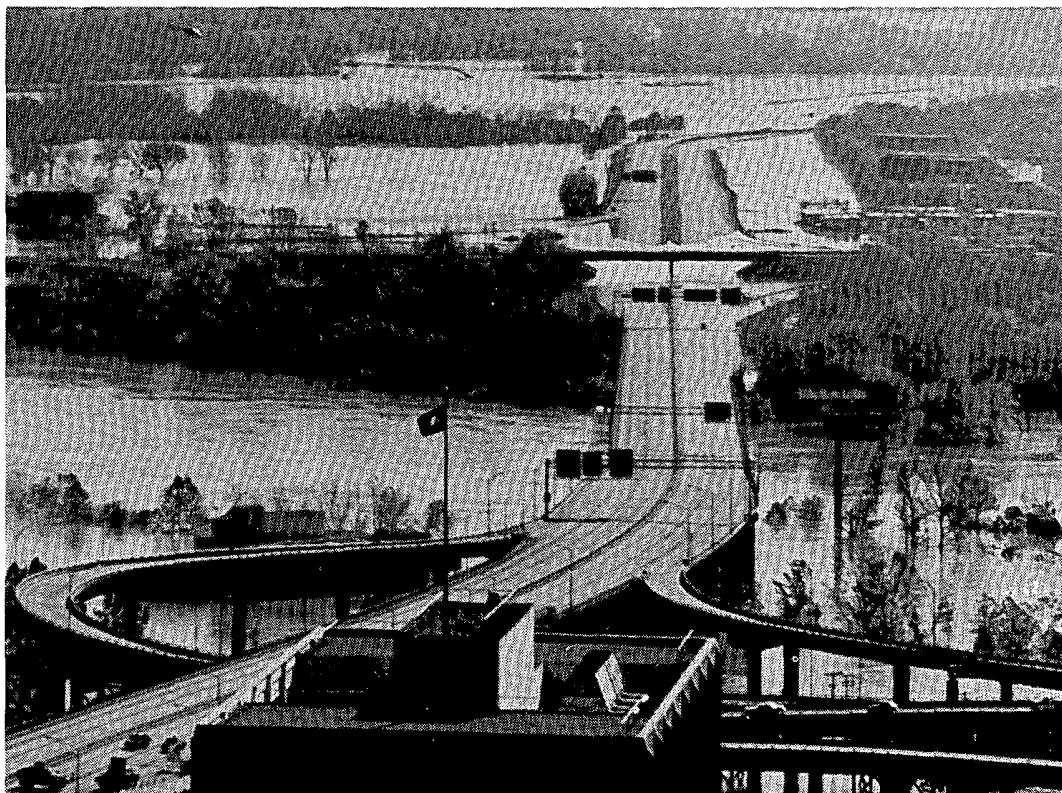


# STORM DATA



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*Kenneth D. Walden*

DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

**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

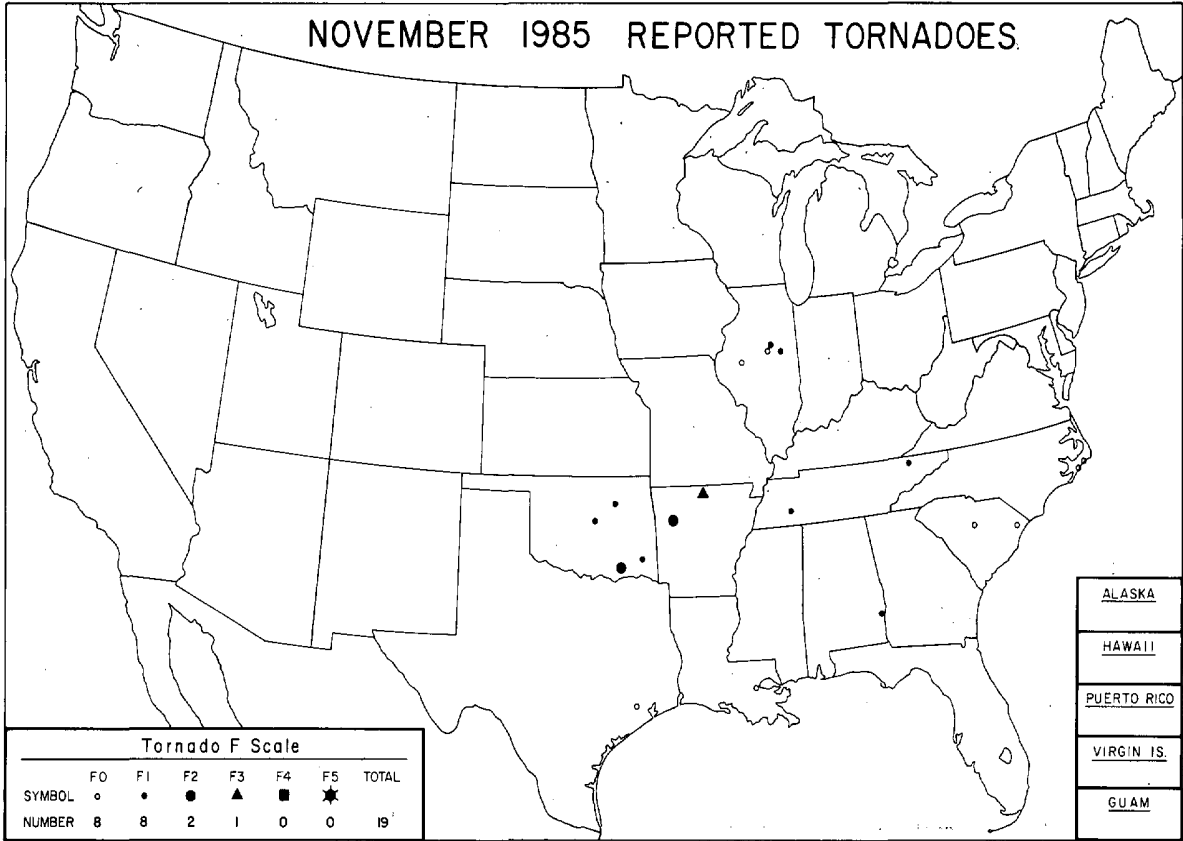
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Cover: In Richmond, Virginia, floodwaters of the James River (in the foreground) forced the closure of Interstate 95 as they filled a nearby underpass. The flooding resulted from heavy rains which fell over much of the East-Central U.S. and especially along the Appalachian Front (see HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S., pages 10-14). ---Photo by Roy L. Britt, Richmond, Virginia.

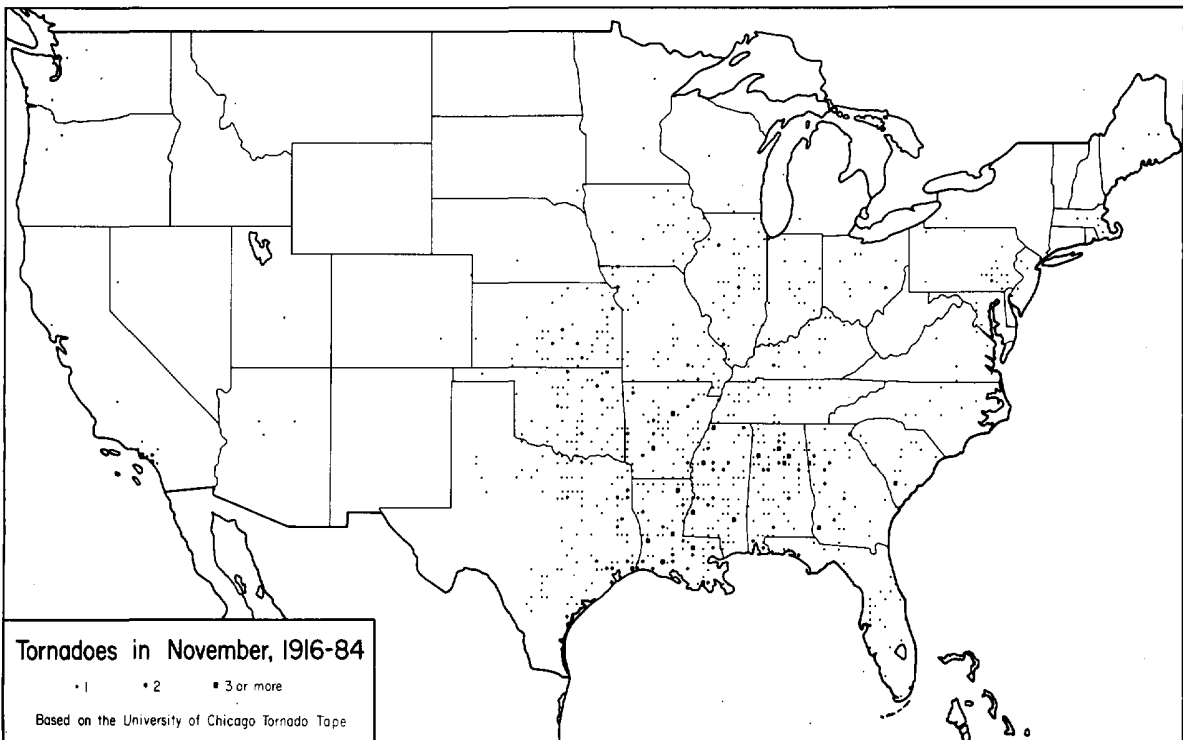
NOTE: The section on Outstanding Storms of the Month is prepared by Professor T. Theodore Fujita, editor, and Duane J. Stiegler, associate editor, University of Chicago. The narrative descriptions of Storms by State and Summaries of Hurricanes and Tropical Storms are prepared by the National Weather Service. The National Climatic Data Center compiles the statistics on deaths, injuries, and damage. 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.

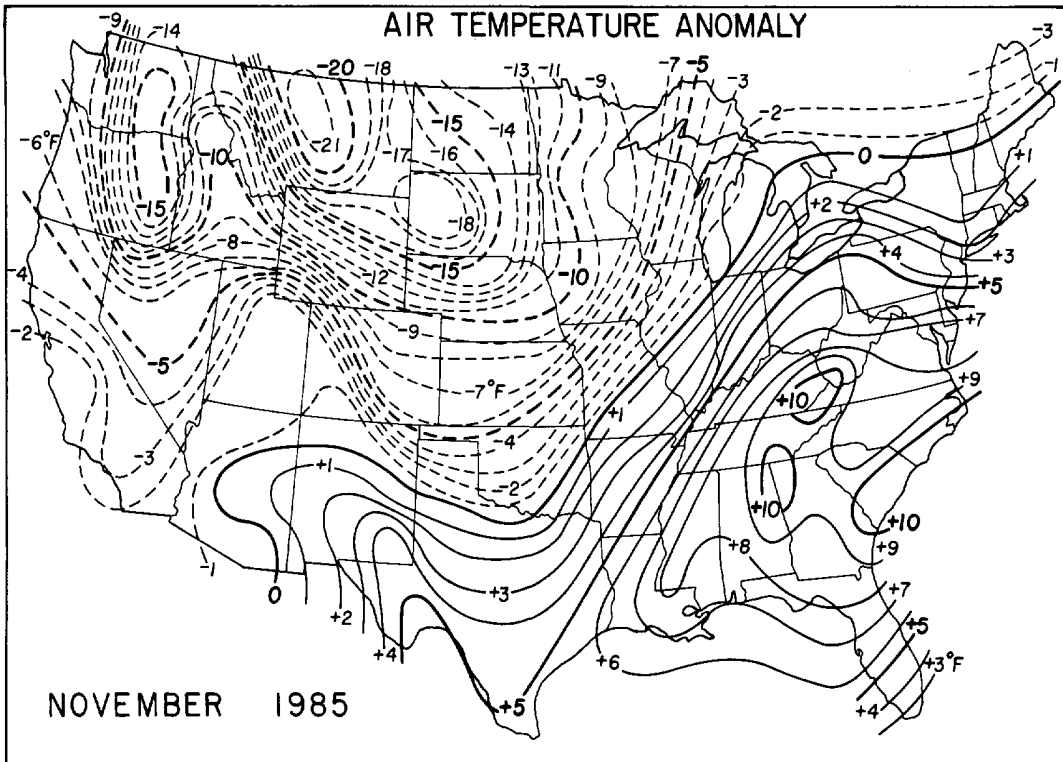
STORM DATA - (ISSN 0039-1972) is published monthly. Subscription, pricing, and ordering information is available from:  
National Climatic Data Center, National Environmental Satellite, Data, and Information Service, NOAA, Federal Building, Asheville, NC 28801-2696.

# OUTSTANDING STORMS OF THE MONTH



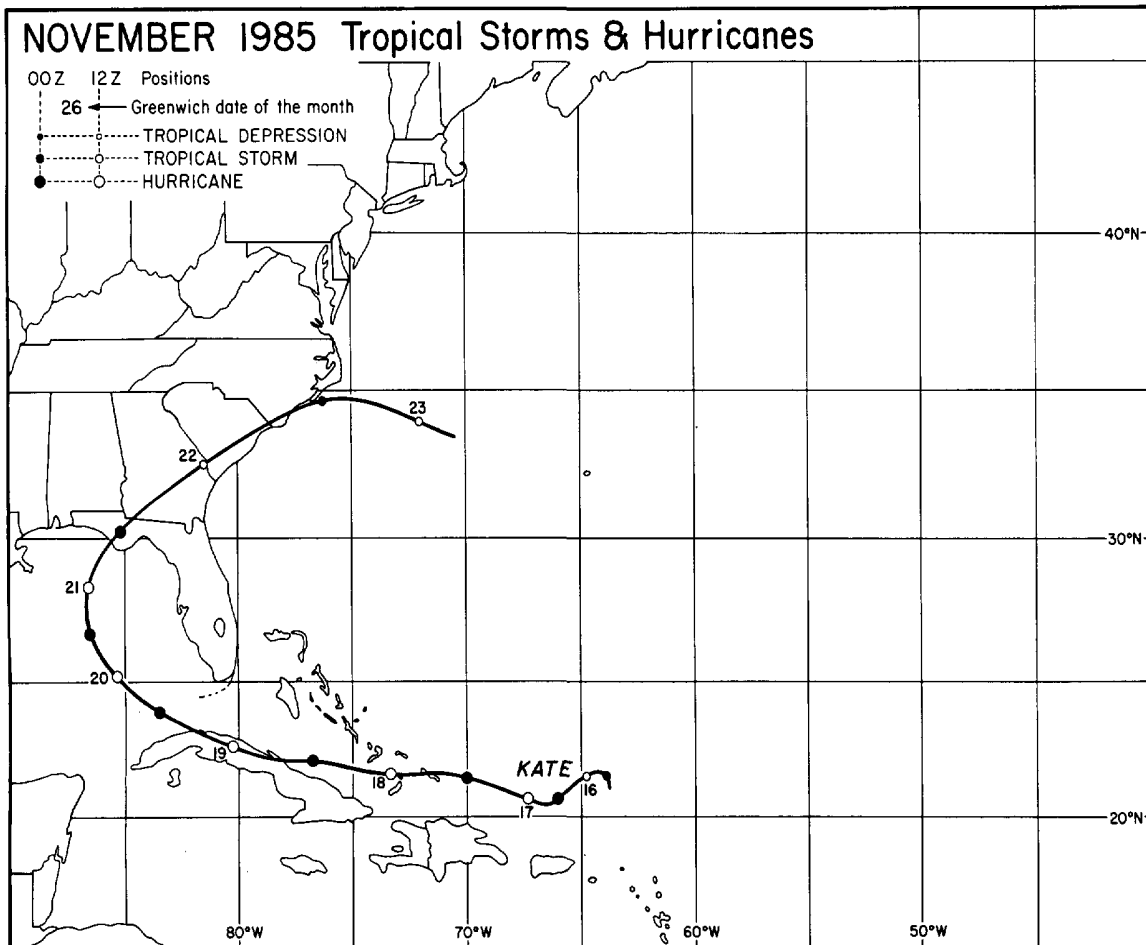
● COMPLETE REPORT RECEIVED	● 1AL	● 7DE	● 14KS	● 21MN	● 28NJ	● 33OH	● 39SD	● 44VA	● 49AK(SE)
○ PRELIMINARY REPORT RECEIVED	● 2AZ	● 8FL	● 15KY	● 22MS	● 29NM	● 34OK	● 40TN	● 45WA	● 50HI
○ REPORT NOT RECEIVED	● 3AR	● 9GA	● 16LA	● 23MO	● 30NY(O)	● 35OR	● 41TX(N)	● 46WV	● 51PR
(N) northern (W) western	● 4CA(N)	● 10ID	● 17ME	● 24MT	● 30NY(C)	● 36PA(E)	● 41TX(S)	● 47WI	● 52VI
(S) southern (C) central	● 4CA(S)	● 11IL	● 18MD	● 25NE	● 30NY(W)	● 36PA(W)	● 41TX(W)	● 48WY	● 53PC
(E) eastern (O) coastal	● 5CO	● 12IN	● 19MA	● 26NY	● 31NC	● 37RI	● 42UT	○ 49AK(N)	
(SE) southeastern	● 6CT	● 13IA	● 20MI	● 27NH	● 32ND	● 38SC	● 43VT	○ 49AK(S)	





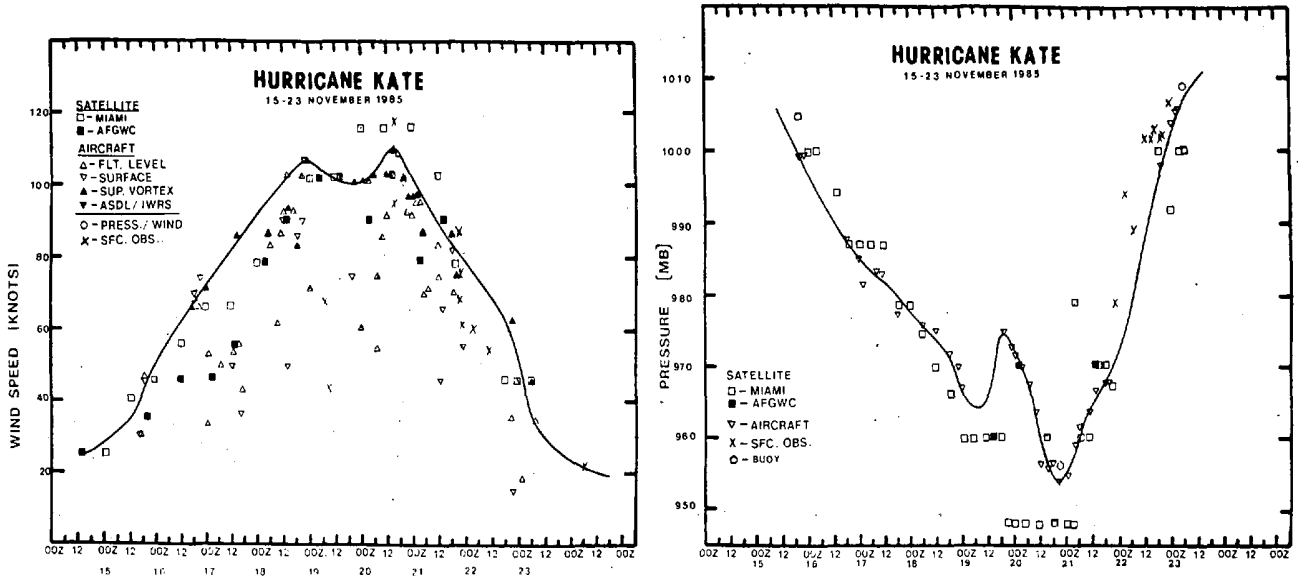
---Data base from NOAA/USDA Joint Agricultural Weather Facility.

