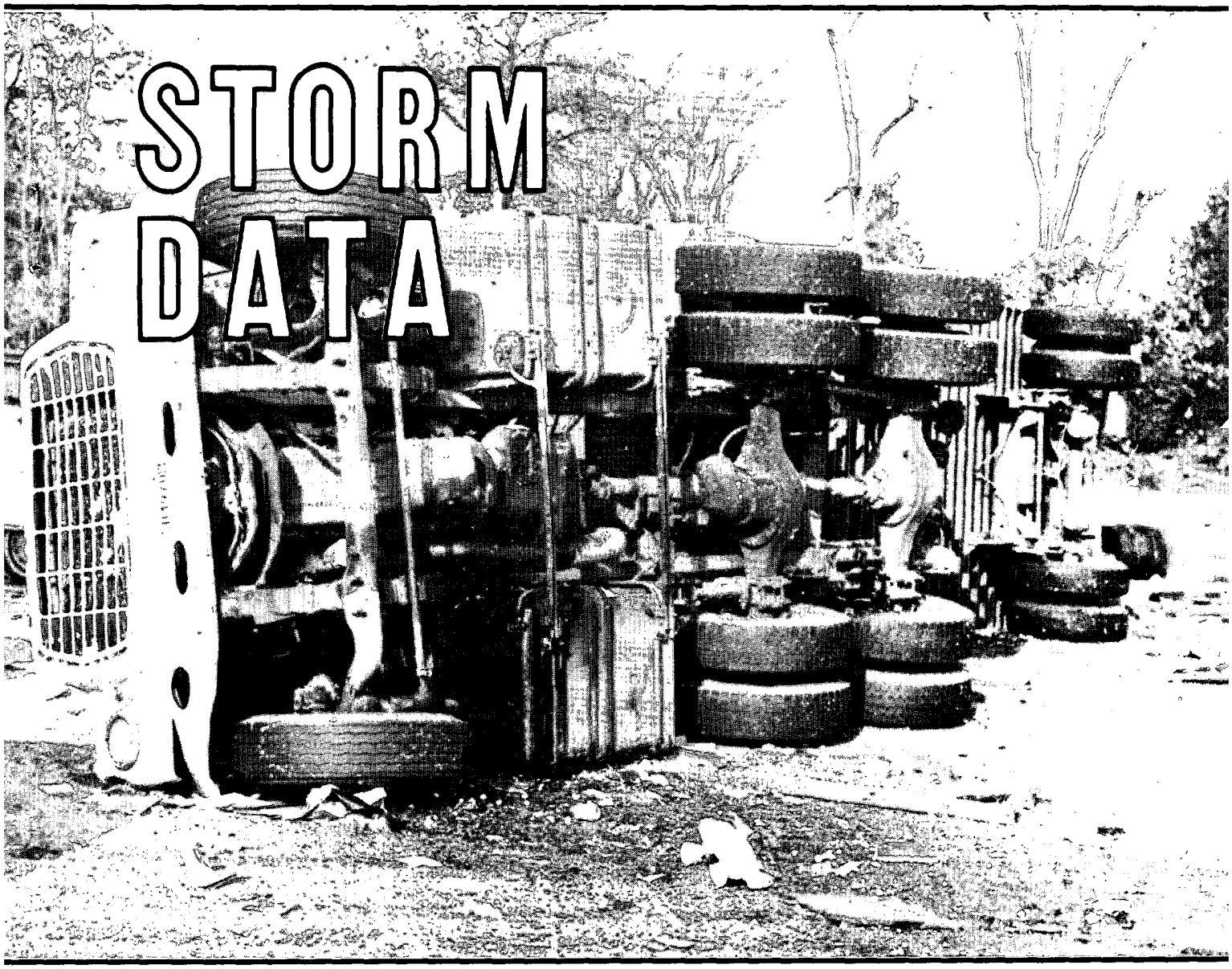
NOVEMBER 1990
VOLUME 32
NUMBER 11



AND UNUSUAL WEATHER PHENOMENA
WITH LATE REPORTS AND CORRECTIONS

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE / NATIONAL CLIMATIC DATA CENTER ASHEVILLE, N.C.

COVER: Overturned tractor-semitrailer in O'Fallon, MO on November 27th after a tornado (F2) cut a swath of damage estimated at $20 to $30 million. The truck was in the parking lot of a publishing company that was also heavily damaged. *Photo courtesy: Photographer-Joseph Pedigo; supplied by Guy Tucker, NWS St. Charles, MO.*

CONTENTS

STORM DATA

(ISSN 0039-1972)
National Climatic Data Center
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Associate Editor: Vince Miller
Publication Staff: Lanny Dimmick, Jay Hollifield, Mary Ann Byrd, and Sara Lackey

STORM DATA is prepared, funded, and distributed by the National Oceanic and Atmospheric Administration (NOAA). The Outstanding Storms of the Month section is prepared in cooperation with Mr. Vince Miller, Associate Editor. He is a broadcast meteorologist for THE WEATHER CHANNEL® in Atlanta, Georgia.

The Storm Data and unusual Weather Phenomena Narratives and Hurricane/Tropical Storm summaries are prepared by the National Weather Service. Monthly and annual statistics and summaries of tornado and lightning events resulting in deaths, injuries, and damage are compiled by cooperative efforts between the National Climatic Data Center and the National Severe Storms Forecast Center.

STORM DATA contains all confirmed information on storms available to our staff at the time of publication. However, due to difficulties inherent in the collection of this type of data, it is not all-inclusive. Late reports and corrections are printed in each edition.

Maps of the National Weather Service Forecast Zones which are used in the Storm Data and Unusual Weather Phenomena section will be printed in all editions.

Except for the limited editing for grammatical errors, material submitted are generally published as received.

Subscription, pricing, and ordering information is available from:

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Asheville, NC 28801-2696
(704) 259-0682 or (704) CLIMATE

The editors of **STORM DATA** solicit your help in acquiring photographs (prints or slides; black and white, or color), maps, clippings, etc. of significant or unusual weather events (past or present). These could be for use in the "Outstanding Storms of the Month" or "Et Cetera" sections of **STORM DATA**. We request our subscribers or other interested persons to mail such items to:

Mr. Vince Miller
1464 Wood Thrush Way
Marietta, GA 30062

Any such items received by the editors will be for use in **STORM DATA** only. Any other use will be with the permission of the owner of said items. Materials submitted will be returned if requested in the original submission.

"I certify that this is an official publication of the National Oceanic and Atmospheric Administration and is compiled from information received at the National Climatic Data Center, Asheville, North Carolina 28801."

Kenneth D Hadeen

Director
National Climatic Data Center

STORM FOLKS . . .

Biographical Sketch
JIM KRAMPER

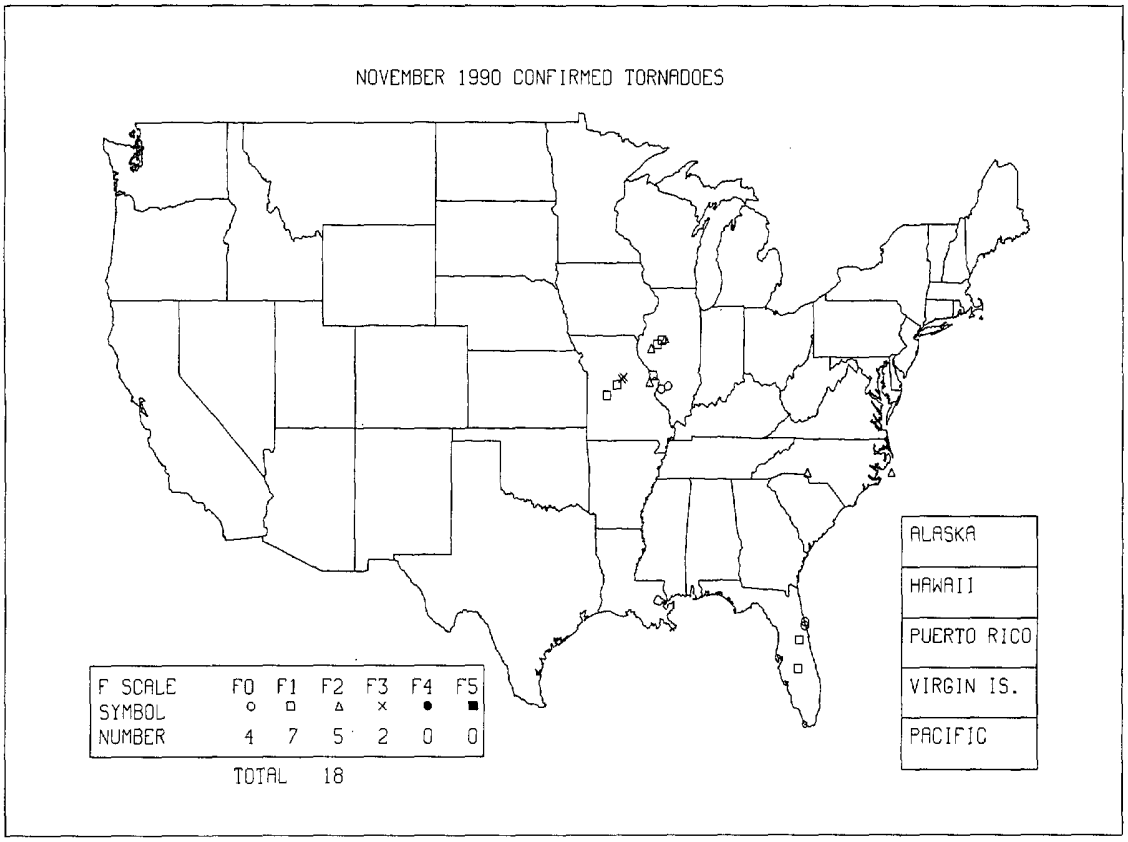
Jim Kramper has been the Warning and Preparedness Meteorologist (WPM) at the Weather Service Forecast Office (WSFO) in Little Rock, Arkansas, since June of 1989. He began his weather service career in 1985 in Cheyenne, Wyoming, where he served as a Meteorological Intern.

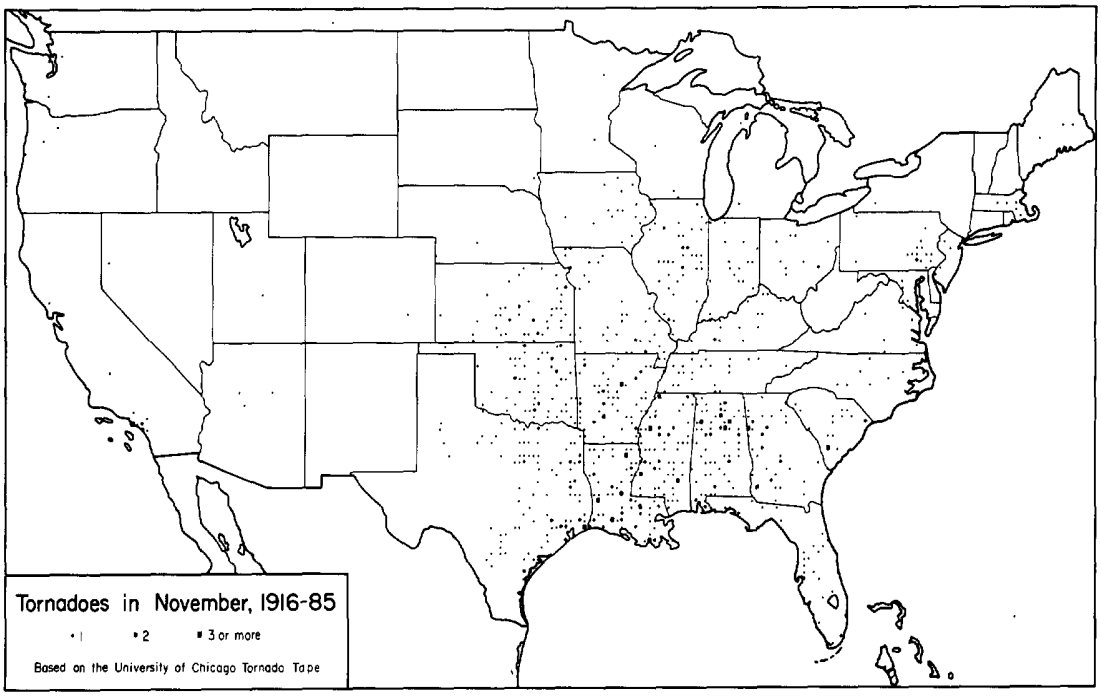
Born and raised in St. Louis, Missouri, Jim attended Parks College of St. Louis University and earned his B.S. Degree in Meteorology in 1979. He then went to work for St. Louis University where he was supervisor of government contracts. In 1984, Jim founded a private weather firm which specialized in forecasting for the media, consulting work, and government contracts.

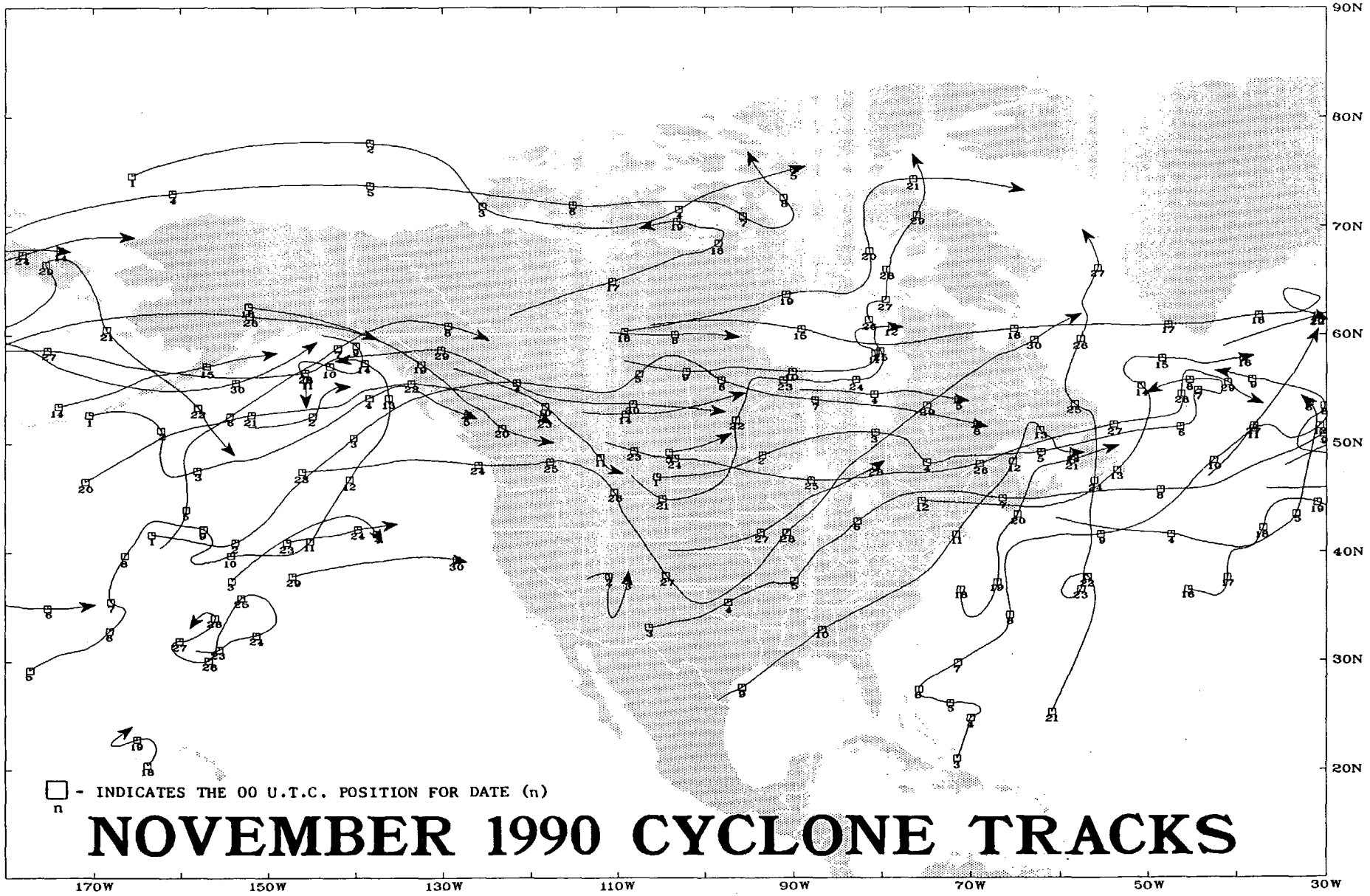
Jim has already been honored for his work as WPM at Little Rock. In October 1990, he received the award for Outstanding Contribution to Public Education from the National Weather Association. Jim was recognized for his many accomplishments toward increasing public awareness and understanding of severe weather in Arkansas.

Jim lives in Sherwood, Arkansas, with his wife, Linda, and children, Jason and Sara.

OUTSTANDING STORMS OF THE MONTH



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NOVEMBER 1990 CYCLONE TRACKS

1. PRECIPITATION AND TEMPERATURE ANOMALIES - NOVEMBER 1990

Table 1 lists the 96-year temperature and precipitation rankings for the nine climatically homogeneous regions depicted by Fig. 1 below.

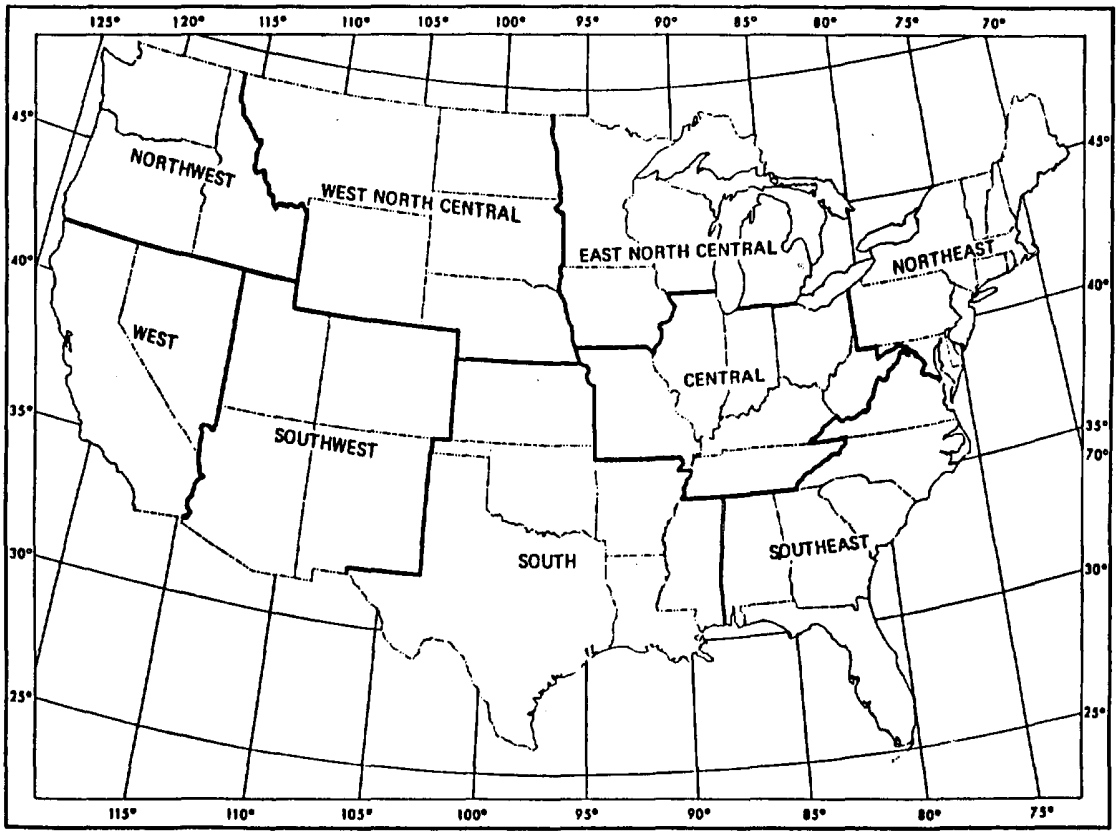
TABLE 1. TEMPERATURE AND PRECIPITATION RANKINGS FOR NOVEMBER 1990, BASED ON THE PERIOD 1895-1990 (96 YEARS) WHERE 1 = DRIEST/COLDEST, 96 = WETTEST/HOTTEST.

