

U. S. DEPARTMENT OF COMMERCE
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WEATHER BUREAU
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STORM DATA

SEPTEMBER 1960

Volume 2 No. 9



ASHEVILLE: 1960

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM		
					KILLED	INJURED	PROPERTY	CROPS			
ALABAMA											
Baldwin, Mobile Counties	11-15				0	0	4	5	Hurricane		
	The hurricane weakened rapidly before it moved inland on the Mississippi coast and the highest wind reported on the Alabama coast was 60 miles per hour gusts to 70 miles per hour at Fort Morgan, Mobile County. Slight damage occurred to beach cottages at Gulf Shores, Dauphin Island and around Mobile Bay. Crop damage was primarily to the pecan crop in Mobile County. Slight damage to crops in Escambia, Clarke, Monroe and Washington Counties.										
Gosport, Clarke County	15	Night	Short	Narrow	0	0	3	1	Tornado		
	Tornado apparently formed on edge of tropical storm and struck ground briefly. Demolished one barn, damaged one house, uprooted several trees and stripped a cotton field.										
Sylacauga, Talladega County	16	1:20 p.m.	1/2	50	0	2	5	0	Tornado		
	Tornado moving from south to north struck southwestern part of town. No buildings were completely destroyed but numerous houses and several commercial buildings were damaged by the wind or falling trees. One large commercial building was badly damaged. Several automobiles were turned over, plate glass windows broken, and utility lines blown down.										
Lineville, Clay County	16	4:00 p.m.			0	0	4	0	Windstorm		
	Damaging winds unroofed two houses, blew down several trees and utility lines.										
ALASKA											
Richardson Highway vicinity of Trim's Camp	11-12		25	*5	0	0	5	0	Heavy Rainstorm		
	The showery, turbulent condition over the upper Susitna and Copper River basins appears to have been considerably intensified by the extremely rugged terrain along the canyon in the vicinity of Trim's Camp - particularly in the narrowing canyon just south of the Camp. Rainfall was almost continuous Sept. 8-12, inclusive, with almost 6 inches falling in the 18-hour period following 7 A.M. Sept. 11. The fall, apparently, was much heavier along the steep upper slopes of the mountains fringing the canyon. Practically no wind was observed at the Camp during the rainfall period; damages were due entirely to the heavy runoff which affected road beds, bridges and dikes. Expense of restoring the damaged construction has been estimated by the Road Camp Foreman at \$50,000.										
ARIZONA											
Chandler	1	Afternoon					4		Wind		
	Windstorm caused \$10,000 property damage										
Mesa	1	Afternoon				1	4		Wind and rain		
	About \$25,000 damage by wind. Only slight damage by heavy rain.										
Dateland	4	10:00 p.m.			11		4		Wind		
	Unusually strong winds collapsed a bunkhouse wall injuring 11 men. About \$10,000 property damage.										
Florence	7						4		Wind		
	Severe windstorm did about \$25,000 damage to utilities.										
Casa Grande (6 miles west)	8						4		Possible tornado		
	About \$5,000 wind damage to cabins										
Winslow (15 miles west)	9	1:00 p.m.							Funnel cloud		
	Pilot reported funnel cloud aloft not touching ground.										
ARKANSAS											
Jericho, Crittenden County	9	4:00 p.			1	1			Lightning		
	Two persons were struck by lightning while walking on a road near Jericho. One was killed and one injured slightly.										
CALIFORNIA											
Sacramento Valley, Sierra Nevadas, and Northern Mountains	2-3				0	1	6	0	Thunderstorms		
	Lightning started nearly 500 forest fires and burned several buildings and two log decks. Wind downed utility lines. One person was struck by lightning but was not seriously injured.										
Southern California	2	2:30 p.			0	0	4	0	Thunderstorms		
	Several areas reported hail as large as golf balls, and in southeastern San Diego County hail as large as baseballs was reported. The largest area affected was a strip from Parris northward to Barstow. Wind unroofed some small buildings, and heavy rains caused local flooding. Lightning was responsible for several forest fires.										
CALIFORNIA (Cont'd.)											
Central California	9						1	0	3	0	Thunderstorms
	Lightning and wind caused minor damage to buildings and utility lines. Lightning was blamed for the death of one person in the area near Sonora.										
Oceanside and Vista	11				0	0	8	0		0	Thunderstorm
	Rain, wind, and lightning damaged homes and buildings.										
San Bernardino Mtns.	10-11				0	0	3	0		0	Heavy rain
	Heavy rains caused two mud slides that closed highways.										
San Diego	18	7:30 p			0	0	2	0		0	Lightning
	Lightning damaged utility lines.										
COLORADO											
Colorado Springs area	7	11:25AM			0	1	2				Lightning
	Lightning struck power lines leading to a home in Colorado Springs, knocking down a four year old boy, standing beneath the wires. He suffered minor bruises. An electric stove in the kitchen was damaged. In the afternoon, lightning started a fire in a heavily forested area 1 1/2 miles south of Colorado Springs. It took nine hours to extinguish the blaze.										
Canon City, Fremont and Custer Counties	8	Forenoon Afternoon			0	0	4	4			Hail and heavy rain
	In the forenoon around 11:00AM, heavy rain and hail in the Guffy area caused heavy damage to roads, bridges and crops. In the afternoon, around 1:00PM to 2:00PM, one to three inches of rain accompanied by hail, covered a large area from Canon City to west of Rye. Crops were battered by hail up to an inch in diameter. In the Canon City area, streets were flooded and bridges, roads and buildings were damaged.										
Rio Grande and Conejos Counties	9	Noon			0	0	*4				C Hail
	Hail caused over \$36,000 damage to commercial and residential property in Monte Vista, and to crops from Monte Vista southward in a narrow belt to La Jara. Hailstones more than an inch in diameter, punctured roofs, shattered windows and broke signs. Crops and gardens were "wiped out" in some places.										
Denver	28						4				Wind
	Gusty wind tore the roof from six units of a motel at 6035 West Colfax Ave. The roofing sailed over the building and crashed down on a truck, wrecking it.										
Larimer and Boulder Counties	28						0	0	unes.		Lightning
	Numerous fires were started by lightning in the National Forest in the area west of Fort Collins, Loveland and Longmont.										
Two Buttes	28						0	1			Lightning
	A lightning bolt struck a man while he was combining grain on his farm near Two Buttes. He required hospital treatment for shock and burns.										
Weld County	29						0	0	3		Wind
	A truck and trailer here were blown over when hit by a gust of wind at the top of a hill about five miles south of the Wyoming line on U. S. Highway 85.										
CONNECTICUT											
Statewide	11-12	AM, 11th to 6p, 12th			0		Sev-eral	5	5		Hurricane Donna
	Hurricane Donna gave 4 to 8 inches of rain to Connecticut but stream flooding was negligible. Top winds were about 60 m.p.h. over most of Donna's path through eastern Connecticut, except for some gusts to 80 m.p.h. in the northeast. The hurricane entered south central Connecticut shortly after 4 P. M. on the 12th and moved northeastward into Massachusetts by 5 P. M. The arrival of the storm in most instances several hours before astronomical high tide, its rapid forward motion, and its lateral broadening all combined to minimize damage in most cases. Service to 15,000 telephones was disrupted and 88,000 homes were without power for short periods. Damage from tide and wave action was slight at every beach which had protective sea walls. Sand erosion, however, destroyed walks, parts of streets and weakened foundations. About a quarter dozen sea side cottages were destroyed but most coastal flooding was of short duration. Crop losses were spotty and in the main small, suffered principally by apples and corn. No loss of birds was noted. No crops were blown down. Injury to trees was confined mainly to broken branches and a few older trees. No contamination of water supplies was noted.										
Windsor Locks, Hartford County	20	3:15 AM (EDT)			0	0	5	0			Lightning
	Lightning set fire which caused \$10,000 damage to a business building.										
DELAWARE											
Kent and Sussex Counties	12	A.M.			0	0	5	6			Hurricane
	Strong winds, heavy rains, and flooding from Hurricane DONNA caused property damage and considerable losses to late apples and the corn crop. (For further details see Climatological Data Maryland and Delaware - September 1960)										

