

STORM DATA

WITH LATE REPORTS/CORRECTIONS



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28801

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NATIONAL CLIMATIC DATA CENTER

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C O N T E N T S

Cover: In the Bear Paw Mountains of north-central Montana, family members and volunteers pick through the remains of a double-wide mobile home after it was struck by a long-tracking, F2 tornado, uncommon for Montana, on the afternoon of July 5th. The tornado was one of three F2 tornadoes spawned by the same storm (see TORNADOES in NORTH-CENTRAL MONTANA, pages 8 through 12). ---Photo by James L. Rettig, The Mountaineer, Big Sandy, Montana.

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STORM DATA (ISSN 0039-1972)

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

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

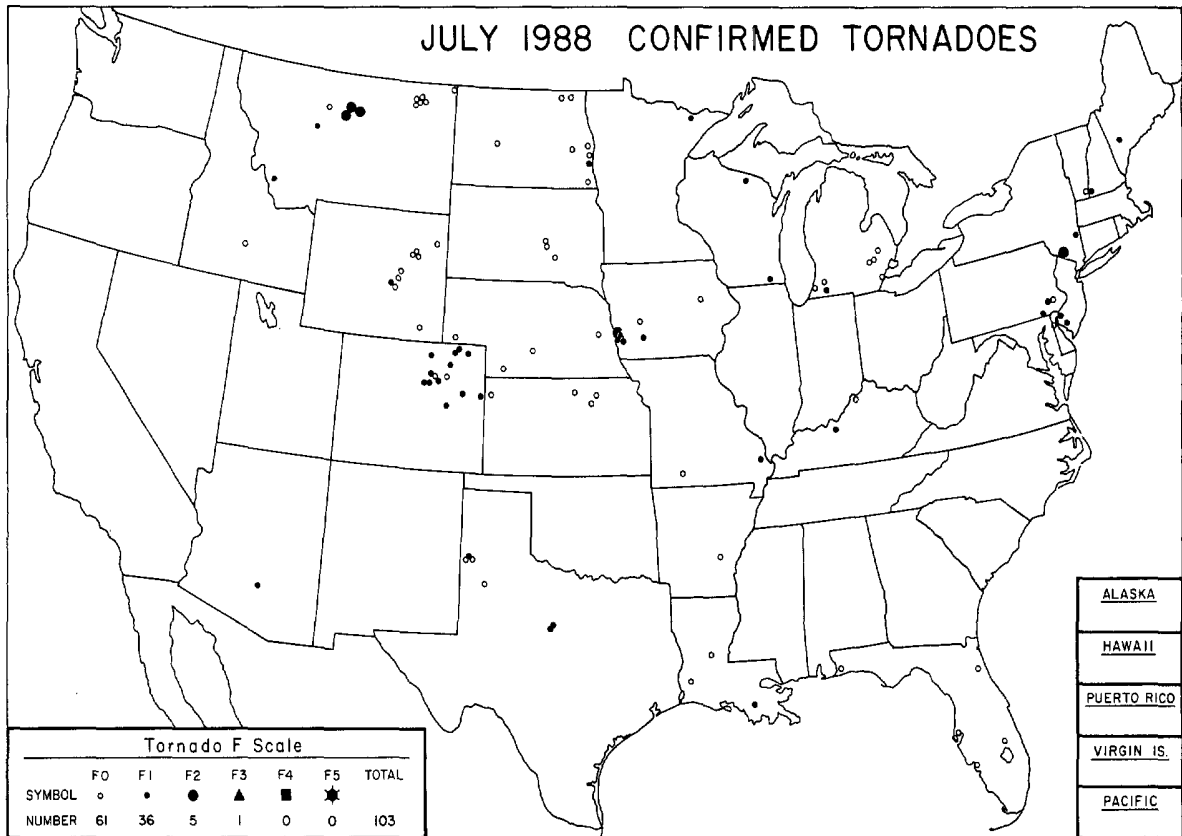
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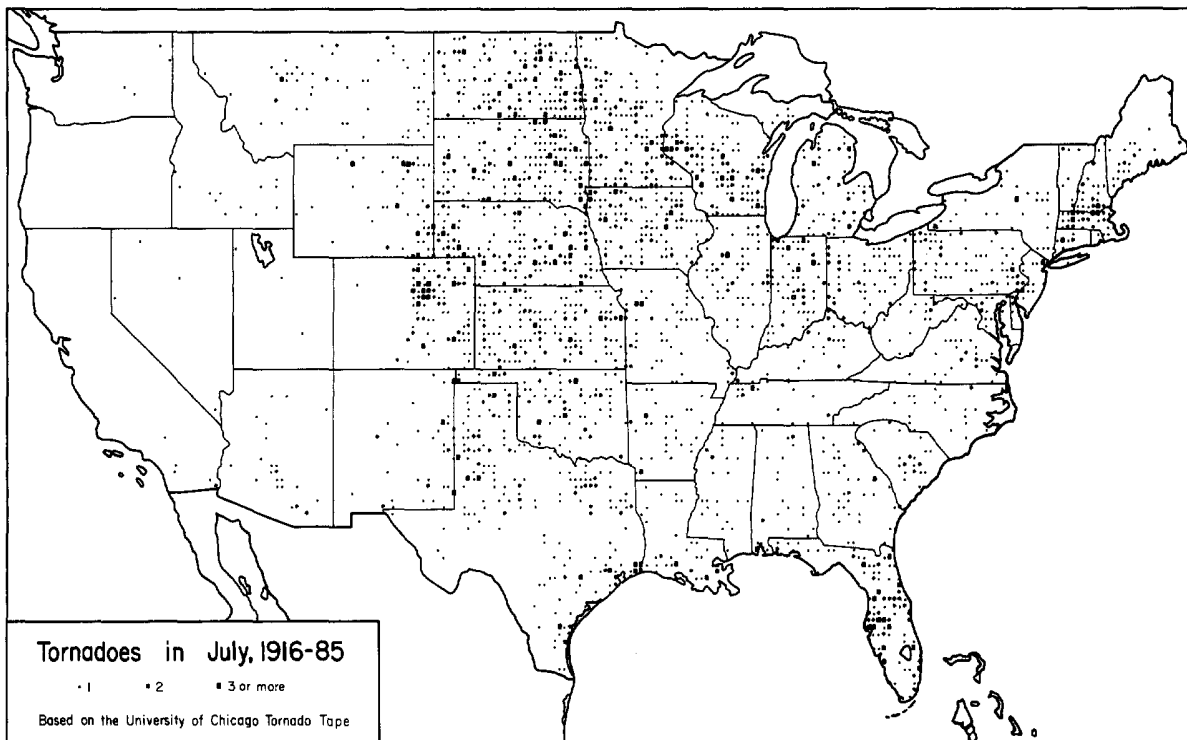
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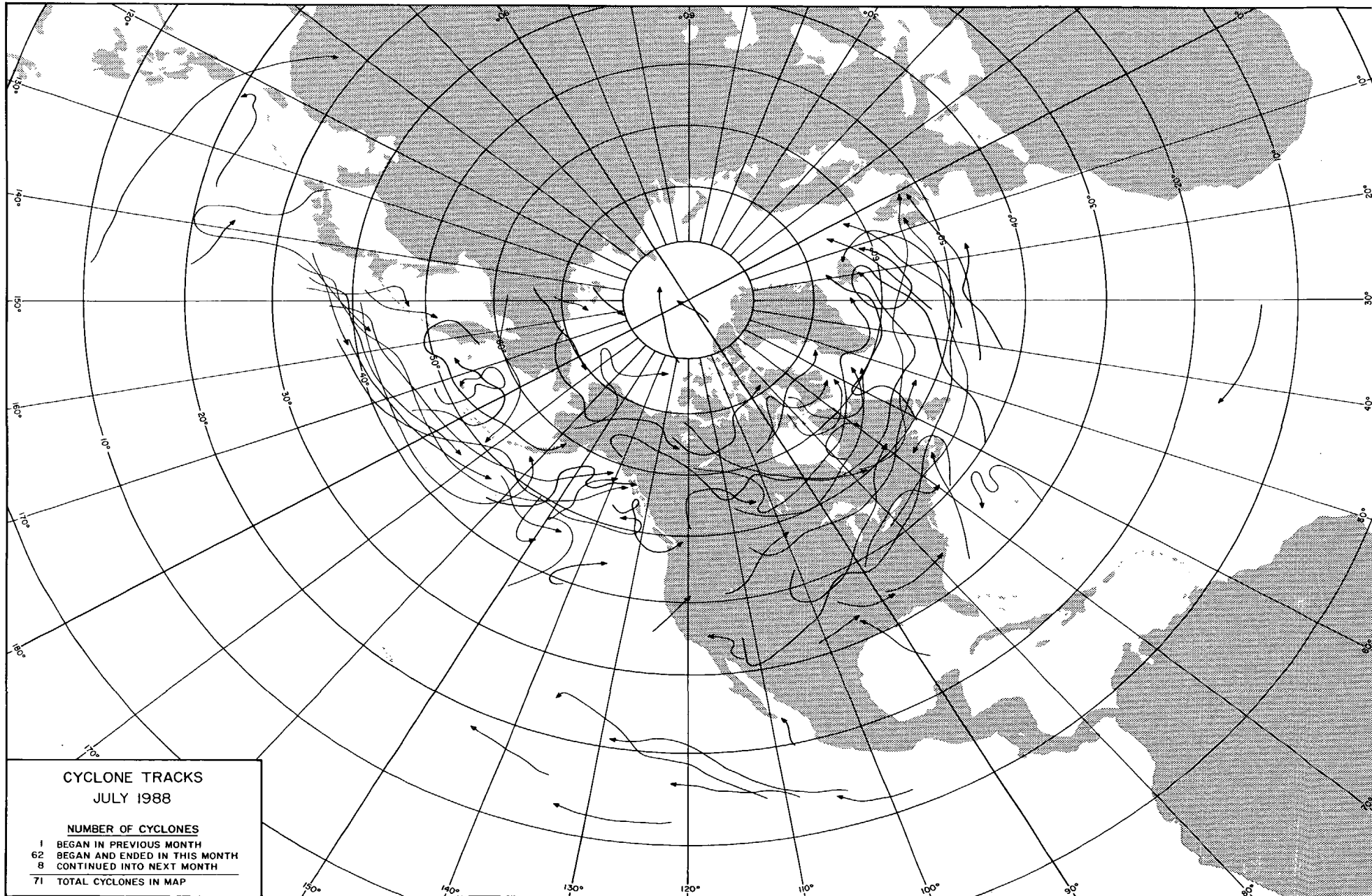
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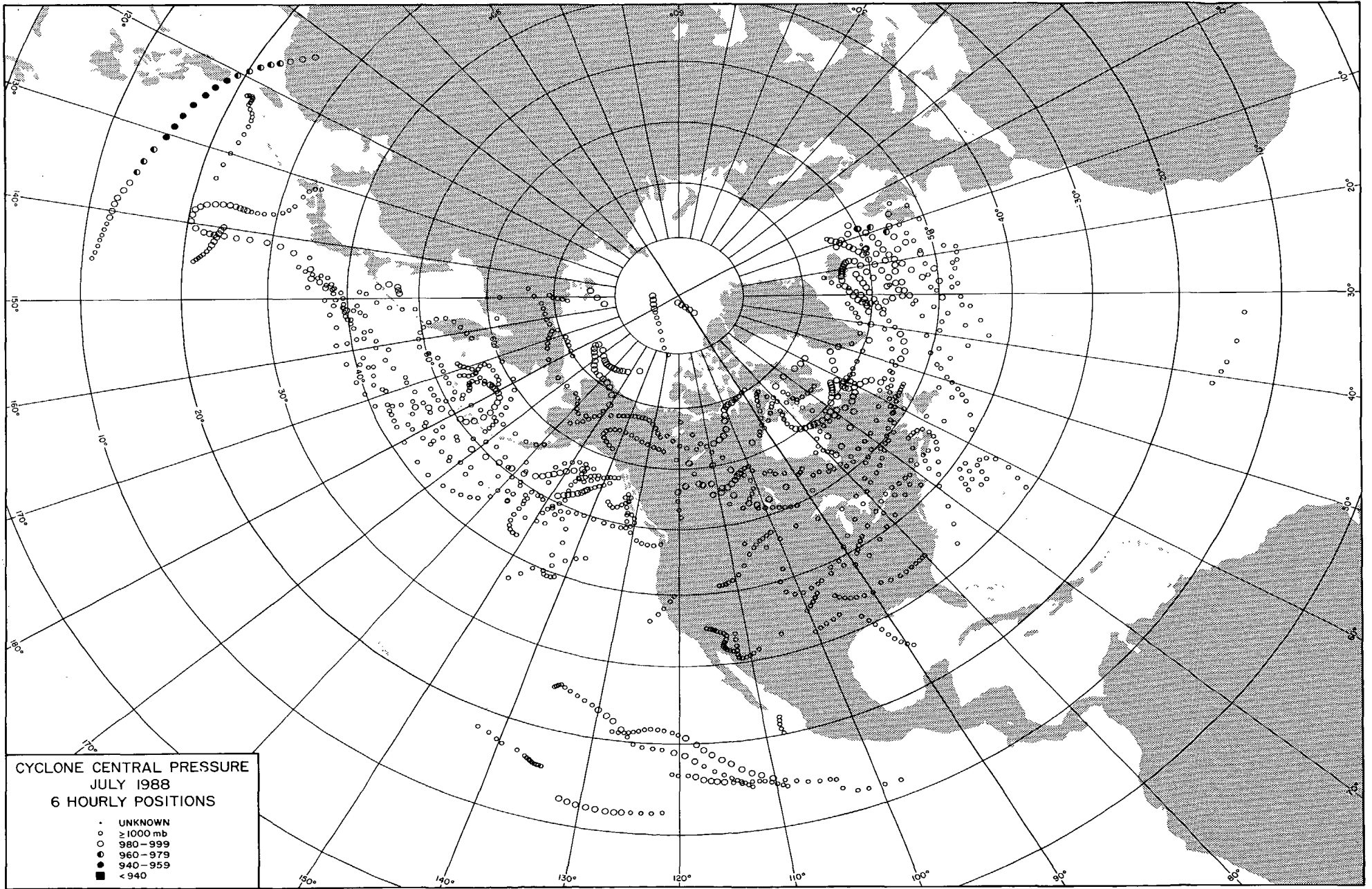
OUTSTANDING STORMS OF THE MONTH



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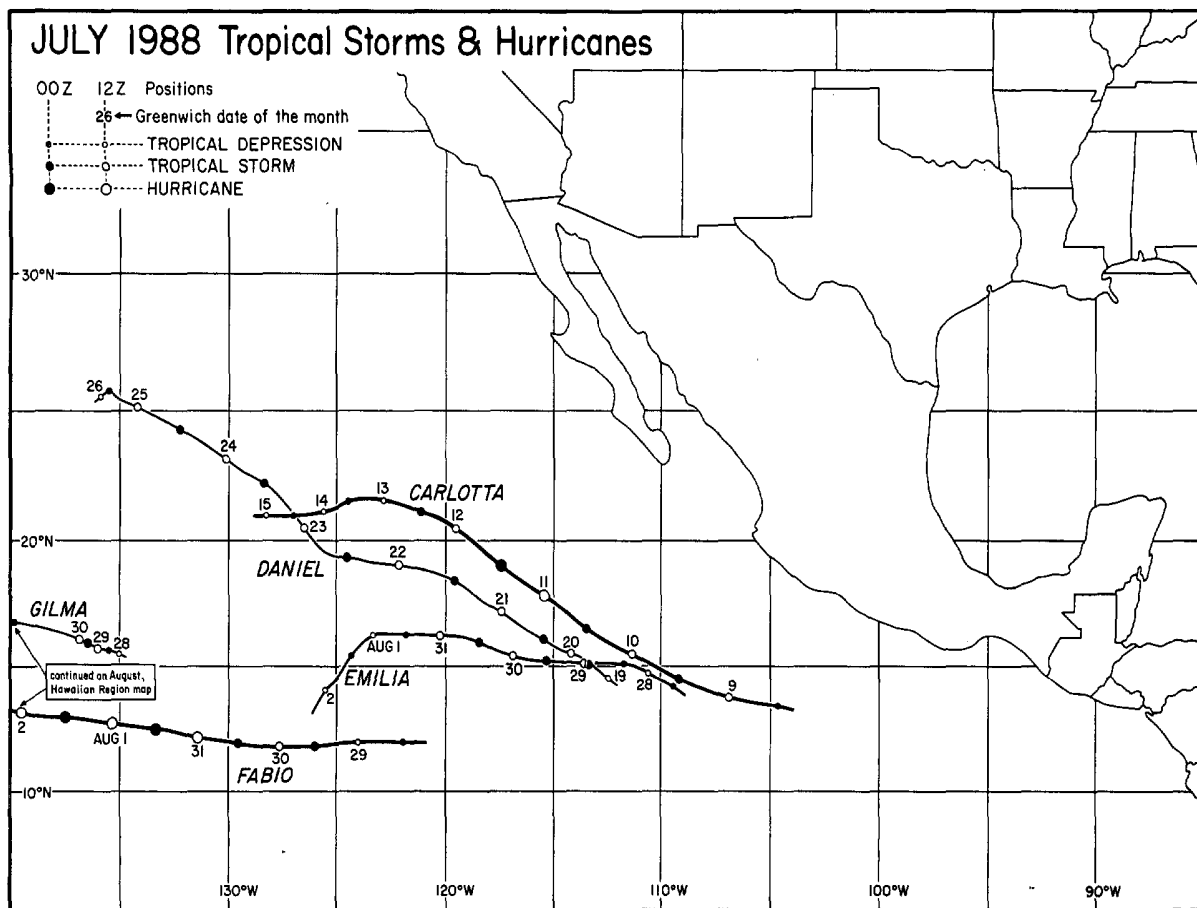




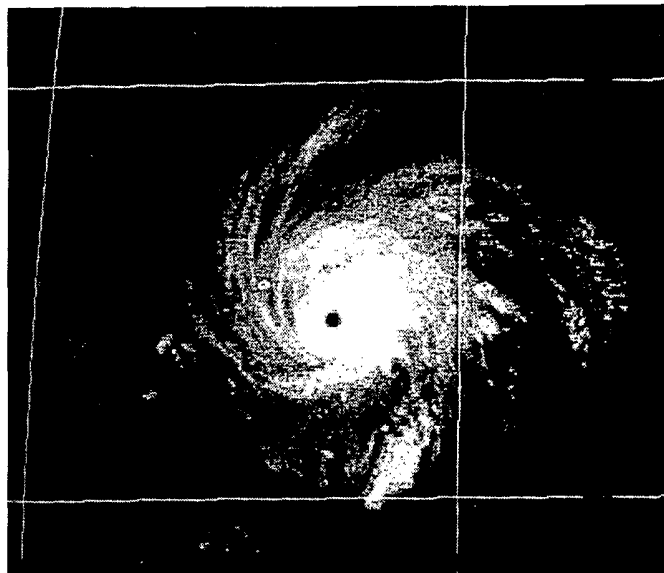
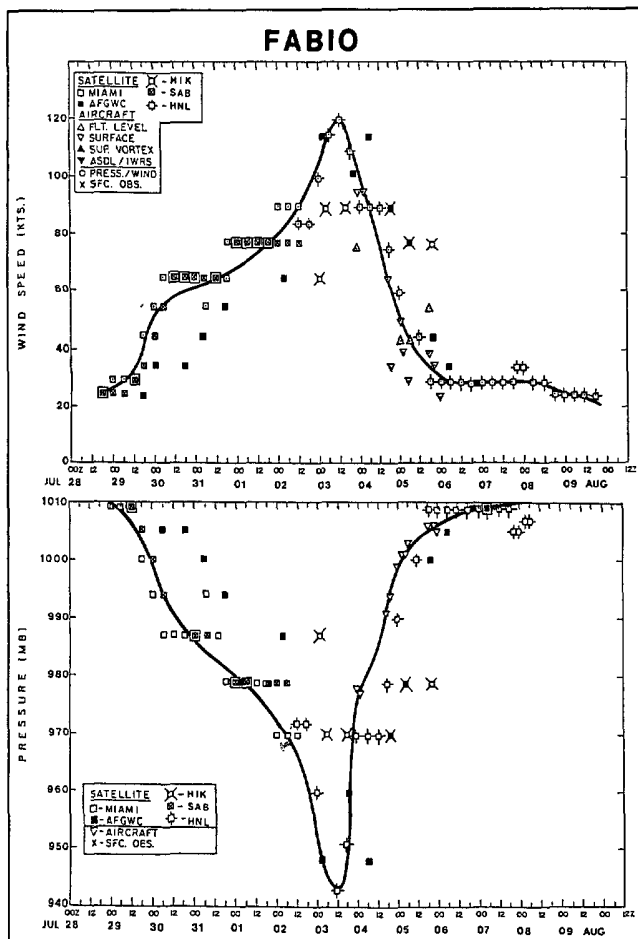
**CYCLONE CENTRAL PRESSURE
JULY 1988
6 HOURLY POSITIONS**

- UNKNOWN
- ≥ 1000 mb
- ◐ 980-999
- ◑ 960-979
- ◒ 940-959
- < 940

TROPICAL STORMS and HURRICANES

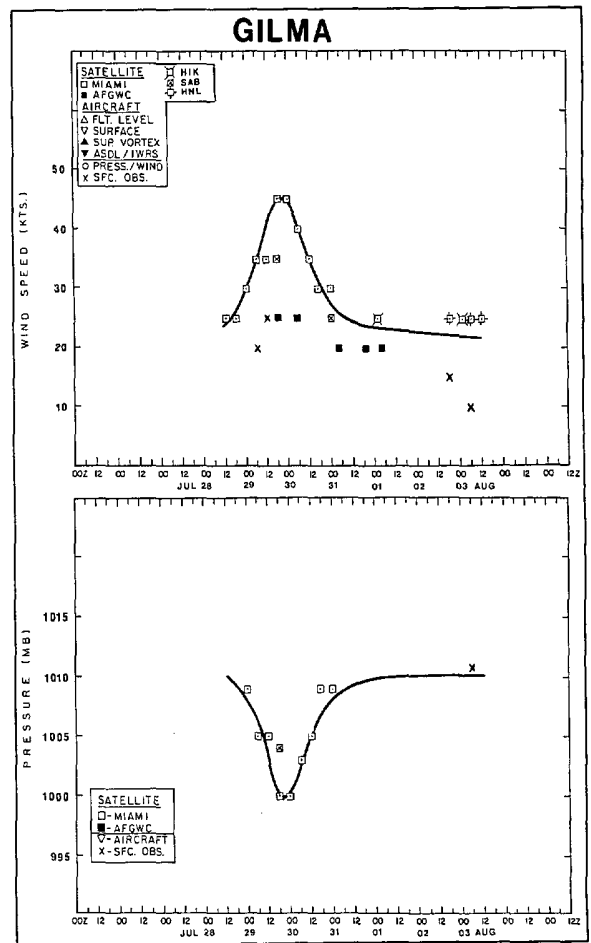
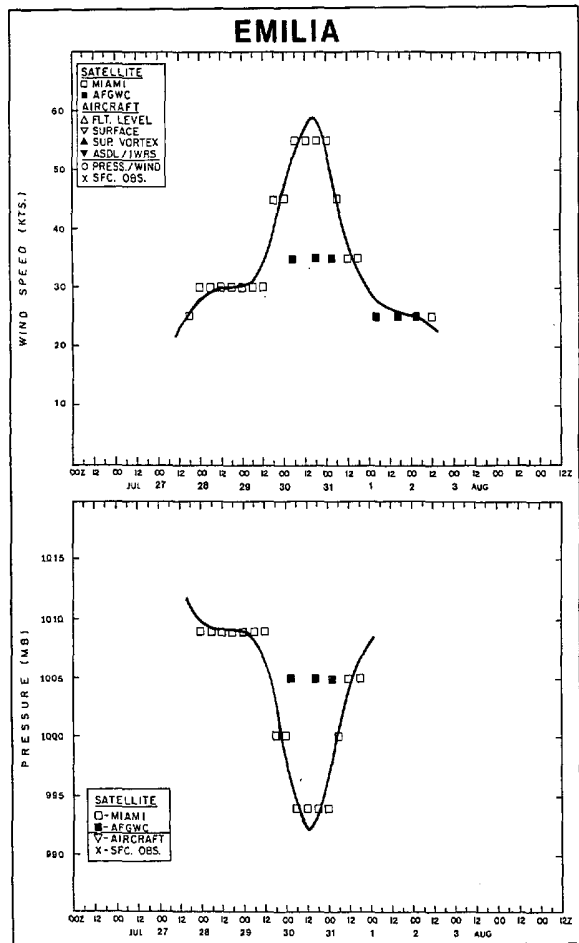
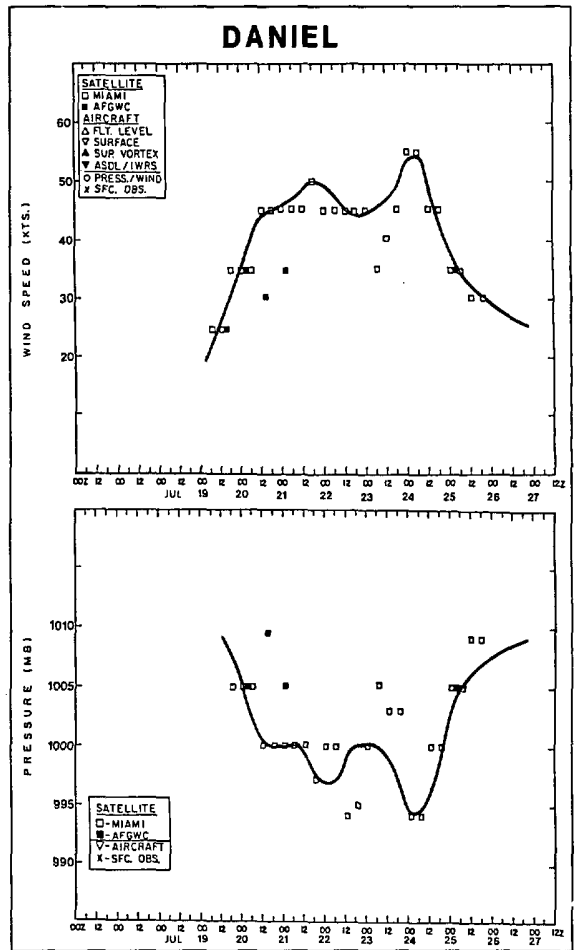
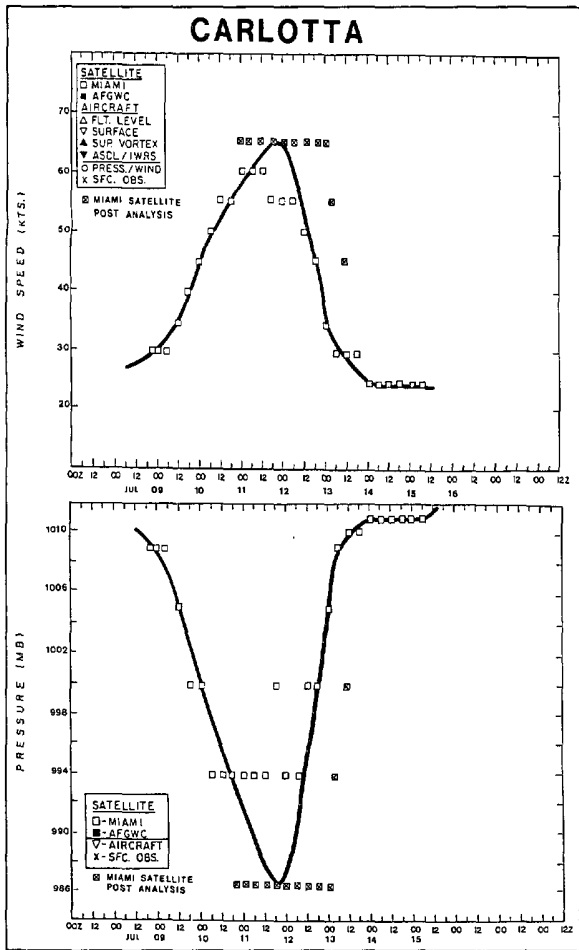


---Best track data from the National Hurricane Center, Miami, Florida.



Hurricane FABIO displays a well-defined eye as seen in a GOES 6 satellite, infrared image taken at 0026 UTC on August 3rd. FABIO attained its minimum central pressure of 943 millibars at 1200 UTC of the same day. LEFT: Plots of estimated maximum wind speed and minimum central pressure versus time for Hurricane FABIO.

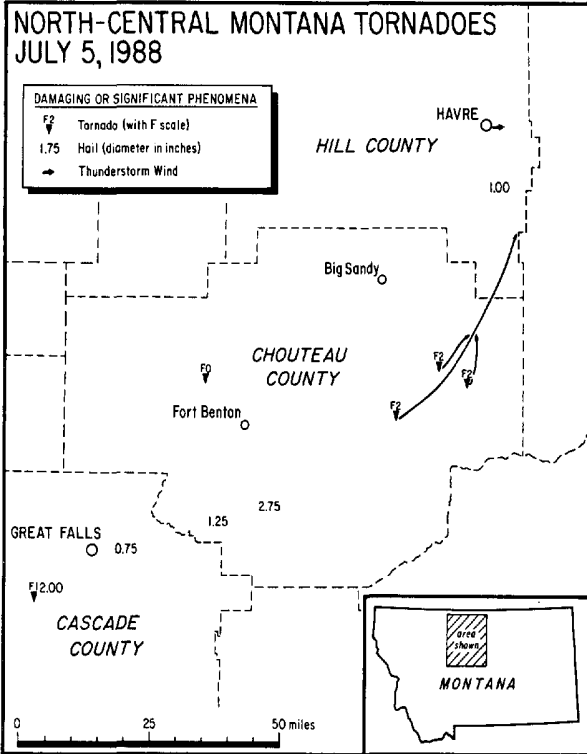
---All materials on pages 6 and 7 are from the National Hurricane Center and provided through the Hurricane Research Division of AOML, both of Miami, Florida.



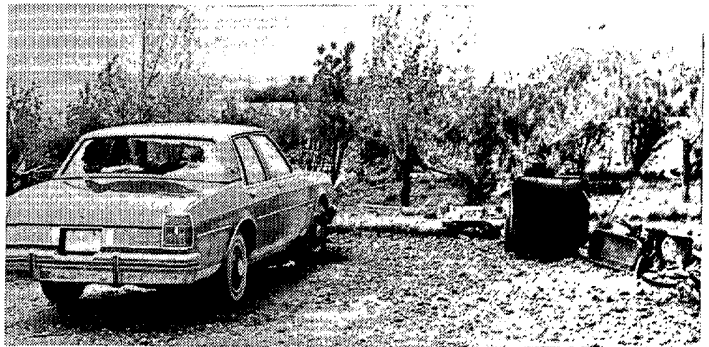
Plots of estimated maximum wind speed and minimum surface pressure versus time for Hurricane CARLOTTA and Tropical Storms DANIEL, EMILIA and GILMA.

1. TORNADES in NORTH-CENTRAL MONTANA on July 5, 1988

Of 11 tornadoes in Montana on July 5th, three that were strong enough to inflict up to F2 intensity damage along a 37 mile long path through eastern Chouteau and extreme southeast Hill counties were spawned by a single storm. The main tornado of the three touched down 24 miles south of Big Sandy and travelled north-northeast the full 37 miles, passing through mostly ranch land, and the Bear Paw Mountains. The other two tornadoes formed on either side of the first at a point about one-third of the way along the damage path. After travelling a few miles, each was apparently drawn and absorbed into the circulation of the main tornado at a point almost midway along the path. Although the area is sparsely populated, a great deal of damage was done, most of it being sustained by ranches in the area where the tornadoes travelled side by side. Two injuries occurred as well.



Distribution of severe thunderstorm phenomena in North-Central Montana on July 5, 1988, including the paths of three F2 tornadoes that ravaged ranches southeast of Big Sandy. ---Graphic by the University of Chicago from data supplied by the NWSFO at Great Falls, Montana and survey maps of the three F2 tornadoes from the NWSO at Havre, Montana.



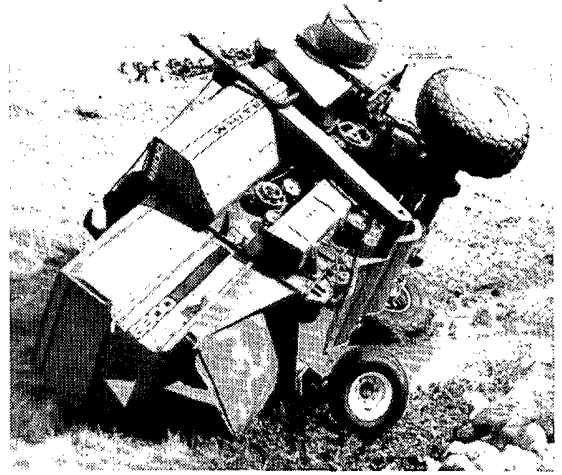
The first structures hit by the first and longest-tracking F2 tornado were at the Richard Pokorny farmstead 24 miles south of Big Sandy and included a 60 foot long mobile home that was destroyed (top) and a garage that was lifted off its foundation, leaving its contents almost untouched (bottom). ---Both photos (MTNR).



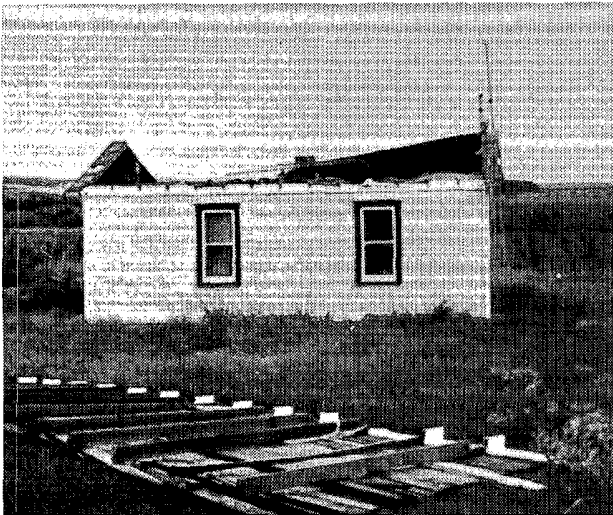
The bulk of the debris from the Pokorny trailer home lies in a heap about 50 feet from its original site. Mrs. Pokorny and her two infant children were in the home at the time it was hit, but escaped major injury; one of the children received no injuries at all. Note the region's desolate terrain in the background. ---(MTNR)



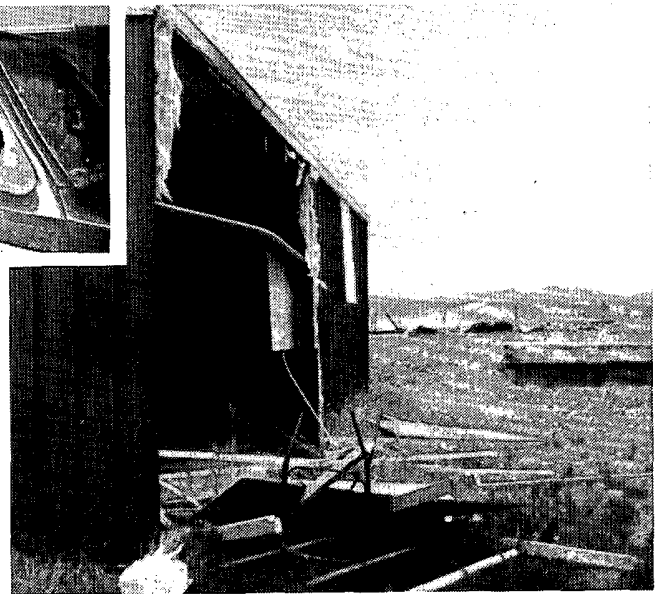
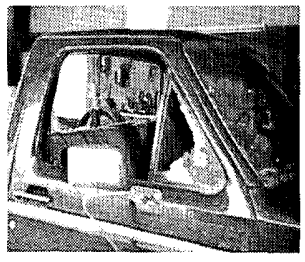
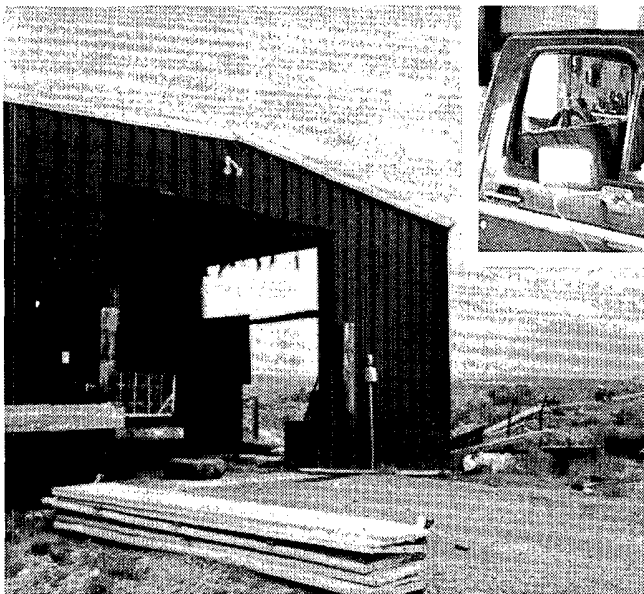
The overturned frame of the Pokorny trailer home which ended up about 50 yards to the east of the smashed remains of the rest of the home. Parts of the home and its contents were scattered over a one square mile area. ---(MTNR)



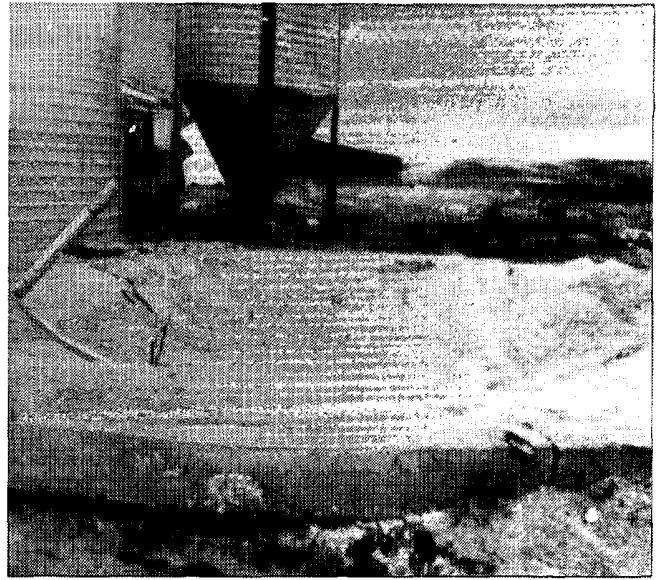
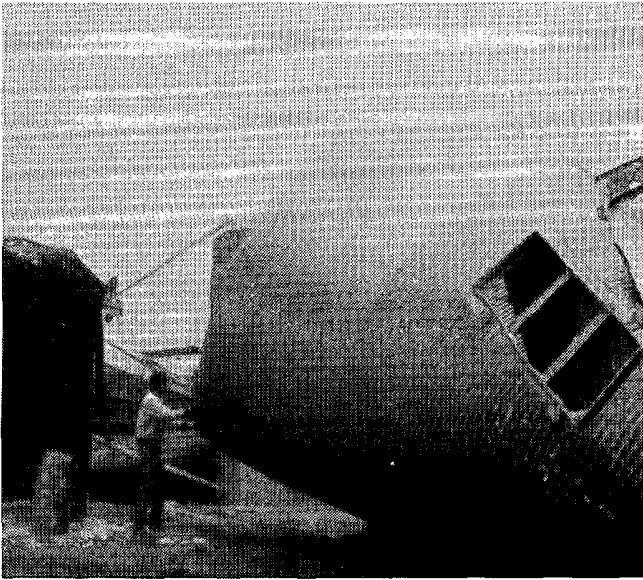
This combine was carried over 200 yards by the tornado, during which the machine's header was broken off and left 200 yards west of the combine, and the reel, seen in the background above the front tire, was thrown about a quarter of a mile away. ---(MTNR)



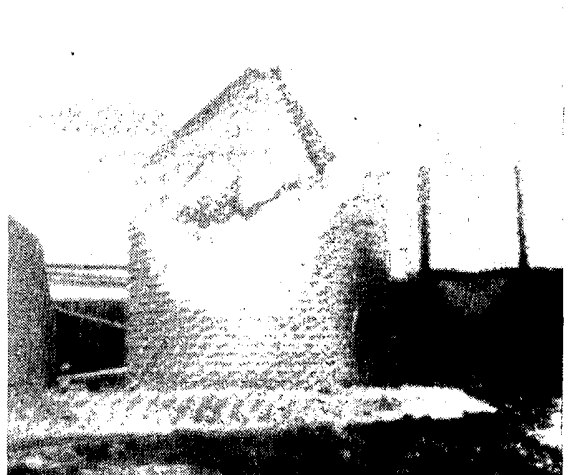
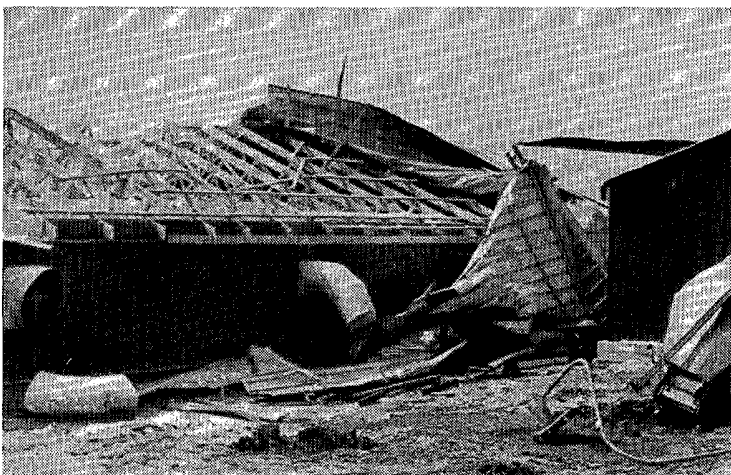
Damage to a bunk house (left) and barn (right) at the IX Ranch 20 miles southeast of Big Sandy. The ranch was struck by the northernmost of the three F2 tornadoes. ---(MTNR)



The shop building at the IX Ranch suffered the loss of its garage door and a section of sheet-metal wall. The foreman's truck inside (inset) received broken back and side windows from the impact of airborne debris. ---All three photos (NWS).

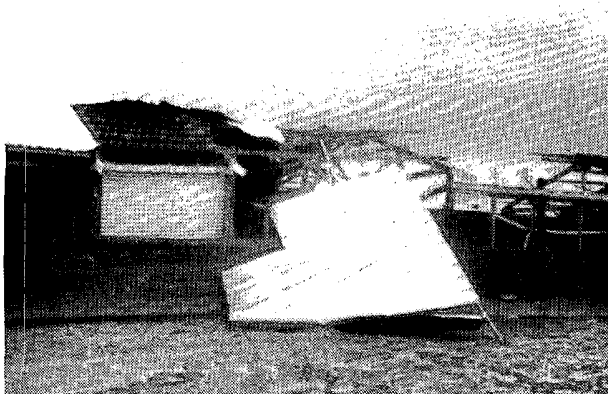


An employee of the Williams Brothers Hog Farm examines a large grain bin (left) that had been moved about 75 feet from its base (right). The bin was about 75% full when hit. The farm, about 3 miles northeast of the IX Ranch, was struck by the first, middle tornado of the three in the area at the time (see map on page 8). ---Both photos (NWS).



Views of damage done to two farrowing sheds also on the Williams Brothers farm. Damage at the farm was estimated at over a quarter of a million dollars. ---Both photos (MTNR).

Steel bins on the Williams Brothers farm that were wrapped around a fuel tank like aluminum foil (top) and dented (bottom). ---Top photo (MTNR), bottom photo (NWS).



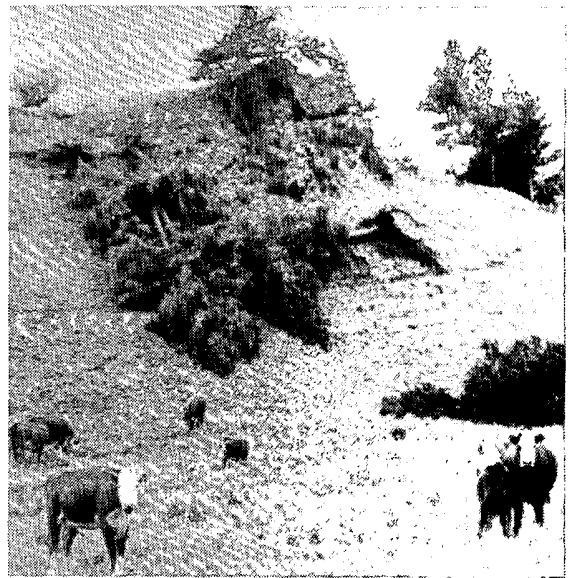
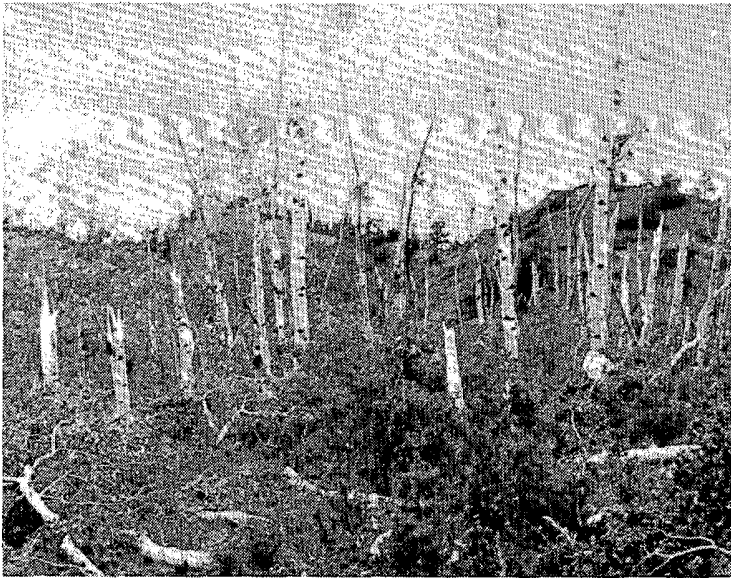
Roofing torn from one of the hog sheds (left) and a flipped over plane still attached to its tie-downs (right) are additional examples of the extensive damage sustained at the Williams Brothers farm. ---Left photo (NWS), right photo (MTNR).



A 12 x 64 foot mobile home that was flipped over at the Stan Weaver Ranch, about 1.5 miles east of the Williams Brothers farm and about 3.5 miles south-southwest of the juncture point of the three F2 tornadoes. The home was unoccupied when struck. --- (MTNR)



A 10 x 45 foot trailer on the Leo Faber Ranch located 20 miles east-southeast of Big Sandy in the Bear Paw Mountains. --- (MTNR)



Examples of the tree damage that occurred in the Bear Paw Mountains show that aspens (above left) were mostly snapped off while pines (above right) were mostly uprooted. However, an occasional pine was snapped off at the trunk as well, as was one at the Eagle Creek Lodge (right). ---All three photos (MTNR).

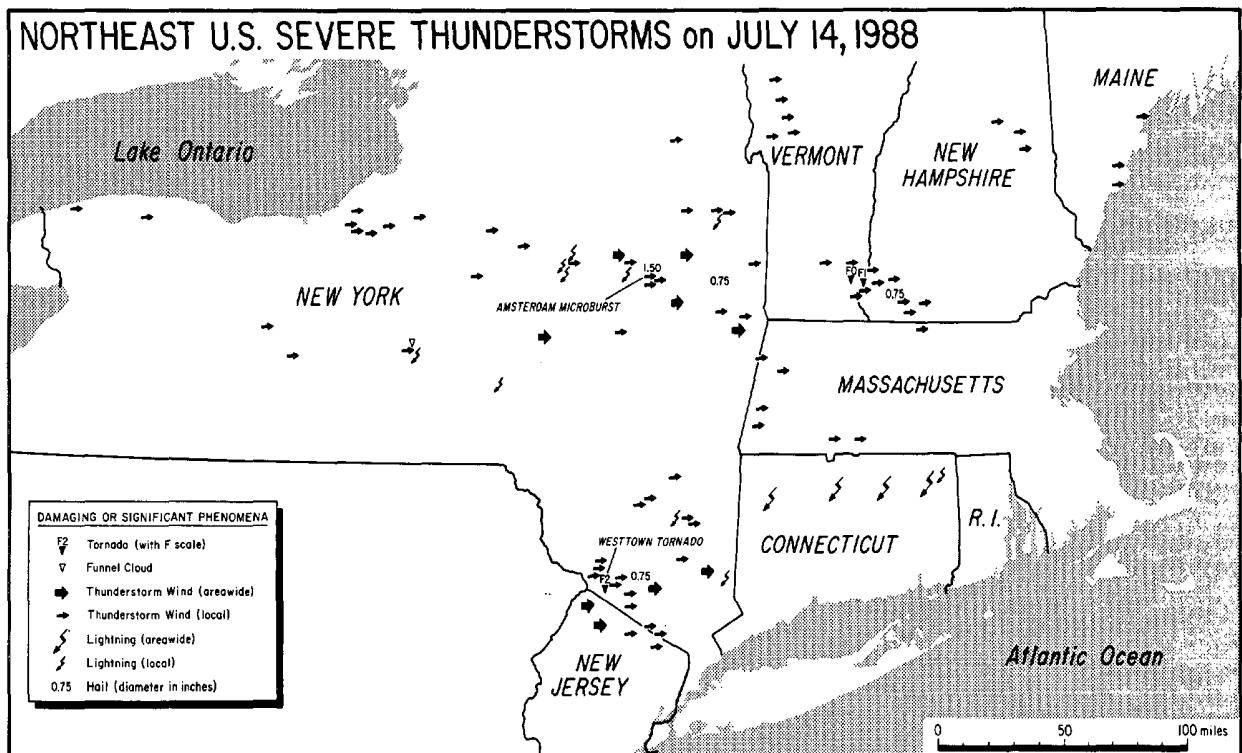


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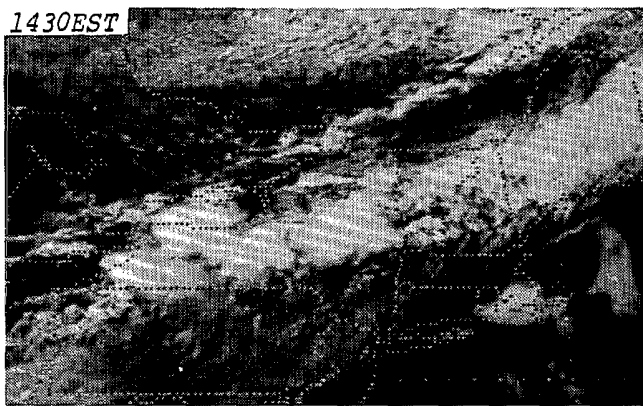
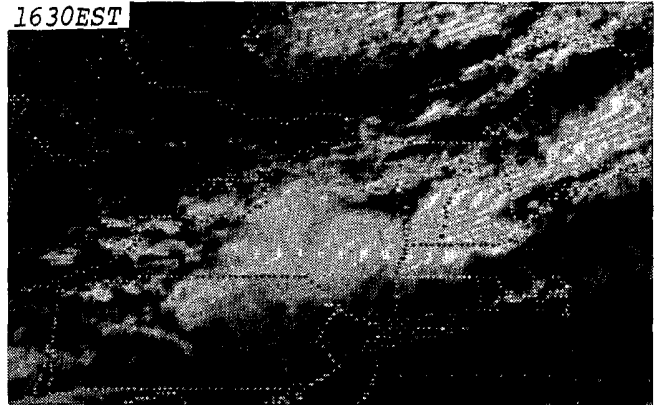
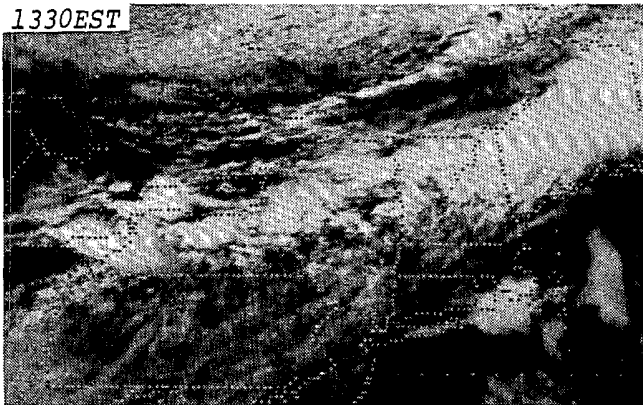
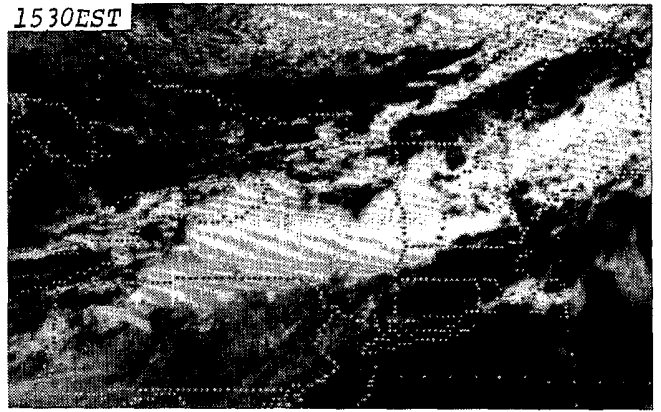
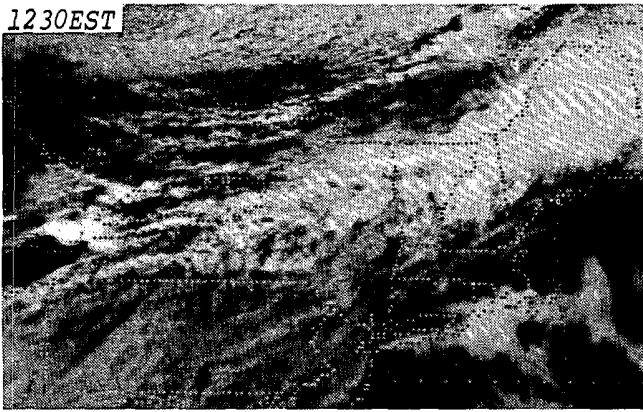
(MTNR) photos by James L. Rettig, *The Mountaineer*, Big Sandy, Montana;
 (NWS) photos by Mike Chamberlain, NWSO at Havre, Montana.

2. SEVERE THUNDERSTORMS in the NORTHEAST U.S. on July 14, 1988

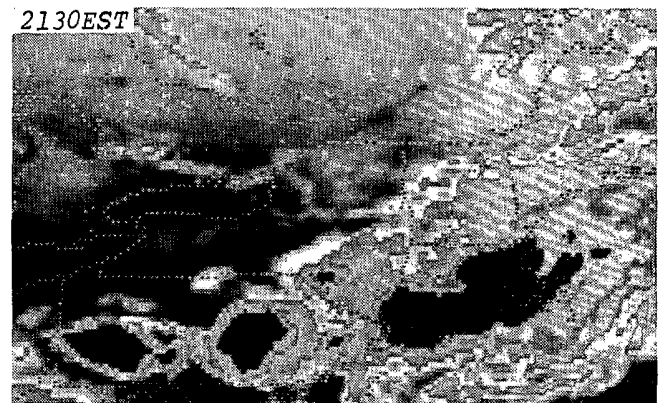
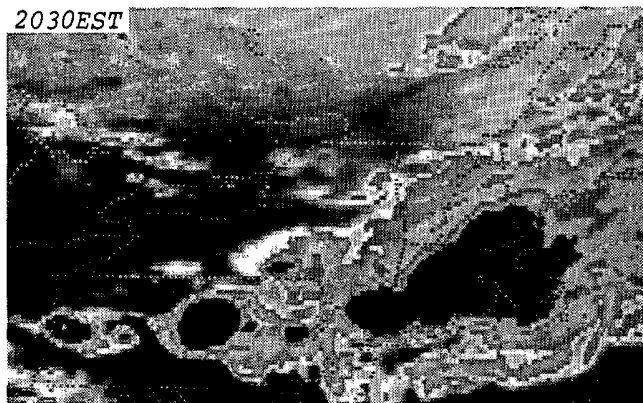
On the afternoon of July 14th, severe thunderstorms popped up within a band extending from the eastern Lake Erie area to central Maine in the Northeast U.S. As the band of storms moved slowly southeast in advance of its triggering frontal system, it caused a variety of damaging phenomena including tornadoes, thunderstorm winds, hail and lightning across portions of the region. Some of the hardest hit areas were the Mohawk Valley urban corridor of east-central New York, and the Orange County area of southeast New York along the New Jersey border. Two of the more significant events in these areas were a microburst near Amsterdam and an F2 tornado near Westtown (see map below), both of which are featured on following pages.