REGION	PRECIPITATION	TEMPERATURE
Northeast	43	83
East North Central	49	88
Central	53	93
Southeast	26	80
West North Central	30	79
South	57	88
Southwest	53	66
Northwest	41	75
West	10	43
National	28	91

From National Climatic Data Center

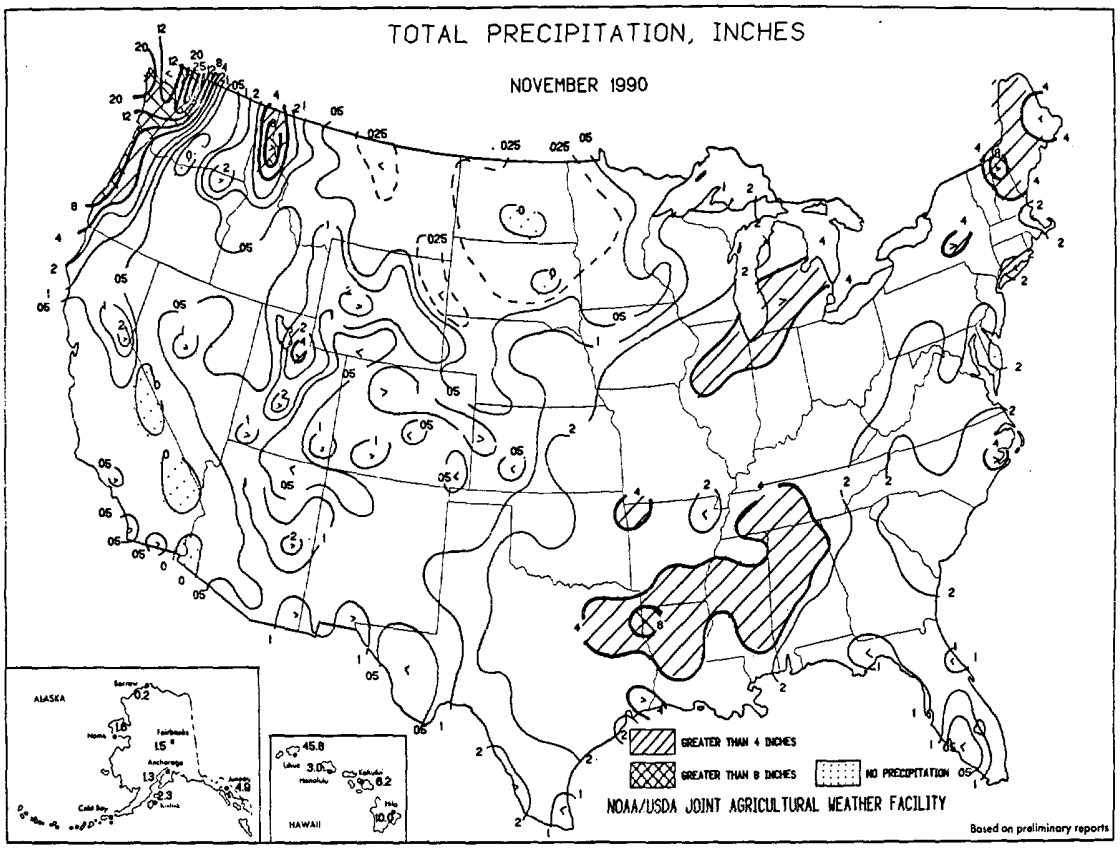
The Pacific Northwest coastal areas and the Hawaiian Islands experienced a very wet November as subtropical storms brought torrential rains that produced widespread flooding and considerable damage. The southern Pacific coast and inland areas endured drier-than-normal conditions. A series of storms produced ample precipitation for the southern two-thirds of the nation's midsection from the Rockies eastward to the Mississippi Valley and most of the Great Lakes region. The interior portions of Alaska were wetter than normal, while coastal sections were somewhat drier. Less than half of the normal precipitation occurred in the Northern Plains and much of the Southeast. Figures 2 and 3 on the opposite page depict the total precipitation and percentage of normal precipitation for November. Record-breaking daily high temperatures were common during November. Several extreme maximum temperatures as well as several highest monthly average temperatures also were set in November 1990. The only area of the U.S. that recorded significantly below normal temperatures for November 1990 was Alaska. (See Fig. 4 on page 8).

Fig. 1



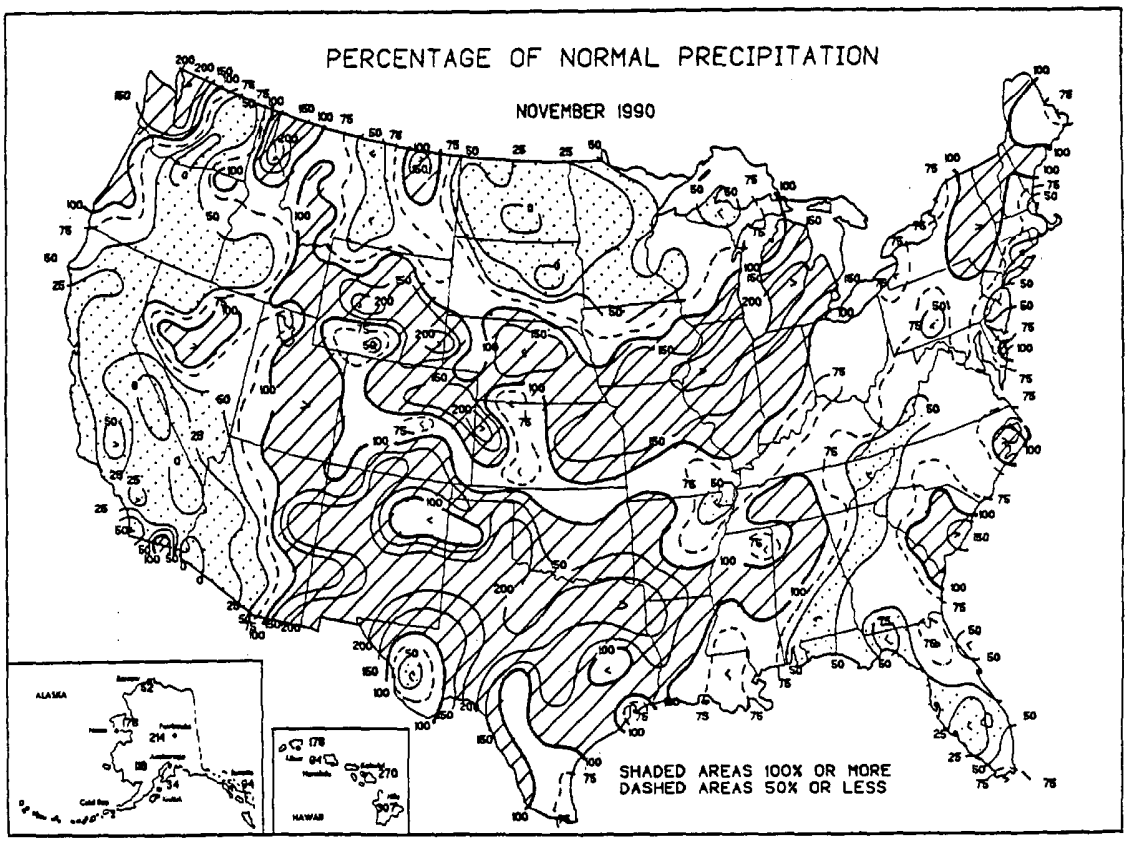
From National Climatic Data Center

Fig. 2



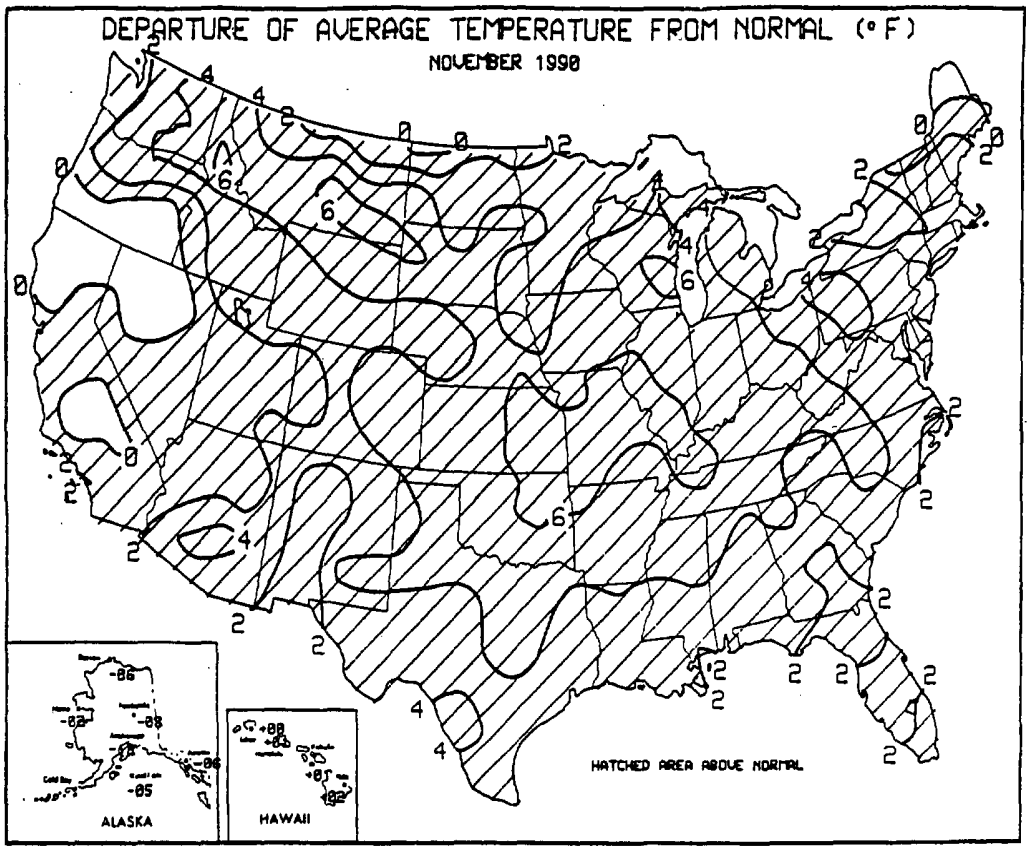
Reprinted from Weekly Weather and Crop Bulletin - December 11, 1990

Fig. 3



Reprinted from Weekly Climate Bulletin - December 8, 1990

Fig. 4



Reprinted from the Weekly Climate Bulletin - December 8, 1990

2. FLOODING IN WASHINGTON

The Pacific Northwest got a good start in its 1990 rainy season as a storm track dubbed the "Pineapple Express" dumped heavy rains from Hawaii northeastward to the U.S. mainland's northern Pacific coastal region. Widespread severe flooding resulted from heavy rains in Washington from the 8th through the 14th and again from the 23rd through the 25th.

NOVEMBER 9-14, 1990 FLOODING

The "Pineapple Express" brought torrential rains to portions of Washington early in November. Heavy rain began falling over the northern sections of western Washington and the state's Cascade Mountains in the afternoon of the 8th and continued until tapering off in the afternoon of the 10th.

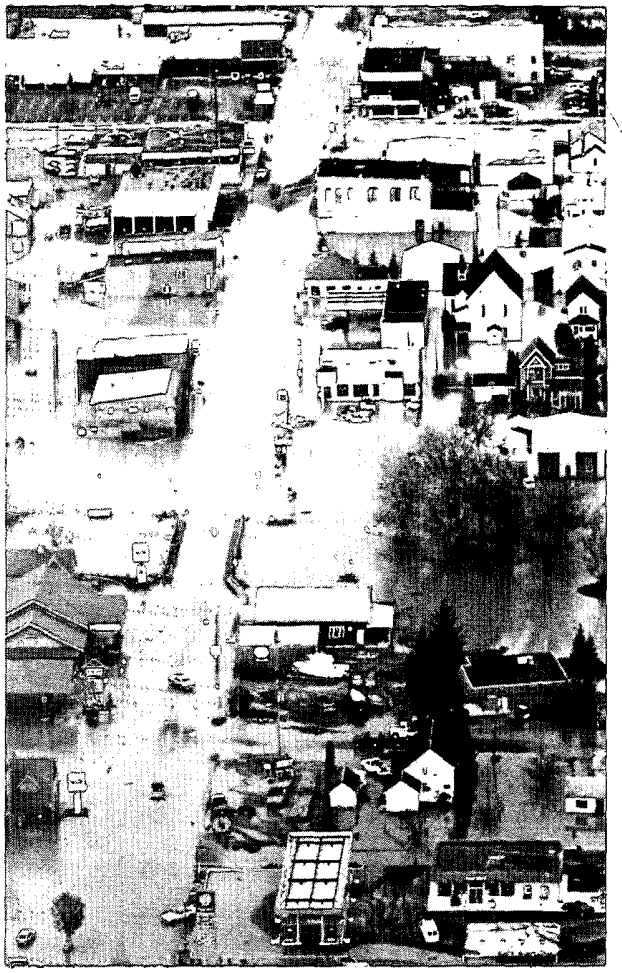
The Nooksack, Skagit, Skykomish, and Snoqualmie rivers had swollen to above flood stage by midday on the 9th. Within the next 24 hours, five additional rivers exceeded flood stage: the Elwah, Snohomish, Stilliguamish, Cedar, and White rivers.

All rivers except the Skagit River had receded to below flood stage by the 13th when another frontal system reached Washington. Although the precipitation amount was considerably less than the deluge of the 9th and 10th, the Nooksack and Cedar rivers again swelled beyond flood stage--fortunately the rainfall diminished early on the 14th.

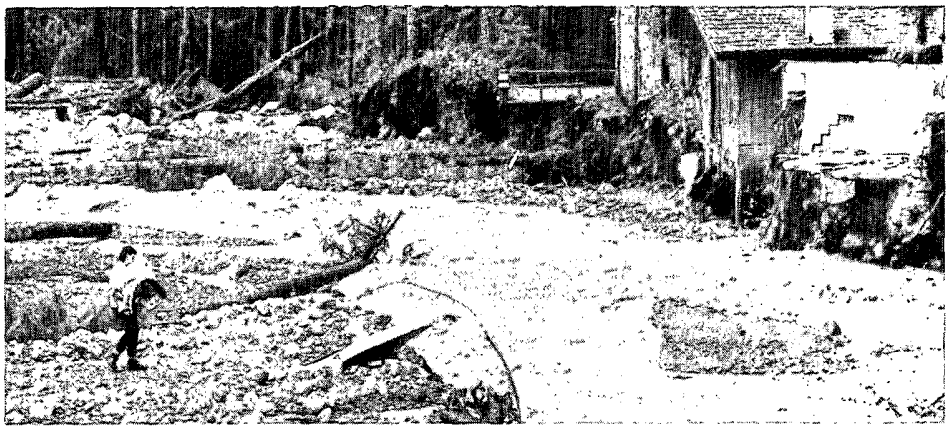
Total rainfall for November 8-14th ranged from 3 to 8 inches in the near-coastal areas from Seattle northward and from 8 to 20 inches in the northern Cascade and the Olympic mountains.

Damage estimates for these flooding events accumulated to $50 million. There were no reported deaths as a result of these floods. Injuries were likely, but injury statistics were not available for publication. Approximately 1,500 people were forced from their homes. High water and mudslides closed most of the highways along the Olympic peninsula and northwestern Washington.

Sumas, WA police officer Harold Commissaris carries Kristy Adams (left) and Caren Siguaw to safety (11/11/90). *Photo courtesy: The Bellingham Herald, Bellingham, WA.*



(Above): Downtown Sumas, WA on November 11th, 1990. *Photo courtesy: The Bellingham Herald, Bellingham, WA.*
(Left): Residents at the eastern end of Washington Street in Sumas, WA were evacuated by boat on November 11th. *Photo courtesy: The Bellingham Herald, Bellingham, WA.*



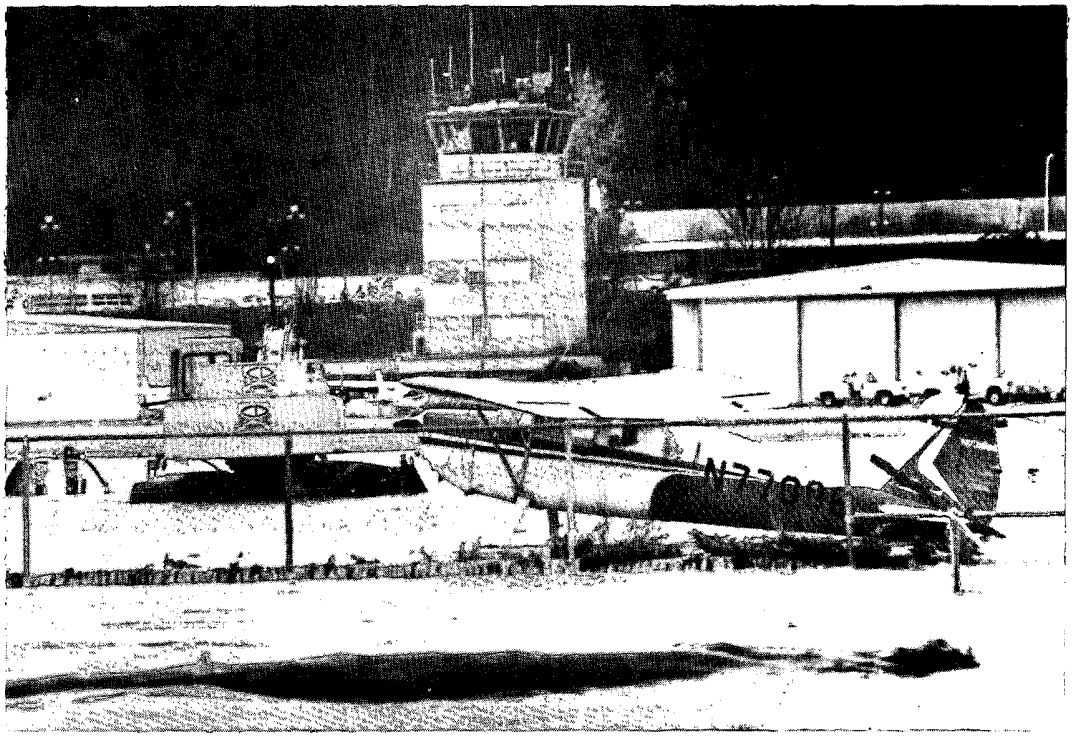
John Bellamy, friend of Sharon and Bob Willday, helps carry salvaged items from their vacation cabin in the middle of Canyon Creek. The house was on Canyon View Drive in Glacier Springs, WA. *Photo courtesy: The Bellingham Herald, Bellingham, WA.*

NOVEMBER 23-25 FLOODING

The "Pineapple Express" drenched Washington again during November 23-25. The heaviest rainfall occurred between the afternoon of the 23rd and the evening of the 24th. During this period, the National Weather Service at Seattle-Tacoma and Olympia reported 24-hour rainfall totals of 3.58 inches and 5.82 inches respectively--all-time record for Olympia.

All of the major rivers north of Seattle were above flood stage by early morning of the 24th. Record floods were recorded for several rivers.

Sadly, the actions of two men caused their deaths during this flooding: a 28-year-old man when he drove around barricades and got caught in the flooding Snoqualmie River in Duvall, WA, and a 52-year-old man when he attempted to go kayaking on the Green River which was flowing at ten times its normal flow. Damage was major and widespread. A plant at the airport in Renton suffered millions of dollars in damages when the airport was flooded. Many highways were closed due to high water and mudslides. Thousands of cattle drowned, dikes and levees failed, and 2,125 people were evacuated from their homes.