See reference notes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (MILES)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
FLORIDA									
Ft. Pierce St. Lucie Co.	4	2:55 pm	-	-	0	0	-	-	Funnel cloud
West Palm Beach Palm Beach Co.	4	10:33 am	-	-	0	0	-	-	Waterspouts (2)
Clearwater Beach Pinellas Co.	7	5:25 pm	-	-	0	0	-	-	Waterspout
Peninsular Florida	10-11				12	1794			Hurricane Donna
<p>This hurricane crossed over the middle Florida Keys between 2 and 3 am. on the 10th. After keeping a short distance offshore it reached the coastline again south of Naples and then turned north over Ft. Myers then more northeastward and then passing out to sea a short distance north of Daytona Beach. At Sombrero Light on the Keys and which was somewhat west of the strongest winds, the highest 1-minute wind speed was 106 mph with gusts to 150 mph. At Tavernier, the fastest mile recorded was 120 mph which was the highest point on the dial. The aneroid needle held solid against the pin for 45 minutes. Tavernier was also a little outside the area of strongest winds. Maximum sustained winds on the Keys have been estimated around 140 mph with gusts possibly as high as 175 to 180 mph. The fastest mile recorded at Ft. Myers was NE 92 mph with gusts to 121 mph. Gusts to 100 mph were measured as far north as Sarasota. In the greater Miami area, sustained winds of just about hurricane force were recorded momentarily. The lowest barometric pressure reported was at Craig where three barometers ranged from 27.4 to 27.5 inches. Storm damages ranged from very severe on the middle Keys to relatively minor at northeast Florida points north of the storm track. Damage and rainfall, in general, were significantly greater and noticeable farther from the center on the right side of the track than on the left. Damages by wind and tide on the Keys ranged from almost complete destruction of all but the most substantial buildings in the Marathon-Tavernier area to loss of roofs, broken windows, water damage and battered boats and docks at other points throughout the Keys. The Overseas Highway was over-flowed by storm tides at a number of places and the road completely disappeared at bridge approaches at several points. The pipeline supplying the Keys with fresh water was broken in at least 3 places. Tides at Tavernier were reported to be about 18 inches lower than those associated with the famous Labor Day 1935 storm on the Keys. Tides in the Everglades City-Naples-Port Myers Beach area were estimated 4 to 7 feet above normal and perhaps even higher in some places. Both Naples and Everglades City were inundated by tides. Tides farther north were progressively lower as the winds in advance of the storm center were offshore and the center itself was travelling over land. On the Gulf coast north of Bradenton and on the Atlantic coast north of the Palm Beaches, tides were mostly 1 to 3 feet above normal and tide damage was relatively minor. Tides in the Miami-Miami Beach area ran mostly 2 to 4 feet above normal and tidal flooding was not a major contributor to the over-all damage. Wind damage was enormous on the Keys and on the southeast coast from Everglades City to Punta Gorda. Even well outside these areas, the wind toppled thousands of trees, demolished many weaker buildings, blew off or damaged roofs and shattered many windows. Wind driven rain added materially to the over-all damage. Power and communications facilities fell throughout central and southern Florida. A large part of the citrus belt was subjected to the strong right side of the storm. Queasy winds uprooted or blew over many trees and bridges, stripped leaves from trees and blew fruit off many trees. Most of the avocado crop was blown from the trees. Reported rainfall ranged from 5 to 10 inches in an 80 to 100 mile wide belt extending roughly 50 to 75 miles to the right of the storm track and 30 to 40 miles to the left of the track. Lake and stream overflow forced evacuation of some homes on the central peninsula. High waters also closed many roads and inundated considerable agricultural land throughout the southern and central peninsula.</p>									
West Florida	14-15				0	0	5	5	Hurricane Ethel
<p>This hurricane developed rapidly in the central Gulf of Mexico early on the 14th, intensified and moved northward during the 14th with winds estimated at 125-150 mph near the center late on the 14th. This storm decreased in intensity before reaching the coast near the Alabama-Mississippi border and no point on the Florida coast experienced hurricane force winds. Highest winds were near 50 mph in gusts at Pensacola and Apalachicola. Tides ranged from 3 to 4 feet. The right forward quadrant of this storm spawned several tornadoes, funnel clouds and waterspouts. Damages caused by this storm, other than those associated with the tornadoes, were almost exclusively agricultural. Rainfall in Florida was quite spotty, the heaviest amounts falling in extreme west Florida. Storm totals ranged from 8 to 10 inches in the Pensacola area to close to 2 inches in the Tallahassee area.</p>									
West Bay Bay Co.	15	5:00 am	Short	Narrow	0	0	3	0	Tornado
Springfield and Millvale Bay Co.	15	5:40 am	1/2	200	0	0	5	0	Tornado
Tornado moved from southeast to northwest									
Port St. Joe Gulf Co.	15	7:55 am	Short	Narrow	0	0	0	0	Tornado
Tornado touched ground over uninhabited area.									
Santa Rosa Island Santa Rosa	15		Short	Narrow	0	0	1	0	Tornado
FLORIDA (Cont'd.)									
Perry Taylor Co.	15	10:00 am	-	-	0	0	-	-	Funnel cloud
Sumatra Liberty Co.	15	10:40 am	-	-	0	0	-	-	Funnel cloud
Bristol Liberty Co.	15	10:42 am	-	-	0	0	-	-	Funnel cloud
Apalachicola Franklin Co.	15	10:50 am	-	-	0	0	-	-	Funnel cloud
Panama City Bay Co.	16	4:11 pm	-	-	0	0	-	-	Funnel cloud
Cape Canaveral Brevard Co.	24	After-noon	-	-	0	0	-	-	Waterspout
Boca Raton Palm Beach Co.	25	4:20 pm	Short	Narrow	0	0	3	0	Tornado
Tornado moved from north to south									
West Palm Beach Palm Beach Co.	25	After-noon	-	-	1	0	-	-	Lightning
Tampa Hillsborough Co.	26	2:10 pm	-	-	0	0	-	-	Funnel cloud
Jacksonville Duval Co.	28	2:30 pm	-	-	0	0	-	-	Funnel cloud
Orange Park Clay Co.	28	After-noon	-	-	1	0	-	-	Lightning
Tampa Hillsborough Co.	29	12:05 pm	Short	Narrow	0	0	2	-	Tornado
Tornado moved from southwest to northeast									
Sarasota Sarasota Co.	30	Noon	-	-	0	0	-	-	Waterspout
GEORGIA									
Southeast Coastal Area	11				0	0	4	0	Hurricane Donna
<p>Hurricane Donna caused light damage in Brunswick and other southeast Coastal areas as it moved northwestward approximately 80 miles off the Georgia Coast. Limbs were blown from trees, and some trees were blown down as wind gusts were near 50 miles per hour. Electric and telephone service was interrupted in some areas as a result of trees and branches severing lines. A minor explosion was caused at a Brunswick plant by a power interruption, and some streets in that City were temporarily flooded by the heavy rains.</p>									
HAWAII									
None Reported									
IDaho									
Most of State	3-4	Early eve & 4 to 6 A.M.			2	0	5	0	Windstorm and lightning
<p>Saturday evening numerous thunderstorms accompanied by high wind struck communities in the Weiser, Payette and Boise Valleys. A large number of small structures were damaged, either by direct action of the wind or by falling trees. Power outages were widespread and in some localities lasted for several hours. Many trees and limbs were blown down in cities and villages, requiring extensive clean-up operations. One man was injured in the windstorm in Boise and a woman burned by lightning. The second strong wind in about 12 hours struck localities ranging from Wallace, Lewiston and Riggins in the north, through the southwestern counties and as far east as Shelley, in Blaine County. Further structural damage was reported and in the vicinity of Emmet about 1/3 of the pear crop, 10% of the plums and 10 to 15% of the peaches were blown from the trees. Several hundred young peach trees were broken by the wind.</p>									
Bear Lake County	7	Early morning					4		Lightning
A vacant house and two large haystacks were destroyed by fires started by lightning.									
Cambridge (near)	12-13	During night					4		Lightning
Large barn and contents destroyed and nearby machinery damaged by fire started by lightning.									
ILLINOIS									
Chicago area	8	Evening			0	0	5		Wind, rain, hail
<p>Wind gusts to 98 mph in severe thunderstorm activity did much damage to trees, buildings, utility lines. An estimated 400 trees were downed in the Villa Park area. A roof was blown off the school in Lombard. A 135 foot radio tower was also blown over. Hail and rain damage was minor.</p>									
Rockford	8	6:00 p			0	0	4	0	Hail, wind
<p>Golfball-sized hail did extensive damage in NW Rockford area. Heavy winds toppled many trees and utility lines.</p>									

