



# National Weather Service

## Storm Data and Unusual Weather Phenomena



July 1997

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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### DISTRICT OF COLUMBIA

<b>DCZ001</b>	<b>District Of Columbia</b>								
	<b>13</b>	<b>1100EST</b>			<b>2</b>	<b>150</b>			<b>Excessive Heat</b>
	<b>19</b>	<b>1600EST</b>							

The combination of antecedent dry weather, a persistent upper-level high pressure area, and the time of year produced a bona-fide heat wave in the District of Columbia during the middle of the month. Unlike events of previous years, the heat index was not quite as oppressive. Nonetheless, daytime high temperatures averaged in the upper 90s for the seven days, with the hottest readings occurring on the 17th (100 at Washington/National Airport) and on the 15th and 18th (99 each day).

Ground-level ozone levels became hazardous as the heat wave persisted; the city departments of health and environment declared code orange (approaching unhealthful) or red (unhealthful) conditions each day. Two persons perished from hyperthermia; both were in residences without air conditioning or fans. An estimated 150 other folks were admitted to area hospitals with heat-related disorders; one elderly woman, 94, suffered heat stroke, and had a body temperature of 105F.  
F64PH, M72PH

<b>District Of Columbia Northwest Portion</b>									
	<b>18</b>	<b>1845EST</b>			<b>0</b>	<b>0</b>	<b>75K</b>		<b>Thunderstorm Wind</b>

A squall line, preceding a frontal system, developed just north of the city. Intensifying rapidly, the storm struck the city and produced damaging winds which felled numerous trees and/or large limbs. A small section of roof was lifted from an apartment Northwest; two apartments were flooded. An elm tree fell onto a house on 8th and Upshur Streets Northwest, causing damage to siding and a porch. Potomac Electric power Co. reported 20,000 customers were without power in Washington and the surrounding Maryland suburbs.

<b>DCZ001</b>	<b>District Of Columbia</b>								
	<b>27</b>	<b>1100EST</b>			<b>0</b>	<b>0</b>			<b>Excessive Heat</b>
	<b>28</b>	<b>1600EST</b>							

Another bout of searing heat occurred in the Washington metropolitan region towards the end of July. Official maximum temperature readings at Washington/National Airport reached 99 on the 27th and 100 on the 28th. No deaths or injuries were reported.

<b>District Of Columbia Northwest Portion</b>									
	<b>28</b>	<b>1650EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>

A bow-shaped thunderstorm, racing southeast from the Maryland and Virginia piedmont, produced wind gusts strong enough to blow down large limbs and some power lines in upper Northwest.

### MARYLAND, Central

<b>MDZ002&gt;007-009&gt;010-013&gt;014</b>	<b>Allegheny - Washington - Frederick - Carroll - Northern Baltimore - Harford - Montgomery - Howard - Prince Georges - Anne Arundel</b>								
	<b>01</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>	<b>43.7M</b>		<b>Drought</b>
	<b>31</b>	<b>2359EST</b>							

A very dry month, containing one 7-day heat wave, exacerbated drought-like conditions across much of the fertile farmland of Maryland. The weather in July proved to be the death knell for much of the crop yields, including corn, hay, alfalfa, and soybeans. Agricultural states of emergency were declared in many areas west of the Chesapeake Bay. Hardest-hit counties included Carroll (MDZ005), Frederick (MDZ004), Howard (MDZ010), Montgomery (MDZ009), and Washington (MDZ003).

Some of the more impressive damage estimates were as follows: in Frederick Co, nearly \$9 million in corn, an approximate 90 percent loss; an additional \$5.5 million in corn for silage and soybean, a 60 percent loss. In Washington Co, an estimated \$8.6 million in grain and silage corn, a 70 percent loss. In Montgomery Co, \$2.5 million in grain corn and \$2.1 million in soybeans, a 65 percent loss. Counties on the mid and upper eastern shore, known for their extensive corn production, had losses above \$10 million in grain corn alone.

<b>Frederick County 3 NW Thurmont</b>									
	<b>07</b>	<b>0035EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Gusty Wind</b>
<b>Washington County Smithsburg</b>	<b>09</b>	<b>1530EST</b>			<b>0</b>	<b>0</b>	<b>8K</b>		<b>Thunderstorm Wind</b>
<b>Anne Arundel County Annapolis</b>	<b>09</b>	<b>1745EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
<b>Harford County Aberdeen Proving Grn</b>	<b>09</b>	<b>1815EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind (G56)</b>

An isolated thunderstorm produced estimated winds as high as 55 mph. A few limbs were knocked down, and very minor structural damage was reported, as well as 1/2 inch diameter hail.