(Above): The flooded Cedar River on November 24th--looking west at the airport in Renton, WA. At one point, the flood waters covered two-thirds of the airport grounds. (The dark object in the foreground is a huge log floating down the river.) *Photo courtesy: Duane Hamamura, Valley Dailey News, Kent, WA.*

(Right): Stranded motorist in a low spot of Halverstick Road near Sumas, WA (November 24th). *Photo courtesy: The Bellingham Herald, Bellingham, WA.*

3. COASTAL NORTH CAROLINA SEVERE WEATHER - NOVEMBER 10, 1990

A storm and associated cold front produced heavy rains and thunderstorms over the Middle Atlantic during the evening of the 9th and continued through the morning of the 10th. Thunderstorms over eastern North Carolina generated high winds gusting to 78 mph (National Weather Service, Cape Hatteras) and spawned a pre-dawn tornado (F2) in Dare County near Frisco. The tornado first touched down near Frisco on Hatteras Island and moved for 12 miles on a straight northeasterly course, passing over the Pamlico Sound before making landfall again near Avon (still on Hatteras Island).

Damage estimates for this tornado and high winds on Hatteras Island were near $400,000. There were fortunately no deaths, but one man was injured by flying glass. During this event two mobile homes were destroyed and another was damaged. Roofs were blown off businesses and homes, several cottages were damaged, cars were damaged, and hundreds of trees were blown down.

Guy and Dale Smithson's mobile home in Frisco was completely destroyed by the tornado on November 10th. The only reported injury during this tornado was to Bobby Parrott, a close friend of the Smithsons from Louisville, KY. Parrott suffered cuts caused by flying glass and was treated on the island. *Photo courtesy: The Coastland Times, Manteo, NC.*

This car belonging to Jean and Bud Havens was hit by the tornado near Avon on Hatteras Island, NC (November 10th). The debris that destroyed the car was carried by the tornado from the Kona Kai garage about 1/4 of a mile away. *Photo courtesy: The Coastland Times, Manteo, NC.*

4. MISSISSIPPI VALLEY SEVERE WEATHER - NOVEMBER 27, 1990

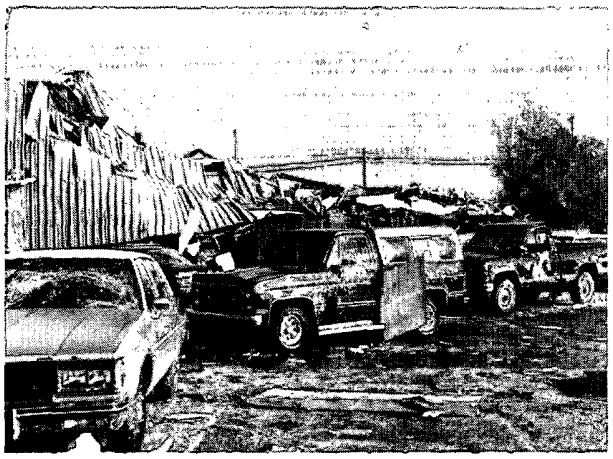
Thunderstorms developing along and ahead of a well-defined cold front produced severe weather in the Mississippi Valley on November 27th. The severe weather began in Missouri and northeastern Oklahoma near dawn with damaging winds and large hail and ended shortly after midnight in Vicksburg, MS with damaging winds.

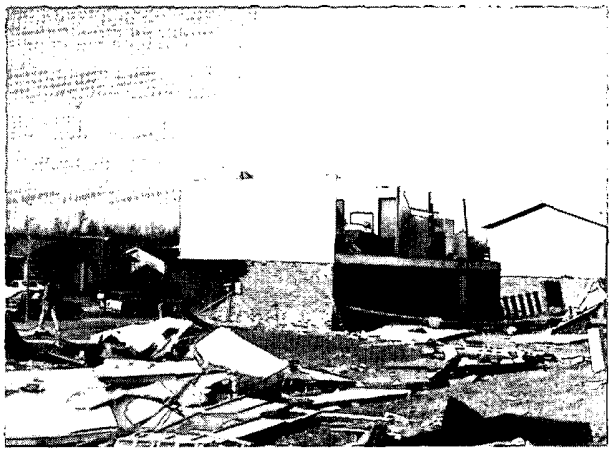
Severe thunderstorms in Missouri spawned four tornadoes (two F1s and two F3s) by late morning. Fortunately, no deaths and only three injuries were reported as a result of these tornadoes. The three injuries occurred in Boone County at Columbia, MO during one of the F3 tornadoes. Damage was extensive to homes, businesses, vehicles, trees, and a barn. Many were left homeless.

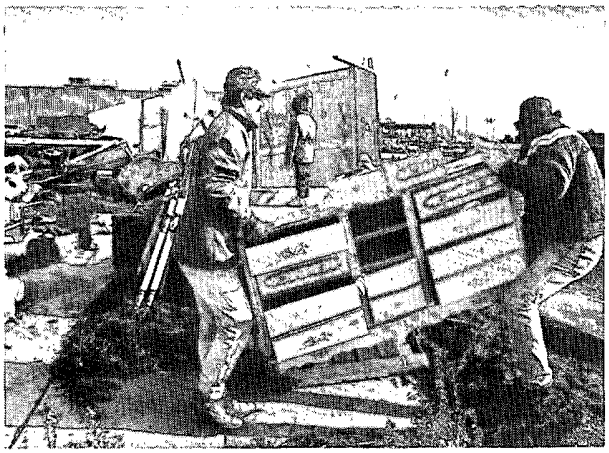
Another tornado (F2) touched down near O'Fallon, MO at 2:53 p.m. CST causing considerable damage and injuring 30 persons. A survey of the damage indicates that some of it was likely caused by straight line winds at the beginning of the storm. However, several eyewitnesses including law enforcement officials and trained spotters reported seeing a funnel cloud.

Midafternoon remained violent as the storms moved into western Illinois and spawned five additional tornadoes; three F1s and two F2s. There were no reports of deaths with these tornadoes and amazingly, only two injuries were reported. Structures and trees were heavily damaged. At Waddel Airport in Tazewell County, 32 airplanes and four hangars were destroyed; others were damaged.

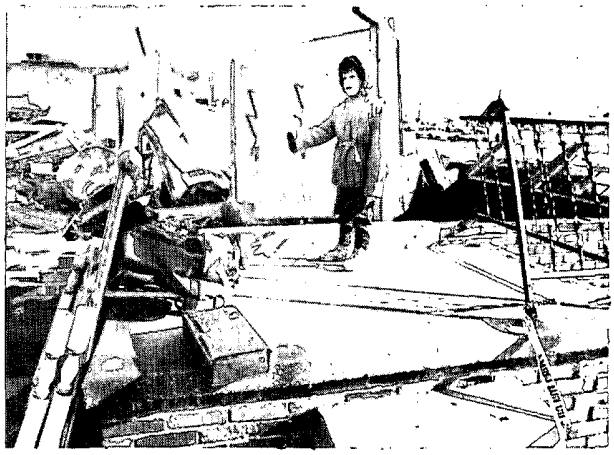
The next seven photographs were taken in O'Fallon, MO on November 27th by Joseph Pedigo. The National Weather Service indicates that some of the damage was likely caused by straight-line winds and some was caused by the F2 tornado. *(Photos were supplied by Guy Tucker, NWS St. Charles, MO.)*







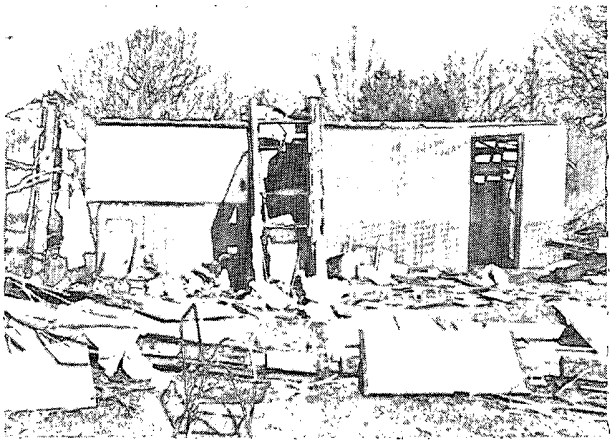
Rick Ednieston *(left)* and Mike Rudemeyer salvage items for Ednieston's neighbors, the Bort family of O'Fallon, MO. A tornado collapsed the Bort home, along with damage to 100 more homes and businesses on November 27th. *Photo courtesy: Brad Hohenstreet, St. Charles Journal, St. Charles, MO.*



Ryan Bort stands where his front was before the November 27th tornado. *Photo courtesy: Brad Hohenstreet, St. Charles Journal, St. Charles, MO.*

The two-story block and frame home of Rev. and Mrs. Claude Malone northeast of Rushville, IL was totally destroyed by the November 27th F2 tornado. The Malones were in Florida during the tornado. *Photo courtesy: The Rushville Times, Rushville, IL.*

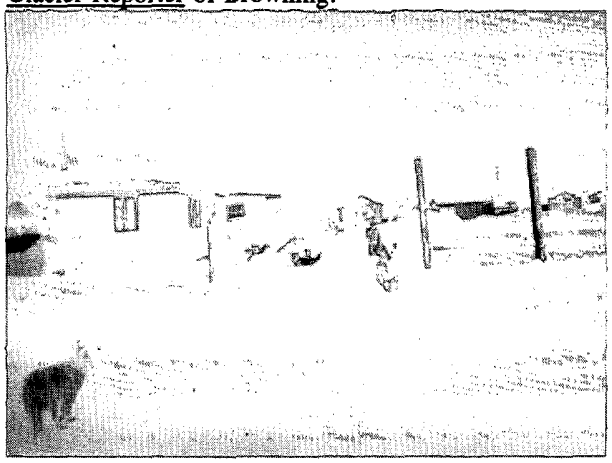
Volunteers search through the debris in a field north of the Malone home *(photo at left)* for any salvageable articles. *Photo courtesy: The Rushville Times, Rushville, IL.*

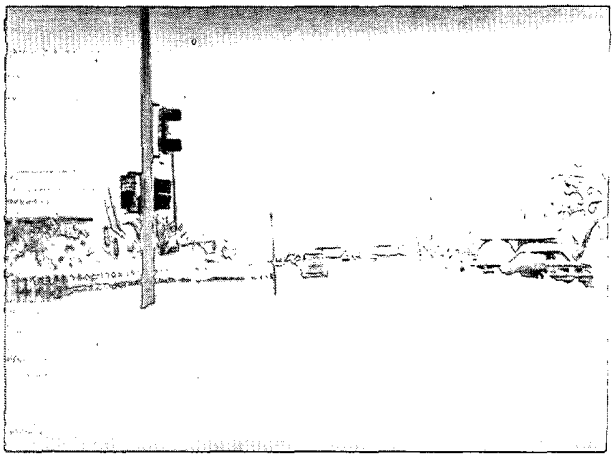


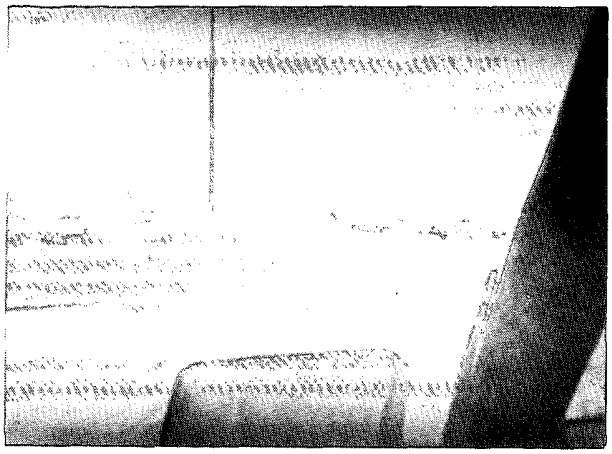
Rose and Connie Erickson were at home, but miraculously escaped injury when the November 27th severe weather hit Rushville, IL. *Photo courtesy: The Rushville Times, Rushville, IL.*

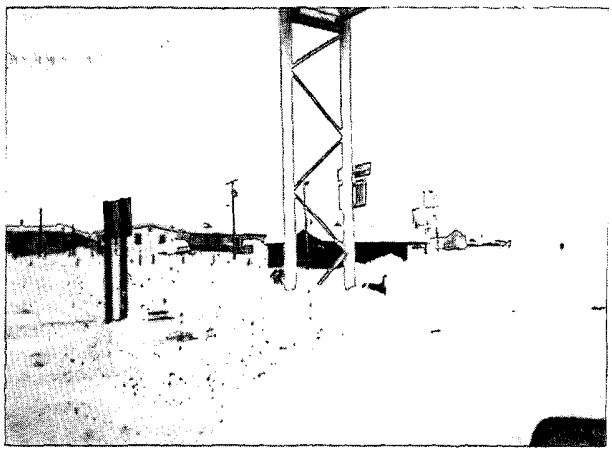
This Rushville, IL home occupied by Mr. and Mrs. Mike Shouse and family sustained major damage during the November 27th tornado. The outbuildings on the farm also were heavily damaged. *Photo courtesy: The Rushville Times, Rushville, IL.*

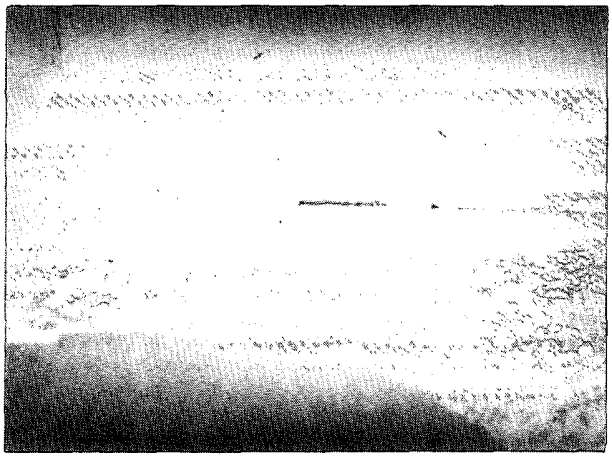
The next eight photographs of scenes during the last two weeks of November near Browning, MT were provided by the Glacier Reporter of Browning.

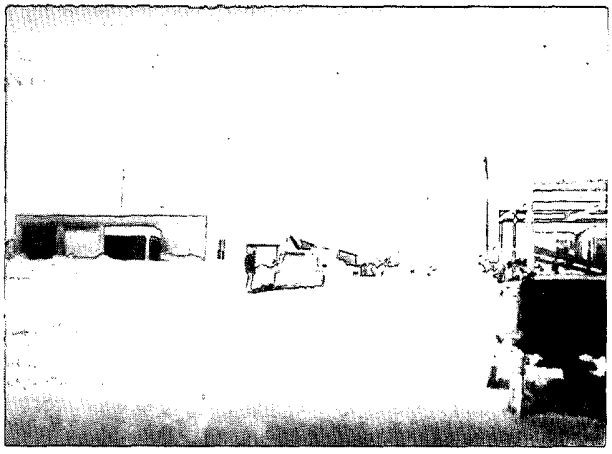












STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

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

ALABAMA

None reported.

ARIZONA

AZZ008 South-Central Deserts — 26 1100MST — 0 0 0 0 — **High Winds**

Winds increased suddenly around the state as a fast-moving cold front swept eastward. Winds gusted to 50 to 60 mph in many areas, including downtown Phoenix and Paradise Valley. The Boyce Thompson Arboretum, east of Apache Junction, reported a small tree uprooted with a few gusts estimated at 60 to 70 mph. An automatic weather station near Sun Lakes recorded a peak gust of 63 mph.

ARKANSAS

Benton County, Siloam Springs — 27 0930CST — 0 0 3 0 — **Thunderstorm Winds**

Thunderstorm winds toppled a 100-foot-tall tree, which then fell on a historic bed and breakfast inn. The tree punched holes in the roof, knocked plaster off walls, and destroyed some trim and guttering on the outside.

Mississippi County, Manila — 27 1000CST — 0 0 4 0 — **Winds**

Strong southerly winds ripped the awning and siding from a store front on Main Street. The falling debris then broke some windows. Damage was estimated at $8,000.

Benton County, Bentonville — 27 1030CST — 0 0 3 0 — **Lightning**

Lightning strikes knocked out power to much of Bentonville for about an hour.

Arkansas County, 2 E Humphrey — 27 1700CST — 0 0 2 0 — **Thunderstorm Winds**

Thunderstorm winds downed some trees near Humphrey.

Union County, 2 W El Dorado — 27 1800CST — 0 0 2 0 — **Thunderstorm Winds**

Thunderstorm winds downed trees and power lines just west of El Dorado.

Phillips County, Helena — 27 1939CST — 0 0 4 0 — **Thunderstorm Winds**

Thunderstorm winds broke windows at a car dealership and nearby convenience store. A couple of vehicles were damaged by airborne metal sheeting, and the county maintenance shop suffered minor damage. Several trees were also blown down.

Union County, 2 E Strong — 27 2015CST — 0 0 2 0 — **Thunderstorm Winds**

Thunderstorm winds downed trees and power lines east of Strong.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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CALIFORNIA, Northern

None reported.

CALIFORNIA, Southern

CAZ019 01 0630PST 0 0 ? 0 **High Winds**

Strong winds hit the northern deserts of southern California, where Mojave Airport had winds of 30 to 40 mph.

CAZ012 03 1030PST 0 0 ? 0 **High Winds**

Strong Santa Ana winds blew below the Cajon Pass area of San Bernardino County. Wind gusts to 40 mph were reported at Fontana, Norco, and Riverside.

CAZALL 06 1800PST 0 0 ? 0 **High Winds**

Strong Santa Ana winds blew over many areas of southern California. Sandberg, in the Tehachapi Mountains, had wind gusts to 43 mph, Chino 40 mph, San Bernardino 38 mph, and Needles 37 mph.

CAZALL 07 1945PST 0 0 ? 0 **High Winds**

Gusty Santa Ana winds blew in many areas. Ontario had gusts to 45 mph with blowing dust; Riverside 35 mph, Blythe 35 mph, and Mount Wilson 45 mph.

CAZ016 14 0625PST 0 0 ? 0 **Dense Fog**

There was dense fog in some local areas along the coast of Los Angeles and Orange counties. Visibilities were near zero, causing hazardous driving conditions. Several car accidents were reported on local highways in the Long Beach area. Long Beach Airport reported one-eighth mile visibility and John Wayne Airport had zero mile visibility in fog.

CAZ015 25 2230PST 0 0 ? 0 **High Winds**

Strong winds associated with a cold front resulted in damage to a roof in Goleta. Wind gusts were estimated at from 40 to 50 mph.

CAZALL 26 0745PST 0 0 ? 0 **High Winds**

Strong winds blew over most of southern California, as the result of a deep surface low over southern Utah and a strong upper trough over southern California. Winds of 42 mph were reported at Daggett with gusts to 67 mph; Palm Springs had gusts 42 to 65 mph, Sandberg had gusts to 56 mph, and Twentynine Palms gusts 44 to 69 mph, and visibility one-eighth mile in blowing dust and sand. Many trees were uprooted in the Palm Springs area.

COLORADO

Statewide

COZALL 02-03 0 0 0 0 **Snow**

Snow fell from border to border across the state, but was relatively light in the northwest and southeast. It was a different story in the mountains where snow piled to a foot deep in portions of the northern and central mountains, while nearly 2 feet of fluffy powder buried many of the higher passes and ski areas in the state's southwestern and southern mountain ranges. Roads and highways became nearly impassable in the high country by the afternoon of the 2nd as heavy snow, coupled with blowing and drifting snow, reduced visibilities to near-zero at times.

Low clouds, fog, and snow delayed in-bound flights to Denver's Stapleton International Airport for at least 90 minutes during the afternoon of the 2nd. Slushy snow and ice-covered roads snarled late afternoon traffic in many Front Range cities. The snow, ice, and poor visibilities were blamed for numerous auto accidents in the high country during the two-day storm, with several pile-ups reported along Interstate 70, just west of Denver, the afternoon of the 2nd.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

COLORADO Cont'd

Statewide storm totals varied from 1 to 3 inches at lower elevations on the western slope, to as much as 19 inches in the town of Cuchara in the southern foothills (68 miles southwest of Pueblo). Elsewhere, snow amounts ranged from 4 to 10 inches in and along the northeastern foothills with only 2 inches reported in the southeast and along the state's eastern border. In the Denver metropolitan area, snow totals varied from 3 inches in northern sections to 8 inches in the southern and western suburbs.