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ILLINOIS (Cont'd.)									
Princeton	8	6:00 p			0	0	4		Rain, wind, hail. Heavy rains caused flash flooding of highways. Heavy winds tipped over a house trailer and did much damage to trees and powerlines.
Wabonet	8	10:00 p			0	0	3		Electrical. Lightning damaged two transformers, struck a large tree which fell onto a home.
Taylorville	8	10:00 p			0	0	4		Electrical. Lightning caused fire which destroyed barn and contents.
Fairmont	9	1:15 a			0	0	3		Electrical. Lightning struck transformer, also struck a home causing extensive fire damage to the upper floor.
Oregon	18	9:00 p			0	0	5	0	Wind, hail. Heavy winds damaged trees, powerlines and buildings. Floodlight poles and steel refreshment stand at Athletic Field tipped over. Trees fell on garage wrecking garage and new auto. 300 windows broken by walnut-sized hail. Considerable hail damage to nearby cornfields.
Kankakee	18	Night			3	1	3		Rain. Extremely heavy rains reduced visibility which caused head-on collision.
Moline	18	Night			0	0	5		Electrical. Lightning damaged school chimney scattering bricks which did major damage to 4 cars. Chimney will be to be rebuilt.
Savanna	18	Evening			0	0	4		Rain, wind, electrical. Heavy rains flooded sewers and basements. Lightning struck substation causing power failure. Winds toppled trees.
Jonesville	18	Night			0	0	3		Electrical. Lightning toppled tree onto car causing extensive damage.
Deatur	19	Early			0	0	3		Electrical, wind. Lightning struck tree which fell onto home causing considerable damage. Wind toppled tree onto auto doing \$800 damage.
INDIANA									
(See page 115)									
IOWA									
Clinton & Jackson Counties	8	3:30 p					4	4	Windstorm. About 25% of loss due to hail.
SE Mills to Adams County	17	10:30 p					4	4	Windstorms. 4-6 inches rainfall in storm in Red Oak, Emerson, Coburg areas. Losses from flooding 20%, hail 10% and lightning 2%.
4NE Monticello	18	12:20 p	1	75			3	3	Tornado. Small tornado moved east removing breezeway and garage from home and snapped tree tops in the path.
Preston	18	4:26 p	2	350			4		Windstorm.
Steamboat Rock	21	6:00 p					3		Hailstorm. 3/4 inch hail.
KANSAS									
Sedgwick County	8	3:30p-4:20p					3		Electrical (3). Lightning damaged 3 houses in Wichita within an hour. Two roofs and an air conditioner were damaged.
Iron County	8	6:30p							Electrical. Lightning damaged power lines and switches near Emporia, cutting off the supply to the city water plant from 6:30p-8:00pm.
Brown County	8	night					3		Electrical. A vacant farm house 3 miles northwest of Reserve was burned by being struck by lightning.
Jess County	17	afternoon							Electrical. Lightning struck in two localities, burning 40 acres of grass near Utica, and burning a small building southeast of Jess City.
Bourbon County	18	night							Winds, and hail. Severe local damage was done to crops and a few farm buildings about 6 miles southeast of Fort Scott. Crop damage was heavy and 21 window panes were broken. Glass was imbedded in walls and furniture.
KANSAS (Cont'd.)									
Marion County	22	3:00pm					2		Electrical. A church in Edsona in north part of county was damaged slightly when struck by lightning.
Seward County	22	10:15pm					5		Electrical. A large store building and grocery contents were burned after a bolt of lightning struck the building.
Harvey County	22	night					3		Electrical. Lightning started a fire in an oil tank battery near Burrton. One tank burned for nearly 12 hours.
Atchison County	23	night							Electrical (3). Lightning struck 3 places in Atchison but without serious damage.
Finney County	28	10:30pm							Electrical. Lightning set fire to grass in the southwest part of the county. About a half section was burned.
Mitchell County	29	3:00am					3		Electrical (2). Two lightning bolts near Hunter resulted in the death of a cow and two calves, and the burning of a garage and contents.
KENTUCKY									
Hopkins County	8	3:00 PM					1	4	Wind. The wind damaged a concrete block wall of a new building under construction. Quite a few small trees were uprooted. Numerous limbs were blown from trees. The injury was caused by being hit by a limb blown from a tree. Most of the damage occurred in the city of Madisonville.
Boyle County	8	4:00 PM					2	1	Electrical, Wind and Hail. A severe electrical storm struck the county causing two deaths and one injury by lightning. Numerous trees were blown down by the wind. Several buildings were damaged and utility services were interrupted. The wind and hail caused damage to tobacco. 90% of damage was by wind and 10% by hail.
Grant County	8	PM					1		Electrical. The fatality was caused by being struck by lightning.
LOUISIANA									
SE Louisiana	15				0	0	5	5	Hurricane "Ethel". Hurricane "Ethel" developed early on the 14th, and became a major hurricane that afternoon, but lost strength during the night as cool continental air was drawn into the circulation. The center of the hurricane skirted the mouth of the Mississippi River with winds of 90 miles per hour in the Quarantine-Venice, Louisiana, area at 4 am on the 15th. This was the highest wind recorded on land as the hurricane degenerated further before moving inland at Biloxi, Mississippi, about 5 pm. The highest wind observed on the Mississippi Coast was 56 miles per hour about 2 pm at Biloxi, where the lowest observed pressure of 28.98 inches occurred at 5 pm. The orange crop in Louisiana and pecan and tung crops in Mississippi suffered losses.
Choudrant, 7 S	22	4:30 p			0	0	4	0	Tornado. Small, brief tornado, attended by hail, damaged one home and several outbuildings, and blew trees over.
MAINE									
State	8	P.M.			0	0	4	0	Electrical. Widely scattered "dry" thunderstorms, with no rain in most areas and small amounts in others, set 10 or more forest fires by lightning. Most were quickly controlled but one in Hancock Co. spread over some hundreds of acres at Schoodic.
State	12-13	Late afternoon to early morning			0	0	6	5	Hurricane DONNA. Storm track crossed state from near southwest corner northeastward to near Ft. Kent, Me. Peak gusts of 60 to 70 m.p.h. were reported to the immediate east of the path and at southwest coastal sections. These areas took the brunt of the storm in this state. Damage to boats and coastal installations estimated at more than \$100,000. Loss to apples and other crops set at about \$200,000. Most widespread and heaviest damage was reported to power and phone lines. Many communities were cut off from these services for 24 hours or more. Heavy rains totalling 4 to more than 5 inches over western Maine caused some washouts and local flooding.
MARYLAND									
Pocomoke City, Worcester County	5	3:50PM to 5:30PM			0	0	0	0	Hail. Very heavy rain occurred accompanied by a narrow streak of hail. At the location of the cooperative weather station some hail stones were reported the size of green peas and near that location as large as pullet eggs. Hail was of short duration and no damage was reported.
Worcester, Wicomico and Somerset Counties	12	A.M.			2	3	6	6	Hurricane. Strong winds, heavy rains, and flooding caused considerable property damage and losses to corn and late apples. Ocean City, Maryland was hardest hit by hurricane winds with property damages estimated at more than \$300,000. (For further detail see Climatological Data, Maryland and Delaware - September 1960)

See reference notes at end of table.