Distribution of reported severe thunderstorm phenomena in the Northeast U.S. on July 14, 1988. ---Graphic by the University of Chicago from data supplied by NWSFO's at Portland, Maine; Albany, New York; Buffalo, New York; and New York, New York; and the Blue Hill Meteorological Observatory, Milton, Massachusetts.



GOES 6 satellite, visible images show the expanding cloud tops of growing thunderstorms across the Northeast U.S. during the afternoon of July 14th. The cells formed within a band rather than in a single line, thus some areas were hit by more than one storm. The Amsterdam microburst occurred at 1430EST. ---Photos from the National Environmental Satellite Data and Information Service, Washington, D.C.

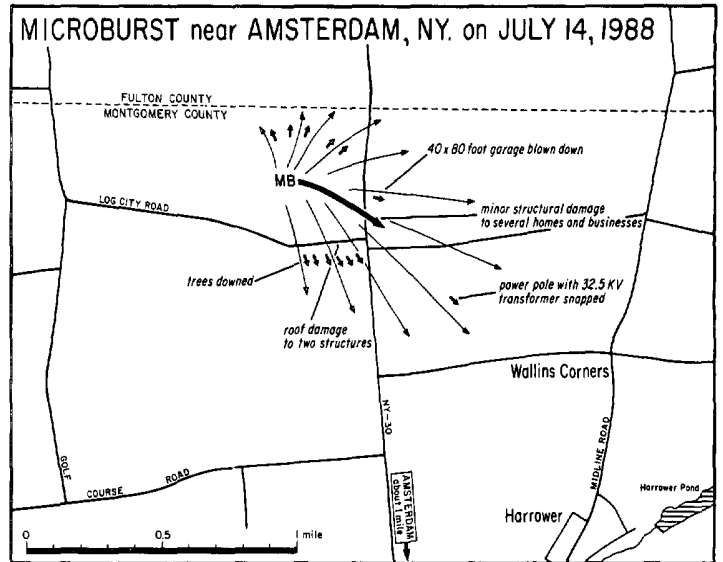


GOES 6 satellite, infrared images show the July 14th storms during the evening hours when the band, then further south, extended from western Pennsylvania to the Atlantic off the Massachusetts coast. The Westtown tornado occurred from 1915EST to 1945EST, between the times of the last visible and first infrared photos above. ---Photos from NESDIS, Washington, D.C.

2a. MICROBURST near AMSTERDAM, NEW YORK on July 14, 1988

As the July 14th storms moved through east-central New York, one cell produced a microburst that delivered powerful winds to a very small area along New York Highway 30 north of Amsterdam, just south of the Fulton-Montgomery county line. The microburst had spread its damaging winds in fanlike fashion across a one mile long, one-half mile wide area as it moved east-southeast across the highway at 1430EST (see map at right). Two roofs were damaged and 15 trees uprooted along Log City Road on the south edge of the microburst, and a number of homes and businesses were damaged along Highway 30. Interestingly, it was during flooding a little over a year earlier that a bridge on the New York State Thruway collapsed not more than a few miles away from this location (see Storm Data, April, 1987).

RIGHT: Mapping of the July 14, 1988 microburst near Amsterdam, New York, including the path of the microburst's center (MB), streamlines marking the windflow, and damage vectors. ---Mapping from a survey by Tim Scrom, NWSFO at Albany, New York.



Southbound traffic backs up behind a tree that was felled across New York Highway 30 during the microburst.



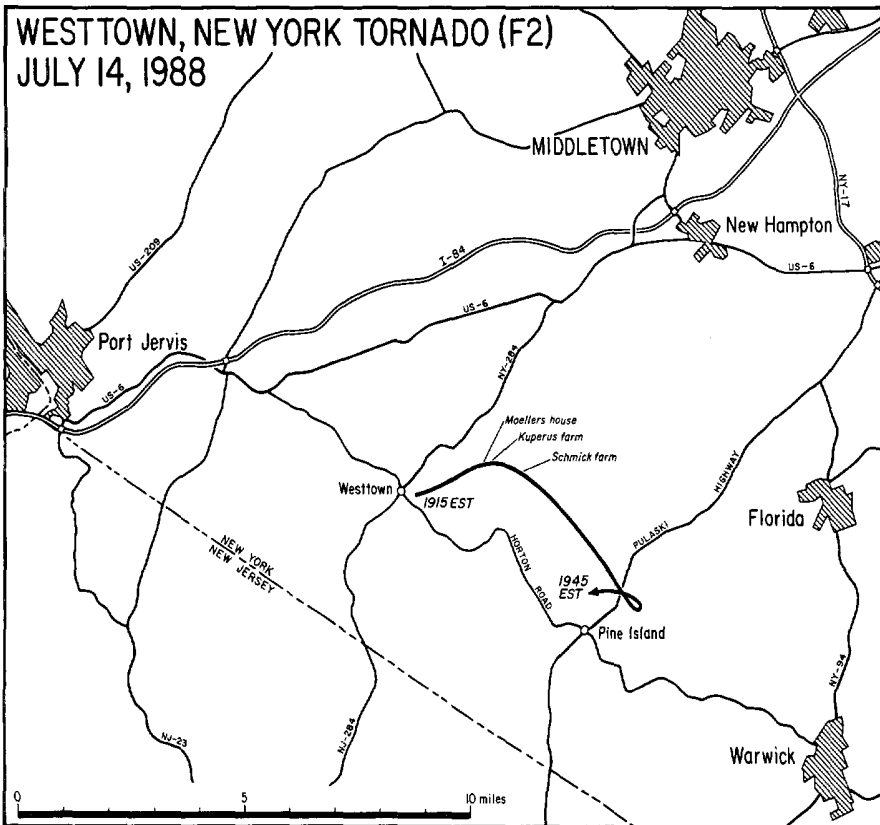
The Ace Service Center manager, left, was inside this 40 x 80 foot, company garage when it partially collapsed during the microburst. The garage, located on Highway 30, lies just out of frame to the right of the Ace sign on the right side of the traffic photo above.



One of the numerous trees felled by the microburst, this one, located several hundred yards north of the Ace garage, broke off from its roots at its base.

---All three above photos by Mitch Wojnarowicz, The Recorder, Amsterdam, New York.

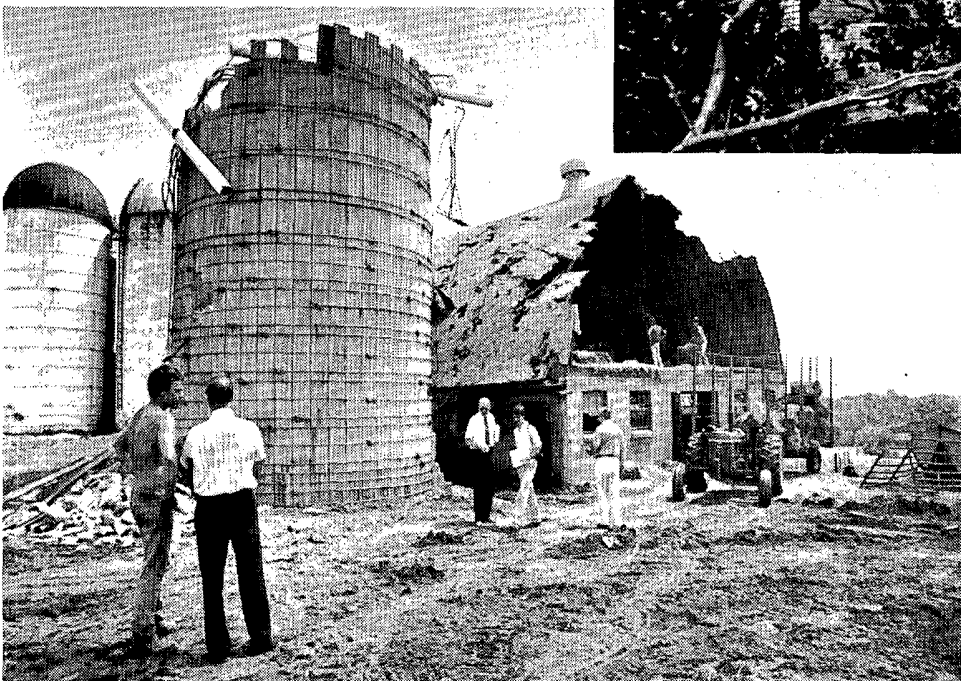
2b. TORNADO at WESTTOWN, NEW YORK on July 14, 1988



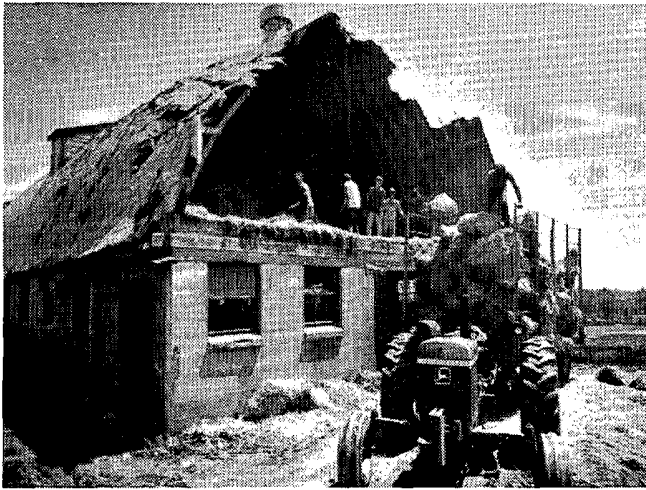
In southeastern New York, another of the July 14th storms spawned an F2 tornado just east of Westtown, near the New Jersey border between Port Jervis and Warwick. The tornado travelled northeast at first, then slowly turned southeast, moving through mostly farm land before ending one mile north of Pine Island. The 7.2 mile long path was accented by a loop at its terminus, as the tornado reversed direction and crossed Pulaski Highway a second time just before ending. Along the path, a number of barns and out buildings were damaged or destroyed and many trees were snapped off or uprooted. A few homes received minor damage. During the Pulaski Highway crossings, the tornado blew a barn across the road, and a tractor-trailer truck was flipped over causing the only injury as the driver was trapped in the wreckage.

LEFT: Path of the July 14, 1988 tornado at Westtown, New York. ---Mapping by Tim Scrom, NWSFO at Albany, New York.

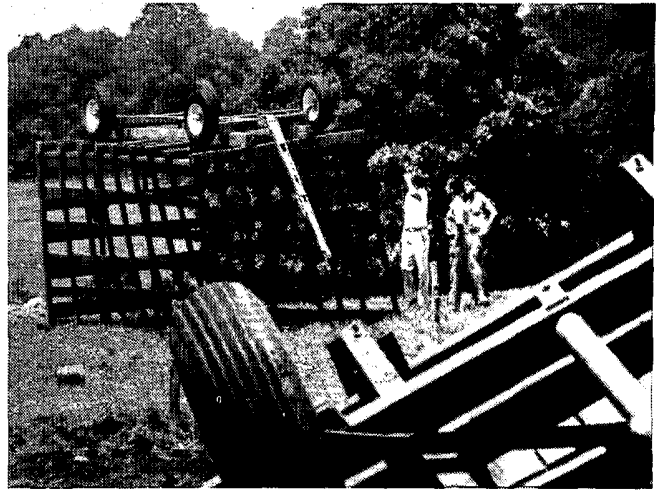
Workers make roof repairs on the Cathy Moellers house on Hostler Road as others remove destroyed trees from the yard. The site is about 1.5 miles along the tornado's path.



Insurance adjusters and the farm's owner examine damage at the Charles Kuperus Farm, where the tornado tore off an end of the barn and the top half of a silo, from which large chunks of concrete were blown through the barn's roof.



Stored hay is removed from the damaged Kuperus barn.



Farmers check on the condition of hay wagons that were tossed around in the fields like toys.



Volunteers help clean up the damage at the Robert Schmick Farm, located about 2.5 miles along the tornado's path.



Robert Schmick, Jr. stands in the rubble that was once his equipment barn (left), the roof of which was blown across the farm road and into the front yard of the farmhouse (right).

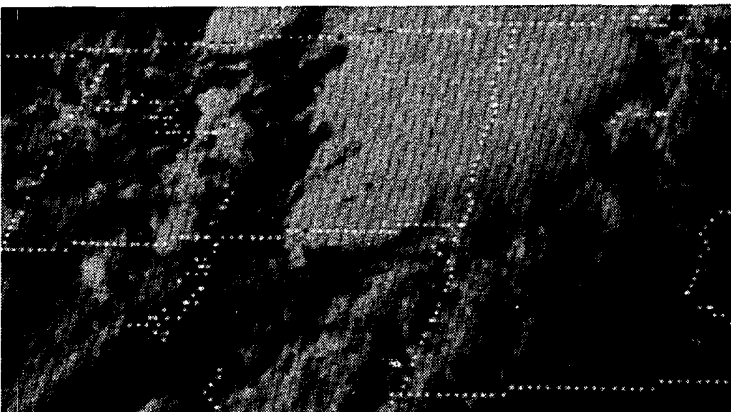


Workers sift through the scattered debris of a barn that was blown across Pulaski Highway near the end of the tornado's path. Stacked onion crates across the highway in the background were housed in the barn and remained relatively untouched as the barn was lifted away.

---Above photo and all photos on pages 15 and 16 by Mike Carey, *The Times Herald Record*, Middletown, New York.

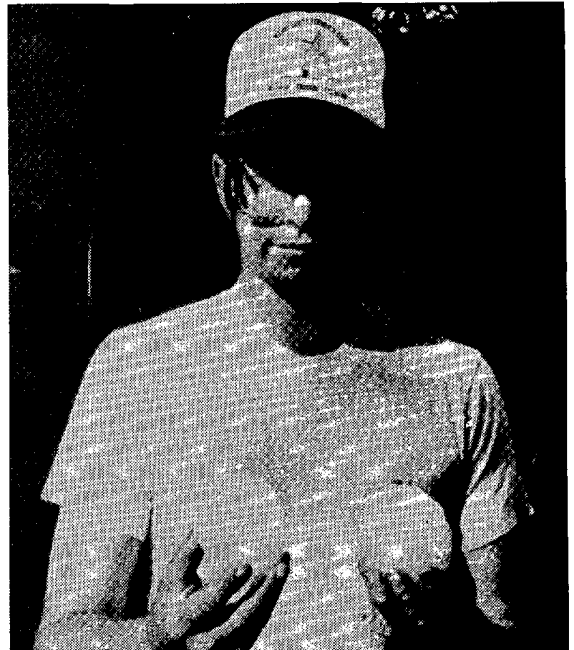
3. HAIL in DICKEY COUNTY, NORTH DAKOTA on July 12, 1988

On July 12th, large hail including some stones of softball size that measured up to 4.5 inches in diameter and weighed 8 ounces, fell in the Monango-Fullerton area of central Dickey County, North Dakota as an intense thunderstorm passed through during the late afternoon and early evening. The hailstones damaged vehicles and crops, broke many house and vehicle windows, dented sheet-metal farm buildings, and reportedly made patio furniture look as if it had been hit repeatedly with a sledge hammer. The larger stones left craters in lawns and bounced several feet into the air upon hitting the ground.



The hail-producing storm, seen in southeast North Dakota in this GOES 6 satellite, visible image taken at 1830CST on July 12th, exhibiting its overshooting top character - updrafts extending above the tropopause into the stratosphere, carrying cloud elements with them - by the shadows visible atop the anvil in the low sun angle photo. ---Photo from NESDIS, Washington, D.C.

RIGHT: On the day following the storm, Leroy Gruenich displays two of the baseball size hailstones that fell 8 miles north of Ellendale. He said the huge stones fell for about 8 seconds, made loud cracking sounds on impact, and bounced up to 4 feet into the air. ---Photo from the *Dickey County Leader*, Ellendale, North Dakota.

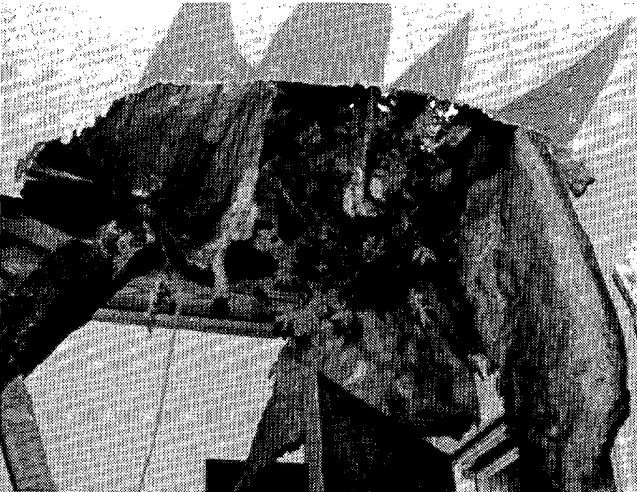


4. THUNDERSTORM WIND at BENT CREEK, NORTH CAROLINA on July 17, 1988

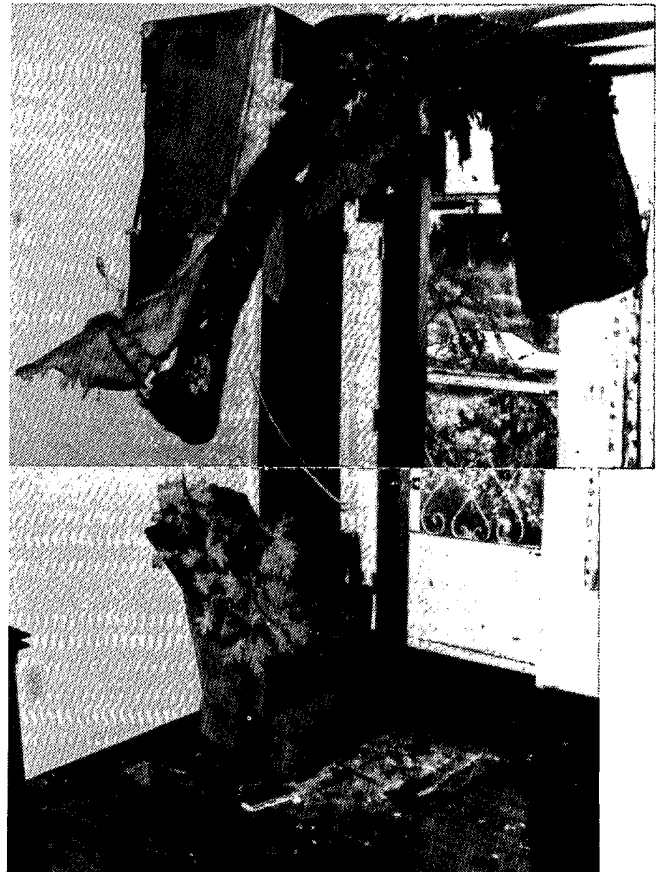
A rather innocuous thunderstorm dumped some nickel size hail in the Bent Creek section of Buncombe County, North Carolina on July 17th, but it was the storm's winds, also not particularly strong, that were responsible for the downing of a tree, a branch from which crashed through the roof of a home. The branch punched holes through both the roof and interior ceiling, causing roofing material, insulation, plaster, wiring, and parts of the branch itself to descend into the living room and onto a chair beneath the point of intrusion. An occupant of the house who had been sitting in the chair narrowly escaped injury, having left the chair just minutes prior to the incident.



The downed tree blocks the entryway to the home. The offending branch entered the roof above the entryway and poked through the ceiling just beyond the front door.



Interior views of the damage done to the home show the hole through the ceiling (above) and the dangling branch, wiring and insulation, as well as the debris-filled chair below them in a composite photo (right).

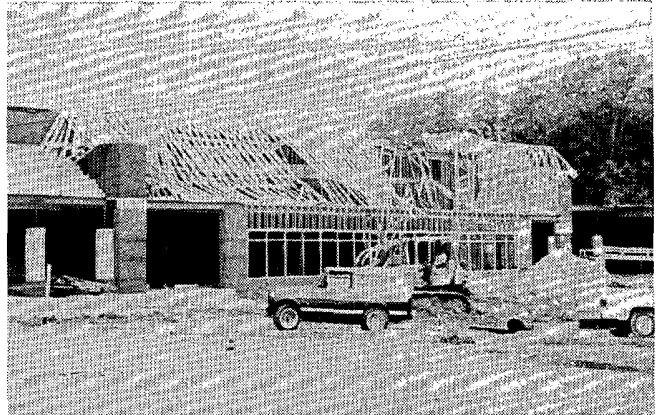


5. THUNDERSTORM WINDS at RICHMOND, VIRGINIA on July 9, 1988

On the evening of July 9th, a strong thunderstorm moved through western Henrico County and the north and east sides of Richmond, Virginia with damaging winds that snapped or uprooted over 300 trees. The trees damaged buildings and vehicles, blocked roads, and disrupted phone and electric service - about 77,500 electric customers were without power. The damage was estimated to be in the millions of dollars.



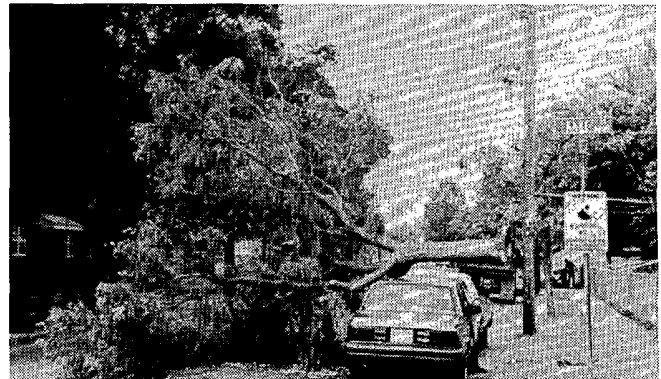
A downed tree and the damage it produced to a home in Lakeside, a north suburb of Richmond.



Damage to a building under construction, also in Lakeside north of Richmond.



Windblown debris litters a house and yard in east Richmond. The debris is roofing material that came from the nearby Fairfield Elementary School.



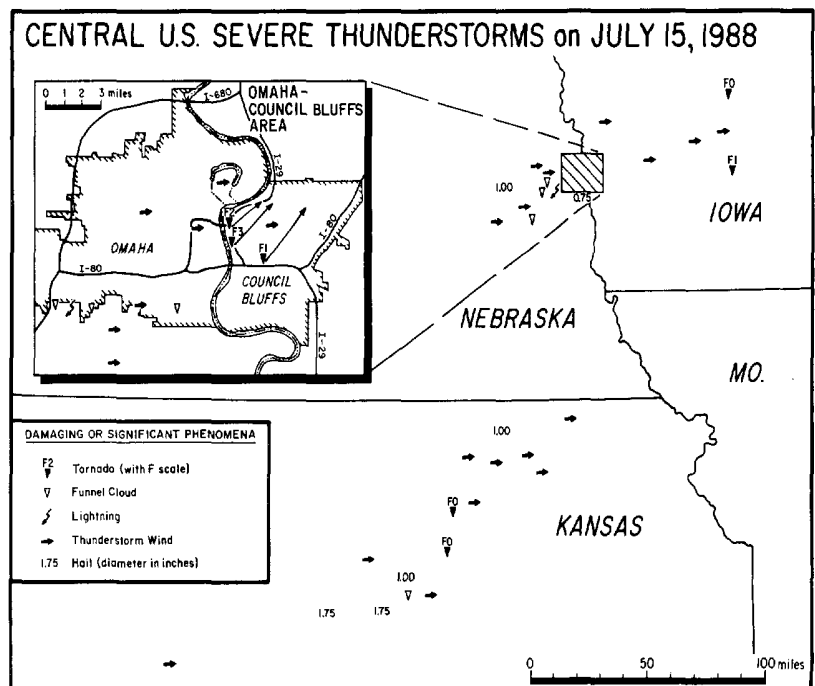
A large tree branch in east Richmond that was snapped off and flipped over onto a car by the winds.

---All above photos by Roy L. Britt of Richmond, Virginia.

6. TORNADOES at COUNCIL BLUFFS, IOWA on July 15, 1988

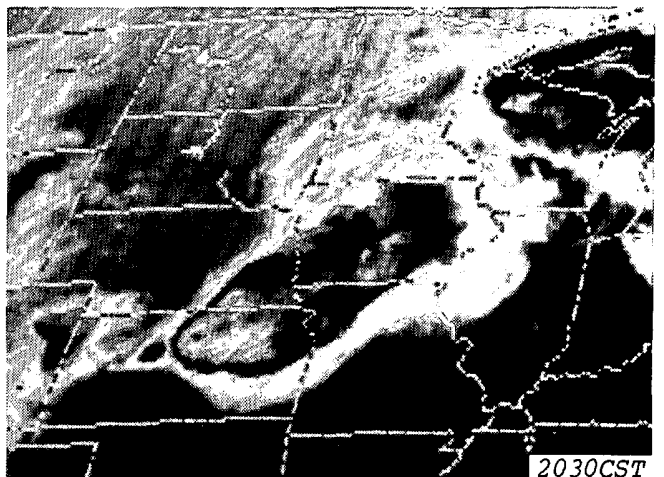
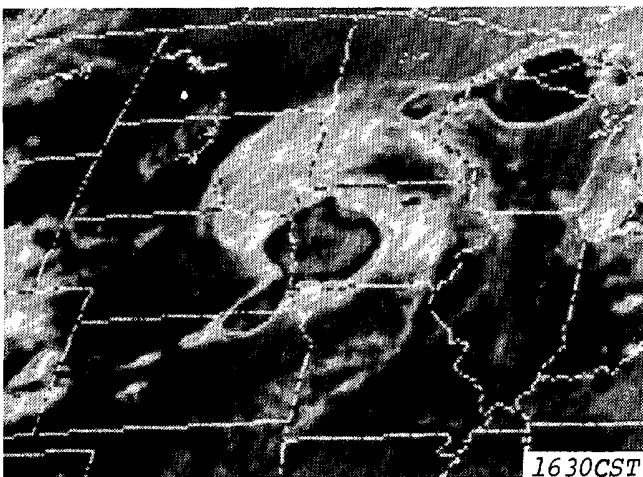
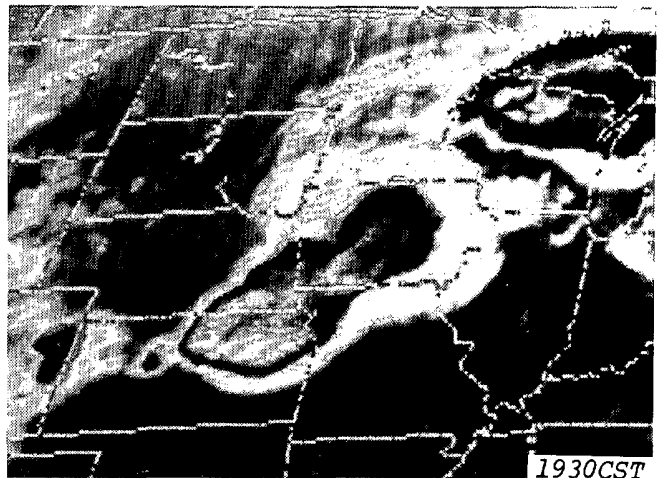
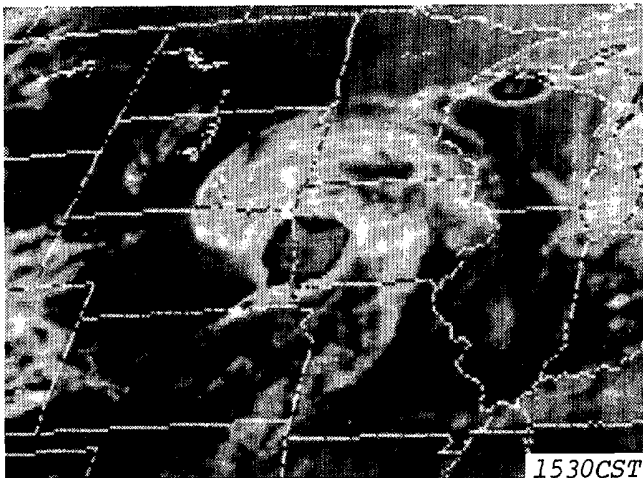
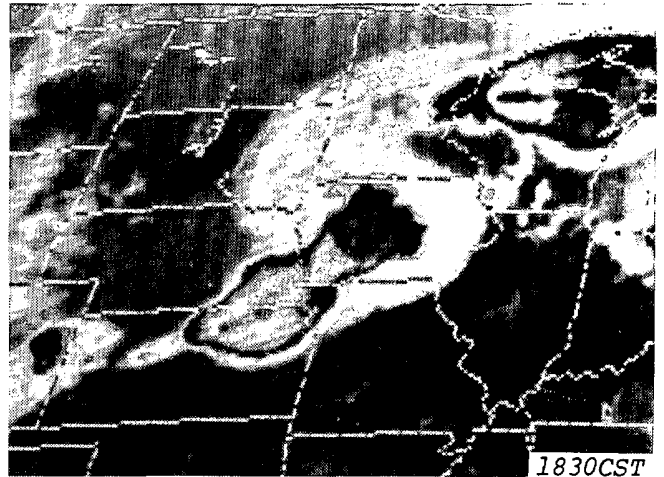
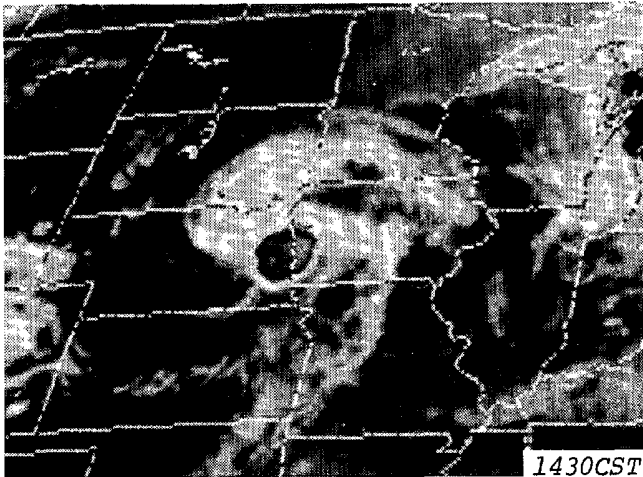
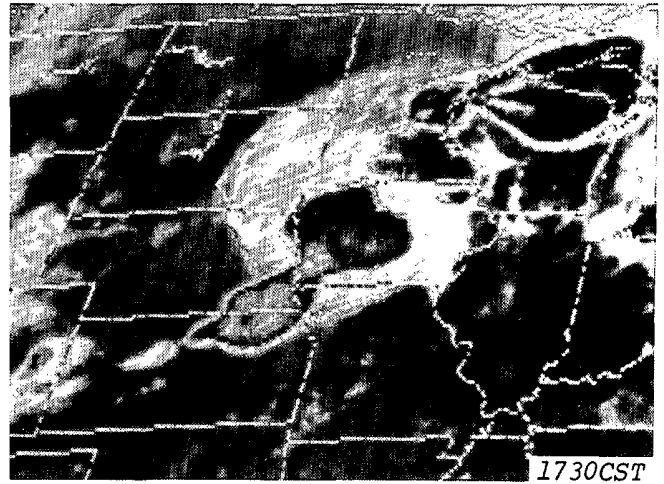
RIGHT: Distribution of severe thunderstorm phenomena in Nebraska, Iowa and Kansas during the afternoon and early evening of July 15, 1988, including the Omaha - Council Bluffs area (inset). ---Graphic by the University of Chicago from data supplied by NWSFO's at Des Moines, Iowa; Topeka, Kansas; and Omaha, Nebraska.

A rotating mesoscale convective complex (MCC) moved eastward through eastern Nebraska and western Iowa during the afternoon of July 15th, trailing a flanking line southwestward into north-central Kansas along which additional storms developed. The system produced a variety of damaging phenomena in all three states, but the highlight of the episode was three tornadoes that touched down in and moved through Council Bluffs, Iowa. The tornadoes, an F2, F3 and F1 in chronological order, travelled toward the northeast along parallel paths between 2 and 3 miles long each (see inset map at right), all within a 12 minute period between 1514



and 1526CST. Together the tornadoes injured 88 people and caused an estimated 43 million dollars in damage which included 18 homes and 3 mobile homes destroyed, and over 1,000 homes, 21 apartments, 5 mobile homes and numerous businesses damaged. The F3 tornado blew a 40 car freight train off the tracks as well.

In a sequence of GOES 6 satellite, infrared images taken hourly during the afternoon and early evening of July 15th, the Omaha - Council Bluffs storm is seen to have started out with a small area of cold cloud top, but the MCC's rotating cloud system was already well established. As the system moved into Iowa, the developing cells along its flanking line produced their own damaging phenomena in Kansas during the late afternoon and early evening. Also seen in the sequence is another strong, but unrelated storm that popped up over northern Wisconsin. ---Photos from the National Environmental Satellite Data and Information Service, Washington, D.C.





Debris from a garage litters Avenue E in Council Bluffs after the structure was lifted from its foundation and dropped into the street. ---(SG)



Businesses along West Broadway in Council Bluffs show signs of damage, literally, as their signboards mounted on steel poles were bent over, one onto the top of a pickup. ---Both photos (KM).





Left to right, Bobby, Denny and Jillian Nusser search through the rubble of their home for personal possessions just hours after one of the tornadoes destroyed the house, located on Avenue K. ---(SG)



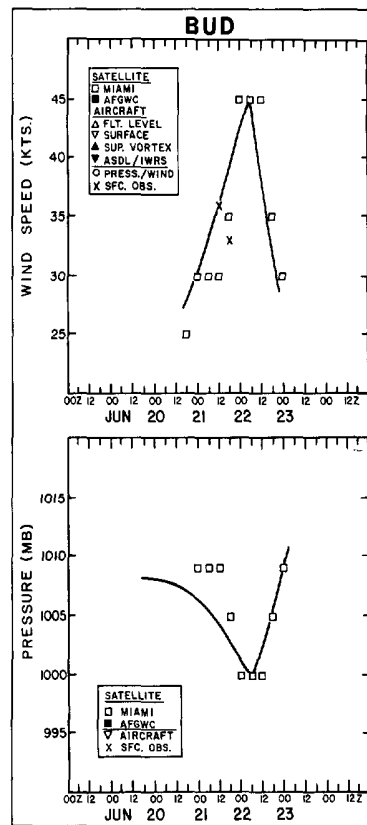
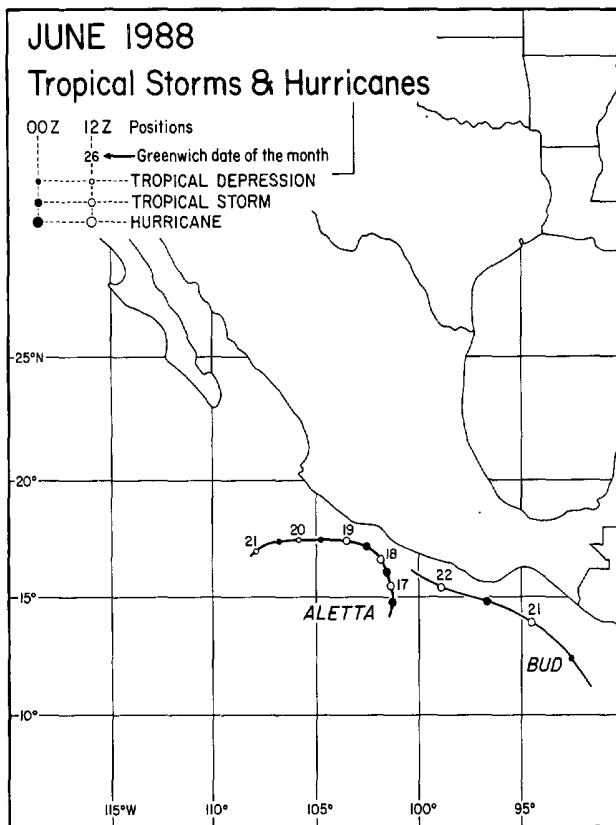
Two foundations (foreground) and scattered debris are all that remain of the Nusser home and a neighboring residence on Avenue K; an adjacent home (background) also received heavy damage. ---(SG)



The home on Avenue K that lies just east of the two homes that were blown completely off their foundations. In this case, most of the second floor was removed, but the first floor remained intact and connected to its foundation. ---(SG)

---On pages 21 through 23, (SG) photos are by Steve Glowacki and (KM) photos are by Kevin McAndrews, both of The Daily Nonpareil, Council Bluffs, Iowa.

Correction: The map below from the June 1988 Storm Data is corrected to include Tropical Storm BUD for which data was not available at the time of publication.



LEFT: ---Best track data from the National Hurricane Center, Miami, Florida. RIGHT: Plots of estimated maximum wind speed and minimum surface pressure versus time for Tropical Storm BUD. ---Figure from NHC and provided by the Hurricane Research Division of AOML, both of Miami, Florida.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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

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

1 ALABAMA

Mobile County	01 1735CST				0	0	?	0	TSTM Wind	Numerous trees were blown onto power lines and a billboard was blown down in the City of Mobile.
Bibb County	03 1648CST				0	0	0	0	TSTM Wind	Large tree limbs were blown down at Centreville.
Clarke County	10 1550CST				0	0	?	0	TSTM Wind	Thunderstorm winds turned over a car and caused slight damage to some buildings in Thomasville.
Morgan County	14 2100CST				0	0	0	0	TSTM Wind	Several trees were blown down in the Massey Community in southeastern Morgan County.
Chilton County	15 1325CST				0	0	0	0	TSTM Wind	Numerous trees were uprooted four miles southwest of Thorsby.
Elmore County	15 1445CST				0	0	?	0	TSTM Wind	High winds destroyed a metal storage building at a lumber yard in Wetumpka. An auto supply building and a large permanent sign were also destroyed in the same area.
Mobile County	15 1540CST				0	0	0	0	Hail (1.75)	
	15 1733CST				0	0	0	0	TSTM Wind	Golf ball size hail fell seven miles southwest of the City of Mobile and trees were blown down eight miles southwest of Citronelle.
Macon County	15 1645CST				0	0	0	0	Hail (0.75)	
	15 1645CST				0	0	0	0	TSTM Wind	Dime size hail fell and large tree limbs were blown down six miles south of Tuskegee.
Bullock County	15 1700CST				0	0	0	0	TSTM Wind	
	15 1700CST				0	0	0	0	Hail (0.75)	Trees and power lines were blown down between Union Springs and Midway. Dime size hail fell at Union Springs.
Houston County	15 1715CST				0	0	0	?	TSTM Wind (G66)	Thunderstorm winds blew trees down in the Dothan area.
Jefferson County	15 1720CST				0	0	0	0	Hail (0.75)	
	15 1730CST				0	0	0	0	TSTM Wind	Trees were blown down at McCalla and dime size hail fell in the western edge of Bessemer.
Jefferson County	16 1118CST				0	0	0	0	TSTM Wind	
	16 1150CST				0	0	0	0	TSTM Wind	At 1118CST numerous trees were uprooted near downtown Birmingham. At 1150CST thunderstorm winds blew large trees onto carparks and a few houses at McDonalds Chapel on the western edge of Birmingham.
Etowah County	16 1220CST				0	0	?	0	TSTM Wind	Trees were uprooted and power lines were blown onto automobiles at Reece City.
Marshall County	16 1250CST				0	0	0	0	TSTM Wind	Thunderstorm winds blew large tree limbs onto the roofs of houses at Albertville.
Morgan County	16 1445CST				0	0	?	0	TSTM Wind	An apparent thunderstorm downdraft destroyed two chicken houses, moved a parked car about 12 feet sideways on pavement, and damaged the dome of an old courthouse at Somerville. Numerous trees and power lines were blown down in the same area.
Houston County	22 1345CST				0	2	?	0	TSTM Wind	Near Webb a few trees were downed. One large tree blew onto a mobile home, injuring two persons inside. Other trees damaged the roofs of houses and a manufacturing plant.
Etowah County	25 1704CST				0	0	?	0	TSTM Wind	Trees and power lines were blown down at Attalla.
Blount County	25 1820CST				0	0	?	0	TSTM Wind	Trees were blown down and a barn was unroofed at Hayden in southwest Blount County.
Talladega County	25 2100CST				0	0	0	0	TSTM Wind	Several trees were uprooted and power lines were downed in the City of Talladega.
Baldwin County	27 1850CST				0	0	0	0	Funnel cloud	A funnel cloud was sighted about 4 miles west of Gulf Shores Alabama.
Conecuh County	28 1642CST				0	0	?	0	TSTM Wind	Several trees were uprooted at Brooklyn.
Hale County	29 1425CST				0	0	?	0	Hail (0.75)	
	29 1435CST				0	0	?	0	TSTM Wind	In extreme northern Hale County dime size hail fell and trees and power lines were downed in the same area.

2 ARIZONA

Maricopa County Phoenix	9 0930 MST				0	0	0	0	Funnel Cloud	
										Thunderstorms developed in North Phoenix and moved southeast. Numerous sightings by the public.
Yavapai County Prescott	9 1200 MST				0	0	0	0	Flash Flooding	
										Three persons rescued from the flooded Granite Creek opposite N. McCormick Street.
Maricopa County Sun City	9 1700 MST				0	0	4	0	Thunderstorm Wind	
										Strong downdraft winds uprooted trees.
Maricopa County Phoenix	10 1700 MST				1	6	6	0	Thunderstorm Wind	
										Several power lines downed by high winds, with power outages affecting about 11,000 homes. Heavy rains and slippery roads were factors in a serious traffic accident at 67th Ave. and McDowell; one woman killed (age unknown), 6 persons were injured.
Pima County Pantano	20 0100 MST				0	0	2	0	Flash Flooding	
										Two men rescued from Pantano Wash, where water was running 4 to 5 feet deep at times.
Maricopa County Phoenix	20 1700 MST				0	0	6	0	Thunderstorm Wind (70)	
										Winds downed power lines, leaving 30,000 people without power for several hours. One house lost part of its roof and 8 houses were struck by lightning, resulting in minor damage. Strong winds and zero visibility in blowing dust hit Sky Harbor Airport. One gust of 81 mph was measured at the centerfield location at the airport. Many flight delays.
Pinal County Casa Grande	20 1800 MST				0	0	?	6	Hail	
										Considerable damage to cotton crops.
Pinal County Bloy SNE	20 1800 MST	.5	30		0	0	4	0	Tornado (F1)	
										A SKYWARN Spotter reported a portion of a roof removed and damage to a storage building. Lumber from the storage building was spread up to 100 yards away from its original location.
Pima County Tucson	24 1800 MST				0	0	5	0	Thunderstorm Wind	
										Heavy rains of up to 3 inches, 1/2 inch hail, and winds up to 60 mph hit parts of the city. Power outages were reported due to the winds and lightning. About 6 trees were downed and about 20 power poles were downed by high winds.
Pima County Tucson	25 1830 MST				0	0	5	0	Thunderstorm Wind Flash Flooding	
										The southwest portion of the city was hit hard by rains and wind. Heavy thunderstorms flooded washes and closed several major streets during the evening. One adult and two children were rescued from a car that was starting to float toward a flooded wash. Winds up to 63 mph were reported.
Pinal County near Stanfield	27 1600 MST				0	0	0	5	Hail	
										Considerable damage to cotton crops.
Cochise County Sierra Vista	27 1600 MST				0	0	3	0	Flash Flooding	
										Very heavy downpours including 2.5 inches in 40 minutes about 10 miles southeast of town. Police reported boulders on highway near Sierra Vista along with mud and debris. Washes were running deep. Minor street flooding in Sierra Vista.
Pima County Tucson	27 1600- 1700 MST				0	0	?	?	Thunderstorm Wind	
										Many power outages in the city due to strong winds.
Maricopa County Surprise	28 1900 MST				0	1	6	0	Thunderstorm Wind	
										The Happy Trails Mobile Home Resort was struck by a very large and powerful microburst. It damaged 184 mobile homes, 20 were destroyed 58 had major damages, and 106 had minor damage. Peak winds were estimated at 80 mph.
Maricopa County Metropolitan Phoenix area	29 1900- 2100 MST				0	1	6	0	Thunderstorm Wind Lightning	
										Shingles blown off homes in Glendale. Extensive areas lost power due to downed lines or power poles. About 10,000 customers lost power between Buckeye and Gila Bend. Winds blew lines and poles down in South Tempe, with at least one home sustaining damaged windows. Several trailers overturned by downdraft winds and rain at Apache Wells Mobile Home Park. Six homes had fire damage due lightning strikes in Mesa. A Chandler man was injured slightly when lightning struck near him.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
ARIZONA									
Pima County Rincon Mtns.	29	2100 MST			0	0	0	0	Flash Flooding
									Heavy rain in the Rincons and on the east side of Tucson, resulted in the Pantano Wash to run 4 to 5 feet deep for several hours.
Maricopa County Phoenix	30	1859 MST			0	0	4	0	Thunderstorm Wind
									Power lines downed at 13th Ave and Clarendon.
Maricopa County Phoenix	30	1900 MST			0	0	?	0	Thunderstorm Wind (55)
									Gusts to 63 mph at KTSP-TV 10.
Maricopa County Phoenix	30	1945 MST			0	0	3	0	Thunderstorm Wind
									Several trees blown down and uprooted in north Phoenix.
Maricopa County Palo Verde	31	1500 MST			0	0	3	0	Lightning
									Lightning struck Palo Verde Nuclear Generating Station causing a shutdown of the Unit 3 reactor.
3 ARKANSAS									
Faulkner County	01	1835CST			0	0	?	?	Thunderstorm Wind
									Very high winds from a severe thunderstorm blew a tractor trailer off Interstate 40 east of Mayflower. The winds also heavily damaged several buildings along Highway 365 just south of Mayflower. Two mobile homes were blown off their foundations and another sustained roof damage.
Pulaski County Morgan North Little Rock Airport Oak Grove Levy	1	1855CST			0	0	?	?	Hail (1.00)
	1	1910CST			0	0	?	?	Hail (0.75)
	1	1905CST			0	0	?	?	Thunderstorm Wind
	1	1930CST			0	0	?	?	Thunderstorm Wind
									A severe thunderstorm ripped through Pulaski County dropping large hail and causing high winds which downed trees and power lines in the Levy section of North Little Rock. In the Oak Grove community, just south of Morgan, several mobile homes were tipped over by the winds. Intense lightning from the storm hit several houses. However, only minor damage resulted from the strikes.
Hot Spring County	1	1935CST			0	0	2	?	Thunderstorm Wind
									High thunderstorm winds blew down a shed and also blew out some car windows near Rolla.
Miller County	3	1600CST			0	0	3	0	Thunderstorm Wind
									High winds downed a huge oak tree onto a house in Texarkana.
Hempstead County	3	1830CST			0	0	4	0	Thunderstorm Wind
									High winds brought down a large oak tree onto a carport in Hope. The carport was completely destroyed.
Miller County	4	1205CST			0	0	?	?	Hail (0.88) Thunderstorm Wind
									Nickel size hail fell at Texarkana along with heavy rain and high winds which downed tree limbs. Several trees were also downed onto houses at Texarkana, and major damage resulted.
Franklin County	4	1745CST			0	0	4	0	Thunderstorm Wind
									High winds caused damage to a chicken house and destroyed two barns in the Oak Bend community, 7 miles southwest of Ozark. Large trees were also downed by the violent winds.
Faulkner County	5	1600CST			0	0	5	?	Thunderstorm Wind and Hail (1.00)
									High winds caused damage to trees and several structures along west Cadron Ridge Road just north of Conway. Three mobile homes sustained minor damage from the storm and two other mobile homes had their porches blown away. Nickel to quarter size hail fell with the storms. Other spots around the county also reported minor damage, mostly downed tree limbs.
ARKANSAS									
Pulaski County	11	1300CST			0	0	4	0	Lightning
									Lightning struck a house off of Batesville Pike. The ensuing fire destroyed the house with damages estimated at \$45,000.
Phillips County	11	1330CST			0	0	4	0	Thunderstorm Wind
									High winds caused considerable damage to a terminal building on Highway 49 in Helena.
Jefferson County	12	1430CST- 1450CST	5	100	0	0	0	?	Tornado (F0)
									A weak, slow-moving, ropelike tornado touched down in a mainly agricultural area just northeast of Linwood. Because the tornado passed over agricultural areas, damage was limited to a few downed trees. During its path, the tornado passed over the Arkansas River, at which time it was most visible due to the sucking up of water from the river.
Marion County	18	1345CST			0	0	3	?	Thunderstorm Wind and Hail (1.75)
									A severe thunderstorm ripped through Marion County and downed numerous trees from Flippin to Bull Shoals Reservoir. Golfball size hail accompanied the sudden storm.
Ashley County	18	1640CST			0	0	5	?	Lightning
									Lightning started two different fires in Crossett. Both fires were at homes and caused substantial damage.
Garland County	19	1535CST			0	0	?	0	Thunderstorm Wind
									A small but powerful storm downed as many as 20 trees at Lake Catherine State Park just east of Hot Springs.
Pulaski County	19	1730CST			0	0	5	?	Thunderstorm Wind Lightning Flash Flooding
									High winds from thunderstorms downed trees near Jacksonville High School. Other trees were downed on the north side of Jacksonville, including a 2-foot diameter pine tree. In North Little Rock, at least eight homes were struck by lightning. Heavy rains, up to six inches, accompanied the storms and caused flash flooding in mainly the northern part of the county. Several businesses and homes were flooded, and a number of cars were washed into ditches. Employees from the North Little Rock Electric Department called it the worst electrical storm ever to hit the North Little Rock electrical distribution system.
Lonoke County	19	1745CST			0	0	?	?	Thunderstorm Wind
									High winds felled a large pine tree onto a van in Cabot. The vehicle was demolished. Also, the winds blew down a barn along Highway 89 in Cabot. Other damage occurred in the Mountain Springs community, just northwest of Cabot, where high winds ripped off the porch of a house. Very heavy rain accompanied the storms.
Clay County	24	2330CST			0	0	4	?	Thunderstorm Wind Hail (1.75)
									A severe thunderstorm moved through Clay County and caused damage at several spots in the county. In Corning, large plate glass windows were blown out at an area car dealer causing at least \$5,000 damage. Damage also occurred at a farm in Boydsville as high winds destroyed a storage building and dragged a heavy horse trailer across a yard. Large hail, up to golfball size accompanied the storm as it approached St. Francis. Several vehicles were damaged by the hail, as well as quite a few windows in area homes. Damage also occurred to soybean and milo crops in the area.
Izard County	25	1445CST			0	0	?	?	Thunderstorm Wind
									High winds downed trees near Oxford. A chickenhouse was destroyed by the violent winds at Knob Creek.
Independence County	25	1515CST			0	0	?	?	Thunderstorm Wind
									High winds downed a large tree onto power lines on Highway 25, east of Desha.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
— ARKANSAS											
White County	25	1623CST			0	0	?	?			Thunderstorm Wind
											Power lines in the city of Searcy were downed by high winds.
Baxter County	25	1920CST			0	0	4	?			Thunderstorm Wind
											High winds from a thunderstorm downed a large tree and tore off the roof of a building on Highway 62 in Mountain Home.
Jefferson County	25	2142CST			1	0	?	?			Thunderstorm Wind
											A severe thunderstorm passed through Pine Bluff and downed numerous trees citywide. One large tree fell onto a car with four occupants. One of the occupants was killed from the impact. Elsewhere, damage occurred to structures and boats at an area marina near Pine Bluff. Damage at the marina was estimated at \$250,000. M20V
Pulaski County	26	1435CST			0	0	?	?			Hail (1.75)
											Golfball size hail fell near I-30 and 630 in southwest Little Rock.
Pulaski County	26	1445CST			0	0	?	?			Hail (0.75) Thunderstorm Wind
											Large hail fell at the Capitol Towers in Little Rock. High winds downed power lines on Stagecoach Road in southwest Little Rock.
Grant County	26	1530CST			0	0	?	?			Thunderstorm Wind
											Trees were blown down on four different highways in the county. Quite a few trees were downed in a narrow strip from Sheridan to the Hot Spring County line. An outbuilding was overturned near city hall in Foyen.
Cleveland County	26	1540CST			0	0	?	?			Thunderstorm Wind
											Trees, power lines and a barn were all downed just north of Rison by gusty thunderstorm winds.
Jefferson County	26	1540CST			0	0	?	?			Thunderstorm Wind
											Several trees were downed and part of a roof removed from a church at White Hall. A restaurant, also in Whitehall, received minor damage to its roof and awnings. Trees were also downed in the Dollarway section of Pine Bluff.
Franklin County	28	1650CST			0	0	4	?			Thunderstorm Wind
											Violent winds ripped through the town of Ozark and caused damage throughout the city. Five large utility poles were downed with the top one-third of each twisted off. Trees and limbs were also blown down, some causing minor structural damage to a few homes and businesses.
Cleburne County	29	1345CST			0	0	0	?			Hail (0.75)
											State Police reported dime size hail five miles northeast of Quitman.
Faulkner County	29	1615CST			0	0	3	0			Thunderstorm Wind Lightning
											High winds from a thunderstorm caused some minor damage in a subdivision in Conway. A storage shed and a privacy fence were blown down at one residence while a lightning bolt started a fire at another nearby home.
4 CALIFORNIA, Northern — NONE REPORTED											
4 CALIFORNIA, Southern											
Riverside County, Perris	20	340pst			0	0	6	0			TSTM Wind
											Downdraft winds from a thunderstorm in the Perris area produced strong downdrafts. Three sailplanes and thirty-one ultralights were damaged or destroyed. The total damage was near 500,000 dollars. Also numerous power outages were reported throughout the mountains and deserts.
San Diego County, San Diego	26	1600pst			1	7	3	0			TSTM Rain
											Heavy rain near the Imperial County line in southeast San Diego caused loss of control of several vehicles. The roads were covered by flowing water. The accidents occurred on West 3rd Boulevard, located on Highway 8. M ?? V.
San Bernardino County, Twenty-nine Palms	31	1800pst			0	0	?	0			Flash Flooding
											A voluntary spotter for the National Weather Service reported eighty-five hundredths of an inch of rain in one hour (0.85"). A reporter on the local news at 7pm reported Highway 62 was under water.
5 COLORADO											
Denver County: Denver	2	1500MST			0	1	0	0			Lightning
											A 45 year old man was injured by lightning at Cherry Creek reservoir. Administration of CPR probably saved his life.
Summit County: Dillon	3	aftn.			0	2	0	0			Lightning
											Lightning slightly injured two females, aged 31 and 15, who were boating on Lake Dillon.
Morgan County: Pt. Morgan	4	1315MST			0	2	0	0			Lightning
											A 34 year old woman and a 62 year old man were seriously burned when struck by lightning northeast of Fort Morgan.
Gunnison County	4	1400MST			0	1	0	0			Lightning
											A 34 year old man was injured when struck by lightning on Blue Mesa. Two puppies he was holding in his lap were killed instantly.
Larimer County: Loveland	4	1410MST			0	1	0	0			Lightning
											Lightning knocked a 30 year old man to the ground on the fifth hole of a golf course in Loveland.
Jefferson County: Golden	4	1530MST			0	5	0	0			Lightning
											Lightning struck a group of people at the Jefferson county fairgrounds. A 42 year old woman was seriously injured, and was hospitalized for three days. Four other people sustained minor injuries.
Pueblo County: Pueblo	6	1956MST			0	0	0	0			Tstm. wind (50)
											A microburst of 58 mph was clocked at the Weather Service office in Pueblo.
Kit Carson County: 4N Burlington	7	1230MST	0.5	30	0	0	0	0			Tornado (F1)
											A tornado was sighted 4 miles northeast of Burlington.
Fremont County: Florence	7	1600MST			0	0	3	0			Flash flood
											Downpours caused a flash flood in Florence. A car and a camping trailer were washed into the Arkansas River.
Weld County: 7E Eaton	7	1712MST	0.5	30	0	0	0	0			Tornado (F1)
											A tornado touched down for a few minutes 7 miles east of Eaton. It had a ropelike appearance.
Larimer County: Fort Collins	7	1742MST			0	0	0	0			Hail (0.75)
											3/4 inch hail fell just north of Fort Collins, and continued falling in that area until 1800MST.
Larimer and Weld Counties CO2011-012	7	aftn/eve.			0	0	5	0			Heavy Rain
											Heavy rain fell in many areas in eastern Larimer and central Weld counties. Perhaps hardest hit was Windsor, in Weld county about 10 miles WNW of Greeley. 3 inches of rain fell in 2 hours, causing street flooding; about half the basements in town were also inundated, and the town's middle school sustained \$30,000 in water damage. There were several road washouts in Weld county from Windsor north to Nunn. Farther east, 3.49 inches of rain fell 11 miles north of Briggsdale from 1630 to 2100MST. In Larimer county, heavy rain forced the closure of U.S. Highway 287 north of Fort Collins. The downpour caused part of the wall of a building in Fort Collins to collapse.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
COLORADO									
Logan Cy: Merino	7	eve.			0	0	3	0	Heavy rain
			Heavy rain washed out a road west of Merino, and a culvert was damaged.						
Boulder County: Louisville	7	eve.			0	0	3	0	Lightning
			Lightning struck a sign at a bank near Louisville, damaging it and causing a smoldering fire that resulted in smoke damage to the bank and an adjacent building.						
Teller Cy: 5W Woodland Park	8	1248MST			0	0	0	0	Hail (1.75)
Adams County: 18 NE Byers	8	1401MST	0.5	15	0	0	0	0	Tornado (F0)
			A very small tornado was spotted 18 miles northeast of Byers.						
Adams County: 18 E Byers	8	1420MST			0	0	0	0	Hail (1.0)
Adams County: 10 NE Bennett	8	1600MST	1	20	0	0	0	0	Tornado (F0)
			A tornado touched down about 10 miles northeast of Bennett, staying on the ground until 1608MST.						
Adams County: 10 NE Bennett	8	1608MST			0	0	0	0	Hail (1.0)
Adams County: 8 NE Bennett	8	1615MST	1.5	25	0	0	0	0	Tornado (F1)
			A tornado spotted 8 miles northeast of Bennett stayed on the ground until 1623MST.						
Adams County: Strasburg	8	1617MST	0.5	30	0	0	0	0	Tornado (F1)
			A tornado touched down just north of Strasburg and lifted off the ground at 1621MST.						
Logan County: 3W Padroni	8	1631MST	1.5	40	0	0	0	0	Tornado (F1)
			A tornado touched down 3 miles west of Padroni, about 10 miles north of Sterling, and stayed on the ground until 1646MST.						
Logan County: 10 W Sterling	8	1631MST	1.0	40	0	0	0	0	Tornado (F1)
			A tornado 10 miles west of Sterling forced the evacuation of a missile base.						
Logan County: Fleming	8	1645MST	0.5	30	0	0	0	0	Tornado (F1)
			A tornado was spotted near Fleming, about 10 miles east of Sterling.						
Adams County: 6W to 1.5NW of Bennett	8	1645MST	4.5	30	0	0	0	0	Tornado (F1)
			A tornado first spotted 6 miles west of Bennett had moved to a position 1 1/2 miles northwest of the town by 1658MST.						
El Paso County: Manitou Springs	8	aftn.			0	0	0	0	Hail (1.0)
			1 inch hail fell at Ute Pass, just northwest of Manitou Springs.						
Morgan County Washington Cy. Logan County	8	eve.			0	0	0	5	Hail
	8	eve.			0	0	0	6	Hail
	8	eve.			0	0	5	6	Hail
			A swath of hail 11 miles long and 3 miles wide ravaged an area from Brush, in Morgan county, through northwestern Washington county to the Merino area in Logan county. A total of 2.3 million dollars in crop damage occurred. 1883 acres were hit in Morgan county with damage set at \$400,000. 5850 acres in Washington county sustained 1 million dollars damage, while 4200 acres in Logan county suffered \$900,000 damage. Affected crops included corn, alfalfa, wheat, beans, and sugar beets. In addition, about \$63,000 of property damage was reported. The hail was accompanied by heavy rain; 2.22 inches fell at Fleming in Logan county.						
El Paso County	9	1307MST			0	0	5	0	Hail (1.0), Heavy rain
			Hail up to 1 inch in diameter fell on the northern outskirts of Colorado Springs. 2.9 inches of rain fell in an hour in this area, causing minor water damage to some buildings. The hail fell for quite a while, piling up 9 inches deep on Interstate 25 near the Air Force Academy. Hail a foot deep buried the Interstate on Monument Hill and snowplows were used to clear the freeway. Severe damage was reported to buildings at the USAF Academy airfield.						
Clear Creek Cy: Idaho Springs	9	1322MST			0	0	3	0	Hail (0.75), Heavy Rain
			Hail up to 3/4 inch in diameter piled up 2 to 4 inches deep in Idaho Springs. Some basements were flooded, and several thousand gallons of fuel were contaminated when water flooded a gas tank.						
Adams County: 5 W Bennett	9	1911MST	1	30	0	0	0	0	Tornado (F1)
			A tornado was sighted near Manila, about 5 miles west of Bennett. It remained on the ground until 1920MST.						
COLORADO									
Jefferson Cy: 1 N Pine	10	1245MST			1	0	0	0	Lightning
			A 25 year old man was killed by lightning. The bolt struck a 30 foot tall pine tree before hitting the victim.						
Phillips County CO2013	11	1430MST			0	0	4	6	Hail (1.75)
			Hail up to golfball size pounded Phillips county from 1430 to 1500 MST. About 12000 acres of crops were damaged, mostly in the eastern part of the county near the Nebraska border. Total damage was estimated at 3.8 million dollars. Crops affected included corn, beans, wheat, oats, and millet. Up to 3 inches of rain fell along with the hail. The storm collapsed the roof of a quonset hut 11 miles ENE of Holyoke.						
Yuma County	11	evening			0	0	0	4	Heavy rain
			Up to 3 inches of rain fell in the county, damaging corn and beans.						
Kit Carson Cy: 22 NE Burlington	11	1835MST			0	0	3	0	Tstm. Wind
			Thunderstorm winds damaged trees 22 miles northeast of Burlington.						
Douglas County: Franktown	13				0	0	3	0	Tstm. wind
			A garage was unroofed at Franktown.						
Elbert County: 5E Matheson	14	1415MST	1/2	25	0	0	0	0	Tornado (F1)
			A tornado touched down 5 miles east of Matheson.						
Sedgwick County: Julesburg	17	0300MST			0	0	4	0	Heavy Rain
			4 to 6 inches of rain drenched Julesburg in just an hour. At least one road was washed out, and several buildings were flooded.						
Otero County: Fowler	18	1630MST			0	0	3	4	Hail
			Hail damaged corn and alfalfa crops near Fowler, and broke a few windows in the area.						
Logan County: Sterling	18	1753MST			0	0	0	0	Hail (1.75)
			Golfball size hail fell just south of Sterling.						
Washington Cy: 11N Last Chance	18	1753MST			0	0	0	0	Hail (0.88) Tstm. wind (52)
			Nickel size hail and wind gusts to 60 mph occurred 11 miles north of Last Chance.						
Morgan County: 5W Brush	18	1756MST	0.3	30	0	0	0	0	Tornado (F1)
			A tornado touched down in a field between Brush and Fort Morgan.						
Morgan County: 11S Brush	18	1802MST			0	0	0	4	Hail (0.75)
			3/4 inch hail fell 11 miles south of Brush. There was crop damage in the area to corn, beets, and beans.						
Logan County: Peetz	18	1815MST			0	0	4	4	Hail (1.75)
			Golfball size hail fell just southwest of Peetz, breaking windows, damaging roofs, and battering crops. Up to 3 inches of rain fell in the area.						
Weld County: 3E Greeley	18	1912MST			0	0	0	0	Tstm wind (63)
			A thunderstorm microburst caused a gust of 74 mph 3 miles east of Greeley.						
Morgan County: Fort Morgan	18	1940MST			0	0	0	0	Tstm wind (50)
Saguache Cy: La Garita	19	aftn.			0	0	0	4	Hail (1.75)
			Hail up to golfball size pounded the area near La Garita, causing damage to barley, spinach, lettuce, alfalfa, and potatoes.						
Mesa County: Rifle	20	1530MST			0	0	3	0	High winds
			High winds in Rifle unroofed a shed, lifted another off the ground, and scattered bicycles and trash cans. A strong dust devil was probably responsible for the damage.						
La Plata Cy: Bayfield	23	aftn.			0	0	3	0	Tstm. wind
			Strong winds in Bayfield knocked numerous branches off trees; the falling branches damaged several roofs in the town.						
Lincoln County: 5S Karval	23	1655MST			0	0	3	0	Hail (1.0), Tstm. wind
			1 inch hail fell 5 miles south of Karval, and some trees were blown down. The hail 10 miles west of Punkin Center was also accompanied by strong winds, with minor flooding.						
10W Punkin Center	23	1800MST			0	0	0	0	Hail (1.0)
			1 inch hail fell 5 miles south of Karval, and some trees were blown down. The hail 10 miles west of Punkin Center was also accompanied by strong winds, with minor flooding.						
El Paso Cy: Truckton	23	1705MST			0	0	0	0	Hail (1.75)
			Golfball size hail and strong winds occurred at Truckton, 30 miles ESE of Colorado Springs.						
Otero County: La Junta	23	1804MST			0	0	0	0	Tstm. wind (56)

