	0	6	6	Wind, Flash Flood, Surf, and Lightning
<p>A winter-like low pressure system developed just west of Kauai during the evening hours of November 3rd. Strong southerly and southwesterly winds gusting to 40 to 50 mph did damage to banana and tender crops, and to property and overhead wires mainly along the normally windward slopes. Some pleasure craft were beached also. Northerly winds of 40 to 50 mph over the open ocean within the northwest semicircle of the storm produced high swell and surf which swept a 31 year old fisherman to his death on the north shore of Kauai at about noon on the 3rd. Wave heights of 41 feet were detected by the NOAA buoy northwest of Kauai as swells from both the north and south were meeting in the area. Large rocks and coral were washed onto the runway at Tern Island at French Frigate Shoals where northerly winds gusted at 70 mph. After its initial development, the deep low moved westward with its large comma-shaped shower band first expanding eastward and then moving back westward, dropping rainfall in excess of 10 inches in some spots. Extensive flooding occurred on both Maui and Kauai. Two drivers were rescued from their cars as they floated down a rain-swollen creek draining off Haleakala. Lightning struck a TV transmitter on top of Haleakala and knocked several stations off the air.</p>									
51 PUERTO RICO ————— NONE REPORTED									
52 VIRGIN ISLANDS ————— NONE REPORTED									
53 PACIFIC ————— NONE REPORTED									

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# STORM SUMMARY

NOVEMBER 1988

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
<b>TORNADOES</b>																					0			0			0
Number	5		7					8			5		8	8		6						32	13				
Days	3		1					3			1		1	2		3						4	1				
Deaths	0		6					1			0		0	0		0						2	1				
Injuries	20		88					3			3		3	24		2						16	23				
Property Damage	6		7					6			6		6	6		5						7	7				
Crop Damage	0		5					0			0		0	0		?						0	0				
<b>HAIL</b>																											
Deaths	0		0						0					0		0						0	0				
Injuries	0		0						0					0		0						0	0				
Property Damage	?		5					?	?				?	3		?						?	3				
Crop Damage	0		4					0	0				0	0		?						0	1				
<b>THUNDERSTORM WINDS</b>																											
Deaths	0		0			0	0	0	0		0	0	0	0		0			0			0	0				
Injuries	0		15			0	0	0	3		15	0	0	2		0			0			1	0				
Property Damage	?		6			4	?	4	5		6	4	5	5		5			4			?	6				
Crop Damage	0		4			0	0	0	0		0	?	0	0		?			0			0	0				
<b>HIGH WINDS</b>																											
Deaths					0	0				0	0	0	0	0		0		0	0	0	0				0	0	0
Injuries					0	0				0	0	0	0	0		0		0	0	0	0				0	0	0
Property Damage					4	5				3	?	?	4	5		5		?	?	4	5				4	3	0
Crop Damage					0	0				0	?	?	0	0		0		0	0	0	0				1	0	0
<b>LIGHTNING</b>																											
Deaths			0			0					0		0	0		2			0			0	0				
Injuries			0			0					0		0	0		0			0			1	4				
Property Damage			3			3					5		0	5		0			4			4	0				
Crop Damage			0			0					0		0	0		0			0			0	0				
<b>FLASH FLOODS</b>																											
Deaths			0												0							0	0				
Injuries			0												0							0	0				
Property Damage			5												0							5	7				
Crop Damage			?												0							0	0				
<b>FLOODS</b>																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
<b>HEAVY SNOWSTORMS AND BLIZZARDS @</b>																											
Deaths		0											0	0													
Injuries		0											0	0													
Property Damage		?											4	4													
Crop Damage		0											0	0													
<b>ICE STORMS #</b>																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
<b>HURRICANES AND TROPICAL STORMS</b>																											
Deaths								0																			
Injuries								0																			
Property Damage								6																			
Crop Damage								?																			
<b>ALL OTHERS</b>																											
Deaths			0	2																							
Injuries			0	1																							
Property Damage			?	4																							
Crop Damage			7	0																							