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<u>MASSACHUSETTS</u> State	12	Afternoon and early evening	—	—	3	50	6	5	Hurricane DONNA
Center of the storm cut northeastward across eastern Massachusetts from near the Connecticut-Rhode Island boundary through vicinity of Lowell, Mass., and into New Hampshire. Brunt of storm was borne by areas to the east of DONNA's path, with heaviest damage over southeastern Mass., including Cape Cod. Much of the coastal area from Buzzards Bay to Chatham and beyond was littered with DONNA's debris, and hundreds of small boats and pleasure craft were ripped from their moorings and smashed against rocks or sea-walls. Peak gust wind speeds east of the center ranged from around 75 to 100 m.p.h. generally, with highest gust of 140 m.p.h. recorded at Blue Hill Observatory, Milton. Wind damage was generally much less to the west of storm track but rains were heavier. Soaking 4 to 6 inch rains west of the center caused some washouts and local flooding. Rainfall totaled 2 to 4 inches, mostly, east of the center's path but decreased to less than 1 inch in parts of Cape Cod. Winds on the west side of the storm path reached 65 m.p.h. in gusts near the path and diminished with distance from it. Wind-damaged apples were the major statewide agricultural loss. Power and telephone outages were widespread. Compared with previous hurricanes that have ravaged the state, DONNA's devastation was much less with respect to number of fatalities and property and crop losses. This may be attributed to the somewhat weakened intensity of the storm resulting from its two previous major encounters with the U. S. mainland, and to early and adequate warnings.									
Berkshire Co.	13	Near 7 P.	—	—	0	1	3	0	Wind
Trees on Shaker Community property in western Pittsfield fell onto U. S. Rte. 20, striking a truck and trapping and injuring the driver. Trees were felled by short-lived heavy wind during a thunderstorm. Storm was reported as a possible tornado but no confirming evidence could be found. A second small area, 200 feet long, was hit by damaging winds a little later, about 12 miles to the east, at Ashmore Lake, Hinsdale, Mass., where three trees were uprooted and one split. Debris indicated likelihood of some rotary motion but evidence not sufficient to confirm a tornado. A lawn chair apparently was lifted and carried over a tree.									
Adams	19-20	Night	—	—	0	0	4	0	Rain
Three to 4 inches of washing and flooding rains, most of it from 1 to 3 a.m. on the 20th caused heavy damage to local streets and roads. Washouts made many streets impassable.									
Southeastern portion	20	A.M.	—	—	0	1	4	0	Electrical, Rain
Three to 5 inches of rain over most of area caused minor losses from washing and flooding. Rainfall was much heavier than that received from Hurricane Donna eight days earlier in this area. Lightning injured one man at Westfield, where a home was destroyed by fire from lightning also.									
<u>Michigan</u> Entire state	1	10:00 a - late afternoon	—	—	3	20	6	4	Squall line with high winds, hail, heavy rain and lightning
High winds estimated at 100 mph damaged, wrecked or demolished scores various types of buildings, barns, homes, lake cottages, house trailers and cars. Thousands of trees were damaged or blown down. In some instances roofs were blown off buildings. Felled trees were also a large contributing factor to cause of damages to buildings, homes and cars. High winds snapped power poles and lines cutting power and phone service to thousands of homes and industries in the state. The Bay City area suffered the most serious wind damage where power and communications were completely blanked out for hours plus thousands of trees were damaged and uprooted within the city. Numerous small airplanes were damaged and some demolished at several airports due to high winds. Many small boats were damaged or wrecked by high winds on rivers and lakes within the state. A falling tree caused the death of a girl. Capsized boats due to high winds caused the death of 2 men. Most of the injuries reported were caused by falling trees and collapsed buildings with several injuries due to lightning. Hail and wind damaged crops.									
St Ignace	8	7:00 a - 8:00 a	—	—	—	—	—	4	Thunderstorm with high winds, hail and heavy rains
High winds up to 60 mph toppled 9 telephone poles which cut power service in the area. Felled trees blocked streets. Beacon signs were damaged by hail and windows were broken by hail and high winds. Heavy rains flooded several stores with extensive damage to stock and fixtures reported.									
Wren	8	noon	—	—	—	—	—	1	Lightning
Woman knocked unconscious by lightning received several burns on her body.									
South central and south eastern lower Michigan	8	6:00 p - 10:00 p	—	—	2	4	4	4	Thunderstorms with high winds, hail, heavy rains and lightning
High winds felled trees cutting power lines. Several cars damaged by falling trees. Buildings and homes suffered damage due to high winds. Elderly couple seriously injured due to tree falling on their car. Crops damaged by hail and high winds.									
<u>MICHIGAN (Cont'd.)</u>	8	afternoon	—	—	—	—	—	—	Waterspout
Whitmore Lake	Waterspout observed on Whitmore Lake.								
Alpena County	9	5:00 p - 6:00 p	—	—	—	—	—	4	Thunderstorms with high winds, hail and heavy rains
High winds destroyed 2 farm barns with contents and a milk house. Several homes also damaged due to high winds. One inch hail reported in the area.									
Brooklyn	19	day	—	—	—	—	—	1	Lightning
Man working in a silo on a farm near Brooklyn injured by lightning. He received burns on shoulder and left foot.									
<u>MINNESOTA</u>	1	1 a. to 6 a.	—	—	—	—	—	5	Wind, rain
Northern Minnesota	Rapidly developing squall line with winds near 90 mph struck western Minnesota about 1 a. in the Moorhead-Ada area and proceeded eastward across the state ending about 6 a. in the Virginia-Duluth area. Damage was reported in and near the following communities: Moorhead - Many trees damaged and toppled causing phone and power failure. Some buildings suffered roof and wall damage and a concrete retaining wall toppled. Official wind speed at Fargo Weather Bureau Airport Station 84 mph from the North. This is a new September record wind. Previous was West 50 mph in 1954. Barnesville - Trees fall on power lines causing power outage. Ada - 8 barns and 1 house destroyed. Damage reported to other farm buildings. Trees down and 1 house damaged in Ada. Wind moved 12 box cars down a siding but no damage occurred. Damage estimated Ada and vicinity over \$100,000. Bemidji - Many power and phone lines downed by tree limbs. Hibbing - Hundreds of trees damaged or destroyed. Power lines downed. Long distance lines cut and 2 cables flooded by rain. Windows broken. Several barns damaged. Meadowlands - Several buildings unroofed or damaged. Virginia - Trees downed and phone and power lines knocked out. Elmer - Buildings damaged and unroofed. Farm buildings damaged. Storm ended near Duluth at about 6 a. with minor damage in that area. Farthest mile of wind was 53 mph from NW. This set a new record wind extreme for the month of September.								
Nobles and Rock Counties	9		—	—	—	—	—	4	Hail
Hail damage reported in 60 sections of two counties.									
<u>MISSISSIPPI</u>	15		—	—	0	0	5	5	Hurricane "Ethel"
Coastal Counties	Hurricane "Ethel" developed early on the 15th, and became a major hurricane that afternoon, but lost strength during the night as cool continental air was drawn into the circulation. The center of the hurricane skirted the mouth of the Mississippi River with winds of 90 miles per hour in the Quarantine-Venice, Louisiana, area at 4 a.m. on the 15th. This was the highest wind recorded on land as the hurricane degenerated further before moving inland at Biloxi, Mississippi, about 5 p.m. The highest wind observed on the Mississippi Coast was 56 miles per hour about 2 p.m. at Biloxi, where the lowest observed pressure of 28.98 inches occurred at 5 p.m. The orange crop in Louisiana and pecan and tung crops in Mississippi suffered losses.								
<u>MISSOURI</u>									NONE
<u>MONTANA</u>	3		?	?	0	0	0	0	3
Roy (10 miles northeast), Fergus County	A 1200 bale stack of hay was ignited by lightning strike, and destroyed by resulting fire.								
Anaconda - Butte Vicinities, Deer Lodge and Silver Bow Counties	4	10:25 am - Noon	30	?	0	0	0	0	4
The storm hit Anaconda about 10:25 a.m. and Butte around 11:40 a.m. Wind speed 69 MPH at FAA Butte Airport Station. There was considerable thunder and lightning. A number of buildings were damaged and one or two destroyed by wind. All damage was from wind.									
Toston, Broadwater County	4	12:15 pm	10	*2-3	0	0	4	3	High wind
Storm to north of Toston to east side of Canyon Ferry Reservoir. A number of Buildings were damaged by wind.									
Winifred, Fergus County	4	2:45 pm	35	?	0	0	2	0	High wind
Wind estimated about 75 MPH. A plate glass window was broken. A two ton truck in low gear was blown some distance and overturned in a coulee.									