Southern, Central and Northern Mountains Upper Arkansas Valley, San Luis Valley, Four Corners, Pikes Peak/Palmer Divide and the Northeastern and Southern Foothills
COZ004-006-007-008-009-010-011-014-015

DATE	TIME	LENGTH	WIDTH	KILLED	INJURED	PROPERTY	CROPS	CHARACTER
06-07				0	0	0	0	Snow

A pesky early-winter snow storm was responsible for several inches of wet, heavy snow across the state's higher elevations, western valleys, and eastern foothill areas. Six to 12 inches had fallen in the central mountains by early the 7th, with as much as 8 to 20 inches in the San Juan and Sangre de Cristo Mountains. The town of Summitville in the San Juan Mountains, 48 miles west of Alamosa, recorded a 24-hour storm total of 18 inches. Nearly a foot of heavy snow buried portions of the upper Arkansas Valley, with 2 to 9 inches blanketing the San Luis Valley. Elsewhere, the storm was responsible for 4 to 8 inches in the northern mountains, 4 to 6 inches in the Four Corners area, and 3 to 10 inches in and near the southern and northeastern foothills, and the Pikes Peak/Palmer Divide area north of Colorado Springs.

Northern, Central and Southwestern Mountains
COZ002-004-008

DATE	TIME	LENGTH	WIDTH	KILLED	INJURED	PROPERTY	CROPS	CHARACTER
21	All Day			0	0	0	0	Snow
	1500MST			0	0	0	0	Wind

Several inches of champagne powder blanketed many of the state's ski areas and high mountain passes throughout the day. Snow totals were generally on the order of 6 to 10 inches in the high country with a few localized areas receiving close to a foot and a half of new snow by evening. A few significant storm totals in the central mountains included 10 inches at the Beaver Creek Ski Area, 8 inches at the Vail Ski Resort, and 13 inches at the Snow Mass Ski Resort. Eight inches fell atop Wolf Creek Pass in the San Juan Mountains. Strong southwestern winds of 50 to 80 mph whipped the newly fallen powder into deep drifts and reduced visibilities to near zero over many of the higher passes in the northern and central mountains. Winds were clocked to 80 mph just before 1500 MST at the Breckenridge Ski Area.

Front Range Foothills
COZ011

DATE	TIME	LENGTH	WIDTH	KILLED	INJURED	PROPERTY	CROPS	CHARACTER
22	0500MST-1000MST			0	0	0	0	Wind

Strong western to northwestern winds on the coat tails of a mountain snow storm the day before, lashed out at portions of the northeastern foothills and adjacent high plains with 60 to 95 mph gusts during the early morning hours of the 22nd. A gust to 75 mph was clocked in the town of Livermore (16 miles north-northwest of Fort Collins) at 0630 MST. Just minutes later, a cooperative weather observer in the town of Rustic (28 miles northwest of Fort Collins) measured a wind gust of 94 mph. No damage was reported.

Statewide
COZALL

DATE	TIME	LENGTH	WIDTH	KILLED	INJURED	PROPERTY	CROPS	CHARACTER
26-27				0	0	0	0	Snow

Snow began in the mountains during the afternoon of the 26th, and continued through the morning of the 27th. The storm buried many portions of the southern and central mountains with generally 5 to 14 inches of badly needed heavy wet snow. In the northern mountains, snowfall totals were on the order of 4 to 12 inches. Areas receiving 13 inches of fluffy powder included the Wolf Creek Ski Area in the San Juan Mountains, the Steamboat Springs Ski Resort in the northern mountains, and at the Beaver Creek and Snow Mass Ski Resorts in the central mountains. The storm moved east onto the northeastern plains of Colorado by the evening of the 26th, where it deposited 2 to 8 inches of wet snow in and along the northeastern foothills, and 1 to 4 inches on the northeastern plains. Snow ended during the afternoon of the 27th in

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

COLORADO Cont'd

most areas; however, snow lingered throughout the evening of the 27th in the northeast border area where storm totals ranged from 4 to 9 inches. Snow piled to 8 inches deep in the Logan County town of Fleming. Lighter amounts fell on the state's northwestern plateau, southeastern plains, and southern foothills.

CONNECTICUT

CTZALL	11-12	1200EST-1200EST			0	0	5	0	High Winds

Strong- to gale-force, west-to-northwest winds in the wake of a very intense low pressure system (barometer, 28.4 inches in eastern Canada) caused numerous power outages and widespread reports of mostly minor property damage. About 13,000 electric customers lost power statewide. There were many reports of automobiles and homes damaged by falling trees. Part of the roof was blown off a shopping plaza in Old Saybrook. Another roof was blown off a building in Stonington. A weather spotter in Bristol recorded a gust to 72 mph while a gust to 64 mph was reported in Hartford. The strongest winds occurred with the passage of a secondary cold front shortly before midnight on the 11th, but gusts from 40 to 60 mph continued well into the next day.

DELAWARE

None reported.

FLORIDA

Palm Beach County Palm Beach Inlet	01	1614EST			0	0	0	0	Waterspout

A waterspout was observed off the coast near the Palm Beach Inlet. It rapidly dissipated.

Monroe County 6 S Key West	08	1345EST			0	0	0	0	Waterspout

A waterspout was observed 6 miles south of Key West.

Highlands County 1 S Sebring	09	1415EST	5	40	0	1	4	1	Tornado (F1)

A tornado damaged roofs on about 30 homes, several mobile homes, toppled utility sheds, and uprooted trees. A number of businesses in a shopping center were damaged. Several cars had windows blown out and body damage. The tornado dissipated near the shopping center. The only injury was minor and did not require hospitalization.

Orange County Seminole County Eatonville to 2 N Sanford	09	1615EST-1647EST	16	50	0	9	5	0	Tornado (F1)

A tornado struck a football stadium where a high school game was in progress. A coach was blown from the top row of the bleachers and suffered injuries serious enough to require hospitalization. The press box roof was blown off and landed on the playing field. Several fans suffered minor injuries from flying debris. The tornado then moved into a nearby subdivision damaging several homes. Most homes had roof damage, but there was some wall and structural damage as well. Trees were uprooted and power lines downed. A church in Maitland had part of its roof blown off. The tornado was last observed near a subdivision north of Sanford.

Madison County 2 NW Madison	09	1650EST			0	0	3	0	Thunderstorm Wind

Strong thunderstorm winds uprooted trees and downed power lines. Several roofs were damaged.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
FLORIDA Cont'd									
Volusia County									
9 N Daytona Beach	**09**	**1720EST**	**0.2**	**20**	**0**	**0**	**3**	**0**	**Tornado (F0)**
		A small tornado was spotted by Volusia County Civil Defense on the western side of Ormond Beach. Five homes suffered minor damage. Several trees were uprooted, with a few falling on homes. The tornado dissipated rapidly.							
Monroe County									
2 SW Key West	**09**	**1820EST**			**0**	**0**	**0**	**0**	**Waterspout**
		A waterspout was sighted 2 miles southwest of the Key West Airport.							
Volusia County									
1 W Daytona Beach	**09**	**1839EST**	**0.2**	**20**	**0**	**0**	**1**	**0**	**Tornado (F0)**
		A small tornado was sighted by control tower personnel just west of the Daytona Beach Regional Airport. It uprooted a few trees and downed power lines before dissipating.							
Madison County									
2 N Madison	**10**	**0455EST**			**0**	**0**	**1**	**0**	**Thunderstorm Wind**
		Strong thunderstorm wind gusts blew much of the roofing off two houses north of Madison. Several trees were uprooted.							
St. Lucie County									
Jupiter Island	**17**	**0840EST**			**0**	**0**	**0**	**0**	**Waterspout**
		A waterspout was sighted 1.5 miles northeast of Jupiter Island near the St. Lucie Inlet.							
Monroe County									
5 S Key West	**23**	**1014EST**			**0**	**0**	**0**	**0**	**Waterspout**
		A waterspout was sighted 6 miles south of Key West. It dissipated six minutes later.							
GEORGIA									
Effingham County									
Clyo	**01** **03**	**0000EST-** **0700EST**			**0**	**0**	**3**	**?**	**Flood**
		The Savannah River remained at 11.2 feet on the 1st, just above the flood stage of 11 feet. The river flooded access roads and low-lying recreational areas.							
Effingham County									
Eden	**01**	**0000EST-** **0700EST**			**0**	**0**	**3**	**3**	**Flood**
Bryan County									
Eastern Bryan County	**01**	**0000EST-** **0700EST**			**0**	**0**	**3**	**3**	**Flood**
		By October 31st, the Ogeechee River had fallen to 9.4 feet at Eden. During the early hours of November 1st, the river flooded access roads, riverside recreational areas, and agricultural lands. By 0700 EST, the river had reached its flood stage, 9 feet, at the Eden gage.							

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
IDAHO									
IDZ-009									
Panhandle	03	1900PST			0	0	4	0	**Snow**
	Trucks jackknifed on Interstate 90 at Lookout Pass just east of Mullan in 2 inches of new snow.								
IDZ-007	03	2030MST-							
South-Central	04	0830MST			0	0	0	0	**Heavy Snow**
	Snow accumulated to 6 inches.								
IDZ-011	04	0900PST-							
Northern Idaho	05	0900PST			0	0	0	0	**Heavy Snow**
	Snow accumulated to 9 inches.								
Nez Perce County									
Lewiston	04	0930PST			0	0	4	0	**Lightning**
	There were extensive power outages.								
Lewis County									
Nez Perce	04	2100PST			0	0	4	0	**Lightning**
	There were extensive power outages.								
Idaho County									
Cottonwood	04	2100MST			0	0	4	0	**Heavy Rain**
	Mudslides and rocks moved onto U.S. Highway 12.								
IDZ003-012									
Southeastern Idaho	05	0100MST- 1200MST			0	0	0	0	**Heavy Snow**
	There were snow accumulations of 7 to 12 inches.								
IDZALL	19-								
Statewide	21								**Cold Front**
	A Pacific cold front preceding a 500 MB trough of low pressure (5270-5400m) moved across Idaho, during the night of the 19th and the morning of the 20th, with heavy snowfall. Heavy snowfall continued behind the front, and was associated with the upper level trough statewide through the 20th, and lingered into the 21st of the month.								
IDZ005									
Southwestern Idaho	19	1730MST-							
	20	0730MST			0	0	0	0	**Heavy Snow**
	Snowfall accumulated to 11 inches above 5,000 feet in the Owyhee Mountains.								
IDZ003-007-012									
Southern Idaho	19	2200MST-							
	20	1600MST			0	0	0	0	**Heavy Snow**
	Snowfall accumulated from 6 to 12 inches.								
IDZ-009-011-006									
North-Central	20	0400PST-							
Idaho	21	2200PST			3	0	5	0	**Heavy Snow**
	Snowfall caused spinouts and jackknifing on Interstate 90 near Lookout Pass just east of Mullan. Interstate 90 was closed at Lookout Pass on the evening of the 21st. Mullan reported a storm total of 11 inches. Three fatalities occurred at 1600 PST on the 21st, when a plane crashed while attempting an ILS approach at Coeur d'Alene.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

IDAHO Cont'd

IDZ003-004-012
Southeastern Idaho — 20 0800MST-1200MST — 1 2 5 0 — **Ice Storm**

Rain turned to snow at lower elevations, with ice forming on highways and power lines at Rexburg and St. Anthony. Two persons were injured in ice-related automobile accidents. Ice and wind caused power outages in the Canyon Creek area. A mail plane crashed 16 miles southeast of Burley at 1019 MST in near-blizzard conditions, killing the pilot.

IDZ009
Panhandle — 23 0900PST-2200PST — 0 0 6 0 — **High Winds**

Numerous downed trees cut power lines and blocked roads. Breakwater structures, docks, and new construction were damaged at Coeur d'Alene. The winds were associated with low pressure centered at Vancouver Island. Coeur d'Alene reported gusts to 47 mph.

IDZ009
Panhandle — 24 2100PST-26 2100PST — 0 0 5 0 — **Flooding**

Warm sector rains under a strong jet stream, totaling 2 to 4 inches in less than 48 hours caused streams and some rivers to overflow the night of the 24th. Cresting on the 25th followed a cold front passage. Roads and bridges were inundated. Some communities were evacuated.

IDZ006-009-011
Northern and Central Idaho — 26 2000PST-27 2000PST — 0 0 0 0 — **Heavy Snow**

Snowfall accumulated from 6 to 9 inches.

IDZ009
Idaho Panhandle — 29 1900PST-30 1900PST — 0 0 0 0 — **Heavy Snow**

Six inches of snow fell in Bonner County.

ILLINOIS

ILZ003
Canton — 23 1233CST — 0 0 4 0 — **High Wind**

Winds caused scattered damage to structures and power lines in Cook, Du Page, Kane, Lake, and Will counties of northeastern Illinois. A gust to 45 mph at O'Hare Airport at 1233 CST was typical of winds from late morning through afternoon over the area.

Madison County
1 S Alton — 26 1900CST — 0 0 5 0 — **Thunderstorm Wind**

Heavy damage occurred to roofs and structures in the downtown part of Wood River, along Ferguson Avenue.

Clinton County
Near Breese — 26 1935CST — 0.5 — 50 — 0 0 4 0 — **Tornado (F0)**

Farm buildings were twisted and destroyed.

St. Clair County
Belleville — 26 2000CST Estimated — 0.5 — 50 — 0 0 4 0 — **Tornado (F0)**

A tornado tore roofs off buildings and broke windows at the Belleville Park Plaza Shopping Center.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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ILLINOIS Cont'd

Kane County
Elgin — 27 0715CST — 0 0 5 0 — **High Wind**

Straight-line winds caused heavy damage to buildings, vehicles, and trees in Elgin, on the southern edge of Elgin, and other scattered locations in Kane County. No thunder was heard, nor lightning seen, during these high winds that lasted 10 to 20 seconds, but showers and low-hanging clouds were observed. At Brady Ready-Mix Company, the operator of a large loader said his machine was picked up 6 inches and then set down. Winds were estimated to 80 knots (92 mph), and it was considered extremely fortunate no one was injured.

Brown County
Mt. Sterling — 27 1255CST Estimated — 0 0 5 0 — **Thunderstorm Wind**

Thunderstorm winds destroyed or damaged many structures and trees. One farm lost ten hogs, sheds, and outbuildings. Mt. Sterling and Siloam Springs State Park suffered damage, and other damage was scattered over Brown County.

Schuyler County — 27 1305CST Estimated — 0 0 5 0 — **Thunderstorm Wind**

Thunderstorm winds caused scattered damage to structures and trees. Many residences were damaged west of Rushville along Route 24.

Schuyler County
5 NE Rushville — 27 1315CST 6.0 100 — 0 0 5 0 — **Tornado (F2)**

A tornado moved northeast across the southern edge of Rushville, damaged property, skipped northeast and caused extensive damage to homes, mobile homes, barns, and trees in the Scab Hollow area. The tornado lifted before leaving Schuyler County. At least three homes were destroyed and four others damaged.

Fulton County
3 E Summum — 27 1345CST 5.0 100 — 0 0 5 0 — **Tornado (F1)**

A tornado first touched down 2.7 miles east of Summum and caused damage at several farms as it skipped approximately 5 miles northeastward.

Mason County
22 SW PIA — 27 1400CST 0.5 50 — 0 0 4 0 — **Tornado (F1)**

A mobile home was destroyed and 36-inch-diameter oak trees were uprooted and landed within a few feet of the home. One occupant miraculously escaped injury and was rescued from the debris by the county sheriff.

Tazewell County
15 SSW PIA — 27 1413CST 1.0 200 — 0 2 6 0 — **Tornado (F2)**

At Waddel Airport, 32 airplanes and four hangars were destroyed and others damaged by the tornado. Two people said it lasted only 30 seconds, then they looked around to see total devastation. The tornado moved northeast, but apparently did not touch down anywhere else. Damage was estimated at $1.5 million.

Marshall County
Winona — 27 1510CST — 0 0 4 0 — **Thunderstorm Wind**

Thunderstorm winds caused damage to structures and trees.

Jersey County
Pere Marquette State Park — 27 1520CST 0.5 400 — 0 0 5 0 — **Tornado (F1)**

A tornado touched down on the eastern bank of the Illinois River and moved eastward across the southern edge of Pere Marquette State Park. It tore the roof off a house, destroyed several outbuildings at a farm, and destroyed several sheds and many trees at the Park. It was apparently a short-lived event.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

ILLINOIS Cont'd

La Salle County
Streator — 27 1600CST — 0 0 4 0 — **Thunderstorm Wind**

Thunderstorm winds damaged roofs, buildings, trees, and power lines at Streator and scattered locations over the county.

DuPage County
22 SW ORD — 27 1645CST — 0 1 4 0 — **Thunderstorm Wind**

Thunderstorm winds caused scattered damage throughout Du Page County. At Fox River Valley Mall, winds damaged roofs and structures. Cars were damaged and overturned. A woman driver was injured by broken glass.

Cook, Will Counties
Calumet City
Chicago Hts.
Beecher — 27 2200CST — 1 0 5 0 — **Flash Flood**

Heavy rainfall from slow-moving thunderstorms caused flooding of urban streams and low-lying areas. One man drowned after he drove around and through barricades into deep water under a bridge at Matteson. Major flooding occurred in the Calumet River Basin, and along the upper Illinois River. The largest amount of rainfall was reported at Park Forest (6.44 inches), with 3 to 6 inches over southeastern Cook and northeastern Will counties. Others deaths and injuries were indirectly caused by the heavy rain and floods. (M62V)

INDIANA

Lake, Porter, LaPorte Counties — 27 1600EST-28 1200EST — 0 1 ? ? — **Flooding**

From 3 to 6 inches of rain fell during the evening of the 27th and the morning of the 28th across extreme northwestern Indiana. Flooding of city streets was reported at Hammond, Hobart, and Schereville where a car became trapped in floodwaters and a man was swept from this vehicle and had to be rescued by authorities. Many secondary roads were flooded or closed due to high water.

IOWA

IAZ001-004-005-006-009-010
Northwest into Central Iowa — 06 0500CST-1800CST — 0 0 4 4 — **Snow and Heavy Snow**

An early season snowfall developed in the wake of a cold frontal passage over northwestern into central Iowa. Many areas received from 2 to 5 inches of wet snow, with spotty areas receiving 6 to 7 inches. The snow stuck to trees, causing some tree damage. Some lodging of crops occurred, but was minor since most of the crop had been harvested. Warm ground temperatures prevented highways from becoming slippery in most areas.

KANSAS

Cheyenne County
Countywide — 02 2000CST — 0 0 0 0 — **Heavy Snow**

The first major snow storm of the 1990-91 winter season began over northwestern Kansas late Friday and continued into Saturday. Over 8 inches of snow fell across both Sherman and Cheyenne counties.

Sherman County
Countywide — 02 2000CST — 0 0 0 0 — **Heavy Snow**

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

KANSAS Cont'd

Crawford County
Pittsburg — 27 — 0832CST — 0 — 0 — 0 — 0 — **Thunderstorm Winds (G52)**

Thunderstorm winds gusted to 60 mph at the Pittsburg Airport where 0.50-inch size hail was also reported.

Cherokee County
2 SE Crestline — 27 — 0833CST — 0 — 0 — 4 — 0 — **Wind Damage**

Winds damaged a trailer and overturned a propane tank at a farm southeast of Crestline. Windows were blown out of the home and vehicles, with siding and shingles torn from the house. Hay bails were tossed some distance and debris littered the farm field.

KENTUCKY

None reported.

LOUISIANA

LAZ011-012-013-014
Coastal Louisiana — 08 2200CST- 09 2400CST — 0 — 0 — 0 — 0 — **Coastal Storm**

The first low pressure system of the fall/winter season developed off the Texas coast and moved east-northeast across the Louisiana coastal waters bringing gale force wind gusts. The storm and attendant high winds and rough seas, contributed to several incidents of crewmen being tossed overboard on vessels operating in the coastal waters. One drowning was reported. A $4.5 million barge sank in rough waters south of Grand Isle, and a 75-foot trawler sank near the Southwest Pass of the Mississippi River.