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					KILLED	INJURED	PROPERTY	CROPS	
COLORADO									
Elbert County: Simla	24	1610MST			0	0	0	0	Hail (0.75)
		3/4 inch hail fell between Simla and Matheson.							
Larimer County: 20NNE Ft. Collins	25	1405MST			0	0	0	0	Hail (1.0)
		1 inch hail fell in extreme northeast Larimer county, about 20 miles NNE of Fort Collins.							
El Paso County: Peyton	25	1520MST			0	0	0	0	Hail (1.75)
		Golfball size hail fell between Peyton and Calhan from 1520 to 1530MST.							
Pitkin County: 10 SE Aspen	26	1200MST			1	0	0	0	Lightning
		A 49 year old man was struck and killed by lightning while hiking on Independence Pass.							
Teller County: Cripple creek	26	1300MST			0	0	0	0	Hail (1.75)
		Golfball size hail fell in Cripple Creek.							
Douglas County: Parker	26	1413MST			0	1	0	0	Lightning
		A 9 year old girl was slightly injured by lightning in Parker.							
Lincoln County: 8N Arriba	28	1700MST	1	25	0	0	0	0	Tornado (F1)
		A small tornado touched down 8 miles north of Arriba. It was on the ground two or three minutes.							
La Plata Cy: Durango	29	aftn.			0	2	0	0	Lightning
		A 37 year old woman and her 11 year old daughter were injured by lightning in Durango; zippers on their clothes turned red hot.							
Mesa County CO2003	29	1630MST			0	0	3	5	Tstm. winds
		High winds caused damage to pears, peaches, apples, and plums in the Grand Junction area. One power line was downed.							
Mesa County: Grand Junction	29	1824MST			0	0	0	0	Tstm. wind (52)
		A thunderstorm produced a microburst gust of 60 mph at the Grand Junction airport.							
Eagle County: Dotsero	30	2220MST			0	0	3	0	Heavy rain
		Downpours caused partial washout of a road near Dotsero.							
6 CONNECTICUT									
Litchfield County, Canaan, Norfolk	11	1830EST- 1900EST			0	0	5	0	Tstm Winds (70 kts)
		A severe thunderstorm moved through the area with a downburst of wind up to hurricane force felling trees along a narrow path in two towns. Scattered power outages occurred but no serious damage was reported. However, an old historic inn in Norfolk was damaged by a falling tree.							
Hartford County, Windsor Locks	11	2205EST			0	0	5	0	Tstm Winds (76 kts)
		A severe thunderstorm brought a wind gust to 89 mph at Bradley International Airport.							
Litchfield, Hartford Tolland, and Windham Counties	14	1830EST- 2000EST			0	0	5	0	Lightning
		A series of thunderstorms moved through the area producing lightning strikes which knocked out power to about 7,000 electric customers. In addition, a lumberyard in Putnam was damaged by a lightning-caused fire.							
7 DELAWARE									
Entire State	3-19				0	?	0	?	Heat Spell
		Temperatures rose well into the 90s and the 100 degree mark in two time spans, from the 6th-11th and again the 13th-19th. No records were broken, although a reading of 100 degrees on the 17th equalled the record for that day.							
New Castle Co	17	1700EST			0	0	3	0	Thunderstorm Wind
Rent Co	17	1850EST			0	0	?	0	Thunderstorm Wind (33kt)
		Thunderstorms downed some power lines and tree branches in New Castle County. Local flooding occurred at Smalleys Dam due to heavy rains.							
DELAWARE									
New Castle Co, Smalleys Dam (Summit Bridge vicinity)	21	1845EST	0.25	20	0	0	0	0	Tornado (F0)
		A small tornado toppled 10 to 15 trees, half of which were uprooted and half sheared off about 5 feet above the ground. Bark was peeled off many trees. Power lines were downed and roads blocked, but no property damage was reported.							
Sussex Co Milton	27	1422EST			0	0	?	?	Hail (1.75) Lightning
		Local street flooding occurred in Bethany Beach due to heavy rains. A woman in Milton was injured by lightning while talking on the phone.							
8 FLORIDA									
Dade Co., Homestead (2mi. E)	02	1600EST			1	0	0	0	Lightning
		A man on a motorboat about one mile offshore was struck and killed by lightning. M340.							
St. Johns Co., Hastings	10	1630EST	1.0	30	0	0	3	0	Tornado (F0)
		A tornado was sighted by the public. A mobile home suffered roof damage. Several trees were downed.							
Okaloosa Co., Niceville	11	1800CST			0	1	0	0	Lightning
		A man at a fairgrounds was injured by a nearby lightning strike.							
Clay Co., Florahome (5mi. NW)	12	1930EST			1	0	0	0	Lightning
		A 37 year old man was struck and killed by lightning. M370.							
Suwannee Co., Luraville	14	1500EST			0	0	3	0	TSTM wind (55)
		High wind damaged the roof of a mobile home. Several trees were downed.							
Pinellas Co., St. Petersburg Beach	15	1130EST	1.0	30	0	0	3	0	Waterspout- Tornado (F0)
		A waterspout moved ashore and damaged several house roofs and destroyed a pool enclosure.							
Escambia Co., Pensacola	15	1220CST			0	1	0	0	Lightning
		A 13 year old boy swimming 10 feet offshore was struck and injured by lightning. The bolt was observed to travel considerable distance from a thunderstorm. It was not raining at the time.							
Pinellas Co., Palm Harbor	15	1500EST			0	0	4	0	TSTM wind (55)
		High wind damaged several mobile homes, mail boxes were blown down and several carpools were damaged.							
Okeechobee Co., Okeechobee	18	1300EST			0	0	3	0	TSTM wind (55)
		High wind blew down a flagpole at the county court house, several trees were downed and power lines were downed.							
Desoto Co., Arcadia	18	1340EST			0	0	3	0	TSTM wind (55)
		High wind blew the roof off of a mobile home.							
Pinellas Co., St. Petersburg	18	1530EST			0	0	3	0	TSTM wind (65)
		A wind of 65 knots was reported at Albert Whitted Airport. The high wind downed power lines, a large tree was downed and a 47 foot tugboat sank in Tampa Bay.							
Lake Co., Tavares	18	1715EST			0	0	5	0	TSTM wind (60)
		High wind damaged several mobile homes, trees were blown down, power poles were blown down and the roof of a carwash was blown off.							
Manatee Co., Bradenton (2mi. S)	19	1400EST			0	0	4	0	TSTM wind (55)
		High wind damaged the roofs of eight mobile homes.							

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FLORIDA										
Pasco Co., Hudson	20	1400EST			0	1	0	0	Lightning	
	20	1500EST			0	1	0	0	Lightning	
	A man was injured by lightning while in his backyard. A second man was injured by lightning while standing in his mobile home doorway.									
Duval Co., Jacksonville	24	1830EST			0	0	0	0	Hail (1.7)	
	Hail 1.7 inches in diameter was reported in western Jacksonville.									
Pinellas Co., St. Petersburg	25	1200EST	1.0	30	0	0	4	0	Tornado (F0)	
	A tornado damaged the roofs of 14 buildings, uprooted ten trees and downed power lines.									
Polk Co., Winter Haven	25	1330EST			0	0	3	0	TSTM wind (55)	
	High wind blew the roofs off of several mobile homes, downed a chain link fence and uprooted several large trees.									
Escambia Co., Pensacola	26	1600CST	1.0	30	0	0	4	0	Tornado (F0)	
	A tornado destroyed several signs, shattered windows, downed power lines and damaged several cars.									
Okeechobee Co., Okeechobee	26	1800EST	1.0	30	0	0	0	0	Tornado (F0)	
	A tornado was observed over open ground.									
Charlotte Co., Punta Gorda	27	1500EST	0.5	20	0	0	2	0	Tornado (F0)	
	A tornado was observed to blow over a tree which damaged an automobile. Several other trees were downed.									
9 GEORGIA										
Dougherty County, Albany	01	1700EST			1	0	0	0	Heat	
	A 74 year old woman was found dead in her home, a victim of heat stroke. F74P									
Habersham County, Tallulah Falls	09	1658EST			0	0	?	0	TSTM Wind	
	Several trees were blown down near Tallulah Falls.									
Walton County, 2N Social Circle	09	1722EST			0	0	?	0	TSTM Wind	
	Trees were downed by thunderstorm winds north of Social Circle.									
Madison County, Hull	09	1743EST			0	0	?	?	TSTM Wind	
	Trees were downed by thunderstorm winds near Hull. Marble size hail fell from the storm.									
Hart County, NE & SE of Hartwell	09	1959EST			0	0	?	?	TSTM Wind	
	Trees and power lines were downed by thunderstorm winds just northeast and southeast of Hartwell. Cars were damaged by falling limbs.									
Fannin County, Blue Ridge	10	0255EST			0	0	?	?	TSTM Wind	
	Thunderstorm winds downed trees in Blue Ridge.									
Dodge County, Eastman	15	1800EST			1	0	0	0	Heat	
	An 86 year old man died of heat stroke in Eastman. M86P									
Lee County, Leesburg	15	1808EST			0	0	?	?	TSTM Wind	
Dougherty County, Albany	15	1808EST			0	0	?	?	Hail (0.75)	
	Several trees were downed near Leesburg by thunderstorm winds. Dime size hail fell in Albany.									
Randolph County	15	1830EST			0	0	?	?	TSTM Wind	
	Thunderstorm winds downed large limbs at scattered locations across Randolph County.									
Quitman County, Georgetown	15	1900EST			0	0	?	0	Lightning	
	Lightning started a house fire in Georgetown and knocked out an entire power substation. Lightning strikes also caused numerous power outages.									
Turner County, IW Ashburn	15	1930EST			0	0	?	?	TSTM Wind	
	Power lines were blown down by thunderstorm winds west of Ashburn.									
GEORGIA										
Tift County, IE Tifton	15	1937EST			0	0	?	?	TSTM Wind	
	Thunderstorm winds downed trees just east of Tifton.									
Haralson County, Tallapoosa	16	1142EST			0	0	?	0	TSTM Wind	
	Three trees were downed by thunderstorm winds in Tallapoosa.									
Whitfield County, 3NW Dalton	16	1415EST			0	0	?	0	TSTM Wind	
	Numerous trees were downed and others broken off by thunderstorm winds in the Rocky Face area northwest of Dalton. An apartment complex was damaged as well as the roofs of 10-15 homes and two mobile homes.									
Jackson County, Arcade	16	1445EST			0	0	?	0	TSTM Wind	
	Three trees were downed by thunderstorm winds. They fell across a road and a mobile home.									
Cherokee County, Canton	16	1450EST			0	0	?	?	TSTM Wind	
	16	1450EST			0	0	?	?	Lightning	
	Lightning caused several house fires in Canton. Thunderstorm winds downed several trees and power lines near Canton.									
Putnam County, IONE Eatonton	16	1700EST			0	0	?	?	TSTM Wind	
	16	1700EST			0	0	0	2	Lightning	
	Thunderstorm winds downed or snapped several trees, damaged some roofs and blew windows out of a mobile home in the Oconee Crossing area northeast of Eatonton. Two cows were killed by a lightning strike in the same area.									
Hall County: 7W Gainesville Oakwood	17	1745EST			0	0	?	0	TSTM Wind	
	17	1800EST			0	0	?	0	TSTM Wind	
	Thunderstorm winds downed trees and large limbs near Chestatee Church west of Gainesville and in Oakwood.									
Washington County, Sandersville	25	1430EST			0	1	?	0	TSTM Wind	
	Concrete block walls at two construction sites were blown down by thunderstorm winds. One construction worker was injured when one of the walls fell on him.									
Henry County, 5N Stockbridge	27	1700EST			0	0	3	0	TSTM Wind	
	Thunderstorm winds downed several trees and snapped off another, overturned a trailer, and damaged a greenhouse in the extreme northwest corner of Henry County. One tree fell on a house.									
Gwinnett County, Buford	28	1800EST			0	0	?	0	Lightning	
	Lightning caused four fires in the Buford area. One of the fires destroyed a mobile home.									
Richmond County, Blythe	30	1535EST			0	0	?	0	TSTM Wind	
	Thunderstorm winds blew the roof off a trailer in Blythe.									
Richmond County, 10S Augusta	30	1616EST			0	0	?	?	Hail (0.75)	
Dodge County, Gresston	30	1630EST			0	0	?	0	TSTM Wind	
	Thunderstorm winds blew down trees along Highway 23 near Gresston.									
10 IDAHO										
Blaine Co., near Picaabo	7	afternoon ?			?	0	0	2	2	Tornado (F0)
	A "twister" threw bales of hay from a haystack and rows of raked, unbaled hay were blown apart near the intersection of Idaho 20 and Gemnett Road.									
Cassia Co., south of Burley	10	afternoon			0	0	3	0	TSTM Wind	
	Thunderstorm winds picked up a shed, moved it 50 feet, and destroyed it at a farm just south of Burley.									
Custer Co., Mackay	10	late afternoon			0	0	3	0	TSTM Wind	
	Strong winds broke a huge limb off a tree at Mackay which broke a telephone pole and downed lines.									
Madison Co., Rexburg, Hibbard	10	1800-1900MST			0	0	3	0	TSTM Wind	
	Strong winds ripped down trees, damaged a shed roof at Hibbard, and tore down a sign south of Rexburg. Unofficial wind gusts of 43 knots were recorded at Ricks College									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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

11 ILLINOIS

ILLZALL
Entire State

All Month 0 0 0 ? Drought

Much of the following information was supplied by the Illinois State Water Survey, Champaign, Illinois. Severe to extreme drought conditions continued across northern and central Illinois through July 1988. The intensity of the drought, however, was temporarily reduced in some areas of Illinois when rain during the middle two weeks of the month was received over much of the state. West-central Illinois remained the area of greatest stress from drought conditions where less than 1 inch of rain was recorded during the month. July precipitation across the state represented a greater percentage of average than those of June 1988. The greatest increase of precipitation in July was noted in the east-southeast districts with 111 percent of average. Although still remaining below average in July, the northeast, west-southwest and southeast districts increased from the 3 month average, exhibiting a relaxation of short term drought conditions. The statewide average precipitation for July represented 66 percent of the 1981-1980 average (normal); however, central and west-central sections of the state received substantially less than that amount, averaging only about 20 percent of normal. A large band extending from Quincy to Peoria to Elwood received less than 1 inch and at most reporting sites only 0.3 to 0.4 inch of rain fell. Greatest rainfall for the month occurred in the southeast sector of the state, where 6 inch amounts were common. The precipitation deficits that had accumulated for all of Illinois since January 1st, 1988 actually became surpluses in parts of the southeast. Surpluses to deficits ranged from plus 1 inch in Marion county in southern Illinois to a whopping 14.5 inch deficit at Elwood in Will county which is about 80 miles to the southwest of Chicago. In general, rainfall deficits since January 1st were in the 7 to 12 inch range in the northern two thirds of Illinois and deficits across the far southern part of the state were about 3 to 7 inches below normal. These deficiencies were largely a result of rainfall shortfalls since about April 1st, at the beginning of the important growing season. Portions of central Illinois reported the January through July period to be the driest 7 month period on the weather record books. Many crops were failing and were in extreme stress over central and over portions of northern Illinois during the month. The following table summarizes rainfall amounts and departures from normal for July and for the first seven months of the year. Rainfall data is from official first order weather reporting stations across Illinois and from bordering nearby locations.

1988 DROUGHT FOR ILLINOIS

STATION	JULY RAINFALL	DEPARTURE FROM NORMAL	JANUARY 1 - JULY 30 RAINFALL	DEPARTURE
DUBUQUE	1.97	-2.36	10.22	-12.54
MOLINE	1.79	-3.09	11.81	-11.28
ROCKFORD	2.39	-2.11	12.43	-9.81
CHICAGO	2.74	-0.89	12.38	-7.64
PEORIA	0.33	-3.66	9.73	-11.66
SPRINGFIELD	1.74	-1.79	11.64	-9.39
ST. LOUIS	3.02	-0.61	17.08	-3.71
PADUCAH	3.08	-0.61	22.01	-7.42
EVANSVILLE	6.63	+2.63	20.95	-5.72
CAIRO	6.06	+2.01	25.20	-2.40

In addition to the drought during July 1988, excessive temperatures were noted across the state during the month. The temperatures during July averaged from near normal in southern sections of Illinois to about 2 to 4 degrees above normal in the north. From the 4th to the 19th of the month, average temperatures for the period were about 7 degrees above normal in the north. Daily highs were much above normal and to a greater degree than daily lows due to continuing lower than average humidities and large diurnal temperature variations. Many new daily maximum temperature records were set during the month and readings went above the 100 degree mark at many locations. For the year and up through July 31st... Chicago's official reporting station at O'Hare Airport had experienced 32 days of when the temperature reach 90 degrees or higher versus a normal of 11 such days for this period. In terms of maximum temperatures of 95 degrees or greater, 1988 in Chicago by the end of July had the most days of any year in over 115 years of record-keeping with 15 such days. Also, by the end of July 1988, Chicago had 32 days when the maximum temperature reached 90 degrees or greater, a new record for any year for the period from the first of the year to the end of July. In addition, through the end of July the temperature in the year 1988 reached 100 degrees or higher on 5 separate days at Chicago. This was a new record for the most 100 degree or greater days for any entire year on the record books.

Paris, Edgar Co.

14 1255CST 0 0 ? ? Tstm Wind Hail (1.0)

1-inch hail fell at Paris. Strong winds caused widely scattered power outages across Edgar county. The storm dumped 1.6 inches of rain in a short period of time in Paris.

NW of Clay City, Clay Co.

14 1930CST 0 0 ? ? Hail (0.75)

Near Olney, Richland Co.

14 1930CST 0 0 ? ? Hail (0.75)

11 ILLINOIS

Scott Air Force Base, St. Clair Co.

17 1550CST 0 0 4 0 Tstm Wind (52)
Strong thunderstorms damaged Scott Air Force Base and the damage included flooding of two buildings, some toppled power lines, wind damage to 16 flag poles on Scott Drive and a 10 by 12 inch hole was blown into a runway by lightning. 2 inches of rain fell in 45 minutes.

Cooksville, McLean Co.

25 1100CST 0 0 ? ? Hail (0.75)
Hail badly damaged several bean crops and nearly flattened some corn fields near Cooksville.

Carrollton, Greene Co.

25 1315CST 0 0 4 0 Tstm Wind
High winds blew down some large trees and power lines in Carrollton.

Jerseyville, Jersey Co.

25 1430CST 0 0 3 0 Tstm Wind
Tree damage occurred in the north portion of Jerseyville and the Greene county line along Highway 267.

Alto Pass, Anna, Cobden, Jonesboro, Union Co.

25 1700CST 0 0 4 0 Tstm Wind
Numerous powerlines, trees and tree limbs were blown down by strong thunderstorm winds across parts of Union county.

12 INDIANA

LaPorte County, Rolling Prairie

10 1415 EST 0 0 ? ? Tstm Wind (52)

The LaPorte County Sheriff reported 60 mph winds downed trees and disrupted power in Rolling Prairie.

White County, Brookston

10 1435 EST 0 0 0 0 Tstm Wind

Three trees and 8 power poles were downed by thunderstorm winds.

Putnam County, Barnard

10 1605 EST 0 0 0 0 Tstm Wind

Hendricks County, North Salem

10 1605 EST 0 0 0 0 Tstm Wind

Strong thunderstorm winds downed a few trees.

Kosciusko County, SE Warsaw

14 0620 EST 0 0 5 ? Tstm Wind

Three house trailers were overturned and eight were moved off their foundations at Stump Trailer Park on Piercetown Road, 5 miles east of Warsaw. Some trees were downed and power outages were reported at Piercetown and Sidney in eastern Kosciusko County.

Vermillion County, Fairview

14 1542 EST 0 0 0 0 Hail (11.75)

2N Clinton

14 1545 EST 0 0 0 0 Hail (1.0)

Vigo County, IN Terre Haute

14 1610 EST 0 0 0 0 Tstm Wind

Pontcanet

14 1615 EST 0 0 0 0 Tstm Wind

Strong thunderstorm winds downed trees. Also, roof damage was reported at a shopping mall on the south side of Terre Haute.

Sullivan County, Farmersburg

14 1631 EST 0 0 0 0 Tstm Wind (58)

Shulburn

14 1645 EST 0 0 0 0 Tstm Wind

Sullivan

14 1650 EST 0 0 0 0 Tstm Wind

Dugger

14 1710 EST 0 0 0 0 Tstm Wind

Green County, 18E Vicksburg

14 1715 EST 0 0 0 0 Tstm Wind

A television station in Farmersburg measured a wind gust of 67 mph. Strong thunderstorm winds downed trees at Farmersburg, Shulburn, Sullivan, and Dugger in Sullivan County. The storm also downed trees along the Sullivan-Green County line near Vicksburg.

Lagrange County, Shipshewana

15 1855 EST 0 0 5 0 Lightning

Shipshewana

15 1900 EST 0 0 5 0 Tstm Wind

A house and a mobile home were destroyed by lightning-induced fires near Shipshewana. The home was valued at \$85,000 and the mobile home at \$20,000. Shortly after that, a two-story motel under construction was blown down by winds estimated in excess of 70 mph.

Elkhart County, Vistula

15 1859 EST 0 0 ? ? Tstm Wind (61)

Numerous trees 2 to 3 feet in diameter were downed and extensive power outages were reported.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
INDIANA									
Lagrange County, Lagrange	15	1923 EST			0	0	0	0	Tstm Wind (61)
									A spotter reported 70 mph winds in Lagrange.
Elkhart County, Nipanee	15	1925 EST			0	0	?	?	Tstm Wind (52)
Rosciusko County, Syracuse/Wawasee	15	1950 EST			0	0	?	?	Tstm Wind
									Several large tree limbs were downed and power outages were reported.
Noble County, Loon Lake	15	1950 EST			0	0	4	0	Tstm Wind
									A tree was blown through the roof of a house near Loon Lake. Two minor injuries were reported.
Whitley County, 6E Columbia City	15	2010 EST			0	0	3	0	Tstm Wind (52)
									A spotter reported 60 mph winds 6 miles east of Columbia City. Also, a several downed trees were reported across the county.
Noble County, 3W Laotto	15	2013 EST			0	0	0	0	Tstm Wind (52)
									A spotter reported 60 mph winds 3 miles west of Laotto.
Allen County, Fort Wayne	15	2045 EST			0	0	6	0	Tstm Wind
Fort Wayne	15	2100 EST			0	0	5	0	Tstm Wind
3SW Fort Wayne	15	2124 EST			0	0	3	0	Tstm Wind
Aboite	15	2125 EST			0	0	3	0	Tstm Wind
									At 2045 EST the customer service center of Power Wheels was destroyed by high winds. Damage to the center was estimated at \$750,000. Additionally, three other buildings belonging to Power Wheels lost their roofs, with substantial water damage to contents. Near the same location the Pines of America Building was blown down. At 2100 EST an empty warehouse was destroyed. Also, numerous trees and power lines were reported down in the city. At 2124 EST just southwest of the city, several 2-foot diameter trees and a telephone pole were downed by strong winds. In Aboite a large tree was blown down on a house.
Porter County, Chesterton	16	1600 EST			0	0	?	?	Tstm Wind
									Numerous large trees were uprooted or snapped off by strong thunderstorm winds. Several funnel clouds were sighted and some farm buildings sustained minor damage.
Pulaski County, Kewanna	16	1735 EST			0	0	?	?	Tstm Wind
									Strong thunderstorm winds caused scattered power outages and downed some small tree limbs.
Clark County	17	1415 EST			0	1	0	0	Lightning
									An emergency medical technician was hospitalized after being struck by lightning. Her arm was burned.
Washington County, Salem	20	0030 EST			0	0	5	0	Flash Flood
									Flash flooding occurred in Salem after 7.2 inches of rain fell in 24 hours. High water closed several streets, washed out two small bridges, and caused the evacuation of a trailer park.
Vanderburgh County, Evansville	25	1600 EST			0	0	?	?	Tstm Wind
									Strong thunderstorm winds downed numerous large trees. One house was damaged.
Boone County, 1NE Northfield	30	2310 EST			0	0	0	0	Tstm Wind
									Strong thunderstorm winds downed a cluster of trees.
Dubois County, Jasper	31	1830 EST			0	0	?	?	Hail (1.75)
Ireland	31	1840 EST			0	0	?	?	Hail (1.00)
Pike County, Petersburg	31	1845 EST			0	0	?	?	Tstm Wind
									Strong thunderstorm wind downed numerous large trees.
Knox County, Vincennes	31	1850 EST			0	0	?	?	Tstm Wind
									Trees were downed by 60 mph winds.
Daviess County, Washington	31	1910 EST			0	0	?	?	Tstm Wind
									Strong thunderstorm winds downed trees.
INDIANA									
Gibson County, Princeton	31	1913 EST			0	0	?	?	Tstm Wind
									Numerous large trees were downed.
Posey County, Mt. Vernon	31	2015 EST			0	0	?	?	Tstm Wind
									Numerous large trees were downed.
13 IOWA									
Johnson County, Solon	07	1820 CST			0	0	3	4	Tstm Winds (50+)
									A thunderstorm moved through the Solon area, causing some wind damage.
Woodbury County, Sioux City	08	1515 CST			0	1	0	0	Lightning
									A woman was struck and injured by lightning on the east side of Sioux City as thunderstorms moved through the area.
Buchanan County, 9S Jesup	09	1400 CST	0.3	15	0	0	5	3	Tornado (F0)
									Thunderstorms developed southeast of Waterloo. A tornado touched down briefly south of Jesup. A 20x204 foot hog shed and several outbuildings were destroyed. There was no damage to the farm house a few hundred feet away.
Grundy County, 15 W Waterloo	10	1108 CST			0	0	0	0	Funnel Clouds
									Numerous reports of funnel clouds were received on the northern Grundy County line.
Montgomery County, 1 W Elliot	10	1845 CST			0	0	0	0	Funnel Cloud
									A thunderstorm produced a funnel cloud in Montgomery County west of Elliot.
Polk, Dallas, Adams, Union, Ringgold, and Taylor Counties	12	0200 to 0400 CST			0	0	4	5	Flash Flood
									Heavy rains fell once again over much of the western two-thirds of Iowa. This continued the flooding over the southwest counties and prompted the issuance of a Flash Flood Warning for Polk, Dallas, Adams, Ringgold, Taylor and Union counties. Flash flooding from this event was fairly minor even though locally between 4 and 6 1/2 inches of rain fell in the area.
Tama County, Traer	14	0015 CST			0	0	3	2	Tstm Winds (50+)
									A small cluster of thunderstorms developed over Tama County. One of them became severe, downing several large trees in the area.
Appanoose County, 2E Moulton	14	0300 CST			0	0	4	3	Tstm Winds (50+)
									Strong thunderstorm winds damaged a barn and several hog sheds near Moulton.
Pottawattamie County, Carter Lake	15	1512 CST			0	2	6	1	Tstm Winds (80)
									Strong winds uprooted trees and caused extensive power-line damage in Carter Lake, leaving most of the town without power. Windows were blown out of buildings, mobile homes heavily damaged, and portions of roofs blown off. A wind gust of 92 MPH was measured a short time later at nearby Omaha Eppley Airport. Two people were injured.
Pottawattamie County, Council Bluffs	15	1514 CST	2.3	100	0	42	7	2	Tornado (F2)
		to 1520 CST							
Council Bluffs	15	1516 CST	2.8	75	0	34	7	2	Tornado (F3)
		to 1523 CST							
Council Bluffs	15	1519 CST	3.0	75	0	12	7	2	Tornado (F1)
		to 1526 CST							
Pottawattamie County, Council Bluffs	15	1514 CST			0	6	6	2	Tstm Winds (52)
		to 1530 CST							
Harrison County, Beebeetown	15	1530 CST			0	0	3	1	Tstm Winds (50+)
Cass County, Atlantic	15	1545 CST			0	0	4	4	Tstm Winds (50+)
Pottawattamie County, Oakland	15	1600 CST			0	0	3	2	Tstm Winds (50+)
Cass County, Anita	15	1620 CST			0	0	4	3	Tstm Winds (50+)
Guthrie County, 12W Guthrie Center	15	1820 CST	0.3	15	0	0	4	2	Tornado (F0)
Adair County, Bridgewater	15	1845 CST	0.8	35	0	0	5	3	Tornado (F1)
									A severe thunderstorm moved out of Nebraska into Southwest Iowa. A series of tornadoes swept through northern Council Bluffs injuring 88 people. Damage was extensive with over 1,000 homes damaged in Council Bluffs. There were 18 homes completely destroyed. Twenty-one apartments were damaged, 3 mobile homes destroyed and 5 more damaged. Numerous businesses along West Broadway were severely damaged. These included motels and car dealerships. A number of fires were started in damaged structures. The first

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
IOWA											
			<p>tornado touched down at the Dodge Park Golf Course and moved northeast to near 25th Street and I-29. The second touched down near I-29 and 16th Avenue and moved northeast to near Bahnsen Park. The third tornado touched down near the Bluffs Run Track at I-80 and 24th Street and moved northeast about 3 miles into the downtown area along Broadway. Outages from power line damage affected an estimated 20,000 customers. The second tornado blew a 40-car freight train off the tracks. Damage was done to a 700 square block area in Council Bluffs. Strong thunderstorm winds caused extensive damage to trees, utility lines, signs, and traffic lights in Council Bluffs. A number of windows were blown out and buildings had considerable roof damage. Fallen trees damaged homes, garages, and vehicles. Approximately three injuries were attributed to the winds, with the other three being related injuries. Damage estimates include \$10.7 Million to residences, \$4.5 Million to businesses, and over \$1.5 Million to public property. Utilities sustained over \$2.2 Million in damages. Total damage was near \$43 Million. The storm moved east into Cass County, but lost much of its strength. Winds downed trees at Atlantic, Beebeetown, and Oakland. Damage occurred to outbuildings at Anita, in Cass County. There were two small tornadoes from the storms as they moved east. The first was west of Guthrie Center. An old barn was destroyed and moved 5 feet to the west, off its foundation. The second was stronger; it touched down at Bridgewater. The tornado picked up and destroyed several outbuildings.</p>								
Tama County, Traer	15	2329 CST			0	0	4	3			Tstm Winds (50+)
Black Hawk County, LaPorte City	16	0020 CST			0	0	5	3			Tstm Winds (65)
			<p>A second area of thunderstorms developed late on the evening of the 15th. These storms produced strong winds. Several trees and a few outbuildings were blown down at Traer. A stronger storm struck at LaPorte City. Winds around 75 MPH blew down barns and trees in the area. Several pieces of sheet metal roofing were wrapped around the trees on one farmstead.</p>								
Buchanan County, 4SE Quasqueton	16	0115 CST			0	0	4	3			Tstm Winds (50+)
			<p>A thunderstorm passed over a farmstead southeast of Quasqueton. Winds overturned a trailer and did some minor damage to the farmstead.</p>								
Carroll County, Carroll	17	1515 CST			0	0	4	4			Tstm Winds (53)
Lidderdale	17	1525 CST			0	0	4	6			Hail (1.00)
			<p>Strong thunderstorms developed over Southern and Western Iowa. Only one of them became severe. Winds of 61 MPH were recorded at Carroll. One-inch diameter hail completely wiped out crops in a 2x4 mile path near Lidderdale. Damage was over \$1,000,000.</p>								
Dickinson County	22	1648 CST			0	0	3	0			Dust Devil
			<p>A very strong dust devil developed on the edge of Lake Okoboji. It picked up whole sections of several docks and swept away all of the loose dirt in the area. Winds were estimated in excess of 60 MPH.</p>								
Kossuth County, Svea City	24	1150 CST			0	0	3	2			Tstm Winds (50+)
			<p>A thunderstorm moved through Kossuth County. Winds damaged roofs on a few houses and blew away an outbuilding.</p>								
Winneshiek County, 6N Decorah	24	1500 CST			0	0	3	4			Tstm Winds (50+)
	24	1500 CST			0	0	3	4			Hail (1.00)
			<p>A thunderstorm moved across northern Winneshiek County. Strong winds toppled trees and power lines along a 10-mile-long path centered 5 to 6 miles north of Decorah. Hail of one-inch diameter fell at a farm north of Decorah.</p>								
Calhoun County, Rockwell City	24	1700 CST			0	0	3	4			Hail (1.75)
Lake City	24	1743 CST			0	0	4	5			Hail (1.75)
Carroll County, Breda	24	1815 CST			0	0	3	4			Hail (0.88)
			<p>A thunderstorm supercell developed in northwest Iowa and sank slowly south-southwest. As it passed over Rockwell City, it dropped golf ball size hail. Later on, it moved through Lake City. Hail ranging from pea to golf ball size fell for 30 minutes. Enough hail fell to completely cover the ground. Damage was extensive to crops in the area. As the storm moved into Carroll County, nickel size hail fell at Breda.</p>								
Lee County, Fort Madison	31	1840 CST			0	0	4	3			Tstm Winds (50+)
	31	1840 CST			0	1	0	0			Lightning
			<p>A thunderstorm developed over Lee County. Winds downed several trees in Fort Madison. A man was injured when lightning struck him at a service station there.</p>								
Cedar County, Mechanicsville	31	2220 CST			0	0	4	2			Tstm Winds (65)
			<p>An isolated thunderstorm developed in Cedar County. Winds around 75 MPH lifted the roof off a house in Mechanicsville.</p>								
All of Iowa	All Month				0	0	0	9			Drought
			<p>The drought conditions which began during the Spring continued over Iowa in July. There was some significant rainfall over the west half of the state, but hot temperatures quickly evaporated much of the rainfall. At month's end, 38% of the corn crop, 31% of the soybean crop and 41% of the oat crop was lost. Damage to these 3 crops alone during the month of July amounted to \$1.5 Billion.</p>								
14 KANSAS											
Labette Co., Altamont	01	0140CST			0	0	4	0			Lightning
			<p>Lightning struck a powerline and was channeled into a house, setting it on fire. No injuries were reported, but the home was destroyed. Damage to the house was estimated at \$35,000.</p>								
Thomas Co., 5N Brewster	05	1920CST			0	0	3	0			TSTM Wind
			<p>An isolated thunderstorm produced strong winds that damaged a cattle barn.</p>								
Eastern Rawlins and Western Decatur counties	07	1230 to 1500CST			0	0	4	4			Flash Flood
			<p>Slow-moving thunderstorms produced locally heavy rains of 4 to 6 inches across far northwest Kansas during the early afternoon hours. Street flooding was reported in Oberlin with several homes receiving flooded basements. Some crops in the area were also damaged.</p>								
Cowley Co., Wilmont	08	1840CST			0	0	4	0			Lightning
			<p>Lightning struck a home and set it on fire, causing \$30,000 damage.</p>								
Cloud Co., 15W Concordia 3.5N Glasco	09	1632CST	.5	20	0	0	3	0			Tornado (F0)
	09	1632CST			0	0	0	0			Funnel Clouds
			<p>Thunderstorms produced a small tornado that touched down on a farm in rural Jamestown. The tornado destroyed a grain bin and small shed, and uprooted several trees. Several funnel clouds were also sighted north of Glasco.</p>								
Sherman Co., 7.5NW Goodland	12	1540CST	.2	20	0	0	0	0			Tornado (F0)
			<p>A small, short-lived tornado touched down in an open field. No damage was reported from the storm.</p>								
Logan Co., 5W Oakley	12	1900CST			0	0	3	4			TSTM Wind (61)
			<p>Thunderstorms produced strong, straight-line winds that damaged a few buildings and crops in the area. No injuries were reported with the storm.</p>								
Hamilton Co., Syracuse	13	1730CST			0	0	4	3			TSTM Wind
Kearny Co., 10W Lakin	13	1850CST			0	0	0	0			Hail (.75)
			<p>Severe thunderstorms developed late in the afternoon, producing strong winds of 80 to 100 mph in the Syracuse area. The winds destroyed a hangar and damaged an airplane at the airport. Damage to roofs and windows was reported along with several large trees being blown down. As much as 4 inches of rain accompanied the storm 5 miles south of Syracuse. The thunderstorms then moved east and produced large hail northwest of Lakin. No damage resulted from the hail.</p>								
Sherman Co., Goodland	14	1936CST			0	0	3	3			TSTM Wind (61)
Goodland	14	2021CST			0	0	3	3			TSTM Wind (61)
Rawlins Co., 2S Atwood	14	2200CST			0	0	3	0			TSTM Wind
Logan Co., Oakley	14	2315CST			0	0	5	3			TSTM Wind
Western Gove County	14	2330CST			0	0	3	3			TSTM Wind
			<p>A line of thunderstorms formed over northeast Colorado and moved eastward into northwest Kansas, producing strong winds. Many trees were downed with damage to a crane and crops in the Goodland area. Marble size hail also accompanied the storm. The storms continued moving east and produced damage to an untied-down mobile home south of Atwood. Very strong straight-line winds severely damaged a truck stop and a mobile home in Oakley. Damage was estimated at \$200,000. The storms also produced wind damage to crops in western Gove County.</p>								

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					KILLED	INJURED	PROPERTY	CROPS		
— KANSAS										
Marshall Co.: Marysville	15	1627CST			0	0	2	2	Hail (1.0)	
Frankfort	15	1630CST			0	0	4	3	TSTM Wind	
25 Blue Rapids	15	1645CST			0	0	3	2	TSTM Wind	
1W Lillies	15	1655CST			0	0	3	2	TSTM Wind	
Memaha Co., 5N Seneca	15	1650CST			0	0	3	2	TSTM Wind	
Riley Co., 5N Leonardville	15	1730CST			0	0	2	2	TSTM Wind (54)	
Rush Co., La Crosse	15	1830CST			0	0	4	3	TSTM Wind	
Clay Co., 10SW Wakefield	15	1840CST	.5	20	0	0	2	0	Tornado (F0)	
7E Clay Center	15	1900CST	.5	20	0	0	2	0	Tornado (F0)	
Saline Co., 1NW Solomon	15	1909CST			0	0	0	0	Funnel Cloud	
Salina	15	2056CST			0	0	4	0	Hail (1.75)	
Washington Co., 2SW Barnes	15	1910CST			0	0	3	0	TSTM Wind	
Dickinson Co., Abilene	15	1929CST			0	0	2	0	TSTM Wind (52)	
Ottawa Co., 9E Bennington	15	1930CST			0	0	2	3	Hail (1.0)	
Minneapolis	15	1935CST			0	0	4	0	TSTM Wind	
Ellsworth Co., 15NE Ellsworth	15	2037CST			0	0	0	3	Hail (1.75)	
					<p>Severe thunderstorms developed initially over northeast Kansas during the late afternoon, then built westward through the evening hours into central Kansas. Strong winds damaged several buildings in and around the Frankfort area. Hail was also reported in Marysville while strong winds damaged several outbuildings north of Seneca. In central Kansas, the severe storms spawned two small tornadoes. One touched down in open country southwest of Wakefield at 1840CST while the second tornado destroyed a mobile home and damaged several farm buildings east of Clay Center at 1900CST. High winds from the thunderstorms damaged trees and powerlines in Minneapolis and Salina. Wind damage to farm buildings was also reported in southeast Washington County. Strong winds damaged a roof on an airplane hangar at the La Crosse airport. Golfball size hail also fell in northeast Ellsworth County and east of Bennington.</p>					
Butler Co., Benton	16	1410CST			1	0	0	0	Lightning	
					<p>Lightning struck and killed a man as he was laying drain pipe near his home. No rain was falling at the time. Lightning N310.</p>					
Cowley Co., Winfield	16	1810CST			0	0	1	0	TSTM Wind (65)	
3NE Dexter	16	1818CST			0	0	3	0	TSTM Wind	
					<p>A severe thunderstorm developed over Winfield and moved northeast through Dexter. Minor property damage was reported in Winfield while a barn was unroofed near Dexter.</p>					
Seward Co., Liberal	16	1900CST			0	0	4	2	TSTM Wind	
					<p>Strong thunderstorms developed across portions of southwest Kansas during the evening hours. High winds damaged trees in Liberal that in turn knocked out power to the city. Minor street flooding was also reported in Liberal as 2 inches of rain fell in a short period of time.</p>					
Cowley Co., Winfield	17	1420CST			0	0	4	0	TSTM Wind (56)	
1SE Arkansas City	17	1532CST			0	0	0	0	Funnel Clouds	
Butler Co., 1N Andover	17	1500CST			0	0	5	0	Lightning	
Sumner Co., Geuda Springs	17	1538CST			0	0	0	0	Funnel Cloud	
					<p>Severe thunderstorms developed over portions of south-central Kansas during the afternoon hours. A severe storm moved across Winfield, producing winds of 63 mph and golfball size hail. Some windows were also</p>					
— KANSAS										
					<p>blown out in town. Several funnel clouds were sighted in Cowley and Sumner counties. Lightning struck a home in Andover, setting it on fire. The house was a total loss with damage estimated at \$100,000.</p>					
Pratt Co., 15W Pratt	17	1725CST			0	0	0	0	Funnel Cloud	
					<p>A funnel cloud was briefly observed hanging from the base of a strong thunderstorm west of Pratt.</p>					
Sherman Co., Kanorado	17	2017CST			0	0	3	3	TSTM Wind (57)	
					<p>A severe thunderstorm moved into far northwest Kansas from eastern Colorado and produced strong winds in the Kanorado area. Pea size hail also accompanied the storm. No significant damage was reported.</p>					
Republic Co., 3W Republic	18	1715CST			0	0	0	3	Hail (.75)	
					<p>A severe thunderstorm moved through northwest Republic County. The storm dropped three-quarter inch diameter hail west of Republic that did minor crop damage.</p>					
Sherman Co., Goodland	18	2224CST			0	0	3	4	TSTM Wind (58)	
6S Edson	18	2300CST			0	0	3	4	TSTM Wind (61)	
Thomas Co., Colby	18	2345CST			0	0	4	4	TSTM Wind (68)	
Decatur Co., Oberlin	19	0045CST			0	0	4	4	TSTM Wind (61)	
Sheridan Co., Hoxie	19	0050CST			0	0	4	4	TSTM Wind (61)	
Graham Co., Hill City	19	0115CST			0	0	4	4	TSTM Wind (57)	
Phillips Co., Logan	19	0200CST			0	0	4	4	TSTM Wind (57)	
Phillipsburg	19	0205CST			0	0	4	4	TSTM Wind (61)	
Rooks Co., Stockton	19	0210CST			0	0	5	4	TSTM Wind (58)	
					<p>A line of severe thunderstorms moved across northwest Kansas and produced strong, damaging straight-line winds. Several buildings were damaged in Colby, Oberlin, Phillipsburg and Stockton due to the strong winds. Many trees were also downed in the storms. Heavy rains of 2 to 4 inches and pea size hail also accompanied the storms.</p>					
Cowley Co., Udall	19	1030CST			0	0	3	0	TSTM Wind	
Sedgwick Co., 1N Derby	19	1030CST			0	0	3	0	TSTM Wind	
					<p>A severe thunderstorm moved northeast from near the junction of Cowley, Sumner and Sedgwick counties. Strong winds produced by the storm in Udall blew down an unsupported cement block wall and damaged two metal sheds. A roof under construction was blown down north of Derby.</p>					
Wilson Co., Neodesha	19	2000CST			0	0	4	0	Lightning	
Fredonia	19	2000CST			0	0	2	0	TSTM Wind	
					<p>Thunderstorms produced strong winds that blew down several trees in Fredonia. Lightning struck a house in Neodesha, causing \$30,000 in damages.</p>					
Seward Co., Liberal	23	2250CST			0	0	0	0	Hail (.75)	
					<p>An isolated strong thunderstorm produced large hail in Liberal. No damage was reported.</p>					

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS				ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
KANSAS											
Crawford Co.: 7N Pittsburg Pittsburg	25	1630CST			0	0	1	0	Hail (1.75)		
	25	1645CST			0	0	2	0	Hail (1.75)		
Cherokee Co.: 10NE Columbus Columbus	25	1749CST			0	0	0	0	Hail (1.75)		
	25	1802CST			0	0	0	0	Hail (1.75)		
Cowley Co., Cambridge	25	1832CST			0	0	0	0	Hail (.75)		
Sumner Co.: Riverdale	25	1915CST			0	0	2	0	Hail (1.0)		
2NW Belle Plaine	25	2045CST			0	0	3	0	TSTM Wind		
Riverdale	25	2100CST			0	0	3	0	TSTM Wind		
1S Belle Plaine	25	2104CST			0	0	2	0	Hail (1.0)		
Chautauqua Co., 10NE Sedan	25	2028CST			0	0	3	0	Hail (2.0)		
	<p>Severe thunderstorms formed over portions of southeast and south-central Kansas and produced large hail and damaging winds. A county sheriffs patrol car was severely damaged by hail on Highway 99 just south of the Elk-Chautauqua county line. Strong winds blew down large trees and power poles in and around Belle Plaine and Riverdale. The severe storms also produced large hail that damaged roofs and windows in the area.</p>										
Russell Co., Waldo	26	0220CST			0	0	0	3	Hail (.75)		
Lincoln Co., Sylvan Grove	26	0302CST			0	0	0	3	Hail (.75)		
	<p>A severe thunderstorm developed in northern Russell County and moved southeast into Lincoln County. Hail damaged some crops near Waldo and Sylvan Grove.</p>										
Harvey Co., Newton	29	0220CST			0	0	3	2	Hail (.75)		
Reno Co., 3N Hutchinson	29	0452CST			0	0	4	2	Hail (1.75)		
McPherson Co.: 5SW McPherson Galva	29	0540CST			0	0	0	3	TSTM Wind (52)		
	29	0608CST			0	0	4	0	TSTM Wind		
	<p>Severe thunderstorms developed across portions of central and south-central Kansas during the early morning hours, producing large hail and damaging winds. Hail up to golfball size covered the ground north of Hutchinson, denting automobiles and damaging crops. A severe storm formed in southern McPherson County and moved slowly northeast. Strong, straight-line winds destroyed two mobile homes and a car wash, damaged several homes and downed several large trees and power poles in Galva. No injuries were reported with the storm.</p>										
Mitchell Co.: 7W Beloit Tipton	29	1655CST			0	0	0	3	Hail (1.0)		
	29	1720CST			0	0	3	0	TSTM Wind		
Russell Co., Wilson Lake	29	1700CST			0	0	0	0	TSTM Wind (61)		
Osborne Co., 5S Downs	29	1705CST			0	0	0	3	Hail (.75)		
	<p>Several severe thunderstorms moved across portions of central and north-central Kansas, producing large hail and strong winds. Hail up to one inch in diameter fell west of Beloit and south of Downs, doing minor crop damage. Strong winds downed several large trees in Tipton while 70 mph winds were reported at Wilson Lake.</p>										
Lane Co., 2S Dighton	29	1800CST			0	0	3	4	Hail (1.0)		
	<p>Scattered strong thunderstorms developed over northwest Kansas during the late afternoon hours. Large hail fell south of Dighton, doing minor damage to crops and a few outbuildings in the area.</p>										
KANSAS											
Saline Co.: South Salina	30	1530CST			0	0	3	0	Hail (.75), TSTM Wind (52)		
SE Salina	30	1540CST			0	0	3	0	TSTM Wind		
Dickinson Co., 3E Solomon	30	1608CST			0	0	0	3	Hail (.75)		
	<p>A severe thunderstorm developed just southwest of Salina and moved slowly east-northeast into northern Dickinson County. The storm produced large hail and strong winds from the southern sections of Salina to near Solomon. No major damage was reported.</p>										
	SPECIAL HAIL SUMMARY										
	<p>Kansas-Oklahoma Hail Loss Service reports indicate that hail was especially damaging to crops in the listed counties on the following dates:</p>										
	<p>07 Stevens, Haskell 15 Marshall, Washington</p>										
15 KENTUCKY											
Bourbon Co.	10	2000 EST			0	0	4	0	Thunderstorm Wind		
	<p>Winds gusting to around 60 mph left behind a wide swath of broken tree limbs, utility poles and broken glass in Paris. Electricity was out to many areas of the city for several hours.</p>										
Nicholas Co.	10	2115EST			0	0	4	0	Thunderstorm Wind		
	<p>Winds gusting 60 to 65 mph blew the roof off a building in downtown Carlisle. Trees and power lines in the area were also blown down.</p>										
Jessamine Co.	11	1311EST			0	0	4	4	Lightning		
	<p>Two barns in the county were destroyed when they were struck by lightning. One of the barns contained 2500 bales of hay. The other barn contained a riding mower, push mower, bicycles, and a kerosene stove.</p>										
Jefferson Co.	11	1430EST			0	0	4	0	Flash Flood		
	<p>Around four inches of rain which fell in one hour caused Cedar Creek in Fern Creek to overflow and flood several homes. Fire fighters had to rescue four people trapped in a house for 30 minutes.</p>										
Jefferson Co.	17	1524EST			0	0	0	0	Thunderstorm Wind		
	<p>Winds gusting to 62 mph was reported at WSPD SDF at Standiford Field.</p>										
Garrard Co.	17	1600EST			0	0	5	0	Thunderstorm Wind		
	<p>A thunderstorm with winds from 60-70 mph ripped through the City of Lancaster. Windows were knocked out, roofs damaged, trees downed and electrical power knocked out. A barn was also completely destroyed.</p>										
Washington Co.	17	1630EST			0	0	4	4	Lightning		
	<p>Lightning struck and killed several cows on a farm. Also a large hay barn on the same farm was destroyed as lightning caused the barn to burn down.</p>										
Todd Co.	17	1720CST			0	0	3	0	Thunderstorm Wind		
	<p>Numerous trees were blow down by winds around 60 mph throughout the county.</p>										
Logan Co.	17	1725CST			0	0	4	0	Thunderstorm Wind		
	<p>Thunderstorm wind gusting from 60 to 65 mph damaged a building under construction. Also many trees and power lines in the area were downed.</p>										
Simpson Co.	17	1750CST			0	0	3	0	Thunderstorm Winds		
	<p>Winds greater than 60 mph blew down trees and caused scattered power outages throughout the county.</p>										
Warren Co.	17	1800CST			0	0	3	0	Thunderstorm Winds		
	<p>Winds above 58 mph blew down several trees and power lines in the county.</p>										