A broken line of thunderstorms moved through northern Maryland during the afternoon, producing isolated severe weather. In Washington Co, the local sheriff's department reported several large limbs and power lines were down. A pickup truck cap was



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### MARYLAND, Central

blown off as well. Farther east, a gust to 64 mph at Poverty Point in the Aberdeen Proving Ground knocked down numerous small to large tree limbs, and knocked down a few trees as well.

Three racing sailboats were flipped in Annapolis Harbor just east of the Naval Academy sea wall. Two boats were brought upright, but one remained overturned and allegedly sunk. No persons were injured. Approximately 8,000 Baltimore Gas and Electric customers lost power during the storm.

**MDZ002>007-009>011-013>014-016>018**

**Allegany - Washington - Frederick - Carroll - Northern Baltimore - Harford - Montgomery - Howard - Southern Baltimore - Prince Georges - Anne Arundel - Charles - St. Mary'S - Calvert**

<b>13</b>	<b>1100EST</b>	<b>2</b>	<b>100</b>	<b>Excessive Heat</b>
<b>19</b>	<b>1500EST</b>			

The combination of antecedent dry weather, a prolonged upper-level high pressure area, and the time of year produced a bona-fide heat wave across much of Maryland during the middle of the month. Unlike events of previous years, the apparent temperature was not quite as oppressive. Nonetheless, daytime high temperatures averaged in the upper 90s for the 7 days, with the hottest days occurring on the 17th and 18th.

Surface ozone levels became hazardous as the heat wave persisted; the Metropolitan Council of Governments declared code orange (approaching unhealthful) or red (unhealthful) conditions each day. The heat wave resulted in increased power output; Baltimore Gas and Electric reported a record 6,000 megawatts on the 15th. Water usage bans were enforced in portions of southern Washington Co (MDZ003) from the 13th through the 17th.

Three persons perished in Maryland (west of the Bay) from the heat in July. One death was indirect; on July 20th, a woman died in an automobile because the vehicle's windows were shut tight (Montgomery Co, F89VE). The other deaths were directly attributable to the heat. A woman was found dead in her Baltimore City apartment on the morning of the 18th; the unit had no air conditioning or fans and the interior temperature was measured at 90 degrees at 0600 EST. Late in the month (July 27th) a man collapsed while riding a motorcycle; he was wearing several layers of heavy clothing.

Local hospitals across the state reported dozens of persons were treated for heat-related disorders. Most were from heat exhaustion; some were from the more dangerous heat stroke. Many were in the Baltimore-Annapolis metropolitan region, including 3 Navy midshipmen.  
M35OU, F62PH

**Montgomery County**

<b>Bethesda</b>	<b>18</b>	<b>1845EST</b>	<b>0</b>	<b>0</b>	<b>5K</b>	<b>Thunderstorm Wind</b>
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**Prince George'S County**

<b>College Park to Brandywine</b>	<b>18</b>	<b>1900EST</b>	<b>0</b>	<b>0</b>	<b>20K</b>	<b>Thunderstorm Wind (G53)</b>
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**Charles County**

<b>Waldorf</b>	<b>18</b>	<b>1925EST</b>	<b>0</b>	<b>0</b>	<b>3K</b>	<b>Thunderstorm Wind (G61)</b>
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A rapidly developing squall line produced scattered severe weather as it moved from the northern suburbs of Washington, DC through lower southern Maryland. In Bethesda, large limbs were knocked down. Numerous large limbs and some trees fell in Prince George's Co, namely in College Park, Riverdale, and Silver Hill. Other damage occurred between Bowie and Brandywine, including several snapped tree tops. Property damage was minimal, including minor roof damage from fallen limbs.

In Waldorf, a wind gust of 71 mph was reported. An observer in White Plains (Charles Co) recorded a 61 mph gust. In the District of Columbia and immediate Maryland suburbs, 20,000 customers were without power during the height of the storm. In Anne Arundel Co, at least 8 large limbs fell onto roads and into yards, but no direct property damage was reported. In all, 25,000 Baltimore Gas and Electric customers lost power during the storm; 18,000 of those were in Anne Arundel Co.