St. Tammany Parish
Lacombe — 19 — 2230CST- 2400CST — 0 — 0 — 0 — 0 — **Dense Fog/Smoke**

The combination of locally dense fog and smoke contributed to a series of chain-reaction accidents on Interstate Highway 12 near Lacombe. This involved eight tractor-semitrailers and seven smaller vehicles. One man was killed and 16 others injured in the accidents. The highway was not cleared of debris and opened to traffic until 1200 CST on the 20th.

MAINE

York, Cumberland Southern Oxford, Androscoggin, Lincoln, Hancock Counties — 10 Saturday 11 Early Sunday — 0 — 0 — 5 — 0 — **Flood**

Heavy rain fell across southern Maine from Saturday into early Sunday. Reports ranging from 2.25 inches at Camden to 4.70 inches at Portland were recorded. Scores of basements and streets were flooded. On Sunday, the Presumscot River in Westbrook crested at 4 inches over flood stage. In the Durham area, several roads received washouts on Saturday. An estimated $75,000 damage occurred to the building and products of Shaw's Supermarket at the Saco Valley Shopping Center, Scamman Street, Saco. Rain washed out a section of Cascade Road, in Old Orchard Beach with damage of $50,000. At Yarmouth, rain caused $5,000 to $10,000 damage to the carpets, floorboards, and walls of the public library. In Portland 5 feet of water was reported in some of the streets. A portion of Emery's Bridge Road, in South Berwick was washed out.

MEZ001-002-003-004-005-006-007-008-009-010-011-0012-013-014 — 19 Early Morning 20 thru Early Morning — 0 — 0 — 0 — 0 — **Freezing Rain**

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

MAINE Cont'd

Statewide

An ocean low off the New England coast Monday morning moved northeast, to north of Nova Scotia, by Tuesday morning. This system spread freezing precipitation across the entire state. Numerous power outages occurred statewide as trees iced up and fell over onto power lines. Power lines came down due to ice accumulation. An ice-laden tree came down on a car across from Bowen's Store, Route 137 in Belfast. Bangor International Airport was closed from 0300 EST Monday to 0615 EST Monday due to ice on runways. A tree fell on a house at Highland Avenue in Milo causing $3,000 damage to the roof. Reports of auto accidents, power outages, and fires caused by downed power lines were widespread.

MARYLAND and D.C.

None reported.

MASSACHUSETTS

MAZ001-002
003-007-008

10 1200EST-2100EST 0 0 4 0 **High Winds**

Strong- to gale-force, southeast-to-south winds preceded, and accompanied, the passage of an intensifying low pressure system, as it moved northeast across eastern Massachusetts. Low barometer readings of close to 29 inches were recorded with the passage of the low center. Winds gusting to 40 to 60 mph caused scattered power outages and scattered property damage. A metal roof was blown off a store in Norwood.

MAZALL

11 1200EST 0 0 5 0 **High Winds**

Strong- to gale-force, west-to-northwest winds in the wake of a very intense low pressure system (barometer, 28.4 inches in eastern Canada) caused numerous power outages and widespread reports of mostly minor property damage. Up to 10,000 electric customers reported power losses in the western part of the state. The passage of a secondary cold front, late on the evening of the 11th and very early morning hours of the 12th, brought peak wind gusts of 60 mph to 70 mph, snow squalls, and even some reports of thunder and lightning, especially in the western portion of the state. At the Blue Hill Observatory in Milton, just south of Boston, elevation 635 feet, peak wind gusts to near 70 mph were recorded on three consecutive days, the 10th, 11th, and 12th.

MICHIGAN

MIZ043-045-047-052
054-067
Northern Lower Peninsula

05 0700EST 0 0 4 0 **Heavy Snow**

An unusually heavy snow storm blanketed the northern half of lower Michigan beginning around sunrise on Monday, then continuing until 0600 EST on Tuesday the 6th of November. The heaviest snow fell from the midmorning hours of Monday until just before midnight. The snow was a heavy, wet one. During the evening hours many areas had thunder and small hail occurring with the snow. The maximum accumulation was 19 inches at Gaylord, but Kalkaska reported 16 inches, and there were many reports of 8 to 12 inches through a large part of the area. The average snowfall was around 10 inches. Since the snow was wet, even though winds did gust to near 40 mph occasionally, little drifting was reported. However, the heavy wet snow caused considerable damage to trees (mostly pine) since the leaves were off the other trees by then. Many power lines came down and as a result of that, about 26,000 customers lost power during the storm. Some areas took three days to have power restored. Dozens of auto accidents occurred during the storm; women were killed in two accidents. About 100 property damage accidents were also reported. Many of these involved personal injuries; most of them not serious. Several trucks jackknifed. Several newspapers reported this to be the most damaging storm of this type since the middle 1960s.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

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

MICHIGAN Cont'd

MIZ001-004-007-013 015-022-023 Southwestern Lower Peninsula

26 0800EST — 0 0 6 0 — **Flooding**

A slow-moving frontal system caused heavy rain to fall over a two-day period. The rain ended by 0800 EST on the 28th. During this time, 3 to 4 inches of rain fell over most of this area. Grand Rapids was drenched with 3.04 inches of rain in just 24 hours, this breaking the all-time, 24-hour rainfall record of 2.65 inches, set in 1935. As a result, many homes, numbering in the hundreds, had basement flooding or were partly under water due to street and river flooding. One of the larger rivers to overflow was the Grand River. In several places the river was more than 3 feet above flood stage. Heavy industry along the river in the city of Grand Rapids resulted in some businesses and factories being at least partly flooded. The Thornapple crested 1 foot above flood stage near Hastings. Many small creeks flooded and in several cases undermined nearby roads. No cars or people were on the roads at the time. As a result, the damage total will approach $1 million.

MINNESOTA

MNZ006-19 South-Central-Northeastern Minnesota

26 1000CST- 27 1700CST — 0 0 0 ? — **Ice Storm**

Freezing rain and freezing drizzle developed over the southwest during the morning, spread into the northeast by evening, and continued in the southeast into the evening of the 27th. A total of 175 traffic accidents were attributed to icy roadways. Eight persons were reported seriously injured, with one fatality in Renville County. During the evening of the 26th, the State Patrol restricted traffic for two hours along Highway 10 between Little Falls and Motley, after 11 tractor-semitrailer trucks jacknifed. Numerous rollovers and fender benders were reported, with many schools and community events cancelled due to ice-covered roadways.

MNZ005-008-009-012-014-016 Central-East Central Minnesota

27 1700CST- 28 0700CST — 0 0 0 0 — **Heavy Snow**

A low pressure system moved from northern Missouri to northeastern Wisconsin from the afternoon of the 27th to early morning on the 28th. A 40-mile-wide band of snow, 6 inches or greater, fell from near Elk River to Cloquet with Cedar reporting 8 inches. The combination of ice deposited on the 26th into the 27th, and the newly-fallen snow made driving hazardous. Many schools were either closed and/or began late for the second consecutive day.

MISSISSIPPI

Warren County Vicksburg

28 0035CST — 0 0 2 0 — **Thunderstorm Winds**

A few trees were blown down across the city of Vicksburg.

MISSOURI

Benton County 1 N Warsaw

27 1000CST 0.5 25 — 0 0 5 0 — **Tornado (F1)**

A tornado damaged and downed large trees, wires, and a boat storage facility.

Moniteau County 1.5 NE Tipton

27 1043CST 0.5 25 — 0 0 4 0 — **Tornado (F1)**

A tornado destroyed several outbuildings, grain bins, and a barn.

Boone County McBaine

27 1112CST 1 50 — 0 0 5 0 — **Tornado (F3)**

A tornado destroyed a house, barn, and outbuilding. The tornado also snapped several power lines.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

MISSOURI Cont'd

Greene County
Springfield 27 1115CST 0 0 4 0 **Thunderstorm Winds**

Scattered wind damage was reported.

Boone County
Columbia 27 1120CST-1145CST 12 50 0 3 7 0 **Tornado (F3)**

A tornado moved from the western side of Columbia northeastward to rural portions of Boone County. The last confirmed touchdown was just southeast of Hallsville. Damage was extensive. About 30 homes were destroyed or damaged. Many trees and vehicles were badly damaged. A pickup truck and garage were lifted and dropped into the backyard of another home. A shopping center received major damage and the roofs were blown off four apartment complexes. Cars were moved about and damaged throughout the area, including 50 cars damaged at a Ford dealership. One car was picked up and blown into a ditch at a Columbia mall. A 20 X 20-foot hole was torn in a Sears store. The three injuries occurred at the four apartment complexes around Broadway and Stadium Drive, where 150 people were left homeless. A roof was damaged at a school administration building. Another 30 homes were damaged or destroyed around Phille Road. A house was damaged, a barn destroyed, and several trees downed on Owens School Road about 1 mile west of Route J.

Green County
N. Willard 27 1130CST 0 0 4 0 **Thunderstorm Winds**

Several trees and a barn were blown down, and a shed was blown over from 4 miles northwest of Willard to 12 to 14 miles north of Springfield.

Pike County
Frankfurt 27 1315CST 0 0 4 0 **Thunderstorm Winds**

Power lines were downed.

Franklin County
Union 27 1441CST 0 0 3 0 **Thunderstorm Winds**

Trees were downed.

Franklin County
2 N Union 27 1446CST 0 0 3 0 **Thunderstorm Winds**

Trees were downed and blocked a road.

Saint Louis County
Chesterfield 27 1452CST 0 0 3 0 **Thunderstorm Winds**

Winds were reported at 50 knots (58 mph) at the Spirit of St. Louis Airport. Some trees were downed in the area.

Saint Charles County
Ofallon 27 1453CST 4 50 0 30 7 0 **Tornado (F2)**

A tornado touched down about 1 mile southwest of Ofallon and produced intermittent damage through Ofallon to just northeast of Ofallon. Damage was extensive in locations. It is likely that at least some of the damage was from straight-line winds at the beginning of the storm. The tornado was fast moving and all the damage was distributed toward the northeast. However, several eyewitnesses, including law enforcement officials and trained spotters, saw a funnel cloud. The damage estimate for this tornado and thunderstorm winds ranged from $20 to $30 million. The damage included a large apartment complex, a publishing company, and the destruction of six businesses and four houses. Many other homes, mobile homes, and businesses received significant damage.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
MISSOURI Cont'd									
Lincoln County									
Troy	27	1456CST			0	0	4	0	**Thunderstorm Winds**
	Winds to 60 mph produced some damage to large trees in and around Troy.								
MONTANA									
MTZ004 Whitehall	09	1300MST			0	0	3	0	**High Winds**
	There was roof damage.								
MTZ003	09	1300MST-1700MST			0	0	3	0	**High Winds (G66)**
	There were strong winds along the eastern slopes. Choteau reported a gust to 76 mph.								
MTZ003	13	1015MST			0	0	0	0	**High Winds (G78)**
	Strong winds to 90 mph were reported at East Glacier.								
MTZ001-003-004-005-007-009	22	1000MST-2000MST			1	0	6	0	**High Winds (G70)**
	Strong winds buffeted most of the state. Power lines, trees, and roofs were damaged. A trailer home was destroyed at Townsend and a building under construction was blown down at Miles City. Big Timber and Columbus reported power outages. A hiker was killed in the woods west of Superior when the wind blew a tree on him. (M450)								
MTZ001-003-006	23-24	2100MST-0800MST			0	0	5	5	**High Winds (G96)**
	Judith Gap reported winds to 110 mph. Fairfield, Choteau, and Browning reported 100 mph winds. Several grass fires were driven by these strong winds, resulting in damage to fences, hay, and outbuildings. Fires were reported in most counties of Zones 3 and 5. Hot Springs received wind damage to roofs and trees.								
MTZ003	23-25	2200MST-1200MST			0	0	4	0	**Winter Storm**
	Four feet of snow fell in Browning during the period, with 2 feet or more from west of Choteau to west of Cut Bank to the Canadian Border.								
MTZ001-002	23-25	2000MST-0800MST			0	0	5	0	**High Winds**
	Strong winds caused severe damage to docks and break-waters along the eastern side of Flathead Lake. Erosion occurred along the shoreline. Woods Bay was extremely affected.								
MTZ001	24-26	0800MST-0800MST			0	0	5	0	**Flooding**
	Flooding occurred along Libby and Granite Creeks. The floodwaters damaged bridges, dikes, and washed out some power poles causing power outages. The Yaak and Fisher Rivers rose to near or above flood stage but little damage was reported.								
MTZ003	28-30	2100MST-2159MST			0	0	6	0	**Ground Blizzard High Winds (G86)**
	Strong southwestern winds blew through December 3rd causing widespread blowing and drifting snow, closing all roads and highways on the Blackfeet Indian Reservation. Several buildings were damaged by heavy drifting snow. The Reservation was declared a state disaster. A water tower in Heart Butte was blown over, as were rail cars near Browning. Wind continued into December 3rd, 1990.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

MONTANA Cont'd

MTZ004-007 — 29 — 0300MST-1700MST — 0 — 0 — 5 — 0 — **High Winds (G70)**

Strong southwestern winds blew 14 rail cars off the track at Livingston and overturned a tractor-semitrailer on Interstate 90. Some roof and tree damage was reported at White Sulphur Springs.

NEBRASKA

NEZ001-008-012-016 Panhandle to Northeast — 02-03 — Early Evening-Early Afternoon — 0 — 0 — ? — ? — **Heavy Snow**

Six to 8 inches of snow fell from the Panhandle and southwestern Nebraska to northeastern Nebraska. Heaviest amounts included 10 inches in Perkins and northern Custer counties and 9 inches in southern Holt County.

NEZ003-004-007-010-014 Central to Northeast — 05-06 — Afternoon-Evening — 0 — 0 — ? — ? — **Heavy Snow**

Six to 8 inches of snow fell from central to northeastern Nebraska. Heaviest amounts included 14 inches at Greeley in Greeley County and 10 inches in Sherman and Colfax counties. This snowfall, in addition to the previous snow on the 2nd and 3rd, left over 1 foot of snow on the ground in parts of central Nebraska.

NEZ003-005-008-012-016 North Central to Southwest — 26-27 — Late Night-Afternoon — 0 — 0 — ? — ? — **Heavy Snow**

Six to 8 inches of snow fell over parts of central Nebraska. Icy conditions over eastern Nebraska forced the closing of the Lincoln Airport and sections of Interstate 80.

NEVADA

Elko County — 01 — 1130PST — 0 — 0 — 0 — 0 — **Funnel Cloud**

A storm spotter reported a funnel cloud near Jiggs, Nevada, about 30 miles south of Elko. The funnel cloud lasted several minutes and showed little movement.

Mono County, CA — 26 — 0900PST — 0 — 0 — ? — 0 — **High Wind**

A storm spotter in Mammoth Lakes, CA estimated winds of over 70 mph with gusts to 100 mph the previous night. Several large trees (3 to 4 foot diameter trunks) were blown down. One tree struck a house and one struck a parked car. No injuries were reported.

NEW HAMPSHIRE

NHZ005-006 — 06 — Morning Through Early Evening — 0 — 0 — ? — 0 — **High Wind**

A low pressure system over central Illinois intensified as it moved across the Great Lakes into southern Quebec province. This system occluded quickly and the energy shifted to a secondary low that formed at the triple point over southern New Hampshire. The secondary low deepened and moved across the Gulf of Maine to the Canadian maritimes. A tight pressure gradient associated with this system produced high winds which caused numerous power outages in southern New Hampshire due to downed trees and limbs.

NHZ001 Northern New Hampshire — 10-11 — Afternoon-Morning — 0 — 0 — 3 — 0 — **Heavy Snow**

Six to 10 inches of snow fell over northern New Hampshire. Only minor accidents and sporadic power outages were reported.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

NEW HAMPSHIRE Cont'd

NHZ002-006-007	10 11	Late Afternoon- Early Morning	0	0	?	0		High Winds

A low pressure system intensified as it moved along the Atlantic Seaboard and across southern New Hampshire. Winds downed numerous trees and limbs causing many power failures. High winds funneled along the upper Connecticut River Valley, as well as 48 mph at Concord, and greater than 60 mph at the Isles of Shoals. Several burglar alarms in Rochester were triggered by the high winds.

Rockingham County	10 11	Late Morning- Early Morning	0	0	?	0		Flood

Minor street flooding was restricted to the eastern sections of Rockingham County where the heaviest rain occurred, i.e., Portsmouth 3.04 inches, Rochester 2.48 inches, while Concord received 1.77 inches.

NHZ002-003-004-005-006-007	25	Late Afternoon	0	0	?	0		High Winds

Strong western and northwestern winds pushed a cold front across the state during the late afternoon hours when instability was at a diurnal peak. Gusty winds, 49 mph at Concord at 1700 EST, brought down trees and limbs causing widespread power outages and minor damage to homes and automobiles. A big pine tree crashed through the roof of a house at 46 River Road, Penacook. At 1500 EST an 80-foot pine tree blew over on three vehicles on River Road in Claremont.

NEW JERSEY, Northern

Bergen, Hunterdon, Somerset Counties	10	1545EST- 2100EST	0	0	0	0		Flood

A strong low pressure system moving northeastward along the Atlantic Coast dumped between 1.00 and 2.50 inches of wind-driven rain across the area. The runoff from these heavy rains into the streams and rivers eventually produced flooding during the evening hours. Several small streams in Bergen, Hunterdon, and Somerset counties overflowed. The Saddle River at Lodi and the northern branch of the Raritan River at Branchburg also overflowed.

NJZ005-007-015	11 12	2345EST- 0040EST	0	0	5	0		High Wind

A strong cold front moving across northern New Jersey generated damaging winds in Hunterdon, Bergen, Hudson, Middlesex, Essex, Union, and Monmouth counties. Winds gusting to around 60 to nearly 70 mph downed hundreds of trees and power lines. The falling trees damaged many homes and cars.

NEW JERSEY, Southern

None reported.

NEW MEXICO

NMZ002-006	02	1500MST- 2000MST	0	0	0	0		Snow

Rain began on the 1st over the northwestern portion of the state, spreading into the east and south on the 2nd. Cold air moved into the northwest on the 2nd, changing the rain to wet snow in the north-central and northwest. Gallup accumulated 5 inches of new snow while Red River received 4 inches.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

NEW MEXICO Cont'd

NMZ002-004-005-008-009-012 02 2200MST-03 2000MST — 0 0 0 0 **Snow**

An upper-level trough over the western states sheared with the southern portion, deepened over southern Arizona on the 2nd, then moved northeast across New Mexico on the 3rd. Cold air moved into northwestern New Mexico during the night of the 2nd and combined with cold air east of the mountains, all of which moved southward over the entire state on the 3rd. Snow totals in inches included:

Lake Maloya	10	Sandia Ski Basin	4 to 7
Red River	8	Maxwell	3
Santa Fe Ski Basin	8	Chama	3
Angel Fire	6	Cloudcroft	2
Raton	6	Tucumcari	1
		Clayton	1

Lea County

Hobbs 03 1318MST — 0 0 0 0 **Hail (0.75)**

Jal 03 1515MST — 0 0 0 0 **Hail (0.75)**

The Hobbs Police Department reported 0.75-inch hail at 1318 MST. The public reported 0.75-inch hail near Jal at 1515 MST.

Bernalillo County

Albuquerque 06 2050MST-07 0750MST — 0 0 0 0 **High Wind**

Terrain-induced winds through the Tijeras Canyon in the Albuquerque area produced sustained winds of 30 to 40 knots (with gusts from 40 to 50 knots) from the afternoon of the 6th into the sunrise hours of the 7th. The peak gusts were 54 knots at 2228 MST on the 6th and 49 knots at 0317 MST on the 7th.