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

# STORM SUMMARY

NOVEMBER 1988

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			
<b>TORNADOES</b>																														
Number				8			5		1				3	10																
Days				4			5		1				2	4																
Deaths				1			0		0				1	0													1	14		
Injuries				62			0		0				1	0													1	343		
Property Damage				8			6		6				5	3																
Crop Damage				5			?		0				0	?																
<b>HAIL</b>																														
Deaths		0				0	0							0																
Injuries		?				?	?							?																
Property Damage		?				?	?							?																
Crop Damage		0				0	?							?																
<b>THUNDERSTORM WINDS</b>																														
Deaths	0		0			0	0		0				0	0																
Injuries	0		0			1	4		0				0	0																
Property Damage	4		5			5	6		6				5	?																
Crop Damage	0		0			0	?		0				0	?																
<b>HIGH WINDS</b>																														
Deaths	0		1			0	0		0				0	0																
Injuries	0		6			0	0		0				0	2																
Property Damage	?		6			6	3		4				4	6																
Crop Damage	0		3			0	?		0				0	6																
<b>LIGHTNING</b>																														
Deaths			0						0																					
Injuries			0						0																					
Property Damage			3						6																					
Crop Damage			0						0																					
<b>FLASH FLOODS</b>																														
Deaths	0																													
Injuries	0																													
Property Damage	1																													
Crop Damage	0																													
<b>FLOODS</b>																														
Deaths	0		0																											
Injuries	0		0																											
Property Damage	?		5																											
Crop Damage	0		0																											
<b>HEAVY SNOWSTORMS AND BLIZZARDS @</b>																														
Deaths			0				0		0																					
Injuries			0				0		0																					
Property Damage			5				?		?																					
Crop Damage			0				?		0																					
<b>ICE STORMS #</b>																														
Deaths																														
Injuries																														
Property Damage																														
Crop Damage																														
<b>HURRICANES AND TROPICAL STORMS</b>																														
Deaths																														
Injuries																														
Property Damage																														
Crop Damage																														
<b>ALL OTHERS</b>																														
Deaths			0			0																								
Injuries			?			0																								
Property Damage			?			0																								
Crop Damage			0			?																								

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

## STORM DAMAGE CATEGORIES

## REFERENCE NOTES

- 1 Less than \$50
- 2 \$50 to \$500
- 3 \$500 to \$5,000
- 4 \$5,000 to \$50,000
- 5 \$50,000 to \$500,000
- 6 \$500,000 to \$5 Million
- 7 \$5 Million to \$50 Million
- 8 \$50 Million to \$500 Million
- 9 \$500 Million to \$5 Billion

- 0/Blank None reported.  
 \* Miles instead of yards.  
 \*\* Yards instead of miles.  
 @ Includes heavy sleet storm.  
 # Freezing drizzle and freezing rain, commonly known as glaze.  
 ≠ Report incomplete.  
 ≠# Report not received.  
 o/c Indicates Crop Damage amount is included in the value given for property damage.

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.

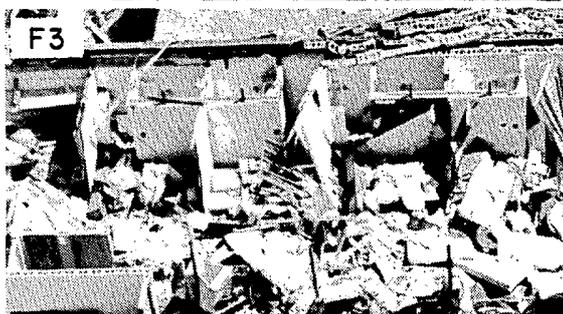
(F5) Incredible tornado (261-318 mph): Incredible damage  
 Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 m; trees debarked; incredible phenomena will occur.