### TROPICAL STORMS AND HURRICANES

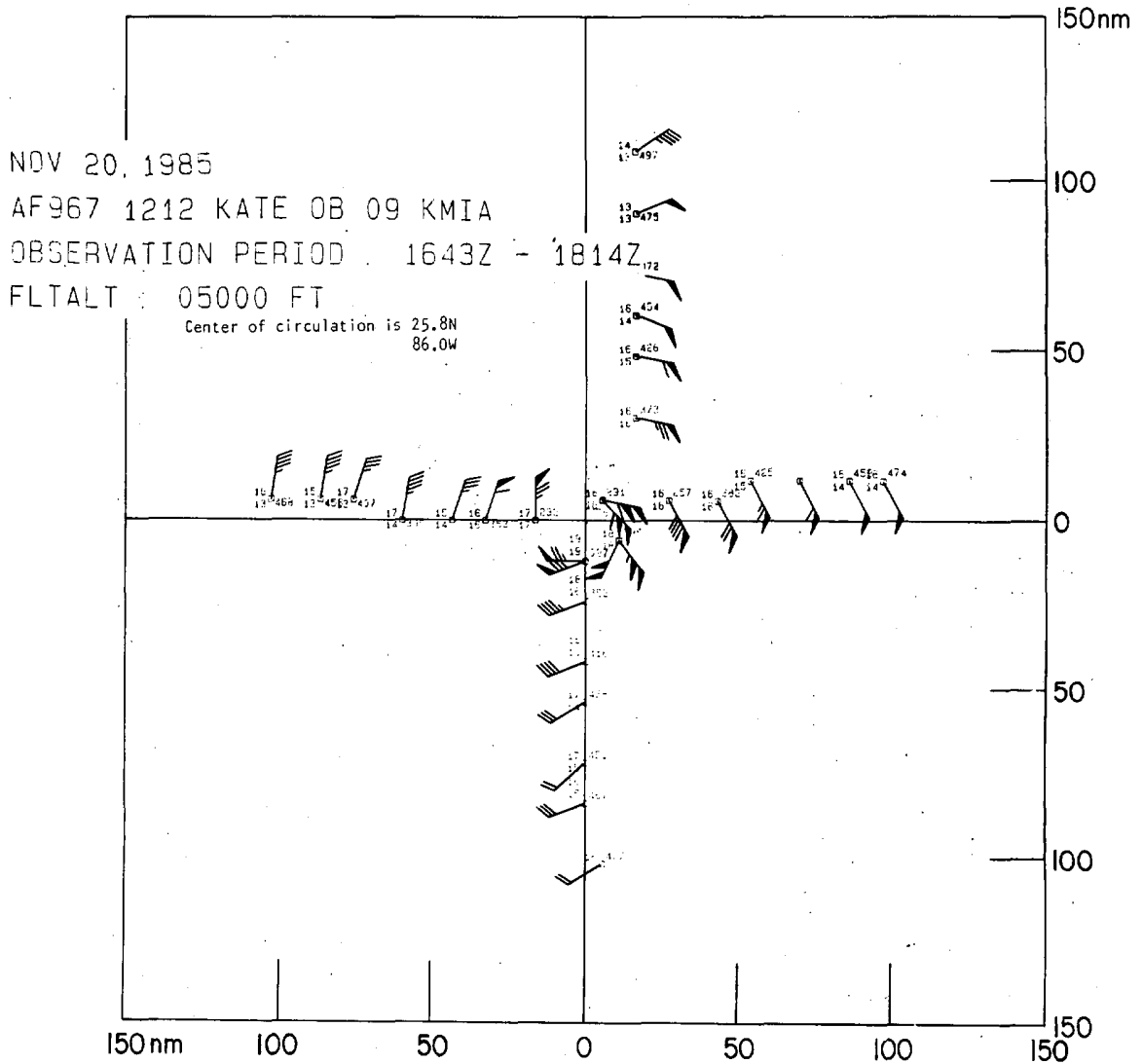


---Best track data from the National Hurricane Center, Miami, Florida.

**TROPICAL STORMS and HURRICANES ---- continued**



Plots of estimated maximum wind speed (left) and minimum surface pressure (right), both versus time for Hurricane KATE.

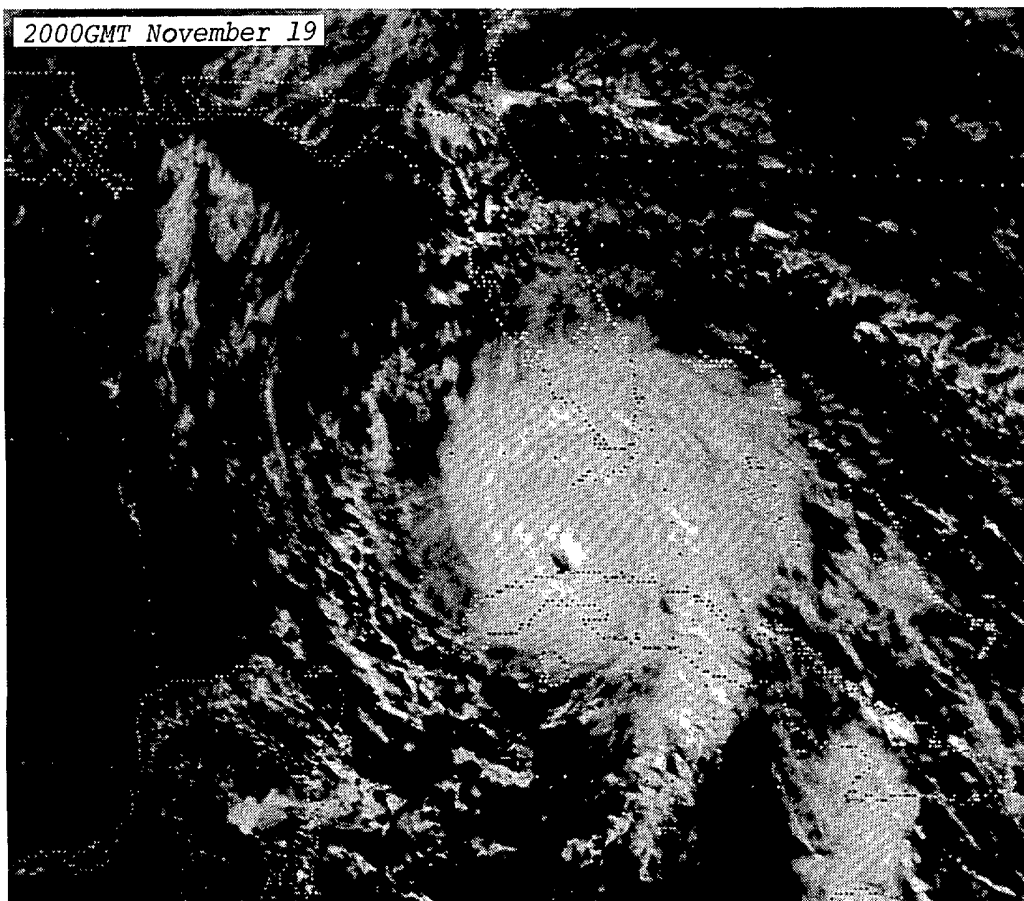
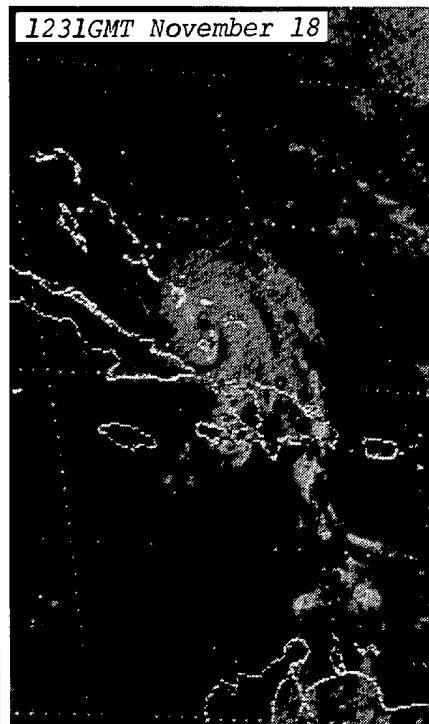
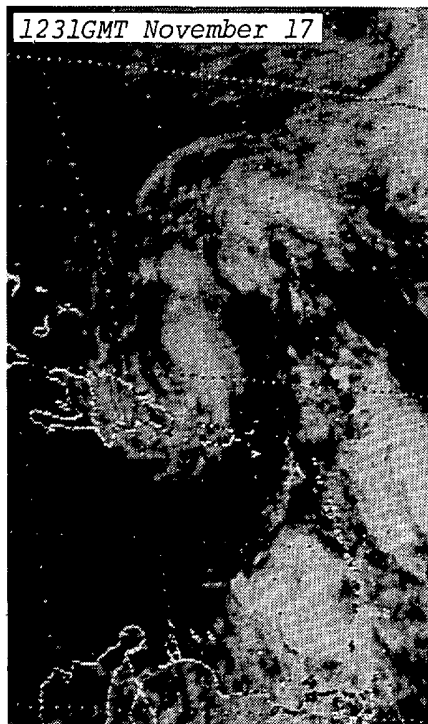
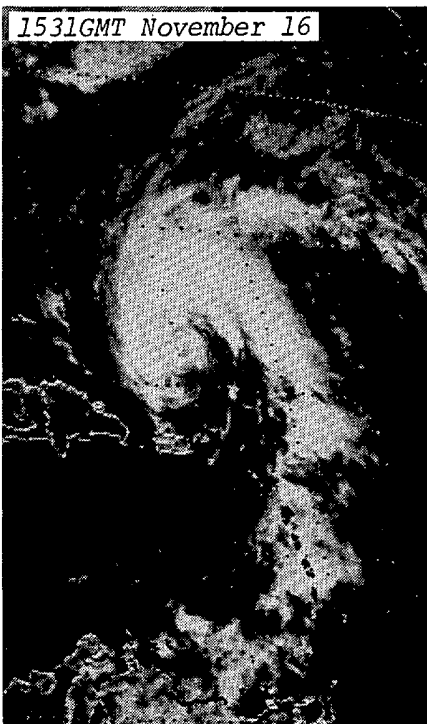


A plot of reconnaissance aircraft data collected from 1643-1814GMT on November 20th at an altitude of 5,000 feet. The winds are in knots, with each flag equalling 50 knots and each barb equalling 10.

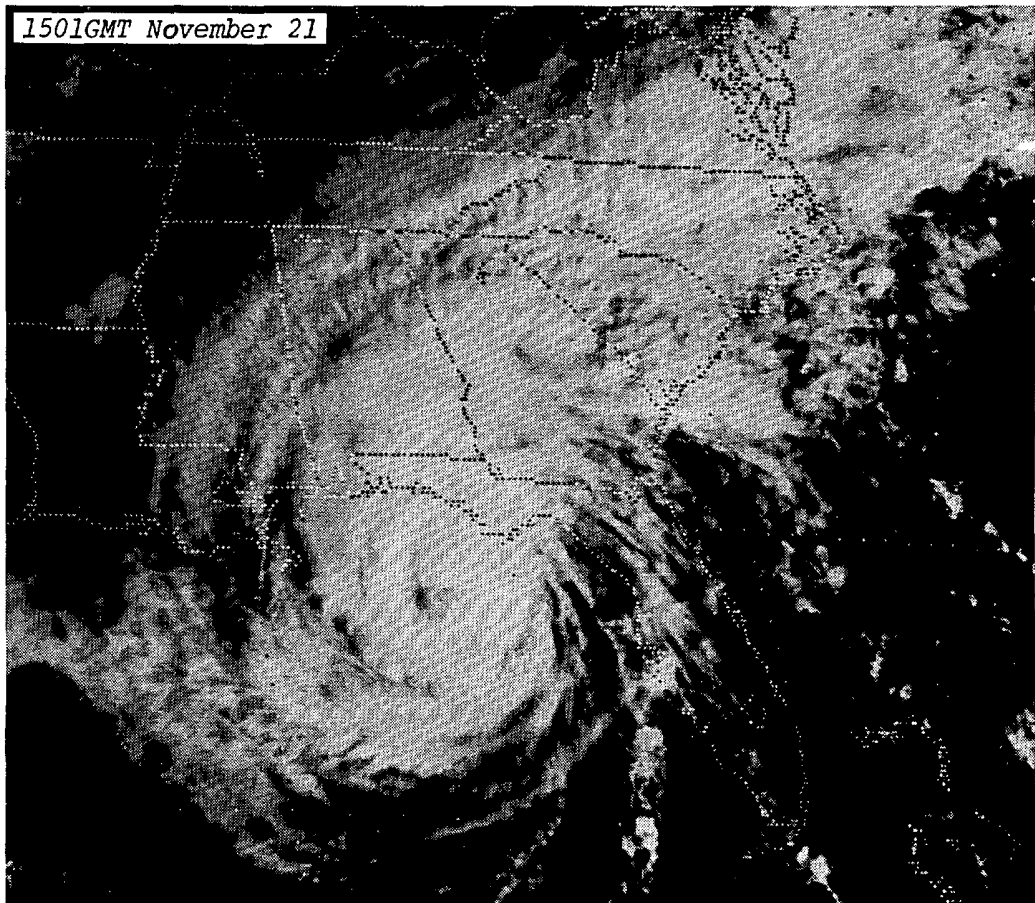
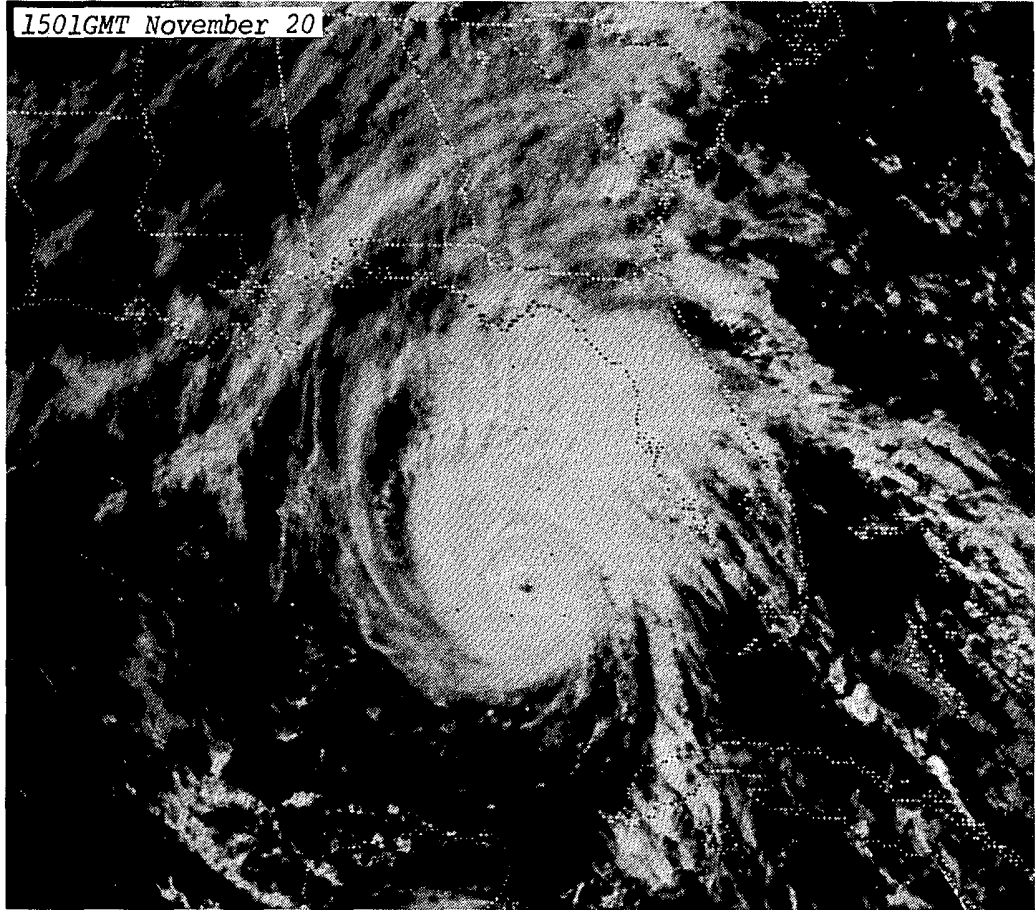
---All figures from NHC, provided by AOML/HRD, both of Miami, Florida.

TROPICAL STORMS and HURRICANES ---- continued

The following GOES 6 satellite, visible images (pages 6-8) show Hurricane KATE at various points along its path. As KATE'S center passed over Cuba, the storm's winds affected the Florida Keys. Later, KATE became the 8th storm of tropical origin to make landfall on the U.S. mainland this season as it moved over the Florida panhandle and across Georgia and the coastal sections of the Carolinas on November 21st and 22nd. ---All satellite photos are courtesy of Linwood F. Whitney, Jr., NESDIS.

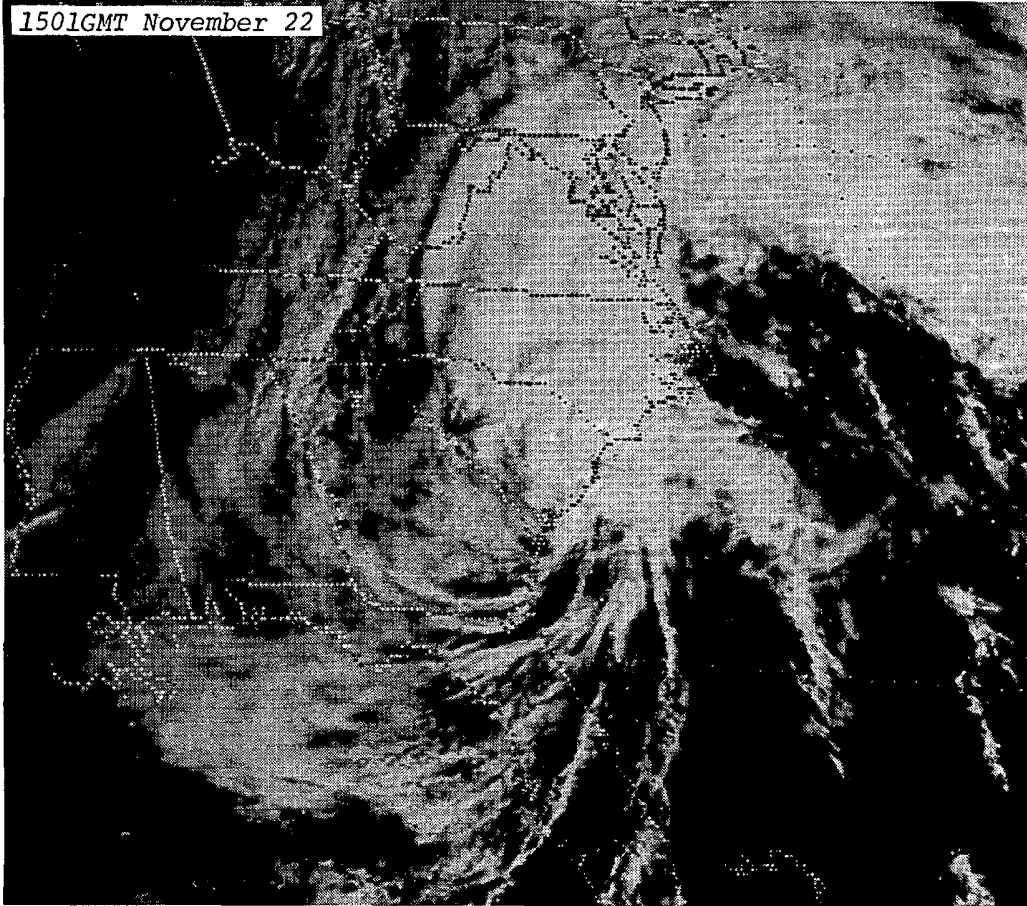


TROPICAL STORMS and HURRICANES ---- continued

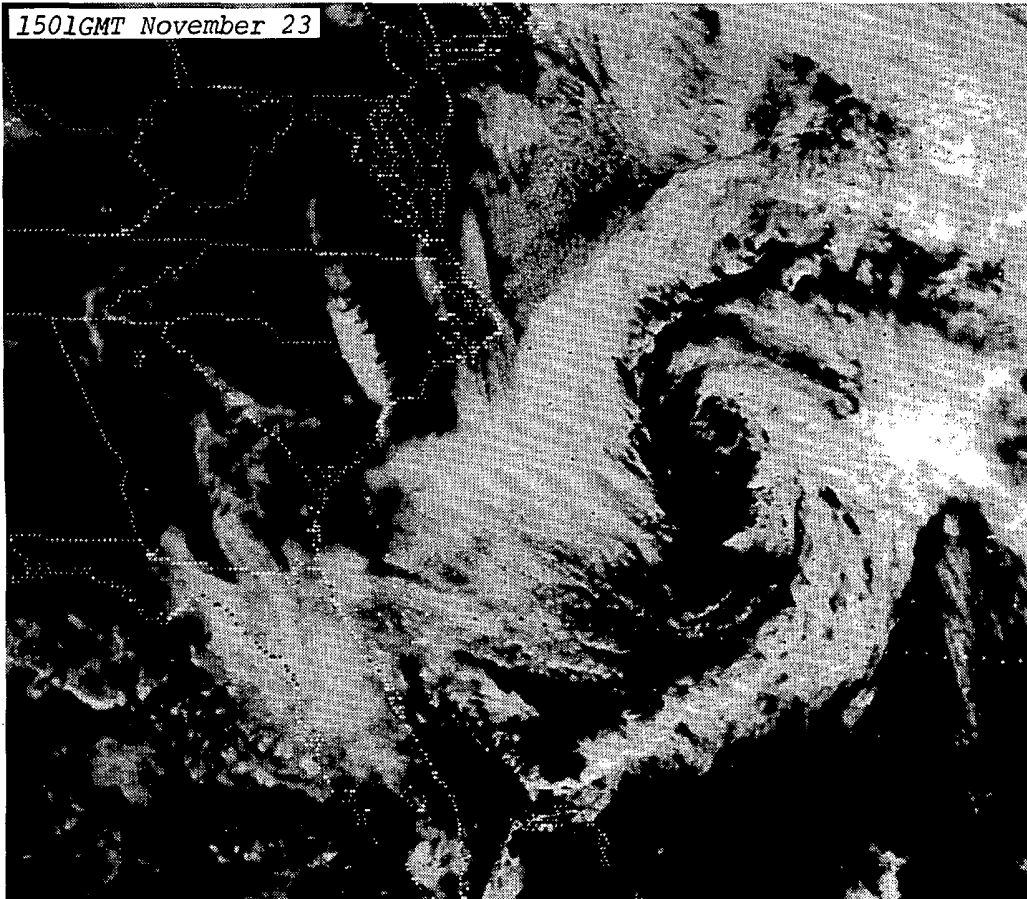


TROPICAL STORMS and HURRICANES ---- continued

1501GMT November 22



1501GMT November 23





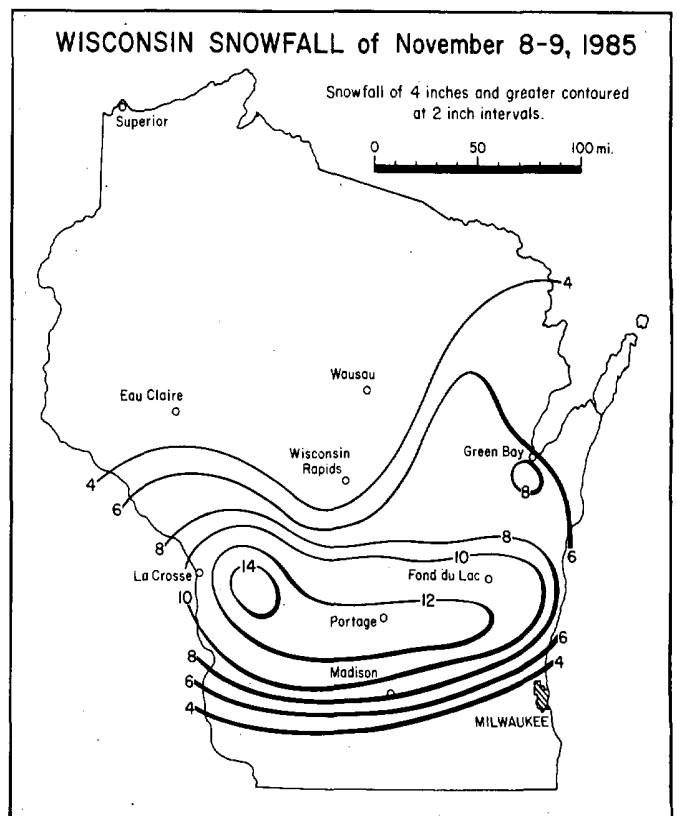
TROPICAL STORMS and HURRICANES ---- continued