See reference notes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
NEBRASKA									
Scattered areas in Dawson and Frontier Counties	20	6-9:30pm	20	1-4	0	0	0	0	Hail
Stones 1/2" to 1" diameter with largest 2". Ground covered to 2" depth at places. Damage mainly to silo; corn too far advanced. Movement unknown.									
South-Central Nebraska, numerous areas in Furnas, Dawson, Buffalo, Phelps, Kearney and Adams Counties	26	6-9:30pm	2-30	1-4	0	0	4	5	Hail
Stones generally 1/2" to 1" diameter but ranged up to 1-1/2" at places. Ground covered to 2" depth many places and locally up to 4". Silo suffered most damage; corn too far advanced. Storms moved SW to SE.									
Across the State	7,8, 14,15, 17,20, 21,22, 27,28	-	spots	spots	0	0	4	0	Lightning
Large number of lightning strikes on at least 10 different days at many localities. Damage relatively light at individual sites.									
NEVADA									
Pahrump Valley, Clark County	12	Early A.M.	-	-	0	0	-	5	Rain
Heavy rain and resulting flash flood destroyed 1,000 to 2,000 acres of cotton crop about 50 miles SW of Las Vegas.									
NEW HAMPSHIRE									
State	12	Evening	-	-	0	-	5	5	Hurricane DONNA
DONNA'S center swept northeastward across the southeastern corner of the State from near Pelham to Rochester. Major wind damage was limited to this corner of the State with gusts to 80 m.p.h. reported. Many small boats smashed or otherwise damaged as were some coastal installations. Downed trees and limbs caused loss of power and telephone service in many communities in southern and eastern sections. Most of the estimated \$200,000 crop loss was dealt to the apple orchards of the state. Rainfall attending DONNA totaled 4 to more than 6 inches except 2.5 to 4 inches in the extreme northeast portion. One of the heaviest local totals reported in New England was 7.25 inches at MacDowell Dam, near Peterboro. Reports received of local floodings and washouts.									
NEW JERSEY									
Statewide	12	-	-	-	9	Sev-eral	6	6	Hurricane
As hurricane DONNA moved northeastward off the New Jersey coast, damaging winds, heavy rains and high tides struck the coastal areas of the State. Winds gusting up to 100 mph swept the coast, decreasing inland to gale force, and less in the extreme northwest. Rainfall was generally in the 4 to 6-inch range, with Seabrook reporting nearly 8 1/2 inches. At Atlantic City tides reached 5.7 feet above normal. The counties of Cape May, Atlantic, Ocean and Monmouth suffered the greatest damage, with numerous boats, docks, boardwalks and cottages damaged or destroyed. Minor overflows of all streams, moderate on the Raritan River caused losses that are considerable in the aggregate. The Delaware River reached about 2/8 bankfull at Trenton, but did not overflow below Port Jarvis, New York. The most serious agricultural losses were the dropping of about 1/3 of the State's apple crop. Damage to apple and peach trees was considerable. Corn, sudan grass and sorghum harvests were hampered because these crops suffered much wind damage. Nine deaths were attributed to the hurricane, directly or indirectly, including deaths by drowning, heart attack, electrocution by downed power lines, and auto accidents at the height of the storm.									
NEW MEXICO									
San Antonio	20	5:15 pm	-	-	0	1	0	0	Lightning
A State Patrolman was injured by lightning while standing near the road talking to a friend.									
Santa Fe County, (southern)	30	4:30 pm	-	-	0	0	0	0	Tornado
A small tornado was observed northwest of the community of Stanley. On ground only a few minutes over open country, no damage.									
NEW YORK									
Chautauque County and Gleason area	1	Late aft. & evening	-	-	-	-	4	-	Thunderstorms, hail, heavy rain
Spotty severe thunderstorms with brief heavy rain and a few areas of hail. Lightning strikes destroyed one barn and a tool shed.									
Finger Lakes Region and Central New York (including area south-east of Lake Ontario)	9	afternoon	-	-	0	5	0	0	Thunderstorms, hail, heavy rain, probable small tornado, high wind
In Yates County (Dundas area) severe thunderstorms occurred with hail up to the size of golf balls and brief heavy downpours of rain; 3/8 inches of rain in 2 hours. Considerable damage due to washouts from heavy rain and windblown trees onto buildings. Some vineyards and other crops severely damaged. In the Ithaca-Cortland area there were severe thunderstorms with hail; power lines were down, crops damaged by hail, lightning strike fires. In the Fulton area—towns of Volney and Palermo—there were severe thunderstorms with a probable small tornado slipping along a path 500 to 1000 feet wide for several miles; did severe damage to large dairy farms, turned over a trailer home and severely damaged power and telephone lines in the area. Winds estimated over 100 mph and large sections of farm buildings carried as much as 300 feet from original source. Tree blow down was extensive.									
NEW YORK (Cont'd.)									
Southeastern New York and Long Island	11-12	-	-	-	3	?	?	?	Hurricane Donna
Heavy rains, hurricane velocity winds, unprecedented high tides, pounding seas and severe small stream flooding resulted in severe damage throughout parts of southeastern New York, New York City and Long Island. Most severely affected was Long Island, the waterfront of New York City and Orange County in the Catskills. There were 2 drownings and 1 person was crushed by a falling tree. The number of injured is unknown. Damages are still being assessed and will run into many millions.									
East-central New York	19	-	-	-	-	-	4	-	Heavy rain
In the area including the Capital District and the many tributaries to the Hudson-Rhine Rivers there were heavy rains up to 3 inches on top of already saturated soil from Donna's rain. This brought small and intermediate streams to flood levels with considerable lowland flooding in the basin along small streams and in the Capital City area.									
NORTH CAROLINA									
Cumberland, Davidson, Forsyth, Guilford, Stanly Counties	1	3-7 pm	-	-	0	0	4	4	Electrical, Wind, Hail, Rain
Local thunderstorms caused scattered lightning damage to power lines and transformers, some minor fires. One home struck by lightning and dog killed, but no injuries to human inhabitants. A few limbs broken by winds, scattered crop damage from hail. Very heavy rain caused local flash floods Winston-Salem and Morehead.									
Alamance, Ashe, Buncombe, Burke, Caldwell, Cumberland, Franklin, Vance, Warren Counties	2	Afternoon & Evening	-	-	0	0	5	5	Electrical, Wind, Hail, Rain
Local thunderstorms scattered over western two-thirds of North Carolina caused lightning damage to trees and power lines, wind damage to trees and houses, hail and rain damage to crops over a large area.									
Bladen County	11	2 p.m.	15	800	0	0	4	3	Tornado
Cut broken path across fields and woods, direction of path unknown. Several small buildings destroyed. Occurred during approach of Hurricane Donna.									
Sampson County	11	5 p.m.	-	-	0	8	4	0	Tornado
Dwelling demolished and its eight inhabitants hospitalized by wind believed to have been tornado. No associated damage of comparable intensity noted. Occurred during approach of Hurricane Donna.									
Coast and adjoining areas	11-12	Night	-	-	8	100	7	7	Hurricane Donna
Storm center moved northeast along a path slightly east of a line Wilmington, N.C. to Norfolk, Virginia, 9 p.m. 11th to 5 a.m. 12th. Wind gusts in excess of 100 mph and tides four to eight feet above normal. Coastal communities suffered heavy structural damage. Wilmington to Beaufort, with considerable beach erosion. Corn crop badly blown down east to fifty miles inland; some trees down and scattered damage to houses about same distance. One person electrocuted, three drowned, two crushed by falling trees, and two killed in traffic accident in which weather was a factor; estimated 100 persons injured sufficiently to require medical attention. Tornadoes associated with approach of Hurricane Donna are described above.									
NORTH DAKOTA									
East Central North Dakota	8	Morning	-	-	-	-	4	-	High Winds
OHIO									
Cleveland	1	5:45 P	-	-	2	5	4	-	Thunderstorm wind
Severe squall-line thunderstorms passed over the greater Cleveland area in late afternoon. Wind gusts to 52 MPH were recorded at the Cleveland Airport at 5:44 PM; and winds from 30-80 MPH were reported from ships in Lake Erie.									
Wind damage to trees, utility lines, antennas, etc was widespread. One man in Betes was killed when he touched a live wire, and one in Painesville when struck by a falling panel of glass brick. Tornado-like clouds were reported seen from ships over the lake.									
Akron-Canton	1	6:40 P	-	-	0	0	3	-	Thunderstorms
Strong thunderstorm winds, occurring in connection with the squall-line which earlier had passed over Cleveland, caused considerable damage in this area to utility lines, trees, TV antennas, etc. A gust of 51 MPH was observed at the Municipal Airport at 6:38 PM.									
Cleveland	9	5:15 P	-	-	-	-	-	-	Funnel cloud
This funnel cloud was observed by a Weather Bureau forecaster 15 miles northwest of the Cleveland Airport. It did not touch the ground.									

