



National Weather Service

Storm Data and Unusual Weather Phenomena



July 1998

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

DISTRICT OF COLUMBIA

| | | | | | | | | | |
|---------------|-----------------------------|----------------|--|--|----------|----------|--|--|-----------------------|
| DCZ001 | District Of Columbia | | | | 0 | 0 | | | Excessive Heat |
| | 20 | 1100EST | | | | | | | |
| | 23 | 1700EST | | | | | | | |

After an unusually pleasant start to the month, a singular heat wave affected the Washington metropolitan region during the climatological peak of highest annual temperatures. The heat wave, caused by the combination of hot and humid air associated with "Bermuda" high pressure and increasingly dry ground, caused temperatures to soar into the mid and upper 90s. The heat index, however, equalled or exceeded 100 each afternoon.

Urban heat advisories were in effect in advance of the episode; the city employed a task force to operate emergency cooling centers and check on the at-risk elderly in un-air conditioned homes. This heat wave was less tolerable than those in recent years since much of the summer had been cooler and less humid than normal.

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|--|-----------|----------------|--|--|----------|----------|------------|--|--------------------------|
| District Of Columbia Northwest Portion to Northeast Portion | 21 | 1745EST | | | 0 | 0 | 20K | | Thunderstorm Wind |
| | | 1755EST | | | | | | | |
| | | | | | | | | | |

A potent strong to severe thunderstorm whipped through the District of Columbia during the early evening, knocking down dozens of large limbs, some trees, and numerous wires from upper Northwest through portions of Northeast. Tens of trees were knocked down at the National Arboretum. Potomac Electric Power Co reported 95,000 customers were without power in the metropolitan region, 7,500 within the city proper.

MARYLAND, Central

| | | | | | | | | | |
|--|--|----------------|--|--|----------|----------|--|--|-----------------------|
| MDZ003>007-009>011- 013>014-016>017 | Washington - Frederick - Carroll - Northern Baltimore - Harford - Montgomery - Howard - Southern Baltimore - Prince Georges - Anne Arundel - Charles - St. Mary'S | | | | | | | | |
| | 20 | 1100EST | | | 2 | 2 | | | Excessive Heat |
| | 23 | 1700EST | | | | | | | |

After an unusually pleasant start to the month, a singular heat wave affected much of Maryland west of the Chesapeake Bay during the climatological peak of highest annual temperatures. The heat wave, caused by the combination of hot and humid air associated with "Bermuda" high pressure and increasingly dry ground, caused temperatures to soar into the mid and upper 90s. The heat index, however, equalled or exceeded 100 each afternoon. Highest temperatures were recorded in the Baltimore metropolitan region, with 99 degrees on the 22nd at Baltimore/Washington International Airport. This heat wave was less tolerable than those in recent years since much of the summer had been cooler and less humid than normal.

Two deaths were reported by the Office of the Chief Medical Examiner - both in Baltimore City. One of the fatalities, a 47 year-old male, resulted from exposure (likely heat stroke) while working at the Bethlehem Steel plant near the shipyards. A 51 year-old male was found dead in his un-air conditioned home on South Parish Street.

There were numerous cases of heat exhaustion, some requiring a brief hospital stay for observation. At least 12 persons checked into medical facilities in Anne Arundel Co (MDZ014) with heat exhaustion. A bigger outbreak of heat-related sickness occurred during the evening of the 20th, when 16 teenagers were treated after attending a scouting convention at the University of Maryland's Cole Field House in College Park (MDZ013). Four of the teens were hospitalized; two of them suffered heat stroke. The event was attended by 4,000 persons at the un-air conditioned hall on one of the hottest days of the summer. The problems were noted roughly between 1945EST and 2015EST.

During the three-day episode, another 30 to 44 persons were treated for heat exhaustion in the county, and there were perhaps a dozen incidents of heart attacks which may have been heat-related.