**Allegany County**

<b>Luke</b>	<b>28</b>	<b>1416EST</b>	<b>0</b>	<b>0</b>	<b>2K</b>	<b>Thunderstorm Wind</b>
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**Allegany County**

<b>10 E Cumberland</b>	<b>28</b>	<b>1440EST</b>	<b>0</b>	<b>0</b>	<b>3K</b>	<b>Thunderstorm Wind</b>
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Large limbs and power lines were knocked down along several roads east of Cumberland. Large limbs and a few power lines were also knocked down along the Allegany/Garrett Co line in Luke.

**Anne Arundel County**

<b>Annapolis to Severna Park</b>	<b>28</b>	<b>1715EST</b>	<b>0</b>	<b>0</b>	<b>8K</b>	<b>Thunderstorm Wind</b>
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**Charles County**

<b>Port Tobacco to La Plata</b>	<b>28</b>	<b>1729EST 1740EST</b>	<b>0</b>	<b>0</b>	<b>10K</b>	<b>Thunderstorm Wind</b>
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A bow-echo squall line produced scattered tree and wire damage in the Annapolis/Severna Park section of eastern Anne Arundel Co. At least eight large limbs were downed in Annapolis, with additional tree damage in nearby Severna Park. The combination



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### MARYLAND, Central

of lightning and wind left an estimated 18,000 customers without power immediately after the storm.

Farther south, thunderstorm winds produced a swath of scattered damage across central Charles Co. The damage occurred along a 10-mile path from Liverpool Point to just north of La Plata. Some trees, large limbs, and wires were knocked down along area roadways, including Turkey Hill, Spalding, and Hawthorne Drives. In La Plata, indirect storm damage occurred when fallen "hot" wires ignited a fire at an empty warehouse in an industrial park; the building eventually burned to the ground.

#### **Howard County Clarksville**

<b>30</b>	<b>1200EST</b>								<b>Dust Devil</b>
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A dust devil developed in an open field near Clarksville during the early afternoon, picking up 5 to 6 tents up to 25 feet in the air. The tents contained camping duffel bags - the bags held up to 40 pounds of equipment. One tent was slightly damaged when it was ejected from the dust devil and struck a parked truck. The tents and equipment were part of the Cycle Across Maryland annual summer tour.

### VIRGINIA, North

#### **VAZ027>028-030>031-040>042-052**      **Shenandoah - Frederick - Warren - Clarke - Rappahannock - Fauquier - Loudoun - Prince William**

<b>01</b>	<b>0000EST</b>								
<b>31</b>	<b>2359EST</b>			<b>0</b>	<b>0</b>		<b>10M</b>	<b>Drought</b>	

A very dry month, containing one 7 day heat wave, exacerbated drought-like conditions across much of the fertile farmland of northern Virginia. The weather in July proved to be the death knell for much of the crop yields, including corn, hay, alfalfa, and soybeans. Clarke Co (VAZ031) alone reported \$2 million in crop damage. Other counties in the northern Virginia piedmont reported damage via local farms; dollar estimates were similar to those in Clarke Co, though no formal declarations of federal emergency were received from them.

The dry, hot weather resulted in a temporary water restriction to be enacted in Spotsylvania Co on the 19th and 20th.

#### **Greene County Countywide**

<b>01</b>	<b>2100EST</b>								
<b>02</b>	<b>0030EST</b>			<b>0</b>	<b>0</b>		<b>5K</b>	<b>Flash Flood</b>	

#### **Madison County South Portion**

<b>01</b>	<b>2100EST</b>								
<b>02</b>	<b>0030EST</b>			<b>0</b>	<b>0</b>			<b>Flash Flood</b>	

#### **Orange County West Portion**

<b>01</b>	<b>2200EST</b>								
<b>02</b>	<b>0200EST</b>			<b>0</b>	<b>0</b>		<b>5K</b>	<b>Flash Flood</b>	

Back-building, nearly stationary showers and thunderstorms developed over a portion of the central Shenandoah Valley during the evening of the 1st and persisted through the early morning hours of the 2nd. The cells contained ample tropical moisture, and incredible rain totals of up to 12 inches were reported. A rain gage along the Rapidan River between Madison and Greene Cos reported 8 1/2 inches of rain; other spotters reported general totals between 4 and 5 1/2 inches.