See reference notes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
OKLAHOMA									
Lula, Pontotoc County	20	1:30 p.	?	?	0	0	3	0	Tornado
Although funnel was not sighted, debris and witnesses indicated a small tornado skipped through area northwest to northeast of Lula. Outbuildings were damaged on three farms. Storm moved eastward.									
Tulsa, Tulsa County	20	p.m.			0	0	4	0	Electrical
Lightning caused fire which destroyed a home.									
Alva, 5 miles north-east, Woods County	21	Early a.m.			0	0	4	0	Electrical
Lightning caused fire that destroyed barn and contents.									
OREGON									
Scattered over entire State	3-4	Most of both days			0	0	4	3	Lightning with local strong winds some heavy rain and hail
Severe lightning storms scattered over practically entire State accompanied, in small local areas, by wind and/or heavy precipitation. Fairly hard hail storms in few small areas but damage not serious. At Canyon City heavy rains caused near flooding in the town. Numerous forest fires started but few reached quarter acre in size—none more than 2 acres. Several homes and buildings set afire or otherwise damaged by lightning. Many areas suffered power service interruptions due to lightning strikes on lines or trees blown across them.									
Northeast, central and southwest Oregon	11-12	PM of 11 AM of 12			0	0	4	4	Lightning
Fairly severe lightning storm scattered through northeast, central and southwest Oregon struck number of homes and farm buildings. Several buildings extensively damaged, several hundred tons stored hay gone farm machinery burned. Number of power failures occasioned by lightning strikes on power lines or other facilities. Considerable number small forest fires started but none reached more than 1/4 acre in size, mostly less than 1/4 acre.									
PENNSYLVANIA									
Sullivan & Luzerne Counties	1	Night					4		Thunderstorms
Lightning struck and fired several buildings and killed 8 head of cattle. High winds ripped off the roof of a barn.									
Eastern 2/3rds of State	9	Night					5	3	Thunderstorms
Thunderstorms accompanying a fast-moving cold front produced heavy rain in Lancaster County, which flattened crops. Elsewhere, lightning struck a number of barns which were destroyed by fire.									
Eastern Pennsylvania	11-12	All Day			1		5		Hurricane
Hardest hit area was in southeast where strongest winds, reaching 59 mph in gusts, toppled many trees and downed many miles of utility lines. Heavy rain and inadequate storm sewers or drainage resulted in flooding of basements, lawns and streets. Many small streams and creeks in Bucks and Montgomery Counties flooded low-lying areas to depths of up to 3 feet. One death was attributed to the storm when a boy was swept to his death in a rain-swollen creek behind his home in Sharon Hill.									
PUERTO RICO									
	6	Morning			107	156	7	6	Heavy rain & flood
On September 5, 1960 Hurricane Donna passed about 85 miles North of San Juan so that the full effects of the storm winds were not felt and damage was negligible. After the passage of the hurricane however, a severe thunderstorm developed over Eastern Puerto Rico and was accompanied by torrential rains. During this heavy rain a twelve hour amount of slightly more than 12 inches was reported at Farite Dam; a twenty-four hour amount of 14.97 inches was recorded at Cayey and a two day total of 18.76 inches fell on the Northeast slope of the Luquillo mountains. Amounts exceeding ten inches fell over a large area of the Eastern Interior section of the Island. By the morning of September 6 practically all rivers and streams in Eastern Puerto Rico had flooded their banks with resultant loss of life, injury and property damage. The heavy rainfall caused numerous landslides which were responsible for much of the damage and caused eight of the deaths at Pailitas. Total damages are estimated at more than seven and one half million dollars including crop losses, houses, roads, bridges, power facilities, sewers, farm buildings, livestock, clothing and household effects. For the most part the houses which were damaged or destroyed were built in or near the river and stream beds and were of poor construction with an average value of about \$700 per unit. The loss of life and injury figures are much higher than they should have been due to the refusal of a great number of persons, especially in Humacao, to leave their homes when warned to evacuate in the face of the threat of serious flooding. The figures above indicate total damages to the Island of Puerto Rico. Below are listed deaths, injuries and damages by municipalities and all sections for which losses due to flood and excessive rainfall were reported are included.									
PUERTO RICO (Cont'd.)									
Aibonito	6	Morning					4		Heavy rain & flood
Agua Buenas	6	"					5		"
Arroyo	6	"					4		"
Barranquitas	6	"			1	1	4	4	"
Bayamon	6	"					4	4	"
Caguas	6	"					5	5	"
Carolina	6	"			1	8	4	4	"
Cayey	6	"			2	7	5	4	"
Ceiba	6	"			1	5	4	4	"
Ciales	6	"					5		"
Cotui	6	"					5		"
Cidra	6	"					4	5	"
Comerio	6	"				8	5	4	"
Corozal	6	"					5		"
Dorado	6	"					5	4	"
Fajardo	6	"					5	4	"
Guayama	6	"					4	4	"
Guaynabo	6	"					5	4	"
Humacao	6	"			90	84	6	5	"
Juana Diaz	6	"					5		"
Juncos	6	"				4	5	4	"
Las Piedras	6	"				6	4	4	"
Luquillo	6	"					4	4	"
Manati	6	"			2		5		"
Munabo	6	"					5	5	"
Naguabo	6	"					5	5	"
Naranjito	6	"					3		"
Orocovis	6	"			1	2	4	4	"
Potillos	6	"			8	1	4	4	"
Deaths caused by landslide.									
Rio Grande	6	Morning					4	4	"
Rio Piedras	6	"					2		"
Solines	6	"					5		"
San Juan	6	"					4		"
Santo Isabel	6	"				2	5	5	"
San Lorenzo	6	"			1	5	6	3	"
San Juan	6	"					2	3	"
San Lorenzo	6	"					5	5	"
San Juan	6	"					5	4	"
Trujillo Alto	6	"					3		"
Utuado	6	"					3		"
Vieques	6	"					3		"
Villaalba	6	"					3		"
Yabucoa	6	"				2	5	5	"
Yauco	6	"					2		"
Nuyaguez	6	"					4		High tides and rough seas.
Sixteen small houses built close to the sea were destroyed by the high tides and rough surf action.									
RHODE ISLAND									
Statewide	12	Daylight Hours			0	Sev-	6	6	Hurricane Donna
Hurricane Donna passed through east central Connecticut during the late afternoon but resultant winds were much stronger over Rhode Island. Gusts to 130 m.p.h. were reported at Block Island, 100 m.p.h. at Point Judith and 81 m.p.h. at Providence. The arrival of the storm several hours before astronomical high tide, its rapid forward motion, and its lateral broadening all combined to minimize damage. Nevertheless about 200 boats, both pleasure craft and commercial vessels, were severely damaged or destroyed in Narragansett Bay and Warwick Cove with damage estimated at over 2 million dollars. Extensive wreckage of docks along the entire shore and some breaches of sea walls were noted. About a quarter of a dozen cottages were destroyed. Widespread soil erosion was noted. Power and telephone service was severely disrupted. Vegetable crops in Portsmouth and Newport were hard hit, damage to statewide fruit crops and to timber was widespread and poultry losses were high. Salt damage to varied installations was quite extensive.									
Southern Rhode Island	19, 20	11 a., 19 to 11 a., 20			0	0	5	0	Rain
Extremely heavy rain for an extended period totalling 3.26 inches at Providence, 4.58 at Kingston, 8.31 at Newport and 9.22 at Block Island caused innumerable instances of flooded basements and impassable streets throughout southern sections of the state. Power and phone service to 1,000 homes was interrupted. Heaviest rains came at high tides in Providence County. This caused sanitary sewers in low areas to back up. Some washouts were noted. At Block Island, where 9.22 inches were recorded in 41 hours, a new 30 year record rainfall of 4.52 inches in 24 hours between 11:15 A.M. on the 19th through 11:15 on the 20th was set.									