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS		
KENTUCKY										
Russell Co.	17	1850EST			0	0	3	0	Thunderstorm Winds	Winds gusting from 60 to 65 mph knocked down trees and power lines near Russell Springs.
Monroe Co.	17	2130EST			0	0	4	0	Lightning	Lightning completely destroyed a house in the city of Gamaliel. No injuries were reported however.
Meade Co.	18	1405EST	0.2	100	0	0	4	0	Tornado (F1)	A tornado touched down on a farm 1.5 miles west of Flaherty. A thirteen year old boy was picked up and carried 65 feet towards a barn, however he was not injured. The tornado also picked up a boat and canoe in a nearby pond. The canoe was broken in half and one piece was found near a barn while the other piece was found in a field over 100 feet away. A two ton cargo van was pushed over also.
Meade Co.	18	1415EST			0	0	4	0	Thunderstorm Wind	Winds gusting to near 100 mph snapped trees and power lines. A roof on a house and a roof on a trailer, 2.0 miles southeast of Flaherty were blown off.
McCreary Co.	18	1630EST			0	0	4	0	Thunderstorm Wind	Winds gusting from 65 to 70 mph uprooted two large oak trees and tossed them on a building. The winds also picked up an outbuilding and turned it upside down.
Carroll Co.	20	1630EST	0.01	25	0	0	4	0	Tornado (F0)	One small tornado touched down on a farm 6 miles south of Carrollton, damaging two barns and picking up a garage. Pieces of the barns were found 1/4 mile away. Also part of the siding and roof of a house were damaged, along with a car.
Boyd Co.	20	1955EST			0	1	0	0	Lightning	A man was injured when lightning struck a quinch car he was operating at a processing plant.
Union Co.	25	1540CST			0	0	4	0	Thunderstorm Wind	Winds gusting to 60 mph in Morganfield blew down trees and power lines, knocking out power to many areas of the city.
Webster Co.	25	1542CST			0	0	3	0	Thunderstorm Wind	Winds gusting to around 60 mph blew down tree limbs and power lines.
Davies Co.	25	1600CST			0	0	4	0	Thunderstorm Wind	Winds gusting from 60 to 65 mph blew down trees and power lines in Owensboro. Also a house was damaged as large trees limbs fell on it.
16 LOUISIANA										
Rapides Parish, Ball	04	1600CST	0.25	20	0	0	?	?	Tornado (F0)	Tornado touched down briefly near Ball, downing a few trees.
Caddo Parish, Mira	04	2000CST			0	0	4	0	Lightning	Lightning struck a house and subsequently caused a fire which destroyed the house.
Calcasieu Parish, Vinton Gillis	16	1530CST			0	0	?	?	TSTM Wind (61)	Severe thunderstorms developed over southwest Louisiana. Thunderstorm winds gusted to 70 mph (61 knots) at Vinton, snapping power poles. A tornado touched down briefly near Gillis, but no damage was reported.
	16	1535CST	0.25	20	0	0	?	?	Tornado (F0)	
LOUISIANA										
Natchitoches Parish, 2N Natchitoches	17	1745CST			0	0	4	?	TSTM Wind	Thunderstorm wind gusts downed several trees and ripped large branches from trees. A fallen tree severely damaged a mobile home and other fallen trees blocked several roads near Sibley Lake. Another mobile home was lifted from its foundation by thunderstorm wind gusts.
Iberville Parish, Maringouin	22	1230CST			1	0	0	0	Lightning	A 45 year old woman was killed when lightning struck a pine tree approximately 4 feet from where she was mowing her lawn. F450
Terrebonne Parish, Houma	24	1420CST	0.75	35	0	0	4	0	Tornado (F1)	A tornado touched down in Houma, damaging a department store's roof and tearing a portion of the roof off a school building.
Lafourche Parish, Lockport	25	1745CST			0	0	?	?	Hail (1.00)	
Caddo Parish, Bethany	26	1555CST			0	0	?	?	Hail (1.00)	
DeSoto Parish, Grand Cane	26	1610CST			0	0	?	?	Hail (1.00)	
Caddo Parish, Shreveport	26	1615CST			0	0	?	?	Hail (1.00)	
Lincoln Parish, Ruston	26	1940CST			0	0	?	?	TSTM Wind	Severe thunderstorms developed over north Louisiana with several locations receiving hail. Thunderstorm wind gusts downed several trees at Ruston.
Calcasieu Parish, Sulphur	28	1530CST			0	0	3	0	TSTM Wind	Thunderstorm wind gusts severely damaged a metal building and downed several trees.
LAZ001-LAZ006, north and central Louisiana	01-30				0	0	?	?	Drought	Severe drought conditions continued over much of north and central Louisiana, however, monthly rainfall amounts increased to 65% to 85% of normal in many areas with a few locals reporting above normal monthly rainfall. The extreme northeast sections continued very dry with St. Joseph reporting only 1.20 inches (30% of normal) in July and Tallulah reporting 2.07 inches (50% of normal). Since the beginning of the growing season April 1, rainfall over the north and central has averaged only 40% to 60% of normal. Crop damage estimates will be reported in future Monthly Storm Data at the end of the growing season. Due to the continued drought conditions throughout the eastern half of the nation, the Mississippi River reached record low stages for the month of July along the Mississippi-Louisiana border south to New Orleans. The Corps of Engineers constructed an underwater sill just south of New Orleans at Myrtle Grove, which helped to prevent the upstream movement of salt water. Fresh water was barged to communities in lower Plaquemines Parish to raise salinity levels of the drinking water to acceptable standards.
17 MAINE										
York Co. Kittery	09	0330EST			0	0	4	0	Lightning	The mast of a 26-foot sloop was struck by lightning, causing a fire and putting a small hole in the hull. The boat sank in 35 feet of water.
Penobscot Co. Millinocket	09	1610EST			0	0	4	0	TSTM Wind (60)	A thunderstorm produced wind gusts measured at 60 MPH. The wind downed trees and power lines.
Androscoggin Co. Lewiston	09	2200EST			0	0	5	0	TSTM Wind	Thunderstorm winds blew down trees, signs and power lines. Several thousand people were left without electric power.
Androscoggin Co. Poland	10	1640EST			0	0	4	0	TSTM Wind	Thunderstorm winds blew down trees and power lines.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
MARYLAND and D.C.									
Carroll Co, Millers	17	1700EST			0	0	2	0	Thunderstorm Wind (38kt)
Baltimore Co, Baltimore	17	1715EST			0	1	0	0	Lightning
Cecil Co, Elkton	17	1730EST			0	0	3	0	Thunderstorm Wind
<p>Some trees and power lines reported down in Carroll County. Shingles and storage shed roofs were blown off in Cecil County. A 35 year old man was injured when hit by lightning in the basement of his home.</p>									
Entire State of Maryland District of Columbia	13-21				6	50	?	?	Heat Spell
<p>After a prolonged period of temperatures ranging from 90 to 104, 4 men and 2 women in the District of Columbia died from the heat in a three day stretch between July 17 and 19. Fifty or more people were treated for heat exhaustion at local hospitals. M580 M790 M690 P770 P770 M630</p>									
Montgomery Co, Laytonsville	21	1510EST			0	0	0	0	Thunderstorm Wind
<p>Several large trees were uprooted by gusty thunderstorm winds.</p>									
Frederick Co, Frederick	26	1500EST			0	0	?	4	Lightning
<p>Seventeen cows were killed by lightning.</p>									
Baltimore Co	26	1800EST			0	0	?	0	Thunderstorm Wind (45kt)
Prince Georges Co, Bowie	26	1800EST			0	0	2	0	Thunderstorm Wind
District of Columbia	26	1830EST			0	0	3	0	Thunderstorm Wind (39kt)
<p>Heavy rains, gusty winds and pea size hail accompanied a thunderstorm. Scattered thunderstorms began about 1600EST, followed by more frequent and intense activity about 1800EST. Tree branches knocked down wires at several locations in Bowie, and a tree was split down the middle. Heavy rainfall and lightning disabled the subway system in Prince Georges County. Several large trees were downed in the northwest sections of the District of Columbia, blocking several roads.</p>									
19 MASSACHUSETTS									
Essex County, Swampscott	01	1618EST			0	0	1	0	Hail (0.50)
<p>One-half inch hail reported in heavy thunderstorm.</p>									
Middlesex County, Bedford	09	0500EST-0600EST			0	1	4	0	Lightning
<p>Lightning bolts struck several homes in Bedford and one home was struck twice within 45 minutes. A local firefighter was injured by the second lightning strike while investigating a possible fire caused by the first one. Power was knocked out to about 1200 customers in the general area of the storm.</p>									
Berkshire County, Lenox, Dalton area	09	0530EST-0630EST			0	0	3	0	Tstm Winds
<p>Early morning thunderstorms brought localized wind gusts to 40 to 50 mph, knocking down tree limbs and several trees - temporarily closing a few streets.</p>									
Berkshire County, Lenox, Dalton area	09	0530EST-0630EST			0	0	4	0	Lightning
<p>Lightning accompanying early morning thunderstorms knocked out electric power to about 1100 customers.</p>									
Worcester County, Southbridge	10	1524EST			0	0	1	0	Tstm Winds
<p>Thunderstorm winds estimated around 50 mph with a few trees downed.</p>									
Essex County, Amesbury	10	1840EST			0	0	5	0	Lightning
<p>Nine families were left homeless after a bolt of lightning struck an apartment building, tearing off part of the roof. The resulting fire caused heavy damage.</p>									
MASSACHUSETTS									
Hampden County, Westfield, Springfield area	11	1830EST-1930EST			0	0	4	0	Tstm Winds
<p>Thunderstorm winds knocked down trees and tree limbs, causing power outages affecting several thousand customers.</p>									
Hampden County, Springfield, Chicopee, Ludlow, Holyoke	11	1910EST-1930EST			0	0	4	0	Tstm Winds (58 kts)
<p>Thunderstorm winds of 58 knots at Springfield and 1/2 inch hail was reported. 48 knots at Chicopee. Many large trees down in Ludlow and Holyoke.</p>									
Hampshire County, Northampton	11	1915EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Thunderstorm winds blew down many trees, causing power outages and blocking roads.</p>									
Worcester County, Hardwich, Barre	11	2010EST-2020EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Thunderstorm winds blew down large trees and caused many power outages in Barre and Hardwich.</p>									
Worcester County, Sturbridge	11	2010EST-2030EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Thunderstorm winds blew down trees and caused structural damage to some buildings in Sturbridge.</p>									
Middlesex County, Littleton, Groton	11	est.2100EST			0	0	4	0	Tstm Winds (53 kts)
<p>Wind gusts of over 60 mph were reported in Littleton and Groton.</p>									
Hampden County, W. Springfield	11	2200EST			0	0	4	0	Tstm Winds & Hail (0.75)
<p>Strong thunderstorm winds and 3/4 inch hail was reported in West Springfield.</p>									
Berkshire County, Great Barrington	12	1655EST-1715EST			0	0	4	0	Tstm Winds (30+ kts)
<p>Strong thunderstorm winds knocked down many large trees and wires, causing power outages.</p>									
Berkshire County, Hancock	14	1635EST			0	0	3	0	Tstm Winds (50+ kts)
<p>Strong thunderstorm winds blew down trees and power lines.</p>									
Worcester County, Winchendon	14	1635EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Strong thunderstorm winds toppled a barn in Winchendon and blew down many trees.</p>									
Berkshire County, Dalton	14	1730EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Thunderstorm winds blew down several large tree limbs in the Dalton area.</p>									
Berkshire County, Great Barrington, Stockbridge	14	1755EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Several trees were blown down by strong thunderstorm winds at Great Barrington and Stockbridge.</p>									
Berkshire, Hampshire and Hampden Counties	14	1800EST-1930EST			0	0	5	0	Lightning
<p>Thunderstorms brought severe lightning, heavy rain, and gusty winds to western Massachusetts. Nearly 17000 customers lost electricity. In Agawam, 2.1 inches of rain fell in a 45 minute period, and lightning struck six houses and a car, but no injuries reported. The entire town of Amherst lost power.</p>									
Hampden County, Westfield	14	1828EST			0	0	4	0	Tstm Winds (60+ Kts)
<p>Winds estimated at 70 mph were reported at Westfield knocking down trees and powerlines.</p>									
Hampden County, Springfield	14	1845EST-1930EST			0	0	4	0	Tstm Winds (50+ Kts)
<p>State Police reported numerous trees down all over the Springfield area.</p>									
Hampden County	14	1935EST-2045EST			0	0	4	0	Heavy Rain
<p>Nearly 4 inches of rain fell in and around Agawam in an hour. Streets and basements were flooded all over town.</p>									
Berkshire County, Hinsdale	16	2100EST			0	0	3	0	Tstm Winds (53 Kts)
<p>Thunderstorm winds in excess of 60 mph reported.</p>									
Berkshire County, Williamstown	17	1610EST			0	0	5	0	Tstm Winds (56 kts)
<p>Thunderstorm winds gusting to 65 mph with several trees down.</p>									
Berkshire County, Pittsfield	17	1615EST			0	0	4	0	Tstm Winds (50+ kts)
<p>Strong thunderstorm winds blew down several trees.</p>									
Berkshire County, Savoy	17	1627EST			0	0	4	0	Tstm Winds (53+ Kts)
<p>Thunderstorm winds gusting to 60 mph with many trees down.</p>									
Berkshire County, Orange	17	1730EST			0	0	4	0	Tstm Winds (50 Kts)
<p>Many trees down by thunderstorm winds gusting to 50 knots.</p>									
Berkshire County	17	1500EST-1800EST			0	0	4	0	Tstm Winds
<p>Thunderstorm winds knocked down trees and wires in many parts of the county with electrical outages affecting up to 9000 customers.</p>									
Essex County, Haverhill	17	1900EST-2000EST			0	0	5	0	Tstm Winds (55 Kts)
<p>Thunderstorm winds gusting in excess of 60 mph caused extensive property damage in a portion of the city. Trees were blown down onto cars and houses but no injuries were reported.</p>									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
— MASSACHUSETTS									
Norfolk County: Milton, Quincy	27	0500EST- 1600EST			0	0	5	0	Heavy Rain
									Torrents of rain accompanying thunderstorms which moved east-northeastward across the area severely flooded neighborhoods in West Quincy near Furnace Brook and parts of Milton. The Southeast Expressway, a main traffic artery south of the City of Boston, was closed to all traffic from 1:00 p.m. to 9:00 p.m. Flood water up to three to four feet deep covered the roadway, creating commuter chaos and the worst tie-ups since the road was built in 1957. Property damage to homes in Quincy was reported to be up to around \$250,000. Many homes had cellars and yards full of water for several days after the rain. Sewerage systems, overwhelmed by the flooding, severely polluted Boston Harbor. Many beaches were closed for up to one week. Although only three inches of rain fell at Blue Hill Observatory in Milton during an eleven hour period, unofficial but reliable rain gauges two to three miles to the northeast of the Observatory received five to six inches of rain during the period.
Middlesex County, Bedford	28	1302EST			0	0	3	0	Tstm Winds (50 Kts)
									Wind gusts of 50 knots were reported in a thunderstorm.
20 MICHIGAN									
Cadillac, Wexford Co.	10	1500EST			0	3	3		Lightning
									3 persons standing on the west shore of Lake Mitchell were injured when lightning struck nearby. A barn burned in the vicinity.
Pinconning, Bay Co.	10	1522EST			1	1	0		Lightning
									A man was killed and his wife seriously injured as they attempted to cover a boat moored 35 yards offshore. #700
Oscoda Co.	10	1530EST			0	0	3		TSTM Wind
Fennville, Allegan Co. to Fenwick, Montcalm Co.	10	1530EST			0	3	5		TSTM Wind (62)
Belding, Ionia Co.	10	1552EST			0	3	0		Lightning
Belding, Ionia Co.	10	1552EST			0	0	0		Hail(0.75)
									Many trees were blown down, blocking roads in the Fennville and Hamilton areas. At an outdoor basketball tournament in Belding 3 persons were injured by lightning, 3 others by wind-blown debris. A domed building south of Grand Rapids collapsed. Several other buildings were damaged. Trees were blown down by straight-line winds along a 57-mile path.
Oscoda and Alpena Cos.	10	1545EST			0	0	2		TSTM Wind
									Many large trees and power lines were down in and around Mio. There was an unconfirmed report of a tornado sighting. Trees and power lines were down 2 to 3 miles southeast of the Alpena Airport.
Jamestown, Ottawa Co.	10	1730EST			0	0	4		Lightning
									Barn and contents burned.
Saginaw Bay, just off Essexville	11	2000EST			0	0	0		Waterspout
Ironwood, Gogebic Co.	15	0730EST			0	0	4		TSTM Wind
									Trees were uprooted in several areas and roofs were raised or peeled off many buildings. Streets were blocked by fallen trees. Windows were broken.
Holland, Ottawa Co.	15	1430EST			0	0	2		TSTM Wind
									Many large tree limbs were blown down.
Rockford, Kent Co.	15	1438EST			0	1	4		Lightning
									A boy riding a bicycle was slightly burned when lightning struck a nearby tree. A house was set afire and seriously damaged.
5 NE Grand Rapids, Kent Co.	15	1455EST			0	0	0		Hail(1.00)
— MICHIGAN									
5 N Union, Cass Co.	15	1550EST			0	0	0		TSTM Wind (60)
									Numerous large limbs were broken off at Shavehead Lake.
N of Lawrence, Van Buren Co.	15	1615EST			0	0	2	?	Hail(0.75)
									Several commercial orchards suffered major damage.
Paw Paw, Van Buren Co.	15	1630EST	0.1	20	0	0	4		Tornado(F0)
									A garage and walkway were unroofed and cement blocks were blown some distance, while an adjacent mobile home was unharmed. An eyewitness stated there was no visible funnel but debris circled upward
Van Buren and Kalamazoo Cos.	15	1704EST			0	0	2		TSTM Wind
									Many trees, limbs, and wires were blown down. There were many lightning-induced fires.
St. Joseph & Cass Cos.	15	1820EST			0	1	5		Lightning
E W Three Rivers, St. Joseph Co.	15	1825EST	0.4	50	0	0	3		Tornado(F1)
									A man was injured by lightning at Motville. Several buildings were set afire, a building and 4 vehicles were destroyed. The tornado touched down on Corey Lake and moved through two camps on the east shore. Boats were lifted out of the water and piled up. Over 100 trees were blown down, some damaging camp buildings.
Chatham, Alger Co.	15	1815EST			0	0	0		TSTM Wind
									10 to 12 inch diameter trees were blown down.
Christmas, Alger Co.	15	1816EST			0	0	0		Hail(0.75)
Gwinn, Marquette Co.	15	1919EST			0	0	0		Hail(1.00)
Carp Lake, Emmet Co.	15	2000EST			0	0	0		TSTM Wind
									A metal building was unroofed and several trees were blown down along a narrow path from Carp Lake toward Mackinaw City.
Presque Isle Co.	15	2030EST			0	0	0		TSTM Wind
Alpena Co.	15	2315EST			0	0	0		TSTM Wind
Berrien Co.	16	1600EST			1	4	5		TSTM Wind
SHSW to 1 W Sodus, Berrien Co.	16	1630EST	2.1	35	0	0	5		Tornado(F0)
									Gusts estimated up to 70 mph moved onshore from Lake Michigan. Many temporary structures erected for a festival in St. Joseph collapsed and 3 persons were injured. At least a dozen boats were blown into the beach, and the USS Antrim, anchored in the harbor, was slightly damaged. 1 man drowned and another was injured when high waves struck a swimming beach. Several buildings and vehicles were damaged by falling trees. Hundreds of fruit trees were blown over in the area south of Coloma. The tornado funnel was seen by at least two persons. It unroofed a garage and damaged the contents. Later it destroyed 3 barns. #210.
Chesaning, Saginaw Co.	16	1600EST			0	0	0		TSTM Wind
									Several large trees were blown down.
Near Flushing, Benesse Co.	16	1615EST			0	0	0		TSTM Wind
Sheffsburg, Shiawassee Co.	16	1900EST			0	0	4		Lightning
									A grain elevator was destroyed by fire.
Grand Rapids, Kent Co.	16	2030EST			0	0	5		Lightning
									An apartment building was set afire and suffered major damage.
Oakland Co.	16	2015EST			0	0	5		TSTM Wind (50)
									A house under construction in Bloomfield Hills was blown down. Many trees and power lines were down.
Plymouth, Wayne Co.	16	2030EST			0	0	4		Lightning
									A house was destroyed by fire.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
MICHIGAN									
Wayne Co.	16	2035EST			0	0	0		TSTM Wind
Fraser, Macomb Co.	16	2050EST			0	0	3		TSTM Wind
									Police reported a swath of trees knocked down. Power lines were down in Clinton Twp., East Detroit, Warren, and Roseville.
Gibraltar Wayne Co.	16	2131EST	0.3	15	0	0	0		Tornado(F0)
									The roof of a picnic shelter was destroyed. A chimney was blown off a building, and many signs were twisted. Several persons heard a roaring noise. The funnel was seen from an aircraft in flight.
Ann Arbor, Washtenaw Co.	16	2154EST			0	0	0		TSTM Wind (74)
									Many trees were blown down throughout the county, and there were prolonged power outages.
Near Davisburg, Oakland Co.	22	1230EST			0	0	0		Hail(0.75)
15 S Battle Creek, Calhoun Co.	22	1512EST			0	0	0		Hail(1.75)
Union City, Branch Co.	22	1535EST			0	0	0		Hail(1.75)
Waterford, Oakland Co.	22	1700EST	?	?	0	0	0		Tornado(F0)
									Police saw the funnel touch down near Otter Road on Sylvan Lake, and lift without causing damage.
Near Scofield, Monroe Co.	23	1200EST	3.0	400	0	0	2	?	Hail(0.75)
									There was serious damage to crops and minor damage to buildings on six farms.
Frankenmuth, Saginaw Co.	23	1600EST			0	0	0		Hail(0.75)
Richmond, Macomb Co.	23	1605EST			0	0	0		Hail(1.00)
Near Bronson, Branch Co.	23	1612EST			0	0	0		Hail(0.75)
New Baltimore, St. Clair Co.	23	1622EST			0	0	4		TSTM Wind
									Traffic signals and many power lines were blown down. Police estimated gusts 65 to 70 mph.
Gun Lake, Barry Co.	23	1623EST			0	0	0		Hail(1.75)
Bronson, Branch Co.	23	1627EST			0	0	0		TSTM Wind
									Large trees were blown down. Half inch hail fell in the vicinity
Comstock, Kalamazoo Co.	23	1652EST			0	0	0		Hail(0.75)
East Bilead, Branch Co.	23	1705EST			0	0	0		TSTM Wind
									Gusts were estimated 60 mph.
Harrison, Clare Co.	23	1750EST			0	0	0		TSTM Wind
									3 trees were blown down.
Near Mt. Pleasant, Isabella Co.	23	1755EST			0	0	0		TSTM Wind
									Large trees were blown down across a road by gusts estimated 60 to 65 mph.
Eastern Wexford Co.	23	1855EST			0	0	0		Hail(0.88)
									Large hail was reported from just north of Cadillac to Manton.
St. Louis, Gratiot Co.	25	1743EST			0	0	0		Hail(1.00)
									There was an unconfirmed funnel cloud report in the vicinity.
S W Alsea, Gratiot Co.	25	1810EST			0	0	0		TSTM Wind
									Large trees were blown down.
Saginaw, Saginaw Co.	25	1827EST			0	0	0		Hail(0.75)
MICHIGAN									
5 MI Saginaw, Saginaw Co.	25	1827EST			0	0	4		TSTM Wind
									Many large trees and power lines were blown down.
Near Dexter, Washtenaw Co.	25	1845EST			0	0	0		Hail(0.75)
Parma, Jackson Co.	25	1910EST			0	0	0		Hail(1.75)
Hudson, Lenawee Co.	25	1915EST			0	0	3		TSTM Wind
									Trees and power lines were blown down, by winds estimated 60 to 70 mph.
Parma, Jackson Co.	25	1922EST			1	0	0		Lightning
									A woman was struck while standing under a tree. F300.
4 NE Davison, Genesee Co.	25	1923EST			0	0	0		Hail(0.75)
									An unconfirmed funnel cloud was reported in the vicinity, and gusts were estimated in excess of 60 mph.
Flint, Genesee Co.	25	1923EST			0	0	0		Funnel Cloud
									The funnel was seen from Bishop Airport.
Fenton, Genesee Co.	25	1950EST			0	0	0		Funnel Cloud
2 E Lapeer, Lapeer Co.	25	1950EST	?	?	0	0	0		Tornado(F0)
									The funnel was reported by the public. It touched down in a field, disturbing crops and uprooting trees. Lightning damage and hail in excess of 3/4 inch occurred in the vicinity.
3 NE Hartland, Livingston Co.	25	1958EST	?	?	0	0	0		Tornado(F0)
									The funnel touched down at Tyrone Lake and immediately lifted.
Holly, Oakland Co.	25	1958EST			0	0	0		Hail(0.75)
Brighton and Hartland, Livingston Co.	25	2015EST			0	0	3		TSTM Wind
									Trees and power lines were blown down by winds estimated 60 to 70 mph.
St. Louis, Gratiot Co.	25	2043EST			0	0	0		Hail(1.00)
Lapeer Co.	25	2050EST			0	0	0		Hail(0.75)
Lake Orion, Oakland Co.	25	2050EST			0	0	0		Hail(1.75)
Ingham Co.	30	1630EST			0	2	0		Lightning
									A child in Lansing was struck and hospitalized. A car was struck on 196 east of Webberville, the driver suffered minor injuries.
Wakefield, Gogebic Co.	30	2130EST			0	0	0		TSTM Wind
									State police reported winds in excess of 50 mph.

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					KILLED	INJURED	PROPERTY	CROPS		
21 MINNESOTA										
Clay Co. 5NE Barnesville	06	1510CST			0	0	0	0	Hail (1.0)	
Ottertail Co. 3E Pelican Rapids	06	1520CST			0	0	3	0	Thunderstorm Wind	
6NE Pelican Rapids	06	1520CST			0	0	4	0	Thunderstorm Wind	
Becker Co. 5SW Detroit Lakes	06	1525CST			0	0	4	0	Thunderstorm Wind	
Detroit Lakes	06	1530CST			0	0	5	0	Thunderstorm Wind (56)	
Hubbard Co. Park Rapids	06	1600CST			0	0	4	0	Thunderstorm Wind	
									Marble to quarter size hail fell northeast of Barnesville. Thunderstorm winds caused scattered property damage and knocked down trees from southeast Clay and northwest Ottertail counties across Becker County into the Park Rapids area. A section of metal roof was blown off a barn 3 miles east of Pelican Rapids. A barn was flattened near Lake Lida and cabins at a resort on Lake Lida were damaged by falling trees. On Lake Melissa, southwest of Detroit Lakes, 20 boats were overturned and docks and boatlifts were damaged. An aircraft was flipped off a ramp at the Detroit Lakes airport.	
Cass Co. Walker	06	1730CST			0	0	3	0	Thunderstorm Wind	
IS Federal Dam	06	1735CST			0	0	0	0	Thunderstorm Wind	
									Winds knocked out power and tore shingles from a roof in Walker. Large trees were also knocked down on County Road 8 just south of Federal Dam.	
Itasca Co. 5SW Bovey	07	1430CST			0	0	0	0	Hail (0.75)	
Lake Co. 15NE Ely	07	1530CST	0.3	15	0	0	0	0	Tornado (F1)	
									Dime size hail fell 5 miles south-southwest of Bovey. A tornado twisted down over 30 trees near Knife Lake in the Isles of Pine, an uninhabited area of the Boundary Waters Canoe Area near the Canadian border.	
Yellow Medicine Co. 3W Canby	07	1552CST			0	0	0	?	Hail (1.5), Funnel Cloud	
St. Louis Co. 5S Biwabik	07	1600CST			0	0	4	0	Thunderstorm Wind	
									Large trees were knocked over and others were uprooted. One house received extensive damage from the wind.	
Jackson Co. 23W Jackson	08	1328CST			0	0	0	0	Funnel	
15W Jackson	08	1350CST			0	0	0	0	Funnel	
2W Jackson	08	1415CST			0	0	0	0	Funnel	
St. Louis Co. Lac La Croix	09	Afternoon			1	1	0	0	Lightning	
									A father and son were struck by lightning on Lac La Croix near Coleman Island. The father was killed instantly and his son was knocked unconscious. The incident occurred during a heavy down-pour making navigation difficult. M480	
Norman Co. 2W Hendrum	12	2036CST			0	0	0	0	Funnel	
Wilkin Co. Breckenridge	13	0042CST			0	0	4	0	Lightning	
									Lightning started a fire which destroyed a barn four miles north of Highway 75 and two miles east of County Road 155.	
Douglas Co. Alexandria	13	0045CST			0	0	5	0	Thunderstorm Wind (76)	
									Wind initially hit the Alexandria airport with a gust of 87 miles per hour then left a path of destruction northeast through the south end of Alexandria to Lake Le Homme Dieu. One aircraft was badly damaged, a large section of a metal roof on a furniture store was peeled off, a pole barn at a lumber yard was destroyed and numerous trees were downed.	
Renville and Sibley Counties Fairfax-Gibbon	13	0230CST			0	0	4	5	Hail, Thunderstorm Wind	
									Hail driven by wind damaged crops along Highway 19 from just east of Fairfax to Gibbon. The hail was so large that some stones lay unmelted at day break. Wind destroyed two sheds and lifted a garage off its foundation 3 1/2 miles east of Fairfax along County Road 27.	
MINNESOTA										
St. Louis Co.	15	0415CST			0	0	?	0	Thunderstorm Wind	
									Wind knocked down many large trees around Jeanette and Meander Lakes along Echo Trail in northern St. Louis County. Trees were also downed along the south shore of Lac La Croix near the Canadian border. At 0445CST trees and power poles were knocked down in and around Babbitt.	
Mille Lacs Co. Princeton	15	1700CST			0	0	0	0	Hail (1.0)	
Anoka Co. Coon Rapids	15	1758CST			0	0	0	0	Hail (1.25)	
									Walnut size hail fell in Coon Rapids.	
Nicollet Co. Norseland	20	1306CST			0	0	0	0	Funnel	
Hennepin Co. Plymouth	20	1645CST			0	0	0	0	Funnel	
Clay Co. Sabin	23	1815CST			0	0	0	0	Thunderstorm Wind (52)	
3SE Glyndon	23	1820CST			0	0	4	0	Thunderstorm Wind	
Hawley	23	1900CST			0	0	4	0	Thunderstorm Wind	
Becker Co. Lake Park	23	1915CST			0	0	4	0	Thunderstorm Wind	
									Wind gusted to 60 miles per hour at Sabin. Windows were broken out and shingles were ripped off the west side of a home southeast of Glyndon. Outbuildings, highway signs, many trees and power lines were knocked down around Hawley. The wind also took the roof off a barn and destroyed a silo near Hawley. A barn was blown over just southwest of Lake Park.	
Chisago Co. 1E Wyoming	28	0725CST			0	0	0	0	Hail (1.0)	
Lyon Co. Lynd	28	1545CST			0	0	4	0	Thunderstorm Wind	
Brown Co. Springfield	28	1700CST			0	0	4	0	Thunderstorm Wind	
									Several homes were damaged in Lynd by winds which picked up and tossed about lawn furniture, a dog house and a riding lawn mower. A freezer was hurled through a wall and a 20 ft. section of a garage wall was blown out. Just northeast of Springfield a farm site was damaged by wind. Trees were twisted down, an antenna and shingles were ripped off and windows were broken. A section of a barn roof was also carried off in the wind.	
St. Louis Co. Ely	29	1436CST			0	0	0	0	Hail (1.0)	
Carlton Co. Cloquet	29	1610CST			0	0	0	0	Thunderstorm Wind (57)	
Stearns Co. 8S St. Cloud	29	1645CST			0	0	0	0	Hail	
Mille Lacs Co. Milaca	29	1650CST			0	0	0	0	Hail (1.75)	
5E Milaca	29	1705CST			0	0	0	0	Hail (1.75)	
Benton Co. 7E St. Cloud	29	1705CST			0	0	0	0	Hail (0.75)	
Stearns Co. St. Cloud	29	1714CST			0	0	0	0	Hail (1.0)	
Meeker Co. Litchfield	29	1725CST			0	0	0	0	Hail (0.75)	
Pine Co. Sandstone	29	1735CST			0	0	0	0	Hail (2.0)	
Pine City	29	1855CST			0	0	0	0	Hail (1.0)	
									Winds gusted to 65 miles per hour in Cloquet and trees were downed near Cloquet in Reveter Township. Golfball size hail fell at Milaca and 5 miles east of Milaca. A hail shower 8 miles south of St. Cloud produced some hail measuring as much as 3 inches across.	
Todd Co. 30W Brainerd	31	0330CST			0	0	0	0	Hail (1.75)	
Mille Lacs Co. Milaca	31	0500CST			0	0	?	0	Thunderstorm Wind	
									Golfball size hail fell between Staples and Motley. Wind knocked over trees and a power pole in Milaca.	
St. Louis Co. 12S Hibbing	31	0710CST			0	0	?	0	Thunderstorm Wind	
Duluth	31	0800CST			0	0	3	0	Thunderstorm Wind	
Duluth	31	0805CST			0	0	0	0	Funnel	
									Power lines were blown down south of Hibbing and also in the outskirts of Duluth. A porch roof was blown off by the wind and a flag pole was broken in Duluth.	

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					KILLED	INJURED	PROPERTY	CROPS		
22 MISSISSIPPI										
Northern Two-Thirds	1-30				0	0	0	8	Extensive Drought	Record dry weather cumulatively from May through July devastated most crops in Mississippi. Rainfall across most of the northern two-thirds of Mississippi was generally from one third to one half of normal. An estimated 375 million dollars in crop damage occurred. Losses include (in millions of dollars): 205 to cotton, 74 to soybean, 6 to rice, 10 to corn, 26 to hay, 25 to forestry and 30 to other crops.
Lafayette County, 10E Oxford	2	0230CST			0	0	4	0	Lightning	Lightning struck a residence east of Oxford. The lightning struck an antenna, then damaged the roof, ceiling and cabinets in the house. Pictures were also knocked off the wall.
Washington County, Greenville	2	1540CST			0	0	?	0	Thunderstorm Winds	Trees were blown down in Greenville.
Yazoo County, 2E Benton	2	1630CST			0	0	?	0	Thunderstorm Winds	Numerous trees and power lines were blown down just east of Benton.
Simpson County, Pinola	3	1305CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down near Pinola.
Simpson County, 3SW D'Lo	3	1445CST			0	0	?	0	Thunderstorm Winds	Hail (1.00) Nickel sized hail also occurred.
Copiah County, Crystal Springs, Gallman and Hazlehurst	3	1515CST			0	0	?	0	Thunderstorm Winds	Extensive tree and power line damage, occurred in Southern Crystal Springs. Several trees were also blown down in Gallman and Hazlehurst.
Copiah County, Crystal Springs	3	1530-1730CST			0	0	4	0	Flash Flood	Almost 6 1/2 inches of rain fell from 1400-1600CST in Crystal Springs. Several roads were flooded and damaged. Two homes were flooded and had to be evacuated.
George County, SE Lucedale	3	1630CST			0	0	3	0	Thunderstorm Winds	Several sheds and outbuildings were blown over east of Lucedale. Also, a number of trees were uprooted.
Hancock County, Bay St. Louis	5	1430CST			0	0	4	0	Lightning	A home in Bay St. Louis was struck by lightning. A resultant fire was quickly extinguished, but a large hole was left in the roof.
Alcorn County, Biggersville	11	1500CST			0	0	4	0	Lightning	Power lines were struck by lightning. The power lines fell on a trailer, caught it on fire and destroyed the trailer.
Oktibbeha County, Oktoc	11	1530CST			0	0	3	0	Thunderstorm Winds	A grain storage building was blown over. Damage was estimated at 2,000 dollars. A large tree was also uprooted.
Forrest County, Hattiesburg	15	1535CST			0	0	5	0	Thunderstorm Winds (675)	Four buildings in northern Hattiesburg were heavily damaged. Winds estimated at over 80mph knocked over a 20 foot section of a brick wall at a department store and destroyed a 60 foot by 250 foot lumber shed. Three beer trucks were also blown over and heavily damaged.
Hinds County, Jackson	15	1630CST			0	0	5	0	Thunderstorm Winds	A roof was blown off 14 units of an apartment complex in west Jackson. Numerous trees and power lines were blown down.
Rankin County, 7ENE Brandon	15	1630CST			0	0	3	0	Thunderstorm Winds	Trees and power lines were blown down on a trailer east of Brandon.
Covington County, 8SW Collins	15	1630CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down southwest of Collins in the Lake Mike Conner area.
Jones County, Laurel	15	1700CST			0	1	4	0	Lightning	A home in Laurel was struck by lightning. The lightning bolt traveled through the electrical wires and out an outlet, striking a woman. Her left side was bruised and she lost hearing in her left ear. A neighbor's house was also struck by lightning. The lightning ran through the house and caused fire to shoot out of a faucet in the bathroom. A refrigerator was ruined.
Pike County, 10E McComb	16	1610CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down east of McComb.
MISSISSIPPI										
Attala County, 5SE Ethel	16	1630CST			0	0	?	0	Thunderstorm Winds	Several large trees and a few power lines were blown down southeast of Ethel.
Tate County, Senatobia	20	0800-1400CST			0	0	6	?	Flash Flood	During an 18 hour period ending at 1100CST, 9 inches of rain fell in Senatobia. Conditions were extremely dry prior to the rain, but nearly all streets were flooded and damaged. Also, homes and businesses were flooded and bridges were washed out. Crops that were previously too dry, drowned from the excessive rain.
Leake County, Carthage	25	1030CST			0	0	?	0	Thunderstorm Winds	Two large trees were blown down in Carthage. One of them blocked a road.
Madison County, Canton	25	1056CST			0	0	?	0	Thunderstorm Winds	Power lines were blown down in Canton.
Madison County, Madison	25	1110CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down in Madison.
Scott County, Morton	25	1125CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down in Morton.
Newton County, Decatur	25	1125CST			0	0	?	0	Thunderstorm Winds	Trees and power lines were blown down in Decatur.
Rankin County, 5NW Brandon	25	1125CST			0	0	4	0	Thunderstorm Winds (655)	Winds estimated at 60MPH struck the reservoir area, with some roofs damaged from the winds.
Rankin County, 6SE Brandon	25	1140CST			0	0	?	0	Thunderstorm Winds	Four trees were blown down southeast of Brandon in Robinhood.
Kemper County, 3SW DeKalb	25	1145CST			0	0	?	0	Thunderstorm Winds	Several large trees and power lines were blown down southwest of DeKalb.
Copiah County, Crystal Springs	25	1215CST			0	0	?	0	Thunderstorm Winds	Power lines and trees were blown down in Crystal Springs.
Lincoln County, Brookhaven	25	1330CST			0	0	?	0	Thunderstorm Winds	Power lines and trees were blown down in Brookhaven.
Jackson County, Pascagoula	25	1415CST			0	0	4	0	Thunderstorm Winds	Lightning Several trees and signs were blown down in Pascagoula. Lightning struck and damaged several buildings in town.
Sunflower County, Linn	29	1715CST			0	0	?	?	Hail (1.75)	
Jackson County, 2W Van Cleave	31	1325CST			0	0	4	0	Thunderstorm Winds	Signs, tree limbs and power lines were blown down just west of Van Cleave.
23 MISSOURI										
Greene County	16	1455CST			0	0	0	0	FUNNEL CLOUD	Confirmed funnel cloud just southeast of Republic.
Christian County Ozark	16	1600CST 1/4 20			0	0	0	0	TORNADO (F0)	A tornado touched down briefly near Ozark and produced no damage.
Greene County, Springfield	16	1600CST			0	0	0	0	FUNNEL CLOUD	Confirmed funnel cloud over south Springfield at the same time as the brief touchdown in Ozark.
Greene County, Springfield	16	1615CST			0	0	0	0	FUNNEL CLOUD	Confirmed funnel cloud just south of the Airport in Springfield. This was spotted by police and by FAA tower personnel. A wall cloud was observed at the National Weather Service Office.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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

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

MISSOURI

Pettis County, Sedalia	25	1000CST			0	0	0	0	HAIL (0.75)
Hail to 3/4 inch diameter and winds to 50 mph.									
Pettis County, 2 SE of Sedalia	25	1015CST			0	0	0	0	HAIL (1.00) and TSTM WIND
Hail to 1 inch diameter and winds to 65 mph.									
Morgan County, Versailles	25	1040CST			0	0	3	0	HAIL (0.75) and TSTM WIND
Roof damaged and large air conditioner unit blown off Wal Mart. Hail to 3/4 inch.									
Morgan County, Versailles	25	1045-1050CST			0	0	6	0	TSTM WIND
Thunderstorm winds which were described as a "downburst" completely destroyed 3 hangars and 2 aircraft. Seven small aircraft were damaged. One plane was thrown into a house trailer. Two cars and 3 boats were severely damaged.									
Miller County, Eldon	25	1111CST			0	0	3	0	TSTM WIND
Power lines downed just south of Eldon.									
Franklin County, Union	25	1358CST			0	0	3	3	HAIL (2.50) TSTM WIND
Hail of 3/4 inch diameter covered ground 1 mile southwest and 1 mile southeast of Union. Some hailstones to 2 1/2 inch diameter were reported. Observers picked stones up and put in their freezer. Wind gusts were estimated to 60 mph.									
Lincoln County	25	1425CST			0	0	3	0	TSTM WIND
Scattered tree damage at Elsberry and around Moscow Mills.									
St. Charles County	25	1432CST			0	0	5	3	HAIL (1.75) and TSTM WIND
Hail 3/4 to 1 3/4 inch diameter reported in and around O'Fallon and Lake St. Louis. Tree damage was reported between Lake St. Louis and O'Fallon. The Meteorologist in Charge of WSFO St. Louis reported numerous trees down in and around O'Fallon. Winds were estimated at 70 mph. Marvin Wycoff reported 4.32 inches of rain and tree damage at Lake St. Louis. The rain fell during a one hour period.									
Cedar County, Eldorado Springs	25	1456CST			0	0	?	?	HAIL (1.75)
Hail to 1 3/4 inch diameter.									
St. Louis County, Gumbo	25	1510CST			0	0	3	0	TSTM WIND
Scattered tree damage around Gumbo.									
St. Charles Co., Weldon Springs	25	1515CST			0	0	3	0	TSTM WIND
Trees downed south of Weldon Springs.									
Vernon County, Milo	25	1529CST			0	0	0	0	HAIL (1.00)
Hail 3/4 to 1 inch near Milo.									
Barton County, Irwin	25	1558CST			0	0	0	0	HAIL (0.75)
Hail to 3/4 inch diameter near Irwin.									
Barton County, Liberal	25	1558CST			0	0	0	0	HAIL (1.00)
Hail to 1 inch diameter just north of Liberal.									
Polk County, Polk	25	1625CST			0	0	0	0	HAIL (1.00)
Hail to 1 inch diameter near Polk.									
Dallas County, Buffalo	25	1640CST			0	0	3	0	TSTM WIND
Few trees downed and power outage in Buffalo.									
Perry County	25	1650-1700CST			0	0	4	0	TSTM WIND
A power line pole was downed by high winds in Perryville. Additional tree damage was produced between Perryville and the Mississippi River. The storm continued to produce damage in Jackson County, Illinois. (See Illinois Storm Report).									
Cape Girardeau County, 5 W of CGI	25	1734CST	1/4	50	0	0	0	0	TORNADO (F1)
A tornado was reported to have touched down 5 miles west of the airport. No damage was reported.									
Vernon County, 5 N of Nevada	25	1740CST			0	0	3	0	HAIL (0.75) and TSTM WIND
Hail to 3/4 inch diameter and some trees downed by wind.									
Jasper County, Waco	25	1740CST			0	0	0	0	HAIL (1.00)
Hail 3/4 to 1 inch diameter just south of Waco.									

MISSOURI

Cape Girardeau County, Cape Girardeau	25	1745CST			0	0	2	0	TSTM WIND
Thunderstorm winds downed 2 large trees.									
Scott County	25	1800CST			0	0	3	0	TSTM WIND
Power lines downed in Oran and 2 trees downed near Blodgett.									

24 MONTANA

Beaverhead County, Jackson	03	afternoon	?	?	0	0	3	0	Tornado (F1)
One hundred trees were twisted off or pulled up.									
Judith Basin County, Benchland to Pergus County, Hilger	03	1600 MST	33	3520	0	0	0	4	Hail (1.00) (est.)
A hail storm began at Benchland, moved to Kolin, and ended near Hilger. Extensive crop damage was done along an approximately 33 mile long, 2 mile wide path.									
Powell County, Deer Lodge	03	evening			0	0	4	0	Hail (1.75)
Minor hail damage was done to windows, cars and roofs; extensive damage was done to a greenhouse.									
Ravalli County, Darby	03	1930 MST			0	0	0	0	Hail (1.00)
Lewis & Clark County, Helena	03	2203 MST			0	0	4	0	Hail (1.75), TSTM Winds (G 65)
A 10 minute hail fall damaged automobiles.									
Cascade County, Great Falls	03	2204 MST			0	0	1	0	TSTM Winds (G 64)
Power outages resulted from the downing of power lines.									
Meagher County, White Sulphur Spring	03	2300 MST			0	0	1	0	Hail (1.00), TSTM Wind (G 64)
Minor damage occurred.									
Phillips County, 35 S Malta	04	0200 MST			0	0	0	0	TSTM Wind (G 61)
Valley County, Glasgow	04	0246 MST			0	0	5	0	TSTM Wind (G 76)
Extensive damage was done to trees in Valley County. Many power lines were downed and the roof was taken off of a bus barn in Glasgow.									
Valley County, 25 S Glasgow	04	early morning			0	0	0	0	Hail (1.00), TSTM Wind (G 57)
A little damage occurred in the Pines Recreation Area.									
Powell County, Deer Lodge	04	afternoon			0	0	3	0	TSTM Wind (G 75)
Lots of trees were downed.									
Dawson County, 22 SW Glendive	04	late evening			0	0	2	0	Hail (2.00), TSTM Wind (G 60)
Lewis & Clark County, 2 W Helena	05	1230 MST			0	0	3	0	Hail (1.00)
Damage was done to a greenhouse.									
Choteau County: Highwood	05	1355 MST			0	0	0	0	Hail (1.25)
Shonkin	05	1430 MST			0	0	2	0	Hail (2.75)
A window was broken.									
Choteau and Hill Counties, 24 S to 27 ENE Big Sandy	05	1530-1645 MST	37	200	0	2	5	4	Tornado (F2)
A tornado touched down 24 miles south of Big Sandy in Choteau County and moved at first northeast then north-northeast through ranchland and the Bear Paw Mountains before ending 27 miles east-northeast in extreme southeast Hill County. Although the area is sparsely populated, a number of ranches were affected and extensive damage was done to trees, buildings and crops.									
Choteau County: 20 SE Big Sandy	05	1545 MST	8	200	0	0	4	3	Tornado (F2)
A tornado touched down near the IX Ranch, 20 miles southeast of Big Sandy and moved northeast about 8 miles. It formed just north of the above-mentioned tornado and traveled on a parallel course with it until apparently being drawn into and absorbed by that tornado's circulation.									