LOCATION	STRONGEST WIND (MPH) DATE/TIME SUSTD PEAK	MIN PRESS. DATE/TIME	RAINFALL (IN.) DATE 24 HR	STORM TOTAL
MIAMI (MIA) FLORIDA	19/0809Z 38 48	1014.6MB 19/0730Z	18-19 0.20	0.20
MIAMI BEACH FLORIDA	19/0655Z 37 19/0855Z 78			
KEY WEST (EYW) FLORIDA	19/2213Z 47 19/1854Z 69	1006.8MB 19/2000Z	19-20 2.08	2.08
CONCH KEY FLORIDA	19/1630Z 50 19/1639Z 78			
APALACHICOLA (AQQ) FLORIDA	21/2215Z 62 21/2213Z 85	985.3MB 21/2210Z	20-21 4.60	4.93
PANAMA CITY FLORIDA	21/2001Z 40 21/2102Z 78	973.1MB 21/2130Z	21-22 5.11	5.97
TALLAHASSEE (TLH) FLORIDA	22/0115Z 46 22/0151Z 68	992.0MB 22/0225Z	21-22 3.63	3.63
ALBANY (ABY) GEORGIA	22/0400Z 51 67		21-22 5.02	5.02
SAVANNAH, (SAV) GEORGIA	22/1250Z 40 22/1054Z 62	1001.4MB 22/1223Z	21-22 1.73	1.73
CHARLESTON, (CHS) S.C.	22/1401Z 37 22/1314Z 50	1002.7MB 22/1455Z		
WILMINGTON, (ILM) N.C.	22/1824Z 29 22/2222Z 40	1002.4MB 22/2220Z	21-22 1.99	1.99

Selected meteorological and hydrological statistics for Hurricane KATE during the period of November 15-23, 1985. ---Table from NHC and provided by AOML/HRD, both of Miami, Florida.

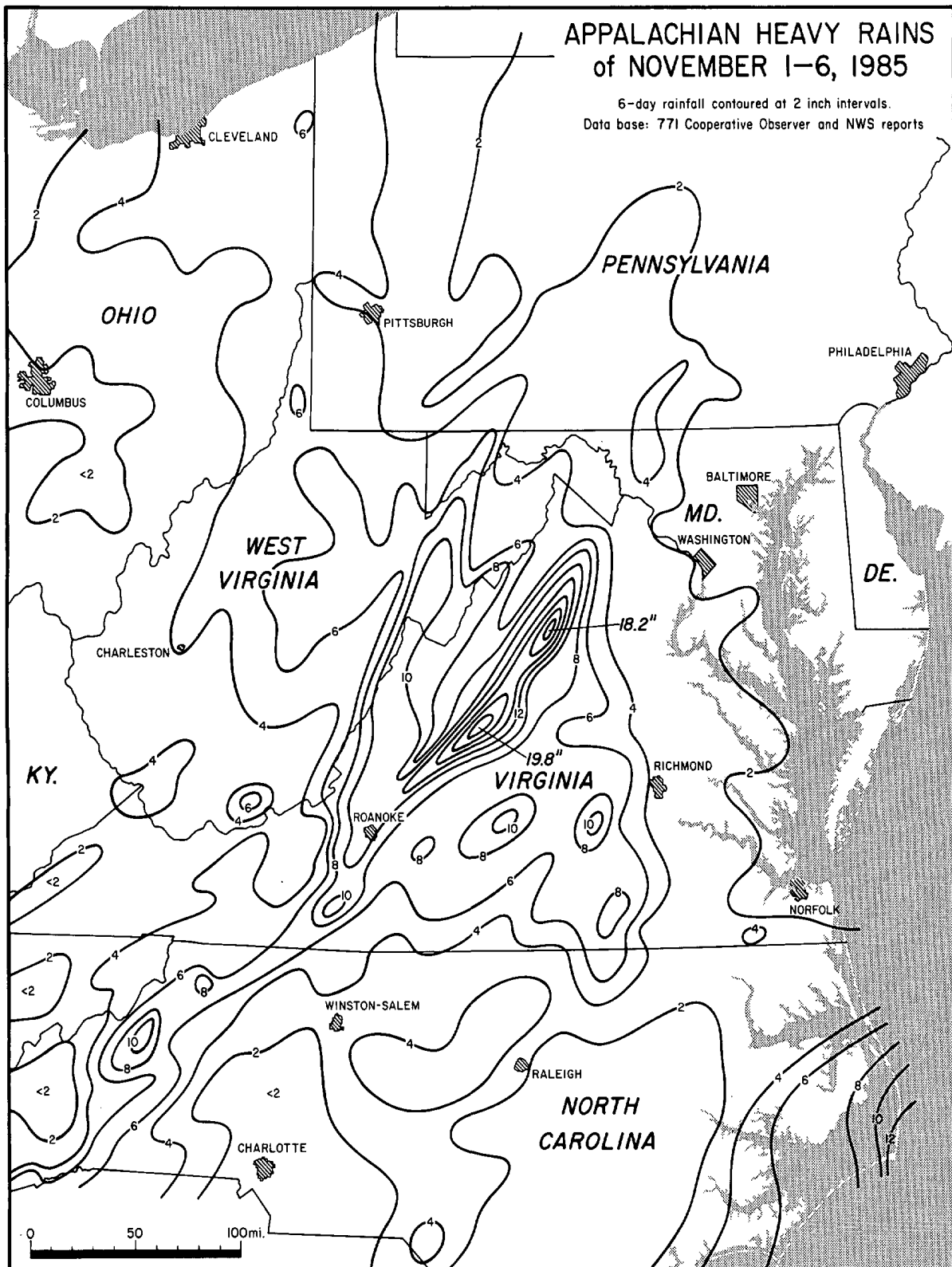
1. SNOWSTORM in WISCONSIN on  
November 8-10, 1985

An early winter storm created havoc in Wisconsin from November 8th to the 10th as snowfall of up to 15 inches fell in an east-west band across the southern half of the state, creating slippery road conditions that led to 150 traffic accidents and over 350 vehicles that had to be towed from ditches. Northeast winds gusting up to 50 mph sent record high water levels on Lake Michigan crashing into the shoreline, causing beach and property erosion. Near Oostburg, Wisconsin, the waves had undermined a living room addition and washed it into the lake. ---Map supplied by the NWSFO at Milwaukee, Wisconsin.

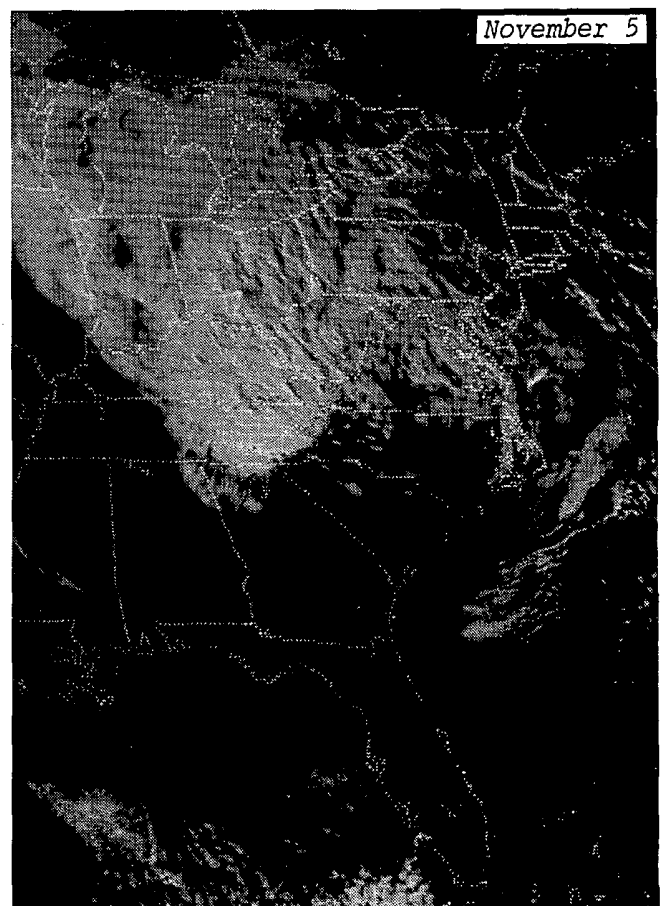
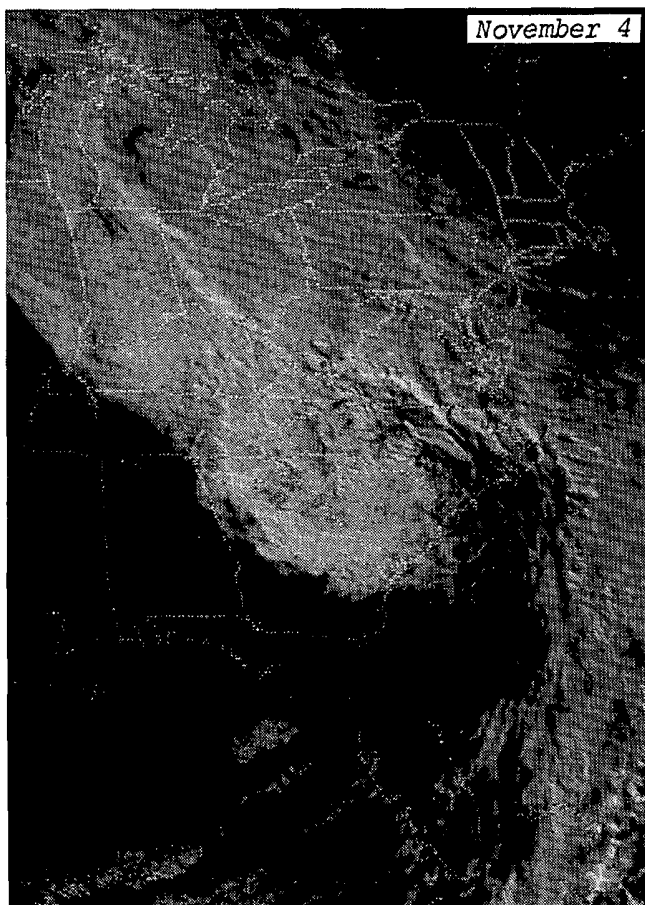
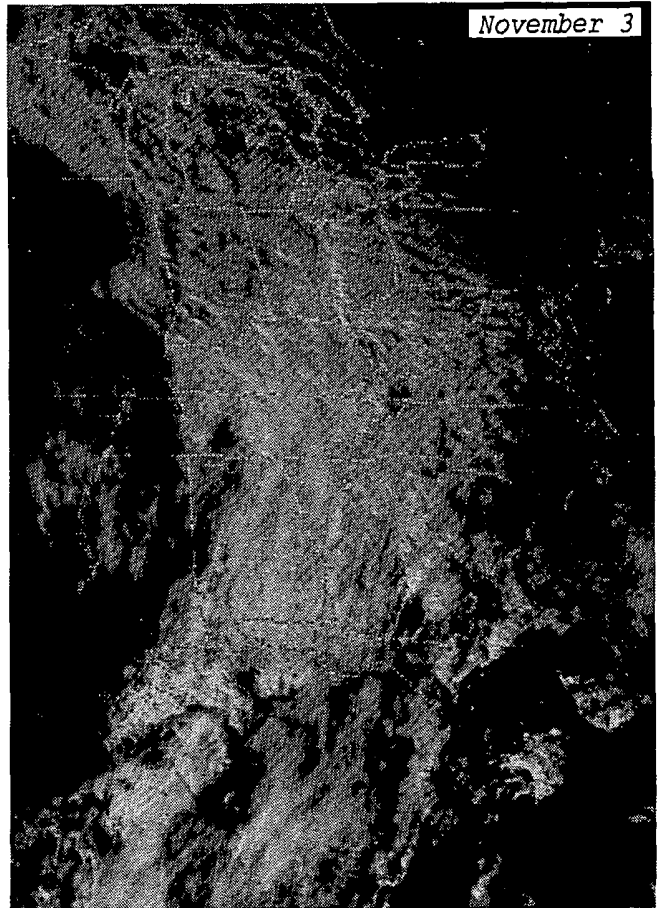
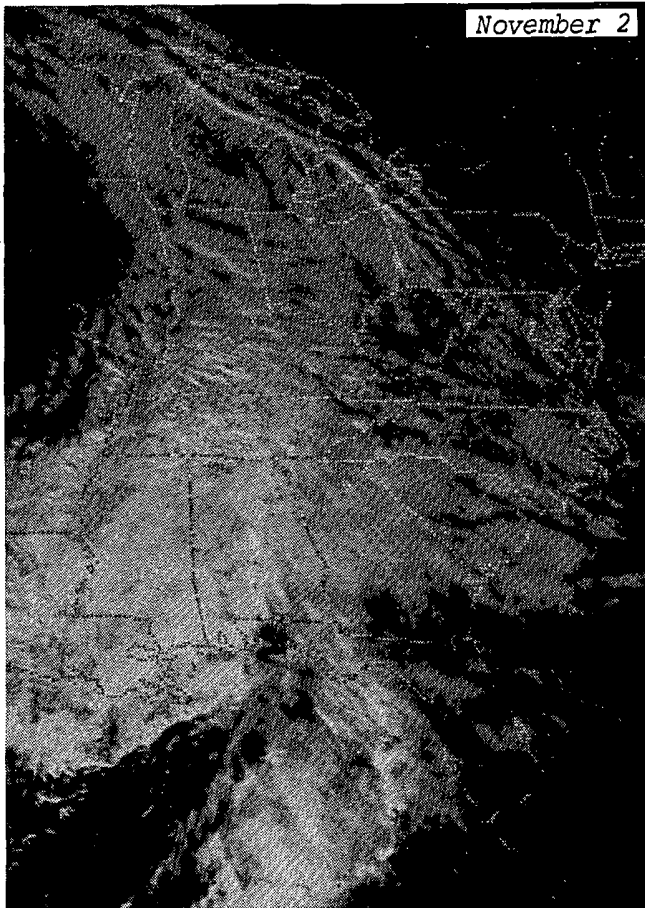


## 2. HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S., November 1-6, 1985

November rains in the East-Central U.S. began on the 1st as the remnants of Hurricane JUAN (see Oct., 1985 Storm Data) moved into the area. The rains persisted and became heaviest along the Appalachian Front late on the 4th and through the 5th, as a new storm system developed in the Gulf of Mexico, moved north into Virginia, occluded, and finally headed east, out to sea. Devastating flash flooding resulted in the mountain regions of Virginia, eastern West Virginia and southwest Pennsylvania, and downstream flooding persisted for days afterward. Also, tidal flooding occurred along Chesapeake Bay and its tributaries due to the strong and persistent southeast flow over the area. ---Rainfall data supplied by NCDC; analysis by University of Chicago.



HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S. ---- continued



GOES 6 satellite, visible images showing the cloud mass of the flood-producing storm system over the Eastern U.S. at 2030GMT (1530EST) on November 2nd through the 5th. ---Photos from NESDIS.

HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S. ---- continued

The following pictures (pages 12-14) are by Roy L. Britt of Richmond, Virginia, and illustrate the flooding along the James River in Richmond. The river's crest, the second highest ever, was 30.76 feet on November 7th, 21.76 feet above flood stage but short of the 36.51 foot record set during Hurricane AGNES in June 1972.



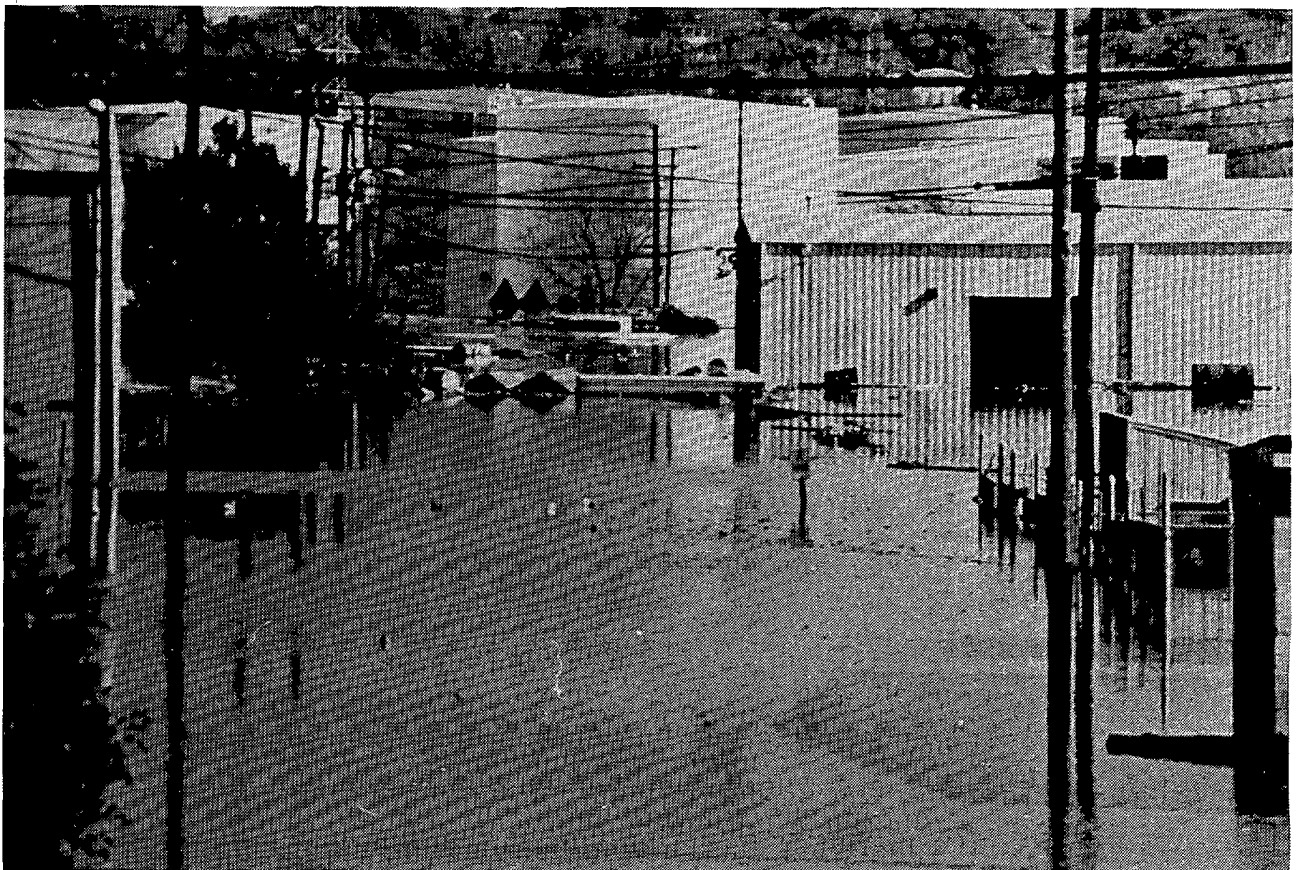
Floodwaters of the James River (foreground) forced the closure of Interstate 95 when they filled the Maury St. underpass (above), and floated petroleum tanks out of position (below). The pictures are side by side views, looking south.



HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S. ---- continued



James River floodwaters nearly overtopping the 14th St. bridge in Richmond and generally inundating the industrial area on the south side of the river.

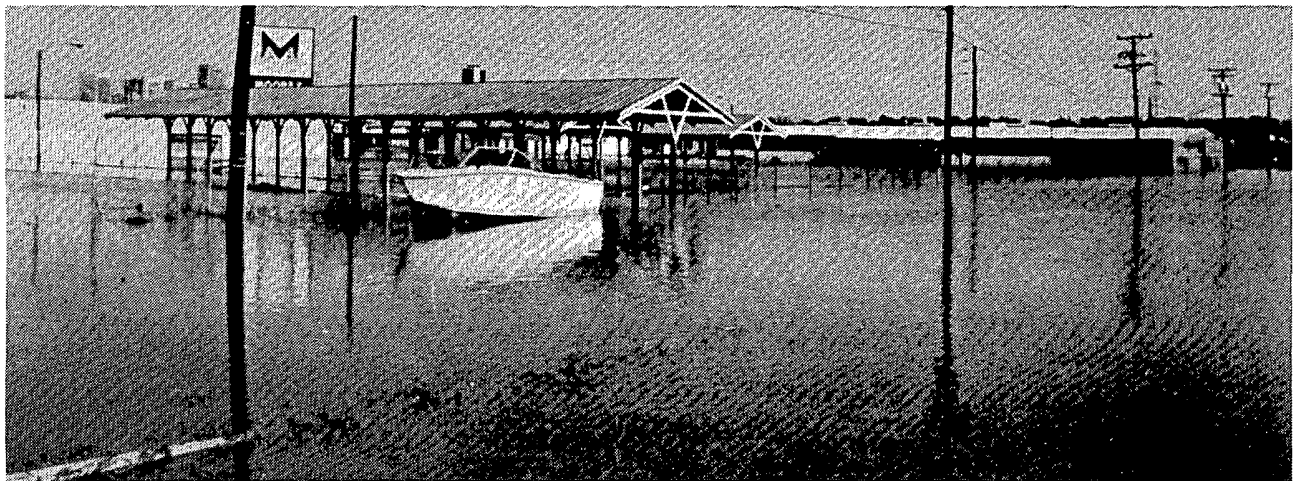


An east-looking view of the flooded industrial area with the petroleum tanks, some of which were floating and appear to be tilting.

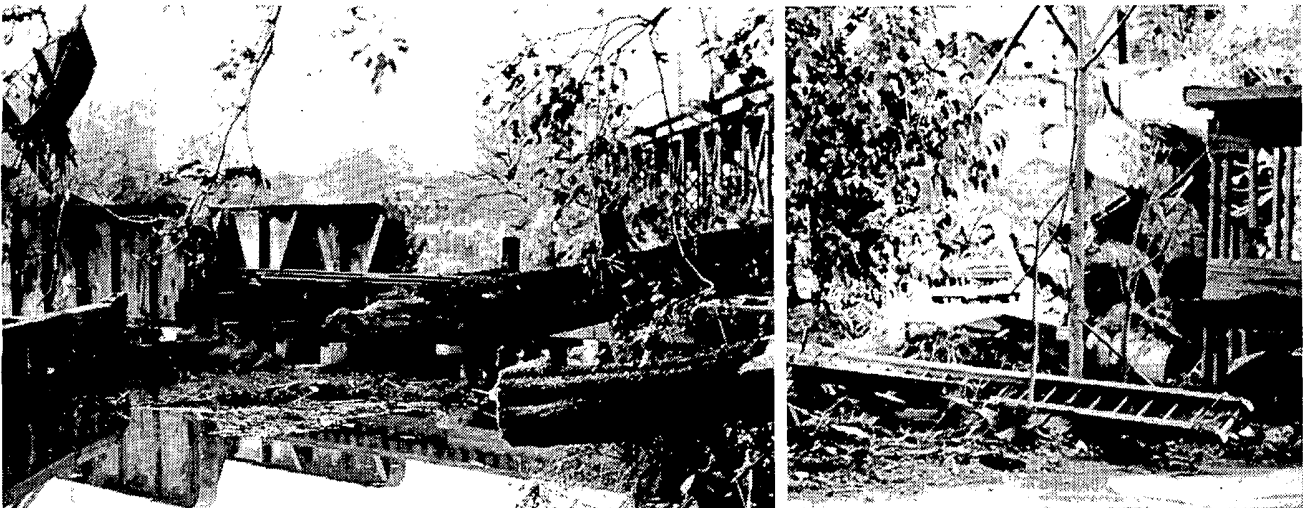
HEAVY RAINS and FLOODING in the EAST-CENTRAL U.S. ---- continued



The engulfed Southern R.R. station at the west end of the 14th St. bridge.



A displaced boat along Commerce Street, viewed looking north-northeast toward downtown Richmond.



Trees and other debris left by the flood block a railroad track near the city locks (left) and cover a truck under Interstate 95 (right).

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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>1 ALABAMA</b>										
Montevallo area, Shelby County	28	0710CST			0	0	3	0		Thunderstorm/Wind
Thunderstorm winds downed a few trees and damaged some small buildings between Montevallo and the Pea Ridge area.										
Eufaula, Harbour County	29	1120CST	0.2	40	0	0	4	0		Tornado (F1)
An apparent tornado touched down briefly on the southside of Eufaula and moved NE across U.S. 431. Two buildings were reported to be heavily damaged and several buildings sustained roof damage. Some powerlines were reported downed.										
<b>2 ARIZONA</b>										
AZZ001-002-003-008	12	All day			0	0	3	0		Heavy Snow
An unusually strong early season storm developed over the western U.S. and moved slowly toward Arizona early on the 11th. Strong southwesterly winds brought very moist subtropical air into the state which kept the snow level near 6500 to 7000 feet. During the morning of the 12th, much colder air invaded the northwest corner of Arizona, where Kingman, at an elevation of about 3400 feet, began receiving snow at about 5 am. The airport and schools were closed by afternoon. This was the worst snow storm in that area in over a decade. A massive traffic jam lasting several hours developed on Interstate 40 near Kingman. The heavy snow caused some trees to topple onto power lines, causing power outages in Flagstaff, Seligman, Grand Canyon, and Munds Park. Parts of east Flagstaff were without power for 3 hours. Two feet of new snow was reported at one ski resort near Flagstaff. Pulliam Airport received a storm total of 18.4 inches, all on the 12th.										
<b>3 ARKANSAS</b>										
Crawford County	14	2000CST			0	0	?	-		Lightning
Lightning struck a residence in Van Buren. It caused a bedroom fire, and smoke damage in other parts of the house.										
Benton County	15	0230CST			0	0	?	-		Lightning
Lightning caused some structural and electrical damages to a home in Maysville.										
Crawford County	18	1530CST			0	0	?	-		Flash Flooding
A line of thunderstorms moved through the area, producing widespread, street flooding in Van Buren. Water got over the hoods of cars at some intersections.										
Benton County	18	1730CST			0	0	4	-		Flash Flooding
War Eagle Creek rose about 20 feet and flooded the first floor of a mill in Rogers. The water was seven feet high inside the plant. Damages were estimated at almost \$50,000.										
Carroll County	18	1800CST			0	0	?	-		Flash Flooding
About a 5-inch rainfall caused widespread flooding around the county. Dry Creek flooded across U. S. Highway 62, closing it to traffic just east of Green Forest. Highway 21 south of Berryville was also flooded over. Many roads had water damage and several low-water bridges had extensive damage.										
Carroll County	18	1830CST			0	0	?	-		Lightning
A large barn containing 3,000 bales of hay was struck by lightning and burned to the ground. The barn was located on a farm one mile south of Green Forest.										
Washington County	18	1830CST			0	2	4	?		Flash Flooding
Flash flooding occurred in Prairie Grove from an estimated 5-6 inch rainfall. Muddy Fork Creek went over U.S. 62 just west of Prairie Grove. Several cars stalled from the high water over the road and in the city streets. Poultry houses were flooded, killing many chickens. Two persons were rescued from swift water and suffered from hypothermia. Street flooding occurred in Fayetteville too, where several homes were inundated. Eight homes had to be evacuated in Elkins. Springdale suffered widespread street flooding. A few homes had to be evacuated in Prairie Grove and Canehill. In all, 62 persons were sheltered overnight by the Salvation Army. The County Judge estimated damages at almost \$50,000.										
<b>— ARKANSAS</b>										
Crawford County	18	1920CST			0	0	5	-		Flash Flooding
A second batch of thunderstorms moved through the county, producing widespread road and bridge damage. One bridge, along U. S. 71, was washed off while 11 other bridges were damaged substantially. The basement of the Courthouse in Van Buren was flooded. The County Judge estimated damages at \$80,000.										
Johnson County	18	1933CST	18	30	0	0	6	-		Tornado (F2)
A small to medium size tornado touched down in the East Hill section of the city of Clarksville. It moved northeast at 50 mph. The damage path was intermittent. One home and one mobile home were destroyed. Three businesses had extensive damage, while 20-30 homes had varying degrees of roof damage. Total damages were estimated at \$625,000--homes \$500,000, businesses \$100,000 and \$25,000 in other damages.										
Sebastian County	18	2110CST			0	0	-	-		Thunderstorm Wind
Trees were blown down 5 miles southwest of Hartford.										
Marion and Baxter Counties	18	2112CST	34	440	3	16	7	-		Tornado (F3)
A strong tornado moved northeast at about 50 mph. Initial touchdown was on the west side of Highway 14, one mile north of Ralph. It moved in a straight line to one mile north of Rea Valley, to the southeast part of Mountain Home, to the north side of Norfolk Lake about where Highway 101 starts. In all, 143 homes, 25 mobile homes, 7 businesses, 3 churches, 1 junior high school, and the County Fairgrounds were damaged by the tornado. Two fatalities occurred in the neighborhood of Ralph and a third in Rea Valley, all in Marion County. Several of the injured needed hospitalization. Of the 16 injuries, 3 of them were in Baxter County, and they were minor injuries. One of the homes destroyed in Mountain Home was on the National Register of Historic Places--the Casey Home. Total damages were estimated at 7 million dollars, including 2 million in power line damage. Tornado F75P-F45P-F47M.										
Sebastian County	18	2115CST			0	0	?	-		Flash Flooding
Fort Smith received a second batch of thunderstorms. Numerous intersections were closed because of high water.										
Logan County	18	2140CST			0	2	5	-		Thunderstorm Wind
A strong thunderstorm moved northeast through Booneville at about 60 mph. Winds demolished a large hangar and two airplanes. Four other airplanes were badly damaged and another was damaged slightly. One business had considerable roof damage. Another firm lost its entire south wall. An employee was struck in the head by falling pipes as the wall collapsed. A second injury occurred at a home in Booneville when a brick chimney was blown down. The gentleman was hospitalized with internal injuries and broken bones. One mobile home was blown over while 5 other homes had damage. Trees were blown down across Highway 109 between Paris and Magazine. Damages were estimated close to \$200,000.										
Sebastian County	18	2215CST			0	0	-	-		Hail (1.75)
Golfball size hail was reported near Hartford.										
Madison County	18	2340CST			0	4	5	?		Flash Flooding
Heavy rain across the county caused flooding at many locations. Fifty persons were housed in the gymnasium at Saint Paul because the highway through town was flooded in both directions. They had been watching a basketball game in that same gym. A 20-year old man was rescued from flood waters at a ranch near Huntsville. He required medical attention for broken ribs and hypothermia. Three of the rescuers were also treated for hypothermia. In Coombs, high water flooded gas storage tanks. Town Branch Creek left its banks in Huntsville, flooding business and homes. Several vehicles were stalled by the rising waters. Three buses and several classrooms were flooded at a school in Kingston. Reports of the loss of poultry houses, chickens, cattle and hay were received by the Sheriff's Office from many locations throughout the county. Eleven bridges were damaged severely by the swift waters, while 15 other bridges had damage on their embankments. The County Judge estimated damages at \$200,000.										
Benton County	19	0900CST			0	0	?	-		Thunderstorm Wind
Wind gusts snapped three power poles in Siloam Springs, causing power blackouts on the east side of town for 3 hours.										
Benton County	19	0945CST			0	0	-	-		Hail (0.75)
Hail fell at Siloam Springs, ranging from pea to dime size.										
Lonoke County	26	2330CST			0	0	3	-		Thunderstorm Wind
About eight homes in Cabot had shingles damaged. Power lines were blown down. A fence, several sheds, and storage buildings were toppled by the wind. The roof of a boat house was lifted. A tool shed and the roof of a workshop were also damaged. Damages were estimated at at least \$2,000.										

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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	

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	

## ARKANSAS

Yell, Perry, Faulkner, and White Counties	27	0320CST							Flash Flooding
<p>Rainfall ranged up to 7.75 inches, with several locations receiving over 4 inches across these counties. School districts in Fourche Valley, Perryville, Casa, and Mount Vernon cancelled classes because school buses could not cross the low-water bridges along their routes. In White County, flooding was reported at Rose Bud, Searcy, Beebe, and Kensett. Six families had to be evacuated from their homes in Perryville.</p>									
Benton County	30	2140CST							Lightning
<p>Lightning struck a propane tank and caused a fire at a Siloam Springs residence.</p>									

## 4 CALIFORNIA, Northern

All of Northern and Central California	10	All day							Winter Storm
<p>A cold front from the Gulf of Alaska entrained moist air from the southwest and dumped large amounts of precipitation over most parts of northern and central California during the Veterans Day weekend. Rainfall amounts of between 1 and 2 inches were common, and very heavy snow fell over the Sierra Nevadas. Up to 5 feet of snow was reported above 7000 feet in elevation, and about 2 feet fell at elevations between 5 and 6 thousand feet.</p>									

## 4 CALIFORNIA, Southern

Mammoth Village, Inyo County	10	1435PST							Heavy Snow
Aspendell, Inyo County	10	2005PST							Heavy Snow
<p>Heavy snow fell at the rate of 2 inches per hour, leaving 8 to 10 inches of accumulation on the ground at Mammoth Village and 15 inches on the ground at Aspendell.</p>									
Aspendell, Inyo County	24	1500PST							Heavy Snow
<p>Heavy snow fell at the rate of 2 inches per hour, leaving 8.5 inches of accumulation on the ground.</p>									

## 5 COLORADO

Northern Colorado	8-9								Heavy Snow
<p>A storm dumped large amounts of snow on Northern Colorado, bringing Indian Summer to an abrupt end. Many spots in the northern and central mountains of the state received 1 to 2 feet of snow; Mount Evans led the way with 28 inches. 10 to 18 inches of snow fell in the foothills of the Front Range, and a foot buried Meeker, in northwest Colorado. 6 to 10 inches fell in the Denver area, snarling traffic and causing flight delays of up to three hours at Stapleton Airport. Similar amounts of snow fell on the northeastern plains; Sterling and Fort Morgan both received 10 inches.</p>									
Southwest Colorado	11-12								Heavy Snow
<p>Missed by the earlier storm, the mountains of Southwest Colorado were buried by the next system, which dropped 25 inches of snow at Coal Bank Pass, and 24 inches at Wolf Creek Pass. Many other spots in the San Juans received 1 to 2 feet.</p>									
Weld County	13								Freezing Drizzle
<p>Freezing drizzle caused ice accumulations of up to two inches in northeastern Weld County. Power lines and trees were downed, due to the weight of the ice.</p>									
Statewide	14-15								Heavy Snow
<p>Snow fell almost everywhere in Colorado. The Pueblo area was hardest hit; 16 inches fell in Pueblo in 24 hours, closing schools and businesses and almost breaking the city's 24 hour snowfall record. Some spots in Pueblo County received up to 22 inches of snow. The storm hit many other areas, though not as hard. 3 to 6 inches fell in Denver and Colorado Springs, with 10 inches at Fort Collins. Alamosa received 9 inches, and up to 10 inches fell in the mountains.</p>									
Statewide	17-19								Heavy Snow
<p>Yet another storm brought snow to most of the state. In a three day period, 41 inches buried Wolf Creek Pass. Many other spots in the mountains received 1 to 2 feet. 4 to 8 inches fell at lower elevations in the Four Corners area on the 17th and 18th. The storm dumped 4 to 7 inches in the Denver-Boulder area on the 18th and 19th.</p>									

## COLORADO

Southwest Colorado	20-21								Heavy Snow
<p>18 inches of snow fell at Wolf Creek Pass. At lower elevations, Durango received 8 inches.</p>									
El Paso County	25	1200-1500MST							High Winds
<p>Winds as high as 76 mph were clocked just west of Colorado Springs. A gust of 71 mph buffeted the Air Force Academy, with 67 mph at Cheyenne Mountain.</p>									
Southwest Colorado	25-26								Heavy Snow
<p>Wolf Creek Pass received another 17 inches of snow; about a foot fell at Purgatory, Crested Butte, and Silverton.</p>									
Mountains	28-30								Heavy Snow
<p>Heavy snow fell throughout the Colorado Rockies, closing several passes at times. 31 inches buried both the Wolf Creek Pass and Purgatory ski areas. Many other spots received 1 to 2 feet, including Aspen, Crested Butte, Telluride, and Steamboat Springs. There were over one hundred avalanches in the San Juan Mountains of Southwest Colorado.</p>									

## 6 CONNECTICUT ——— NONE REPORTED

## 7 DELAWARE ——— NONE REPORTED

## 8 FLORIDA

Englewood, Sarasota Co.	01	0100EST							Thunderstorm Wind
<p>A pool screen enclosure was destroyed and blown over a house. Roof tiles were uplifted on the house.</p>									
Englewood, Sarasota Co.	03	0500EST							Thunderstorm Wind
<p>A car trailer was blown across a yard. Roof shingles were lifted off a house. Trees were uprooted and a boat was blown out of the water and onto the shore.</p>									
FLZ023 Lower Keys	19								Hurricane Kate
FLZ003-004-005 Big Bend area	21								Hurricane Kate
<p>Hurricane Kate moved south of Key West, causing downed power poles, power lines, trees, and branches. In the aftermath, two people were killed, a 62 year old woman and a 28 year old man, when their small boat capsized in heavy seas. A man of unknown age was electrocuted when he stepped on a downed power line. Two days later, Kate made landfall between Panama City and Apalachicola. A 38 year old man was killed and his 16 year old son was injured when a tree fell on their truck. An 81 year old woman died of a heart attack shortly after being evacuated to a hotel in Chipley. Tides ran 8 to 10 feet above normal. Many houses were damaged by fallen trees. Many power poles and lines were downed. Several roads suffered washouts. Wind reached near 65 knots at Tallahassee and at Apalachicola.</p>									

## 9 GEORGIA

Toombs County	03	1605EST							Wind
<p>Thunderstorm winds downed several pecan trees in an orchard 10 miles southwest of Lyons.</p>									
South Georgia	21-22	1830EST-0900EST							Wind, Flash Flood
<p>Hurricane Kate entered Georgia from Florida south of Bainbridge and moved east-northeast across southern Georgia during the night. The remains of the hurricane moved out of Georgia into South Carolina just north of Savannah the next morning. Damage due to wind and flash flooding from the hurricane was extensive across southern Georgia. The worst damage was in southwest and south-central counties south of a line from Blakely to Camilla, Moultrie and Valdosta. Winds gusting from 60 to 80 mph downed thousands of trees and damaged property and crops. Agricultural losses in Georgia were over 50 million dollars, with cotton, soybean and pecan crops the most heavily damaged. Damage to utilities and property from winds and falling trees was also placed at over 50 million dollars. A 22 year-old man was killed just west of</p>									



# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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>GEORGIA</b>									
									<p>Thomasville when a tree fell on a wrecker he was in and crushed the cab. Although winds were less as the remains of the hurricane moved through Georgia, gusts of 50 to 70 mph were still being reported as Kate moved into South Carolina. Rainfall totals averaged 4 to 5 inches along the path of the storm, but some areas in the southwest part of the state reported around 8 inches. Damage due to flash flooding was reported to be nearly one million dollars, mainly to secondary roads that were washed out in the southwestern counties.</p>
<b>10 IDAHO</b>									
Kuna, Ada County	4	2030MST			0	0	2	0	Strong Winds
East Slope, Canyon County	4	2030MST			0	0	3	0	Strong Winds
									<p>Strong winds with a cold frontal passage blew a mobile home off its foundation, and an 8x14 camper-trailer moved about 8 feet at East Slope. At Kuna, a small outbuilding moved a few feet, and a 200 gallon animal supply container toppled off its stand.</p>
ID2010 East Central Mountains	7	all day			0	0	0	0	Heavy Snow
									<p>Six to twelve inches of snow fell from the storm. Five to six thousand homes lost electricity, and many roads were closed.</p>
ID202 Magic Valley	13	all day			0	0	0	0	Heavy Snow
									<p>Seven inches of new snow fell at the Twin Falls WSO. Many Magic Valley schools were closed.</p>
ID2000-004-010 Southeast Idaho	25	all day			0	0	0	0	Heavy Snow
									<p>Six to twelve inches of snow fell and strong winds caused extreme and extensive drifting and turned some highways into "one-lane trails". Most schools closed.</p>
ID2001-002-003-004-005-006-007	28	all day			0	0	3	0	Heavy Snow
									<p>On Thanksgiving, a warm overrunning snowfall event produced 4 to 8 inches of new snow. WSO Boise recorded 7 inches. The heavy snow collapsed a metal shed in Buhl.</p> <p>November 1985 was the snowiest and coldest November on record across the Snake River Valley of southern Idaho.</p>
<b>11 ILLINOIS</b>									
Hancock County	13	1840CST			0	0	?	3	Hail (1.5)
									<p>One and one-half inch hail fell in the area around Dallas City.</p>
Mason County	18	1558CST	short narrow		0	0	?	?	Tornado (F0)
									<p>A small weak tornado touched down briefly in an open area 12 miles south-southwest of Havana.</p>
Mc Lean County	19	1450CST	short narrow		0	0	?	?	Tornado (F0)
Montgomery County	19	1533CST			0	0	4	0	Thunderstorm Wind
									<p>60mph wind gusts were measured just east of Litchfield. Several farm sheds were damaged.</p>
Mc Lean County	19	1540CST	0.3 20		0	0	4	0	Tornado (F1)
									<p>A tornado overturned 2 mobile homes in Cookeville and did additional minor damage in the northeast part of town.</p>
Piatt and Champaign Counties	19	1558CST	5.0 20-40		0	0	5	0	Tornado (F1)
									<p>A tornado first appeared in extreme northeast Piatt County just east of Blue Ridge and moved northeast, eventually dissipating 2 miles west of Fisher in Champaign County. The tornado damaged five farm residences and several smaller farm buildings as it moved along an intermittent 5-mile path.</p>
ALL	12-30				0	0	6	?	Flood, Record Precipitation
									<p>Record or near-record precipitation fell over all of Illinois. The heaviest precipitation amounts (8 to 11 inches) were recorded in the central half of the state, where rainfalls were 3 to 4 times the November normal. The northern and southern quarters of Illinois experienced precipitation amounts from 5 to 10 inches, or 2 to 4 times the normal. The precipitation fell almost entirely as rain, and was spread through the month. River levels were unusually high for this time of year, and all major rivers were in flood during the month. Flood crests occurred generally in the last 10 days of the month.</p>
<b>12 INDIANA</b>									
Orange County	15	Evening			0	0	?	?	Flash Flood
									<p>Roads and several businesses were flooded, as well as about 60 vehicles in the parking lot of a hotel in French Lick. The flooding lasted into the morning hours on the 16th.</p>
Central Indiana	19	All day			0	0	?	?	Flash Flood
									<p>Heavy rain overnight caused flash flooding in Central Indiana. Evacuations due to flooding were necessary in the Southwood subdivision of Terre Haute. County roads were closed due to high water in numerous Central Indiana counties. Basement and street flooding was widespread.</p>
Central and Southern Indiana	19	Afternoon			0	0	?	?	River Flooding
									<p>Central and Southern Indiana rivers rose to flood levels in response to heavy rain. Agricultural areas, roadways, and parklands experienced flooding beginning on the 19th and lasting for the next 4 to 5 days.</p>
Morocco, Newton County	19	1810EST			0	0	5	0	Thunderstorm Wind
									<p>A large barn and 2 steel grain bins were leveled about 3 miles southwest of Morocco. Three houses had their roofs torn off on the west side of Morocco while 5 others sustained roof damage when trees fell on them. Numerous trees were uprooted and several cars were damaged.</p>
2 W. Kents, Newton County	19	1830EST			0	0	5	0	Thunderstorm Wind
									<p>Strong thunderstorm winds destroyed 2 barns.</p>
Demotte, Jasper County	19	1840EST			0	0	5	0	Thunderstorm Wind
									<p>A large building was destroyed by strong winds in Demotte. Several trees were uprooted near S.R. 231 and the Kanikake River.</p>
West Lebanon, Warren County	19	1915EST			0	0	2	0	Thunderstorm Wind
									<p>A few trees were uprooted and blocking S.R. 28 near West Lebanon.</p>
Michigan City, Laporte County	19	1930EST			0	0	2	?	Thunderstorm Wind
									<p>Strong winds downed several large trees.</p>
South Bend, St. Joseph County	19	1950EST			0	0	5	0	Thunderstorm Wind
									<p>Strong thunderstorm winds blew the roof off the Ameritech Building at U.S. 31 Bypass and Cleveland Road. Two homes were damaged and trees were downed in the vicinity of Olive Road.</p>
Battleground, Tippecanoe County	19	1952EST			0	0	2	0	Thunderstorm Wind
									<p>Several trees were uprooted in Battleground.</p>
Reynolds, White County	19	2004EST			0	0	?	0	Thunderstorm Wind
									<p>Strong winds were estimated at 55 to 65 mph and power lines were downed near Reynolds.</p>
3 SW Rockville, Parke County	19	2010EST			0	0	2	0	Thunderstorm Wind
									<p>A few large trees were uprooted southwest of Rockville near U.S. 41.</p>
Guion, Parke County	19	2015EST			0	0	2	0	Thunderstorm Wind
									<p>Downed trees were blocking S.R. 236 near Guion.</p>
Crawfordsville, Montgomery County	19	2030EST			0	0	2	0	Thunderstorm Wind
									<p>Trees were uprooted in Crawfordsville and across eastern Montgomery County.</p>
Jasonville, Greene County	19	2050EST			0	0	2	0	Thunderstorm Wind
									<p>Strong winds downed trees in the Jasonville area.</p>
Kokomo, Howard County	19	2140EST			0	0	3	0	Thunderstorm Wind
									<p>Windows were blown out at a few locations in Kokomo and power lines were downed.</p>
Bunker Hill, Miami County	19	2205EST			0	0	2	0	Thunderstorm Wind
									<p>A few trees were uprooted near Bunker Hill about 1 mile north of S.R. 218.</p>
2 E. Peru, Miami County	19	2215EST			0	0	2	0	Thunderstorm Wind
									<p>A few trees were uprooted east of Peru near U.S. 24.</p>
Southern Indiana	26	Afternoon			0	0	?	?	River Flooding
									<p>Heavy rain caused rivers to swell to flood levels over southern Indiana again on the 26th. Flooding of agricultural areas, roadways, and parklands was not quite as extensive as during the previous flooding of the 19th. Southern Indiana rivers remained in flood through the end of the month.</p>

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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>13 IOWA</b>									
IAZ001-002-003 Northern Iowa	08- 10	Morning Afternoon			0	0	4	5	Snowstorm
	A snowstorm dumped from 6 to 12 inches of snow across the northern two tiers of counties in Iowa. The first snow affected northwest and north-central Iowa on Friday (8th) afternoon and evening; and north-central, central and northeast Iowa were greatly affected by snow which began on Saturday afternoon and continued into Sunday.								
IAZALL Statewide	10- 11	Morning Evening			0	0	5	0	Freezing Drizzle
	Freezing drizzle created very hazardous driving conditions across the state. Many traffic accidents resulted.								
Lee County	13	1650CST			0	0	4	0	Flash Flood
	A thunderstorm quickly developed and then dissipated over Fort Madison, dropping about 2.5 inches of rain in a half hour. Streets, sewers and lowlying areas were rapidly flooded due to the downpour, though area creeks reached bankful but did not overflow.								
IAZ002-003-006-007-008-009-010-011-012-013-014 Statewide	19	All day			0	0	5	0	Ice and Snowstorm
	A broad swath of the state was included in a wave of winter weather that brought sleet, freezing rain and up to 5 inches of snow. Motor vehicle accidents on the slippery roads and highways were numerous.								
IAZALL Statewide	25	All day			0	60	5	0	Ice Storm
	Freezing drizzle created absolutely treacherous driving in Iowa, resulting in scores of accidents. Pedestrians suffered as well.								
IA001-002-003-004-005-006-007-008-009-010-011-012-013-014	30- Dec. 2	Afternoon Morning			0	0	5	0	Snowstorm and Blizzard
	A winter storm began to drop snow in Iowa Saturday afternoon (30th) on Thanksgiving weekend, and before it ended, 6-15 inches of snow had blanketed all but the extreme northwest and southeast corners of the state. The snow continued into Sunday, and the winds accelerated from the northwest at 20-40 mph. This created blizzard conditions in much of the state and driving was nearly impossible all the way through early Monday morning (2nd).								
<b>14 KANSAS</b>									
KSZ05E-0EC Southeast and East-Central Kansas	14- 15	1000- 0600CST			0	0	4	5	Heavy Rain, Flood
	Two to four inches of rain fell upon an area 70 miles wide, centered on a line from Arkansas City to Iola and La Cygne. More than 3 inches fell upon the Marais Des Cygnes and Neosho River Basins east of a line from Toronto Reservoir to Olathe.								
	Runoff sent the Marais Des Cygnes River 3-8 feet above flood stage from Melvern and Pomona Reservoirs into Missouri on the 15th through the 19th. The Neosho went 3-7 feet above flood stage from John Redmond Reservoir into Oklahoma from the 15th through the 19th. A good deal of farmland was flooded, but no major property damage resulted.								
KSZ005-0NE-0NC Southern, North-Central and Northeast Kansas	30	0300- 2400CST			0	0	5	0	Heavy Snow, Ice Storm
	A Winter Storm dropped heavy snow from Southwest through North-Central Kansas. It also dropped a mixture of freezing precipitation over the South-Central and East.								
	Four to seven inches of snow fell along a 50 mile wide strip centered from Dodge City to Ellsworth and Concordia. The snow was mixed with freezing drizzle and sleet at times.								
	Sleet, freezing drizzle and some freezing rain fell across East and South-Central Kansas. The sleet was heavy at times and accumulated to depths of 1-2 inches in most places. The sleet made roads extremely slick and a great number of traffic accidents resulted.								
<b>15 KENTUCKY</b>									
Extreme Northern Kentucky along the OHIO RIVER and throughout East Kentucky	26	1120 EST			0	0	3	4	Minor Flooding
	The Ohio River was running high due to the record-breaking rains over West Virginia and Pennsylvania during early November. The additional rain that began to fall over Kentucky on the 26th began to finally push the Ohio River over flood stage at several locations along the Ohio River on the 27th. The flooding continued through November 30th. Most of the flooding along the Ohio River only affected agricultural bottom lands, river traffic, and recreational uses.								
	Copius amounts of rainfall also fell over Eastern Kentucky, where many sections received over four inches of rain within an 18 hour period on the 27th. The heavy rain caused minor flooding along creeks and streams over East Kentucky.								

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>16 LOUISIANA</b>									
Iberia Parish	27	2100CST			0	0	?	0	SVR TSTM - Wind
	A severe thunderstorm destroyed a garage near New Iberia.								
St. John the Baptist Parish	28	0050CST	0.2	16	0	0	4	?	Tornado (FD)
	A small tornado caused about \$5,000 roof damage to about a dozen homes in Laplace.								
Bossier and Caddo Parishes	30	2300CST			0	0	?	?	SVR TSTM - Wind
	A line of severe thunderstorms moved rapidly across Caddo and Bossier Parishes. Numerous trees were blown down just south of Shreveport and Bossier City, and just east of Forbing.								
<b>17 MAINE</b> ————— NONE REPORTED									
<b>18 MARYLAND and D.C.</b>									
Baltimore, Anne Arundel, Calvert, St Marys, Charles, Queen Annes, Talbot, Dorchester, and Worcester Counties; and Baltimore City	04 05	1100- 0200EST			0	1	7	0	Tidal Flood
	A moderate onshore flow developed over the Mid Atlantic states on Thursday, October 31, then continued for several days. The east to northeast winds increased to a gale late Sunday, then turned to southeast and attained storm strength, gusting to 60 to 80 mph, the evening of the 4th. The brunt of the "nor'easter" hit at high tide, a few days after the full moon. The storm tide measured 4 to 6 feet above normal, but waves of 6 to 8 feet added considerably to the damage along the western shore of the bay. The strong southeast winds even drove the storm tide up the tidal reaches of the Potomac and Patuxent Rivers. The water levels in the bay and its tributaries were the highest since the hurricane of August 1933. The major loss was the damage or destruction of bulkheads, piers and seawalls, as well as the eroded property and flooded homes along the western shore of the bay from Anne Arundel to St Marys County. Evacuations were primarily limited to small communities near the bay within this area, but low-lying parts were also evacuated at Kent Island, Tighman Island, Taylors Island and Hooper's Island. Many low-lying roads were ruptured or damaged. Trees were blown down, disrupting power service to thousands. Many cars were swamped and thereby damaged by the rapidly rising flood waters. The Thomas Point Lighthouse was abandoned near the height of the storm. A Coast Guardsman was injured responding to a hoax mayday call. The Chesapeake Bay Maritime Museum narrowly survived the flood without damage to the artifacts at St Michaels. Ocean City reported the loss of 400,000 cubic yards of shoreline, nearly half the amount lost during Hurricane Gloria earlier in the year. A large oyster bar in St Marys County was buried under a blanket of red sand. Several boats tore loose from their moorings and were missing.								
<b>19 MASSACHUSETTS</b>									
Northern Bristol County	05	2000- 2300EST			0	0	3	0	Lightning
	Scattered lightning strikes occurred in the area. An attic fire was started by lightning in Stoughton and power outages were reported from Mansfield.								
Andover, Essex County	05	Evening			0	0	3	0	Lightning
	A bolt of lightning knocked a four foot hole in the roof of a house, but no fire resulted.								
Statewide	26	All day			0	0	0	0	Snow and Sleet
	Numerous skidding accidents were reported across most of the state as a combination of light snow and sleet made highways very dangerous. There were many injuries and a few deaths as a result of the icy road conditions. An aircraft skidded off a runway at the Worcester airport, but luckily no one was injured.								
Western Portion of the State	28	All day			0	0	0	0	Ice Storm
	Freezing rain fell across the area on the Thanksgiving Day holiday. A light to moderate accumulation of glaze caused some power outages as were reported from Chicopee where about 1200 homes lost power for several hours during the morning. Outages were also reported in Holyoke as a result of the icing on wires.								

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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					KILLED	INJURED	PROPERTY	CROPS	
<b>20 MICHIGAN</b>									
MIC0163 Grosse Ile, Wayne County	09	2120EST			0	0	5		Lightning
									4 yachts were destroyed and 1 was damaged when lightning struck a marina.
MIZ001-002-003-004-005-006-007-008-009-010-011-012-013-014-015-016-018-021-022 Lower Peninsula and Eastern Upper Peninsula	19	2200EST			0	0	7		High Wind
									Strong winds following a cold front persisted into the morning. Gusts at airports ranged from 46 to 63 mph. The Mackinac Bridge was closed from 0052EST to 0500EST as winds gusted to 70 mph. Widespread power outages occurred. Roads were blocked by fallen trees. Several barns and buildings under construction were destroyed and there was minor damage to other buildings. Lakeshore flooding, some beach erosion and damage to waterfront facilities occurred along the north and east shores of Lake Michigan and along Tawas Bay of Lake Huron. An oil rig toppled in Grand Traverse County. An 80 mph wind caused a ship to crash into a lock at Sault Ste. Marie. A small aircraft was torn from its moorings and flipped at Cheboygan.
<b>21 MINNESOTA</b>									
MNZ00S South		8/9 Afternoon			0	0	0	0	Heavy Snow
									Snow spread across southern Minnesota during the afternoon of November 8th and continued through the following morning. Significant accumulations were reached south of a line from Minneapolis to Hutchinson to Montevideo. Three to six inches had accumulated by midnight and total accumulations reached four to nine inches the following morning. The snow caused numerous traffic accidents. The snow also covered and helped insulate crop land not yet completely frozen. Due to very wet soil conditions during the harvest season, many crops were stranded in fields.
Duluth (St. Louis County)		18 Evening			0	0	5	0	High Wind
									Strong winds and heavy seas beached a freighter on Minnesota Point in Duluth. The freighter began to drag anchor between 2000CST and 2200CST on the lake side of the point and was subsequently grounded. Waves also broke down a cement barrier and caused heavy damage to a home along the Lake Superior shore in Duluth. A ship approaching the western tip of Lake Superior that evening reported a 69 mile per hour wind.
MNZ00N North		25 Morning			0	0	0	0	Heavy Snow
									Snow and strong winds intensified rapidly over northwest and west-central Minnesota between 0600CST and 0800CST. Near-blizzard conditions developed during the morning from the Red River Valley in the northwest through Becker, Ottertail, Wadena and northern Todd Counties. Many schools were closed as winds of 35 miles per hour made bumper-deep snow drifts and immobilized traffic. Snowfall accumulations of 3 to 6 inches spread from the northwest into the Arrowhead during the day and evening. Eight inches of snow was reported from Detroit Lakes and Frazee in Becker County and also from Silver Bay along Lake Superior.
MNZ005-00C-00E South, Central and Northeast		30 Morning			0	0	0	0	Heavy Snow
									Freezing rain developed across southern Minnesota between 0600CST and 0800CST. The freezing rain was generally from the Twin Cities, south. Roads became ice-covered in sections of southeast Minnesota before the freezing rain changed to snow by noon. Four to eight inches of snow spread from southern Minnesota across central Minnesota and into sections of the northeast. Traffic accidents were common in southern and central Minnesota because of the freezing rain and later because of the snow. There was a lull in the snowfall during the evening, but by midnight more snow associated with an approaching storm system was spreading into Minnesota from the south.
<b>22 MISSISSIPPI</b> ————— NONE REPORTED									
<b>23 MISSOURI</b>									
Marion County	09	1410CST			0	0	0	0	Large Hail
									Hail of up to 3/4 inch in diameter fell in Hannibal.
Taney County	12	1420CST			0	0	4	0	Damaging Wind
									Two mobile homes were blown over and tree damage was reported around Branson.
Dade County	13	2130CST			0	0	3	0	Damaging Wind
									Wind damage to trees and power lines near Greenfield was reported.
LaCade County	18	1350CST			0	0	3	0	Damaging Wind
									Minor wind damage was reported in Lebanon. The wind was estimated to be 60 mph.
Ozark County	18	1815CST			0	0	3	0	Damaging Wind
									Wind damaged a roof, uprooted a tree and destroyed a chicken shed near Barren Fork Ridge.
Washington County	18	2010CST			1	1	4	0	Flash Flood
									Two girls were washed off a bridge and into a creek at Potosi. One girl was rescued and the other, a 15 year-old, drowned.
Southern Missouri (Ozark Scenic Riverways)	18-19				0	0	6	?	Flash Flooding and General River Flooding
									Heavy rains resulted in numerous instances of flash flooding and subsequent general river flooding across many of the creeks and rivers in the Ozark Scenic Riverways. The flooding was called the worst in 80 years near the head of the Current River. Damage was widespread, with many picnic tables and boats having been washed away. Several cars, trucks and a camper were also lost. The flooding produced fires due to electrical shorts.
<b>24 MONTANA</b>									
MTZ001-002 Flathead and Lake Counties		09- Afternoon 10 Morning					2	5	High Wind
									Winds gusting to 50 MPH caused extensive damage along Flathead lake. Boats were sunk and docks and boat houses were damaged or destroyed by waves up to 10 feet high. Many trees were blown over, causing damage to homes and autos.
<b>25 NEBRASKA</b>									
NEZ002 North-Central Nebraska		08 Daytime			0	0	1	1	Heavy Snow
									Snow accumulated to 6 inches at Valentine.
NEZ001-002 Northern Panhandle and North-Central Nebraska		09- Morning- 10 Morning			0	0	1	1	Heavy Snow
									Snowfall of 6 inches or more accumulated north of a line from southern Sioux County to Wood Lake. Heavier snow totals included 12 inches at Harrison, 11 inches at Crawford and 9 inches at Gordon.
NEZ001-011 Panhandle Nebraska		12- Late Night 13 to Midday			0	0	1	1	Heavy Snow
									Heavy snow fell in scattered areas of the panhandle, with Chadron reporting 8 inches and Kimball 6 inches. Other panhandle snowfalls were in the 2 to 5 inch range.
NEZ002-003-006-007 North-Central Nebraska		15 Early Morning to Afternoon			0	0	2	1	Heavy Snow
									Snow in excess of 5 inches fell north of a line from Merriman to Mullen to Taylor to Lynch. Heaviest snow accumulated in a band from Valentine to Bassett, where Bassett and Ainsworth reported 18 inches and Valentine, 14 inches.
NEZ001 Northern Panhandle Nebraska		18- Late Night 19 to Midday			0	0	3	1	High Wind, Blizzard
									Strong northwest winds gusting 55 to 65 m.p.h. blasted the northern panhandle, causing blizzard conditions with near zero visibility in blowing snow along with numerous power outages. A peak gust to 65 m.p.h. was measured at Chadron at 0935CST with wind chills of 50 to 60 below.
NEZ002 North-Central Nebraska		29- Late Night 30 to Afternoon			0	0	1	1	Heavy Snow
									Heavy snow of 6 inches or more fell in northern Cherry County, with Valentine receiving 7 inches. This brought the monthly snowfall at Valentine to a November record of 34 inches.