NMZ002-004-005-006-007-008-010-011-012-013 07 0100MST-08 1000MST — 0 0 0 0 **Snow**

An upper-level closed low moved southward through Arizona on the 7th then east across the southern border of New Mexico on the 8th. In advance of this system, Arctic air plunged into the eastern plains of New Mexico on the 6th and 7th. As cold air was in place ahead of this upper-level low, significant snowfalls occurred across most of the state. Snow totals in inches included:

Quemado Lake	10	Cloudcroft	4	Silver City	2
Chama	6	Mayhill	4	Truth or Consequences	2
Angel Fire	6	Pinon	4	White Sands	2
Estancia	6	Star Lake	3	Hope	2
Socorro	5	Moriarty	3	Clayton	1
Taos	5	Reserve	3	Grants	1
Red River	4	Queen	3	Raton	1
Las Vegas	4	Los Alamos	2	Alamogordo	1
Gallup	4	Albuquerque	2-4	Roswell	Trace
Luna	4				

NMZ002-004-012 26 1400MST-27 0400MST — 0 0 0 0 **Snow**

An upper-level low moved southeast from off the northern California coast into southern California, then east into central Arizona and northeast across northern New Mexico. This system produced snows only in the mountain areas. Snow totals in inches included:

Taos Ski Basin	15	Apache Ski Basin	2
Angel Fire	8	Cloudcroft	2
Red River	7	Corona	2
Santa Fe Ski Basin	6	Quemado Lake	1
Chama	3	Los Alamos	1
Gallup	3		

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

NEW YORK, Central

Dutchess County	06	0100EST-0930EST			0	0	4	0	High Wind

High winds brought down power lines in an area bounded by the towns of Beacon, Poughkeepsie, and Red Hook.

Sullivan County	06	1130EST			0	0	4	0	High Wind

High winds blew down a tree which sheared off a valve on a propane gas tank. The resulting spill amounted to over 150 gallons and forced several homeowners to be evacuated for about an hour.

Saratoga County	06	1300EST-1500EST			2	2	5	0	High Wind

High winds caused trees to fall on high tension power lines. These live power lines then fell on two mobile homes. Two males attempted to remove the power lines; both were electrocuted. Victim number one was pronounced dead at the scene (1410 EST). Victim number two was pronounced dead on arrival at Adirondack Community Hospital (1505 EST). (M64O, M66O)

NYZ006-009-010	10	AM							
	12	AM			0	0	4	0	Flood

A major storm began around midday on Friday as rain. Total rainfall accumulations amounted to almost 4 inches in parts of the Catskills. The rain turned to snow in most areas by midday on Saturday. The excessive rainfall resulted in the headwaters of the Delaware, Susquehanna, and Mohawk Rivers going over flood stage. Minor flooding was also reported on the Schoharie Creek near Breakabeam.

Warren County									
Tongue Mountain	10	PM							
		Late PM			0	0	5	0	Flash Flood
Lake Luzerne	10	1800EST-2100EST			0	0	4	0	Flash Flood

Steady day-long rain created minor flood conditions along State Route 9N, in the town of Bolton. State Police were forced to close the road for the second time in a month when water reached a depth of over 6 inches on the road surface. In Lake Luzerne, flooding along small streams forced the closure of the Old Stage Road Bridge.

Saratoga County									
Stillwater	10	Late PM							
	11	0700EST			0	0	4	0	Flood

The Hudson River spilled over its banks in the town of Stillwater. High water forced the closing of State Route 4, and several town roads. The Anthony Kill also flooded portions of Willow Glen, also in the town of Stillwater, forcing officials to close part of State Route 67.

Ulster County									
Shandaken (T)	10	Late PM			0	0	2	0	High Wind

Strong gusty winds resulted in several large trees and power lines coming down.

Ulster County									
Countywide	11	PM			0	0	2	0	High Winds
Orange County									
Stewart Airport	12	0001EST			0	0	2	0	High Wind (G52)
Columbia County									
Valatie	12	1050EST			0	0	5	0	High Wind
Kinderhook	12	1050EST			0	0	3	0	High Wind
Orange County									
Walden	12	1400EST			0	0	5	0	High Wind (G50)

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

NEW YORK, Central Cont'd

Putnam County Carmel	12	1500EST		0	0	3	0	**High Wind**

Trees and power lines were reported down in most of the area. In Columbia County high winds pulled a steel deck, which was anchored in concrete, out of the ground and into a pool. In Walden, Orange County, a building was forced to close due to vibrations in the structure wall, when buffeted by the strong winds. The building was later reopened after repairs were made.

NYZ006-008-009 010-018	11 12	AM PM		0	5	6	4	**Winter Storm**

The Catskills, Susquehanna, and Adirondack regions of New York experienced an area-wide snow storm. Snow depth averaged between 4 to 6 inches. The greatest accumulation was in Paul Smith, Franklin County, where close to 20 inches of snow was recorded over the two-day period. The effects of the snow and wind also forced the closing of Interstate 88, between Binghamton and Albany. Several hunters were reported stranded in the Adirondacks, because aircraft could not fly into the remote hunting camps to retrieve them. Other parts of eastern New York also received snow, but amounts were below warning criteria.

Fulton County	25	1330EST		0	0	5	4	**High Winds**

Strong gusty winds brought down trees, power lines, and power poles. The unofficial peak gust in Fulton County was 63 mph.

Northern Saratoga Southern Warren Counties	25 25	1442EST- 2025EST		0	0	6	0	**High Wind**

High winds brought down trees and power lines and snapped power poles in the towns of Hadley, Corinth, Day, Fort Ann, Hague, Horicon, Thurman, Chester, Luzerne, Lake George, Bolton, and Warrensburg. Police reported no injuries when gale force winds ripped a camper off a pickup truck near south Glens Falls.

Area-Wide	25	PM		0	0	0	0	**Heat**

Temperatures reached record highs in most of eastern New York. At WSFO Albany the mercury hit 62°. The old date record was 60°.

Area-Wide	28	PM		0	0	0	0	**Heat**

Around eastern New York stations recorded date record-high temperatures. At WSFO Albany the mercury soared to 68° at 1530 EST. The old record of 66° was set in 1984.

NEW YORK, Coastal

NYZ014-015-016 Extreme South-Eastern New York	11 12	2300EST- 0105EST		0	0	7	0	**High Wind**

A strong cold front moving across extreme southeastern New York generated damaging winds in Rockland, Kings, Queens, Richmond, Westchester, and Suffolk counties. Winds gusting to around 60 to nearly 70 mph downed hundreds of trees and power lines. These falling trees damaged many homes and cars. The worst damage was reported in Suffern where a high-rise warehouse under construction collapsed. The damage was estimated to be around $5 million.

NEW YORK, Western

NYZ022 Allegany County	05	2140EST		0	0	4	0	**High Wind**
NYZ002 Livingston County	05	2210EST		0	0	4	0	**High Wind**
NYZ022 Chautauqua County	06	0300EST		0	0	3	0	**High Wind**

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
NEW YORK, Western Cont'd									
NYZ021 Niagara County	06	0500EST			0	0	4	0	High Wind
NYZ001 Erie County	06	0605EST			0	0	4	0	High Wind
NYZ002 Monroe County	06	0644EST			0	0	3	0	High Wind
NYZ004 Oswego County	06	0820EST			0	0	3	0	High Wind
	Deep low pressure over Indiana moved northeast into Ontario. Circulation around the low brought strong winds to the western New York area. Twenty- thousand homes in the Buffalo area were left without power as winds gusted to 64 mph. The winds collapsed a church under construction in Monroe County. There were numerous reports of downed trees, telephone, and power lines.								
NYZ001 Erie County	25	0918EST			0	0	4	0	High Wind
NYZ021 Niagara County	25	0918EST			0	0	3	0	High Wind
NYZ022 Chautauqua County	25	1000EST			0	0	3	0	High Wind
NYZ004 Jefferson County	25	1300EST			0	0	3	3	High Wind
NYZ005 Onondaga County	25	1650EST			0	0	3	0	High Wind
	A fast-moving low pressure system brought very strong winds to the region. The high winds lasted from morning through early afternoon. Trees and power lines were downed. Minor structural damage was also reported.								
NORTH CAROLINA									
Dare County Frisco	10	0540EST	12	40	0	1	5	0	Tornado-Waterspout (F2)
	A small fast-moving tornado touched down near Frisco on Hatteras Island. The tornado moved northeast in a straight line, and passed over the Pamlico Sound before making landfall again on Hatteras Island near Avon. It is unclear whether the tornado lifted before the storm moved over the Atlantic near Avon. In Frisco roofs were blown off houses, cars damaged, and hundreds of trees were blown down. A man was injured by flying glass when his mobile home was destroyed. In Avon two mobile homes were destroyed and one was damaged. The roof was blown off a restaurant. Debris from a cinder block building was scattered around the Avon Shopping Center damaging a car, several cottages, and businesses. A wind gust of 78 mph was recorded at the National Weather Service Office at Cape Hatteras. Estimated damage was near $400,000.								
Mecklenburg County Charlotte	28	2040EST	0.1	20	0	0	4	0	Tornado (F1)
	What was thought to be a small tornado touched down briefly among the tallest buildings in downtown Charlotte. The tornado tore off the second story concrete facing and blew out the first floor windows of a building. A car was overturned and several others were damaged. The tornado crossed Interstate 277 where a witness saw a small guard shack lift off the ground and land about 15 feet away. There was one public sighting of a funnel in the area.								
Dare County East of Nags Head	29	1025EST			0	0	0	0	Waterspout
	Several waterspouts were sighted over the coastal waters east of Nags Head.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

NORTH DAKOTA

None reported.

OHIO

None reported.

OKLAHOMA

Caddo County Gracemont	03	2100CST	0	0	5	?	Lightning

Lightning struck a home in Gracemont, and the resulting fire completely destroyed the structure. The damage was estimated by the National Weather Service at $50,000.

Lincoln County 5 W Stroud	27	0537CST	0	0	?	?	Hail (0.88)
Lincoln County 2 E Stroud	27	0600CST	0	0	0	0	Thunderstorm Wind (G52)
Creek County 5 E Stroud	27	0600CST	0	0	0	0	Thunderstorm Wind (G52)
Hughes County Lamar	27	0745CST	0	0	0	0	Thunderstorm Wind (G52)
Rogers County 1 E Collinsville	27	0705CST	0	0	4	0	Thunderstorm Wind
Rogers County 1 E Collinsville	27	0705CST	0	0	?	?	Hail (1.75)
Rogers County Catoosa	27	0730CST	0	0	?	?	Hail (0.75)
Muskogee County 7 W Muskogee	27	0807CST	0	0	3	2	Thunderstorm Wind
Muskogee County 4.5 W Muskogee	27	0815CST	0	0	5	0	Thunderstorm Wind
Le Flore County Poteau	27	1045CST	0	0	4	0	Thunderstorm Wind

A line of scattered severe thunderstorms during the morning hours produced reports of golf ball-size hail, strong winds, and damaging winds to eastern and southeastern Oklahoma. A partially constructed house 1 mile east of Collinsville was blown down. Damage was estimated at $25,000. A barn 7 miles east of Muskogee had its roof ripped off by high wind, causing an estimated $1200 damage to the roof and hay stored within the barn. A mobile home and barn 4.5 miles west of Muskogee were completely destroyed, with damage estimated by the property owner of $70,000. In Poteau portions of the roof of a drug store were ripped off, causing a shower of bricks and debris to the sidewalk below. Damage was estimated by the National Weather Service at $8,000.

OREGON

ORZ001 Clatsop County	23		0	0	0	0	High Wind

A stationary front maintained strong winds in this coastal county which reached 55 mph in Seaside at 2100 PST.

ORZ001 Clatsop County	24		0	0	0	0	High Wind Heavy Rain

The stationary front continued to menace the north Oregon coast. Wind speeds reached 65 mph in Seaside at 1025 PST and 55 mph in Netarts at 1235 PST. Astoria set a 24-hour precipitation record for the date accumulating 2.94 inches. Seaside, 30 miles farther south on the coast, received 4.08 inches during the 24-hour period.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

PENNSYLVANIA, Eastern

PAZ011-012-016
Poconos to Southeastern Pennsylvania — 11 2200EST — 0 0 5 0 — **High Wind (G52)**

High winds with gusts as high as 60 mph blew down trees and tree limbs, some of which fell on automobiles. In Ringtown, Schuylkill County, a 75-foot-tall feed elevator was blown over. It pulled down power lines and damaged other portions of the mill. In Lansdale, Montgomery County, a sliding glass door was shattered, a railroad crossing gate was damaged, a plate glass window was blown out, and a 6-foot sign was blown off an inn. The area of wind damage extended from Schuylkill County south across Lehigh and Northampton counties to Bucks, Montgomery, and northeastern Chester counties. The peak wind at the Allentown-Bethlehem-Easton Airport was 60 mph.

PENNSYLVANIA, Western

PAZ005
Laurel Mountains — 11 1824EST — 0 0 0 0 — **High Wind**

Trees were downed from nonconvective wind at New Florence, in eastern Westmoreland County.

PAZ005
Laurel Mountains — 11 1905EST — 0 0 0 0 — **High Wind**

Trees blocked roads, and power lines were downed in eastern Westmoreland County from nonconvective wind.

PAZ005
Laurel Mountains — 28 1630EST — 0 0 0 0 — **High Wind**

Carrolltown, in Cambria County, had downed power lines from nonconvective high wind.

RHODE ISLAND

RIZALL — 10 1200EST-2100EST — 0 0 5 0 — **High Winds**

Strong- to gale-force, southeast-to-south winds, preceded and accompanied the passage of an intensifying low pressure system as it moved northeast across Rhode Island and eastern Massachusetts. Low barometer readings of close to 29 inches were recorded with the passage of the low center. Winds gusting to 40 to 70 mph caused scattered power outages and scattered property damage. Upwards of 8,000 electric customers lost power. The roof of a state garage blew off in Portsmouth. Block Island recorded a peak gust to 70 mph.

RIZALL — 11 1200EST-12 1200EST — 0 0 5 0 — **High Winds**

Strong- to gale-force west-to-northwest winds in the wake of a very intense low pressure system (barometer, 28.4 inches in eastern Canada) caused numerous power outages, and widespread reports of mostly minor property damage. Up to 16,000 electric customers lost power on the eastern shore of Narragansett Bay when a main transmission line was knocked out by the high winds. The highest winds occurred with the passage of a secondary cold front late on the evening of the 11th, and very early morning hours of the 12th, and brought peak wind gusts of 60 mph to 70 mph, snow squalls, and even some reports of thunder and lightning. In Bristol, a policeman escaped injury when a tree fell onto his cruiser. Wind gusts to 85 mph were recorded on the shore of Block Island.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
SOUTH CAROLINA									
Georgetown, Horry Counties Garden City Beach	05	0900EST-1030EST			0	0	?	?	Coastal Flooding
		Unusually high tides washed out Underwood Drive where it connects to Azalea Drive. The water caused a gully in Underwood Drive near the fire department's Station 2 and caused some traffic problems because a few cars got stuck. About a foot of water filled the streets of Garden City Beach and also caused some erosion of dunes.							
Georgetown, Williamsburg Counties Andrews	09 10	1800EST-1200EST			0	0	?	0	Urban Flooding
		Several streets, including Poplar, Elmwood and Rosemary, were flooded when 4.31 inches of rain fell in 24 hours.							
Berkeley County 7 E Moncks Corner	09	2111EST			0	0	?	?	Urban Flooding
		Heavy rains caused flooding in areas of poor drainage. Some flooding occurred on S.C. Highway 402 near Hillsville with 8 inches of water in some locations.							
SOUTH DAKOTA									
SDZ007 Black Hills	01 02	2130CST-1700CST			0	?	?	0	Heavy Snow
		A winter storm dumped 3 to 8 inches in the higher Black Hills and 2 to 4 inches in the surrounding areas around Black Hills.							
SDZ011-012-017-020	26 27	1200CST-1100CST			1	?	3	0	Ice Storm
		Freezing rain and drizzle began to fall over the southeastern quarter of South Dakota around noon on November 26th. The slippery conditions caused numerous automobile accidents; most resulting in minor injuries. One accident in the Sioux Falls area involved a van that slid into a guard rail on Interstate 229 and then overturned. An elderly woman who was a passenger in the van died the next day, of injuries she sustained in the accident. (F7OV)							
TENNESSEE									
Obion County	27	2050CST			0	0	2	0	Thunderstorm Wind
		Strong thunderstorm winds downed power lines and trees, and knocked out a window at an antique shop in Union City.							
TEXAS, Northern									
McLennan County Speegleville	08	1731CST			0	0	0	0	Hail (0.88)
Gregg, Harrison, Marion Counties	09	0600CST-0900CST			0	0	0	0	Flash Flooding
		Five to 6 inches of rain resulted in high water over several Farm to Market Roads.							
Van Zandt County Northern Van Zandt County	22	1100CST-1300CST			0	0	0	0	Flash Flooding
		Heavy rains of 5.25 inches in Edgewood during a 12-hour period resulted in high water over Farm-to-Market Road 47 north of Wills Point, and Farm to Market Road 859 north of Edgewood.							

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

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

TEXAS, Southern

Harris County
Houston 08 1859CST 0 0 2 0 **Thunderstorm Wind (G50)**

A line of thunderstorms formed along a cold front that was moving southeastward across eastern Texas. Wind gusts to 30 and 40 mph were frequently associated with the front. An isolated gust to 50 knots was produced by the thunderstorms at Hobby Airport on the southeastern side of Houston. No significant damage was indicated.

TEXAS, Western

South Plains Counties 07 1600CST-
08 0900CST 0 0 3 3 **Ice Storm**

Between 0.50 and 0.75 inch of freezing rain fell across the central and eastern south plains. The ice damaged trees and downed power lines in Plainview and Crosbyton, and caused numerous minor traffic accidents in Lubbock.

UTAH

UTZ010
Northern Utah Mountains 01 0900MST 0 0 0 0 **Heavy Snow**

The first significant snow of the season for the northern mountains lasted into the morning of the 2nd, and deposited 10 to 16 inches above about 8,000 feet elevation.

UTZ010
Northern Utah Mountains 05 0800MST 0 0 0 0 **Heavy Snow**

Another frontal system with somewhat more moisture than the last one, brought anywhere from 9 to 24 inches of new snow to the northern mountains.

Iron, Beaver, and Millard Counties 19 1545MST 0 0 1 0 **High Winds**

Strong gradient winds, ahead of a cold front, blew in portions of southwestern Utah for several hours during the afternoon. Speeds of 30 to 50 mph were common with a peak gust of 60 mph reported at the Cedar City Airport.

UTZ003-010-011
Utah Mountains

Salt Lake and Davis Counties 20 0200MST 0 0 0 0 **Heavy Snow**

A moist Pacific cold front brought heavy snow to most mountainous areas of Utah and along the southern and eastern shores of the Great Salt Lake. The storm lasted into the morning hours of the 21st. Twelve to 32 inches of snow fell in the mountains, while 4 to 10 inches fell in the valleys south and east of the Great Salt Lake.

VERMONT

VTZ004-005 03 1200EST-
2000EST 0 1 4 4 **High Winds**

High winds brought down trees, power lines, a few power poles, and blew off a couple of roofs. High winds were blamed for starting a brush fire, when live electrical wires touched off some leaves. A couple of homes were hit by falling trees, a vehicle was also struck by a falling elm tree, motorcycles were turned over, and dumpsters were blown around parking lots.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
VERMONT Cont'd									
Statewide	12 14	AM AM			0	8	7	6	**Winter Storm**

A storm system started as rain and changed over to snow. Accumulations were reported in excess of 30 inches in Orleans County. The heavy, wet snow brought down power lines and resulted in some parts of the state being without power for more than 96 hours. The combination of cold and downed power lines resulted in some homeowners being forced to drain their water pipes, to prevent them from bursting.

Statewide	25 26	1430EST- AM			0	0	4	4	**High Winds**

High winds gusted up to 51 mph in Montpelier. Higher gusts were reported in other parts of the state, but could not be confirmed by official measurements. Four duck hunters had to be rescued from Lake Champlain. Their 14-foot boat was no match for 16-foot waves. They managed to make it to Sunset Island where they were rescued by a Coast Guard helicopter.