(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

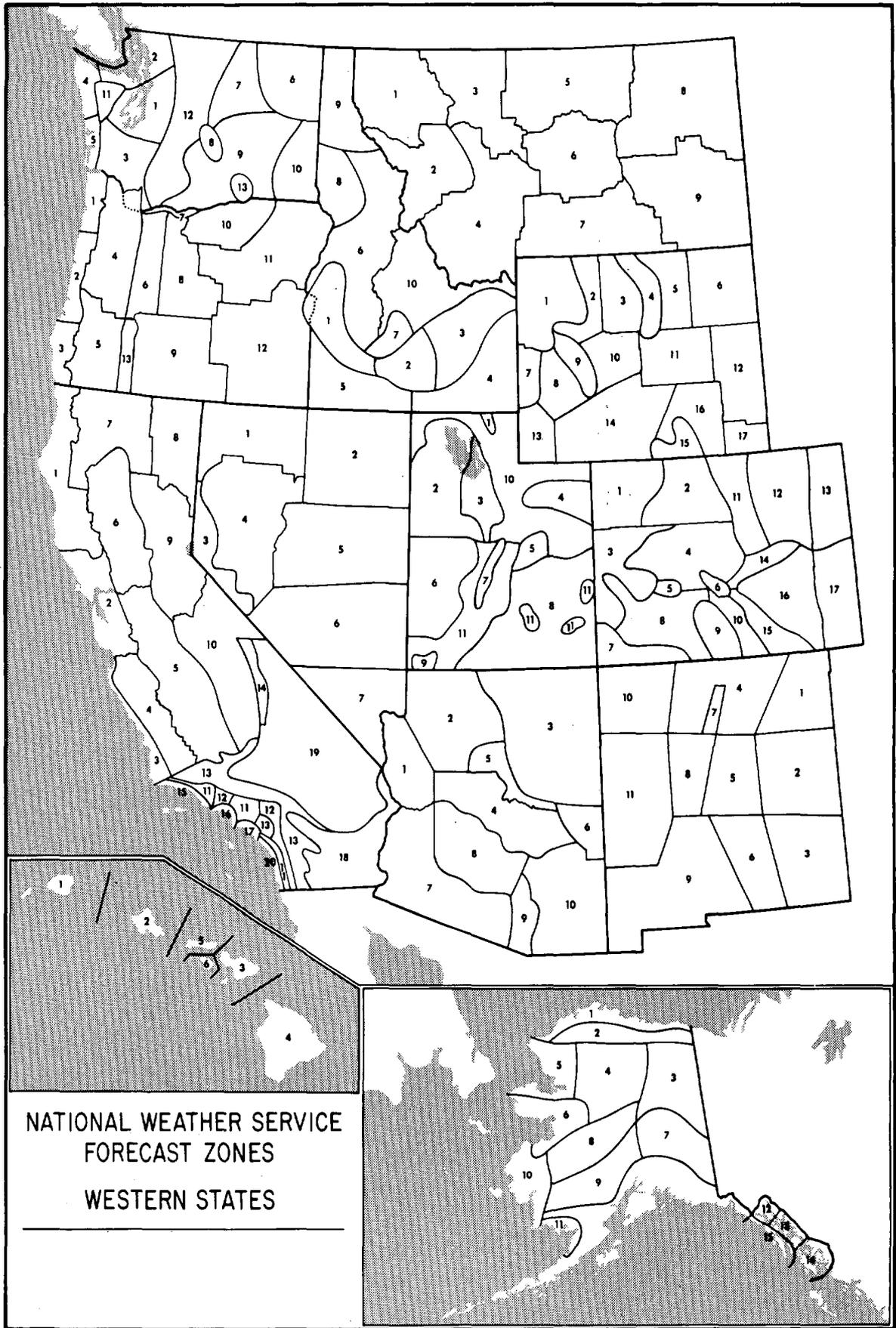
(F2+F3) Strong Tornado