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					KILLED	INJURED	PROPERTY	CROPS	
MONTANA									
25 SE Big Sandy	05	1545 MST	10	200	0	0	3	2	Tornado (F2)
A third tornado was spawned by the same thunderstorm that spawned the previously-mentioned two, 25 miles southeast of Big Sandy. It formed south of the other two tornadoes and moved north-northeast 10 miles before it was absorbed into the circulation of the middle tornado at the same point where the northernmost one was. A little damage was done by this tornado.									
10 NW Fort Benton	05	1640 MST	?	?	0	0	0	0	Tornado (F0)
No damage resulted from this tornado which was investigated and reported by a sheriff.									
Deer Lodge County, Anaconda	05	1430 MST			0	0	3	0	TSTM Wind (G 60), Hail (1.75)
Power lines were knocked down.									
Cascade County: 5 E Great Falls	05	1349 MST			0	0	0	0	Hail (0.75)
Hail was observed at Malmstrom Air Force Base, but no damage occurred.									
2 S Uln	05	1600 MST	?	?	0	0	4	0	Tornado (F1), Hail (2.00)
A tornado accompanied by 2-inch diameter hail destroyed a trailer and damaged a helicopter.									
Hill County: 10 S Havre	05	1545 MST			0	0	0	0	Hail (1.00)
Havre	05	1625 MST			0	0	0	0	TSTM Wind (G 51)
Valley County: Glasgow	05	1730 MST			0	0	4	0	TSTM Wind (G 70)
Lots of trees were blown over and power was knocked out.									
Lustre	05	1900 MST			0	0	4	0	TSTM Wind (G 80)
Damage was done to campers.									
28 N Frazer	05	evening	?	?	0	0	0	0	Tornado (F0)
05 evening ? ? 0 0 0 0 Tornado (F0)									
05 evening ? ? 0 0 0 0 Tornado (F0)									
05 evening ? ? 0 0 0 0 Tornado (F0)									
05 evening ? ? 0 0 0 0 Tornado (F0)									
Five small tornadoes were observed 28 miles north of Frazer, but none caused any damage.									
Opheim	05	1920 MST			0	0	0	0	TSTM Wind (G 70)
No damage occurred.									
Sheridan County, 5 N Westby	05	2100 MST	?	?	0	0	0	0	Tornado (F0)
Carter County, 20-25 S Ekalaka	06	1852 MST			0	0	4	0	TSTM Wind (G 85), Hail (1.75)
Damage was confined to the Jim Hendricks Ranch.									
Meagher County, White Sulphur Springs	10	1800-1900 MST			0	0	2	2	Flash Flooding
Brief heavy rains and small hail fell for an hour. Small stream flooding occurred.									
Statewide		monthlong							Lightning
Numerous forest fires, most sparked by lightning strikes, burned many acres of forest and grasslands across Montana. Damage, if known, would be in the millions of dollars.									
25 NEBRASKA									
Lincoln Co. 1E Dickens	05	1800CST			0	0	3	1	Thunderstorm Wind
Wind gusts broke tree limbs.									
Lincoln Co. Sutherland	07	0002CST			0	0	3	3	Hail (1.75)
Butler co. 3/4E Abie	08	1130CST	0.2	40	0	0	3	1	Tornado (F0)
A small tornado touched down three-quarters of a mile east of Abie damaging three outbuildings and a number of trees.									
Saunders Co. 3W Prague	08	1231CST			0	0	0	0	Funnel Cloud
Funnel cloud was reported by sheriff.									
Washington Co. Blair	08	1500CST			0	0	3	0	Thunderstorm Wind
Strong wind gusts damaged a stadium press box.									
Nance Co. 7W Fullerton	08	1610CST			0	0	2	4	Hail (1.00)
Hail did considerable crop damage.									
NEBRASKA									
Kimball Co. 12SE Kimball	08	1743CST	0.2	20	0	0	2	1	Tornado (F0)
A small tornado touched down 12 miles southeast of Kimball and did minor damage.									
Valley Co. 6NE Ord	08	1800CST			0	0	4	4	Flash Flood
Up to 6 inches of rain caused lowland flooding damaging roads and fences.									
Cheyenne Co. Sidney	08	1831CST			0	0	4	3	Thunderstorm Wind (58)
Wind gusted to 67 m.p.h. and did some property damage.									
Cherry Co. Merriman	10	1820CST			0	0	2	4	Lightning
Lightning started four range fires near Merriman.									
Howard Co. Cotesfield	11	1425CST			0	0	3	4	Thunderstorm Wind
Wind gusts were estimated to 70 m.p.h.									
Howard Co. Elba	11	1440CST			0	0	4	5	Thunderstorm Wind (61) Hail (1.00)
Hail driven by estimated 70 m.p.h. wind gusts caused considerable damage to crops and property around Elba.									
Arthur Co. Arthur	11	1600CST			0	0	5	4	Hail (1.75)
Hail damaged approximately 15 farm dwellings and service buildings. Crops also sustained damage.									
Chase Co. 3NW to 7S Lamar	11	1630CST			0	0	3	5	Hail (1.75)
Hail damaged crops in a strip about 1 mile wide.									
Keith Co. 5SW Ogallala to Brule	11	1730CST			0	0	3	6	Hail (1.75)
Hail heavily damaged crops and damaged property. Hail drifts piled up 18 inches deep along roadways.									
Keith Co. Keystone	11	1730CST			0	0	3	3	Flash Flood
Four and a half inches of rain in 45 minutes caused flooding.									
Furnas Co. Hendley to Beaver City	12	1927CST			0	0	6	3	Thunderstorm Wind
Around Hendley winds blew down a barn, demolished sheds and removed portions of roofs along with causing extensive damage to trees and power lines. At Beaver City winds uprooted trees, demolished a shed and tore the roof off of a building.									
Chase, Hayes and Hitchcock Counties	14	1800CST-2100CST			0	0	4	5	Flash Flood
Five to seven inch rains fell near the Enders Reservoir through Hamlet to Palisade causing flash flooding and overflows in lowlands along Frenchman Creek into the morning of the 15th. Crops, roads and some bridges were damaged.									
Dawson Co. 3S Gothenburg	14	1925CST			0	0	4	4	Thunderstorm Wind (52) Hail (1.75)
Wind gusts to near 60 m.p.h. damaged trees and power lines. Hail damaged crops and a few roofs.									
Hitchcock Co. 7SW Palisade	14	2035CST	0.5	20	0	0	4	2	Tornado (F0)
A tornado touched down 7 miles southwest of Palisade and moved northeast about a half mile damaging approximately 20 power lines along with some fences.									
Red Willow Co. McCook	14	2100CST			0	0	6	3	Thunderstorm Wind (65)
Strong winds estimated near 75 m.p.h. blew a roof off of a mobile home, snapped large tree limbs and damaged power lines.									
Saunders Co. 2S Wahoo	15	1355CST			0	0	2	2	Hail (1.00)
Lancaster co. Davey	15	1400CST			0	0	6	3	Thunderstorm Wind (65)
Wind gusts estimated to around 75 m.p.h. damaged barns, garages, and small buildings along with trees from near Davey to about 3 miles northeast of Davey.									
Saunders Co. 3NW Ashland	15	1405CST			0	0	6	3	Thunderstorm Wind
Strong winds knocked down tree limbs, power lines and damaged farm outbuildings. Windows were blown out of some buildings.									
Sarpy Co. Gretna	15	1420CST			0	0	0	0	Funnel Cloud
Cass Co. 4ENE Greenwood	15	1430CST			0	0	0	0	Funnel Cloud

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NEBRASKA									
Sarpy Co. SW Papillion	15	1440CST			0	0	4	0	Lightning
									Fire started by lightning destroyed a motor home at I-80 and Highway 30.
Douglas County: Waterloo	15	1440CST			0	0	3	1	Thunderstorm Wind
15SW Omaha	15	1441CST			0	0	0	0	Funnel Cloud
9SW Omaha	15	1455CST			0	0	0	0	Funnel Cloud
13WSW Omaha	15	1500CST			0	0	3	1	Thunderstorm Wind (56)
7SW Omaha	15	1500CST			0	0	0	0	Funnel Cloud
8SW Omaha	15	1505CST			0	1	0	0	Lightning
4SSW-7SW Omaha	15	1510CST			0	11	7	1	Thunderstorm Wind
3WNW Omaha	15	1515CST			0	0	6	1	Thunderstorm Wind
Omaha	15	1521CST			0	0	5	1	Thunderstorm Wind (80)
4SSW Omaha	15	1525CST			0	0	0	0	Funnel Cloud
									A severe thunderstorm moved east and northeast through Douglas County and Omaha. Extensive tree, power line, sign and traffic light damage occurred. Power outages affected an estimated 75,000 customers or about 40 percent of Omaha. Some of the most extensive damage occurred in a half to one and a half mile wide path from near I-80 and 42nd Street northeast to just south of the I-480 Missouri River Bridge or about 7SW to 4SSW of the Omaha airport. In this area windows were blown out of some buildings, portions of roofs were blown off of some buildings and the majority of the 11 injuries were reported from flying debris and fallen trees on vehicles and buildings. Winds gusted to 92 m.p.h. at the Omaha airport, damaging buildings. Heavy tree damage also was reported 3WNW of the airport around Miller Park. A man was injured when hit by lightning near 32nd and Q Street.
Sarpy County: LaVista	15	1520CST			0	0	4	1	Thunderstorm Wind (76)
Papillion	15	1520CST			0	0	3	1	Thunderstorm Wind
									Wind gusts to an estimated 87 m.p.h. damaged trees, utility lines and signs.
Sarpy Co. Offutt AFB	15	1547CST			0	0	2	1	Hail (0.75)
Cherry Co. 8NE Merriman	16	1852CST			0	0	4	3	Thunderstorm Wind (65)
									Wind gusts estimated to 75 m.p.h. caused damage.
Cherry Co. Crookston	16	1935CST			0	0	3	2	Thunderstorm Wind (56)
									Winds gusted to 65 m.p.h. causing tree damage.
Cherry Co. Valentine	16	2010CST			0	0	4	3	Thunderstorm Wind (61)
									Damage to trees, power lines and some buildings was reported as winds gusted to 70 m.p.h.
Keya Paha Co. 3NW Norden	16	2035CST			0	0	4	2	Thunderstorm Wind (59)
									Winds gusted to 68 m.p.h. damaging trees and power lines.
Brown Co. 12NW Johnston	16	2035CST			0	0	4	2	Thunderstorm Wind (59)
									Wind gust estimated near 68 m.p.h. damaged trees.
Hall Co. Grand Island	18	1711CST			0	0	5	3	Hail (2.50)
									Hail damaged buildings, vehicles and trees in the Kuester Lake area.
Scottsbluff Co. 8NE Scottsbluff	18	1735CST			0	0	0	0	Funnel Cloud
Thomas Co. Seneca to 7W Thedford	18	1800CST			0	0	6	6	Hail (2.50)
									Hail punched holes in roofs, broke windows and damaged siding on buildings, and dented vehicles. Extensive crop and pasture damage occurred.
Thomas Co.	18	1800CST			0	0	5	5	Flash Flood
									Estimated 5 to 7 inches of rain fell in the Dismal River area west of Highway 83. The Dismal River overflowed, washing out roads and fences and flooding ranch homes.
Clay Co. 2S Inland	18	1818CST			0	0	3	4	Hail (1.75)
Morrill Co. 4E Bayard	18	1820CST			0	0	3	5	Hail (1.75)
									Hail heavily damaged crops along with causing some property damage.
Kimball Co. 11W Kimball	18	1840CST			0	0	3	3	Hail (1.75)
NEBRASKA									
Kimball Co. Kimball to 3S Kimball	18	1900CST			0	0	6	5	Hail (2.75) Thunderstorm Wind (52)
									Wind-driven hail broke windows and damaged roofs, siding and vehicles. Wind gusts broke tree limbs. Crops sustained heavy damage.
Cheyenne Co. 5NE Gurley	18	2000CST			0	0	3	5	Hail (1.75)
									Hail driven by gusty winds heavily damaged a 2 mile wide, 7 mile long strip of crops.
Custer Co. Callaway	18	2015CST			0	0	5	5	Hail (2.50)
									Hail knocked out house windows and broke windshields on vehicles. Approximately 900 acres of crop and pasture land were heavily damaged.
Dawson Co. 5W Lexington	18	2115CST	0.2	40	0	0	3	1	Tornado (F0)
									A tornado touched down briefly 5 miles west of Lexington, damaging trees and fences.
Lincoln Co. Hershey	18	2145CST			0	0	0	0	Funnel Cloud
Dawson Co.	18-19	2200CST-0100CST			0	0	5	4	Flash Flood
									Around 6 inches of rain fell in the hills northwest of Lexington and 4 inches at Overton flooding roads and damaging crops. Damage was also reported at the Gothenburg irrigation canal.
Phelps and Kearney Counties	19	0000CST-0500CST			0	0	5	5	Flash Flood
									Pockets of 5 to 5½ inch rains caused areas of flash flooding which damaged roads, bridges and crops. In the Holdrege area water was reported 3 feet deep in city streets, underpasses flooded, stalling cars, small creeks overflowed and basements were flooded. Water flooded the golf course at Minden and water was reported over county roads northeast of Bertrand. Some reported rainfalls included 5.20 inches near Atlanta and just west of Minden and 4.9 inches at Holdrege.
Hall Co. Grand Island	19	0400CST			0	0	4	0	Lightning
									Lightning strike caused heavy damage to rooms of a home on the south side.
Hamilton Co. Aurora	24	0325CST			0	0	0	0	Funnel Cloud
Thurston Co. 4S Macy	24	1900CST			0	0	4	5	Hail (1.75)
									Hail damaged crops and building siding, and broke windows.
Lodge Co. Uehling	24	1945CST			0	0	5	5	Hail (1.75) Thunderstorm Wind
									Hail damaged buildings and crops from Uehling to about 3 miles south. Winds blew down trees which damaged vehicles and homes as they fell.
Dodge Co. North Bend	24	2030CST			0	0	4	4	Thunderstorm Wind (50) Hail (0.75)
									Wind gusts estimated 55 to 60 m.p.h. and hail damaged crops and a few buildings and broke tree limbs in an area from North Bend to about 3 miles north of North Bend.
Saunders County: Cedar Bluffs	24	2110CST			0	0	4	5	Hail (1.75)
Prague	24	2115CST			0	0	4	3	Thunderstorm Wind
Weston	24	2115CST			0	0	0	6	Hail (1.75)
Valparaiso	24	2120CST			0	0	4	5	Hail (1.75)
									Hail and strong winds moving south across the county caused heavy damage to crops, damaged buildings and broke tree limbs.
Butler Co. Brainard	24	2130CST			0	0	3	6	Thunderstorm Wind (65) Hail (1.00)
									Wind gusts estimated to around 75 m.p.h. blew down trees and power lines. Hail caused extensive crop damage.
Seward Co. 1W Garland to Seward	24	2200CST			0	0	4	5	Hail (1.75) Thunderstorm Wind
									Hail caused extensive crop damage. Strong winds blew down trees and some power lines.
Box Butte Co. 3SE Marsland	25	2326CST			0	0	3	3	Hail (1.75)

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NEBRASKA									
Morrill Co. 5E Broadwater	28	1930CST			0	0	1	3	Lightning
									Lightning started a 300 acre grass fire.
Garden Co. 4S Lisco	28	2000CST			0	0	1	4	Lightning
									Lightning started a 800 acre grass fire.
26 NEVADA									
Washoe County	22	1528PST			0	0	4	0	TSTM Wind (58)
	22	1531PST			0	0	3	0	TSTM Wind (59)
Lyon County	22	1610PST			0	0	3	0	TSTM Wind (52)
									Strong thunderstorms developed along the east slopes of the Sierra Nevada during the afternoon and drifted slowly east. Outflow winds hit the Reno-Sparks area. A gust to 67 MPH at the Reno-Cannon International Airport flipped a Cessna 172, nearly tearing it in half. A few minutes later, winds gusting to 68 MPH were reported in Sparks, NV. Trees were uprooted and large limbs were blown down. At about the same time, winds gusting to around 50 MPH were reported at the Carson City Airport. As the storms drifted east, outflow winds gusting to 60 MPH uprooted trees and downed large limbs in the Yerington, NV area.
Douglas County	25	AFTN.			0	0	3	0	Flash Flood
									Strong thunderstorms developed over the east slopes of the Sierra Nevada and moved north through the extreme western part of Nevada. Heavy rainfall from these storms produced a flash flood that washed over parts of U. S. Highway 395 between Carson City, NV and Gardnerville, NV. This high water resulted in an automobile accident. There were no injuries. As the storm system moved north into the Reno-Sparks area it produced minor flooding of streets and washes.
Lyon County	26	1500PST 1630PST			0	0	3	0	Flash Flood
									Strong thunderstorms developed over southern Lyon County and moved very slowly north. Heavy rain produced a flash flood that washed out parts of State Highway 338 south of Smith Valley, NV. An automobile was carried away by the flood waters. The driver was able to climb to safety and call the sheriffs office.
Douglas County	27	1610PST			0	0	2	0	Flash Flood
									Heavy rains from thunderstorms over southern Douglas County produced flash flooding across U. S. Highway 395 ten miles north of Topaz Lake. High water over the roadway stopped traffic. There were no reports of accidents or injuries.
Washoe County	27	AFTN			0	0	3	0	Flash Flood
									Slow-moving thunderstorms that developed in the Reno-Sparks area dumped 1.52 inches of rain on the northwest part of Sparks, NV in one hour. This heavy rain caused an irrigation ditch of overflow. Mud and water washed into some homes and caused traffic problems on several major streets.
Nye County	30	1250PST			0	0	0	0	TSTM Wind (66)
									Thunderstorms formed over the Spring Mountains west of Las Vegas, NV. Outflow winds from these storms produced gusts to 76 MPH in Pahrump, NV.
Pershing County	30	1610PST			0	0	0	0	TSTM Wind (52)
									Thunderstorms moved north into southern Pershing County and produced winds that gusted to 60 MPH at the Lovelock, NV airport.
27 NEW HAMPSHIRE									
Belknap Co. Barnstead	01	1500 EST			0	0	5	3	Hail (0.75) Lightning
									A thunderstorm produced one-inch hail and lightning set fire to a machine shop causing \$400,000 damage.
Sullivan Co. Newport	08	1520EST			0	0	5	0	TSTM Wind
									Thunderstorm winds knocked down dozens of trees, closing several roads. Hardest hit was South Main Street where four trees and three utility poles were felled. Heavy rain and small hail clogged storm drains causing flooded roadways. Several trees fell on houses and vehicles.
NEW HAMPSHIRE									
Strafford Co. Farmington	10	1658EST			0	0	4	0	TSTM Wind
									A thunderstorm produced winds that took down several large trees.
Strafford Co. Durham	10	1720EST			0	0	1	0	Hail (1.00)
Strafford Co. Dover	10	1745EST			0	0	5	0	TSTM Wind
									Winds from thunderstorms blew down several large trees.
Rockingham Co. Raymond	12	1730EST			0	0	4	0	TSTM Wind
									A thunderstorm produced winds that took down several trees and blocked Route 117.
Rockingham Co. Newfields	13	1900EST			0	0	5	0	Lightning
									Lightning set fire to a house on Main Street. Damage was extensive to the top floor of the building.
Cheshire Co. Westmoreland and Keene	14	1600EST			0	0	4	0	TSTM Wind
									Thunderstorm winds knocked down many trees. Power was out to 13,000 people.
Cheshire Co. Chesterfield and Spofford	14	1602EST			0	0	4	0	TSTM Wind
									A thunderstorm produced winds that took down several trees.
Cheshire Co. Chesterfield	14	1620EST ?	?	?	0	0	5	0	Tornado (F1)
									A tornado tore up trees, roots and all, ripped a wall off a shed, and took down 1/2 mile of power lines, snapping some utility poles. Route 9 in West Chesterfield was closed for 2 1/2 hours.
Cheshire Co. Swanzy	14	1630EST			0	0	1	0	Hail (0.75)
Cheshire Co. Jaffrey, Troy and Fitzwilliam	14	1640EST			0	0	4	0	TSTM Wind
									Thunderstorm produced winds that blew down several trees in each community.
Carroll Co. Wolfeboro, Tuftonboro and Moultonboro	14	1725EST			0	0	4	0	TSTM Wind
									Thunderstorms produced winds that took down several trees in each town.
Belknap Co. Gilford	17	1345EST			0	0	5	0	Lightning
									Lightning set fire to a summer residence on Lake Winnepesaukee. The cottage was destroyed.
Rockingham Co. Hampton Beach	17	1515EST			1	0	0	0	Lightning
									A 23-year-old lifeguard was killed when struck by lightning.
Strafford Co. Dover, Barrington and Durham	17	1700 to 1710EST			0	0	5	0	TSTM Wind
									Thunderstorm winds took down many trees and power lines. Some streets and basements were flooded due to heavy rain.
Rockingham Co. Kingston and Exeter	17	1826EST			0	0	4	0	TSTM Wind
									A thunderstorm produced winds that blew down several trees and power lines. Nine streets were closed by fallen trees in Exeter.
Merrimack Co. Concord	26	1400EST			0	0	4	0	TSTM Wind
									Thunderstorm winds took down trees that blocked Silk Road for a couple of hours.
Rockingham Co. Deerfield	26	1415EST			0	0	4	0	TSTM Wind
									Thunderstorm winds took down several large trees.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	

NEW HAMPSHIRE

Rockingham Co. Raymond	26	1420EST			0	0	4	0	TSTM Wind
A thunderstorm produced winds that blew down several trees.									
Strafford Co. Barrington	26	1435EST			0	0	4	0	TSTM Wind
Thunderstorm winds took down several trees.									
Coos Co. Stewartstown	30	1800EST			0	0	1	0	Hail (0.75)

28 NEW JERSEY, Northern

Sussex Co. Bergen Co. Ramsey	14	2005EST			0	0	?	0	Thunderstorm Wind
Passaic Co.	14	2020EST			0	0	?	0	Thunderstorm Wind
West Milford Sussex Co.	14	2055EST			0	0	?	0	Thunderstorm Wind
Severe thunderstorms moving across Northern New Jersey downed hundreds of trees and numerous power lines.									
Hunterdon Co. Holland Township	16	2045EST			0	0	?	0	Thunderstorm Wind
Readington Township	16	2045EST			0	0	?	0	Thunderstorm Wind
Lambertville	16	2045EST			0	0	?	0	Thunderstorm Wind
Flemington	16	2045EST			0	0	?	0	Thunderstorm Wind
Warren Co. Delaware	16	2045EST			0	0	?	0	Thunderstorm Wind
A cluster of severe thunderstorms moving across Hunterdon and Warren Counties downed numerous large trees and power lines.									
Hunterdon Co. Morris Co.	17	1623EST			0	0	?	0	Thunderstorm Wind
Lake Hopatcong	17	1645EST			1	0	0	0	Lightning
Morris Co.	17	1720EST			0	0	?	0	Thunderstorm Wind
Union Co.	17	1730EST			0	0	?	0	Thunderstorm Wind
Essex Co. Newark Airport	17	1740EST			0	0	0	0	Thunderstorm Wind (60)
Hudson Co. Harrison	17	1745EST			0	0	?	0	Thunderstorm Wind
Monmouth Co. Middletown	17	1815EST			0	0	?	0	Thunderstorm Wind
Middlesex Co. Edison	17	1845EST			0	0	?	0	Flash Flood
Numerous power lines and hundreds of trees were downed across Northern New Jersey. At Newark Airport the wind gusted to 60 knots (69mph). In Edison of Middlesex County very heavy rain fell during a brief period. The Lakeview School received extensive damage from the resultant flood waters. Also in Edison the heavy rain caused the roof of a supermarket to collapse. In Morris County a 24 year old man was skiing on Lake Hopatcong. He was struck by lightning and killed. M240									
Sussex Co. Newton	26	1145EST			0	0	?	0	Thunderstorm Wind
Essex Co. Montclair	26	1320EST			0	0	?	0	Thunderstorm Wind
Newark	26	1320EST			0	0	?	0	Thunderstorm Wind
Union Co.	26	1420EST			0	0	?	0	Thunderstorm Wind
Morris Co.	26	1420EST			0	0	?	0	Thunderstorm Wind
Severe thunderstorms moving across sections of Northern New Jersey downed power lines and numerous large trees.									

28 NEW JERSEY, Southern

NJ2805 Southern New Jersey	01-18				0	0	0	7	DROUGHT
Little or no rain fell over the last 20 days of June. Through the middle of July there were one or two days that had some thunderstorms. A few locations even had a brief downpour. However, much of the south portion of Southern New Jersey had 1/3 inch or less of precipitation over the beginning and middle of July. This lack of precipitation, combined with high temperatures, had a detrimental effect on crops and livestock. This would at least reduce quality and production. Temperatures climbed to 90 degrees or higher on many days from the middle of June through the middle of July. The temperature reached 100 degrees on several days.									

NEW JERSEY, Southern

Cumberland Co. 1.5 W Millville	17	1835 EST			0	0	3	0	TSTM Wind
Thunderstorm winds downed power lines.									
Atlantic Co. Egg Harbor City	17	1900 EST			0	0	3	0	TSTM Wind(57)
Thunderstorm winds estimated at 60 to 65 MPH brought down large tree limbs.									
Salem Co. Pedricktown	20	1800 EST	.25	40	0	0	5	0	Tornado(F1)
A tornado touched down twice. The first path was 100 yds by 30 yds. Two large trees and many smaller trees were uprooted. The funnel was then off the ground for 200 yds before touching down again in a bus yard. Three windows were blown out of one bus. A 60 ft by 20 ft 2-story building had one side demolished and the roof blown off. A large tree was uprooted. The second touchdown was 150 to 200 yds by 30 to 40 yds. Damage was estimated at \$75,000 to \$100,000.									
Cumberland Co. 1 N Carlin Corner	23	2315 EST	.10	10	0	1	5	0	Tornado(F1)
A tornado touched down briefly causing considerable damage. First it took the roof off an outbuilding by a church, damaged siding on the church and bent two heavy lantern lamps on the front of the church. Windows were blown out at the parsonage, with flying glass giving a minor cut to an 18 year old boy sleeping inside. Across the street a large chicken coop was blown apart. The debris came down on six automobiles parked nearby, causing extensive damage. At a neighboring property, trees were uprooted and an awning torn off the house. At yet another adjacent property, a tree was uprooted. Estimated damage was \$100,000. The tornado may have touched down more than once, since a lone tree was uprooted 1/2 mile away.									
Mercer Co. 5 WSW Hopewell	26	1330 EST			0	0	3	0	TSTM Wind
Thunderstorm winds downed dozens of large trees, some 2.5 ft in diameter. The damage path was about 5 miles long and 1 mile wide.									
NJ2805 All but Coastal Sections	Monthlong				?	?	?	?	Heat Wave
Temperatures reached 90 degrees or higher on at least 15 days over most of Southern New Jersey. Some areas, especially west portions, reached 90 degrees on 21 days. The temperature reached 100 degrees or above on 3 or 4 days. There were 2 or 3 periods of 90 degrees or higher on 5 to 9 consecutive days. No information is available as to deaths or injuries attributable to the hot weather.									

29 NEW MEXICO

Bernalillo County	2	1730 MST			0	0	?	0	Lightning
Lightning ignited a fire which burned a residence in the Northeast Heights of Albuquerque.									
Bernalillo County	5	1644 MST			0	0	0	0	Thunderstorm Wind(50)
A pilot at Coronado airport just north of Albuquerque reported a wind gust of 50 knots on the ground.									
Santa Fe County	5	1700 MST			0	0	?	0	Thunderstorm Wind(52)
Spotter at Turquoise, just south of Santa Fe, reported wind gusts of 60 to 70 MPH.									
Santa Fe and Torrance Counties	5	1750 MST			0	0	?	0	Flash Flood
Four inch rains produced flooding at Stanley on Highway 41. Highway 42 in Torrance County also was flooded.									
Sierra County	5	2100 MST			0	0	?	0	Flash Flood
Two to three feet of water over Willow Creek bridge near Cuchillo.									
Grant County	6	1730 MST			0	0	?	0	Flash Flood
Several homes, streets, and a high school were flooded with one to three feet of water in the Bayard-Silver City area.									
Union County	6	1730 MST			0	0	?	0	Flash Flood
Four inches of rain in Folsom flooded mainly streets. One family was rescued from a car that was washed off the street.									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
NEW MEXICO									
San Miguel County	6	?			0	0	?	0	Flash Flood
	Two and half inches of rain flooded homes and streets in Las Vegas.								
Colfax County	7	1100 MST			1	5	0	0	Lightning
	Six scouts from Monroe, Wisconsin were struck while on a backpack outing near the Philmont Scout Ranch 30 miles south of the Colorado border. Five boys were injured and an 18 year old male killed. The boy who was killed was struck and went into a coma, and never regained consciousness. He died in a hospital in Wisconsin on July 22nd.								
Roosevelt County	7	1729 MST			0	0	?	?	Flash Flood Thunderstorm Wind(56)
	Three inches of rain flooded houses in Portales. Winds moved a trailer house two feet off the foundation. Winds gusted to around 70 MPH.								
Lea County	7	1900 MST			0	0	?	?	Flash Flood
	Two and three-quarters inches of rain in one and a half hours flooded Hobbs. Roof on VFW Hall collapsed due to weight of water. Forty homes sustained water damage.								
Lea County	7	1940 MST			0	0	?	0	Thunderstorm Wind
	Downburst winds destroyed two buildings in Hobbs and downed power lines three miles south of Hobbs.								
Cibola County	8	1430 MST			1	5	0	0	Lightning
	Lightning struck and killed a nine year old girl and injured a 12 year old boy while riding horses near Mount Taylor. Two horses were also killed. Two adults and two children nearby were also injured.								
Bernalillo County	8	1900 MST			0	2	?	?	Flash Flood
	Arroyo flooding in Albuquerque Northeast Heights. Two injuries when two children fell in an arroyo and had to be rescued.								
Hidalgo County	8	Dusk			0	0	?	0	Thunderstorm Wind
	Destroyed a mobile home, damaged a carport, and turned over a travel trailer in Lordsburg.								
Bernalillo County	9	1700 MST			1	?	6	0	Flash Flood
	Up to seven inches of rain fell in the Northeast Heights of Albuquerque, producing major flooding on Embudo arroyo and other nearby areas. Seven foot waves were reported over the banks of the arroyo, flooding nearby streets and damaging some 200 houses. Sand and silt several feet deep along with large boulders were deposited on the streets. A 16 year old female was killed when she tried to drive through the water and her car was swept away. The car was completely destroyed and found three quarters of a mile down the arroyo. The girl was thrown from the car and killed. Paradise Hills, on the West Mesa of Albuquerque, received three inches of rain producing flash flooding. Also, the town of Camuel, immediately east of Albuquerque in Tijeras Canyon, also received around three inches of rain, producing flash flooding of Interstate 40 and Highway 66. A flood of near this intensity had not been seen in Albuquerque since 1980. Damage estimated near three million dollars. Damage to streets, arroyos, sidewalks, etc. around 2.3 million dollars. Damage to homes and businesses less than one million dollars. (F16V)								
Bernalillo County	9	evening			0	4	0	0	Lightning
	Four girls in Albuquerque struck and injured.								
Curry County	11	1729 MST			0	0	0	0	Flash Flood
	Heavy rain produced minor street flooding in Clovis.								
Lincoln County	12	1400 MST			0	4	0	0	Lightning
	Four injured by lightning near Pichacho. 40 miles west of Roswell, while standing in an orchard. The bolt hit a tree nearby, injuring three males and one female.								
NEW MEXICO									
Eddy County	15	1730 MST			0	0	?	?	Thunderstorm Wind (50)
	Fifty knot wind damaged trees and vineyards, blew down mail boxes, and overturned a mobile home near Carlsbad. Also, one and a half inches of rain produced street flooding.								
Lea County	18	afternoon			0	0	?	0	Thunderstorm Wind
	Destroyed mobile home in Lovington.								
Curry County	18	2107 MST			0	0	0	0	Flash Flood
	Street flooding in Clovis.								
Lincoln County	19	1150 MST			0	0	0	0	Funnel Clouds
	Two spotted near the town of Lincoln.								
Lincoln County	19	1345 MST			0	0	?	0	Flash Flood
	Bonito Creek near Fort Stanton overflowing.								
Eddy County	19	1600 MST			0	0	0	0	Hail(0.75)
	Reported from Avelon Dam near Carlsbad.								
Lea County	19	1745 MST			0	?	6	?	Flash Flood
	Four and one-half inches of rain flooded Hobbs, producing one million dollars of damage. 200 homes and 30 businesses were flooded. Additionally, ten homes were struck by lightning. Several homes damaged so bad by flood, they had to be demolished. Reported as the most destructive thunderstorm ever to hit Hobbs.								
Eddy County	20	0600 MST			0	0	?	0	Flash Flood
	Cars were washed off the street in flood at Carlsbad. Truck highway around town was closed due to high water. Some flooding of highways towards Carlsbad Caverns also reported.								
Otero County	20	1636 MST			0	0	0	0	Funnel Clouds
	Two spotted near Alamogordo.								
San Juan County	22	1845 MST			0	0	?	0	Thunderstorm Wind
	Wind damaged minor structures such as a small metal building and a roof of a garage. Occurred near Blanco, 45 miles southeast of Farmington.								
Sandoval County	29	1700 MST			0	?	5	0	Flash Flood
	One inch of rain fell in fifteen minutes, sending water three feet deep across roads in Rio Rancho. Water ran down the streets and was diverted from arroyos as mud collected on the roads and in the arroyos. Mud was three feet deep at some residences and in the street. Ten homes had water and mud inside. One hundred homes were slightly damaged. Five hundred homes had landscaping damage. A wall of water three feet high washed drivers down the street in the Vista Hills subdivision where the majority of the damage occurred.								
30 NEW YORK, Coastal									
Nassau Co.	10	1520EST			0	0	?	0	Thunderstorm Wind
Glen Head	10	1540EST			0	0	?	0	Thunderstorm Wind
Richmond Co.	A cluster of thunderstorms moving across Long Island and Staten Island downed numerous trees and power lines in Richmond County and in Glen Head of Nassau County. A house was damaged in Glen Head when a large 75 year old Beech tree fell across its roof.								
Kings Co.	10	1543EST			1	12	0	0	Lightning
	A family playing volleyball in Prospect Park of Kings County tried to escape torrential rains associated with a passing thunderstorm by running under a nearby tree. The tree was struck by a bolt of lightning. A 28 year old male was killed and 12 other members of his family and friends were injured. M280								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
NEW YORK, Coastal									
Rockland Co.	14	2000EST			0	0	?	0	Thunderstorm Wind
			Severe thunderstorms downed numerous trees and power lines in Sloatsburg.						
Rockland Co.	14	2011EST			0	0	?	0	Thunderstorm Wind
			Severe thunderstorms downed numerous trees and power lines in Suffern.						
Richmond Co.	19	2120EST			1	0	?	0	Lightning
			A man waiting for a bus was killed when a bolt of lightning hit a nearby building, blasting loose a brick which struck the man in the head. M320						
Richmond Co.	26	1600EST			0	0	?	0	Flash Flood
			Very heavy rain fell across large sections of Richmond County. The resultant flood waters cut off train service, washed away cars, stranded hundreds and flooded many homes and stores. A bridge across Moreau Brook was also washed away.						
Queens Co.	28	2005EST			1	0	?	0	Lightning
			An 18 year old baggage handler at Kennedy Airport was struck and killed by lightning. He was struck while driving an open deck truck on the airport's tarmac. Both the truck and the tarmac were damaged. M180						
30 NEW YORK, Central									
Areawide		Monthlong					6	7	Drought
			(continued from June 13) A drought continued in most portions of eastern New York State. The lack of rainfall has continued to do damage to farm crops and increased potential for forest fires. Water restrictions continue to be imposed in community after community.						
Dutchess County Rhinebeck	01	Unk			1	0	4	0	Tstm
			One man was killed in an auto accident. He was swerving to avoid storm debris in the road...accident occurred on Route 308. N-71-V Trams-Dutchess County						
Areawide	04-11				1	11	5	?	Heat
			A Bermuda high settled over eastern New York producing a heat wave of major proportions. During the five (5) day period, high temperature records were tied or broken nearly every day. High humidity combined with the heat to push the heat index into high stress levels. Power companies reported near-record to record power generating levels. Forest fires developed into major problems in eastern New York. Over 1000 acres had burned in the lower Hudson Valley alone. One (1) seven week old female lost her life due to heat stroke. F-Seven Wks Heat Stroke - Albany Co						
Warren County Lake George Vil.	08	1410EST			0	0	4	0	Tstm wind
Lake George Vil.	08	1410EST			0	0	0	0	Hail (0.75)
Lake George Vil.	08	1410EST			0	0	2	0	Lightning
Chestertown	08	1415EST			0	0	3	0	Tstm wind
			A fast-moving thunderstorm, with hail and lightning blew down large trees, power lines, and tents in the resort community of Lake George Village.						
Dutchess County Countywide	09				0	0	5	?	Lightning and Tstm wind
			Intense lightning and very strong winds destroyed power lines in almost every town in Dutchess County. Power officials reported this to be the most severe power interruption since the mid-fall snowstorm of October 4, 1987.						
NEW YORK, Central									
Columbia County Amenia	11	1530EST			0	1	4	0	Tstm wind
Warren County Glens Falls	11	1750EST			0	0	3	3	Tstm wind
Dutchess County Millerton	11	1750EST			0	0	4	2	Tstm wind
Columbia County Canaan	11	1755EST			0	0	5	5	Tstm wind
			Gale force winds brought down 100 year old poplars and maple trees. Power lines and poles also came down. Residents of the area reported large tree trunks being snapped in half and bounced along the ground by the force of the wind. Three buildings were also destroyed by falling trees.						
Greene County Athens	12	1555EST			0	0	3	0	Tstm wind
Columbia County Philmont	12	1619EST			0	0	4	0	Tstm wind
Chatham	12	1620EST			0	0	4	2	Tstm wind
Copake	12	1635EST			0	0	4	3	Tstm wind
Elizaville	12	1637EST			0	0	3	0	Lightning
Kinderhook	12	1640EST			0	0	4	0	Tstm wind
Greenport	12	1640EST			0	0	4	0	Lightning
Spencertown	12	1640EST			0	0	4	0	Lightning
Kinderhook	12	1642EST			0	1	5	0	Tstm wind
Dutchess County Rhinebeck	12	1645EST			0	0	3	0	Tstm wind
			Thunderstorms rumbled across Greene, Columbia and Dutchess counties bringing down trees and power lines. The storms did continue into Berkshire County, MA between 6:00 PM and 6:30 PM.						
Fulton County Perth	14	1400EST			0	0	0	0	Hail (1.5)
Gloversville	14	1401EST			0	2	7	0	Rain
Montgomery County Amsterdam	14	1405EST			0	0	5	4	Tstm wind
Fulton County Johnstown	14	1412EST			0	0	6	0	Lightning
Gloversville	14	1415EST			0	0	5	0	Tstm wind
Schoharie County Cobleskill	14	1415EST			0	0	3	0	Tstm wind
Schenectady County Herkimer County	14	1425EST			0	0	5	0	Tstm wind
Little Falls	14	1429EST			0	0	3	3	Tstm wind
Cortland County Cortlandville	14	1430EST			0	0	4	0	Tstm wind
Montgomery County Amsterdam	14	1430EST			0	0	6	5	Tstm winds Microburst
Cortland County McGraw	14	1434EST			0	0	4	0	Tstm wind
Montgomery County Hagaman	14	1435EST			0	0	4	2	Tstm wind
Cortland County McGraw	14	1440EST			0	0	3	3	Lightning
Fulton County Warren County	14	1445EST			0	0	0	2	Tstm wind
North Creek	14	1445EST			0	0	5	0	Tstm wind
Herkimer County Little Falls	14	1449EST			0	0	3	0	Lightning
Little Falls	14	1451EST			0	0	3	0	Lightning
Little Falls	14	1453EST			0	0	4	0	Lightning
Oneida County Rome	14	1457EST			0	0	3	0	Tstm wind
Madison County Munnsville	14	1502EST			0	0	3	0	Tstm wind
Oneida County Deerfield	14	1503EST			0	0	2	0	Tstm wind
Otsego County	14	1518EST			0	0	5	0	Tstm wind
Mt. Upton	14	1530EST			0	0	3	0	Lightning
Rensselaer County Saratoga County	14	1530EST			0	0	5	0	Tstm wind
So. Glens Falls	14	1530EST			0	0	4	0	Lightning
Warren County Glenns Falls	14	1530EST			0	0	4	0	Tstm wind
Cortland County Cortland	14	1530EST			0	0	5	0	Funnel Cloud
Saratoga County Hadley	14	1532EST			0	0	4	0	Tstm wind
Washington County Hudson Falls	14	1536EST			0	0	0	3	Tstm wind
Rensselaer County Speiglerstown	14	1550EST			0	0	3	3	Tstm wind
Grafton	14	1550EST			0	0	3	3	Tstm wind
Washington County Cambridge	14	1552EST			0	0	4	0	Tstm wind
Ulster County Kingston	14	1730EST			0	0	4	0	Tstm wind
Accord	14	1731EST			0	0	5	0	Tstm wind
Saratoga County Stillwater	14	1730EST			0	0	3	0	Tstm wind
Ulster County Highland	14	1734EST			0	0	0	0	Hail (0.75)
17NW Poughkeepsie	14	1840EST			0	0	4	0	Lightning
Dutchess County Poughkeepsie	14	1845EST			0	0	4	0	Tstm wind
Poughkeepsie	14	1900EST			0	0	5	0	Tstm wind
Poughkeepsie	14	1915EST			0	0	3	0	Tstm wind

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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

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

NEW YORK, Central

Orange County	14	1915EST	7.2	80	0	1	6	6	Tornado (F2)
.5ESE Westtown to 1.5 N Pine Island	14	1945EST			0	0	4	4	Tstm wind
Huguenot	14	1920EST			0	0	4	4	Tstm wind
Putnam County	14	1920EST			0	0	5	?	Tstm wind
Brewster	14	1920EST			0	1	?	?	Lightning
Orange County Johnson	14	1929EST			0	0	3	5	Tstm Wind
Dutchess County Beacon	14	1930EST			0	0	4	0	Tstm wind
Orange County Goshen	14	1937EST			0	0	0	0	Hail (0.75)
Cuddlesback	14	1945EST			0	0	4	4	Tstm wind
Florida	14	1948EST			0	0	3	3	Tstm wind
Warwick	14	1951EST			0	0	3	4	Tstm wind
New Hampton	14	1957EST			0	0	3	3	Tstm wind
Orange County	14	2015EST			0	0	3	0	Tstm wind

Very severe thunderstorms pounded eastern New York State. Trees, wires, were brought down around the area. A microburst was observed in the area of Wallins Corners, near the boundary between Montgomery and Fulton counties. The microburst was responsible for uprooting 15 trees along Log City Road, and a 40 x 80 foot garage along Route 30 was torn open. In Gloversville, the exterior roof of a supermarket was blown away. The interior roof collapsed, injuring two (2) persons very slightly, when 1.53 inches of rain fell in ten minutes. The storm then continued moving east into Schenectady and southern Saratoga County.

A tornado was also observed about 1/2 mile ESE of Westtown, Orange County. It was moving east to east-northeast. The tornado passed through mostly farm land. The tornado was sighted at about 1920 EST near Horton Road... visible was the vivid lightning and golfball size hail. Home owners huddled their family to the center of the house while trees were snapped off and pounded the house. A barn built in 1869 was reduced to rubbish.

The storm crossed Hosiers Road and attacked the Kuppenis Farm. There it leveled large trees, removed the top 25 feet of a stone/cement silo, dropping it on a barn, and destroyed 20 acres of corn. The tornado then appeared to follow the terrain, arcing toward the southeast.

The tornado moved near the Schmick Farm where it destroyed a car. The storm continued southeast through farm fields and swamp land. It crossed the Pulaski Highway where it flipped a tractor-trailer truck, trapping the driver in the wreckage. The storm had approached the highway from the northwest then looped back, approaching the highway again from the southeast.

The tornado dissipated about one mile north of Pine Island.

Orange County Middletown	16	1925EST			0	0	3	3	Tstm wind
Herkimer County Chepachet	16	1930EST			0	0	4	3	Tstm wind
Chenango County Earlville	16	1930EST			0	0	4	2	Tstm wind
Rensselaer County Schaghticoké	16	1955EST			0	0	5	0	Tstm wind
Otsego County Schuyler Lake	16	1955EST			0	0	2	4	Tstm wind
Saratoga County Clifton Park	16	2000EST			0	0	4	0	Tstm wind
Montgomery County St. Johnsville	16	2009EST			0	0	5	0	Lightning
IW Ft. Plain	16	2009EST			0	0	5	5	Downburst
.5NW Ft. Plain	16	2010EST			0	0	5	5	Downburst
Fulton County Gloversville	16	2012EST			0	0	5	0	Lightning
Hamilton County Piseco Lake	16	2013EST			0	0	4	0	Tstm wind
Fulton County Broadalbin	16	2020EST			0	0	4	0	Tstm wind
Pecks Lake	16	2022EST			0	0	5	0	Lightning
Schenectady County Glenville	16	2035EST			0	0	3	0	Tstm wind
Montgomery County Fonda	16	2040EST			0	0	4	2	Tstm wind
Palatine Br.	16	2040EST			0	0	4	0	Tstm wind
Saratoga County Saratoga Spg.	16	2045EST			0	0	0	0	Tstm wind (G60)
Stillwater	16	2100EST			0	0	3	0	Tstm wind (G60)
Warren County Lake George Vill.	16	2145EST			0	0	3	3	Tstm wind
Prospect Mtn.	16	2145EST			0	0	4	0	Lightning
Washington County Granville	16	2200EST			0	0	?	0	Tstm wind

Considerable damage was done in eastern New York... hundreds of trees and power lines were brought down during the storm.

NEW YORK, Central

Otsego County	17	1301EST			0	0	4	0	Tstm wind
Broome County Link Field	17	1308EST			0	0	?	?	High winds (G47)
Unidillia	17	1320EST			0	0	3	0	Lightning
Tioga County Owego	17	1330EST			0	2	5	0	Tstm winds
Broome County	17	1330EST			0	0	3	0	Tstm winds
Union	17	1348EST			0	0	4	0	Tstm winds
Delaware County Sullivan County	17	1413EST			0	0	4	0	Tstm winds
Claryville	17	1450EST			0	0	0	0	Hail (0.75)
Ulster County	17	1505EST			0	0	5	0	Tstm winds
Greene County Cario	17	1505EST			0	0	3	0	Hail (0.75)
Sullivan County	17	1510EST			0	0	4	0	Tstm winds
Grahamsville	17	1513EST			0	0	5	0	Tstm winds
Saratoga County Jonesville	17	1522EST			0	2	4	0	Lightning
Albany County Westerlo	17	1530EST			0	0	3	0	Tstm winds
Dutchess County Ulster County	17	1532EST			0	0	5	0	Lightning
Saugerties	17	1600EST			0	0	4	0	Tstm winds
Dutchess County LaGrange	17	1630EST			0	0	3	0	Lightning
Red Hook	17	1632EST			0	0	3	0	Tstm winds
Rhinebeck	17	1632EST			0	0	3	0	Tstm winds
Columbia County Claverack	17	1637EST			0	0	4	0	Tstm winds
Spencertown	17	1637EST			0	0	4	0	Tstm winds
Dutchess County Stanford	17	1658EST			0	0	3	0	Tstm winds
Orange County	17	1735EST			0	0	4	0	Tstm winds
Dutchess County	17	1753EST			0	0	5	0	Tstm winds
Pine Plains	17	1815EST			0	0	3	0	Lightning
Delaware County Walton	17	1946EST			0	5	0	0	Lightning
Sullivan County Elko Lake	17	2030EST			0	0	5	0	Lightning

Thunderstorms produced downed trees and power lines, and some roof damage.

Dutchess County	21	1745EST			0	0	5	0	Tstm wind
Stanford	21	1800EST	.75	200	0	0	4	5	Tornado (F1)
Orange County Huguenot	21	1759EST			0	0	5	0	Lightning

A tornado developed near Shaw Pond in Dutchess County. The tornado destroyed a four car garage along Ludlow Woods Road. It then continued about 1/2 mile through a swamp before dissipating. A children's camp in Orange County was hit by lightning and destroyed. The camp housed 300 kids during the summer. At the time of the event, the children were 1/4 mile away from the building, returning from a field trip.

Fulton County	26	1215EST			0	0	5	0	Lightning
Fulton Co. Airport	26	1242EST			0	0	3	0	Lightning
Gloversville	26	1248EST			0	0	0	3	Lightning

Lightning caused damage to power lines and struck a building and some park facilities, causing damage.

Chenango County Afton	26	1503EST			0	0	4	0	Lightning
Otsego County Oneonta	26	1545EST			0	1	4	0	Lightning
Gilbertsville	26	1558EST			0	0	5	0	Lightning

A rogue thunderstorm hit three homes with lightning. One (1) person was very slightly injured when lightning hit her home.

Orange County Middletown	28	1347EST			0	1	?	?	Lightning
Dutchess County Rhinebeck	28	1430EST			0	0	3	2	Tstm winds
Beacon	28	1440EST			0	0	4	5	Microburst

A downburst cleared a 60x600 ft path of destruction along Liberty and Stone streets in the city of Beacon.

Saratoga County Charlton	30	1425EST			0	0	2	0	Hail (0.75)
Schenectady County Schenectady	30	1435EST			0	0	2	0	Hail (0.75)
Delaware County Deposit	30	1530EST			0	0	4	0	Tstm winds
Walton	30	1540EST			0	0	3	3	Tstm winds
Rensselaer County E Postenskill	30	1550EST			0	0	0	0	Hail (0.75)
W Sand Lake	30	1555EST			0	0	0	0	Hail (0.75)
Pittstown	30	1600EST			0	0	0	0	Hail (1.0)

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
— NEW YORK, Central									
Chenango County									
Earlville	30	1648EST			0	0	3	0	Tstm winds
Shereburne	30	1726EST			0	0	3	0	Tstm winds
Shereburne	30	1730EST			0	0	3	0	Tstm winds
Cortland County									
Virgil	30	1756EST			0	0	4	0	Tstm winds
Broome County									
Killbuck	30	1810EST			0	0	3	0	Hail (0.75)
Marathon	30	1825EST			0	0	4	3	Tstm winds
Killbuck	30	1830EST			0	0	0	0	Hail (0.75)
Tioga County									
Serkshire	30	1830EST			0	0	3	0	Tstm winds
Chenango County									
Smithville Flts.	30	1847EST			0	0	3	0	Tstm winds
Smithville Flts.	30	1914EST			0	0	4	0	Tstm winds
Orsego County									
Gilbertsville	30	1930EST			0	0	3	2	Tstm winds
Garrrettsville	30	1930EST			0	0	2	3	Tstm winds
Saratoga County									
Clifton Park	30	2025EST			0	0	4	0	Funnel Cloud
Stillwater	30	2030EST			0	0	3	0	Funnel Cloud
Broome County									
Binghamton	30	2120EST			0	0	2	0	Lightning
Trees and power lines were downed.									
30 NEW YORK, Western									
Oswego County									
Hannibal	14	1258 EST			0	0	3	0	TSTM Winds
Cayuga County									
Bethel	14	1300 EST			0	0	4	0	TSTM Winds
Ira	14	1305 EST			0	0	4	0	TSTM Winds
Onondaga County									
Lysander	14	1305 EST			0	0	3	0	TSTM Winds
Oswego County									
Phoenix	14	1317 EST			0	0	3	0	TSTM Winds
West Monroe	14	1324 EST			0	0	3	0	TSTM Winds
Niagara County									
Wilson	14	1400 EST			0	0	3	0	TSTM Winds
Orleans County									
Eagle Harbor	14	1400 EST			0	0	4	0	TSTM Winds
Yates County									
Middlesex and Jerusalem	14	1450 EST			0	0	3	0	TSTM Winds
Yates County									
Barrington & other towns	14	1515 EST			0	0	4	0	TSTM Winds
Strong thunderstorm winds downed trees and power lines. A new home in Eagle Harbor, Orleans County, sustained extensive damage. A trailer was toppled over and portions of a roof were torn off a house in Bethel, Cayuga County.									
Chautauqua County									
Jamestown	16	1345 EST			0	0	3	0	TSTM Winds
Jamestown	16	1348 EST			0	0	3	0	Hail (0.75)
Falconer	16	1400 EST			0	0	3	0	TSTM Winds
Cattaraugus County									
Randolph	16	1415 EST			0	0	2	0	Lightning
Conewango	16	1415 EST			0	0	3	0	TSTM Winds
Franklinville	16	1430 EST			0	0	3	0	TSTM Winds
Wyoming County									
Arcade	16	1540 EST			0	0	4	0	Hail (1.75)
Wyoming County									
Portageville	16	1600 EST			0	0	3	0	Hail (1.00)
Cattaraugus County									
Franklinville and Portville	16	1601 EST			0	0	2	0	TSTM Winds
Livingston County									
Nunda	16	1610 EST			0	0	3	0	TSTM Winds & Hail (0.75)
Chautauqua County									
Findley Lake	16	1730 EST			0	0	4	0	Hail (1.50)
Erie County									
Concord	16	1730 EST			0	0	3	0	TSTM Winds
Chautauqua County									
Chautauqua Lake	16	1740 EST			0	0	2	0	Lightning
Cattaraugus County									
Allegany	16	1828 EST			0	0	2	0	Lightning
Chautauqua County									
Mayville	16	1945 EST			0	0	3	0	TSTM Winds
Cattaraugus County									
Randolph	16	2029 EST			0	0	3	0	Lightning
Allegany County									
Scio	16	2105 EST			0	0	3	0	TSTM Winds
Cuba	16	2130 EST			0	0	3	0	TSTM Winds
Cuba	16	2247 EST			0	0	2	0	Lightning
Chautauqua County									
Dunkirk and Fredonia	17	0200 EST			0	0	3	0	TSTM Winds
Numerous thunderstorms with damaging winds, hail, lightning, and heavy rain downed trees and power lines. There were reports of localized flooding.									
— NEW YORK, Western									
Steuben County									
Hornell	21	0930 EST			0	0	3	0	Rain
Heavy rains flooded a few basements.									
Onondaga County									
Syracuse	21	Afternoon			0	0	4	0	Rain
Heavy rains caused backyard flooding.									
Erie County									
North Buffalo	22	1230 EST			0	0	3	0	Rain
Heavy rains flooded a few streets and underpasses.									
Erie County									
North Tonawanda	23	1600 EST			0	0	4	0	Rain
Amherst	23	1800 EST			0	0	3	0	Rain
Wyoming County									
Warsaw	23	1835 EST			0	0	3	0	Rain
Heavy rains caused numerous basement and road floodings in North Tonawanda. Sheridan Drive at Harlem Road in Amherst was inundated. Roads were reportedly flooded in Warsaw.									
Erie County									
North, City, & Town of Tonawanda	24	1420 EST			0	0	4	0	Rain
Heavy rains flooded streets and basements.									
Livingston County									
Dansville	30	1338 EST			0	0	3	0	TSTM Winds (70)
Cattaraugus Co.									
Randolph	30	1350 EST			0	0	3	0	TSTM Winds
Livingston County									
Dansville	30	1411 EST			0	0	4	0	TSTM Winds
Ontario County									
Naples	30	1411 EST			0	0	3	0	TSTM Winds
Cattaraugus County									
Carlton, Allegany State Park, Limestone, Falconer	30	1430 EST			0	0	3	0	TSTM Winds
Allegany County									
Belmont	30	1440 EST			0	0	2	0	TSTM Winds
Seneca County									
Willard, Ovid	30	1455 EST			0	0	4	0	TSTM Winds
Cayuga County									
Cwasco	30	1500 EST			0	0	3	0	TSTM Winds
Union Springs, Aurora	30	1500 EST			0	0	4	0	TSTM Winds (70), Lightning
Scipio	30	1508 EST			0	0	3	0	TSTM Winds
Yates County									
Eastern Portions	30	1509 EST			0	0	3	0	TSTM Winds
Seneca County									
Romulus	30	1514 EST			0	0	3	0	TSTM Winds
Onondaga County									
S. Onondaga	30	1518 EST			0	0	2	0	TSTM Winds
Onondaga Hill	30	1520 EST			0	0	2	0	TSTM Winds
Marcellus	30	1525 EST			0	0	3	0	Lightning
Schuyler County									
Beaver Dams	30	1559 EST			0	1	3	0	Lightning
Steuben County									
Corning	30	1635 EST			0	0	3	0	TSTM Winds
Schuyler County									
Beaver Dams	30	1645 EST			0	0	3	0	TSTM Winds
Chemung County									
Elmira	30	1701 EST			0	0	3	0	TSTM Winds (54)
Horseheads	30	1712 EST			0	0	3	0	TSTM Winds
Big Flats	30	1717 EST			0	0	3	0	TSTM Winds
Chautauqua County									
Jamestown, Findley Lake, Clymer, Westfield, & French Creek	30	1724 EST			0	0	4	0	TSTM Winds
Chautauqua County									
Falconer, Fredonia	30	1730 EST			0	0	3	0	TSTM Winds
Jamestown	30	1731 EST			0	0	3	0	TSTM Winds
Tompkins County									
Etna	30	1750 EST			0	0	4	0	Lightning
Cattaraugus County									
Gowanda	30	1800 EST			0	0	2	0	TSTM Winds
Erie County									
Buffalo	30	1800 EST			0	0	3	0	TSTM Winds
Angola, Darcy, South Wales, & Orchard Park	30	1825 EST			0	0	4	0	TSTM Winds
Boston	30	1825 EST			0	0	3	0	Lightning
East Aurora	30	1840 EST			0	0	2	0	TSTM Winds
Wyoming County									
Perry Center	30	1930 EST			0	0	3	0	Lightning
Warsaw and Arcade	30	1930 EST			0	0	4	0	TSTM Winds
Strong thunderstorm winds felled trees and power lines. A few homes were damaged in Jamestown.									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
31 NORTH CAROLINA									
Rockingham Co. S of Eden	08	1800EST			0	0	4	0	TSTM Winds
Iredell Co. Mooreville	08	2230EST			0	0	4	0	TSTM Winds
					Strong thunderstorms downed trees and damaged a mobile home just south of Eden. Later in the evening thunderstorms blew down trees and damaged roofs in Mooreville				
Stanly Co. Norwood	09	0830EST			0	0	4	0	TSTM Winds
Alexander Co. Stony Point	09	1540EST			0	0	0	0	TSTM Winds
Northwest Iredell Co.	09	1600EST			0	0	5	0	TSTM Winds
Surry Co. S of Pilot Mt.	09	1655EST			0	0	0	0	TSTM Winds
Stokes Co. near King	09	1745EST			0	0	0	0	TSTM Winds
					Thunderstorm winds blew down trees and power lines over the area. In Norwood winds damaged buildings and sunk two boats at a marina at Lake Tillery. One house was damaged and two poultry houses were destroyed at Stony Point.				
Washington Co. Lake Phelps	09	1700EST			0	0	0	0	TSTM Winds
					Thunderstorm winds blew down trees and power lines near Lake Phelps.				
Transylvania Co. Brevard	10	1320EST			0	1	0	0	Lightning
Haywood Co. Canton	10	1330EST			0	0	4	0	Lightning
Buncombe Co. West Asheville	10	1345EST			0	0	0	4	TSTM Winds Hail (1.75)
Buncombe Co. Asheville	10	1402EST			0	0	0	0	TSTM Winds
Transylvania Co. Brevard	10	1420EST			0	0	0	0	TSTM Winds
Henderson Co. Tuxedo	10	1440EST			0	0	0	0	Hail (0.75)
					A 20 year old woman was injured by lightning while holding a curling iron. She was found unconscious shortly after the strike and taken to a hospital. Lightning caused a house to burn in Canton. Trees were blown down and golf ball size hail damaged tobacco in many areas of Buncombe Co.				
Caldwell Co.	10	1530EST			0	0	5	0	TSTM Winds
Moore Co. Southern Pines	10	1555EST			0	0	4	0	TSTM Winds (70)
Stanly Co. near Albemarle	10	1615EST			0	0	0	0	TSTM Winds
Alexander Co. Bethlehem	10	1630EST			0	0	0	0	TSTM Winds
Franklin Co. N of Rolesville	10	1630EST			0	0	4	0	TSTM Winds
Southern Moore Co.	10	1655EST			0	0	0	0	Hail (0.75)
Guilford Co. near High Point	10	1735EST			0	0	0	0	TSTM Winds
Southeast Wilkes Co.	10	1740EST			0	0	5	0	TSTM Winds
Guilford Co. High Point	10	1800EST			0	0	5	0	TSTM Winds Hail (1.75)
Guilford Co. High Point	10	1830EST			0	0	0	0	Hail (1.75)
Durham Co. Durham	10	1845EST			0	0	4	0	TSTM Winds
					Ten houses were damaged and many trees were blown down in southern Caldwell Co. Southern Pines Airport recorded gust to 70 knots. Two barns and a house were damaged north of Rolesville. In Wilkes County thunderstorm winds blew down trees, overturned a mobile home and destroyed two poultry houses. Golf ball size hail fell in High Point and the roof of a K-Mart collapsed due to the weight of rain. Thunderstorm winds blew down trees and power lines in Durham.				
Columbus Co. Fair Bluff	13	1430EST			0	0	4	0	TSTM Winds
Columbus Co. Fair Bluff	13	1430EST			0	2	0	0	Lightning
Onslow Co. Jacksonville	13	1655EST			0	0	4	0	TSTM Winds (54)
					Thunderstorm winds blew down trees and power lines and damaged a mobile home and one building east of Fair Bluff. Two utility crew workers were struck and injured by lightning while repairing a water main. The New River Marine Corps Air Station recorded gusts to 62 MPH. Trees were blown onto roofs at Camp Lejeune.				
Northeast Henderson Co.	15	1645EST			0	0	0	0	Hail (1.75)
Transylvania Co. Brevard	15	1653EST			0	0	0	0	TSTM Winds Hail (0.75)
					Golf ball size hail fell in northeast Henderson Co. Thunderstorm winds blew down trees and produced nickel size hail in Brevard.				
— NORTH CAROLINA									
Pitt Co. Greenville	16				1	0	0	0	Heat
					An elderly Greenville man was found dead in his house on the 16th. The house had no fans or air conditioners. The medical report listed excessive heat as cause of death.				
Rutherford Co. Spindale	16	1555EST			0	0	0	0	TSTM Winds
Southern Polk Co.	16	1600EST			0	0	0	0	TSTM Winds
Buncombe Co. Barnardsville	16	1638EST			0	0	0	0	Hail (0.75)
Southwest Henderson Co.	16	1645EST			0	0	0	0	TSTM Winds
Transylvania Co. Brevard	16	1711EST			0	0	0	0	TSTM Winds
Buncombe Co.	16	1715EST			0	4	0	0	Lightning
					Thunderstorm winds blew down trees and power lines over the southern mountains of North Carolina. A scout leader and three scouts were injured by lightning.				
Robeson Co. E of Reemon	16	1630EST			0	0	0	0	TSTM Winds
					Trees were blown down in eastern Robeson Co.				
Buncombe Co. Bent Creek	17	1520EST			0	0	0	0	Hail (0.75)
					Nickel size hail fell in Bent Creek of Buncombe Co.				
Catawba Co. Hickory	18	1415EST			0	0	0	0	TSTM Winds Hail (0.75)
Surry Co. Mt. Airy	18	1428EST			0	6	0	0	TSTM Winds
					Thunderstorm winds blew down trees and produced nickel size hail in Hickory. Six construction workers were injured when thunderstorm winds blew over a 14 foot tall cinder block wall, trapping the workers under the debris.				
Pasquotank Co. Morgans Corner	18	1900EST			0	0	0	0	TSTM Winds
					Thunderstorm winds blew down trees and power lines near Morgans Corner.				
Wake Co. near Garner	19	1530EST			0	0	0	0	Hail (0.75)
					Nickel size hail was reported near Garner.				
New Hanover Co. Wilmington	22	0800EST			0	0	4	0	Flash Flood
					About 6.5 inches of rain fell in the Wilmington area in about eight hours. Many streets and major roadways in the area were flooded and impassable. No buildings were flooded by rising water, but the torrential rains produced much damage due to leaking roofs.				
Transylvania Co. Little River	22	1400EST			0	1	0	0	Lightning
					A man was injured by lightning as he was rolling up his car window.				
Northwest Robeson Co.	22	1635EST			0	0	0	0	TSTM Winds
					Thunderstorm winds blew down trees in northwest Robeson Co.				
New Hanover Co. Wilmington	23	0820EST			0	0	0	0	Lightning
					Lightning damaged North Carolina Highway Patrol computers and radios. Damage was near \$11,000.				
Wake Co. Garner	23	1300EST			0	0	4	0	Flash Flood
					A slow-moving thunderstorm dumped 4 1/2 inches of rain in about two hours over Garner, flooding many major highways, an apartment building, and about 5 houses.				
Cumberland Co. Fayetteville	25	1800EST			0	1	0	0	Lightning
					A Cumberland County sheriff's deputy was injured by lightning while attempting to dig a bullet out of a refrigerator during an investigation.				
New Hanover Co.	26	1900EST			0	0	0	0	Waterspout
					A waterspout was sighted off the coast near Wilmington.				