VIRGINIA

Rockingham County	23	2230EST			0	0	3	0	**High Winds**

Strong winds caused approximately $3,000 damage to a house in the northern part of the county. The porch was picked up and blown over the house; part of the roof was also lost.

WASHINGTON

WAZ001-002-004-005 **Washington Coast** **Northwestern Interior** **North Puget Sound**	09- 14				0	?	8	?	**Floods**

Heavy rain associated with the weather pattern dubbed the "Pineapple Express" began falling across the northern sections of western Washington, and the Washington Cascades on the afternoon of the 8th. Heavy amounts of rain were reported overnight, especially by the stations in the higher terrain. Spada Lake in the north-central Cascades reported a 24-hour rainfall total of 10.32 inches. By midday on the 9th, the Nooksack, Skagit, Skykomish, and Snoqualmie Rivers were already above flood stage. Heavy rain continued to fall through midday on the 21st. A total of nine western Washington rivers were now above flood stage with the Elwah, Snohomish, Stilliguamish, Cedar, and White Rivers added to the list. Rainfall tapered off on the afternoon of the 10th, allowing the rivers to recede. Only the Skagit River remained above flood stage when another front passed over Washington on the 13th. Although rainfall amounts were much less than the first event, with the area already saturated, the Nooksack and the Cedar Rivers once again went over flood stage. The second rainfall event was much shorter than the first, with rainfall amounts diminishing quickly on the 14th. The Skagit River was the last of the flooding rivers to fall below flood stage, doing so at 1315 PST on the 14th. Damage from this first flood event of November was $50 million. Whatcom County was hardest hit with $15 million in damage. An estimated 1,500 people were forced from their homes. Most highways along the Olympic peninsula and in northwestern Washington, including Interstate 5, were closed at one time or another due to the high water or mudslides caused from the heavy rain. Rainfall amounts for the whole event ranged from 3 to 8 inches in the lowlands from Seattle northward, and from 8 to 20 inches in the northern Cascades and Olympics. In the end, Governor Gardner declared Whatcom, Skagit, Snohomish, Jefferson, and Grays Harbor counties disaster areas.

Statewide	22- 23				0	?	6	?	**High Winds**

High winds associated with a strong Pacific weather system caused widespread, but for the most part, minor damage across the state. On the 22nd in western Washington, two trees fell on homes in Mason and Kitsap counties. Power outages were common on the Olympic peninsula. In eastern Washington on the 22nd, winds gusting to 52 mph at Pangborn Field in Wenatchee caused a Cessna 172 to break loose and crash into two other aircraft. In Ellensburg, 550 people were without power as trees fell over power lines. A building in Benton City was destroyed by high winds. In Pasco, winds gusting to 70 mph damaged the new town water tower. Visibilities

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

WASHINGTON Cont'd

in the central basin area were reduced to near-zero, in blowing dust, causing the closure of Interstate 82 and Highway 395. On the 23rd in western Washington, winds gusting up to 70 mph ripped the roof off a downtown Aberdeen furniture store. Ten-thousand people on the southern coast lost power. In Bellingham, 1,000 people lost power as the winds blew trees on the power lines. High winds continued in eastern Washington with areas of visibility near zero, in blowing dust in the central basin, along with numerous power outages.

WAZ-007 Northeastern Washington — 24 — 0 ? 5 ? — **High Winds**

High winds in the wake of a strong Pacific weather system continued in the Spokane area on the 24th. Winds gusting to 56 mph (a November record) blew shingles off a dozen trailers, caused numerous power outages, and closed Highway 26 due to the poor visibilities created by the blowing dust.

Western Washington Eastern slopes of the Cascades, Central Basin — 23-25 — 2 ? 8 ? — **Floods**

A pattern similar to the one which caused the flooding earlier in the month set up again over Washington state. The heaviest rain fell between Friday afternoon and Saturday evening. Many locations set rainfall records during this time, including a November 24-hour rainfall record at Seattle-Tacoma Airport (3.58 inches) and an all-time 24-hour rainfall record at Olympia (5.82 inches). By early Saturday morning (24th), all major rivers north of Seattle were above flood stage. With the heavy rain continuing in the Cascades and along the eastern slopes, flood warnings were in effect for 19 rivers in Washington Saturday afternoon. Record floods were recorded on the following rivers: the Skagit, Stillaguamish, Skykomish, Snohomish, Snoqualmie, Cedar, and Wenatchee Rivers. Other rivers, including the Yakima, came close to all-time record levels. Two men were killed during the flooding. One, a 28-year-old, was killed when he drove around barricades and got caught in the rising flood waters of the Snoqualmie River in Duvall. The man's wife and child were rescued. The other man, a 52-year-old, died when he attempted kayaking on the Green River, which was flowing at ten times its normal flow. Damage was major and widespread. A Boeing plant at the Renton Airport suffered millions of dollars in damage when the airport flooded. Two-thirds of the airport grounds were underwater at one point. As was the case in the first flood of the month, numerous highways were closed due to water over the road or mudslides. The Everson-Sumas area on the Nooksack River was entirely evacuated. Thousands of head of cattle were drowned in western Washington. Dikes and levees broke on the Skagit and Snohomish Rivers putting Fir and Ebry Islands under water. Heaviest damage occurred in eastern Washington between Lake Wenatchee and Sunnyslope. Statewide, 2,125 people were displaced from their homes. In addition to the five counties that were declared disaster areas, 13 new counties were added. These included Clallam, Kitsap, King, Mason, Thurston, Pierce, Pacific, Wahiakum, Lewis, Cowlitz, Chelan, Kittitas, and Yakima counties. The rain tapered off on Sunday the 25th. The final event of the weekend occurred Sunday afternoon, when the combination of the heavy rain and the quickly rising Lake Washington was a possible cause for the sinking of the parts of the old Interstate 90 bridge, across Lake Washington in Seattle. Total damages for both floods during November are estimated at $150 to $200 million. (M28O, M52O)

WEST VIRGINIA

WVZ002-003-004-005-006 Western Lowlands — 05 — 1500EST-1730EST — 0 0 3 0 — **High Winds**

A strong cold front swept across the state and caused wind gusts of 40 to 50 mph. Tree limbs were downed and a few trees uprooted. A willow tree was blown down in Stollings in Logan County and caused damage to a church. A porch roof was ripped off a mobile home in Chapmanville, also in Logan County.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
WISCONSIN									
Marathon County									
8 NE Wausau	21	1600CST			0	0	4	0	**Thunderstorm Winds**
	Strong winds from a severe thunderstorm caused $5,000 damage to farm buildings and implements near Wausau.								
WYOMING									
WYZ009-010	01	1800MST-							
Wind River Mountains	02	1600MST			0	0	3	0	**Heavy Snow**
Wind River Basin	Up to 12 inches of snow fell along the eastern slopes of the Wind River Mountains from 1800 MST on the 1st, through 1600 MST on the 2nd. Eight inches fell at Lander, with 6 inches in Riverton. Some tree branches broke, causing minor power outages.								
WYZ001-004-007-009, 010									
Northwest Mountains									
Big Horn Mountains									
Western Mountains	05	0000MST-							
Wind River Mountains	06	0600MST			0	0	0	0	**Heavy Snow**
Wind River Basin	Another major snowstorm brought an average of 6 to 12 inches of new snow to the western and northern mountains on the 5th until 0600 MST on the 6th. Up to 8 inches was reported along the western slopes of the Tetons.								
WYZ012-015-016-017									
Eastern Plains	08	0400MST-							
Southern Mountains		1700MST			0	0	0	0	**High Winds**
Laramie Valley									
Southeast Plains	Strong winds blew mainly across the higher elevations of southeastern Wyoming from 0400 to 1700 MST. Gusts up to 60 mph occurred in numerous locations.								
WYZ002-012-014-015-016-017									
Northwest Chinook									
Eastern Plains									
Red Desert	09	0600MST-							
Southern Mountains	10	0600MST			0	0	0	0	**High Winds**
Laramie Valley									
Southern Plains	Strong winds buffeted much of southeastern Wyoming and along the eastern slopes of the northwestern mountains on the 9th until 0600 MST on the 10th. Gusts up to 60 to 65 mph occurred at Cody, Rawlins, and Wheatland, as well as in the southeastern mountains. Little or no damage occurred.								
WYZ001-007-	19	1600MST-							
Northwestern Mountains	20	2200MST			0	0	0	0	**Heavy Snow**
Western Mountains	A moist Pacific storm brought 6 to 12 inches of snow to much of Wyoming's western mountains from 1600 MST on the 19th until 2200 MST on the 20th. Up to 2 feet fell over the higher peaks.								
WYZ012-107	21	0000MST-							
Eastern Plains		1000MST			0	0	0	0	**High Winds**
Southeastern Plains	Winds of 30 to 45 mph with gusts up to 65 mph buffeted the area east of the Laramie range from about midnight until 1000 MST. Little or no damage occurred.								

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

WYOMING Cont'd

WYZ002-005-011-012-014-017
Northwestern Chinook
Northern Front Range
Central Plains
Eastern Plains
Red Desert
Southern Mountains
Laramie Valley
Southeastern Plains

22 0400MST-1700MST — 0 0 3 0 — High Winds

Strong winds occurred over a large part of Wyoming from 0400 to 1700 MST. Winds of 35 to 50 mph were common, with gusts to 75 mph reported around Wheatland from 0700 to 1000 MST, and near Sheridan and Cody around noon. Minor tree damage occurred, with some power outages, especially around Cody.

WYZ002-005-012-016-017
Northwestern Chinook
Northern Front Range
Eastern Plains
Laramie Valley
Southeast Plains

23 0400MST-1700MST — 0 0 3 0 — High Winds

Winds of 30 to 40 mph with gusts up to 75 mph, again occurred across parts of Wyoming from 0400 to 1700 MST. Minor damage to a few trees occurred.

WYZ002-005-006-010-011-012-014-017
Northwestern Chinook
Northern Front Range
Northeastern Plains
Wind River Basin
Central Plains
Eastern Plains
Red Desert
Southern Mountains
Laramie Valley
Southeastern Plains

23 2200MST-24 1700MST — 0 0 4 0 — High Winds

Strong winds blew across much of Wyoming on the 24th, with the strongest winds in the southeast from about midnight until noon. Speeds of 30 to 45 mph were widespread. Higher gusts included some to 100 mph near Wheatland around 0600 MST; 90 mph near the summit between Cheyenne and Laramie around 0730 MST; and 70 mph near Casper around 0200MST. Minor damage occurred in many areas, with some large trucks blown over, trees blown down onto vehicles and power lines, and a few unsecured mobile homes rolled over.

ALASKA, Southeastern

AKZ012
Northern
Southeastern Alaska

09 Morning Afternoon — 0 ? ? 0 — High Winds

As an Arctic front drifted south over southeastern Alaska, high pressure strengthened over much of interior Alaska and the Yukon Territory. The resulting strong northerly gradient over northern-southeastern Alaska produced sustained winds, frequently in excess of 39 mph with gusts to over 50 mph. The strong gusty winds combined with temperatures in the lower teens and single digits produced wind chill temperatures to near -30°.

AKZ012
Lynn Canal and
Glacier Bay

11 — 0 ? ? 0 — High Winds

STORM DATA AND UNUSUAL WEATHER PHENOMENA

PLACE	DATE	TIME (LOCAL STANDARD)	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS KILLED	NO. OF PERSONS INJURED	ESTIMATED DAMAGE PROPERTY	ESTIMATED DAMAGE CROPS	CHARACTER OF STORM
ALASKA, Southeastern Cont'd									
AKZ012-015									
All Southeastern Alaska	12-13				0	?	4	0	**High Winds**
AKZ013-014									
Central and Southern Southeastern Alaska	12				0	?	?	0	**Heavy Snow**

An Arctic front lay between strong high pressure over the Yukon Territory, and an intense 955 mb low over southeastern Alaska's outer coast. The low forced moist Pacific air over the entrenched Arctic air, resulting in widespread snow which was heavy at times. Parts of central and southern-southeastern Alaska received over 6 inches of snow and as much as 10 inches fell in the Juneau area. The snow created hazardous driving conditions with several minor traffic accidents. The visibility at the Juneau International Airport was reduced to near zero at times, grounding several flights. Between the Arctic high and the intense Pacific low, a very tight pressure gradient over southeast Alaska produced sustained winds from near 50 to near 70 mph with higher gusts. One gust at 92 mph was measured at the Ketchikan Airport terminal roof wind recorder. Power outages, broken windows, and downed trees resulted from the high winds. One tree crashed into the front of a house near Juneau, temporarily trapping two people inside. Winds ripped a storm window off a house in Douglas and blew it into the back window of a car. Another car was damaged by a skiff which had been torn from its trailer. Strong winds also knocked over a 40-foot van. Wind chill temperatures of -35° were common over northern sections of southeastern Alaska.

AKZ012-013									
Lynn Canal-Glacier Bay and Central Southeastern Alaska	25 26	Morning Morning			0	?	?	0	**Heavy Snow**

An Arctic front extended from the central Gulf of Alaska to southern southeastern Alaska and into British Columbia. A low over the central gulf slid southeast along the front, pumping moist air over the Arctic air mass. This produced as much as 13 inches of snow in parts of the central and northern Panhandle. Hazardous driving conditions resulted in numerous minor traffic accidents with no major injuries reported.

AKZ012-013									
Lynn Canal-Glacier Bay and Central Southeast Alaska	27	Afternoon Evening			0	?	?	0	**Heavy Snow**
AKZ012									
Lynn Canal and Glacier Bay	30 01	Late Afternoon Evening			0	?	?	0	**High Winds**

An Arctic front remained in the vicinity of southeastern Alaska for most of the last two weeks of November. On the 27th, the front extended from the central Gulf of Alaska to across central-southeastern Alaska and into British Columbia. A strong 980 mb low moved to the eastern gulf and produced heavy snow north of the Arctic front. Snowfall amounts generally ranged from 7 to 10 inches with over a foot reported at Haines. Hazardous driving conditions once again resulted in minor traffic accidents with no major injuries. The low weakened slowly, but remained nearly stationary in the eastern gulf through the end of the month, producing total snow accumulations of over 2 feet for the last four days of November. At the same time, high pressure was building over interior Alaska and the Yukon Territory. Between the low and the Arctic high the pressure gradient strengthened over the northern panhandle on the 30th. Sustained winds around 50 mph and gusts to 65 mph were produced along with wind chill temperatures to near -45°.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

NOVEMBER 1990

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

ALASKA, Southern

Cook Inlet-Susitna Valley
Central Gulf Coast
Kodiak Island

06- 10 0900AST — 0 0 ? 0 — High Winds

A strong low moved northeastward out of the north Pacific to become a 979 mb low near Cape Saint Elias on the evening of the 6th. Strong northern winds occurred west of the low. Northwestern winds gusted to 74 mph at Kodiak on the 6th and Seward reported northern winds to 70 mph on the 7th. Northern winds gusting to 66 mph hit Valdez on the 6th and 7th, and gusts hit 100 knots at Potato Point in Valdez Narrows on the night of the 8th and 9th. Anchorage had northern winds to 50 mph on the 6th and 55 mph on the 9th and 10th, while Palmer clocked northeastern wind gusts to 74 mph on the evening of the 9th and to 60 mph on the 10th. The Port Valdez was closed at times due to high winds, and stalled oil shipments from the port cost the state $19.2 million. Other damage included roof damage to several buildings in Valdez and damaged a plane (Grumman goose) at the Valdez airport; broken signs, power outages, lost outhouses, outbuildings and lost shingles in the Matanuska Valley; and damage in the Kodiak area due to trees knocked down and roofing blown off.

Yukon-Kuskokwim Delta
Bristol Bay
Kodiak Bay
Alaska Peninsula
Aleutians
Pribilof Islands

24- 26 1800UTC — 0 1 ? 0 — High Winds, Blizzard

An intense low moved northeast through the Bering Sea and deepened to 968 mb near the Yukon Delta by the 26th then weakened inland. Strong pre-frontal winds gusted to 100 mph at Adak on the 24th and to 69 mph at Amchitka. Southwestern winds at Saint Paul peaked at 84 mph, an all-time record on the 25th, causing some damage to buildings. West winds gusted to 71 mph at Port Heiden and 69 mph at Cold Bay on the 25th, and over the southeastern Bering Sea, winds gusting to 90 mph whipped up 30-foot seas which sank two fishing vessels and damaged seven others.

The Kuskokwim Delta experienced blizzard conditions on the 25th with western winds gusting to 62 mph reported at Bethel. The low redeveloped in the Gulf of Alaska and brought northwestern winds gusting to 63 mph at Kodiak on the 25th and 26th.

Central Gulf Coast
Kodiak Island

28- 30 1800UTC — 0 0 0 0 — High Winds

A low moved into the northeastern Gulf of Alaska and became stationary. A strong pressure gradient between the low, and high pressure to the north and west, generated strong winds from the Kodiak Island area to Prince William Sound. Northeastern and eastern winds gusted to 65 to 70 mph at Valdez Airport and the town of Valdez. Gusts reached 65 to 70 mph from the north and northwest at Seward and Kodiak, respectively.

HAWAII

Kauai

16- 17 — 1 0 5 0 — Flash Flooding

Heavy rains measuring up to 15 inches locally over northeastern Kauai caused scattered flooding around the island. One unidentified male hiker in his 20s washed out to sea while crossing a swollen creek.

Hawaii

18- 20 — 0 0 6 0 — Flash Flooding

Heavy rainfall over the eastern half of the Big Island caused extensive flooding of homes and closing of many highways. Rainfall measured near 30 inches from the 18th through the 21st in some areas near Volcano and Pahala.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

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

HAWAII Cont'd

Kauai and Oahu 20 0 0 6 0 **Flash Flooding**

Early-morning showers along the northern Koolau range resulted in a flash flood sweeping through Waimea Falls Park and adjacent areas along the north shore of Oahu. Some damage also occurred to public roads. Kauai likewise experienced some minor flooding problems.

PACIFIC

Palau Island 10 0 0 6 6 **Typhoon Mike**

Super Typhoon Mike, with maximum sustained winds near 135 knots close to its center, moved westward just north of Palau with the eye passing 50 miles north of Koror on Palau. The heaviest damage occurred on the north side of the island. Damage to crops and structures was estimated at $2 million.

Majuro, Marshalls 15 0 0 6 0 **High Surf**

Northeasterly surf about 12 feet high along the Majuro beaches caused extensive damage to sea walls and homes. This was the worst damage since a similar December 1979 episode. Swell was generated in a nearly-stationary fetch area with 40- to 50-knot winds four to five days earlier, near 40N 170W, which was on the north side of a cutoff low pressure system south of a large blocking high.

Wotjo Atoll, Marshall Islands 21 0 0 4 0 **Wind, Surf**

The tropical depression which later became Typhoon Owen developed over the northern portion of the Marshalls near 10N 170E. Some wind and surf damage occurred at Wotjo and other nearby atolls.

Chuuk State 27 0 0 6 5 **Typhoon Owen**

More than 1,000 were left homeless and damage was estimated near $1 million as Typhoon Owen moved westward roughly along 8° north passing north of Chuuk Lagoon at 1990 LST, November 27th. Outer islands of the Halls, Namonuito, and Pattiw atolls sustained extensive damage to buildings, sea walls, and crops. Storm waves inundated the islands of Murilo, Ruo, Nomwin, and others in the outer islands. Damage on the islands in Chuuk Lagoon was slight to moderate to buildings, with crops most affected.

PUERTO RICO

None reported,

VIRGIN ISLANDS

None reported.