See reference notes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (MILES)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
SOUTH CAROLINA									
Summerville, Berkeley County	1	3:30 pm	-	-	2	2	0	0	Electrical
Lightning struck a tree under which four golfers took refuge, killing two men and injuring two others.									
Charleston, Charleston County	11	2:00 pm - 2:30 pm	8	100	0	10	6	0	Tornado, associated with "Donna"
Tornado made its first appearance near Ben Sawyer Bridge over the intra-coastal waterway, moved westward and stayed on the ground or near the ground for about 8 miles until it disappeared at the St. Andrew Shopping Center. There was extensive damage reported along the path. Several houses were completely demolished, others were severely damaged. Injuries were caused by flying debris and shattered glass. Damage was in excess of one-half million dollars.									
Garden City, Horry County	11	3:35 pm	-	-	0	0	4	0	Tornado, associated with "Donna"
Six buildings either destroyed or severely damaged with damage estimated at about \$15,000.									
Coastal and Eastern South Carolina	11	2:00 pm - 6:00 pm	-	-	0	*	*	0	Hurricane Donna
*The only significant damage and casualties connected with Hurricane Donna were reported in conjunction with the two tornadoes reported above. Hurricane Donna made its appearance off the coast of South Carolina coast some 50 to 70 miles off shore from Beaufort at around 2 pm on the 11th. The center moved parallel to the coastline and its forward motion averaged between 20 and 25 mph. The center of the hurricane left the vicinity of South Carolina about 8 pm on the 11th. Squalls and winds of gale force were registered all along the coast and in the eastern sections of the state but significant damage or casualties were not reported from the hurricane itself. (See above for effects of tornadoes which were associated with the passage of Donna off shore). As far as crops were concerned, Donna's effects were mixed. Growing crops benefitted while minor damage was done, especially to quality of cotton. Some minor forestry damage was also noted along the coast.									
Columbia, Richland County	29	1:00 pm - midnight	-	-	0	0	4	0	Heavy rain
Deluge of rain about 6:00 pm in downtown and eastern part of the city of Columbia caused severe flash flooding in the Five Points section and other areas of poor drainage. The weather station at the University of South Carolina reported a 24-hour rainfall of 5.90 inches.									
SOUTH DAKOTA									
Yankton County	7	4 to 5 p.m.	-	-	-	-	4	4	Hail
An area two miles square and about nine miles west of the city of Yankton sustained moderate to severe hail damage to corn and other crops. About eight farms were affected. A number of chickens were killed by hail on one farm. Windows, roofs, and siding were also broken or badly damaged on homes and farm buildings in the area. Unmelted hailstones accumulated to depths of eight to ten inches, while precipitation in the area totaled about 1.5 inches.									
Northeast and Minnehaha County	21	a.m.	-	-	-	-	3	-	Electrical
Lightning struck and caused structural damage to a home at Clear Lake, Deuel County, a home at Clark, Clark County, and two telephone poles near Milbank, Grant County the latter disrupting telephone service to a few subscribers. Electric power was also interrupted for a short time by lightning strikes near Britton, Marshall County, and near Garretson, Minnehaha County. A stack of hay was partially damaged by lightning-caused fire near Clark.									
TENNESSEE									
Robertson County (northern portions)	8	6:00 p	20	4	0	0	0	4	Hail and wind
Hail accompanied by strong winds extensively damaged tobacco along the path Orinda-Berren Plains-Pedar Hill-Adams. Hardest hit area was near Cedar Hill. Heavy rain continued after the hail storm.									
TEXAS									
Corpus Christi (near)	1	2:09 p.- 2:11 p.	-	-	-	-	-	-	2 funnels aloft
Kleberg County	1	16:09 p.- 16:11 p.	-	-	-	-	-	-	2 funnels aloft
Tarline	25	Afternoon	?	?	0	0	?	0	Hail
Automobile windshields and window panes knocked out by hailstones 1 3/4" diameter.									
Diboll	22	7:00 p.	short narrow	0	0	5	0	0	Tornado
Angelina County	Tornado demolished Flaming Hill of Lumber Company, scattering lumber and debris over a wide area. A few windows and television antennas were smashed, and trees uprooted. The storm moved from the northeast toward southwest, accompanied by heavy rain and some hail. 16 people were in the mill when the storm struck but there were no injuries.								
Deaf Smith Co.	23	Afternoon	?	?	0	0	0	?	Hail
Hail, varying from pellet to small marble size, severely damaged crops in the North, East, and South portions of the county, covering the ground to a depth of 1 1/2 inches. Hardest hit was lettuce crop with estimated 1,000 acres a total loss. Some maize farms received estimated 60 percent loss. Heavy rain accompanied the storm and contributed to the damage.									
TEXAS (Cont'd.)									
Del Rio	23	4:45 p.- 5:15 p.	?	?	0	0	4	0	Wind
Winds estimated at 50-60 mph damaged 2 drive-in theatres, two hangars at Municipal Airport with slight damage to two aircraft. One or two trees uprooted and limbs of trees twisted and broken. Some hail, about the size of peas fell during the storm which moved from NW to ESE, but no damage resulted from the hail.									
Hale County	23	5:30 p.- 7:00 p.	20	*2	0	0	0	?	Hail
Hail covered an area extending from the north edge of Plainview to west of Vinney and from Finney South and East to Altam. Heaviest hail, with some stones measuring 1 1/2" in diameter fell in an area 2 1/2 miles beginning on north edge of Plainview. Estimated damage to cotton ranged from 20 to 35 percent. Heavy rain accompanied the storm, but winds were light.									
Gregory (near) San Patricio Co.	24	1:50 p.	short narrow	0	0	0	0	0	Tornado
Jefferson County	25	4:40 p.	Sighted over	0	0	0	0	0	Waterspout
Sighted over Sabine Lake.									
5 SW Galveston	27	2:09 p.	Sighted over	0	0	0	0	0	2 funnels aloft
Sighted over Gulf of Mexico.									
Jefferson County	27	12:25 p.	Sighted over	0	0	0	0	0	Waterspout
Sighted over marsh land 15 miles south of Beaumont airport moving SE.									
UTAH									
Tabiona, Duchesne County	2	4 P.M.	6	*2	0	0	0	3	Hail
Hail forms up to 1-1/2" diameter caused \$2200 damage to crops.									
Glenwood, Sevier County	2	Afternoon	-	-	0	0	4	0	Rain
Heavy rains and resulting flash flood did \$15,000 damage to a bridge on Highway 16.									
Riverside, Box Elder County	13	Early A.M.	-	-	-	-	4	-	Lightning
A lightning-caused fire burned 400-700 acres of rangeland and destroyed 1-1/4 miles of telephone line.									
VERMONT									
State	12	Evening	-	-	0	0	4	5	Hurricane DONNA
Vermont escaped the major effects of DONNA. The state was subjected to the storm's turbulent flings. Heavy rainfall especially in southern Vermont and northerly winds of 30 to 40 m.p.h., occasionally gusting to 50 m.p.h. in eastern sections, caused damage, mostly minor. Power and telephone service was disrupted in a few communities as downed trees and branches broke or damaged lines. Rainfall totaled 1 to more than 5 inches in southern and some central portions of the state and about 2 to 4 inches elsewhere in central and northern sections. Some washouts were reported. Major agricultural loss, estimated at \$50,000, was in the apple orchards.									
U.S. VIRGIN ISLANDS									
	5-8						4	3	Hurricane
During the passage of Hurricane Donna North of the U. S. Virgin Islands a relatively small amount of damage was done on St. Thomas and St. John. Several small boats were sunk on St. John and power and telephone service was affected on St. Thomas. There were reports of several houses damaged and destroyed on St. Thomas and some fences were knocked down. No deaths or personal injuries were reported. Heavy rainfall with daily totals as high as 6.78 inches at Estate Fort Myler, St. Thomas, followed the hurricane passage and caused some minor local flooding.									
VIRGINIA									
Flynnville, Patrick, Pittsylvania, Greensville & Henry Counties	2	Afternoon and night	-	-	0	0	?	?	Hail, lightning, wind, and rain.
Heavy hailstones struck Flynnville, Patrick, Pittsylvania, Greensville and Henry Counties causing major damage to tobacco crops. Hailstones up to 1 1/2 inches in diameter were reported in Patrick County. Pittsylvania tobacco growers lost about one third of the annual crop, while up to one half of the crop was lost in parts of Henry, Patrick and Pittsylvania Counties. Severe thunderstorms brought winds in excess of 50 miles per hour to Roanoke, uprooting trees and causing power lines.									
Northampton County	5	Evening	-	-	0	0	?	0	Lightning
Lightning struck five buildings in Northampton County, but resulting fires were quickly brought under control, keeping damage to a minimum.									
Buckingham County	10	6 p.m.	Less than 1 mi.	?	0	0	4	0	Tornado, rain, wind.
A tornado hit the south corner of Buckingham County and in 5 minutes unroofed several homes and destroyed three barns. Several out-buildings were damaged. Rain poured into the unroofed houses. One man alone estimated his losses at \$3000.									
Southeastern Nelson County	10	?	-	-	0	0	0	?	Hail, lightning.
A 30-minute hailstorm did some damage to corn crops in southeastern Nelson County and several trees were struck by lightning.									