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS				ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
— NORTH CAROLINA —											
Granville Co. Roxboro	28	1914EST			0	0	4	0			Lightning
											Fire started by lightning produced \$30 thousand damage to a house in Roxboro.
Gaston Co. High Shoals	27	1625EST			0	0	0	0			Hail (1.00)
Johnston Co. Clayton	27	1650EST			0	0	0	0			Funnel Cloud
											Quarter size hail was reported in Gaston Co. The public reported a funnel cloud near Clayton.
Southwest Lee Co.	28	1745EST			0	0	0	0			TSTM Winds
											Thunderstorm winds blew down trees in southwest Lee Co.
Wilkes Co. North Wilksboro	30	1315EST			0	0	0	0			TSTM Winds
											Thunderstorm winds blew down trees in North Wilksboro.
Catawba Co. Hickory	31	1335EST			0	0	0	0			TSTM Winds
Rowan Co. China Grove	31	1500EST			0	0	4	0			TSTM Winds
Iredell Co. Moorestville	31	1530EST			0	0	4	0			TSTM Winds
Wake Co. Raleigh	31	1605EST			0	0	0	0			Hail (0.75)
Wake Co. Raleigh	31	1620EST			0	0	0	0			TSTM Winds
Richmond Co. Ellerbe	31	1805EST			0	0	4	0			TSTM Winds
Wake Co. Fuquay Varina	31	1810EST			1	1	0	0			Lightning
Gates Co. Sunbury	31	1933EST			0	0	0	0			Hail (1.00)
											Isolated thunderstorm produced widespread wind damage over much of the state. Three barns were damaged and trees were blown down in China Grove. The roof was blown off a barn, and houses and cars were damaged by downed trees near Mooreville. Minor roof damage and downed trees were reported in Ellerbe. Quarter size hail fell in Sunbury. An eight year old boy was killed and his grandfather was injured when the two were struck by lightning. They were outside their house picking up toys as the storm approached. M80 Lightning
32 NORTH DAKOTA											
Stark County, Dickinson	04	2051CST			0	0	4	0			TSTM Wind (58)
											A wind gust to 67 mph was recorded at the Dickinson airport. The winds damaged trees and broke windows.
Morton County, Hebron	04	2100CST			0	0	4	0			TSTM Wind (60)
											Strong winds damaged a lumberyard roof and scattered the lumber. The winds also demolished and damaged barns and other farm buildings. In the town of Hebron, large broken tree branches were scattered throughout the town.
Mercer County, Beulah	04	2130CST	0.2	30	0	0	5	0			Tornado (FO)
											A tornado lifted roofs, tore fences, blew a chimney into a backyard, and knocked down a large sign. The flying shingles broke windows and damaged cars.
Pembina County: 7NW Cavalier	05	1456CST			0	0	?	?			Hail (1.00)
Cavalier	05	1505CST									Funnel Cloud
Cavalier	05	1540CST			0	0	4	?			TSTM Wind (61)
											Strong winds uprooted trees in the town of Cavalier. The toppled trees broke power lines and fell into homes. The winds also damaged outbuildings on nearby farms. In addition, one-inch hail was reported.
Cavalier County: 10NE Langdon	05	1657CST	Short	5-15	0	0	0	0			Tornado (FO)
6W Wales	05	1717CST	Short	5-15	0	0	0	0			Tornado (FO)
											Brief tornado touchdowns occurred.
Nelson County, 2S Tolna	05	1700CST			0	0	?	?			Hail (2.00)
McIntosh County, 3S Wishek	05	1830CST			0	0	?	?			Hail (1.75)
— NORTH DAKOTA —											
Ramsey County, Devils Lake	05	1830CST			0	0	4	0			TSTM Wind (59)
											A peak wind of 68 mph occurred at the automated remote observation site. The strong winds sunk some boats on Devils Lake and blew others on shore. Some tree limbs and power lines were also blown down.
Barnes County, Rogers	05	1950CST	?	?	0	0	4	0			Tornado (FO)
											A tornado touched down on a farmstead, destroying a garage and part of a large barn. Other houses in the farmyard were untouched.
Stutsman County, Jamestown	05	2008CST			0	0	0	0			TSTM Wind (60)
											A wind gust to 69 mph was recorded at the Jamestown airport.
Grand Forks County: 4S Fordville	05	2030CST			0	0	?	?			Hail (1.50)
4S Fordville	05	2030CST			0	0	?	?			TSTM Wind (74)
Divide County, Ambrose	06	0030CST			0	0	0	0			Hail (0.75)
Benson County, Oberon	06	1745CST			0	0	0	0			Hail (1.75)
Stark County, Dickinson	06	2035CST			0	0	?	0			Hail (2.75)
											Baseball-sized hail occurred in the City of Dickinson.
McLean County, Washburn	06	2245CST			0	0	0	0			Hail (0.75)
Ramsey County, Hampden	07	0100CST			0	0	0	0			TSTM Wind (52)
Nelson County, Tolna	07	0100CST			0	0	0	0			TSTM Wind (61)
Cavalier County: 5E Langdon	07	0120CST			0	0	?	?			TSTM Wind (70)
5E Langdon	07	0120CST			0	0	?	?			Hail (1.75)
Richland County, Mancador	09	1400CST			0	0	0	0			Hail (1.75)
Stutsman County, Jamestown	12	1701CST			0	0	0	0			Hail (0.75)
Dickey County: 15N Ellendale	12	1750CST			0	0	?	?			Hail (1.75)
5W Fullerton	12	1830CST			0	0	5	5			Hail (4.50)
Fullerton	12	1930CST			0	0	?	?			Hail (2.00)
											The hail damaged vehicles, broke many house and vehicle windows, battered patio furniture and damaged crops. The hailstorm was very intense over much of central Dickey County. Some of the hailstones weighed 8 ounces, made 2-inch craters in the lawns, and bounced 4 feet into the air.
LaMoure County, 4E Edgeley	12	1750CST			0	0	?	?			Hail (1.75)
Ransom County, Lisbon	12	1925CST			0	0	0	0			TSTM Wind (52)
Sargent County, 10W Gwinner	12	1940CST			0	0	0	0			Hail (1.00)
Cass County: 4W Gardner	12	1956CST	Short	5-15	0	0	0	0			Tornado (FO)
West Fargo	12	2055CST	Short	5-15	0	0	0	0			Tornado (FO)
											Brief tornado touchdowns were sighted by HAM Radio operators.
Bottineau County, 10N Minot Air Force Base	12	1957CST			0	0	0	0			Hail (0.75)
Richland County, 5SW Wahpeton	12	2115CST									Funnel Cloud
Morton County: Hebron	14	2009CST			0	0	?	?			Hail (1.75)
Glen Ullin	14	2030CST			0	0	?	?			Hail (0.75)
Traill County, 4S Hillsboro	14	2228CST									Funnel Cloud
Stutsman County, 2SW Edmunds	14	2330CST			0	0	4	4			Hail (1.75)
											The hail destroyed gardens and some cropland.
Sargent County: Straubville	23	1735CST			0	0	0	0			TSTM Wind (52)
9E Oakes	23	1755CST			0	0	0	0			Hail (1.75)
Cass County, Davenport	23	1805CST			0	0	0	0			Hail (0.75)

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
NORTH DAKOTA									
Cass County: 13S Fargo Kindred	23	1830CST	Short	5-15	0	0	5	0	Tornado (F1)
	23	1830CST			0	0	4	0	TSTM Wind
A tornado demolished a 100-foot-long machine shed and drove 2x4s into the ground. Debris was scattered over the farmstead. At Kindred, strong winds toppled some large trees onto cars and trailers.									
Western North Dakota ND2001-002-003-005	27	1500CST- 1730CST			0	0	?	?	Lightning
Lightning strikes on dry grassland caused fires in northern and central Billings County. The fires were aggravated by temperatures to 110 degrees and shifting winds. The fires consumed about 6000 acres, in and out of national parkland.									
The combination of lightning strikes and dry grassland also caused spotty grass fires in Burke, Mountrail and McKenzie counties. These fires destroyed a few historical landmarks and consumed bales of hay.									
Richland County, 20SW Wahpeton	28	1745CST			0	0	0	0	TSTM Wind
Winds blew down a power line 20 miles southwest of Wahpeton, or just north of Hankinson.									
Richland County: 10NE Lidgerwood 10NE Lidgerwood	28	1800CST	Short	5-15	0	0	4	0	Tornado (F0)
	28	1800CST			0	0	4	4	Hail (1.75)
A tornado touched down near a farmhouse. The resulting air pressure buildup inside the home blew out the doors and windows, and the draperies were blown tightly against the wall. There was other damage to the home, but it was not destroyed and the occupants inside were unhurt. The tornado also damaged surrounding out-buildings and farm machinery, and downed trees. In addition, golfball-sized hail leveled part of a beanfield and split watermelons.									
C									
33 OHIO									
Cuyahoga County	10	2130 EST			0	0	4	0	Thunderstorm Wind
A thunderstorm produced 58 mph winds at Burke Lakefront Airport, in downtown Cleveland.									
Montgomery County	14	1815 EST			0	0	?	?	Hail (1.0)
Greene County	14	1835 EST			0	0	?	?	Hail (1.0)
A thunderstorm produced one-inch diameter hail on Dayton's east side. Later, the same thunderstorm produced one-inch diameter hail on State Route 380, south of Xenia.									
Wood County	16	2125 EST			0	0	4	0	Thunderstorm Wind
A thunderstorm destroyed an enclosed patio and blew down trees on State Route 199, 5 miles north of Fostoria.									
Allen County	18	1345 EST			0	0	4	0	Lightning
Lightning struck a house in Lima and the ensuing fire did \$34,000 damage.									
Portage County	23	0130 EST			0	0	5	0	Lightning
Lightning struck a house in Hiram and the ensuing fire destroyed it.									
Ottawa County	23	1430 EST			0	0	?	5	Hail (1.5)
Lucas County	23	1435 EST			0	0	?	?	Hail (1.25)
Ottawa County	23	1517 EST			0	0	?	5	Hail (1.75)
Sandusky County	23	1538 EST			0	0	4	?	Thunderstorm Wind Hail (1.0)
A slow-moving thunderstorm complex dropped large amounts of hail from eastern Lucas County through Ottawa and Sandusky counties. Hail piled to a depth of 3 to 6 inches occurred in some areas. Also, strong thunderstorm winds blew down trees and power lines in Fremont, Sandusky County at 1538 EST.									
Cuyahoga County	25	1400 EST			0	0	5	0	Lightning
Lightning struck a house in Solon and the ensuing fire did \$200,000 damage.									
Fulton County	25	1645 EST			0	0	?	?	Hail (0.75)
Fulton County	25	1715 EST			0	0	?	?	Hail (0.75)
A thunderstorm produced three-quarter inch diameter hail near Archbald and later near Brailey.									
OHIO									
Mahoning County	30	1410 EST			0	0	4	0	Thunderstorm Wind
Mahoning County	30	1420 EST			0	0	4	0	Thunderstorm Wind
Columbiana County	30	1451 EST			0	0	4	0	Thunderstorm Wind
A thunderstorm uprooted trees on the south side of Youngstown and blew down trees in Youngstown, Mahoning County. This same storm later blew down trees at State Route 558 and Leetonia Road in Columbiana County.									
Wood County	30	2010 EST			0	0	4	0	Thunderstorm Wind
A thunderstorm blew down trees and power lines, and destroyed a barn near Bowling Green.									
Entire State	Entire Month				0	0	0	C	Drought
Drought conditions continued during July across all of Ohio even though the state received slightly above normal precipitation. The state averaged four and forty-seven hundredths (4.47") inches of rain. This translates into 114 percent of normal.									
Even though above normal precipitation fell, crops across the state continued to struggle and some cities and towns continued water rationing programs.									
Precipitation needed to end the long-term drought remained between 4 and 12 inches. The Palmer Drought Severity Index ranged from extreme in South-Central and Northwest Ohio to moderate in the Northeast, Northeast Hills and Central Hills. The rest of the state was in the severe category.									
34 OKLAHOMA									
Texas County, 10W Hooker and in Hooker	01	0030CST			0	0	4	?	TSTM Wind
Beaver County, Turpin	01	0130CST			0	0	?	?	TSTM Wind
A thunderstorm produced damaging winds as it moved across portions of the panhandle. Trees were downed as well as power poles and lines. Several mobile homes were blown off of their foundations in Hooker, causing about \$6,000 damage.									
Washington County, 1 NE Dewey	04	1830CST			0	0	4	?	TSTM Wind
Strong winds destroyed a storage shed, broke windows, and damaged the roof of a house. Damages estimated at \$10,000.									
Kay County, Tonkawa	06	1800CST			0	0	4	?	TSTM Wind (56)
Oklahoma County, 4 ENE Arcadia	06	1900CST			0	0	?	?	TSTM Wind (56)
Strong winds downed trees and power poles NE of Arcadia. What appears to be a microburst caused \$7,000 damage in Tonkawa. Several roofs were damaged, trees and power poles were downed, and many windows were broken. Several large metal doors were blown off of their rollers.									
Texas County, E of Guymon	07	0751CST			0	0	?	?	Flash Flooding
Localized rainfall amounts of 3 to 5 inches caused dry creek beds to flood portions of Highway 3, east of Guymon, closing the highway for several hours.									
McCurtain County, Idabel	12	0800CST			0	0	?	?	Flash Flooding
Rainfall amounts of 5 to over 8 inches caused streams to flood portions of Idabel. Water reached depths of 3 to 5 feet, flooding some businesses and houses. No estimate of damages was available.									
Comanche County, Fort Sill	15	1130CST			1	0	0	0	Heat
A 26 year old soldier died of heat stroke after completing a physical training exercise. HEAT M260.									

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
OKLAHOMA											
Major County, Ames	16	1500CST			0	0	3	?	TSTM Wind		
Nowata County, 3 N Childers	16	1530CST			0	0	4	?	TSTM Wind		
Beaver County, Beaver	16	1700CST			0	0	4	?	TSTM Wind		
Mayes County, Pryor	16	1830CST			0	0	4	?	TSTM Wind		
<p>Thunderstorms produced strong winds across sections of the state which downed trees and power lines. Several mobile homes were damaged at Beaver, with damage set at \$6,000. Part of a roof was blown off and a windmill was blown down across a truck, causing damages set at \$10,000. A microburst hit Pryor, damaging houses and businesses and destroying several mobile homes. Damage was estimated at \$30,000. A porch was taken off a house at Ames, causing \$1,000 damage.</p>											
Woodward County, Woodward	17	1435CST			0	0	?	?	TSTM Wind (52)		
Ellis County, 1 NNE Fargo	17	1440CST			0	0	?	?	Hail (1.00)		
Washington County, near Bartlesville	17	1715CST			0	0	?	?	TSTM Wind (65)		
Alfalfa County, 2 W Burlington	17	1900CST			0	0	4	?	TSTM Wind		
Texas County, 3 S Goodwell	17	1920CST			0	0	?	?	TSTM Wind (61)		
<p>Thunderstorms produced strong winds which downed large tree limbs, power poles and lines across northern sections of the state. A \$40,000 barn was destroyed near Burlington.</p>											
Seminole County, 4 S Wewoka	18	1948CST			0	0	?	?	TSTM Wind (52)		
<p>A thunderstorm produced 60 mph winds.</p>											
Pushmataha County, Rattan	19	0010CST			0	0	5	?	Lightning		
Pontotoc County, Ada	19	0230CST			0	0	5	?	Lightning		
<p>Lightning caused nearly a half million dollars damage to a warehouse in Ada and caused \$200,000 damage to a restaurant in Rattan.</p>											
Canadian County, 2 ENE El Reno	24	1545CST			0	0	?	?	Hail (0.75)		
Roger Mills County, 8 NE Durham	24	1605CST			0	0	?	?	Hail (0.75)		
Blaine County, 11 WSW Watonga	24	1700CST			0	0	?	?	TSTM Wind		
Roger Mills County, 7 NE Reydon	24	1708CST			0	0	?	?	Hail (0.88)		
Dewey County, Oakwood	24	1710CST			0	0	?	?	Hail (0.75)		
Custer County, 4 NE Thomas	24	1715CST			0	0	?	?	Hail (0.88)		
Tulsa County, SE Tulsa	24	1730CST			0	0	?	?	TSTM Wind		
Tulsa County, Tulsa	24	1730CST			0	0	6	?	TSTM Wind		
Wagoner County, Broken Arrow	24	1730CST			0	0	?	?	Hail (1.75)		
Tulsa County, Southern Tulsa	24	1814CST			0	0	?	?	TSTM Wind		
Blaine County, 3 N Okeene	24	1815CST			0	0	?	?	Hail (1.00)		
Major County, 4 SSE Isabella	24	1820CST			0	0	?	?	Hail (1.00)		
Beckham County, 2 E Sayre	24	2006CST			0	0	?	?	Hail (0.88)		
<p>Thunderstorms produced strong winds and hail up to the one inch size across western and central sections of the state. A thunderstorm formed over the Tulsa area, producing heavy rain, golfball size hail and very strong winds. As the storm over Tulsa collapsed in southeast sections extremely strong winds occurred in the Woodland Village Shopping Center. Two roofs were pushed downward, 8 store windows were blown out and 30 automobiles were damaged. The damage was primarily in a 5 to 10 block area. Damage was estimated at \$750,000.</p>											
Craig County, Welch	25	1935CST			0	0	?	?	TSTM Wind		
<p>A thunderstorm caused strong winds which downed trees and power lines.</p>											
OKLAHOMA											
Okmulgee County, Henryetta	26	1800CST			0	0	?	?	Hail (1.00)		
Lincoln County, 7 N Prague	26	1820CST			0	0	?	?	Hail (1.00)		
Kingfisher County, 4 NE Okarche	26	1900CST			0	0	?	?	Hail (1.50)		
Seminole County, 5 SE Seminole	26	1900CST			0	0	3	?	TSTM Wind		
Kingfisher County, 7 ENE Okarche	26	1910CST			0	0	?	?	Hail (1.25)		
Canadian County, 11 E Okarche	26	1930CST			0	0	?	?	TSTM Wind (61)		
Kingfisher County, 9 NE Kingfisher	26	1950CST			0	0	?	?	Hail (1.75)		
Noble County, 1 S Orlando	26	2100CST			0	0	4	?	TSTM Wind (52)		
<p>Thunderstorms produced strong winds and hail up to golfball size. Trees, power poles and lines were downed. A mobile home was damaged near Seminole, and a house was damaged near Orlando.</p>											
Oklahoma County, SW Oklahoma City	27	0000CST			0	0	5	?	TSTM Wind		
Oklahoma County, N Oklahoma City	27	0540CST			0	0	5	?	Lightning		
Lincoln County, Meeker	27	2355CST			0	0	?	?	Hail (0.88)		
<p>Isolated thunderstorms produced strong winds and hail the size of nickels. A microburst type wind heavily damaged an auto dealership in southern Oklahoma City. Part of a roof was blown off and poles and signs were blown down on new automobiles, damaging 15 and destroying one. Damage was estimated at \$100,000. Lightning caused \$250,000 damage to a restaurant in northern Oklahoma City.</p>											
Logan County, 2 SE Langston	28	0010CST			0	0	?	?	Hail (0.75)		
Hughes County, Holdenville	28	0030CST			0	0	?	?	Hail (0.88)		
Lincoln County, 4 NE Warwick	28	0115CST			0	0	?	?	Hail (0.75)		
Logan County, 2 SE Langston	28	0135CST			0	0	?	?	Hail (1.75)		
Logan County, 1 SW Gayle	28	0225CST			0	0	?	?	Hail (1.75)		
Logan County, E part of County	28	0245CST			0	0	?	?	Flash Flooding		
<p>Thunderstorms produced very heavy rain and hail up to the size of golfballs. Rainfall amounts of 5 to 6 inches caused flooding across eastern sections of Logan County. Water as high as 3 feet was flowing across some roadways and one bridge was damaged southeast of Langston.</p>											
Oklahoma County, 3 E Mustang	28	1409CST			0	0	3	?	TSTM Wind		
Oklahoma County, W Oklahoma City	28	1423CST			0	0	?	?	TSTM Wind		
Oklahoma County, Oklahoma City	28	1445CST			0	0	4	?	TSTM Wind (70)		
Canadian County, 3 NE Mustang	28	1500CST			0	0	?	?	Hail (0.75)		
Atoka County, 3 SE Atoka	28	1510CST			0	0	4	?	TSTM Wind (70)		
Grady County, Minco	28	1520CST			0	0	?	?	TSTM Wind		
Canadian County, Mustang	28	1530CST			0	0	3	?	TSTM Wind		
Logan County, 5 Crescent	28	1612CST			0	0	?	?	Hail (0.75)		
Cleveland County, 5 Norman	28	1649CST			0	0	3	?	TSTM Wind (58)		
Caddo County, 5 E Binger	28	1655CST			0	0	?	?	Hail (0.75)		
<p>Thunderstorms produced heavy rain, 3/4 inch size hail and winds up to 80 mph. The wind downed trees, power poles and lines and broke out windows in Oklahoma City and Norman. Three windows were broken out of an observatory at Will Rogers Airport and several windows were blown out at several buildings on the University of Oklahoma campus. A carport was damaged in Mustang and several outbuildings were damaged southeast of Atoka.</p>											
35 OREGON ————— NONE REPORTED											

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS		
36 PENNSYLVANIA, Eastern										
PAZ06E Eastern Pennsylvania	01- 16					0	0	0	8	Drought
										Less than 1 inch of rain fell over most of Eastern Pennsylvania the last 20 days of June with much of the area receiving less than one tenth of an inch of precipitation. This pattern continued into July with most of Eastern Pennsylvania having less than 1 inch of rain the first half of the month. Many sections had less than 1/4 inch. This lack of rain combined with hot weather, the majority of the days reaching 90 degrees or above, to have serious effects on crops and livestock. The lack of rain also caused many areas to have restrictions on water usage.
Cumberland Co. Oakville	11	1545 EST			0	0	3	0		TSTM Wind Thunderstorm winds tore the tops off of trees and partially downed power lines.
Adams Co. Fairfield Fountain Dale	11	1550 EST			0	0	3	0		TSTM Wind Thunderstorm winds brought down trees.
York Co. Wellsville Red Lion	11	1702 EST			0	0	3	0		TSTM Wind Thunderstorm winds downed wires at Pine Town near Wellsville and also downed trees in Red Lion and just northeast of Windsor.
Hifflin Co. 4 W Lewistown 2 SW Longfellow	12	1645 EST			0	0	3	0		TSTM Wind Thunderstorm winds brought down trees between Belleville and Lewistown and between Mattawana and Longfellow. One of the trees came down on an automobile.
Hoga Co. Wellboro	16	1630 EST			0	0	3	0		TSTM Wind Thunderstorm winds brought down power lines and trees and took the roof off a trailer.
Clinton Co. Westport Keating Renovo Beech Creek Flemington Lock Haven Woolrich	16	1700 EST			0	0	3	0		TSTM Wind Thunderstorm wind gusts downed numerous trees. The winds also took roofing off a house in Westport, blew a shed off its foundation in Lock Haven and destroyed a house under construction in Woolrich. One of the trees came down on a camper in Flemington, injuring one person inside.
Bradford Co. East Smithfield Ulster New Albany Rome Le Raysville Towanda	16	1703 EST			0	0	4	0		TSTM Wind Thunderstorm winds brought down numerous trees and power lines. The winds also damaged homes in East Smithfield, Ulster, Rome and Le Raysville.
Susquehanna Co. Middletown Center Birchardville Brooklyn New Milford	16	1725 EST			0	0	3	0		TSTM Wind Thunderstorm wind gusts brought down trees. The winds also damaged 2 barns in Middletown Center and 2 miles and 1 barn in Brooklyn. A mobile home was damaged by a falling tree in Birchardville.
Lycoming Co. Williamsport Jersey Shore Oval Montoursville Montgomery 2 E Bodines Williamsport Muncy Pennsdale	16	1733EST			0	0	4	0		TSTM Wind Thunderstorm winds brought down many trees and power lines and caused roof damage to a house in Williamsport. The winds brought trees and power lines down in Jersey Shore, Montgomery, Muncy and east of Bodines. The winds took the roof off a mobile home in Pennsdale. Wind gusts were measured at 60 MPH in Oval and at 58 MPH at Williamsport-Lycoming county airport in Montoursville.
PENNSYLVANIA, Eastern										
Luzerne Co. Avoca	16	1812EST			0	0	0	0		TSTM Wind (50) Thunderstorm wind gusts were measured at 58 MPH at the Wilkes-Barre Scranton Airport.
Northumberland Co. Watsonstown	16	1915EST			0	0	3	0		TSTM Wind Thunderstorm wind gusts brought down power lines.
Dauphin Co. 2 E. Carsonville	16	2006EST			0	0	3	0		TSTM Wind Thunderstorm wind gusts brought down trees.
Schuylkill Co. Andreas 1 E Dreherstown	16	2015EST			0	0	3	0		TSTM Wind (52+) Thunderstorm wind gusts brought down large trees with winds estimated at over 60 MPH in Andreas. Dime size hail fell east of Dreherstown and winds estimated at over 55 MPH uprooted several trees and brought down large limbs.
Lebanon Co. 2 NW Suedberg Hamlin 3 NW Fredericksburg 1 W Suedberg	16	2020EST			0	0	3	0		TSTM Wind Thunderstorm winds brought down trees.
Carbon Co. Little Gap	16	2023EST			0	0	3	0		TSTM Wind (54+) Thunderstorm winds estimated at over 62 MPH uprooted large trees.
Berks Co. West Lawn	16	2044EST			0	0	3	0		TSTM Wind Thunderstorm winds broke off limbs and uprooted large trees.
Northumberland Co. Watsonstown	17	1500EST			0	0	3	0		TSTM Wind Thunderstorm winds brought down trees.
Carbon Co. 2 E. Lehighton	17	1540EST			0	0	?	?		TSTM Wind (54) Thunderstorm wind gusts and 3/4 inch hail were reported near Lehighton.
Schuylkill Co. New Ringgold	17	1550EST			0	0	3	0		TSTM Wind (52+) Thunderstorm wind gusts estimated to be over 60 MPH broke off limbs and uprooted trees.
Berks County Reading 2 SE Lobschville	17	1600EST			0	0	3	0		TSTM Wind (55) Thunderstorm winds of 63 MPH uprooted large trees and broke power line poles. Southeast of Lobschville near Pikeville winds estimated at over 60 MPH brought down trees and power line poles.
Northampton Co. Bath Glendon	17	1618EST			0	0	3	0		TSTM Wind (50+) Thunderstorm winds estimated at more than 58 MPH brought down trees and snapped power line poles in Bath. 60 MPH winds brought down billboards and uprooted trees near Glendon.
Montgomery Co. Pottstown 3 NE Norristown	17	1620EST			0	0	?	0		TSTM Wind (52) Thunderstorm winds estimated at 60 to 70 MPH brought down trees and scattered heavy outdoor furniture northeast of Norristown in East Norriton Township. In Pottstown wind gusts to 60 MPH. There also was some minor damage to buildings from lightning strikes.
Montgomery Co. 1 NW Pottstown	17	1629EST	1.75	67	0	1	5	0		Tornado (F1) A tornado touched down 4 times along a 1 3/4 mile track from West Pottsgrove Township, 1 mile northwest of Pottstown, southeast over a part of Pottstown. The tornado touched down 4 times along the track for about 1/10 mile each time. The first touchdown downed several trees, damaged a shed and downed 100 FT of chain-linked fence and bent the supporting poles. At the second touchdown trees were down and house roofs damaged. The next damage was just to treetops. The final touchdown sheered off and knocked down trees and damage the roof of an apartment building. A 67 year old woman received minor injuries from flying debris. About 10 to 15 buildings were damaged.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
— PENNSYLVANIA, Eastern									
Lehigh County Schnecksville Center Valley	17	1625EST			0	0	?	?	Hail (0.75)
	17	1635EST			0	0	5	0	TSTM Wind (57) Lightning
	Thunderstorms dropped 3/4 inch hail in Schnecksville and caused wind gusts to 65 MPH in Center Valley. The wind took off several roofs and broke store windows. Lightning caused fires in apartment buildings in Center Valley and Allentown. Three people were injured in the fire in Center Valley.								
Bucks Co. 2.5 NW Neshaminy Doylestown 2 SE Southampton	17	1635EST			0	0	3	0	TSTM Wind
	17	1640EST			0	0	3	0	TSTM Wind
	17	1655EST			0	0	3	0	TSTM Wind
	Thunderstorm wind gusts took the topsout of trees and dropped them on a house in Warrington Township to the northwest of Neshaminy. Winds brought down trees in the Doylestown area, some onto a highway and one on a pickup truck. Winds brought down power lines in upper Southampton Township to the southeast of Southampton.								
Chester Co. 3 SE Honeybrook	17	1658EST			0	0	5	?	TSTM Wind Hail (1.00)
	Thunderstorm wind gusts downed power lines and 3 large barns. One-inch hail also fell.								
Philadelphia Co. Philadelphia Philadelphia	17	1712EST			0	0	?	0	TSTM Wind (57)
	17	1720EST			0	0	3	0	TSTM Wind
	Thunderstorm winds were measured at 65 MPH in the extreme north-east portion of the city. Winds brought down trees in other portions of the city.								
Chester Co. 1 SE Chrome	17	1715EST	2.5	100	0	1	5	?	Tornado (F1)
	A tornado moved from southeast of Chrome to 2 miles west of Lewisville. The tornado was on the ground about 3/4 of the path. Trees were uprooted and broken off. Trees fell on a garage and two automobiles. Wind damaged a house and a barn. Total damage was about \$100,000.00. One man received a broken arm from falling limbs.								
Lancaster Co. Beartown	17	1722EST			0	0	4	0	TSTM Wind
	Thunderstorm winds brought down a large tobacco shed.								
Snyder Co. Selinsgrove	17	1850EST			0	22	0	0	Lightning
	Lightning struck a utility pole at the Selinsgrove speedway. Lightning traveled down the pole and into the bleachers, injuring 22 spectators.								
Lancaster Co. Brickersville 2 N Neffaville SE Brickersville	26	1320EST			0	0	?	?	Hail (1.00)
	26	1348EST			0	0	?	?	Hail (0.75)
	26	1349EST			0	0	3	0	TSTM Wind
	3/4 to 1 inch hail fell at Brickersville and 3/4 inch hail fell north of Neffaville. Thunderstorm winds brought trees and wires down at Mt. Airy and Durlach to the east of Brickersville. Lightning caused a barn fire near Adamstown.								
Montgomery Co. 1 W Schwenksville	26	1340EST	1.5	50	0	0	5	3	Tornado (F0)
	A tornado moved along a discontinuous path from 1 mile west of Schwenksville to 1 mile southeast of Ziegler'sville. Trees were uprooted or broken off and portion of a corn field was leveled. Heavy rain caused extensive roadway and drainage flooding which flooded some houses. Some very small streams and brooks flooded.								
Berks Co. 2 S Oley	26	1410EST			0	0	?	?	Hail (1.00)
	Very strong winds and one-inch hail were reported between Oley and Limekiln.								
Lebanon Co. 3 NW Annville Quentin Annville Ono Lebanon Annville 1 N Lebanon Richland Avon Lebanon	26	1427EST			0	0	3	0	TSTM Wind
	26	1559EST			0	0	3	0	TSTM Wind
	26	1600EST			0	0	?	?	Hail (0.75)
	26	1615EST			0	0	?	?	Hail (0.75)
	26	1619EST			0	0	3	0	TSTM Wind
	26	1624EST			0	0	3	0	TSTM Wind
	26	1626EST			0	0	3	0	TSTM Wind
	26	1630EST			0	0	?	?	Hail (0.75)
	26	1640EST			0	0	3	0	TSTM Wind
	26	1700EST			0	0	4	0	TSTM Wind
	Dime size hail was reported in Annville, Cleona, Fontana, Ono, Lebanon, Richland and in Jonestown 2.5 miles southwest of Fredrickburg. Thunderstorm winds brought down trees and power lines in Quentin, Lebanon, Annville, Avon, north of Lebanon and northwest of Annville.								
— PENNSYLVANIA, Eastern									
Dauphin Co. Penbrook	26	1603EST			0	0	3	0	TSTM Wind
	Thunderstorm winds downed trees.								
Montgomery Co. Hatboro	26	1800EST			0	0	5	0	Lightning
	Lightning caused fires in a number of houses: one in Hatboro with \$50,000 damage, one in LA Mott, near the Philadelphia border, with \$150,000 damage and two in Harleysville. Heavy rain caused wash-outs along some county roads, with 4 to 7 FT ditches in spots. New Britain Township had \$50,000 damage.								
Chester Co. Phoenixville Kennett Square West Chester Berwyn	26	1800EST			0	1	0	0	Lightning
	26	1818EST			0	0	3	0	TSTM Wind
	26	1837EST			0	0	3	0	TSTM Wind
	26	1846EST			0	0	3	0	TSTM Wind
	Lightning hit near a house in Phoenixville, shocking and slightly injuring a man talking on a telephone. Thunderstorm winds downed trees in Kennett Square and power lines in West Chester and Berwyn.								
Delaware Co. 9.5 N ILG	26	1825EST			0	0	3	0	TSTM Wind
	Thunderstorm winds brought large trees down in Concord Township.								
Philadelphia Co. 2.75 W FNE	26	1900EST			0	0	?	0	TSTM Wind (57)
	Thunderstorm winds were measured at 65 MPH.								
PA2012 Bucks County Neshaminy Creek	27	0600EST			0	0	?	0	Flood
	Heavy rain on the afternoon and evening of the 26th resulted in rainfall amounts of 2.5 to 3.5 inches. As a result the Neshaminy Creek reached slightly over flood stage of 9 FT at Langhorne.								
Chester Co. Atglen	27	2345EST			0	0	6	?	Flash Flood
	A nearly stationary thunderstorm dumped heavy rain estimated at 5 to 6 inches in less than an hour. Three bridges were damaged with one being washed away. A baseball field had bleachers, chain-linked fence and portions of the field washed away. The backstop was badly undermined and partly collapsed.								
Lancaster Co. Paradise	27	2345EST			0	0	3	?	Flash Flood
	A nearly stationary thunderstorm dumped about 3 inches of rain in 45 minutes. Resulting flooding caused minor damage to a tavern.								
Franklin Co. Chambersburg	30	1835EST			0	0	4	0	TSTM Wind
	Thunderstorm winds brought down trees and power lines and damaged roofs.								
Fulton Co. McConnellsburg	30	1840EST			0	0	3	0	TSTM Wind
	Thunderstorm winds downed power lines and large trees.								
Lycoming Co. Hepburnville Williamsport	30	1913EST			0	0	3	0	TSTM Wind
	30	1921EST			0	0	3	0	TSTM Wind
	Thunderstorm winds downed several trees in Hepburnville, some on-to roadways. Winds downed many trees and some power lines in Williamsport.								
PA200E Eastern Pennsylvania	Monthlong				?	?	?	?	Heat Wave
	Temperatures reached 90 degrees or higher on at least 13 days in July except for the higher elevations in the mountains, and even there it occurred on 8 to 10 days. In the Philadelphia area it occurred on 21 days. There were consecutive days of as many as 9 with 90 degrees or higher. Temperatures reached 100 degrees at least once in all but the higher elevations. This occurred 5 times in Williamsport and 4 times in Harrisburg and Philadelphia. Average temperatures for July made it anywhere from the 2nd to the 5th warmest July on record. No information is available as to deaths or injuries attributable to the hot weather.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
36 PENNSYLVANIA, Western									
Indiana County, 13 N Indiana	10	1547 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed in Marion Center.						
Erie County: 27 SE Erie	16	1425 EST			0	0	0	0	Hail (0.75)
			Three-quarter inch hail fell at Corry.						
17 S Erie	16	1612 EST			0	0	3	0	Thunderstorm Wind
			A large tree fell on a house in Edinboro.						
20 SW Erie	16	1615 EST			0	0	0	0	Hail (1.75)
			Golfball size hail fell near Albion.						
Forest County, 18 E Tionesta	16	1615 EST			0	0	0	0	Thunderstorm Wind
			Power lines were downed north of Marienville.						
Elk County, 11 N Ridgway	16	1630 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed in Wilcox.						
Erie County, 17 S Erie	16	1630 EST			0	0	0	0	Hail (1.75)
			Golfball size hail at Edinboro.						
Cameron County	16	1645 EST			0	0	0	0	Thunderstorm Wind
			Trees and power lines were downed southeast of Emporium.						
Erie County: 15 SE Erie	16	1645 EST			0	0	0	0	Hail (1.00)
			One-inch diameter hail fell north of Wattsburg.						
17 S Erie	16	1658 EST			0	0	0	0	Thunderstorm Wind
			Trees were downed due to thunderstorm wind.						
Warren County, 18 SW Warren	16	1810 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed near Tidicut.						
Elk County: Ridgway 9 E Ridgway	16	2215 EST			0	0	0	0	Hail (0.75)
	16	2243 EST			0	0	0	0	Hail (0.75)
			Three-quarter inch diameter hail fell at Ridgway and St. Marys.						
Warren County, 7 N Warren	30	1430 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed near Russell.						
Beaver County: 7 E Beaver 10 SE Beaver	30	1500 EST			0	0	0	0	Thunderstorm Wind
	30	1505 EST			0	0	0	0	Thunderstorm Wind
			Large trees were downed in New Sewickley and across Rt. 65 in Ambridge.						
Butler County, 17 SW Butler	30	1528 EST			0	0	0	0	Hail (0.75)
			Three-quarter inch diameter hail fell in Cranberry Township.						
Allegheny County, 4 NW Pittsburgh	30	1530 EST			0	0	0	0	Thunderstorm Wind
			Large trees were downed in Coraopolis.						
Butler County: 9 NW Butler	30	1530 EST			0	0	0	0	Hail (0.75)
			Three-quarter inch diameter hail fell at the Franklin Township Butler Fairgrounds.						
10 SW Butler	30	1545 EST			0	0	4	0	Thunderstorm Wind
			Trees were downed in the Valencia-Wars Boro area, and in Penn Township a building was heavily damaged.						
Venango County, 7 NE Franklin	30	1545 EST			0	0	0	0	Thunderstorm Wind
			A damaging thunderstorm wind occurred at Oil City.						
Armstrong County	30	1600 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed in Kittanning and Ford City.						
Clarion County, 13 S Clarion	30	1600 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed in Rimersburg and Toby townships.						
Allegheny County, 25 NE Pittsburgh	30	1600 EST			0	0	0	0	Hail (0.75)
			Three-quarter inch diameter hail fell at Tarentum.						
Armstrong County, 10 N Kittanning	30	1605 EST			0	0	0	0	Thunderstorm Wind
			Large trees were downed and power outages occurred in Madison Township.						
Erie County	30	1610 EST			0	4	4	0	Thunderstorm Wind
			Large trees were downed in Presque Isle State Park; one fell on a car, injuring four people. Several boats capsized in Presque Isle Bay and adjacent Lake Erie.						
— PENNSYLVANIA, Western									
Crawford County, Meadville	30	1615 EST			0	0	0	0	Thunderstorm Wind
			Power lines were downed in Dicksonburg.						
Erie County, Erie	30	1635 EST			0	0	0	0	Thunderstorm Wind
			Power lines were downed in Erie.						
Jefferson County, BuBois	30	1635 EST			0	0	0	0	Thunderstorm Wind
			A fifty knot wind occurred at the BuBois Airport.						
Jefferson County: 5 SW Brookville 7 NW Brookville 15 NE Brookville 21 SE Brookville	30	1655 EST			0	0	0	0	Thunderstorm Wind
	30	1655 EST			0	0	0	0	Thunderstorm Wind
	30	1710 EST			0	0	0	0	Thunderstorm Wind
	30	1710 EST			0	0	0	0	Thunderstorm Wind
			Large trees and power lines were downed in Summerville, Sigel, Brockway, Gaskill and Big Run.						
Clearfield County: 18 S DuBois	30	1710 EST			0	0	0	0	Thunderstorm Wind
			Trees were downed and power outages occurred at Mahaffey.						
DuBois	30	1715 EST			0	0	0	0	Thunderstorm Wind
			Trees were downed, roads were blocked, and power outages occurred in DuBois.						
13 S Clearfield 6 E Clearfield	30	1720 EST			0	0	0	0	Thunderstorm Wind
	30	1730 EST			0	0	0	0	Thunderstorm Wind
			Large trees were downed and power outages occurred in Madera and Bradford townships.						
Elk County, Ridgway	30	1740 EST			0	0	0	0	Thunderstorm Wind
			Damaging thunderstorm wind brought trees down in Ridgway.						
McKean County, Smethport	30	1755 EST			0	0	0	0	Thunderstorm Wind
			Large trees were downed and power outages occurred in Marvindale.						
37 RHODE ISLAND									
Providence County, Foster	10	1630EST- 1645EST			0	0	3	0	Tsm Winds
			A brief period of gusty winds up to 50 mph moved through a part of town, knocking down trees and causing property damage where a barn was partially destroyed.						
38 SOUTH CAROLINA									
Abbeville Co. Antreville	09	1400EST			0	0	?	?	TSM Winds
			Numerous trees were blown down and hail of unknown size fell.						
Kershaw Co. Liberty Hill	10	1600EST			0	0	4	0	Lightning
			Lightning struck a chimney, partially burning the home.						
Chesterfield Co. I S Ruby	10	2000EST			0	0	4	0	TSM Wind
			A heavy storage shed's roof was blown off. Several trees were downed between one mile south and 6 miles east of Ruby. Small hail was also reported.						
Greenville Co. Greenville	13	1300EST			0	0	5	0	Lightning
			A house in the Canebrake subdivision in southeast Greenville was struck by lightning. It burned along with its contents, resulting in about \$80,000 in damage.						
York Co. York	13	1500EST			0	0	?	?	TSM Winds
			An oak tree crashed into a two-story house in York.						
Dillon Co. 10 SE Dillon	13	1530EST			0	0	4	6	Hail (0.75)
			Ten miles southeast of Dillon a severe thunderstorm accompanied by large hail almost destroyed 200 acres of tobacco.						
Georgetown Co. Murrels Inlet	13	1630EST			0	0	3	0	TSM Winds
			Trees were blown across power lines.						

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					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
— SOUTH CAROLINA											
Lexington Co. West Columbia West Columbia	16	1211EST			0	0	?	?	Hail (0.75)		
	16	1230EST			0	0	4	0	TSTM Wind		
	A thunderstorm with hail was reported. A house under construction off of SC Highway 378 was blown down.										
Oconee Co. 2 S Walhalla Long Creek Walhalla Mountain Rest	16	1458EST			0	0	3	0	TSTM Wind		
	16	1532EST			0	0	4	0	TSTM Wind		
	16	1532EST			0	0	?	0	TSTM Wind		
	16	1610EST			0	1	0	0	Lightning Wind		
Greenville Co. 5 SW Tigerville Pickens Co. 7 S Caesar Head	16	1620EST			0	0	5	2	TSTM Winds		
	16	1630EST			0	0	4	0	TSTM Winds		
	A small group of severe thunderstorms developed in the Mountains and moved into the Greenville area in the Piedmont. Wind gusts to around 60 mph were reported in several locations. Large trees were blown down into the roads between Westminster and Walhalla and near Long Creek. Also, in Oconee County, shingles were blown off houses, trees 12 to 14 inches in diameter were blown down, and a parked pickup truck with a camper on it was blown across the road. In Walhalla, a large tree was blown across a trailer. A person inside escaped injury. In northern Pickens and northern Greenville Counties winds higher than 60 mph blew down many large trees between Caesars Head and Pumpkintown, and between Tigerville and Travelers Rest. Another storm hit the Long Creek/Walhalla area. This storm also blew down trees which blocked roads for a time. Lightning was very intense. One person was struck and injured by lightning and several fires were started.										
Florence Co. Florence	16	1514EST			0	0	3	0	TSTM Wind		
	Wind gusts to 50 knots occurred at the airport. Power lines were also blown down.										
Darlington Co. 7 NW Florence	16	1515EST			0	0	?	?	TSTM Wind		
	Large trees were downed on Rodgers Road.										
Chesterfield Co. 8 NW McBee 5 W Mt. Croghan	16	1525EST			0	0	?	?	TSTM Wind		
	16	1525EST			0	0	?	?	TSTM Wind		
	Several trees were downed between McBee and Jefferson and between Mt. Croghan and Pageland.										
Florence Co. Florence	16	1600EST			0	0	4	0	Lightning		
	Lightning set a home afire.										
Greenwood Co. Greenwood Sm. Greenwood	16	1700EST			0	0	3	0	TSTM Winds		
	16	1715EST			0	0	4	0	Lightning		
	Several trees were blown down, damaging several homes. Lightning damaged a home in southern Greenwood.										
Sumter Co. Sumter	16	1730EST			0	0	3	0	TSTM Winds		
	Several trees were downed, disrupting power.										
Chesterfield Co. Jefferson	18	1600EST			0	0	4	0	TSTM Wind		
	Wind destroyed a garage shed and uprooted 11 large trees.										
Darlington Co. Darlington	18	1730EST			0	2	5	0	TSTM Wind		
	A church under construction was heavily damaged and a mobile home was destroyed. The Darlington Speedway press box was also damaged by the wind. Two people were injured.										
Oconee Co. 3 SE Seneca Pickens Co. Easley Anderson Co. 12 NNE Anderson Greenville Co. Greenville	21	1645EST			0	0	?	?	TSTM Winds		
	21	1725EST			0	0	?	?	TSTM Winds		
	21	1730EST			0	0	?	?	TSTM Winds		
	21	1730EST			0	0	3	0	TSTM Wind		
	Trees and power lines were reported as downed in Oconee County, with power outages occurring in the Seneca/Walhalla area. Thunderstorms also moved across Anderson, Pickens, and Greenville counties. As many as 15,000 customers were without electric power in Greenville between 630 P.M. and 730 P.M. EDT. Trees were blown down and some signs were damaged. Power lines were blown down at Easley, and trees were blown down in northern Anderson County.										
Beaufort Co. Hilton Head	24	1600EST			0	0	3	0	Lightning		
	Lightning set a home afire.										
Laurens Co. Clinton Clinton	27	1435EST			0	0	2	0	Hail (0.75)		
	27	1435EST			0	0	3	0	TSTM Wind		
	Wind caused minor damage to several homes and toppled several trees. Hail was also reported near the western edge of Clinton.										
— SOUTH CAROLINA											
Marion Co. Zion	27	1550EST			0	0	?	?	TSTM Winds		
	Several trees were blown down.										
Richland Co. St. Andrews	27	1600EST			0	1	0	0	Lightning		
	Lightning struck a person carrying a parasol. The person was seriously injured, but survived.										
Florence Co. 3 W Florence 3 W Florence Florence	27	1915EST			0	0	?	?	Hail (1.75)		
	27	1915EST			0	0	?	?	TSTM Wind		
	27	2000EST			0	0	4	0	TSTM Wind		
	Winds blew trees on power lines, disrupting service to 2,000 electric customers.										
Greenwood Co. Greenwood	28	0100EST			0	0	3	0	Lightning		
	Lightning struck several large pine trees, as well as a 44,000 volt transmission line serving 5,000 customers.										
Bamberg Co. Dermark	29	1500EST			0	1	0	0	Lightning		
	Lightning injured a bank teller operating a computer.										
Anderson Co. Anderson	29	1900EST			0	0	4	0	TSTM Wind		
	Winds blew down trees, disrupting power to 2,300 homes in northern Anderson.										
Lexington Co. Swansea	30	1245EST			0	0	3	0	TSTM Wind		
	Downed trees and power outages were reported.										
Lexington Co. 6 NE Lexington	31	1815EST			0	0	4	0	TSTM Wind		
	A shed was blown down as were trees, and a roof was blown off and other damage done in the Chaledon subdivision.										
Richland Co. St. Andrews	31	2000EST			0	0	0	0	TSTM Wind		
	A pine tree was blown across a road. Small hail fell in Harbison also.										
Clarendon Co. Summerton Summerton	31	2220EST			0	0	0	0	TSTM Wind		
	31	2220EST			0	0	?	?	Hail (0.75)		
	Wind blew several trees down west of Summerton. Small hail was also reported.										
Clarendon Co. Rimini area Camp Bob Cooper	31	2305EST			0	0	4	2	TSTM Wind		
	31	2305EST			0	0	4	0	TSTM Wind		
	Trees were downed, several boats damaged, and a roof was blown off a house in the Rimini and Lake Marion Shoals areas.										
Statewide SCZ001-002-003-004- 005-006-007-008	Monthlong				0	0	4	5	Drought		
	Rainfall increased somewhat in the drier parts of the state during the month. The condition of most crops improved, but most areas still need rain.										
39 SOUTH DAKOTA											
Harding County, Redig	04	1730 CST			0	0	0	0	TSTM Wind (53)		
Moody County, 32NNE Sioux Falls	06	0615 CST			0	0	?	0	TSTM Wind		
	Thunderstorm winds damaged a roof, downed trees and overturned a semi-truck.										
Fall River Co., Hot Springs	06	1600 MST			0	4	0	0	Lightning		
	Lightning struck a campground, injuring four campers.										
Butte County, Belle Fourche	06	1745 MST			0	0	?	0	TSTM Wind		
	Thunderstorm winds removed a 100 foot by 30 foot tin roof from a machine shed.										
Deuel County, 30ESE Watertown	07	1530 CST			0	0	3	0	TSTM Wind (56)		
Pennington Co., 25W Rochford	09	1255 MST			0	0	0	0	Hail (1.75)		

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
— SOUTH DAKOTA									
Jackson County, 20SSW Kadoka	10	1615 MST	0	0	?	0	0	0	TSTM Wind
									Thunderstorm winds overturned a trailer house.
Brown County: 20N Aberdeen	12	1940 CST	0	0	0	0	0	0	Funnel Cloud
Aberdeen	12	2043 CST	0	0	0	0	0	0	Hail (1.75)
Aberdeen	12	2052 CST	0	0	0	0	0	0	Hail (2.75)
BE Aberdeen	12	2130 CST	0	0	0	0	0	0	Hail (1.00)
BE Hecla	12	2130 CST	0	0	0	0	0	0	TSTM Wind
Day County, Pierpont	12	2130 CST	0	0	3	0	0	0	TSTM Wind (52)
Roberts County, Sisseton	12	2130 CST	0	0	4	0	0	0	TSTM Wind
									Severe thunderstorm winds removed a 40-foot piece of a hangar's roof and damaged four airplanes.
Codington Co., Henry	12	2300 CST	0	0	0	0	0	0	Hail (1.00)
Bennett County, 20E Martin	16	1745 MST	0	0	0	0	0	0	TSTM Wind (60)
Todd County, Mission	16	2000 CST	0	0	4	0	0	0	TSTM Wind (56)
									Thunderstorm winds downed trees and power lines, causing more than \$6,000 in damages.
Lyman County, 10W Reliance	16	2130 CST	0	0	0	0	0	0	Funnel Cloud
Brule County, Kimball	16	2200 CST	?	?	0	0	0	0	Tornado (F0)
Pennington Co., Deerfield	17	1715 MST	0	0	0	0	0	0	Hail (1.00)
Fall River Co: Hot Springs	17	1925 MST	0	0	0	0	0	0	Hail (0.75)
Hot Springs	17	1905 MST	0	0	0	0	0	0	TSTM Wind (65)
Shannon County: Pine Ridge	17	2012 MST	0	0	0	0	0	0	Hail (1.75)
Pine Ridge	17	2015 MST	0	0	4	0	0	0	TSTM Wind (70)
									Severe thunderstorm winds downed ten power poles, uprooted trees and overturned three mobile homes.
Buffalo County, Fort Thompson	23	1600 to 1604 CST	?	?	0	0	0	0	Tornado (F0)
									No damage was reported.
Brown County, 5NE Aberdeen	23	1705 CST	0	0	0	0	0	0	TSTM Wind (52)
Hyde County, 1W Stephan to 1N Stephan	23	1710 to 1714 CST	1.4	30	0	0	0	0	Tornado (F0)
									No damage was reported.
Brown County: Aberdeen	23	1714 CST	0	0	0	0	0	0	TSTM Wind (56)
25E Aberdeen	23	1720 CST	0	0	2	0	0	0	TSTM Wind (56)
25S Aberdeen	23	1750 CST	0	0	0	0	0	0	Hail (1.00)
Codington Co., Watertown	23	1922 CST	0	0	0	0	0	0	TSTM Wind (51)
Spink County, 12SW Redfield	28	1740 CST	0	0	0	0	0	0	Hail (1.75)
Hand County: 10S Miller	28	1815 CST	0	0	0	0	0	0	Hail (1.75)
32NW Huron	28	1830 CST	0	0	0	0	0	0	Hail (0.50)
									Six square miles of crops were damaged by hail.
Douglas County, 1N Armour	29	1718 CST	0	0	0	0	0	0	Hail (0.75)
Gregory County, Gregory	29	1822 CST	0	0	0	0	0	0	Hail (1.75)
40 TENNESSEE									
CROCKETT COUNTY Alamo	10	1430 CST	0	0	2	0	0	0	THUNDERSTORM WIND
									Strong winds from a thunderstorm knocked down several trees and damaged a number of others at one residence of this community.
TIPTON COUNTY Garland	12	1140 CST	0	0	3	0	0	0	THUNDERSTORM WIND
									Thunderstorm winds downed trees and power lines and ripped shingles off of one house.
DYER COUNTY	13	0015 CST to 0230 CST	0	0	4	0	0	0	FLASH FLOOD
									Thunderstorms that produced over four inches of rain overnight caused widespread flash flooding across the county. The hardest hit area was Dyersburg, where streets were flooded and high water got into vehicles and homes. One bridge and a retaining wall were washed out and structural damage was done to one home. A number of homes had water damage to their interiors.
HAMILTON COUNTY	16	1320 CST	0	0	1	0	0	0	THUNDERSTORM WIND
MCMINN COUNTY	16	1430 CST	0	0	1	0	0	0	THUNDERSTORM WIND
ANDERSON COUNTY Oak Ridge	16	1530 CST	0	0	4	0	0	0	THUNDERSTORM WIND
UNICOT COUNTY Erwin	16	1610 CST	0	0	2	0	0	0	THUNDERSTORM WIND
MORGAN COUNTY	16	1645 CST	0	0	2	0	0	0	THUNDERSTORM WIND
		1710 CST	0	0	6	0	0	0	LIGHTNING
SULLIVAN COUNTY	16	1710 CST	0	0	4	0	0	0	THUNDERSTORM WIND
									Thunderstorm winds knocked down trees and power lines across these six counties, leaving many people without power for a time. The southeast part of Hamilton Co. had most of the damage in that county. In McMinn Co. damage was reported between Etowah and Sweetwater, mainly trees and power lines. In Oak Ridge of Anderson Co. two trees fell on one residence, destroying a carport which had two cars parked in it. In Morgan Co. a TV tower at a residence was blown down, a section of a barn roof was torn off, and 25-30 oak and pine trees were knocked down. Also, lightning struck a Deer Lodge community plant causing it to burn down. Estimated damage to it was \$500,000.00. In Kingsport of Sullivan Co. at least one home and two cars were damaged when trees and power poles fell on them.
LAKE COUNTY	25	0100 CST	0	0	2	0	0	0	HAIL (1.75)
SHELBY COUNTY	25	0325 CST	0	0	2	0	0	0	THUNDERSTORM WIND
									A thunderstorm hit the Lake County area in the early morning hours with golfball size hail, where two cars were reported damaged by it in Tiptonville. Thunderstorm winds knocked down a few trees, numerous tree limbs and several power lines all across Shelby County.
OBION COUNTY Union City	30	1035 CST	0	4	1	0	0	0	LIGHTNING
									Four people were injured when lightning struck a power pole near the plant where they worked. Two of them were women that were outside nearest the pole when lightning hit. One woman was hospitalized. One man was on a forklift and another working on electrical equipment inside at the time. The other woman and the two men were treated and released for minor injuries.
TNZALL	31	1600 CST	0	0	0	?	0	0	DROUGHT
									The drought continued in Tennessee although rainfall amounts were up a bit from earlier months. Chattanooga had its first above normal rainfall reading since January. The bad news was that temperatures rose as well and a number of high temperature records were set. Bristol had its first 100 degree reading since September 1954. Most rivers and streams were at very low levels including the Mississippi River where at Memphis its -10.7 reading is an all time record low on the Memphis gauge.
									The following is a list of a few cities' rainfall and temperature summaries.
CITY	AVG. DEPA-TEMP	RTURE	RAINFALL MONTH	DEPT.	YEAR	DEPT.			
Bristol	76.7	+1.8	3.20	-0.99	16.74	-9.38			
Knoxville	78.7	+1.1	3.60	-0.73	18.45	-11.73			
Chattanooga	79.0	+0.3	5.85	+1.30	22.78	-9.86			
Nashville	81.4	+2.0	3.26	-0.56	15.59	-15.06			
Memphis	81.5	-0.6	5.24	+1.21	24.57	-8.40			