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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					KILLED	INJURED	PROPERTY	CROPS	
<b>26 NEVADA</b>									
Western Nevada	10	0010PST							Heavy Snow
<p>An early, cold, deep low pressure system moved out of central British Columbia along the Pacific Northwest Coast towards California. Heavy snow blanketed much of Western Nevada including the Sierra. Twelve to twenty-two inches of snow was common in most valleys, with three to four feet at higher elevations. These snow amounts broke many November snowfall records. Many streets and roadways were closed or impassable. Since this storm occurred on a Sunday, there was no effect on schools, but some retail businesses were closed that day.</p>									
<b>27 NEW HAMPSHIRE</b> — NONE REPORTED									
<b>28 NEW JERSEY, Northern</b> — NONE REPORTED									
<b>28 NEW JERSEY, Southern</b> — NONE REPORTED									
<b>29 NEW MEXICO</b> — NONE REPORTED									
<b>30 NEW YORK, Coastal</b> — NONE REPORTED									
<b>30 NEW YORK, Central</b>									
NYZ006-009-010-012 NYZ013-018-019-020 S. Tier, L. Hudson Valley, and Mohawk Valley	16	1415EST			0	14	5	0	Snow
<p>An early winter snow storm moved into the eastern New York area. Snow amounts ranged from two inches in southern areas to near six inches in northern areas. Snow changed to freezing rain and rain late in the day.</p> <p>A nine year old female slipped on snowy pavement and slid under an oncoming auto. Four other persons were badly injured in auto accidents (chain collision) in the Mohawk Valley. The collision was blamed on local heavy snow squalls which limited visibility.</p>									
NYZ006-009-010-012 NYZ013-019-020 S. Tier, Hudson and Mohawk Valleys	26	0000EST			1	7	5	0	Sleet
<p>Freezing rain and sleet covered most of the eastern New York area. One male was killed as a result of a head on car crash due to ice-covered roads.</p> <p style="text-align: center;">M55V</p>									
NYZ006-008-010-009 NYZ007-011-012-013 NYZ019-020 Eastern New York	28	0230EST			0	0	5	0	Snow
<p>A major winter storm brought up to eight inches of snow to eastern New York. Snow changed over to freezing rain in the Southern Tier, lower Hudson Valley and Catskills of New York at about 0800EST. Nearly 10,000 homes were without power as icy power lines fell. Heaviest ice accumulations were in central and northern Columbia County and the Catskill Mountains of Ulster County.</p>									
<b>30 NEW YORK, Western</b>									
NYZ001-022 Western New York	02-07	PM-PM			0	0	5	0	Rain and Flooding
<p>The remnants of Hurricane Juan produced more than 5 inches of rain over western New York on the 2nd through the 5th of November. Areas of poor drainage and low-lying streets were inundated from the 4th through the 7th. Many homeowners in Amherst, Erie County, had their basements flooded, mostly from sewer back-up.</p> <p>A few Western New York streams, namely Cayuga, Oatka, Smokes, and Cassadaga Creeks, flooded a little. Smokes Creek in Lackawanna, Erie County, reportedly produced a pond on a trailer park.</p>									
<b>NEW YORK, Western</b>									
NYZ001-004-021 Western and Central New York	16	AM-PM			0	0	4	0	Freezing Rain
<p>Freezing rain hit the area hard. It knocked trees down and snapped power lines, resulting in power blackouts to thousands of consumers. Slippery road conditions led to many fender-benders and injuries.</p>									
NYZ002-003-004-005-022 Western and Central New York	22	AM-PM			0	0	4	0	Freezing Rain
<p>Snow, sleet, ice, and freezing rain caused numerous vehicular accidents and many injuries. It also caused delays to motorists.</p>									
<b>31 NORTH CAROLINA</b>									
Lake Lure, Rutherford County	01	0700EST			0	0	?	0	Flash Flooding
<p>Nearly five inches of rain fell overnight, causing minor flooding in town when the Broad River went out of its banks.</p>									
Gine Community, Warren County	03	2005EST			0	0	3	0	Thunderstorm Winds
<p>Trees were uprooted, a mobile home was overturned and several buildings were damaged as a severe thunderstorm moved through the community. Small hail was also observed.</p>									
Outer Banks and Bertie County	04	0900EST-1200EST			0	0	4	?	High Winds
<p>Gale, and sometimes storm force winds, buffeted the Outer Banks for several hours as an intense meso low moved along coastal North Carolina. The high winds extended inland to Bertie County where a radio tower was blown down causing damage to some cars.</p>									
Most of Coastal North Carolina	04	0900EST-1700EST			0	0	5	6	Flooding (Coastal and Rain)
<p>A combination of excessive rainfall, up to 12 inches, and the high onshore winds mentioned above caused widespread flooding in many coastal counties. Many roads were covered by one to two feet of water, and \$90,000 in damage was reported at Tunis in Hertford County when a trailer park was flooded. Other towns reporting specific flooding problems, mostly minor, were Hatteras in Dare County, Swan and Englehard in Hyde County, Washington in Beaufort County and several towns in Carteret, Craven and Pamlico Counties. A fish company building at Colerain in Bertie County was destroyed, with damage estimated between \$150,000 and \$200,000. Agricultural damage was extensive; 60 percent of the soybean crop and 75 percent of the planted wheat crop were destroyed, with damage estimated at \$1.5 million.</p>									
Ocracoke Island, Hyde County	04	0912EST	Short	20	0	0	3	0	Waterspout/ Tornado (FO)
<p>A small waterspout moved onshore, destroyed a fish house and conveyor system, and sank several boats. Total damage was estimated at \$10,000 to \$20,000.</p>									
Hatteras Village, Dare County	04	1030EST	Short	20	0	0	3	0	Waterspout/ Tornado (FO)
<p>The same parent thunderstorm that hit Ocracoke produced another small tornadic waterspout. Here, the roof of the ferry dock was damaged, car windows were popped out, and boats were damaged. Damage again was estimated at \$10,000 to \$20,000.</p>									
Piedmont	04	1200EST-1500EST			0	0	0	0	Flooding
<p>Small streams overflowed their banks, and some secondary roads were flooded by heavy rainfall. The Dan River in Stokes County ran out of its banks for a short period, and a mobile home park in Randolph County was evacuated.</p>									
Northern Mountains	04-05	2000EST-0400EST			0	0	?	?	Heavy Snow
<p>Three to four inches were common, and up to eight inches of snow fell in the northern mountains.</p>									
Piedmont	21-22	0900EST-0900EST			0	0	?	?	Flooding
<p>Heavy rains preceding the arrival of the remnants of Tropical Storm Kate caused mostly minor flooding over most of the Piedmont. Many secondary roads were flooded, a nursing home in Kannapolis required evacuation, and several incidents of cars being washed off roads were reported. Hardest hit areas seemed to be the southern Piedmont, especially Mecklenburg and Cabarrus Counties where some residential areas were flooded.</p>									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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	

## 32 NORTH DAKOTA

Southwest	05	Late Morning			0	0	0	0	High Winds
A radio station in Hettinger (Adams County) reported sustained winds of 50 to 60 mph with a peak gust of 71 mph. A peak wind gust of 54 mph was recorded at the Dickinson airport (Stark County).									
East and North-Central	18	Morning to Evening			0	0	0	0	Heavy Snow
Snowfall amounts ranged from 8 to 12 inches. In the northeast, snow was combined with 25 to 40 mph winds which caused near blizzard conditions. In the extreme southeast, the snow was occasionally mixed with freezing rain, causing slippery roads. These conditions caused a two-car head-on collision about 10 miles south of Fargo (Cass County). Only minor injuries occurred.									
Also, many minor vehicle accidents occurred, schools and some businesses closed, and many travelers were delayed.									
South-Central	25	Morning to Evening			0	0	0	0	Heavy Snow
The Bismarck airport reported 9.4 inches of snow. The heavy snow caused school closings, minor traffic accidents, stalled business activity, closed local government offices, and prevented scheduled airline stops.									

## 33 OHIO

Entire State	1-30				0	0	?	?	Heavy Rain
Record rainfall occurred throughout the state. This was the wettest month in history in many locations, with over 12 inches of rain in many areas.									
Erie County	05	AFTN			0	0	?	?	Flood
The Huron River rose slightly above flood stage in the Milan area.									
Trumbull County	06	AFTN			0	0	?	?	Flood
The Mahoning River rose to one foot above flood stage at Leavittsburg.									
Pickaway County	11	?			0	0	0	0	Flood
The Scioto River at Circleville rose slightly above flood stage.									
Adams County	16	?			0	0	?	?	Flood
The Ohio Brush Creek rose to one foot above flood stage at West Union, Ohio.									
Pickaway, Ross, Pike, and Scioto Counties	16-18				0	0	?	?	Flood
Heavy rain caused significant flooding along the lower Scioto River. The river rose to nearly six feet above flood stage at Piketon.									
Guernsey County	16	?			0	0	?	?	Flood
Wills Creek rose to nearly 6 feet above flood stage at Cambridge. This flooding affected several businesses in the area.									
Hocking and Athens Counties	16-18				0	0	?	?	Flood
The Hocking River rose above flood stage and caused serious flooding in Enterprise. The river rose to more than 5 feet above flood stage, inundating several homes and businesses. The river only rose to slightly above flood stage at Athens.									
Williams County	19	?			0	0	0	0	Flood
The St. Joseph River rose slightly above flood stage.									
Williams County	19	?			0	0	0	0	Flood
The Tiffin River rose above flood stage by nearly one and a half feet at Stryker.									
Williams County	26	?			0	0	?	?	Flood
The Tiffin River rose to two feet above flood stage at Stryker, causing minor damage.									

## OHIO

Pickaway, Ross, Pike and Scioto Counties	27	?			0	0	?	?	Flood
Significant flooding occurred along the lower Scioto River. The river rose to nearly 4 feet above flood stage at Circleville, and nearly 6 feet above flood stage at Piketon.									
Guernsey County	27	?			0	0	?	?	Flood
Wills Creek rose to seven feet above flood stage in Cambridge, flooding homes and businesses.									
Morgan County	27	?			0	0	0	0	Flood
The Muskingum River rose to slightly above flood stage at McConnelsville. No damage occurred.									
Williams County	27	?			0	0	0	0	Flood
The St. Joseph River rose slightly above flood stage at Montpelier.									
Hamilton County	28	?			0	0	?	?	Flood
The Great Miami River rose a foot and a half above flood stage at Miamitown. Only minor flooding occurred.									
Hocking County	28	?			0	0	?	?	Flood
The Hocking River rose slightly more than one foot above flood stage at Enterprise.									
Washington, Meigs, Gallia, Lawrence, and Scioto Counties	29-30				0	0	?	?	Flood
The Ohio River rose to about two feet above flood stage in these counties.									

## 34 OKLAHOMA

Grady County	13	1047-1050CST			0	0	5	0	Hail (.25)
McClain County	13	1115CST			0	0	5	0	Hail (1.75), Thunderstorm Wind (61)
Comanche County	13	1118CST			0	0	?	0	Hail (.75)
Caddo County	13	1120CST			0	0	?	0	Hail (.75)
Cleveland County	13	1125CST			0	0	?	0	Hail (1.50)
Oklahoma County	13	1140CST			0	0	?	0	Hail (.75)
Oklahoma County	13	1200CST			0	0	?	0	Hail (.75)
Oklahoma County	13	1215CST			0	0	?	0	Hail (.75)
Lincoln County	13	1215CST			0	0	?	0	Hail (.90)
Pottawatomie County	13	1220CST			0	0	?	0	Hail (.75)
Cleveland County	13	1228CST			0	0	?	0	Hail (1.00)
3/4 inch size hail fell except for tennis ball size hail at Chickasha in Grady County which caused \$200,000 damage to roofs and autos. Golfball size hail along with winds of up to 70 mph caused roofs to be blown off, many windows broken out, 2 mobile homes to be destroyed and one barn destroyed, with a total damage estimate of \$150,000 in Blanchard, McClain County. Norman in Cleveland County received hail up to 1 1/2 inch size.									
Tulsa County	13	1430-1455CST			0	0	5	0	Hail (1.00)
Rogers County	13	1515CST			0	0	4	0	Thunderstorm Winds (52)
Tulsa County	13	1515CST	0.2	100	0	5	7	0	Tornado (F1), Hail (2.63)
Delaware County	13	1615CST			0	0	5	0	Thunderstorm Wind (65)
Hail ranging from one inch to baseball size along with 50 to 60 mph winds occurred in Tulsa. A tornado touched down briefly in Broken Arrow, unroofing houses and damaging a school. Damage in Tulsa County is estimated at \$37 million with \$24 million to automobiles alone. The tornado caused 5 minor injuries. Damaging winds overturned a mobile home just east of Claremore while marble size hail accompanied the winds near Chouteau. A school was heavily damaged in Jay, with damages estimated at \$175,000.									
Garfield County	14	0230CST			0	0	?	?	Hail (.75)
Washita County	14	0945CST			0	0	?	?	Hail (.75)
Caddo County	14	1005CST			0	0	?	?	Hail (.75)
Custer County	14	1015CST			0	0	?	?	Hail (.75)
Caddo County	14	1029CST			0	0	?	?	Hail (.75)
Canadian County	14	1040CST			0	0	?	?	Hail (.75)
Kingfisher County	14	1055CST			0	0	?	?	Hail (.75)
3/4 inch size hail fell along with very heavy rain causing minor localized flooding.									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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	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	PROPERTY	CROPS	

## OKLAHOMA

Rogers County	18	1032CST			0	0	4	0	Thunderstorm Wind (55)	
McCurtain County	18	1700CST	3	100	0	4	5	0	Tornado (F1)	
Marshall County	18	1730CST			1	0	0	0	Lightning	
<p>Strong winds caused \$15,000 damage to a barn about 5 miles southwest of Claremore. A tornado struck near Pickens in McCurtain County, destroying a mobile home and several outbuildings. Several houses were damaged and one church was damaged which had three women injured. A car was blown off of the road, causing another injury. A lot of timber was destroyed. Damage was estimated at \$200,000. Lightning struck a man while fishing on Lake Texoma about 15 miles from Madill. Lightning M450.</p>										
Adair County	18	Evening			0	0	?	?	Flash Flooding	
<p>Four to five inch rains in a 24-hour period caused Barren Creek in Baron to rise to its highest level since 1944. Several families were forced to leave their homes. Some rural roads were badly damaged.</p>										
Cleveland County	19	0545CST			0	0	?	?	Hail (1.75)	
Pottawatomie County	19	0610CST	0.3	70	0	0	5	5	Tornado (F1)	
<p>Golfball size hail fell at Slaughterville in Cleveland County. A tornado set down 2½ miles north of Earlboro and heavily damaged a house and barn, causing \$50,000 in damage. Twenty 50-foot pecan trees valued at \$100,000 were uprooted.</p>										
OKZ021, Beaver County	29	Evening			0	0	?	?	Ice Storm	
<p>Ice accumulations caused by freezing rain and drizzle, and with the addition of strong winds, caused 225 electrical poles to break off. Many small towns were without electricity for 12-24 hours. The problem was compounded as the temperature fell to one degree.</p>										
A11 but OKZ0SC-OSE	30	Daytime-Evening			2	?	?	?	Winter Storm	
<p>A cold front moved across the state during the day and evening, causing freezing rain and drizzle mixed with sleet and snow. Most roads in the state, except for the south-central and southeast were extremely slick. Numerous auto accidents occurred, with two deaths blamed on the slick roads, and an undetermined amount of injuries. Sixty-five travelers were forced to stay in the YMCA gym in Perry.</p>										
Jefferson County	30	1700-1706CST			0	0	?	?	Hail (.90)	
Stephens County	30	1717CST			0	0	?	?	Hail (.75)	
Stephens County	30	1735CST			0	0	?	?	Hail (1.75)	
Stephens County	30	1740-1800 CST			0	0	?	?	Hail (.75)	
Jefferson County	30	1814CST			0	0	?	?	Hail (.75)	
Carter County	30	1830CST			0	0	5	?	Thunderstorm Wind (70)	
Marshall County	30	1900CST			0	0	5	?	Thunderstorm Wind (70)	
Atoka County	30	1930CST	4	300	0	0	5	?	Tornado (F2)	
Atoka County	30	1930-1945CST			0	4	5	?	Hail (.75), Wind (70)	
Pittsburg County	30	2000CST			0	0	5	?	Thunderstorm Wind (80)	
<p>Hail ranging from 3/4 to 1 inch size fell in parts of Jefferson and Stephens Counties with the exception of golfball size hail and 50 mph winds at Duncan. A thunderstorm produced winds up to 80 mph across eastern Carter and western Marshall Counties. The Ardmore Downtown Airport received damage to several hangars and 3 antique airplanes. Several mobile homes and outbuildings were destroyed or damaged around Dickson. Damage in Carter County was estimated at \$200,000. Several mobile homes were destroyed or damaged southwest of Madill, with damage estimated at \$75,000. A tornado touched down in western sections of Bently, Atoka County, and moved northeast for 3 to 5 miles, causing \$150,000 damage to homes, barns and outbuildings. One auto was also blown over. Four people were injured due to flying glass. The communities of Stringtown, Caney, and Chockie of Atoka County received \$100,000 damage to autos, mobile homes, and barns. Winds up to 90 mph caused \$250,000 damage to homes, mobile homes, barns, and outbuildings in Pittsburg and Blanco in Pittsburg County.</p>										

## 35 OREGON

ORZ005-006-009	09	all day			0	0	0	0	Heavy Snow	
<p>A winter storm brought snow to parts of Western Oregon. Heavy snow fell in the southern Cascades and Siskiyou Mountains, with amounts up to a foot. Southbound lanes of Interstate-5 were blocked at Siskiyou Pass for several hours due to numerous traffic accidents.</p>										
ORZ010	15	morning			0	0	0	0	Freezing Rain	
<p>Freezing rain made driving hazardous throughout much of the Columbia Basin. Westbound lanes of Interstate-84, about 10 miles east of Pendleton, were closed for several hours due to slick roads. An eight-vehicle accident on Cabbage Hill left traffic snarled and three people injured.</p>										
ORZALL	21	all day			0	0	0	0	Heavy Snow	
<p>A winter storm dumped snow across much of Oregon, closing roads and schools, and causing dozens of traffic accidents. Western valleys and eastern basins received 1 to 2 inches, while mountain areas reported up to a foot of snow. Heavy snow and winds closed portions of Interstate 5 and 84 in the Portland and Columbia Gorge areas.</p>										
Lane County	30	evening			0	0	0	0	Freezing Rain Snow	
<p>Freezing rain and snow caused treacherous driving conditions in the Eugene-Springfield area. More than 100 minor traffic accidents were reported by local police.</p>										

## 36 PENNSYLVANIA, Eastern - NONE REPORTED

## 36 PENNSYLVANIA, Western

Erie, Erie County	04	2200EST			1	0	0	0	Flood	
<p>Minor flooding of streets and small streams occurred. A man was reported as missing and presumed drowned while on a fishing trip down Walnut Creek.</p>										
Crawford and Mercer Counties	04	Late night			0	0	0	0	Flood	
<p>Minor flooding of streets and small streams occurred.</p>										
Fayette County	05	0100EST			0	0	7	?	Flood	
<p>Four days of heavy rains in the mountains of West Virginia and southwestern Pennsylvania caused streams to flood in Pennsylvania. Five to seven inches of rainfall with isolated reports of nine inches fell during this period.</p> <p>The flooding in western Pennsylvania began at Pt. Marion at the Junctions of the Cheat River and the Monongahela. Water from Lake Lynn was released from the Cheat River Dam early on the 4th, leaving as much as 8 feet of water in homes and small businesses in Pt. Marion. The dam at Lake Lynn was erroneously reported to have burst, causing an early evacuation with higher property losses. Waters at Pt. Marion crested at 40 feet, 14 feet above flood stage. At the Maxwell Lock and Dam at Brownsville, the Monongahela crested at 42.7 feet or 10.7 feet above flood stage. Both flood levels had not been seen in 50 years. In Brownsville alone, one million dollars in damage occurred to 35 businesses.</p> <p>In the afternoon, 23 barges broke loose of their moorings and wedged against the Maxwell Lock and Dam, closing a vital link in southwestern Pennsylvania between coal mines in the south and power plants, steel mills, and coke plants in the north. The estimated loss to the southwest Pennsylvania economy was \$500,000 per day. The dam was not cleared until mid December, and total losses were estimated at \$20 million. Property losses included 34 homes destroyed, 355 homes with major damage, and 572 homes with minor damage. The total loss was between 15 and 20 million dollars.</p>										
Green County	05	0100EST			0	0	7	0	Flood	
<p>Flooding began at Greensboro with the Monongahela River rising to 18 feet over flood level. Major road damage occurred, and 300 people evacuated. No properties were destroyed, but 178 homes suffered major damage and 914 incurred minor damage. Damage was estimated at 6.15 million dollars.</p>										

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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					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	