Recent dry weather enabled the ground to absorb more water than usual, hence the flooding was nowhere near catastrophic, as had been the case during events of 1995 and 1996. Nonetheless, numerous creeks over spilled their banks in Greene Co, and several roads were closed. The same story was noted in western Orange Co, particularly near the town of Somerset. Madison Co escaped the brunt of this event, but still had brief creek rises which closed a few roads in the south portion.

#### **VAZ025>031-036>042-050>057**      **Augusta - Rockingham - Shenandoah - Frederick - Page - Warren - Clarke - Nelson - Albemarle - Greene - Madison - Rappahannock - Fauquier - Loudoun - Orange - Culpeper - Prince William - Fairfax - Arlington - Stafford - Spotsylvania - King George**

<b>13</b>	<b>1200EST</b>								
<b>19</b>	<b>1600EST</b>			<b>0</b>	<b>0</b>			<b>Excessive Heat</b>	

The combination of antecedent dry weather, a prolonged upper-level high pressure area, and the time of year produced a bona-fide heat wave across much of Virginia during the middle of the month. Unlike events of previous years, the apparent temperature was not quite as oppressive. Nonetheless, daytime high temperatures averaged in the middle or upper 90s for the 7 days, with the hottest readings occurring on the 17th and 18th. Intense media coverage of the heat and associated pollution parameters may have saved lives; no direct heat-related deaths were reported during the period in Virginia.

#### **Arlington County Arlington**

<b>18</b>	<b>1845EST</b>								
				<b>0</b>	<b>0</b>		<b>10K</b>	<b>Thunderstorm Wind</b>	

A small area of strong to severe thunderstorms raced through the Washington DC metropolitan area during the evening. In Arlington Co, there were numerous reports of wires and large limbs that were felled, and at least one small tree fell onto the George Washington Parkway. Virginia Power reported 12,000 customers were without power in the northern Virginia suburbs.



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### VIRGINIA, North

<b>Rockingham County South Portion</b>	21	1610EST 1625EST			0	0	50K		<b>Lightning</b>
<b>Rockingham County South Portion</b>	21	1610EST 1625EST			0	0	10K		<b>Thunderstorm Wind</b>
<b>Albemarle County (Cho)Charlottesville</b>	21	1730EST 1745EST			0	0	40K		<b>Thunderstorm Wind</b>
<b>Albemarle County Charlottesville Arprt</b>	21	1745EST			0	0	10K		<b>Thunderstorm Wind (G50)</b>

Isolated severe thunderstorms struck a portion of the Shenandoah Valley during the late afternoon. Effects were felt most in Harrisonburg, Charlottesville, and Earlysville, where several large limbs, trees, and wires fell.

In Charlottesville, the bell tower of Buck Mountain Church was destroyed, and a nearby fallen tree broke a window and caused minor roof damage. Farther north, in and near Earlysville, several trees and large limbs fell, most onto power lines and some blocking local routes 743 and 660. At nearby Charlottesville/Albemarle Co Airport, winds were measured at 58 mph.

In Harrisonburg (Rockingham Co), several trees were snapped and a few uprooted, including an 80 foot tall walnut tree. An outbuilding's roof was tossed into a moving vehicle, causing minor damage to the car but no injury to the driver. Hail driven by the winds shattered a window at a downtown accounting firm. Lightning struck the roof of a county public library, rupturing it slightly. Water leakage caused minor damage to books inside. Hundreds of residents were without power during the storm.

<b>Orange County Countywide</b>	24	0030EST 0700EST			0	0	10K		<b>Flood</b>
<b>Madison County Countywide</b>	24	0430EST 0600EST			0	0	5K		<b>Flash Flood</b>
<b>Nelson County East Portion</b>	24	0530EST 0700EST			0	0			<b>Flash Flood</b>

A stationary front across south central Virginia lifted abundant tropical moisture into an area of moderate to heavy rain. In a small portion of the central Shenandoah Valley, rain totals exceeded 6 inches, causing flash flooding of area streams and creeks. Orange Co received the most rain; at least 10 roads were closed for several hours due to high water levels. Other flooding likely occurred in Madison and Nelson Cos.