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
41 TEXAS, Northern									
Dallas County: NAS Dallas	2	1515CST			0	0	?	?	TSTM Wind (55)
6 NNE Dallas	2	1525CST			0	0	?	?	TSTM Wind (56)
Red River County: Annona	2	1520CST			0	0	?	?	TSTM Wind and Hail (0.75)
2 S Clarksville	2	1700CST			0	0	?	?	TSTM Wind
Hopkins County: 10 E Sulphur Springs	2	1750CST			0	0	?	?	TSTM Wind
Thunderstorms in North-Central and Northeast Texas produced isolated downbursts and areas of hail. Winds of 63 miles per hour were recorded at the Naval Air Station in Dallas. Also in Dallas at Greenville Avenue and Park Lane (6 NNE Dallas), numerous signs were blown down by winds estimated at 65 miles per hour. In Red River County a barn was destroyed at Annona and trees were uprooted just south of Clarksville. Winds also knocked down signs along Interstate 30 ten miles east of Sulphur Springs.									
Brown County: 3.5 SW Rising Star	3	1050CST	Short	Narrow	0	0	0	?	Tornado (F1)
Eastland County: 1 SW Rising Star	3	1128CST	Short	Narrow	0	0	0	?	Tornado (F1)
Law enforcement personnel observed two short-lived tornadoes from a nearly stationary thunderstorm near the Brown-Eastland county border.									
Dallas County: 1 S Dallas Redbird Airport	3	1400CST			0	0	?	?	Hail (0.75)
Johnson County: 1 W Burleson	3	1428CST			0	0	?	?	TSTM Wind (66)
Tarrant County: 7 S Fort Worth	3	1435CST			0	0	?	?	TSTM Wind (52)
Thunderstorms produced hail and several downbursts in and around the Dallas/Fort Worth Metroplex. Winds were measured at 76 miles per hour one mile west of Burleson. Winds were estimated at 60 miles per hour in the Edgecliff section of Fort Worth (7 miles south of Fort Worth) where several trees were uprooted.									
Bowie County: New Boston	3	1655CST			0	0	?	?	ISTM Wind
Hopkins County: Sulphur Springs	3	1700CST			0	0	?	?	TSTM Wind and Hail (1.75)
Thunderstorm winds uprooted 15 trees at New Boston. Winds broke branches from trees, downed power lines and destroyed an outbuilding in Sulphur Springs. Golf ball size hail also fell in Sulphur Springs.									
Anderson County: 3 SE Palestine	4	0740CST			0	0	?	?	TSTM Wind
Thunderstorm winds damaged the roof of a house, uprooted several trees and displaced a mobile home from its foundation three miles southeast of Palestine.									
Hopkins County: Weaver	7	1745CST			1	0	0	0	Lightning
A four year old girl was killed by lightning in the Weaver community. The child was found lying on the ground beside a fence line next to a pond. F40									
Hopkins County: Sulphur Springs	12	0700CST			0	0	?	?	Flash Flooding
Delta County: Cooper	12	0800CST			0	0	?	?	Flash Flooding
Hunt County: Greenville	12	0800CST			0	0	?	?	Flash Flooding
Rainfall of just over 5 inches over a good part of Hopkins, Delta, and Hunt counties produced considerable street flooding and flooding of low-lying areas in Sulphur Springs, Cooper, and Greenville.									
Dallas County: Mesquite	12	1700CST-1830CST			0	0	?	?	Flash Flooding
Rainfall of up to 6.59 inches in one hour and 15 minutes produced considerable flooding in the area around Interstates 635 and 30 in Mesquite. Dozens of homes were flooded and several vehicles were washed into a creek from the access road along Interstate 30 at Town East Boulevard.									
Wichita County: Iowa Park	18	1730CST			0	0	?	?	TSTM Wind
Thunderstorm winds ripped the roof off a home in Iowa Park.									
— TEXAS, Northern									
Navarro County: Emhouse	19	1500CST			0	0	?	?	TSTM Wind
Corsicana	19	1515CST			0	0	?	?	TSTM Wind
Jones County: Hamlin	19	1630CST			0	0	?	?	TSTM Wind (58)
Dallas County: Carrollton	19	2050CST			0	0	?	?	TSTM Wind (52)
Thunderstorms produced several damaging downbursts. Winds damaged a barn and the roof of a house in Emhouse. The roofs of two businesses were damaged in Corsicana. Winds of 67 miles per hour in Hamlin blew part of a roof off a building, broke limbs from trees, and damaged a carport. Winds were estimated at 60 miles per hour in Carrollton.									
Shelby County: 3 NW Center	26	1550CST			0	0	?	?	Hail (1.00) and TSTM Wind
Panola County: Deadwood	26	1555CST			0	0	?	?	Hail (1.00)
Thunderstorms produced hail up to one inch in diameter in Northeast Texas. Winds downed several trees near Center.									
Angelina County: Lufkin	28	1718CST			0	0	?	?	TSTM Wind
Thunderstorm winds downed several large trees near the Lufkin Airport.									
41 TEXAS, Southern									
Jim Wells County: Alice	03	1256CST			0	0	?	?	Tstm Wind (58)
Alice Flight Station (FAA) at the Alice Airport recorded a wind gust to 67 MPH from a thunderstorm downburst. A few power lines were downed in the city along with damage to tin roofs on storage sheds.									
Val Verde and Edwards Counties	10	2300CST			0	0	0	0	Flash Flooding
3 to 6 inches of rain fell over the eastern part of Val Verde and the western part of Edwards counties. The heavy rains flooded low water crossings and several roads were closed in the area. The runoff from the rains flooded the Dry Devils River during the afternoon of the 11th.									
Kimble County	10-11	Evening and night			0	0	0	0	Flash Flooding
3 to 6 inches of rain fell over a large part of Kimble County. The heavy rains flooded low water crossings and closed a few roads. The Llano River crested at near 23 feet at Roosevelt at 8AM on the 11th and at 23 feet at Junction on the evening of the 11th. The wave on the Llano River was above flood stage all the way to Lake Travis. The crest at Llano was 17 feet.									
Kerr County	11	0400CST			2	1	?	?	Flash Flooding
Up to 9 inches of rain fell over portions of the county, sending local streams and tributaries of the Guadalupe River on a sharp rise. 5 miles west of Hunt, 3 men in a pickup were swept into the Guadalupe River and two of them drowned. The third man managed to swim to safety after trying to rescue the other two. This incident occurred about 10 AM CST. Nearly all of the roads in the county were closed at one time due to high water except I-10. One man was rescued from a vehicle on the northwest side of the city of Kerrville. Several other vehicles were abandoned in high water in the county. The Guadalupe River crested at Hunt at 21 feet and flooding was reported along the river all the way to Canyon Lake. ML3V, M33V.									
Real and Uvalde Counties	11	Morning			0	0	?	?	Flash Flooding
4 to 5 inches of rain on the upper watersheds of the Sabinal and Frio Rivers led to flooding of small streams and of many low water crossings in the two counties. Several roads were closed in the area. The Frio and Sabinal rivers rose 10 to 15 feet from the heavy rains.									
Bandera County	11	Morning			0	1	?	?	Flash Flooding
Very heavy general rains fell over a wide area of the county. Just northeast of the town of Medina 13 inches were recorded. In general, 5 to 8 inches were common. Serious flooding of streams and of low water crossings resulted from the heavy rains. 9 and one-half inches of rain fell in the Tarpley area where one woman was swept into the flooded Hondo Creek. She had to be rescued when her vehicle was washed off of a low water crossing. Most roads in Bandera County were closed at least for a short time on the 11th and were opened by the morning of the 12th. The Medina River got on a significant rise from the heavy rains and crested near 22 feet at Bandera at 9 PM on the 11th. No homes were reported flooded in the county.									

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					KILLED	INJURED	PROPERTY	CROPS		
— TEXAS, Southern										
Montgomery County	27	1610CST			0	0	?	0	Tstm Wind (?)	High winds from a thunderstorm downed trees and power lines at New Caney, Magnolia and Montgomery. Signs were downed and at least one roof was blown off of a business building in Montgomery.
Liberty County	27	1645CST			0	0	?	0	Hail (0.75)	
Dayton	27	1645CST			0	0	?	0	Tstm Wind (?)	High winds from a thunderstorm blew over several large trees and damaged a few vehicles.
Harris County	27	1645CST			0	0	0	0	Hail (0.75)	
Katy	27	1655CST			0	0	0	0	Hail (1.75)	
Harris County	27	1710CST			0	0	0	?	Tstm Wind (?)	Golfball size hail was reported in downtown Houston as was dime size hail on the north side of the city. High winds from the same thunderstorm toppled large trees in the city.
Bexar County	27	1700CST			0	8	0	0	Lightning	In the northeast part of the county, about 2 miles east of Windcrest, 8 youngsters were playing softball when lightning struck the ball field. 2 of the players had to be hospitalized while the other 6 were treated at the scene and released. Lightning apparently struck one of the boys, as his tennis shoes were melted from the heat. This individual was not breathing when firemen arrived on the scene. They administered CPR and brought him back to a breathing status. The other one that was hospitalized had some eye damage.
41 TEXAS, Western										
Cochran County	01	0000CST			0	0	5	0	TSTM Wind (Est 70)	Thunderstorm winds estimated at 70 knots blew the roof off of Bob's Sport Shop in downtown Morton. The debris landed on Main Street and blocked traffic for several hours.
Lubbock County	01	1440CST							Funnels	The public reported a total of 7 funnel clouds near the Community of Acuff, in the easternmost part of the county.
Crosby County	01	1445CST							Funnel	A farmer, one mile southeast of Lorenzo in the western part of the county, observed a funnel cloud within a mile to his south. The funnel reportedly came within 200 feet of the ground, but no dust whirl was evident.
Hale County	06	1805CST			0	0	?	0	Flash Flood	An isolated strong thunderstorm moved slowly across the City of Plainview, depositing 3.20 inches of rain in a one-hour period. Widespread flooding of urban streets resulted.
Hutchinson County	07	1005CST			0	0	0	0	Flash Flood	Thunderstorm rains totalling up to 4 inches caused flooding that inundated State Highway 136 in several places between Borger and Stinnett. The high water forced closure of the highway for several hours.
Swisher County	07	1500CST			0	0	4	0	Flash Flood	Torrential thunderstorm rains of up to 3.50 inches in one hour pushed flash flood waters across Interstate 27 west of Tulia and generated serious flooding on U.S. Highway 87 in the city. Both highways were closed after a pickup truck was submerged by 6 feet of water on U.S. 87 in Tulia.
Deaf Smith County	07	1500CST 1530CST			0	0	3	3	TSTM Wind (89)	A powerful thunderstorm resulted in straightline winds that ripped through Hereford, inflicting scattered roof and tree damage. KPAN Radio Station measured steady winds of 35 gusting to 52 knots during the storm. The Quality Motel lost part of its roof, and 6 utility poles were snapped by winds estimated by City Officials at 89 knots.
					0	0	0	5	Flash Flood	The severe storm moved slowly east and 30 minutes later was responsible for flash flooding near the Horizon Seed Company, six miles east of Hereford. Between 5 and 6 inches of rain was measured at that location, and flood waters spilled across U.S. Highway 60 between Hereford and Dawn. Fields were seriously flooded in the area, causing the loss of much of the local cotton crop.
— TEXAS, Western										
Hale County	07	1535CST 1540CST			0	0	5	0	TSTM Wind (52)	Funnels A large supercell moved out of Swisher County, generating damaging winds, hail, and heavy rainfall in northern Hale County. Wind gusted to 52 knots at Finney, about 8 miles north of Plainview, and at Edmonson. At Edmonson, a hangar was destroyed and several trees uprooted. In addition, a number of funnels were sighted just prior to Plainview and Finney.
Hale County	07	1629CST 1641CST			0	0	5	0	TSTM Wind Flash Flood	The same thunderstorm that brought damaging winds to Edmonson and Finney during the previous hour moved through the Plainview area and destroyed storage buildings on the west side of town. At 1641 CST the Plainview EOC reported that Running Water Draw was 10 inches above State Highway 194 about 10 miles northwest of Plainview.
Lamb County	07	1702CST			0	0	4	4	TSTM Wind (Est. 60)	A large severe multicellular thunderstorm produced damaging winds at Olton, Amherst, and Earth. Trees were uprooted in Olton, tree limbs broken in Amherst, and power lines downed at Earth as the storm migrated slowly to the south over a 20-minute period.
Lamb County	07	1755CST			0	0	0	0	Flash Flood	Thunderstorm rains caused runoff that pushed Running Water Draw over Farm-to-Market Road (FM) 168 eight miles north of Olton.
Hale County	07	1825CST 1830CST			0	0	?	?	Flash Flood Flash Flood	The Plainview EOC reported that widespread street flooding occurred in the city after a severe storm moved through the area. State Highways 70 and 194 westward out of the city were well under water and impassable for several hours thereafter.
										Skywarn Spotters reported that torrential rains in Lamb County sent Blackwater Draw out of its banks and over State Highway 54 eight miles northwest of Abernathy. The water was running quickly and was very deep over the roadway.
Midland County	07	Est. 1830CST			0	0	3	0	Lightning	A bolt of lightning struck a residence on Emerson Court in west Midland, inflicting minor damage to a bedroom wall. The homeowners were away eating dinner at the time.
Lubbock and Hockley Counties	07	1850CST			0	0	4	0	Flash Flood	The Hale County supercell moved southward across western Lubbock and eastern Hockley Counties, resulting in widespread serious flash flooding. Rains of between 5 and 6 inches caused flood waters to rush rapidly across U. S. Highway 84 between Shallowater and Roundup, sweeping several vehicles off the roadway and into bar ditches. One woman was trapped in her automobile for four hours as water neck deep filled her vehicle. Another family of 7 was trapped when their motor home was washed off the road.
										Within the hour, widespread flooding forced closure of virtually all rural highways through the area, including FM 179 at 50th Street west of Lubbock, FM 1294 and FM 2130 near Dean, and State Highway 168 between Anton and Smyer.
										During the next two hours, serious flooding occurred at Ropesville in the southeast corner of Hockley County. U. S. Highway 62-82 near Ropesville was closed due to high water, and the estimated 6-inch rains sent water into several residences and the City Hall.
Terry County	07	1955CST			0	0	4	5	Flash Flood	The flash flood producing thunderstorm complex that moved across Hale, Lamb, Lubbock, and Hockley Counties moved into Terry County and brought more than 5 inches of rain. In the northeast corner of the county, U. S. Highway 62-82 six miles southwest of Ropesville was closed by flood waters at 1955 CST. Within the hour, U. S. Highway 385 both south and north of Brownfield was covered by a foot of water. West of Brownfield, State Highway 211 was inundated by over a foot of water, as were at least a dozen Farm-to-Market Roads in the county.
Lynn County	07	2155CST			0	0	0	0	Flash Flood	The storm complex over Terry, Hockley, and Lubbock Counties moved into Lynn County and brought rains of between 3 and 4 inches in a one-hour period. The western half of the county was most seriously affected, with FM 179 between West Point and New Moore closed by 3 feet of water. The Department of Public Safety Officer investigating the flooding inadvertently drove into the high water and required assistance to be freed.

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					KILLED	INJURED	PROPERTY	CROPS	
TEXAS, Western									
Culberson County	07	2209CST			0	0	0	0	High Wind (54)
	A southwest wind gusting to 54 knots was observed through Guadalupe Pass. No damage was noted in the remote area.								
Midland and Ector Counties	08	0625CST			0	0	?	?	Flash Flood
	Thunderstorm rains exceeding 3 inches caused widespread major flooding of urban streets in both Midland and Odessa. In Midland, many of the major arteries were badly flooded, with dozens of automobiles stalled and abandoned. Most of the rain fell in the hour ending at 0325 CST, with U. S. Highway 80 near the airport collecting more than 2 feet of water at Midland Drive.								
	In Ector County, similar flooding was noted in Odessa. City streets were impassable for several hours as morning commuters attempted -- and failed -- to negotiate the high waters. Private vehicles and police cars alike were stalled in the downtown area.								
Lubbock County	08	1700CST							Funnel
	The Sheriff's Office relayed several public reports of a funnel cloud very near the Community of Woodrow, in the southern part of the county. The funnel was a low energy phenomenon of tropical origin.								
Gaines County	09	1145CST							Funnel
	A funnel cloud was reported southwest of Seminole.								
Lubbock County	09	1335CST							Funnel
	Observers at Lubbock International Airport reported a low energy funnel cloud 5 miles west of the airport. The funnel exhibited little movement and dissipated within 5 minutes.								
Lubbock County	09	1425CST			0	0	?	?	Flash Flood
	Intense rain totalling 2 inches in places, associated with tropical thunderstorms, caused flooding of low-lying areas in the northwest part of the county. North Quaker Avenue at FM 2641 was covered by 2 feet of water. Lubbock International Airport gauged 0.70 inch of rain in 12 minutes from the downpour.								
Lubbock County	09	1528CST							Funnel
	A Skywarn Storm Spotter observed a low energy funnel cloud one mile south of the Community of Slide, in the southwest edge of the county.								
Terry and Lynn Counties	09	1550CST							Funnels
	The Terry County Sheriff's Department reported several low energy funnel clouds over eastern Terry and western Lynn Counties between Brownfield and West Point on U. S. Highway 380. The funnels were drifting slowly south.								
Lynn County	09	1612CST			0	0	?	?	Flash Flood
	A Sheriff's Deputy encountered flood waters covering State Highway 179 and U. S. Highway 380 in the western part of the county. By 1628 CST a Skywarn Spotter found flood waters 3 feet deep over Highway 179 four miles south of the U. S. Highway 380 intersection in the westernmost part of the county.								
Terry County	09	1615CST			0	0	?	?	Flash Flood
	Tropical type thunderstorm rains sent flood waters over FM 168 east of Brownfield, as well as across State Highway 211 west and north of Brownfield. Parts of U. S. Highway 380 east of Brownfield were similarly flooded.								
Lubbock County	09	1655CST			0	0	?	?	Flash Flood
	Tropical thunderstorm rains caused widespread flash flooding over the western part of the county. At 1655 CST a Skywarn Spotter encountered water 1.5 feet deep over FM 2378 in the western part of the county.								
South Plains and Permian Basin	10	All Day							Flash Flooding
	Persistent thunderstorms pushed across the northern Permian Basin and the South Plains from the early morning into the late afternoon, bringing additional heavy rains. The rainfall exacerbated an already serious flooding situation caused by heavy rainfall from the previous several days. The following is a county-by-county summary of prominent events.								
Yoakum County	10	0730CST			0	0	?	?	Flash Flood
	At 730 CST the Denver City Police Dispatcher reported widespread flooding of streets and low-lying areas of the city. Intermittent heavy rains during the day kept flood waters high for several hours thereafter.								
TEXAS, Western									
Hockley County	10	0805CST			0	0	?	?	Flash Flood
	At 805 CST the Sheriff's Office in Levelland reported that U. S. Highway 385 south of Levelland was closed due to high water. State Highway 114 between Levelland and the Lubbock County Line was also partially under water in several places. Repeated rains kept water levels high for much of the day.								
Terry County	10	0935CST			0	0	?	?	Flash Flood
	Rains of between 1 and 2 inches fell on already saturated ground to result in flash flooding. Flood waters covered U. S. Highway 385 eight miles north of Brownfield.								
Andrews County	10	1200CST			0	0	5	4	Flash Flood
	Thunderstorm rains of 2.5 inches fell in a 45-minute span to cause widespread flooding in and around the City of Andrews. The storm was the culmination of a wet 3-day period in which 9 inches of rain occurred. The storm sent torrents of high water through urban and residential streets, flooding businesses and residences. City Manager Len Wilson stated that the water was the highest it has ever been. At Lakeside Park, the lake required 6 million gallons of water to be pumped to outside holding areas for 3 days in order to keep adjacent residences from being flooded.								
Lynn County	10	1535CST			0	0	?	?	Flash Flood
	At 1535 CST the Sheriff's Office reported that thunderstorm rains resulted in flash flooding which covered U. S. Highway 380 between Grassland and Tahoka. FM 2332 was also closed due to high water. In fact, the Communities of Grassland and Draw -- both in the southeast part of the county -- experienced substantial flooding.								
Garza County	10	1615CST			0	0	0	0	Flash Flood
	The Sheriff's Office reported that U. S. Highway 380 from west of Post to the county line was under water in places. Heavy rains also flooded FM 399 between Graham and Pleasant Valley, in the western part of the county, as well as State Highway 211 in the northern part of the county.								
Pecos County	10	2030CST			4	1	4	0	Flash Flood
	A vacationing California family traveling through Pecos County was caught in a flash flood four miles southwest of Sheffield at Perkins Draw. The Draw had flood waters 3 to 4 feet deep over State Highway 349. The family's car was engulfed and swept away by the flood waters, trapping 4 of the 5 family members. The fifth person clung to a tree overnight and walked to safety the following day.								
	Unofficial rainfall reports indicated that up to 8 inches of rain fell in the area over a short period of time prior to the incident.								
									¹ F55V M30V F11V M7V
Crockett County	10	2115CST			0	0	3	4	TSTM Wind
	Thunderstorm winds broke tree limbs and overturned large plant pots in an area 20 miles south of Ozona.								
Concho County	12	1900CST 1917CST			0	0	0	0	Flash Flood TSTM Wind
	Thunderstorm wind of undetermined speed forced a Sheriff's Deputy to turn back toward Eden from a point on U. S. Highway 83 near the Menard County Line. The Deputy feared potential personal injury and damage to his vehicle. Earlier, at 1900 CST, rains of between 2 and 3 inches sent water over U. S. Highway 87 at the Concho-McCulloch County Line, according to the Brady Police Department.								
Brewster County	17	1615CST			0	0	0	0	TSTM Wind (52)
	A Ranger at Big Bend National Park reported thunderstorm winds gusting to 52 knots. One inch of rain fell within 30 minutes.								
Dallam County	17	2000CST			0	0	3	0	TSTM Wind
	Thunderstorm winds downed power lines 2 miles south of the Community of Kerrick, in the northeast corner of the county.								
Hansford County	18	2219CST							Funnel
	A Skywarn Storm Spotter reported a funnel cloud 3 miles southwest of the Community of Hitchland, in the northeast part of the county.								
Garza County	19	1804CST			0	0	0	0	Flash Flood
	The Sheriff's Department reported that thunderstorm rains sent flood waters 1.5 feet deep over U. S. Highway 380 five miles west of Post. FM 399 was similarly flooded between Graham and Close City, in the western part of the county.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
TEXAS, Western									
Bailey County	24	1828CST	2.0	60	0	0	0	0	Tornado (F0)
		1830CST	2.0	100	0	0	0	0	Tornado (F1)
		<p>The Editor of the Muleshoe Journal Newspaper observed and photographed a tornado 4 miles north of Muleshoe, just east of State Highway 214, in the northern part of the county. The small tornado was on the ground for 30 to 40 seconds but inflicted no apparent damage. A second, larger tornado developed shortly after the first, in the northeast corner of the county about 8 miles northeast of Muleshoe. The tornado lasted less than a minute and caused no apparent damage. It was observed by the Editor and separately by a Department of Public Safety Officer.</p> <p>Both twisters moved east-southeast and emanated from a very small wall cloud beneath a small cumulonimbus.</p>							
Lamb County	24	1835CST	0.1	30	0	0	0	0	Funnels
		1845CST							Tornado (F0)
		1845CST							Hail (1.75)
		<p>A small tornado briefly touched down four miles north of Earth, according to the Earth Police Department. Several funnel clouds were observed in the vicinity immediately prior to the twister. The parent thunderstorm also dropped golfball-sized hail at Earth.</p>							
Nolan County	25	1645CST			0	0	4	4	Hail (1.00)
		<p>City of Roscoe Fire Department Personnel reported hail up to 1.00 inch in diameter along Interstate 20 between Roscoe and Sweetwater. The hail inflicted minor tree and garden damage and dented several automobiles traveling along the Interstate.</p>							
Tom Green County	26	1630CST			0	1	5	3	TSTM Wind (65)
		<p>An apparent microburst associated with a strong thunderstorm moved from southwest to northeast across San Angelo, inflicting widespread damage. On the City's southwest side the storm downed power lines, knocking out power to 8,700 residents for several hours.</p> <p>San Angelo Community Hospital was in the path of the storm and sustained structural damage. A visitor to the hospital received minor cuts when struck by broken window glass.</p> <p>As the storm moved across the northern part of town it caused further damage, including a downed high-voltage transmission tower, uprooted mesquite trees, destroyed storage sheds and electrical power poles. The power poles were snapped off at the base.</p>							
Lubbock County	26	1714CST	0.5	40	0	0	0	0	Tornado (F0)
		<p>The public reported a tornado 8 miles west of Woodrow, in the southern part of the county. The twister was located in remote farmland and did no discernible damage.</p>							
Hutchinson County	27	1154CST			0	0	0	0	Flash Flood
		<p>The Borger Police Department reported that very heavy rainfall produced flash flooding on rural roadways in the western part of the county.</p>							
42 UTAH									
Emery County Huntington	03	1230MST			0	2	0	0	Lightning
		<p>Two boys and a dog were injured when lightning struck a tree under which they were sitting.</p>							
Kane County	10	1555MST			0	0	3	0	Thunderstorm Wind (665)
San Juan County	10	1632MST			0	0	2	0	Thunderstorm Wind (655)
Kane County	10	1635MST			0	0	3	0	Thunderstorm Wind (670)
		<p>A thunderstorm produced strong winds in the Lake Powell area on this Sunday evening. In the Halls Crossing Bay area, 1 boat was sunk in the buoy field and 9 houseboats beached by the strong winds. Also, a catwalk at the Bullfrog marina was collapsed by the wind.</p>							
Utah County Springville	26	1900MST			0	1	0	0	Lightning
		<p>A 17 year old boy was struck by lightning while camping with his family in Hobbie Creek Canyon above Springville, Utah. The boy was knocked unconscious, but was later revived with CPR, and suffered second degree burns on the lower half of his body.</p>							
UTAH									
Tooele County Dugway	27	1454MST			0	0	1	0	Thunderstorm Wind (650)
Box Elder County Lakeside	27	1525MST			0	0	1	0	Thunderstorm Wind (652)
		<p>A line of thunderstorms moved through northwestern Utah and produced strong wind gusts in several locations. The Dugway weather station reported a gust to 58 mph just before 4 p.m. MDT and the Lakeside station reported a gust to 60 mph a few minutes later.</p>							
Salt Lake County Keams	27	1645MST			0	1	0	0	Lightning
		<p>A 13 year old boy was struck by lightning while riding his skateboard. The victim was semi-conscious, but paralyzed by the hit, then later recovered with only minor burns.</p>							
Wayne County Hanksville	31	2020MST			0	0	1	0	Flash Flood
		<p>Heavy rainfall in the Bull Creek drainage area upstream of Hanksville, produced flooding through the center of town. The creek overflowed its banks and ran into some yards, then receded. No significant damage was reported.</p>							
43 VERMONT									
Chittenden County Burlington	09	1500EST			0	0	0	0	Heat (Record High)
Addison County Hog Mtn.	09	1900EST			0	0	4	4	Lightning
Washington County Barre	09	2025EST			0	0	3	3	Hail (1.5)
Barre	09	2028EST			0	0	4	2	Hail (2.0)
Barre	09	2030EST			0	0	3	3	Tstm winds
		<p>Record heat fueled powerful thunderstorms in northwest Vermont. These thunderstorms produced golfball size hail, brought down power lines and trees. Lightning was responsible for a forest fire on Hog Mountain.</p>							
Windham County Wardsboro	14	1530EST			0	0	4	2	Tstm winds (Downburst)
Brookline	14	1530EST			0	0	4	3	Tstm winds (Downburst)
Dummerston	14	1542EST	UNK	UNK	0	0	5	4	Tornado (F0)
Brattleburo	14	1630EST			0	0	4	4	Tstm winds
Addison County Salisbury	14	1700EST			0	0	3	2	Tstm winds
Middlebury	14	1921EST			0	0	4	2	Tstm winds
Rutland County Rutland	14	1710EST			0	0	3	0	Tstm winds
Brandon	14	1915EST			0	0	4	3	Tstm winds
Pittsford	14	1918EST			0	0	3	3	Tstm winds
Hubbardston	14	1924EST			0	0	5	1	Tstm winds
		<p>A tornado was sighted in the township of Dummerston. It touched down in an uninhabited rural area. The tornado was first sighted as it moved through hayfields on the Moore Farm...it then moved on to destroy both a mobile home and barn...continuing, it appeared to have lifted up and skipped over Interstate 91 and the Connecticut River. The system appears to have regenerated in Spofford, New Hampshire.</p> <p>Elsewhere in Vermont, trees came down, blocking highways and bringing down power lines. Power was lost in the towns of Westminster, Westminster West, Rockingham, Saxtons River, Dummerston, and Dummerston Center.</p>							
Rutland County West Pawlet	16	2210EST			0	0	3	0	Tstm winds
		<p>Trees were downed and blocked roads.</p>							
Bennington County Pownal	17	1545EST			0	0	4	0	Tstm winds (C 60)
Dorset	17	1620EST			0	0	3	3	Tstm winds
Bennington	17	1620EST			0	0	3	0	Tstm winds
Shaftsbury	17	1620EST			0	0	3	2	Tstm winds
Pownal	17	1620EST			0	0	3	3	Tstm winds
Woodford	17	1620EST			0	0	4	0	Tstm winds
Windham County	17	1630EST			0	0	5	0	Tstm winds
		<p>Trees and power lines were downed during thunderstorms. Localized heavy rain produced some urban flooding.</p>							

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	PROPERTY	CROPS	
— VERMONT —											
Rutland County	26	1430EST			0	0	4	0			Tstm winds
Rutland	26	1430EST			0	0	3	2			Lightning
Rutland County	28	1645EST			0	0	3	0			Tstm winds
Rutland County	30	Afternoon			0	0	5	0			Flash Flood
Poultney	30	1550EST			0	0	3	0			Hail (0.75)
Bennington	30	1550EST			0	0	4	0			Tstm winds
Windham County	30	1650EST			0	0	3	0			Tstm winds
Whittingham											
<p>Thunderstorms pounded the Poultney River Basin during the late morning hours. By early afternoon the Poultney River had risen above flood stage and caused problems for low-lying areas of Poultney. The hardest hit was the River Valley Playhouse where nearly seven feet of water flooded the theater.</p> <p>Elsewhere, trees and power lines were downed, and three-quarter inch diameter hail was reported as falling for a ten minute period.</p>											
44 VIRGINIA											
Bland Co	3	1400EST			0	0	4	0			Lightning
Wythe Co											
<p>Lightning struck and destroyed Big Walker Lookout, as well, a machinery building. Marble size hail was also reported.</p>											
Rockingham Co,	9	1255EST			0	1	0	0			Lightning
Harrisonburg											
<p>A 19 year old man standing in a parking lot was struck and injured while rolling up a car window.</p>											
Roanoke Co,	9	1400EST			0	2	3	0			Thunderstorm Wind (43kt)
Roanoke											
Salem											
<p>A large fair tent was blown down, injuring two people. A tree, several tree limbs and power lines were reported down.</p>											
Virginia Beach Co	9	1800EST			0	0	2	0			Thunderstorm Wind
<p>Winds estimated up to 50 mph and heavy rains created blocked roadways from debris and local flooding.</p>											
Henrico Co,	9	1820EST			0	0	6	?			Thunderstorm Wind (47kt)
Richmond											
<p>A strong thunderstorm created widespread havoc, especially in northern sections of Richmond. Over 300 trees were knocked down, blocking roads, disrupting power and phone service, and damaging buildings and homes. Local street flooding occurred from heavy rains, with 1.52 inches falling in 3 1/2 hours. Total damage estimates "in the millions." About 77,500 homes were without power.</p>											
Rockingham Co,	11	1630EST			0	0	3	0			Thunderstorm Wind (47kt)
Harrisonburg											
Albemarle Co,	11	1645EST			0	0	0	0			Thunderstorm Wind (30kt)
Charlottesville											
<p>Winds knocked down trees and power lines in Harrisonburg. There was widespread and frequent lightning.</p>											
Pittsylvania Co,	18	1630EST			0	0	4	0			Thunderstorm Wind
Danville											
<p>Strong winds destroyed the inventory at a truck bedliner and cap business.</p>											
— VIRGINIA —											
Newport News Co	18	1630EST			0	0	3	0			Thunderstorm Wind
Henrico Co,	18	1630EST			0	0	3	0			Thunderstorm Wind
Richmond											
Shenandoah Co,	18	1700EST			0	0	3	0			Thunderstorm Wind
Strasburg											
<p>Gusty winds knocked down trees in Richmond and Newport News. Two roofs were partially blown off and two chicken houses were destroyed in Strasburg.</p>											
Prince George Co,	19	1530EST			0	0	3	0			Thunderstorm Wind
Hopewell											
Pittsylvania Co,	19	????EST			0	0	3	0			Thunderstorm Wind
Danville											
<p>In Hopewell, a garage was destroyed and a large tree blown about 10 feet. A trailer was blown 6 feet off its supports and trees were blown down in Danville.</p>											
Fairfax Co,	20	1709EST			0	0	4	0			Thunderstorm Wind
Franconia											
<p>Winds estimated up to 60 mph uprooted several large trees and broke numerous tree limbs. Falling trees damaged eight houses.</p>											
Orange Co,	21	1700EST			0	0	4	0			Thunderstorm Wind
Gordonsville											
<p>Strong winds peeled off a barn roof and twisted off the top half of a large tree.</p>											
Clarke Co	26	1530EST			0	0	?	0			Thunderstorm Wind
<p>Winds estimated at 50 to 75 mph were accompanied by heavy rain.</p>											
Fauquier Co,	26	1656EST			0	0	?	?			Hail (1.75), Thunderstorm Wind
Delaplain											
<p>Two foot diameter trees were blown down by strong winds.</p>											
Fairfax Co	26	1815EST			0	0	3	0			Thunderstorm Wind
<p>Fifteen to twenty trees were blown down in Fairfax County.</p>											
Southampton Co,	31	1830EST			1	1	0	0			Lightning
Franklin											
<p>One man was killed and another injured by lightning after stepping out of a boat on the Nottoway River.</p>											
VAX015-016	July				0	0	?	6			Drought
Extreme											
Southwestern											
Virginia											
<p>Minimal amounts of rain fell in the spring and into June. The lack of rain continued into July, causing major drought conditions. Yields for burley tobacco were down nearly one third, and field corn did not yield enough to feed livestock.</p>											
45 WASHINGTON — NONE REPORTED											
46 WEST VIRGINIA											
Wood County,	20	1930 to 2000EST	2	?	0	0	?	?			Thunderstorm Wind
Davisville											
(9 SSW Parkers-											
burg Airport)											
<p>Damage was caused by straight-line winds from a thunderstorm.</p>											
Summers County,	30	1531EST			0	0	?	?			Thunderstorm Wind
Talcott											
<p>Thunderstorm winds downed several large trees.</p>											

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JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
47 WISCONSIN									
Waupaca Co., Manawa	09	1340- 1350CST			0	0	4	0	Thunderstorm Wind
Outagamie Co., Shiocton	09	1415CST			0	0	?	?	Hail (1.00)
Seymour	09	1430CST			0	0	?	?	Hail (0.75)
Brown Co., Green Bay	09	1450- 1530CST			0	0	?	?	Hail (0.75)
De Pere	09	1500CST			0	0	4	0	Lightning
<p>A cluster of severe thunderstorms toppled trees onto power lines, a truck and a car in Manawa as well as knocking down a shed and peeling back a barn roof. Hail up to 1 inch in diameter fell in Schiocton, Seymour and Green Bay. Lightning caused over \$30,000 damage to a wood products building in De Pere.</p>									
Eau Claire Co., 10SE Brackett	15	0320CST			0	0	?	?	Hail (1.75)
Vilas Co., 4S Sayner	15	0730CST			0	0	?	?	Hail (0.75)
4S Sayner	15	0730CST			0	1	?	?	Thunderstorm Wind
<p>Severe thunderstorms dropped golfball hail 10 SE of Brackett. Winds gusting to 60 mph and 3/4 inch diameter hail hit the Big St. Germain Lake area 4 S of Sayner. The winds toppled many large trees, one of which landed on a man who suffered a broken foot.</p>									
Ashland Co., Mellon	15	1515CST			0	0	?	?	Hail (1.00)
Price Co., Phillips	15	1720CST			0	0	?	?	Thunderstorm Wind
Sawyer Co., Exeland	15	1800CST			0	0	?	?	Thunderstorm Wind (52)
Winter	15	1800CST			0	0	?	?	Thunderstorm Wind
Marathon Co., Bevent	15	2017CST			0	0	?	?	Hail (1.75)
<p>A series of severe thunderstorms dropped hail up to golfball size at Bevent and Mellon. Other severe thunderstorms produced gusty winds which downed several trees over Exeland, Winter and near Phillips.</p>									
Walworth Co., 2N Fontana	16	1320CST	0.1	50	0	0	4	?	Tornado (F1)
<p>A tornado briefly touched down in a campground area 2 miles north of Fontana, destroying an amphitheater, damaging a lodge and knocking down trees.</p>									
Winnebago Co., Oshkosh	24	1307CST			0	0	?	?	Thunderstorm Wind (56)
Fond du Lac Co.	24	1407CST			0	0	?	?	Thunderstorm Wind
Vernon Co., Coon Valley	24	1545CST			0	0	3	?	Thunderstorm Wind
Portage Co., 1NW Stevens Point	24	1650- 1700CST			0	0	5	?	Thunderstorm Wind
Oneida Co., 15N Rhinelander	24	1655CST			0	0	?	?	Hail (1.75)
Marathon Co., Hamburg	24	1715CST			0	0	?	?	Hail (1.75)
Rib Mountain	24	1750CST			0	0	3	0	Thunderstorm Wind
Schofield	24	1753CST			0	0	0	0	Funnel Cloud
Dodge Co., 1E Beaver Dam	24	1838CST			0	0	0	0	Funnel Cloud
Sheboygan Co., Sheboygan	24	2000CST			0	0	?	?	Thunderstorm Wind
<p>Scattered severe thunderstorms dumped hail up to golfball size at Hamburg and 15 N of Rhinelander. Other thunderstorms generated winds which blew down trees and sheds in and near Oshkosh, Coon Valley, Campbellsport, Stevens Point, Rib Mountain and Sheboygan.</p>									
Vilas Co., Eagle River	29	2030CST	0.1	50	0	0	5	?	Tornado (F1)
<p>A tornado set down in the Eagle River area and caused over \$160,000 in damage to the Northland Pines High School. Winds accompanying the storm downed signs and trees in the Eagle River area.</p>									
WISCONSIN									
Statewide	July				0	0	0	?	Drought
<p>The drought conditions of May and June continued into July with hot and humid weather and patchy rainfall. By the end of the month nearly 50% of the crops in the state were rated to be in poor or very poor condition. All 72 Wisconsin counties were declared disaster areas because of the drought. Besides the poor crop results, wildlife, birds and fish were being adversely affected by low water levels. Electric power generated from hydro-electric plants was down as much as 80 percent. Sales of lawn fertilizer, lawn mowers, and lawn care products were off considerably. The number of water bans and water restrictions throughout the state continued to climb. Numerous July 4th fireworks celebrations were either cancelled or severely curtailed.</p>									
48 WYOMING									
PARK CO	01	0001 TO			0	0	5	0	LIGHTNING
TETON CO	02	2400MST							
CARBON CO									
SWEETWATER CO									
NATRONA CO									
PARK CO	03	0001 TO			0	0	5	0	LIGHTNING
TETON CO	09	2400MST							
SWEETWATER CO									
SHERIDAN CO									
NATRONA CO									
FREMONT CO									
ALBANY CO									
LARAMIE CO									
CROCK CO									
JOHNSON CO									
PARK CO	10	0001 TO			0	0	5	0	LIGHTNING
TETON CO	16	2400MST							
SWEETWATER CO									
FREMONT CO									
JOHNSON CO									
LARAMIE CO									
WASHAKIE CO									
CONVERSE CO									
NATRONA CO									
PARK CO	17	0001 TO			0	0	5	0	LIGHTNING
TETON CO	23	2400MST							
FREMONT CO									
SWEETWATER CO									
WASHAKIE CO									
NATRONA CO									
PARK CO	24	0001 TO			0	0	5	0	LIGHTNING
TETON CO	30	2400MST							
UINTA CO									
JOHNSON CO									
SUBLETT CO									
PARK CO	31	0001 TO			0	0	5	0	LIGHTNING
TETON CO		2400MST							
<p>DURING THE MONTH OF JULY, 1988, AT LEAST 59 FIRES WERE STARTED BY LIGHTNING FROM MOSTLY HIGH-BASED THUNDERSTORMS THAT PRODUCED LITTLE RAINFALL. THESE INCLUDED VERY LARGE FOREST FIRES SUCH AS THE CLOVER MIST BLAZE IN YELLOWSTONE PARK AND THE LOST FIRE OVER THE BIG HORN MOUNTAINS OF NORTHERN WYOMING.</p> <p>ON A WEEK-BY-WEEK BASIS, THE BREAKDOWN OF LIGHTNING FIRES IS AS FOLLOWS. BEFORE AND INCLUDING THE 2ND, THERE WERE FIVE FIRES. BETWEEN THE 3RD AND THE 9TH, FOURTEEN LIGHTNING FIRES WERE STARTED. DURING THE 10TH THROUGH THE 16TH, EIGHTEEN SUCH FIRES WERE REPORTED. FROM THE 17TH THROUGH THE 23RD, THERE WERE EIGHT FIRES. BETWEEN THE 24TH AND THE 30TH, TEN LIGHTNING BLAZES OCCURRED. FINALLY, ON THE 31ST, THERE WERE FOUR FIRES. ACCORDING TO THE BUREAU OF LAND MANAGEMENT FOR WYOMING, 3,644.3 ACRES WERE TORCHED WITH AN ESTIMATED LOST RESOURCE VALUE OF 364,430 DOLLARS. THIS DOES NOT INCLUDE THE FIRES STARTED BY LIGHTNING IN YELLOWSTONE NATIONAL PARK BECAUSE THIS INFORMATION IS NOT YET AVAILABLE.</p>									

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JULY 1988

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					KILLED	INJURED	PROPERTY	CROPS	
WYOMING									
CAMPBELL CO GILLETTE	06	1750MST			0	0	0	0	THUNDER-STORM WIND(50)
		A THUNDERSTORM PRODUCED A WIND GUST OF 58 MPH IN THE CITY OF GILLETTE DURING THE EARLY EVENING OF THE 6TH. NO DAMAGE WAS REPORTED.							
NATRONA CO ALCOVA RESERVOIR	07	1650 TO 1655MST	.5	50	0	0	3	?	TORNADO (F1)
NATRONA CO PARADISE VALLEY	07	1720 TO 1725MST	.5	50	0	0	0	0	TORNADO (F0)
NATRONA CO 5NE CASPER	07	1725 TO 1730MST	.5	50	0	0	0	0	TORNADO (F0)
CONVERSE CO 15W DOUGLAS	07	1824MST			0	0	0	0	FUNNEL CLOUD
		THREE TORNADOES TOUCHED DOWN IN NATRONA COUNTY DURING THE EARLY EVENING OF THE 7TH. THE FIRST TWISTER HIT THE ALCOVA MARINA, ABOUT 29 MILES SOUTHWEST OF CASPER. THIS STORM TORE THE ROOF OFF OF THE MARINA'S BOAT SHOP AND BLEW OVER A MOBILE HOME. THE SECOND TORNADO STRUCK IN AN OPEN FIELD NEAR A SUBDIVISION JUST WEST OF CASPER. THE THIRD TORNADO OCCURRED IN AN OPEN FIELD 5 MILES NORTHEAST OF THE NATRONA COUNTY AIRPORT. AS THE PARENT THUNDERSTORMS MOVED EAST, A FUNNEL CLOUD WAS SIGHTED 15 MILES WEST OF DOUGLAS. FARTHER SOUTHEAST, OTHER INTENSE THUNDERSTORMS WERE OCCURRING OVER PLATTE AND LARAMIE COUNTIES. THERE WERE NUMEROUS REPORTS OF SMALL HAIL AND BRIEF HEAVY RAIN. EARLIER DURING THE AFTERNOON, AROUND 1615 MST, THE CITY OF CHEYENNE HAD ONE-QUARTER INCH DIAMETER HAIL AND UP TO ONE INCH OF RAIN. MINOR STREET FLOODING WAS REPORTED.							
NATRONA CO	08	1200 TO 1240MST			0	0	0	0	FUNNEL CLOUDS
NATRONA CO 12SE ALCOVA	08	1300 TO 1315MST	.5	50	0	0	0	?	TORNADO (F0)
		THUNDERSTORMS MOVING THROUGH NATRONA COUNTY ON THE EARLY AFTERNOON OF THE 8TH PRODUCED NUMEROUS FUNNEL CLOUDS AND ONE TORNADO IN OPEN COUNTRY. ACCORDING TO A NATRONA COUNTY UNDERSHERIFF, "IT (THE TORNADO) JUST DISTURBED THE PRAIRIE A BIT".							
FREMONT COUNTY	10	1600MST			0	0	0	?	LIGHTNING
		LIGHTNING FROM STRONG THUNDERSTORMS STARTED AT LEAST TWO SMALL FIRES IN OPEN COUNTRY. THERE WAS A ONE-ACRE SAGEBRUSH FIRE ABOUT TWO MILES NORTH OF THE SWEETWATER REST STOP ON SOUTH PASS. ANOTHER FIRE WAS STARTED IN A HAY FIELD NEAR KINNEAR. BOTH FIRES WERE QUICKLY CONTROLLED.							
SHERIDAN CO CAMPBELL CO WESTON CO	11	1600MST			0	0	?	0	LIGHTNING
		ON THE AFTERNOON OF THE 11TH, LIGHTNING FROM THUNDERSTORMS IGNITED NUMEROUS OPEN FIELD GRASS AND TIMBER FIRES. SHERIDAN COUNTY REPORTED NINE SUCH BLAZES, INCLUDING ONE THAT TORCHED A THOUSAND ACRES. IN THE THUNDER BASIN NATIONAL GRASSLANDS, ON THE BORDER OF CAMPBELL AND WESTON COUNTIES, FIRE BURNED MORE THAN TEN THOUSAND ACRES OF COMBINED FEDERAL AND PRIVATE LAND BEFORE BEING CONTAINED.							
CONVERSE CO 44N DOUGLAS	11	1630MST			0	0	4	0	LIGHTNING
		LIGHTNING FROM A THUNDERSTORM STRUCK A BATTERY OF SIX OIL TANKS NEAR THE TOWN OF BILL, FORTY-FOUR MILES NORTH OF DOUGLAS. FIVE OUT OF THE SIX TANKS WERE DAMAGED, FOUR BEING RUPTURED. A SPECTACULAR EXPLOSION RESULTED AND SMOKE FROM THE FIERY INFERNO COULD BE SEEN A DISTANCE OF AT LEAST THREE MILES AWAY. SINCE THE FIRE WAS SO INTENSE, FIREFIGHTERS ELECTED TO LET IT BURN ITSELF OUT.							
WYOMING									
NIOBRARA CO 20NW LOSK	11	1843MST			0	0	0	?	HAIL (1.00)
		AS THE THUNDERSTORMS RESPONSIBLE FOR THE LIGHTNING FIRES MOVED EAST, ONE-INCH DIAMETER HAIL OCCURRED IN THE OPEN COUNTRY OF NIOBRARA COUNTY DURING THE EVENING OF THE 11TH.							
SHERIDAN CO	15	1900MST			0	0	0	?	LIGHTNING
		NINE OPEN FIELD FIRES WERE STARTED BY LIGHTNING FROM A THUNDERSTORM DURING THE EVENING OF THE 15TH. THIS INCLUDED A FIFTEEN-ACRE FIRE IN THE BIG HORN NATIONAL FOREST.							
FREMONT CO RIVERTON	16	1450MST			0	0	0	0	THUNDER-STORM WIND(50)
		A THUNDERSTORM PRODUCED 58 MPH WIND GUSTS IN THE TOWN OF RIVERTON DURING THE AFTERNOON OF THE 14TH. NO DAMAGE WAS REPORTED.							
CROOK CO 40NE GILLETTE	17	1442 TO 1615MST			0	0	0	0	FUNNEL CLOUDS
PLATTE CO WHEATLAND	17	1600MST			0	0	5	4	HAIL (2.50)
GOSHEN CO TORRINGTON	17	1600MST			0	0	?	?	HAIL (1.75)
GOSHEN CO FORT LARAMIE	17	1605 TO 1618MST			0	0	4	?	THUNDER-STORM WIND(58)
CAMPBELL CO 38S GILLETTE	17	1703MST			0	0	0	0	FUNNEL CLOUDS
CAMPBELL CO 25W WRIGHT	17	1715 TO 1730MST	.5	50	0	0	0	0	TORNADO (F0)
CAMPBELL CO 25W WRIGHT	17	1715 TO 1730MST	.5	50	0	0	0	0	TORNADO (F0)
CAMPBELL CO 25W WRIGHT	17	1715 TO 1730MST	.5	50	0	0	0	0	TORNADO (F0)
WESTON CO 5W UPTON	17	1734 TO 1745MST	.75	50	0	0	0	0	TORNADO (F0)
WESTON CO 26SW NEWCASTLE	17	1749MST			0	0	0	0	FUNNEL CLOUD
WESTON CO NEWCASTLE	17	1930MST			0	0	2	?	SMALL HAIL
		DURING THE AFTERNOON AND EVENING OF THE 17TH, THE COMBINATION OF A COLD FRONT MOVING SOUTHEAST THROUGH WYOMING AND MOIST UPSLOPE SOUTHEASTERLY SURFACE WINDS CAUSED SCATTERED SEVERE THUNDERSTORMS TO DEVELOP ACROSS THE EASTERN HIGH PLAINS OF THE STATE. THREE TORNADOES FROM A THUNDERSTORM OCCURRED IN OPEN COUNTRY JUST SOUTHWEST OF THE TOWN OF WRIGHT. THE TWISTERS OCCURRED BETWEEN THE TOWN AND A COAL MINE. NEAR FORT LARAMIE, THUNDERSTORM WINDS TIPPED OVER A FORTY-FIVE FOOT SEMI-TRACTOR TRAILER VAN. THERE WERE ALSO SEVERAL TREES UPROOTED. NEAR THE LAGRANGE AREA, IN GOSHEN COUNTY, SEVERAL CREEKS FLOODED FROM THE BRIEF HEAVY RAINS. IN WHEATLAND, HAIL DAMAGE WAS DONE TO OVER A HUNDRED CARS AND MORE THAN 10 BUILDING ROOFS. THIS HAIL ALSO STRIPPED CORN AND FLATTENED BEANS IN THE WHEATLAND AREA. NO MAJOR PROPERTY DAMAGE WAS REPORTED IN THE CITY OF TORRINGTON FROM THE HAIL THAT FELL THERE. OFFICIALS IN TORRINGTON DESCRIBED CROP DAMAGE IN THEIR AREA AS "MINOR". THE CITY OF NEWCASTLE RECEIVED SOME DAMAGE TO WINDOWS AND GARDENS FROM SMALL HAIL. THERE WAS ALSO SOME MINOR STREET FLOODING. FINALLY, THE TORNADO NEAR UPTON OCCURRED IN OPEN PRAIRIE AND DID NO DAMAGE TO BUILDINGS.							