— PENNSYLVANIA, Western									
Washington County	05	Early morning			1	0	7	?	Flood
<p>The flooding began early on the morning of the 5th. The crest at Charleroi reached 44 feet at 2200EST, 18 feet above flood stage or 6 feet over the record set in 1967. In North Charleroi, a resident drowned after returning to his evacuated home on the afternoon of the 6th. In California Boro, 300 persons evacuated. One million dollars in damage occurred at California University, including the loss of an electron microscope valued at \$179,000. Hardest hit was Roscoe Borough where 2000 persons evacuated. Also hard hit were Fredericktown and West Brownsville. Property losses included 88 homes destroyed, 218 homes with major damage, and 914 homes with minor damage. Damage was estimated at 15 million dollars.</p>									
Westmoreland County	05	Mid morning			0	0	6	?	Flood
<p>Flooding on the Monongahela River destroyed 3 homes and inflicted major damage to 3 others. Minor damage was done to 70 homes. The towns of Monessa and Webster were hardest hit. The total property loss was \$846,000.</p>									
Allegheny County	05	Early afternoon			0	0	6	?	Flood
<p>Forty coal barges broke loose of their moorings on the Monongahela River near Clairton, headed north, and slammed into bridges and stanchions. The McKeesport Marina lost 24 pleasure craft and houseboats as the barges crashed into it.</p> <p>The areas hardest hit were West Elizabeth, Elizabeth, and Forward Township where businesses and homes were flooded. At McKeesport, 300 people were evacuated from a housing project as the Youghiogheny River overflowed from the swollen Monongahela River. The Monongahela River crested at 26.2 feet at Pittsburgh during the early morning of the 6th, 1.2 feet above flood stage. Property losses included 42 homes destroyed, 37 with major damage, and 112 sustaining minor damage. The total loss was \$2.2 million.</p>									
Somerset County	05	Afternoon			0	0	6	?	Flood
<p>Meyersdale flooded when the Casselman River backed up into Flaugherty Creek. Glade City was hard hit. At Greenville, the Shenango River was over its banks. At East Pymatuning, road and basement flooding occurred. The total damage was valued at \$500,000.</p> <p>Six counties were declared disaster areas by Governor Thornburgh on the night of the 5th, making the affected areas eligible for \$1 million in state aid. The areas were declared a federal disaster area by President Reagan on the following Saturday.</p>									
Washington County	16	Morning			0	0	3	0	Flood
<p>Roads washed out after 1-1/2 to 2 inches of rain fell overnight in Peter's area. The town of Houston reported basement flooding due to the overflow of Chartiers Creek.</p>									
Erie County	16	Morning			0	0	2	0	Flood
<p>The towns of Erie, Harborcreek, and Wesleyville reported flooding, downed trees, and many homes without power.</p>									
Armstrong, Butler and Cambria Counties	16	Morning-Afternoon			0	0	3	0	Flood
<p>Small stream flooding, basement flooding, and washed out roads occurred in Fairview (Armstrong County), North Sewickley (Butler County), and Franklin (Cambria County). Roads were closed near Connoquenessing Creek (Butler County).</p>									
Fayette County	26	Day			0	0	0	0	Flood
<p>High water on the Monongahela River due to recent heavy rains delayed barge clearing operations at the Maxwell Lock and Dam until December 3rd.</p>									
Somerset and Fayette Counties	26	Afternoon			0	0	2	0	Flood
<p>Minor street and basement flooding was reported in both counties.</p>									
Greene County	26	2130EST			0	0	2	0	Flood
<p>Two inches of rain fell within 24 hours, causing small stream and basement flooding in Waynesburg.</p>									
Fayette County	26	Night			0	0	2	0	Flood
<p>Dunbar Creek rose out of its bank. Roads were closed in Dunbar and Connelsville. The flooding continued into the 27th at Waltersburg where 20 families had to be evacuated due to the Youghiogheny River nearing its banks.</p>									
Somerset County	26	Night			0	0	2	0	Flood
<p>Road flooding occurred at New Centerville, Rockwood, Confluence, and Meyersdale.</p>									
Washington and Greene Counties	28	Afternoon			0	0	2	0	Flood
<p>Minor street flooding occurred during the day in Millsboro and West Pike Townships. Roads were closed in Fredericktown. Flooding also occurred along Wheeling Creek in both counties.</p>									

37 RHODE ISLAND — NONE REPORTED									
38 SOUTH CAROLINA									
Spartanburg County	01	Afternoon			0	0	3	3	Flash Flooding
<p>Heavy rains caused rapid rises of streams in the Spartanburg area, including Lawson Creek at Greenbrier Street south of Main Street. Traffic was interrupted, and a few homes were affected by the flooding.</p>									
Horry County	03	2000EST			0	0	4	0	Flash Flooding
<p>Heavy rains flooded Hillside Drive and 7th &amp; 8th Streets in North Myrtle Beach. In Myrtle Beach, 9th Avenue, 33rd Avenue, and Pine-wood Road were covered by floodwaters for several hours.</p>									
SCZ003	22	0600EST			0	0	3	0	Flash Flooding
SCZ007-008 Coastal South Carolina	22	0800EST			0	0	5	4	Tropical Storm KATE
<p>Kate lost strength rapidly after moving inland over northwest Florida on November 21st. The weakened storm moved into southern South Carolina on the morning of the 22nd, then northeastward up and along the coast. Rainfall of up to 6 inches was reported at several locations during the passage of Kate. Some secondary roads were flooded by heavy runoff. The bridge on River Fork Road south of Clover in York County was washed out. In southern South Carolina, electrical power was interrupted to 3,000 people on Hilton Head, 10,000 in Beaufort, and 35,000 in Charleston. Broken limbs falling on power lines was a widespread event. The greatest wind damage was at Beaufort where trees fell on 4 cars and a mobile home. One boat was sunk at a Beaufort marina. The lowest atmospheric pressure, 1002.7 millibars, was reported at Charleston at 0955EST. The highest sustained wind was 32 knots at Charleston Airport. Gusts of 43 knots were observed at the Custom House in Charleston. Edisto Beach had gusts of up to 46 knots.</p>									
Sumter County	29	1600EST	0.5	30	0	0	5	3	Tornado (F0)
<p>A small tornado moved across US Highway 521 in Dalzell. Tractor-trailers were up-ended, storage sheds and 2 grain bins were destroyed, the roof was blown off a home, and car windows were broken.</p>									
Chesterfield, Chesterfield County	29	1500EST			0	0	3	2	Hail (2.50)
	29	1500EST			0	0	4	0	Thunderstorm Wind
<p>A severe thunderstorm struck at 2 miles west of Chesterfield. Strong winds during the storm overturned 2 mobile homes and downed several trees. Hail damaged several nearby homes.</p>									
Horry County	29	1630EST	0.2	30	0	0	5	0	Tornado (F0)
<p>A small tornado moving southeast over a 0.2 mile-long path damaged the Intercoastal Barn and Intercoastal Recycling Building located at about 4 miles north of Conway on US Highway 701. Winds blew the roof off of the barn and the recycling plant. The walls of the recycling plant were blown down as well, although the contents of the building were not heavily damaged.</p>									
39 SOUTH DAKOTA									
SDZ005 Southern SD	08-10	Morning Evening			0	0	4	0	Heavy Snow
<p>Heavy snow fell over much of southern South Dakota from the morning of the 8th and continued off and on through the evening of the 10th. Snowfall was generally from 5-10 inches over the area, with amounts up to a foot or more in the Black Hills and portions of the southwest. The greatest amount was 18 inches in the higher elevations of the Black Hills. Strong winds gusting to near 40 mph at times, combined with the snowfall, produced near blizzard conditions on the afternoon of the 9th through the early morning of the 10th in the southwest. Highway 79 from Maverick Junction to Rapid City was closed for thirteen hours during that time. Many accidents were reported over the entire southern portion of the state.</p>									
SDZ00N-00N Western and Northern South Dakota	13-14	Morning Early a.m.			0	0	4	0	Heavy Snow
<p>Snowfall of 4-8 inches spread from the southwest part of the state on the morning of the 13th to the northeast part of the state by early morning on the 14th. Winds gusted to 35 mph in the west and produced considerable blowing and drifting snow which greatly reduced visibilities. At 1030 CST, no travel was advised in Pennington County, due to the poor conditions. The snowfall caused many accidents including a four vehicle pileup at 1700 CST on the 13th, three miles east of De Smet (Kingsbury County).</p>									
SDZ05C South-Central South Dakota	15	Afternoon			0	0	0	0	Heavy Snow
<p>Snowfall of up to a foot fell over extreme south-central South Dakota.</p>									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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	

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED <sup>1</sup> DAMAGE		CHARACTER OF STORM
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## SOUTH DAKOTA

SDZ00N-00N Western & Northern South Dakota	17- Morning 18 Afternoon								Heavy Snow
Snowfall of 3-8 inches fell over western and northern South Dakota, with the greatest amount of 8 inches at Huron (Beadle County) and White River (Mellette County). Strong winds exceeding 40 mph over the area produced near blizzard conditions at times, with considerable blowing and drifting snow. Many cars were in the ditches between Sturgis (Meade County) and Ellsworth AFB (Pennington County) on the morning of the 17th. On the 18th, several schools were closed in the southwest part of the state.									
SDZ05E Southeast South Dakota	17- Late Eve 18 Evening								Ice Storm
Freezing rain fell over the southeastern part of the state, making roads very slippery and resulting in many accidents. The freezing rain produced short power outages in Hartford (Minnehaha County) and Chester (Lake County). Many area schools were closed on the 18th.									
SDZ00M-P0C Western and Central South Dakota	21- Evening 22 Morning								Blizzard
Winds gusting to 44 mph produced blizzard conditions over the west and central parts of the state. In addition to the existing snow cover, 1-2 inches of new snow fell and when blown by the wind, reduced visibilities to zero at times. Many roads were drifted shut by the blowing and drifting snow in the western part of the state, and Interstate 90 from Rapid City to Kadoka (Jackson County) was closed from the late evening on the 21st to the morning of the 22nd.									
SDZALL Statewide	22- 28								Cold
Extreme cold temperatures occurred over South Dakota during this period, with low temperatures dropping well below zero. Record low temperatures were set in most areas and Aberdeen set a record low for five of the six days. A woman died of exposure nine miles southeast of Glad Valley (Ziebach County) on the evening of the 27th. The woman was subjected to 15-20 degree below zero temperatures for three hours. F340									
SD05E Southeast South Dakota	24- Evening 25 Morning								Ice Storm
Freezing drizzle and freezing rain along with some light snow made roads very slippery in the southeast portion of the state. The slick roads were a major factor in the traffic deaths of a man two miles south of Jefferson (Union County) on Interstate 29 on the morning of the 25th and of a woman on Interstate 90 near Alexandria (Hanson County) in the evening of the 24th. M22V, F75V.									
SDZ00M-0NC Western and North-Central South Dakota	25- Early a.m. 26 Early a.m.								Heavy Snow
Heavy snow fell over the north-central part of the state, with the greatest amount of 13 inches reported at Eureka (McPherson County). In the west, snowfall amounts were from 2-3 inches. Strong winds which gusted to 45 mph at times, combined with new snow, produced near blizzard conditions. Many roads were drifted shut, resulting in accidents and school closures in the northwest and north-central. M22V, M75V.									
SDZALL Statewide	28- Afternoon 30 Late Eve								Heavy Snow
Two to six inches of snow spread from the west part of the state on the 28th to the east part on the 29th. Some locations received more snow, with Lake Preston (Kingsbury County) reporting 16 inches. The Kimball (Brule County) and the Chamberlain (Brule County) areas picked up from 6-10 inches.									

## 40 TENNESSEE

Wingo, Carroll County	26 2000CST								Thunderstorm Wind
Strong thunderstorm winds ripped the roof off of a house, destroyed two barns and several outbuildings, and heavily damaged two vehicles.									
Nashville, Davidson County	26 Evening								Thunderstorm Wind
Thunderstorm winds, gusting to 60 miles an hour at the airport, caused roof damage to several homes around Nashville.									

## TENNESSEE

Chester County	27 1415CST	2.2	50	0	0	5	0		Tornado (F1)
A weak and intermittent tornado, initially touching down 0.5 miles northwest of Jacks Creek, caused extensive damage to a house and its contents when the house was deroofed. A barn was partially deroofed, and trees and power lines were downed. The tornado skipped along about 2 miles in an east-northeast direction before finally lifting off the ground about 1.5 miles northeast of Jacks Creek. A house trailer was overturned just before the tornado lifted off the ground.									
Hamblen County	27 1500EST	2.0	40	0	0	4	0		Tornado (F1)
A weak tornado touched down 5 miles south of Morristown and caused minor damage to the roof of a Ramada Inn on Highway 25E. The tornado traveled 2 miles in an intermittent east-southeast path before lifting off the ground 6 miles southeast of Morristown. Power lines and some trees were downed. Just before lifting off the ground, a barn was heavily damaged, as the roof and two walls were destroyed.									
Nashville, Davidson County	27 1715CST			0	0	5	0		Lightning, Thunderstorm Wind
The facade of a 12 story building was partially torn away during a heavy thunderstorm. Part of the outer wall of the building from floors 7 through 10 was sheared off. An eyewitness reported that immediately after a close lightning strike, the wall popped outward and left. It is assumed that the lightning strike caused initial damage, with strong thunderstorm winds compounding the damage. The building was located in the west part of Nashville; wind gusted to 30 miles an hour at the airport in east Nashville.									
Lebanon, Wilson County	27 Evening			0	0	3	0		Thunderstorm Wind
A portion of a building's roof was torn away by gusty thunderstorm winds, and trailers flipped and damaged a few cars at an automobile dealership.									

## 41 TEXAS, Northern

TXZ027-020-032 Smith, Gregg, Rusk and Cherokee Counties	11 0238CST					0	0	?	?	Flash Flooding
The earliest reports of flooding were in the city of Henderson where 25 families had to be evacuated from flooded apartments. Nearly six inches of rain (5.8) had fallen in less than 4 hours, causing extensive lowland flooding in the city.										
Overnight rains of 4 to 5 inches were common throughout the four counties. By daybreak, widespread flooding of lowland areas had closed numerous roads, with one being washed out in Cherokee County.										
Wise County	18 1445CST			0	0	?	?			Hail
Spotters reported 3/4 inch hail at Boonsville at 1445CST and one inch hail at Cottondale at 1500CST.										
TXZ031-032 Southeast North Texas	24 AM			0	0	?	?			Flooding
Rainfall amounts of 2 to 6 inches were common in an area extending from Falls County eastward to Cherokee County. Most of the rains occurred from just before midnight to around daybreak of the 24th. Highest amounts reported were near 8 inches in southern Cherokee County. At least 5 homes were flooded in the Alto area, with residents being evacuated by boats.										
Numerous roads were impassable by daybreak, not only in Cherokee County, but also Falls, Leon and Anderson Counties. Scores of cars were stalled by high waters and one car was washed down a stream in Leon County.										
TXZ032 Angelina County	25 1300CST			0	0	?	?			Flash Flooding
Over 3 inches rain fell in Lufkin in about 2 hours, causing flooding of many lowland areas. One school was isolated when 6 feet of water covered the roads leading to the campus. The roads leading to a hospital were also flooded, resulting in one case where ambulance drivers had to carry an accident victim through waist-deep water for about 100 yards to the emergency room.										
North Texas	30 Evening									Severe Thunderstorms
A squall line with embedded severe thunderstorms moved west to east across North Texas during the evening hours. Reports of hail to one inch in diameter and winds to 68 mph were scattered mainly throughout the eastern half of the area.										



# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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					KILLED	INJURED	PROPERTY	CROPS	

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

## TEXAS, Northern

Clay County	30	1735CST	0	0	?	?	?	?	Hail Spotters reported one inch hail near Bellvue.
Parker County	30	1818CST	0	0	?	?	?	?	Thunderstorm Winds, Hail Severe thunderstorms caused damage with high winds and hail as they passed through the county. The first report of wind came at 1818CST when a small building was destroyed and trees and power lines were damaged near Adell. Hail to 3/4 inch was reported at Poolville at 1828CST, near Weatherford at 1835CST, and at Springtown at 1837CST.
Wise County	30	1837CST	0	0	?	?	?	?	Thunderstorm Winds, Hail Winds to 60 mph were clocked by a spotter near Bridgeport at 1837CST. At the same time, spotters reported hail of up to one inch diameter near Keeter. Winds to 50 mph and hail to 3/4 inch were reported near Newark at 1845CST.
Tarrant County	30	1908CST	0	0	?	?	?	?	Hail Spotters reported 3/4 inch hail in Ft. Worth.
Anderson County	30	2045CST	0	0	?	?	?	?	Thunderstorm Winds Spotters reported scattered wind damage incurred by trees and power lines in the county.
Delta County	30	2105CST	0	0	?	?	?	?	Hail Hail to dime size was reported between Pecan Gap and Klondike by spotters.
Hopkins County	30	2105CST	0	0	?	?	?	?	Hail Hail to one inch was reported near Cumby.
Rusk County	30	2220CST	0	0	?	?	?	?	Hail One inch hail was reported northeast of Henderson.
Harrison County	30	2248CST	0	0	?	?	?	?	Hail Quarter size hail was reported about 8 miles southwest of Marshall. While marble size hail covered the ground in Marshall.
Panola County	30	2300CST	0	0	?	?	?	?	Thunderstorm Winds Thunderstorm winds destroyed a barn and downed numerous trees near Delray, west of Carthage.
Cherokee County	30	2338CST	0	0	?	?	?	?	Hail Hail to one inch in diameter was reported in Jacksonville.
Anderson County	30	2340CST	0	0	?	?	?	?	Thunderstorm Winds, Hail Thunderstorm winds downed tree limbs and power lines in Frankton. At the same time, hail to 3/4 inch was reported in Palestine.

## 41 TEXAS, Southern

Southeast Texas	11	Day	0	0	6	?	?	?	Flooding Very heavy rains fell over a broad area of Southeast Texas generally from Lavaca County on the west, eastward to Harris County and from Walker County on the north southward to Brazoria County. Serious flooding resulted from the heavy rains that covered about 10 counties. The heaviest core of rain fell from near Garwood (21 inches) in Colorado County east to East Bernard and to Rosenberg in Fort Bend County. Heavy rains began early in the morning in Lavaca County where 7.5 inches fell in and around Hallettsville. There was some flooding of streets and low-lying areas of Hallettsville. The East Bernard and Rosenberg area received 16 to 18 inches of rain, which closed several main highways including US Hwy. 90A. A 8 mile stretch of this highway was reported as being under water. High water closed US Hwy. 59 in Fort Bend County, also SH 71 near Garwood. The heavy rains produced flooding for 2 days along the tributaries and drainage areas of the Colorado and San Bernard Rivers. Many homes and farmlands were flooded from the Eagle Lake area to the Gulf of Mexico. Heaviest hit flooded area was from south of Eagle Lake to the Garwood and Lissie communities. Residents were evacuated in these areas as water rose into homes. Sheriff's Department personnel used boats to evacuate stranded persons in the Lissie area. A railroad was washed out
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## TEXAS, Southern

Wharton County	11	0730CST	0	0	4	0	0	0	Wind Damaging winds from a thunderstorm tore off a porch from a mobile home and blew out several windows. The damage site was near Wharton.
Austin County	11	0900CST	0	0	4	0	0	0	Wind Thunderstorm winds blew out the windows of two homes and tore off the carport of another one near the town of Wallis.
Fort Bend County	11	0930CST	Small	Narrow	0	0	4	0	Tornado (FO) A small tornado tore off a large portion of a roof of a home and destroyed several outbuildings near Tavener which is 15 miles west of Rosenberg. The tornado also uprooted several trees. The tornado was only on the ground for a short period of time.
South-Central Texas	24	Early Morning	1	0	6	?	?	?	Flooding Heavy rains produced flooding of streams and low-lying areas of 8 counties of South-Central Texas. The heavy rains were bounded on the west by Hays, Comal and Bexar Counties and on the east by Fayette and Lavaca Counties. In Hays County, San Marcos had up to 9.75 inches of rain which produced flooding of streets and low water crossings. Most streets in the city were closed except for I-35. At about 5 in the morning, police and fire department units evacuated about 200 persons from apartment complexes and some homes mostly in the Purgatory Creek Flood Basin. Most evacuees returned to their homes by noon. Several streets were barricaded and several motorists had to be rescued from stranded vehicles in high water. Flood waters got into several homes up to depths of 5 feet. Martindale, just east of San Marcos received 11 inches of rain which flooded the area. Heavy rains extended southeast into Lavaca County where Moulton had 7 inches. There was serious flooding of low lands and roads in and around Schulenburg. Near St. John, a woman was drowned when her car was swept away by flood waters of the west Navidad River. In Comal and northern Bexar Counties, 3-5 inches of rain sent the bordering Cibolo Creek on a rampage. Flood waters began along the Comal, Bexar County line west of US Hwy. 281 and flooded areas downstream to near Wilson County. Old Seguin Road in northeast Bexar County was closed because of high water. There were other numerous low water crossings flooded in northern Bexar and Comal Counties. The Guadalupe River, below Canyon Dam flooded some low water crossings. In Bastrop County, up to 11 inches of rain fell in and around the community of Falge. The resulting flood waters washed out bridges and covered many low water crossings. Some automobiles were stranded and abandoned in the middle of flooded bridges and low areas. Many county roads were closed. There was some flooding in northern Caldwell County from heavy rains.
Southeast Texas	24	Day	0	0	6	?	?	?	Flooding The heavy rains that fell over South-Central Texas during the early morning hours shifted to the east during the day and produced serious flooding over 5 counties of Southeast Texas. Heaviest hit was southwestern Montgomery County where up to 12 inches of rain fell around Magnolia. Flood waters rose into several homes and washed out several roads in the area. Near 8 inches of rain fell in the Conroe area, and flooded the low areas in and around the drainage of the Spring Creek area. Water was reported near the roof tops of some homes. 150 to 200 homes in the area were flooded. 38 homes in the Timberlake-Timberidge and Spring Hill subdivisions were inundated with muddy flood waters for 2 days. 12 persons were evacuated by airboats. In the southwest part of the county, 40 persons had to be rescued; many were clinging to trees to escape the high water. Montgomery received nearly 6 inches of rain which flooded the streets and low areas of the town. Damage alone to bridges and roads in the county will exceed 2.5 million dollars. Flooding extended southwest into Waller County where many roads and

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## TEXAS, Southern

bridges were flooded. In Madison County, up to 6 inches of rain fell in portions of the county, and flooded roads and low areas. 2 motorists had to be rescued by boat when their automobile was stranded in high water. Many roads in the area were closed. Nearby, in northeastern Waller County, 4 persons were rescued when pulled from a rain swollen creek. Rainfall in the area was up to 8 inches. The sheriff's department had to rescue several persons in the rural areas of the county from the flood waters. In the town of Hemstead, high water closed streets and flooded portions of the town. In extreme northern Harris County, 7 inches of rain fell which flooded the area. Flooding continued for 2 days as the area received the runoff of the flood waters from southwestern Montgomery. Numerous homes in the area were flooded. Hardest hit area was where Spring Creek flows into the San Jacinto River. Flood waters closed several roads in the area. In Jefferson County, some flooding occurred in and around the town of China where 5.96 inches of rain fell. Pine Island Bayou rose to a height of 25 ft. from the runoff of heavy rains that fell upstream on the 24th; this caused some flooding of lowlands in the area for a week.