<b>Frederick County East Portion</b>	28	1507EST 1515EST			0	1	100K		<b>Thunderstorm Wind</b>
<b>Clarke County Berryville</b>	28	1538EST 1542EST			0	0	20K		<b>Thunderstorm Wind</b>
<b>Clarke County Boyce</b>	28	1538EST 1542EST			0	0	0		<b>Hail (0.75)</b>
<b>Loudoun County West Portion</b>	28	1543EST			0	0	40K		<b>Thunderstorm Wind</b>
<b>Fauquier County North Portion</b>	28	1600EST			0	0	15K		<b>Thunderstorm Wind</b>
<b>Arlington County Arlington</b>	28	1635EST 1650EST			0	0	3K		<b>Thunderstorm Wind</b>
<b>Arlington County South Washington</b>	28	1635EST 1650EST			0	2			<b>Lightning</b>

A squall line, which originated from an individual thunderstorm in southwest Pennsylvania, produced scattered wind damage across northern Virginia during the late afternoon as it raced across the region. The most impacting damage occurred in Frederick Co, where numerous trees and wires were blown down in the Winchester area. One of those trees became an airborne missile, crashing through an automobile windshield and slightly injuring the 30-year old female driver. In Clarke Co, several trees and



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### VIRGINIA, North

large limbs were felled in the Berryville area, including one onto the historic home of George Washington's adopted daughter. Numerous wires were reported down as well.

Dozens of other trees and large limbs fell in western Loudoun co, northern Fauquier Co, and Arlington Co. In western Loudoun Co, a large limb just missed striking a country inn; a picnic table was tossed from one yard to another. The Northern Virginia Electric Cooperative reported 3800 customers were without power during the peak of the storm. Some of the limbs that fell blocked roads; most notably federal route 340 near Berryville.

In Arlington Co, a man and woman were struck by lightning in the Pentagon's parking lot; the man remained in serious condition that evening. Large limbs fell onto the George Washington Parkway at Spout Run. At least 14,000 customers were without power during the peak of the storm in the northern Virginia suburbs.

### WEST VIRGINIA, East

**WVZ048>053-055**

**Grant - Mineral - Hampshire - Morgan - Berkeley - Jefferson - Hardy**

<b>01</b>	<b>0000EST</b>	<b>0</b>	<b>0</b>	<b>12.4M</b>	<b>Drought</b>
<b>31</b>	<b>2359EST</b>				

A very dry month, containing one 7-day heat wave, exacerbated drought-like conditions across much of the fertile farmland of eastern West Virginia. The weather in July proved to be the death knell for much of the crop yields, including corn, hay, and pasture. The West Virginia Farm Service Agency reported the following damage statistics: Corn, hay, and pasture yields were 40 to 50 percent of normal. Estimated damage to the corn crop included 2500 to 3000 acres per county in the Potomac Highlands (WVZ048>051, 055) but as much as 10,000 acres in the eastern panhandle (WVZ052>053). Hay damage was estimated to be 40,000 acres per county; pasture land an additional 80,000 acres per county. No significant damage to alfalfa was noted. Though some summer fruit was damaged by the drought, most of what survived was excellent.

**Pendleton County**

**East Portion**

<b>23</b>	<b>1850EST</b>	<b>0</b>	<b>0</b>	<b>Flash Flood</b>
	<b>2000EST</b>			

Rainfall in excess of 3 1/2 inches at higher elevations caused minor flash flooding along some roadways in the area. At the Navy Reservation between Brandywine and Sugar Grove, 9 inches of water covered state route 21.

**Mineral County**

**Keyser**

<b>28</b>	<b>1430EST</b>	<b>0</b>	<b>0</b>	<b>5K</b>	<b>Thunderstorm Wind</b>
	<b>1435EST</b>				

**Berkeley County**

**Shanghai**

<b>28</b>	<b>1515EST</b>	<b>0</b>	<b>0</b>	<b>10K</b>	<b>Thunderstorm Wind</b>
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**Jefferson County**

**Charles Town**

<b>28</b>	<b>1538EST</b>	<b>0</b>	<b>0</b>	<b>3K</b>	<b>Thunderstorm Wind</b>
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A rapidly moving squall line, from southwest Pennsylvania into the eastern panhandle of West Virginia, blew down large limbs and a few power lines in northern Mineral Co. As the line moved east, more large limbs were knocked down in western Berkeley Co near Shanghai. An outbuilding was also tossed across nearby railroad tracks, and a power pole was severed. Other trees and large limbs fell near Charles Town, blocking a portion of state route 9. Wires were felled between Shannondale and Keys Gap.