STORM DATA AND UNUSUAL WEATHER PHENOMENA

JULY 1988

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED ¹ DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
WYOMING									
PLATTE CO GUERNSEY	18	1510MST			0	0	?	?	HAIL (1.50)
PLATTE CO GUERNSEY	18	1515MST			0	0	?	0	LIGHTNING
PLATTE CO WHEATLAND	18	1515MST			0	0	?	?	HAIL (.75)
PLATTE CO WHEATLAND	18	1515MST			0	0	?	0	LIGHTNING
NIOBRARA CO LUSK	18	1520MST			0	0	?	?	HAIL (.75)
ALBANY CO 25W CHEYENNE	18	1535MST			0	0	0	?	HAIL (.75)
PLATTE CO SLATER	18	1542MST			0	0	0	?	HAIL (1.75)
LARAMIE CO 20NW CHEYENNE	18	1600 TO 1615MST	2.0	100	0	0	0	?	TORNADO (F0)
LARAMIE CO 20NW CHEYENNE	18	1600 TO 1615MST			0	0	0	0	FUNNEL CLOUDS
LARAMIE CO PINE BLUFFS	18	1730MST			0	0	5	4	THUNDER-STORM WIND(70)
LARAMIE CO PINE BLUFFS	18	1730 TO 1800MST			0	0	?	0	LIGHTNING
LARAMIE CO 9N CHEYENNE	18	1730MST			0	0	?	?	HAIL (1.75)
LARAMIE CO ALBIN	18	1755MST			0	0	?	?	HEAVY RAIN
GOSHEN CO 10W LAGRANGE	18	1800MST			0	0	?	?	HAIL (1.75)
<p>DURING THE LATE AFTERNOON AND EARLY EVENING OF THE 18TH, THE COMBINATION OF A STRONG UPPER-LEVEL TROUGH IN NORTHWEST FLOW COUPLED WITH LOW-LEVEL MOIST UPSLOPE WINDS SPANNED AN INTENSE LINE OF SEVERE THUNDERSTORMS ACROSS EXTREME EAST AND SOUTHEAST WYOMING. THE LINE MOVED SLOWLY SOUTH WHILE THE INDIVIDUAL CELLS PROGRESSED EAST-SOUTHEAST. LARAMIE COUNTY WAS THE HARDEST HIT. AT 1600 MST, A TORNADO TOUCHED DOWN IN OPEN COUNTRY ABOUT 20 MILES NORTHWEST OF CHEYENNE. THERE WERE ALSO NUMEROUS FUNNEL CLOUDS. AS THE PARENT THUNDERSTORM MOVED EAST-SOUTHEAST, NUMEROUS REPORTS OF SMALL HAIL AND VERY HEAVY RAIN WERE RECEIVED THROUGHOUT LARAMIE COUNTY. EVEN THOUGH CHEYENNE WAS MISSED, GOLF BALL SIZE HAIL CAME WITHIN NINE MILES NORTH OF THE CITY. BETWEEN 1700 AND 1800 MST, THE PINE BLUFFS AREA WAS RAKED BY THIS SAME STORM. TREES WERE UPROOTED, CROPS WASHED AWAY, ROOFS OF HOUSES DAMAGED, AND DAMAGE WAS DONE TO ELECTRICAL APPLIANCES BY LIGHTNING. IN GENERAL, BETWEEN 1615 AND 1830 MST, LARAMIE COUNTY SUFFERED WIND, HAIL, AND RAIN DAMAGE TO CROPS, ROOFS, ANTENNAE, AND VEHICLES FROM THE LINE OF SEVERE THUNDERSTORMS. DAMAGED CROPS INCLUDED MOSTLY WHEAT, BUT ALSO POTATOES, CORN, AND SPRING BARLEY. THE ALBIN AREA, 41 NE OF CHEYENNE, HAD ONE TO THREE INCHES OF RAIN WHICH FLOODED HIGHWAYS. OTHER COUNTIES OF EXTREME EAST AND SOUTHEAST WYOMING ALSO REPORTED SOME SEVERE WEATHER, MOSTLY FROM HAIL.</p>									
LARAMIE CO 15SW CHEYENNE	27	1425MST			0	0	0	0	FUNNEL CLOUD
ALBANY CO LARAMIE	27	1548 TO 1550MST			0	0	0	0	FUNNEL CLOUD
ALBANY CO LARAMIE	27	1548 TO 1550MST			0	0	?	?	HAIL (1.00)
<p>THUNDERSTORMS ASSOCIATED WITH A COLD FRONT MOVED THROUGH SOUTHEAST WYOMING DURING THE AFTERNOON OF THE 27TH. TWO FUNNEL CLOUDS AND HAIL WERE REPORTED.</p>									
CAMPBELL CO	27	1800MST			0	0	0	0	LIGHTNING
<p>DURING THE LATE AFTERNOON OF THE 27TH, LIGHTNING FROM THUNDERSTORMS IGNITED THREE OPEN RANGE FIRES. TWO OF THE FIRES WERE UNDER CONTROL BY THE EARLY MORNING OF THE 28TH WITH THE LAST ESTIMATED TO BE UNDER CONTROL BY ABOUT 1000 MST OF THE 28TH.</p>									
ALASKA, Northern ————— NO REPORT RECEIVED									
ALASKA, Southern ————— NONE REPORTED									
ALASKA, Southeastern ————— NONE REPORTED									
HAWAII ————— NONE REPORTED									
PUERTO RICO									
PRZ029 West Coastal Section		17 1320LST					2	1	Lightning
<p>During the early afternoon on Sunday, July 17, 1988, a thunderstorm developed over the west coast of Puerto Rico. As the rain started a couple looked for cover under a tree that minutes later was struck by a lightning. The couple was killed and a third person nearby received injuries. The victims were identified as Mr. Edwin Mercado and Mrs. Elizabeth Arocho, 23 and 25 yearsold respectively. The injured person was Mr. Franklin Rosado, 23 years old. M230, F250.</p>									
PRZ029 West Coastal Section		17					0	0	0 Waterspout
VIRGIN ISLANDS ————— NONE REPORTED									
PACIFIC ————— NONE REPORTED									

STORM SUMMARY

JULY 1988

TYPE	ALABAMA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MAINE	MARYLAND & DC	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE	
TORNADOES																												
Number		1	1		14		1	6		1			6	4	2	3	1			7	1		1	12	4		1	
Days		1	1		6		1	5		1			2	3	2	3	1			4	1		1	2	3		1	
Deaths		0	0		0		0	0		0			0	0	0	0	0			0	0		0	0	0		0	
Injuries		0	0		0		0	0		0			8	0	0	0	0			1	0		0	2	0		0	
Property Damage		4	0		0		0	4		0			7	3	5	0	0			5	0		0	6	0		0	
Crop Damage		0	?		0		0	0		2			4	0	0	?	0			0	0		0	4	2		0	
HAIL																												
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Injuries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Property Damage	2	?	?	?	5	?	?	?	?	?	?	?	4	4	?	?	2	1	0	2	0	?	3	5	6	?	1	
Crop Damage	0	6	?	?	7	?	?	?	?	?	?	?	4	4	?	?	0	0	1	?	5	?	3	4	7	?	3	
THUNDERSTORM WINDS																												
Deaths	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Injuries	2	1	0	0	0	0	0	0	1	0	0	8	8	0	0	0	0	0	0	7	0	0	0	0	11	7	0	
Property Damage	4	7	5	6	4	5	3	5	5	4	5	6	6	5	5	4	5	5	5	5	5	5	0	5	5	7	4	
Crop Damage	?	0	?	0	0	0	0	0	?	0	?	6	5	5	0	?	?	?	0	0	0	0	0	0	5	0	0	
HIGH WINDS																												
Deaths					0																							
Injuries					0																							
Property Damage					3																							
Crop Damage					0																							
LIGHTNING																												
Deaths	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	2	1	0	0	0	0	0	1	0
Injuries	1	0	0	15	0	0	1	4	0	0	1	2	0	0	1	0	0	1	1	11	1	1	0	0	?	1	0	
Property Damage	6	5	?	3	5	0	0	0	4	?	5	0	0	5	5	4	4	5	5	5	4	5	0	?	5	5	5	
Crop Damage	0	?	?	0	0	0	0	0	?	?	0	0	0	0	4	0	0	?	0	0	0	0	0	0	5	0	0	
FLASH FLOODS																												
Deaths	0	0	0	0	0																							
Injuries	0	0	0	0	0																							
Property Damage	5	3	?	?	3							5	4	4	4										6	6	4	
Crop Damage	0	0	0	0	0							0	5	4	0									2	5	0	0	
FLOODS																												
Deaths																												
Injuries																												
Property Damage																												
Crop Damage																												
HEAVY SNOWSTORMS AND BLIZZARDS @																												
Deaths																												
Injuries																												
Property Damage																												
Crop Damage																												
ICE STORMS #																												
Deaths																												
Injuries																												
Property Damage																												
Crop Damage																												
HURRICANES AND TROPICAL STORMS																												
Deaths																												
Injuries																												
Property Damage																												
Crop Damage																												
ALL OTHERS																												
Deaths					0		0		2		0		0			0		6	0									
Injuries					0		?		0		0		0			0		0	0									
Property Damage					5		0		0		0		3			?		?	?									
Crop Damage					0		?		0		?		9			?		?	0									

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM SUMMARY

JULY 1988

TYPE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOMA	OREGON	PENNSYLVANIA	RHODE ISLAND	SOUTH CAROLINA	SOUTH DAKOTA	TENNESSEE	TEXAS	UTAH	VERMONT	VIRGINIA	WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING	ALASKA	HAWAII	PACIFIC	PUERTO RICO	VIRGIN ISLANDS	NATIONAL DEATH & INJURY TOTALS
TORNADOES								0										0				4	0	0	0	0	
Number	2		2		8				3			3		6		1				2	9						
Days	2				5				2			2		3		1				2	4						
Deaths	0		0		0				0			0		0		0				0	0						0
Injuries	1		1		0				2			0		0		0				0	0						
Property Damage	5		7		5				6			0		0		5				5	3						95
Crop Damage	0		7		0				3			0		2		4				2	2						
HAIL																											
Deaths			0	0	0	0	0		0		0	0	0	0		0	0			0	0						
Injuries			0	0	0	0	0		0		0	0	0	0		0	0			0	0						
Property Damage			4	0	5	?	?		?		4	?	2	4		4	?			?	5						
Crop Damage			0	4	5	6	?		?		6	?	0	4		3	?			?	4						
THUNDERSTORM WINDS																											
Deaths	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0						2
Injuries	0	0	4	6	0	0	0		5	0	2	0	0	1	0	0	2		0	1	0						59
Property Damage	4	?	8	6	5	5	6		6	3	5	5	4	5	3	6	?		0	5	5						
Crop Damage	0	?	8	0	?	0	?		?	0	2	0	0	4	0	5			?	?	4						
HIGH WINDS																											
Deaths				0																							
Injuries			0	?																							
Property Damage			?	?																							
Crop Damage			?	?																							
LIGHTNING																											
Deaths	1	2	2	1	0	0	0		0	0	0	0	0	1	0	0	1			0	0				2	20	
Injuries	0	18	23	10	0	0	0		23	3	4	4	4	8	4	0	2			0	0						141
Property Damage	0	?	8	4	5	5	6		6	5	0	0	6	3	0	4	4			4	5						
Crop Damage	0	0	5	0	?	0	?		0	0	0	0	0	0	0	4	0			0	?						
FLASH FLOODS																											
Deaths	0	1	0	0			0		0				0	6	0	0					0						7
Injuries	0	?	0	0			0		0				0	3	0	0					0						3?
Property Damage	?	7	?	4			?		6				4	6	1	5					?						
Crop Damage	0	?	0	0			?		?				0	5	0	0					?						
FLOODS																											
Deaths			0						0																		
Injuries			0						0																		
Property Damage			5						?																		
Crop Damage			0						0																		
HEAVY SNOWSTORMS AND BLIZZARDS @																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
ICE STORMS #																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
HURRICANES AND TROPICAL STORMS																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
ALL OTHERS																											
Deaths	?		1	1		0	1		?		0		0				0			0	0						11?
Injuries	?		13	0		0	0		?		0		0				0			0	0						63?
Property Damage	?		7	0		0	0		?		4		0				?			?	?						
Crop Damage	7		7	0		?	0		8		5		?				6			?	?						

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM DATA AND UNUSUAL WEATHER PHENOMENA

LATE REPORTS

LATE REPORTS

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	

17 MAINE

January 1988

MEZ 001
Extreme Northeast 04- 0130- 0 0 5 0 Heavy Snow
05 0300EST

A low pressure area formed off the Carolinas late Sunday, intensifying as it moved rapidly north-northeast along the Atlantic coast, passing through Maine Monday and into the Canadian Maritimes early Tuesday. The storm left 3 to 6 inches of snow over the entire state, except for a narrow band of heavy snow through Northeast Maine. Caribou reported the most with 10.7 inches and Squa Pan Dam had 9 inches, while other Aroostook County communities reported 6 inches or less of snow. There were numerous minor auto accidents reported during the morning rush hours, but no fatalities or serious injuries occurred. Many school districts cancelled school or held delayed openings statewide.

MEZ 003-004-007-008-010-011-012-013-014
Central and Southern 08- 1100 - 0 0 5 0 Heavy Snow
09 1400EST

A low pressure system near Cape Hatteras at 7:00 a.m. on January 8, moved north-northeast along the Atlantic coast to a position just north of the "hotel" buoy (44004) by 7:00 p.m. on the 8th. The low tracked inside of the "Nantucket" buoy (44008) and then moved east-northeast reaching a position just south of the western tip of Nova Scotia at 7:00 a.m. on the 9th. During the twelve hours from 7:00 p.m. on the 8th to 7:00 a.m. on the 9th, the low deepened 14MB to a 992MB central pressure. The low continued to move toward Newfoundland and the precipitation ended. Northern and mountain sections of Maine recorded 1 to 5 inches of snow while central and southern sections received 6 to 18 inches, with the most falling on the York County coast. There were many auto accidents but no major ones reported. There were no serious injuries or deaths directly attributed to the storm. Some southern and coastal businesses closed early, or remained open Friday night with only skeleton crews. Many Friday afternoon and night, high school athletic events were postponed due to poor travel conditions.

Following is a list of snowfall amounts in inches and by zones:

.....Zone 003.....	.....Zone 004.....
Meddybemps 12 inches	Eastport 7 inches
West Grand Lake 7 inches	Machias 10 inches
.....Zone 007.....	.....Zone 008.....
Bangor 7 inches	Ellsworth 10 inches
Grand Falls 6 inches	Trenton 12 inches
Milford 6 inches	
.....Zone 011.....	.....Zone 010.....
Newcastle 11 inches	Augusta 6 inches
.....Zone 013.....	.....Zone 012.....
Bar Mills 14 inches	Bethel 6 inches
Bonny Eagle 9 inches	New Sharon 6 inches
East Hiram 7 inches	Rumford 7 inches
Gorham 12 inches	.....Zone 014.....
Waterboro 10 inches	Biddeford Pool 18 inches
Windham 10 inches	Brunswick 12 inches
	Kittery 12 inches
	Old Orchard Beach 15 inches
	Portland 12 inches

MEZ002
Northern Interior 14 0400 - 0 0 4 0 High Winds
18 1300 EST

Strong gusty winds and cold temperatures early Thursday morning, combined to break a guy wire and then snapped the power line pole on Finch Hill in Patten, Penobscot County, just off Rte. 11. Approximately 2,500 electric customers in the Patten-Stacyville-Sherman area were powerless for over 8 hours beginning about 4:00 a.m. Four of the six schools in SAD 25 were affected by the outage giving more than 800 students an unexpected day off. Winds were gusting frequently over 25 MPH, with the air temperature around 20° below zero. This produced wind chills of 45° to 60° below zero.

Southern and Central 18 0500 - 0 0 5 0 Freezing Rain
1100 EST

Light freezing rain and sleet created very slick highways across southern and central sections of the state. Police received hundreds of calls of stranded motorists and accidents. A ten mile stretch of Rte. 15 between Kenduskeag and East Corinth was closed for two hours, as was an eight mile stretch of Rte. 136 in Auburn. 40 accidents were reported in the Augusta area with another 60 in Hancock, Penobscot and Piscataquis counties.

MAINE

MEZ001, 002, 003, 005, 25- 2100 - 0 2 5 0 Heavy Snow
006, 007, 008, 009, 26 2000 EST
010, 011, 012, 013, 014

An intensifying low pressure system moved from Georgia to Cape Cod and through the Bay of Fundy to the Gulf of St. Lawrence. The storm brought heavy snow to most of Maine. Power outages were widespread due to the snow being wet and sticky. Power outages affected 20 to 25 thousand homes. Schools were closed and there were many skidding accidents on highways. Total snowfall amounts from the storm were:

.....Zone 001.....	.....Zone 002.....
Mans Hill 13 inches	Houlton 13 inches
Presque Isle 12 inches	Grand Lake 13 inches
Washburn 12 inches	
Portage 12 inches	.....Zone 003.....
Perham 11 inches	Forest City 11 inches
Caribou 10 inches	Vanceboro 8 inches
Limestone 10 inches	W. Grand Lake 6 inches
Daigle 8 inches	Grand Falls 2 inches
Fort Kent 5 inches	Woodland 1 inch
.....Zone 005.....	.....Zone 006.....
Telos Lake 12 inches	Milo 18 inches
Clayton Lake 10 inches	Medway 13 inches
Allagash 9 inches	Guilford 12 inches
Ripogenus 7 inches	Blanchard 12 inches
.....Zone 007.....	.....Zone 008.....
Springfield 13 inches	Moosehead 8 inches
W. Enfield 12 inches	.....Zone 009.....
Milford 10 inches	Bucksport 7 inches
Bangor 9 inches	Searsport 6 inches
	Ellsworth 4 inches
.....Zone 009.....	.....Zone 010.....
Moscow 11 inches	N. Anson 13 inches
Upper Dam 10 inches	Livermore Falls 12 inches
Middle Dam 10 inches	Harmony 11 inches
Phillips 9 inches	Skowhegan 11 inches
Kingfield 9 inches	Waterville 10 inches
Brassua 9 inches	Augusta 9 inches
Eustis 8 inches	Lewiston 8 inches
Flagstaff 8 inches	
Harris Dam 8 inches	.....Zone 012.....
Pittston Farm 6 inches	New Sharon 14 inches
.....Zone 011.....	Lovell 13 inches
Jefferson 7 inches	Rumford 11 inches
Union 6 inches	Bethel 11 inches
Boothbay 4 inches	West Paris 8 inches
.....Zone 013.....	.....Zone 014.....
E. Hiram 13 inches	Brunswick 7 inches
Naples 11 inches	Westbrook 6 inches
Waterboro 9 inches	Saco 6 inches
Bonny Eagle 8 inches	Portland 5 inches
	York 4 inches

February 1988

All Zones 04 0600 - 2 7 6 0 Heavy Snow
2400EST

An intensifying low pressure system moved from the southern New Jersey coast to eastern Nova Scotia, bringing heavy snow to all of Maine. Amounts were generally in the six to ten inch range with a few locations in Washington and Hancock counties getting 12 to 14 inches. Snowfall rates during the height of the storm were around two inches per hour. Schools closed or cancelled classes early. Businesses closed early. There were scattered power outages of up to four hours in some areas. Traveling conditions were extremely poor with low visibility and slippery roadways. There were numerous traffic accidents. Two people, a 21 year old Norridgewock woman and a 22 year old Caribou man, were killed in auto accidents resulting from the poor conditions. Other accidents left seven people injured. The largest accidents were an eight car, two truck pile-up on I-295 in Cumberland and a four car accident on I-95 in Augusta. The following snow amounts were received from the storm:

.....Zone 001.....	.....Zone 002.....
Limestone 8 inches	Sherman Mills 9 inches
Perham 7 inches	Oakfield 9 inches
Fort Kent 6 inches	Hersey 8 inches
Sweden 6 inches	Ludlow 8 inches
Hamlin 6 inches	Houlton 7 inches
Caribou 6 inches	.....Zone 003.....
Washburn 6 inches	W. Grand Lake 14 inches
Mans Hill 6 inches	Vanceboro 12 inches
Portage 5 inches	Forest City 10 inches
.....Zone 004.....	Grand Falls 10 inches
Machias 11 inches	Woodland 9 inches
Eastport 9 inches	

STORM DATA AND UNUSUAL WEATHER PHENOMENA

LATE REPORTS

LATE REPORTS

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	

MAINE

.....Zone 005.....	.....Zone 006.....
Grand Lake 10 inches	Blanchard 9 inches
Telos Lake 8 inches	Sebec 9 inches
Churchill Dam 6 inches	Milo 9 inches
Clayton Lake 4 inches	Millinocket 9 inches
Allagash 2 inches	Medway 9 inches
	Guilford 8 inches
	Moosehead 7 inches

.....Zone 007.....	.....Zone 008.....
Milford 10 inches	Hancock 10 inches
Veazie 10 inches	Winter Harbor 10 inches
Bangor 9 inches	Ellsworth 9 inches
W. Enfield 9 inches	Searsport 8 inches

.....Zone 009.....	.....Zone 010.....
Phillips 8 inches	Lisbon Falls 8 inches
Kingfield 8 inches	Augusta 8 inches
Weld 7 inches	Waterville 8 inches
Moscow 7 inches	Harmony 8 inches
Eustis 7 inches	Livermore Falls 7 inches
Harris Dam 7 inches	

.....Zone 011.....	.....Zone 012.....
Wilson's Mills 7 inches	Lovell 8 inches
Middle Dam 7 inches	West Paris 7 inches
Upper Dam 7 inches	New Sharon 7 inches
Flagstaff 6 inches	Rumford 7 inches
	Bethel 6 inches

.....Zone 013.....	.....Zone 014.....
Waldoboro 9 inches	Kittery 9 inches
Rockland 8 inches	Brunswick 8 inches
	York 8 inches
.....Zone 015.....	.....Zone 016.....
Gorham 9 inches	Portland 7 inches
E. Hiram 9 inches	Old Orchard 7 inches
Waterboro 9 inches	
Bonny Eagle 9 inches	

Aroostook County, Monticello 10 0900EST 0 1 4 0 Snow

A two-car accident in Monticello, blamed on falling snow and poor visibility, left a 59 year old Houlton man suffering from head and back injuries.

All Zones 12- 0530 - 0 1 6 0 Heavy Snow
13 1300EST

An intensifying low pressure system moved from the South Carolina coast through Eastern Maine and into the Canadian Maritimes. The storm brought near-blizzard conditions and the heaviest snowfall of the winter to most of the state. Schools and businesses shut down and white-out conditions made traveling extremely difficult. At the height of the storm, snow was falling at two to three inches per hour. So many vehicles became stuck that roads had to be closed. The Maine Turnpike, I-95, I-295 and U.S. Route 1 were closed from 2:00 P.M. to 9:00 P.M. The largest accidents were a 35 vehicle, chain-reaction pile-up on I-295 at the Fore River Bridge between Portland and South Portland and a 30 car pile-up on Route 1 between Brunswick and Bath. A 26 year old man was injured in a six car accident on I-295 in Falmouth.

More than a foot of snow and wind gusting over 40 MPH were experienced in most areas. The following are new snowfall amounts received.

.....Zone 001.....	.....Zone 002.....
Caribou 15 inches	Houlton 12 inches
Fort Kent 14 inches	Sherman Mills 11 inches
Portage 14 inches	

.....Zone 003.....	.....Zone 004.....
W. Grand Lake 14 inches	Machias 8 inches
Vanceboro 14 inches	Eastport 7 inches
Forest City 13 inches	
Grand Falls 12 inches	
Woodland 12 inches	

.....Zone 005.....	.....Zone 006.....
Grand Lake 15 inches	Blanchard 12 inches
Allagash 13 inches	Medway 12 inches
Telos Lake 13 inches	Moosehead 11 inches
Ripogenus 10 inches	Guilford 11 inches
	Milo 11 inches

.....Zone 007.....	.....Zone 008.....
W. Enfield 12 inches	Ellsworth 9 inches
Milford 11 inches	Bucksport 9 inches
Veazie 10 inches	Brooks 9 inches
Bangor 9 inches	Winter Harbor 8 inches

.....Zone 009.....	.....Zone 010.....
Eustis 18 inches	Poland 18 inches
Flagstaff 15 inches	Lewiston 17 inches
Kingfield 15 inches	Livermore Falls 12 inches
Phillips 14 inches	Augusta 12 inches
Farmington 14 inches	Waterville 12 inches
Upper Dam 14 inches	Skowhegan 12 inches
Middle Dam 14 inches	Harmony 10 inches
Moscow 12 inches	
Harris Dam 11 inches	
Brassua 11 inches	

MAINE

.....Zone 011.....	.....Zone 012.....
Damariscotta 10 inches	Lovell 16 inches
	Bethel 13 inches
.....Zone 013.....	.....Zone 014.....
Waterboro 18 inches	West Paris 13 inches
Bonny Eagle 17 inches	Dixfield 12 inches
Raymond 17 inches	Rumford 11 inches
Sanford 16 inches	New Sharon 10 inches
E. Hiram 15 inches	
Gorham 14 inches	.....Zone 014.....
	Old Orchard 16 inches
	Portland 13 inches
	York 12 inches
	Brunswick 11 inches

March 1988

MEZALL 11 1000- 0 0 4 0 High Wind
Statewide 1800EST

A strong northwest wind whipped across the state. The strongest gust was 61 MPH recorded at Bangor at 2:45 P.M. Other recorded gusts were:

54 MPH at Augusta
51 MPH at Caribou
45 MPH at Limestone
39 MPH at Portland

April 1988

MEZ 001-002-003-005- 16 0200 - 1 6 6 0 Heavy Snow
006-007 2200EST

A low pressure system moved northeast from the middle Atlantic coast through downeast Maine. Heavy snow fell over northern and central portions of the state. The wet heavy snow caused power outages to 13,000 homes. Roads became very slippery and numerous accidents occurred. A 61 year old woman was killed in an accident on snow-slicked Route 302 in Westbrook. Six people were injured in two separate accidents in Dover-Foxcroft. Snowfall amounts were:

.....Zone 001.....	.....Zone 002.....
Limestone 7 inches	Houlton 8 inches
Portage 7 inches	Grand Lake 8 inches
Caribou 7 inches	
Fort Kent 6 inches	.....Zone 003.....
Presque Isle 5 inches	Forest City 8 inches
	Vanceboro 8 inches
.....Zone 005.....	.....Zone 004.....
Telos Lake 9 inches	Grand Falls 3 inches
Ripogenus 8 inches	W. Grand Lake 2 inches
Clayton Lake 7 inches	
Allagash 4 inches	.....Zone 006.....
	Medway 10 inches
.....Zone 007.....	Guilford 10 inches
W. Enfield 9 inches	Milo 9 inches
Milford 8 inches	Blanchard 7 inches
Veazie 7 inches	Moosehead 7 inches
Bangor 5 inches	Millinocket 7 inches
	Cambridge 5 inches

STORM DATA AND UNUSUAL WEATHER PHENOMENA

LATE REPORTS

LATE REPORTS

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	

27 NEW HAMPSHIRE

January 1988

NHZ 005-006-007 04 0030 - 0 2 5 0 Wet Snow
Southern NH 1800 EST

A low pressure area formed off the Carolinas late Sunday, intensifying as it moved north-northeast along the Atlantic coast. It moved through Maine Monday and into the Canadian Maritimes early Tuesday. The storm left about 2 to 5 inches of snow across the state, causing numerous morning rush hour accidents due to the slippery road conditions. No fatalities were reported, but there were two seriously injured. The most serious injury occurred at approximately 9:30 a.m. when a 24 year old male lost control of his small car on Rte. 10 in Gilsom, Cheshire County, and hit a telephone pole. The other injury-producing accident also occurred on Rte. 10 but in Swanzy at 11:45 a.m. The 45 year old male driver broke his hip and breast bone when his car skidded, went over an embankment and hit a tree. Most southern and seacoast communities cancelled school or held delayed openings Monday.

NHZ 003 West-Central New Hampshire 07- 2100 - 0 0 4 0 Strong Winds
08 0500 EST

Strong winds and below zero temperatures, combined to snap a power line pole on Springfield Road in Grantham, Sullivan County, around 9:00 p.m. Thursday. All of Grantham and portions of Springfield and Croyden were without power. About 1,300 electricity customers were without power for approximately 8 hours, and several burst water pipes were reported.

NHZ 003-004-005-005-007 Central and Southern New Hampshire 08- 1000 - 3 0 5 0 Heavy Snow
09 1000 EST

A low pressure system near Cape Hatteras at 7:00 a.m. on January 8, moved north-northeast along the Atlantic coast to a position just north of the "hotel" buoy (44004) by 7:00 p.m. on the 8th. The low tracked inside of the "Nantucket" buoy (44008) and then moved east-northeast reaching a position just south of the western tip of Nova Scotia at 7:00 a.m. on the 9th. During the twelve hours from 7:00 p.m. on the 8th to 7:00 a.m. on the 9th, the low deepened 14MB to a 992MB central pressure. The low continued to move toward Newfoundland and the precipitation ended. The northern and mountain sections of New Hampshire recorded 3 to 5 inches of snow while central and southern sections received 6 to 12 inches, with the most falling on the coast. There were many auto accidents but no major ones were reported. There were no serious injuries but there were three deaths directly attributed to the storm. On Friday night, in New London, Merrimack County, a 33 year old Vermont man was struck and killed by a vehicle in the southbound lane of I-89 just after he left his vehicle, which was stuck in the median strip. A 19 year old female died Saturday morning after losing control of her car on snow-covered Rte. 106 in Loudon, Merrimack County, and crashing into an oncoming vehicle. Also Saturday, a 60 year old woman died in North Conway, Carroll County, when her car slid into a pickup truck. Some southern and coastal businesses closed early or remained open Friday night with only skeleton crews. Most Friday afternoon and night, high school athletic events were postponed due to poor travel conditions. Snow on power lines left about 100 residences without electricity in Farmington, Strafford County, for several hours beginning at 5:00 p.m. on Friday. Following is a list of snowfall amounts in inches and by zones:

.....Zone 003.....	.....Zone 004.....
Bradford 9 inches	Blackwater Dam 8 inches
Bristol 6 inches	Franklin Falls Dam 8 inches
Lebanon 6 inches	North Conway 4 inches
.....Zone 005.....	.....Zone 006.....
Keene 8 inches	Concord 9 inches
MacDowell Dam 9 inches	Durham 8 inches
Milford 10 inches	East Derry 8 inches
Otter Brook Dam 8 inches	Francestown 10 inches
Surry Mtn. Dam 8 inches	Greenland 7 inches
Walpole 7 inches	Mont Vernon 10 inches
	Greenville 10 inches
.....Zone 007.....	Nashua 8 inches
Portsmouth 12 inches	Rochester 10 inches

Statewide 13 0600 - 0 4 5 0 Wet Snow
0900 EST

A mixture of wet snow, sleet, and freezing rain made highways slick, causing many accidents. There were eight accidents on the Everett Turnpike and a four car pile-up on I-93 in Salem.

Statewide 18 0300 - 1 4 5 0 Freezing Rain
0900 EST

Light freezing rain and sleet created very slick highways across the state. Accidents were numerous and roads had to be closed in many areas. I-89 was closed for three hours in Hopkinton. A 61 year old woman was killed on I-89 in Grantham.

NEW HAMPSHIRE

NHZ 001-002-003-004- 25- 1900 - 0 0 5 0 Heavy Snow
005-006 26 1500 EST

An intensifying low pressure system moved from Georgia to Cape Cod and through the Bay of Fundy to the Gulf of St. Lawrence. The storm brought heavy snow to all but coastal sections of the state. Power was out to approximately 4,000 homes due to the snow being wet and sticky in southern sections. Schools were closed or delayed openings. Total snowfall amounts were:

.....Zone 001.....	.....Zone 002.....
Big Diamond Pond 12 inches	Pinkham Notch 12 inches
Berlin 11 inches	Gorham 11 inches
Pittsburg 11 inches	Comerford 10 inches
1st Conn. Lake 10 inches	Bethlehem 9 inches
Jefferson 10 inches	Lisbon 8 inches
N. Stratford 10 inches	Glencliff 8 inches
Stark 8 inches	Franconia 8 inches
Dalton 8 inches	Lincoln 7 inches
.....Zone 003.....	.....Zone 004.....
Bradford 12 inches	Lakeport 12 inches
Newport 12 inches	Franklin 12 inches
Springfield 12 inches	Blackwater Dam 12 inches
Danbury 12 inches	Loudon 11 inches
Lebanon 11 inches	Gilford 10 inches
Bristol 10 inches	N. Conway 10 inches
Enfield 9 inches	Barnstead 9 inches
W. Rumney 8 inches	Plymouth 8 inches
	Tamworth 8 inches
.....Zone 005.....	.....Zone 006.....
Munsonville 10 inches	Mt. Vernon 13 inches
Walpole 9 inches	Hopkinton Dam 11 inches
Swanzy 9 inches	Francestown 11 inches
Surry Mtn. Dam 8 inches	Milford 10 inches
Keene 5 inches	Rochester 8 inches
	Concord 7 inches
	Dover 6 inches
	E. Derry 6 inches
	Manchester 6 inches
	Nashua 5 inches
	Salem 5 inches

February 1988

All Zones 04 0500 - 2 6 6 0 Heavy Snow
2200EST

An intensifying low pressure system moved from the southern New Jersey coast to eastern Nova Scotia, bringing heavy snow to all of New Hampshire. Amounts were generally in the six to ten inch range with a few locations in Sullivan and Hillsborough counties getting 12 inches. Snowfall rates during the height of the storm were around two inches per hour. Schools closed or cancelled classes early. Businesses closed early. Traveling conditions were extremely poor with low visibility and slippery roadways. There were many traffic accidents. One person, a 70 year old man, was killed in Laconia in a crash involving his car and a snowplow. A 67 year old Bedford man was stricken by a heart attack and died while shoveling snow. The following snow amounts were received from the storm:

.....Zone 001.....	.....Zone 002.....
Errol 9 inches	Crawford Notch 9 inches
Stark 8 inches	Lincoln 8 inches
Dalton 8 inches	Pinkham Notch 7 inches
Dixville 8 inches	Franconia 7 inches
Berlin 7 inches	Comerford 7 inches
N. Stratford 7 inches	Glencliff 5 inches
Big Diamond 6 inches	.....Zone 003.....
Pittsburg 5 inches	Enfield 12 inches
1st Conn. Lake 5 inches	Marlow 10 inches
	Sutton 9 inches
.....Zone 004.....	Lebanon 8 inches
W. Rumney 11 inches	.....Zone 005.....
Lakeport 11 inches	Walpole 10 inches
Chocorua 9 inches	Surry Mtn. Dam 8 inches
Bristol 9 inches	MacDowell Dam 8 inches
Blackwater Dam 9 inches	Otter Brook Dam 7 inches
Franklin 9 inches	Swanzy 7 inches
Barnstead 8 inches	.....Zone 006.....
	Francestown 12 inches
	Hopkinton Dam 11 inches
	Greenville 11 inches
	Merrimack 10 inches
	Nashua 9 inches
	Hooksett 9 inches
	E. Derry 9 inches
	Salem 9 inches
	Dover 8 inches
	Concord 7 inches
	.....Zone 007.....
	Portsmouth 9 inches
	Hampton 8 inches

STORM DATA AND UNUSUAL WEATHER PHENOMENA

LATE REPORTS

PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM																																																																		
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All Zones	12	0400 - 2200EST			1	3	6	0	Heavy Snow																																																																		
<p>An intensifying low pressure system moved from the South Carolina coast through Eastern Maine and into the Canadian Maritimes. The storm brought near-blizzard conditions and the heaviest snowfall of the winter to most of the state. Schools and businesses shut down and white-out conditions made traveling extremely difficult and disrupted Presidential Primary campaigning. During the height of the storm, snow fell at two to three inches per hour and the wind was gusting to 40 MPH. Traffic accidents were numerous. A 54 year old woman was killed and a 55 year old man injured in an auto accident in Littleton. The following were new snowfall amounts received:</p>																																																																											
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">.....Zone 001.....</td> <td style="width: 50%;">.....Zone 002.....</td> </tr> <tr> <td>Berlin 19 inches</td> <td>Gorham 16 inches</td> </tr> <tr> <td>Errol 15 inches</td> <td>Pinkham Notch 15 inches</td> </tr> <tr> <td>No. Stratford 13 inches</td> <td>Comerford 14 inches</td> </tr> <tr> <td>Big Diamond 11 inches</td> <td>Lincoln 10 inches</td> </tr> <tr> <td>Stark 10 inches</td> <td>Glencliff 10 inches</td> </tr> <tr> <td>Dalton 8 inches</td> <td>Bethlehem 9 inches</td> </tr> <tr> <td>Pittsburg 7 inches</td> <td></td> </tr> <tr> <td>1st Conn. Lake 7 inches</td> <td>.....Zone 003.....</td> </tr> <tr> <td></td> <td>Lebanon 17 inches</td> </tr> <tr> <td>.....Zone 004.....</td> <td>Marlow 17 inches</td> </tr> <tr> <td>Lakeport 16 inches</td> <td>Enfield 16 inches</td> </tr> <tr> <td>Sanbornville 15 inches</td> <td>Bradford 15 inches</td> </tr> <tr> <td>Gilford 13 inches</td> <td>Sutton 15 inches</td> </tr> <tr> <td>Franklin 13 inches</td> <td>Danbury 14 inches</td> </tr> <tr> <td>Blackwater Dam 13 inches</td> <td>Springfield 11 inches</td> </tr> <tr> <td>Conway 12 inches</td> <td></td> </tr> <tr> <td>No. Conway 11 inches</td> <td>.....Zone 005.....</td> </tr> <tr> <td>Barnstead 12 inches</td> <td>Otter Brook Dam 13 inches</td> </tr> <tr> <td>Tanworth 10 inches</td> <td>Swanzy 12 inches</td> </tr> <tr> <td></td> <td>Walpole 11 inches</td> </tr> <tr> <td>.....Zone 006.....</td> <td>Surry Mtn. Dam 10 inches</td> </tr> <tr> <td>Francesstown 18 inches</td> <td></td> </tr> <tr> <td>Northwood 16 inches</td> <td>.....Zone 007.....</td> </tr> <tr> <td>Rochester 15 inches</td> <td>Hampton 15 inches</td> </tr> <tr> <td>Dover 15 inches</td> <td>Portsmouth 12 inches</td> </tr> <tr> <td>Salem 15 inches</td> <td></td> </tr> <tr> <td>Hooksett 14 inches</td> <td></td> </tr> <tr> <td>Nashua 14 inches</td> <td></td> </tr> <tr> <td>E. Derry 13 inches</td> <td></td> </tr> <tr> <td>Merrimack 12 inches</td> <td></td> </tr> <tr> <td>Concord 11 inches</td> <td></td> </tr> <tr> <td>Mt. Vernon 11 inches</td> <td></td> </tr> </table>									Zone 001.....Zone 002.....	Berlin 19 inches	Gorham 16 inches	Errol 15 inches	Pinkham Notch 15 inches	No. Stratford 13 inches	Comerford 14 inches	Big Diamond 11 inches	Lincoln 10 inches	Stark 10 inches	Glencliff 10 inches	Dalton 8 inches	Bethlehem 9 inches	Pittsburg 7 inches		1st Conn. Lake 7 inchesZone 003.....		Lebanon 17 inchesZone 004.....	Marlow 17 inches	Lakeport 16 inches	Enfield 16 inches	Sanbornville 15 inches	Bradford 15 inches	Gilford 13 inches	Sutton 15 inches	Franklin 13 inches	Danbury 14 inches	Blackwater Dam 13 inches	Springfield 11 inches	Conway 12 inches		No. Conway 11 inchesZone 005.....	Barnstead 12 inches	Otter Brook Dam 13 inches	Tanworth 10 inches	Swanzy 12 inches		Walpole 11 inchesZone 006.....	Surry Mtn. Dam 10 inches	Francesstown 18 inches		Northwood 16 inchesZone 007.....	Rochester 15 inches	Hampton 15 inches	Dover 15 inches	Portsmouth 12 inches	Salem 15 inches		Hooksett 14 inches		Nashua 14 inches		E. Derry 13 inches		Merrimack 12 inches		Concord 11 inches		Mt. Vernon 11 inches	
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Southern New Hampshire	04	0800 - 1800EST			0	1	6	0	Snow																																																																		
<p>A light snow of three to five inches fell on southern New Hampshire, causing roads to become very slippery and resulting in many accidents. An 18 year old man was injured in an accident in Hudson.</p>																																																																											
April 1988																																																																											
Coos, Grafton, Carroll and Belknap Counties	29	0500 - 2200EST			0	0	5	0	Flooding																																																																		
<p>A slow-moving low pressure system moved northeast from the Central Appalachians and brought heavy rains to central and northern parts of the state. Rainfall amounts up to 4.50 inches caused flooding of rivers and streams. Many roads were closed in Coos, Grafton, Carroll and Belknap counties. Many of the roads received washouts that took several days to repair. Classes were disrupted by the flood at Plymouth State College where the Pemigewasset River crested 4.5 feet above flood stage.</p>																																																																											

STORM SUMMARY

LATE REPORTS

TYPE	MAINE		NEW HAMPSHIRE		MAINE		NEW HAMPSHIRE		MAINE		NEW HAMPSHIRE	
	JAN 1988		FEB 1988		MAR 1988		APR 1988					
TORNADOES												
Number												
Days												
Deaths												
Injuries												
Property Damage												
Crop Damage												
HAIL												
Deaths												
Injuries												
Property Damage												
Crop Damage												
THUNDERSTORM WINDS												
Deaths												
Injuries												
Property Damage												
Crop Damage												
HIGH WINDS												
Deaths	0	0			0	0						
Injuries	0	0			0	0						
Property Damage	4	4			4	4						
Crop Damage	0	0			0	0						
LIGHTNING												
Deaths												
Injuries												
Property Damage												
Crop Damage												
FLASH FLOODS												
Deaths												
Injuries												
Property Damage												
Crop Damage												
FLOODS												
Deaths									0			
Injuries									5			
Property Damage									0			
Crop Damage									0			
HEAVY SNOWSTORMS AND BLIZZARDS @												
Deaths	0	0	0	0	0	0						
Injuries	0	0	0	0	0	0						
Property Damage	5	5	6	6	6	6						
Crop Damage	0	0	0	0	0	0						
ICE STORMS #												
Deaths	0	0										
Injuries	0	0										
Property Damage	5	5										
Crop Damage	0	0										
HURRICANES AND TROPICAL STORMS												
Deaths												
Injuries												
Property Damage												
Crop Damage												
ALL OTHERS												
Deaths												
Injuries												
Property Damage												
Crop Damage												

CORRECTIONS

TYPE	OREGON	OKLAHOMA	FLORIDA	TEXAS
	MAR 1988	MAY 1988	JUN 1988	JUN 1988
TORNADOES				
Number	0	2	5	7
Days	0	2	5	5
Deaths	0	0	0	0
Injuries	0	0	2	0
Property Damage	0	4	4	4
Crop Damage	0	?	0	?
HAIL				
Deaths				
Injuries				
Property Damage				
Crop Damage				
THUNDERSTORM WINDS				
Deaths	0			
Injuries	0			
Property Damage	?			
Crop Damage	?			
HIGH WINDS				
Deaths				
Injuries				
Property Damage				
Crop Damage				
LIGHTNING				
Deaths				
Injuries				
Property Damage				
Crop Damage				
FLASH FLOODS				
Deaths				
Injuries				
Property Damage				
Crop Damage				
FLOODS				
Deaths				
Injuries				
Property Damage				
Crop Damage				
HEAVY SNOWSTORMS AND BLIZZARDS @				
Deaths				
Injuries				
Property Damage				
Crop Damage				
ICE STORMS #				
Deaths				
Injuries				
Property Damage				
Crop Damage				
HURRICANES AND TROPICAL STORMS				
Deaths				
Injuries				
Property Damage				
Crop Damage				
ALL OTHERS				
Deaths				
Injuries				
Property Damage				
Crop Damage				

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM DAMAGE CATAGORIES

REFERENCE NOTES

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

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

Definition of Fujita Tornado Scale (F scale)

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

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

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

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

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

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

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

(F0+F1) *Weak Tornado*

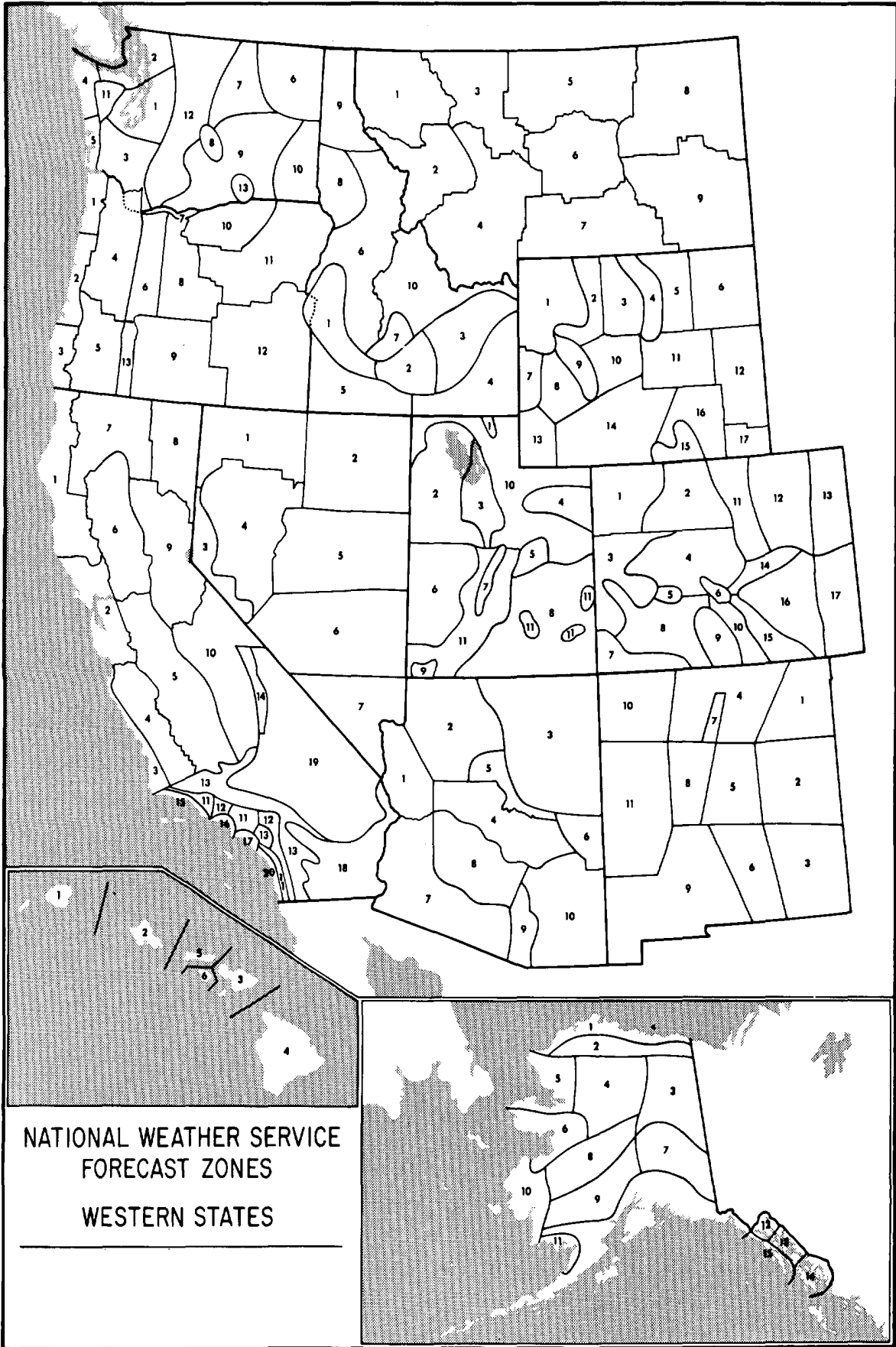
(F2+F3) *Strong Tornado*

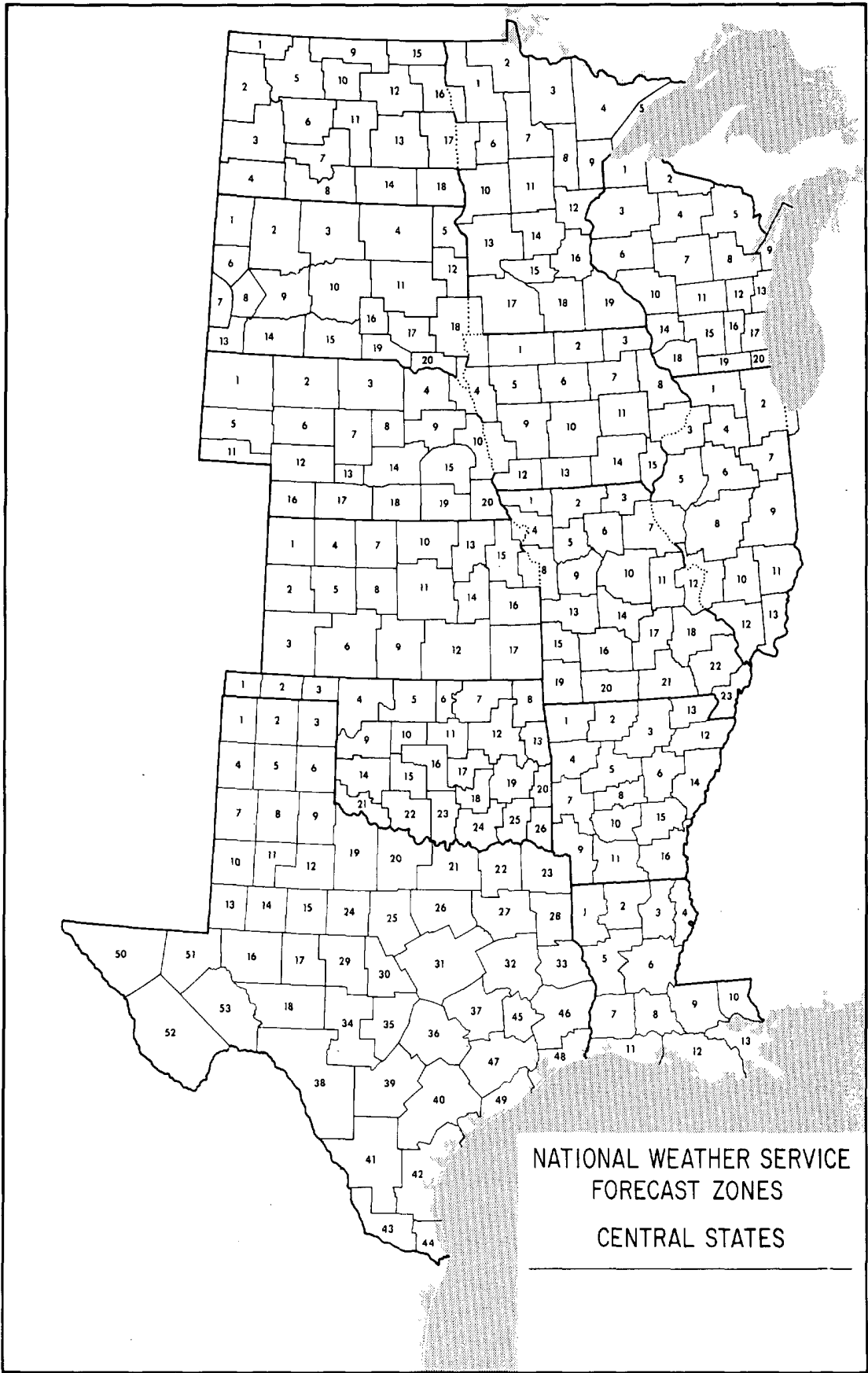
(F4+F5) *Violent Tornado*

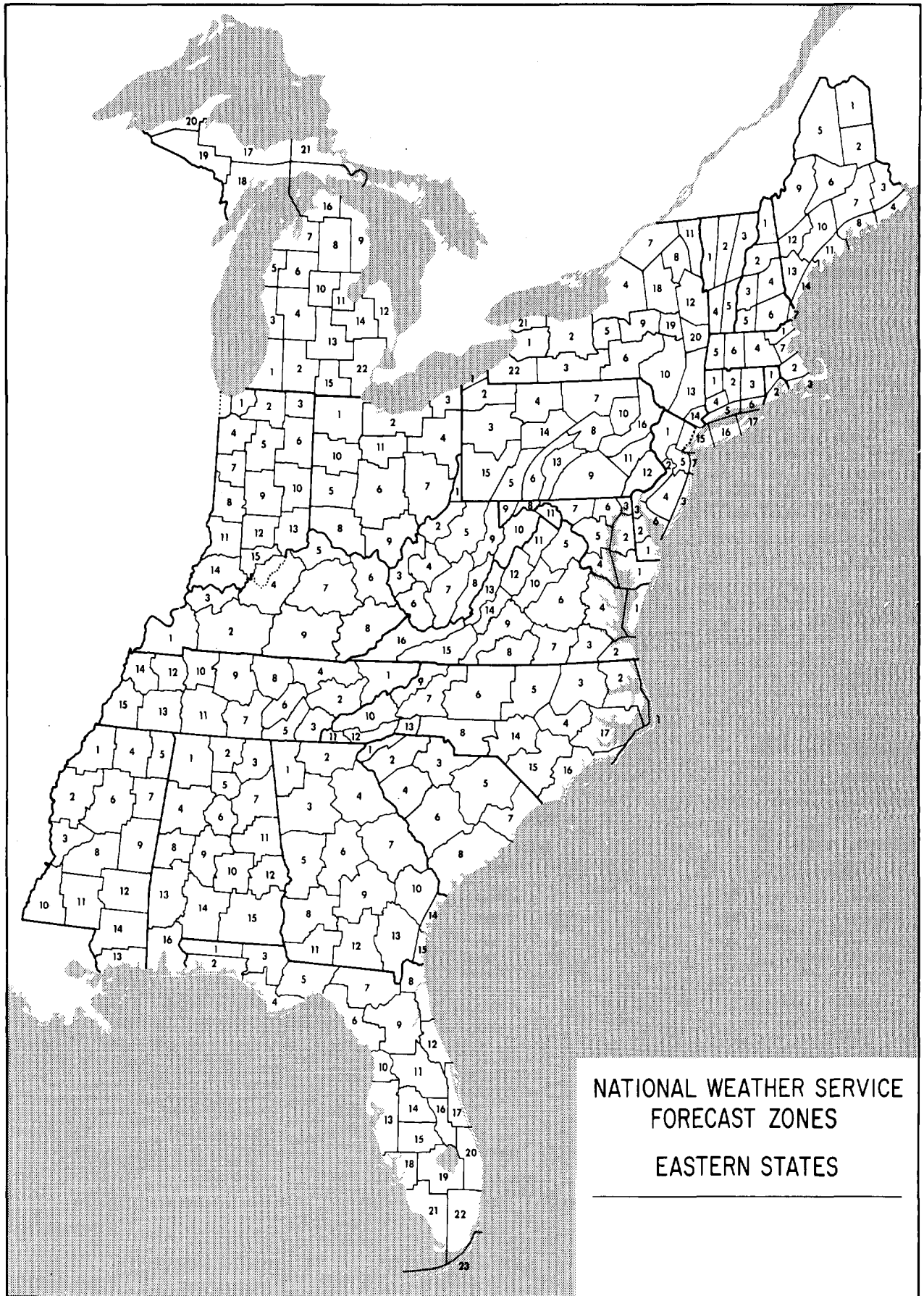


From J. Atmos. Sci., August 1981, p. 1517-1519

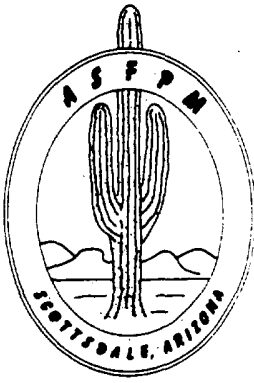
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NATIONAL WEATHER SERVICE
FORECAST ZONES
EASTERN STATES



Association of State Floodplain Managers 13th Annual Conference



Scottsdale, Arizona
May 22-25, 1989

PARTNERSHIPS: Effective Flood Hazard Management

Most effective efforts involve **Partnerships**. The formulation and functioning of these partnerships are important to understand in order to build good relationships for better projects with the best results. This year's conference theme focuses on the effectiveness of networking and partnerships to create and implement solutions, programs, and projects to reduce flooding hazards and damages.

ABOUT THE CONFERENCE

The technical conference will be held Tuesday, Wednesday, and Thursday and will include a field trip in the Phoenix-Scottsdale area. The conference will feature one track of concurrent sessions dealing specifically with the floodplain management problems of the Arid West. The ASFPM will conduct its committee and general membership meetings on Monday. All members and prospective members are invited to participate. A technical field trip including dinner is scheduled one evening. Optional field trips and spouse activities will be available.

REGISTRATION RATES

Registration prior to April 15, 1989 will be \$150 for members, \$165 for non-members, and \$65 for students and local government officials from the State of Arizona.

EXHIBIT SPACE

Exhibit space will be made available for a fee to individuals and organizations who wish to display a product or service to conference attendees. Information on exhibit space can be acquired from Susan Josheff, Exhibits Coordinator, at the address below.

ABOUT SCOTTSDALE

Scottsdale is noted throughout the country for its creative approach to city planning. Running the length of the City is the Indian Bend Wash Greenbelt, a 7.5 mile long flood control project that uses a system of parks, lakes, and golf courses as an alternative to a conventional concrete channel. This greenbelt offers endless recreational opportunities including fishing, sailing and other sports.

Scottsdale's quality lifestyle includes well-planned living, working and shopping areas, pleasant neighborhoods and residential areas protected from traffic and noise. The City's emphasis on mountain conservation and protection of its rich desert areas is reknown nationally. Scottsdale is also recognized for its architectural and landscape design excellence and rich cultural, business and recreational environments. The City is proud of its vital downtown areas. The ambiance of Scottsdale reflects a unique blend of traditional Western and modern living.

The conference will be held at the Wyndham Paradise Valley Resort in Scottsdale, Arizona. Conference room rates are \$53 single, and \$63 double. Paradise Valley Resort is an exceptional facility which showcases Scottsdale's best features.

CONFERENCE HOST: Arizona Department of Water Resources

CONFERENCE DIRECTOR

Jim Morris
Arizona Department
of Water Resources
15 S. 15th Avenue
Phoenix, Arizona 85007
(602) 255-1566

PROGRAM CHAIR

Rebecca Q. Hughes
Maryland DNR
Water Resources Admin.
Tawes State Office Bldg. D-3
Annapolis, Maryland 21401
(301) 974-3825

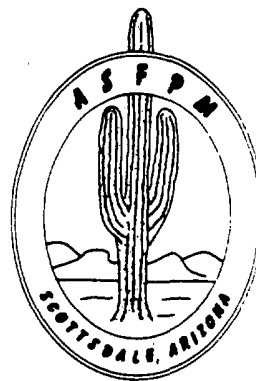
EXHIBITS COORDINATOR

Susan Josheff
Wisconsin DNR
P.O. Box 7921 (WZ/6)
Madison, Wisconsin 53707
(608) 266-2151



Association of State Floodplain Managers 13th Annual Conference

Scottsdale, Arizona
May 22-25, 1989



PARTNERSHIPS: Effective Flood Hazard Management

The Association of State Floodplain Managers (ASFPM) is a national organization. Its goal is the reduction of flood damages and hazards through sound floodplain management. Its members include representatives of local, state, and federal governments as well as those of the private and non-profit communities. The Association sponsors an annual conference on the state-of-the-art in flood damage and hazard reduction. Conference topics always span a broad spectrum of issues of interest to those involved in floodplain management, including the following:

- Effectively integrating watershed-wide floodplain management concerns with local planning and zoning.
- Status of "temporary taking" and other legal issues: what's happening in the courts?
- Case histories of communities under sanction for non-compliance with the NFIP.
- A decade of Section 406 Hazard Mitigation Planning: have we made progress?
- Reducing flood loss potential: what works?
- Do federal programs adequately address state and local needs?
- Multi-objective projects: what makes them successful?
- Improving flood prevention and awareness programs aimed at local officials and private property owners.
- How can we improve technical assistance to small communities?
- What's new and improved in the field of floodproofing?

* * * MORE INFORMATION INSIDE * * *

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