## 41 TEXAS, Western

Sterling County	14 1613CST	0	0	0	0	0	0	Funnel
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The County Sheriff's Office reported a funnel cloud west of Sterling City. The cloud was observed for several moments then disappeared back into the parent cloud.

## 42 UTAH

UTZ006 Southwestern UT	10 1130MST	0	0	2	0	0	0	High Wind
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A peak wind gust of 58 mph at the Cedar City Airport blew the wind sock off the mast at about mid day on this Sunday. The Milford Weather Service Office recorded a peak gust of 51 mph. The high winds preceded a cold front which moved through the state on the following day.

UTZ002 003 006 008 010 011 Mountains, West and Southeast UT	11- 0500NST 12 1500NST	0	0	1	0	0	0	Heavy Snow
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A major winter storm dumped up to 2 1/2 feet of snow in the Northern Mountains along the Wasatch Front and 6 to 8 inches elsewhere in 12 to 24 hours. Gusty winds to 49 mph were reported ahead of the cold front at Cedar City during the early morning hours. Total snowfall accumulations for the period included 22 to 24 inches at several ski resorts in the northern Wasatch Mountains, 6 to 9 inches in western portions of the Salt Lake Valley, 8 to 10 inches at Kanab, 14 inches at Duck Creek and Navaho Lake in the Uinta Mountains, 6 to 8 inches at Bountiful, and 12 inches at Ibapah, which is about 50 miles south of Wendover.

UTZ001 002 003 010 011 Mountains, Wasatch Front and Northwest	18- 0400NST 18 1500NST	0	0	1	0	0	0	Heavy Snow
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A winter storm deposited heavy snowfall across the mountain and northwestern sections of the state during the early part of the day on this Monday. Total snowfall accumulations from the storm included 4 to 6 inches along most of the Wasatch Front, 10 to 12 inches in Box Elder County, 22 inches at the Powder Mountain ski resort, and around 6 inches at Bryce Canyon.

UTZ003 Wasatch Front	18- 1830MST 19 0800MST 18 2120MST	0	0	1	0	0	0	Heavy Snow Lightning
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Overnight lake-effect snow squalls dumped from 6 to 10 inches of snow along the Wasatch Front from Bountiful south to American Fork. One of the squalls produced lightning which struck a home in Taylorsville.

UTZ001 002 010 Wasatch Front	23- 1600MST 24 1100MST	0	0	1	0	0	0	Heavy Snow
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Moderate to heavy snow fell along the Wasatch Front from Utah County northward to the Idaho border. Snowfall totals ranged from 4 to 6 inches in the valleys to 6 inches to a foot in the Wasatch Mountains.

## 43 VERMONT ————— NONE REPORTED

## 44 VIRGINIA

Eastern Virginia Counties bordering Chesapeake Bay and major tidal rivers	04 1300-2400EST	2	3	7	4	4	4	Tidal Flood, Wind
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A strong, persistent east-northeast flow prevailed along the Mid-Atlantic Coast from October 31st through November 4th which gradually raised water levels throughout the Chesapeake Bay and its tidal tributaries. An area of low pressure developed in South Carolina and moved northward during the day on the 4th. Winds began to increase to 25 to 40 knots across the area by late morning. By late afternoon there were numerous gusts of 55 to over 60 knots. Severe tidal flooding occurred on the western shore of the Bay and especially in the Potomac, Rappahannock, York and James Rivers. Tides reached 5 to 7 feet above normal, with several localities reporting up to 8 feet, matching or exceeding the record high tides of Hurricane HAZEL in 1954 and the August, 1933 Hurricane.

The most severe damage occurred in the Potomac and Rappahannock Rivers, with 75% of all piers having been severely damaged or destroyed. Westmoreland County on the Potomac received over 5 million dollars of damage, with 1 million dollars in damage to the town of Colonial Beach. Over 150 houses along with waterfront businesses were damaged by the flood waters. Major destruction occurred to seawalls, bulkheads, and waterfront highways. Several waterfront communities were evacuated, and became isolated by the rising water. Many marinas were affected, and several boats were sunk while many more were damaged. A 67 year old man and his 40 year old son drowned when their 45 foot crab boat was sunk by high winds and waves near the mouth of the James River. A large ferry was also forced aground by the high winds in the James. The high winds downed numerous trees throughout the region, blocking highways and causing power outages. At least two instances of trees falling on moving vehicles occurred, causing 3 injuries. The total storm damage, not including beach erosion, was estimated to exceed 20 million dollars.

Erosion was severe across the region, with several beaches losing from 15 to 20 feet. Damage estimates do not include erosion losses which would add untold millions. A partial county breakdown follows:

- Westmoreland.....5 million dollars
- Northumberland...3.25 million dollars
- Middlesex.....2.7 million dollars
- Lancaster.....1.5 million dollars
- Mathews.....1.5 million dollars
- Essex.....1 million dollars
- King George, Stafford, Richmond, York, Surry, James City, Hampton, Gloucester, New Kent...each about 1/2 million dollars.
- Fairfax County and City of Alexandria about 1/4 million dollars each.

Western Virginia	04 0900-1900EST	15	?	9	6	6	6	Flash Flood
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Tropical moisture associated with the remnants of Tropical Storm JUAN combined with several days of strong onshore flow brought moderate to heavy rain to the eastern slopes of the Appalachians from November 1st to the 3rd, setting the stage for a major flood event. On November 4th, a deepening low pressure system moving northeastward across the area brought up to 6 inches of rain across southwest Virginia. Rainfall totals through the period ranged from 10 to 16 inches. Flash flooding occurred on the rivers and creeks throughout western Virginia, including the Roanoke, James, Potomac, and numerous smaller rivers and tributaries. Flood levels rivaled the record floods of Hurricane AGNES in 1972 and Hurricane CAMILLE in 1969. A total of 19 people died, and over 18,000 evacuated. Damage estimates exceed \$800 million, with over \$225 million in the city of Roanoke.

Details of the deaths are as follows:

Augusta County	unknown	1						
	A 57 year old man drowned in his vehicle.							
	2300EST	2						
	Two males, 22 and 28 years old, were found drowned in their vehicle.							
Botetourt County	mid afternoon	1						
	A 23 year old man drowned while trying to assist others.							
	1130EST	1						
	An 83 year old female was found drowned in her home.							
Franklin County	2220EST	2						
	A 28 year old male and 25 year old female were killed when their car collided with a tree that was felled by heavy rain and rising water.							
Roanoke City	1200EST	2						
	Two females, 72 and 59 years old, were trapped in their home by rising water and drowned.							
	1730EST	1						
	A 68 year old female drowned after driving a truck into raging waters.							

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## VIRGINIA

Roanoke County	1430EST	1							
A 46 year old female, after refusing aid, drove the wrong way and into floodwaters.									
	1545EST	2							
A 48 year old female and 10 year old male were found drowned in a vehicle.									
Rockingham County	2230EST	1							
A 47 year old female attempted to cross a bridge over the North Fork of the Shenandoah River and drowned when the vehicle was swept away.									
Shenandoah County	2330EST	1							
A 43 year old male drowned while attempting to transfer sheep off an island by canoe.									
Western Virginia	05	4					Flood		
Floodwaters remained high for a few days following the flood event of the 4th. Additional deaths occurred as waters surged downstream on November 5th. Details on the deaths are as follows:									
Page County	1300EST	1							
A 47 year old male drowned while attempting to drive his vehicle across a bridge.									
Rockingham County	early morning	2							
A 44 year old male and 35 year old female drowned as their vehicle was swept off a bridge and into the North River.									
	1000EST	1							
A 67 year old male was swept off a bridge while crossing the South Fork of the Shenandoah River.									

## 45 WASHINGTON

Marblemount, Skagit County	1 1730 PST	4	0	4	0	0	Flood		
Week-long rains caused a number of rivers in Northwest Washington to rise above flood stage, but caused very little damage. However, sustained heavy rain in the Cascade foothills caused a huge mudslide to crash into a mobile home park. Four people in one trailer home were crushed to death. Rescuers said the house was covered by a mud slab 12 feet deep and up to 200 yards in length. Surrounding cabins were also heavily damaged, but no more injuries were reported.									
Yakima, Kittitas, Chelan and Grant Counties	11 all day	2	?	0	0	0	Heavy Snow		
An intense storm center curved off the Washington Coast and moved east along the Oregon border. The storm slowed just east of the Cascade Mountains and dumped up to four feet of snow east of Mt. Rainier. The storm stranded up to 300 elk hunters, some with horses or mules. Record-breaking cold temperatures added to the danger. One hunter froze to death, not being able to move after falling down an embankment. An elderly couple were stranded in their truck in zero degree weather; the woman died and her husband was rescued in critical condition. Winds blowing up to 50 knots after the storm passed hampered airlift operations.									
Western Washington	21 all day	0	0	0	0	0	Heavy Snow		
A winter storm poured out of Canada with snow and very cold air. Six to twelve inches were average totals throughout the Puget Sound area, somewhat less along the Coast and southwest corner of the state. Numerous traffic accidents resulted. A thunderstorm occurred during the snowstorm, northeast of Tacoma. Heavy snow was a more random occurrence east of the Cascades. Yakima and Walla Walla were the worst hit. Up to ten fatalities across the State's highways were blamed on the weather.									
Gilliam, Island, Whatcom, Skagit, Snohomish, and King Counties	27 Morning/Afternoon	0	0	0	0	0	Heavy Snow		
The third in a series of winter storms moved through the northwest parts of the state with very cold air still over the state. The moist storm dumped up to 19 inches of snow on Whidbey Island in Puget Sound. Ten inches were recorded at Neah Bay on the Olympic Peninsula. Seattle had six to eight inches. Ground and air traffic suffered as a result.									

## 46 WEST VIRGINIA

Eastern Half of the State	4-5	Afternoon-Night	39	?	9	8	Flash Flooding/Flooding		
A strong, slow-moving low pressure system being fed with moisture from the remnants of Hurricane Juan and a strong southeasterly flow from the Atlantic Ocean produced record flooding throughout the eastern half of the state. Along many rivers and streams, flooding of 100 to 500 year flood-level frequencies occurred. Records were established in the headwaters of the Monongahela and Potomac basins, as well as along the Greenbrier and Little Kanawha Rivers. Records were also set on the Tygart, West Fork, and Cheat Rivers. The most heavily damaged towns were Parsons, Rowlesburg, Albright, Petersburg, Franklin, and Moorefield. 29 counties were included in a disaster declaration. Flood waters washed away whole towns, roads and bridges. Of nearly 9,000 homes damaged, 4,000 were completely destroyed. Total damage estimates were in excess of \$577 million.									

## 47 WISCONSIN

Southern & Eastern portions	08-10	Afternoon into Evening hours	0	0	6	0	Snowstorm, Lakeshore Erosion		
A prolong period of snow began to fall from Friday afternoon, the 8th, and continued until Sunday evening the 10th. A 40 to 70 mile wide swath of snow from 8 to 15 inches was deposited from La Crosse eastward to Sheboygan. 15 inches of snow was reported at Cashton (Monroe County), with 14 inches measured at Westby (Vernon County). Over 150 traffic accidents were reported due to the slippery, snow-covered roads and over 350 vehicles had to be towed from ditches. On Saturday, strong northeast winds gusting to 50 mph developed and continued into Sunday. The winds combined with record high water levels in Lake Michigan to send 8 foot waves crashing onto the western shore. Extensive erosion occurred to beaches and property. In Sheboygan County near Oostburg, the waves undermined a 20 by 40 foot living room addition to a house, which then broke away and slid into the water. At South Shore beach in Milwaukee County, the waves destroyed a 67 year old wooden sailboat, buckled a bicycle trail and wrenched a section of fishing pier loose from a concrete wall.									
Statewide	30-02	Evening hours into December early morning hours	0	0	5	0	Snowstorm		
One of the snowiest winter storms in recent years dumped a wide area of 8 to 24 inches of snow over all but extreme Southeast Wisconsin where lesser snow amounts fell. Winds gusting to 50 mph caused near blizzard conditions and piled snow into 6 to 10 foot drifts on Saturday afternoon through Sunday. Near zero visibilities in blowing and drifting snow were so common over much of the state that plows were called off the roads. Cold air combined with the wind to send wind chill factors into the 20 to 50 below range. Numerous schools, colleges, factories, and businesses were closed. Postal service was canceled or curtailed. Many vehicles slid into ditches or were involved in accidents. Several heart attacks and injury-related accidents were reported throughout the state. Though snowfall amounts were difficult to measure because of the considerable blowing and drifting snow, 24 inches were deposited in Glidden (Ashland County), and in northern Bayfield County. 22 inches fell at Prairie du Chien (Grant County), 21 inches in Prescott (Pierce County) and 20 inches at Ettrick (Trempealeau County). At Prairie du Chien, the weight of the snow and brisk winds combined to collapse a runabout dock, 50 by 160 feet, sinking 2 houseboats. Damage was over \$325,000.									

# STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1985

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	

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	

**48 WYOMING**

Laramie County	06	0920MST			0	0	0	0	High Wind
									Winds gusting to 65 mph were logged at Granite Reservoir, about 25 miles west of Cheyenne.
Carbon County	07	1015MST			0	0	0	0	High Wind
									Wind gusts to 57 mph were clocked at Arlington, midway between Laramie and Rawlins.
Rawlins, Carbon County	12	2359MST			0	0	0	0	Snow
									Five inches of snow fell at Rawlins during the evening.
Lander, Fremont County	13	0445MST			0	0	0	0	Snow
									Six inches of snow fell at Lander during the early morning hours.
Campbell and Johnson Counties	18	1030MST			0	0	0	0	Snow
									Six inches of snow fell overnight at Recluse in northwest Campbell County. Buffalo, in Johnson County, received 5 inches of snow overnight.
Bechler, Yellowstone National Park	18	1030MST			0	0	0	0	Snow
									Bechler Ranger Station reported 6 inches of snow overnight.
Carbon County	23	0630MST			0	0	0	0	High Wind
									Wind gusts in excess of 60 mph were logged at Arlington.
Yellowstone National Park	25	0500MST			0	0	0	0	Snow
									Up to ten inches of snow fell overnight in the higher passes of the park. Accumulations were 3 to 4 inches elsewhere in Yellowstone.
Jackson, Teton County	27	1300MST			0	0	0	0	High Wind
									Winds gusting to 86 mph were clocked at the Jackson Hole Airport. Near zero visibilities in ground blizzard conditions were reported from Jackson north to the South Entrance to Yellowstone National Park.

49 ALASKA, Northern ————— NO REPORT RECEIVED

49 ALASKA, Southern ————— NO REPORT RECEIVED

**49 ALASKA, Southeastern**

All Southeast AK	13				0	0	3	0	High Winds/ High Tides
									A strong frontal system crossed Southeast Alaska during the afternoon of the 13th. Winds generated by this gusted to over 60 mph at some locations. Several small boats were overturned or swamped. Minor coastal flooding was caused by the combination of very high tides and the strong wind. However, the winds started blowing strongly just as the tide reached its peak so that the very large damaging swells did not have time to form.
All Southeast AK	25-26				0	0	4	0	Cold
									Bitter cold air flowed over the panhandle from Canada's Yukon Territory, dropping temperatures at every Southeast Alaska reporting station to record levels. It may have been the single coldest November day ever over all of this area. Damage caused by frozen water pipes was widespread. The Juneau Library and the University of Alaska, Juneau, were 2 places where substantial damage occurred.

**50 HAWAII**

Oahu	18	1700-1800HST			0	0	4	0	Flash Flooding
									Heavy showers over the eastern portions of Oahu caused minor flash flooding.
Maui	18	2000-2300HST			0	0	4	0	Flash Flooding
									Portions of Maui experienced minor flash flooding in intense thunderstorms.
Hawaii	19	0200-0400HST			0	0	5	0	Flash Flooding
									Kona and Kau Districts of the Big Island had heavy showers which caused minor flooding.
Kauai	23	0900HST			0	0	0	0	Waterspouts
									Two waterspouts were reported just southeast of Lihue.
Molokai	25	0900HST			0	0	0	0	Waterspout
									A waterspout was reported off of Ilio Point.
Hawaii	27	1630HST			0	0	0	0	Waterspout
									A waterspout was observed offshore of the Mauna Kea Hotel on the Kona Coast.
All Islands	30				0	0	5	0	Wind
									Strong northerly winds associated with an intense high pressure system spread southward across the chain during the day, causing mostly minor damage and power outages.

51 PUERTO RICO ————— NONE REPORTED

52 VIRGIN ISLANDS ————— NONE REPORTED

53 PACIFIC ————— NONE REPORTED

# STORM SUMMARY

NOVEMBER 1985

STATE	TORNADOES					HAILSTORMS			WINDSTORMS				LIGHTNING			FLOODING			HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER		
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		
							PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS	PROP. ERTY
Alabama	1	1			4						3																		
Arizona																													
Arkansas	2	1	3	16	7				2	5				4		6	5	?											
California											4	?																	
Colorado																													
Connecticut																													
Delaware																													
Florida											3																		
Georgia									1	8	8					6										4	2	8	?
Idaho										3																			
Illinois	4	2			5		?	3			4					6	?												
Indiana											5					?	?												
Iowa																4	?												
Kansas																4	5					60	5						
Kentucky																3	4												
Louisiana	1	1			4						?	?																	
Maine																													
Maryland & DC														1	7														
Massachusetts															3														
Michigan											7				5														
Minnesota											5																		
Mississippi																													
Missouri											4					1	1	6	?										
Montana									2	5																			
Nebraska										3												2	1						
Nevada																													
New Hampshire																													
New Jersey																													
New Mexico																													
New York																5		1	21	6					4				
North Carolina	2	1			4						4	?				5	6												
North Dakota																													
Ohio																													
Oklahoma	4	4		13	7		7	?			6	?	1		?	?									?	?			
Oregon																													
Pennsylvania															2		7	?											
Rhode Island																													
South Carolina	2	1		5	3		3	2			4					4													
South Dakota																													
Tennessee	2	1			5						5					5						2		4		1		5	4
Texas	1	1			4		?	?			4	?				1	7	6											
Utah											2					3													
Vermont																													
Virginia									2	3	5																		
Washington																19	?	9	6										
West Virginia															4		4												
Wisconsin																													
Wyoming																39	?	9	8										
Alaska																													
Hawaii											5																		
Pacific																													
Puerto Rico																													
Virgin Islands																													

## REFERENCE NOTES

† Storm damage categories are from 1 to 9 as follows:

- 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

- \* Miles instead of yards
- \*\* Yards instead of miles
- @ Includes heavy sleet storm
- # Freezing drizzle and freezing rain, commonly known as glaze
- ≠ Not received or incomplete
- o/c Under Estimated Damage, Property/Crops, indicates crop damage amount is included in the figure given

## 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.

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

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



USCOMM-NOAA-ASHEVILLE, NC 1985-2300

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