See reference notes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

SEPTEMBER 1960

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
VIRGINIA (Cont'd.)									
South Richmond	10	p.m.	-	-	0	0	?	0	Lightning, rain.
Hard rains and thunderstorms brought minor flooding to sections of South Richmond and caused some damage to automobiles.									
Eastern third of Virginia	12	5a.m. - 9 a.m.	-	-	3	6	?	?	Hurricane
Eye of Hurricane Donna skirted the Virginia coast between 5 A.M. and 9 A.M. Violent winds, heavy seas, and flooding caused three deaths and at least six injuries, and extensive damage to eastern third of state. Damage was extremely heavy in the coastal counties. Two mariners were drowned when their barge collided with a freighter and sank. A boat owner lost his life while trying to safeguard his craft. Heavy rains and high seas brought flooding to large areas. Many small boats were sunk or destroyed by pounding seas, while a 12,000-ton vessel was driven aground. High winds uprooted thousands of trees, tearing down phone and power lines and blocking roofs were blown off, plate glass broken and some buildings completely destroyed. Crop damage was heavy, particularly to corn, peanuts and soybeans. Storm moved northeastward.									
Rockingham County	19	Evening	-	-	0	0	0	?	Heavy rain.
Heavy rains in Rockingham County caused considerable damage to newly sown fields. Several points had over 5 inches of rain in about four hours, causing temporary flooding in many farm areas.									
WASHINGTON									
Southeastern counties	3				0	0	3		Electrical
Telephone and power lines were damaged in a few localities and one range fire was started by lightning.									
West of Cascades	4				0	0	4		Wind
Numerous brief power outages occurred when trees or branches blew across power lines. Coast Guard was called out to assist a large number of small boats in the northern Puget Sound and coastal waters.									
West of Cascades	12	morning					4		Electrical
Lightning caused power outages over a large area of the southern Puget Sound region. Two residences in Olympia and Centralia and one in the Grays Harbor area were damaged by lightning.									
WEST VIRGINIA									
None Reported									
MICHIGAN									
Near Denmark	1	11:00 a.m.					1		Severe Squall
Grand Lake ON	7	3:00 p.m.							Funnel
Appleton	8	3:00 p.m.					4		Hail, Wind
Hail up to golf ball size and strong winds damaged trees and wires.									
Appelonia	8	early morning					4		Lightning
Large barn struck and burned.									
Waupun	11						3		Hail
Hail up to golf ball size broke windows and damaged roofs.									
Near Dane	20						4		Lightning
Large barn struck and burned.									
Racine County	24	4:25 p.m.							Funnel
Moving toward Milwaukee County.									
WYOMING									
None Reported									
INDIANA									
Ogden Dunes, Porter County	18	midnight			0	0	4	0	lightning
Lightning and resulting fire destroyed a home valued at \$25,000.									
Glenwood, Fayette and Rush Counties	19	3:50 P	1/8	100	0	0	5	0	tornado
The funnel cloud was observed by several persons 1 1/2 minutes before it struck enabling people to find shelter. A lumber yard and two homes were damaged severely and a third home was completely demolished. The cloud moved northeastward for about four miles and touched down in several cornfields before disappearing. Property damage was estimated at \$60,000.									

- * Miles instead of yards.
- Includes crop damage.
- C Crop damage.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
 - 1 Less than \$50
 - 2 \$50 to \$500
 - 3 \$500 to \$5,000
 - 4 \$5,000 to \$50,000
 - 5 \$50,000 to \$500,000
 - 6 \$500,000 to \$5,000,000
 - 7 \$5,000,000 to \$50,000,000
 - 8 \$50,000,000 to \$500,000,000
 - 9 \$500,000,000 to \$5,000,000,000.

Note: This publication contains our best information on storms but, due to the difficulties inherent in collection of this type of data, it is not all-inclusive. Delayed data and corrections will be carried in the June and December issues of this publication.

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