CORRECTIONS

AUGUST 1990

Page 79 - **MASSACHUSETTS** - Change entry to read:

MAZ004-007
Eastern Massachusetts 11 0700EST-1700EST

STORM SUMMARY

NOVEMBER 1990

TYPE	ALABAMA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MAINE	MARYLAND & DC	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE
TORNADOES	0	0			0		0								0	0		0									
Number								4			7												5				
Days								1			2												1				
Deaths								0			2												0				
Injuries								10			60												33				
Property Damage								61			260												70				
Crop Damage																											
HAIL																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
THUNDERSTORM WINDS																											
Deaths			0								0			0								0	0				
Injuries			0								1			0								2	5				
Property Damage			4								6			4								0	0				
Crop Damage			0								0			0								0	0				
HIGH WINDS																											
Deaths			0	0		0				0	0								0					1		0	0
Injuries			0	0		0				0	0								0					0		?	0
Property Damage			4	?		5				6	5								5					6		0	0
Crop Damage			0	0		0				0	0								0					6			?
LIGHTNING																											
Deaths			0							0																	
Injuries			0							0																	
Property Damage			3							4																	
Crop Damage			0							0																	
FLASH FLOODS																											
Deaths											1																
Injuries											0																
Property Damage											5																
Crop Damage											0																
FLOODS																											
Deaths									0	0		0					0			0				0			0
Injuries									0	0		1					0			0				0			0
Property Damage									3	5		0					5			6				5			?
Crop Damage										0		0					0			0				0			0
HEAVY SNOWSTORMS AND BLIZZARDS @																											
Deaths										3			0							0				0	0		0
Injuries										0			0							0				0	0		0
Property Damage										5			4							4				5	?		3
Crop Damage										0			4							0				0	?		0
ICE STORMS #																											
Deaths										1											0						
Injuries										2											0						
Property Damage										5											?						
Crop Damage										0																	
HURRICANES AND TROPICAL STORMS																											
Deaths																											
Injuries																											
Property Damage																											
Crop Damage																											
ALL OTHERS																											
Deaths				0						0																	
Injuries				0						0																	
Property Damage				?						4																	
Crop Damage				0						0																	

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM SUMMARY

NOVEMBER 1990

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 DEATHS & INJURY TOTALS
TORNADOES		0			0	0		0														≠			0	0	
Number				2																							
Days				2																							
Deaths				0																							
Injuries				1																							46
Property Damage				5																							
Crop Damage				0																							
HAIL																											
Deaths							0																				
Injuries							0																				
Property Damage							?																				
Crop Damage							?																				
THUNDERSTORM WINDS																											
Deaths							0						0	0						0							
Injuries							0						0	0						0							
Property Damage							5						2	2						4							
Crop Damage							2						0	0						0							
HIGH WINDS																											
Deaths	0		2						0	0					0	0	0	0	0		0			0			
Injuries	0		2						0	0					0	1	0	?	0		0			0			
Property Damage	5		7						5	5					1	4	3	6	3		4			4			
Crop Damage	0		4						0	0					0	4	0	?	0		0			0			
LIGHTNING																											
Deaths							0																				
Injuries							0																				
Property Damage							5																				
Crop Damage							?																				
FLASH FLOODS																											
Deaths			0																				1				2
Injuries			0																				0				
Property Damage			5																				6				
Crop Damage			0																				0				
FLOODS																											
Deaths			0								0							2									2
Injuries			0								0							?									1
Property Damage			4								?							8									
Crop Damage			0								?							?									
HEAVY SNOWSTORMS AND BLIZZARDS @																											
Deaths			0									0				0											
Injuries			5									?				8											
Property Damage			6									?				7											
Crop Damage			4									0				6											
ICE STORMS #																											
Deaths												1		0													
Injuries												?		0													
Property Damage												3		3													
Crop Damage												0		3													
HURRICANES AND TROPICAL STORMS																											
Deaths																								0			
Injuries																								0			
Property Damage																								6			
Crop Damage																								6			
ALL OTHERS																											
Deaths																								0			
Injuries																								0			
Property Damage																								6			
Crop Damage																								0			

SEE REFERENCE NOTES FOR STORM DAMAGE CATEGORIES

STORM DAMAGE CATAGORIES

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

REFERENCE NOTES

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

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

Definition of Fujita Tornado Scale (F scale)

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

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

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

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

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

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

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

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

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

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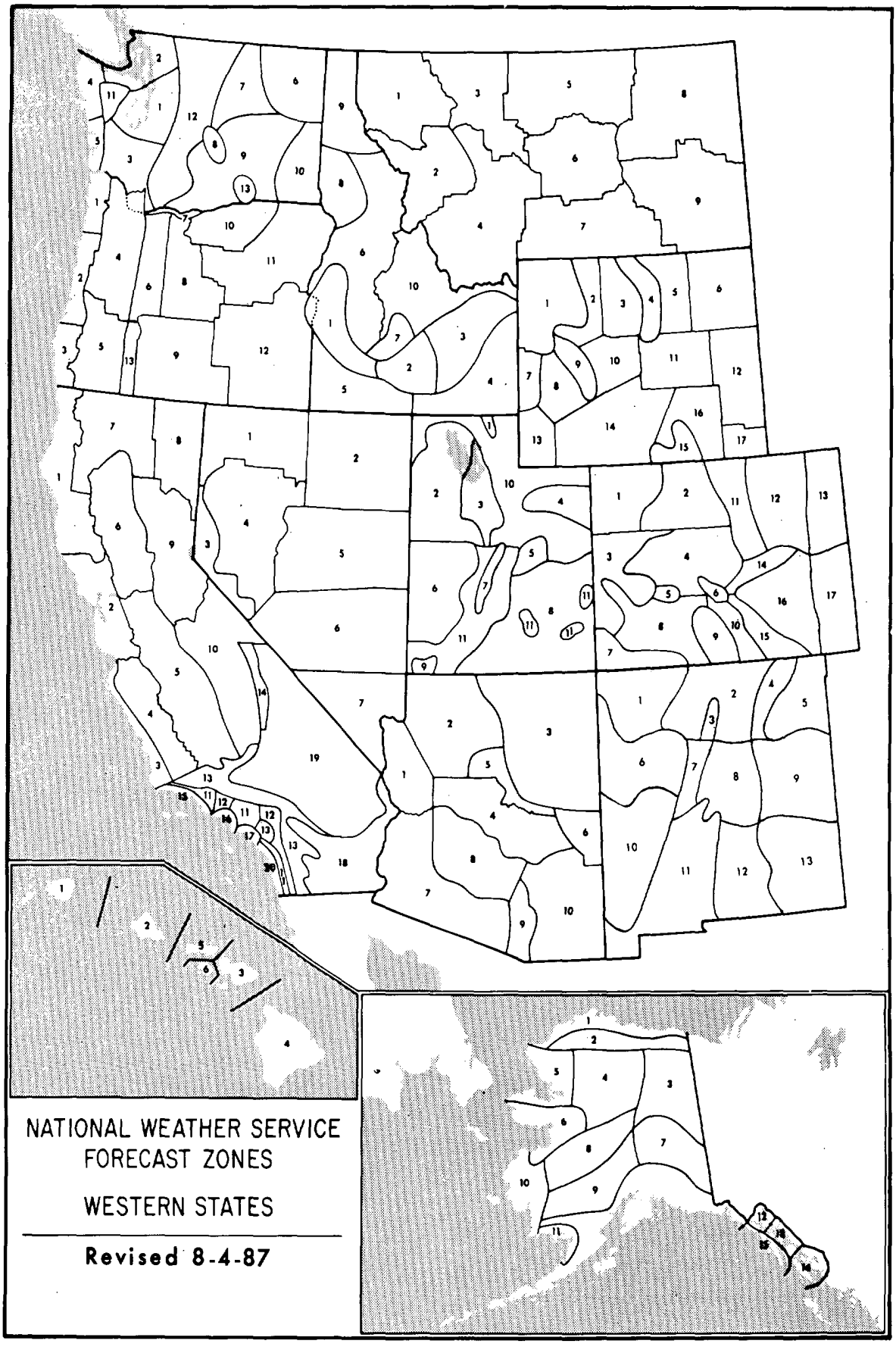

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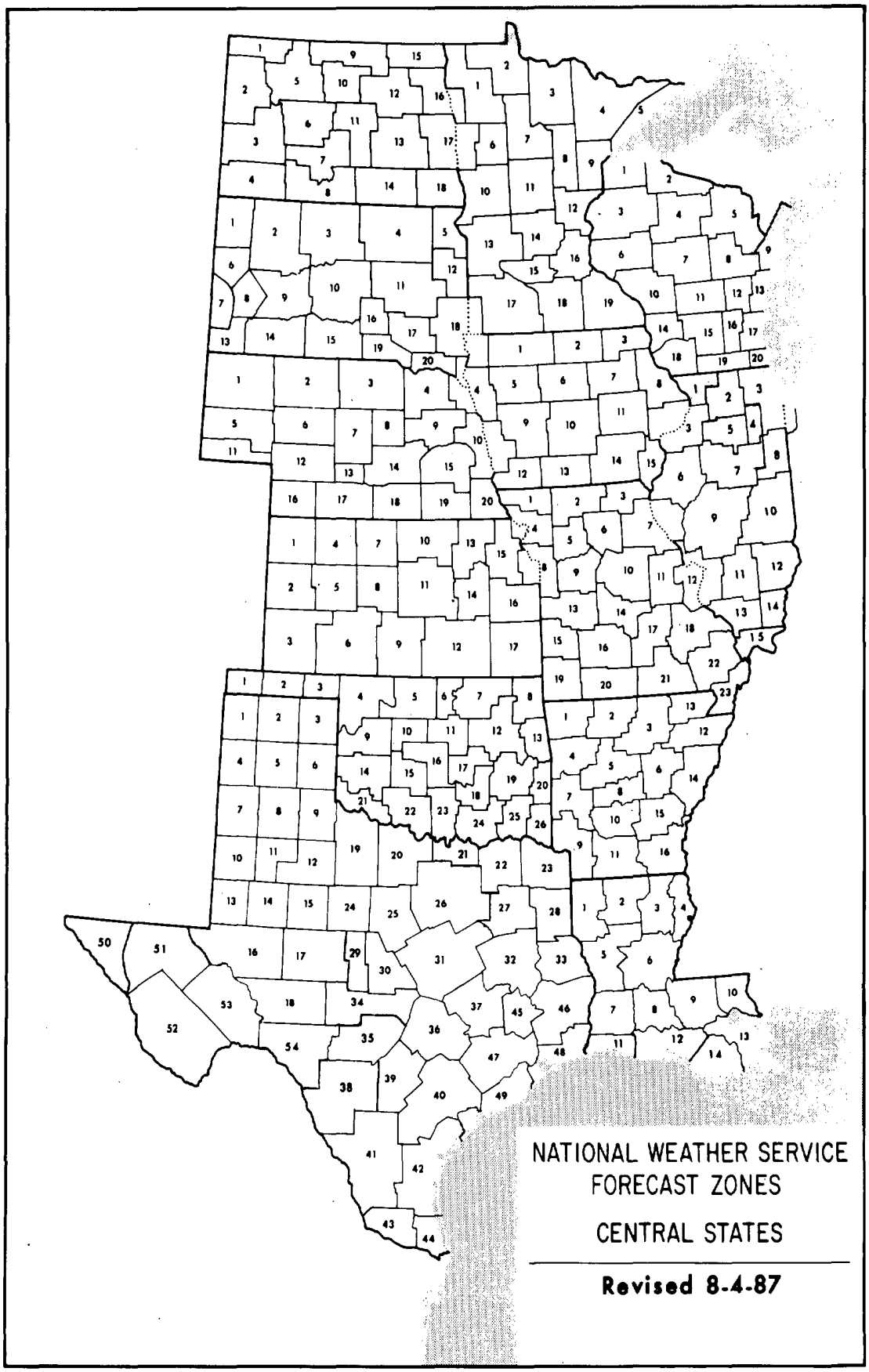
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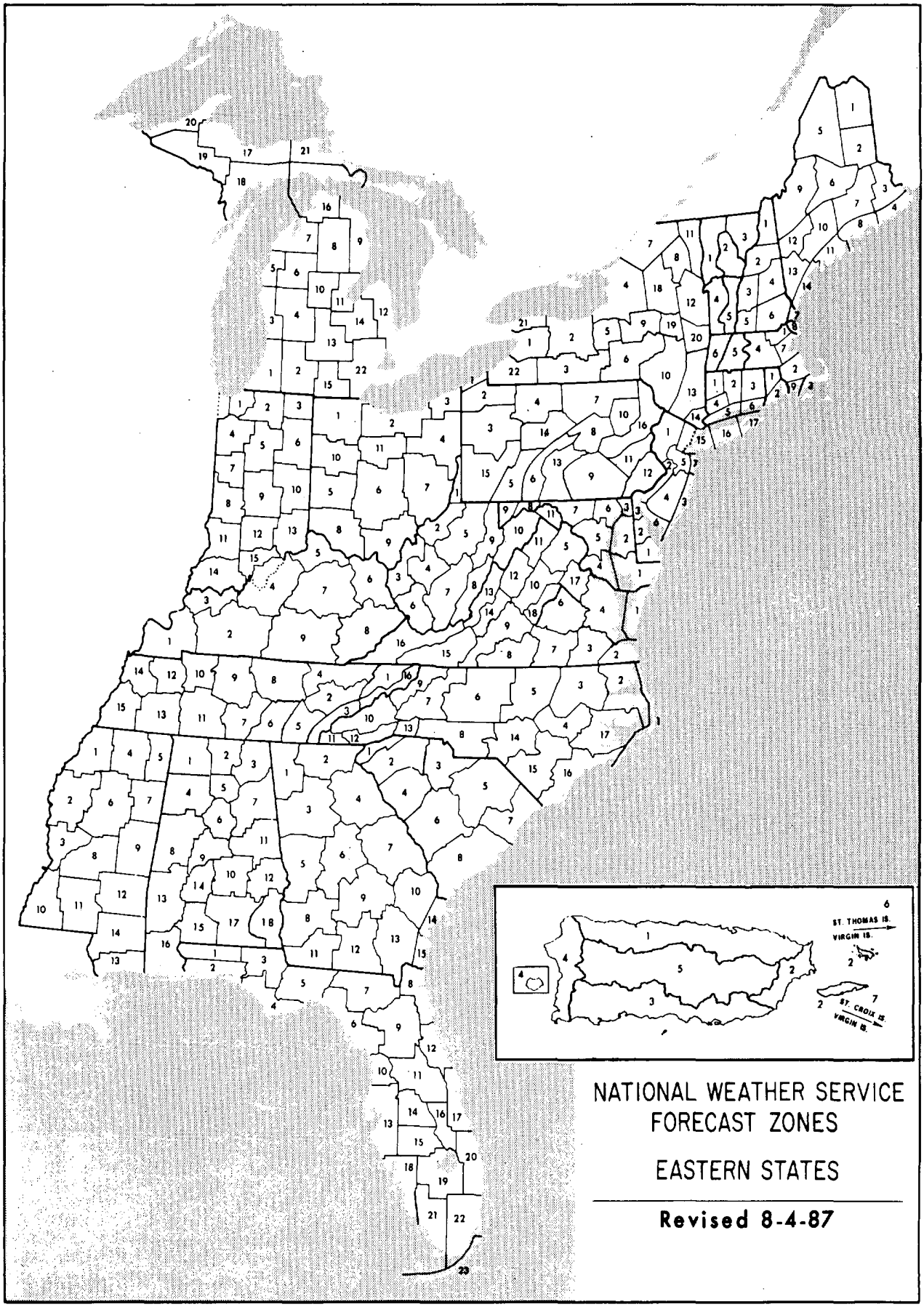

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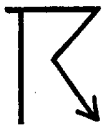

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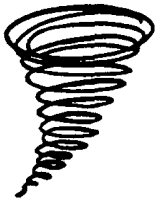

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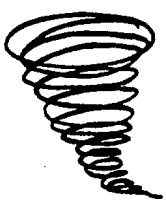

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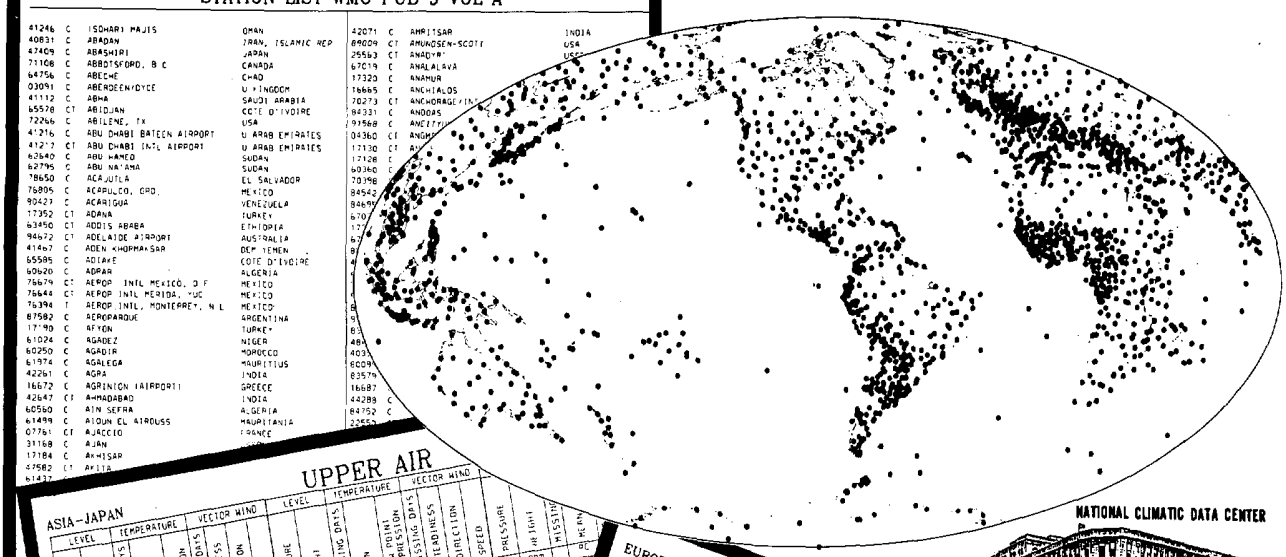
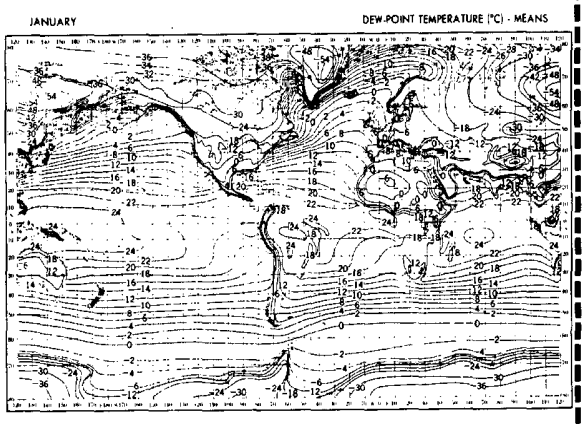


JANUARY 1988
VOL. 41 NO. 1

ISSN 0027-0296

MONTHLY CLIMATIC DATA FOR THE WORLD

PREPARED IN COOPERATION WITH THE WORLD METEOROLOGICAL ORGANIZATION



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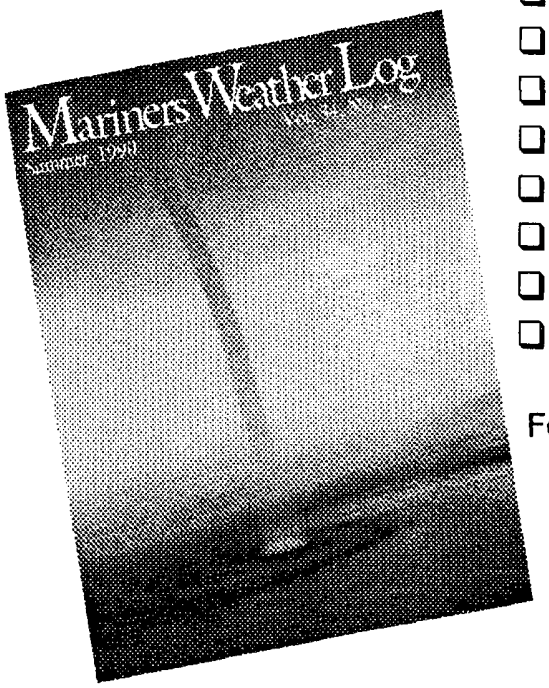

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