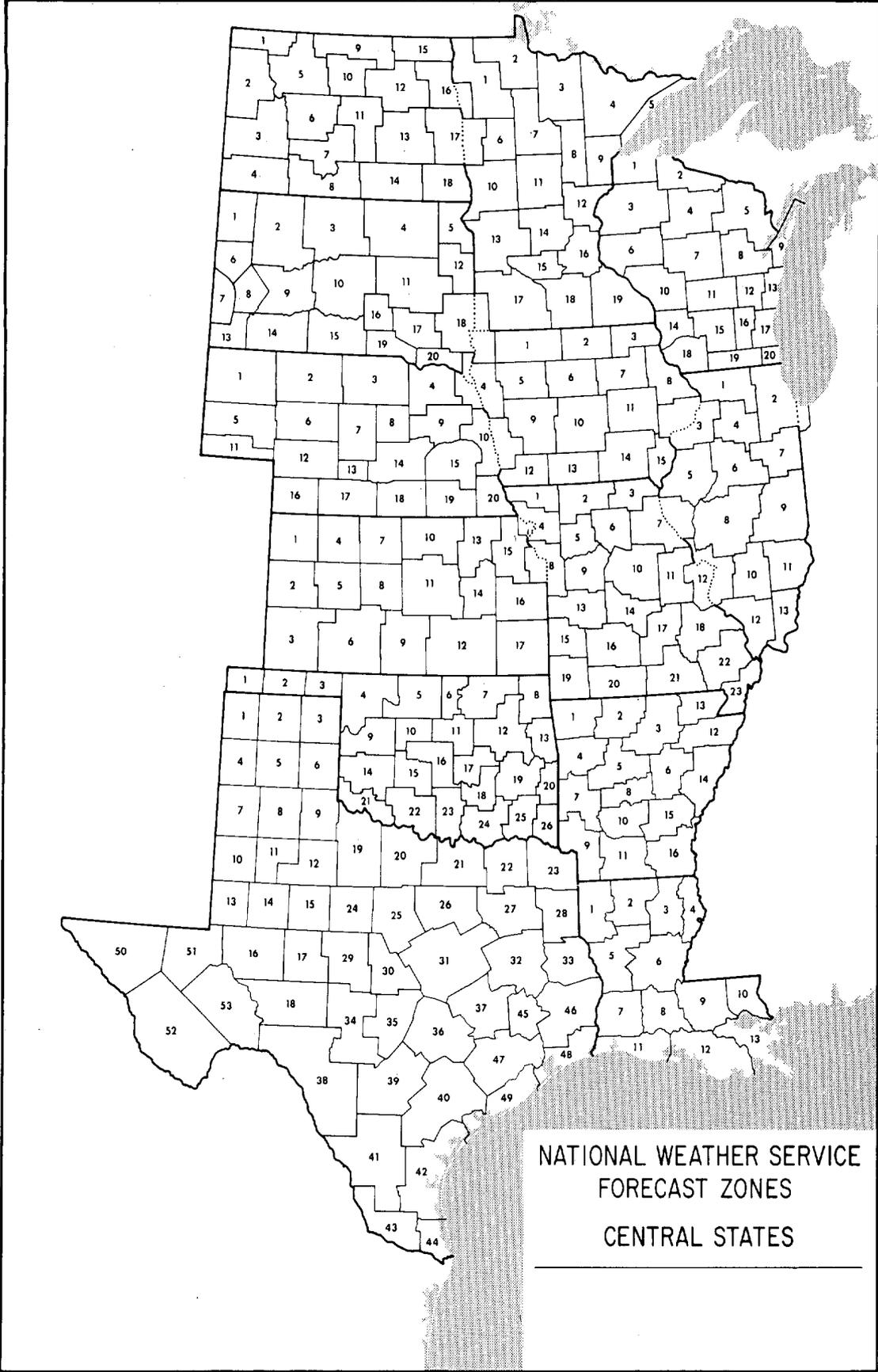
(F4+F5) Violent Tornado

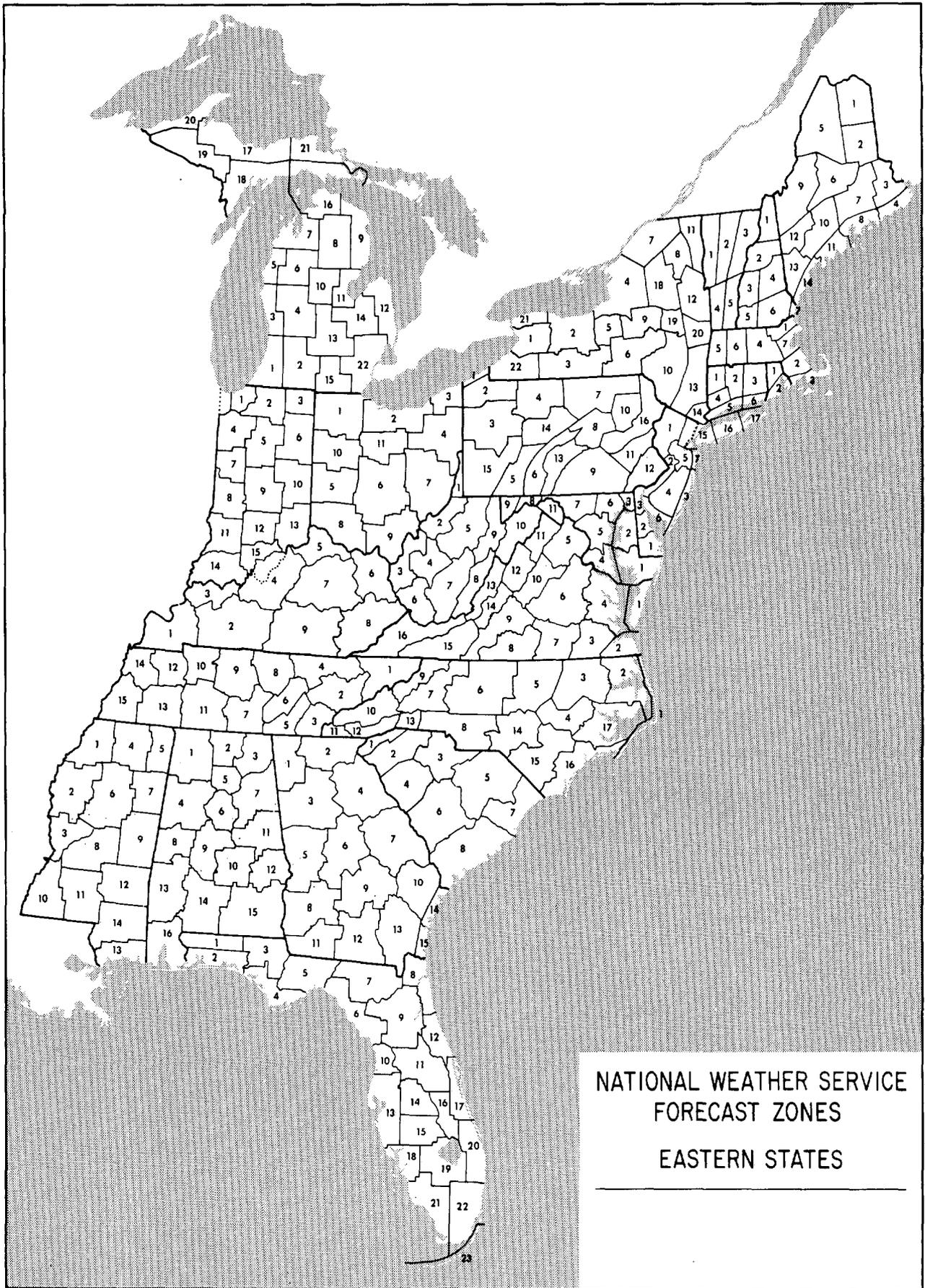


From J. Atmos. Sci., August 1981, p. 1517-1519

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