In Bethesda (MDZ009), a 37 year-old male perished after sustaining cardiac arrest (1420EST) following a 213-ft. climb up an inoperable escalator at a subway station. The heat may have been a contributing factor, though the escalators are partially enclosed in air-conditioned tunnels.

The heat wave and attendant power usage allowed daily wattage to surpass previous records in the Baltimore Gas and Electric service area; an all-time record of 6,016 megawatts was used on the 22nd.

M47OU, M51PH

| | | | | | | | | | |
|--|-----------|----------------|--|--|----------|----------|------------|-----------|--------------------------|
| Washington County Clear Spg to Sharpsburg | 21 | 1645EST | | | 0 | 0 | 15K | 5K | Thunderstorm Wind |
| | | 1656EST | | | | | | | |
| | | | | | | | | | |

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|--|-----------|----------------|--|--|----------|----------|------------|--|--------------------------------|
| Frederick County Brunswick to Frederick | 21 | 1652EST | | | 0 | 0 | 90K | | Thunderstorm Wind (G52) |
| | | 1702EST | | | | | | | |
| | | | | | | | | | |



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MARYLAND, Central

| | | | | | | | | | |
|--|----|--------------------|--|--|---|---|------|----|--------------------------------|
| Montgomery County Central Portion | 21 | 1740EST 1752EST | | | 0 | 1 | | | Lightning |
| Montgomery County Rockville to Silver Spg | 21 | 1740EST 1752EST | | | 0 | 0 | 150K | 5K | Thunderstorm Wind |
| Prince George'S County North Portion | 21 | 1755EST 1805EST | | | 0 | 0 | 15K | | Thunderstorm Wind (G52) |
| Prince George'S County South Portion | 21 | 1808EST 1816EST | | | 0 | 0 | 15K | | Thunderstorm Wind |
| Anne Arundel County Waysons Corner to Southwest Portion | 21 | 1816EST 1825EST | | | 0 | 0 | 2K | | Tstm Wind/Hail |

A small but potent line of severe thunderstorms raced from western Maryland through the Washington DC metropolitan region, producing wind gusts between 60 and 70 mph along the leading edge. The winds knocked down numerous trees and large limbs. Power was knocked out to near 90,000 Potomac Electric Power Co. customers, and many remained without electricity into the following day. Over 100,000 Maryland utility customers lost power at some time during the storm.

Damage was first noted in Washington Co, where dozens of trees/large limbs and wires fell. Problems were concentrated across the southern portion of the county near Antietam and Sharpsburg, where some roads were temporarily closed. The storm gained strength as it plowed southeast into Frederick and Montgomery Cos. In Frederick Co, damage included felled scattered trees and power lines in the Middletown/Braddock Heights area. More substantial damage occurred in the south portion of Frederick city, where two roofs partially collapsed at a shopping center near the intersection of state route 85 and Interstate 270. An unfastened trailer was flipped off cinder block supports and fell onto an automobile, pinning the car against a curb. Homes at a nearby neighborhood sustained minor damage, including one whose garage was partially destroyed.

Damage in Montgomery Co began along state route 355 near the Gaithersburg/Rockville line, where a portion of an aluminum roof was lifted from a storage facility and blown across the top of an automobile dealership, destroying a satellite dish. Pieces of the roof then fell onto three vehicles below, causing extensive damage to one of them. On the west side of the highway, an unsecured trailer was blown down, and roofing material was peeled off a partially built apartment house. Bricks within the building's elevator shaft were shifted slightly. Four grounded pilots reported witnessing funnel clouds, but an actual tornado sighting could not be confirmed.

Several large tree limbs were also blown down in the area. A bit farther east, in Derwood, the tops of several large tulip poplars were snapped; some of the debris caused damage to a resident's patio. More damage occurred in Kensington, when a large hickory tree fell onto a used book business (which was attached to a residence). The tree crushed the roof, scattering thousands of books and destroying two personal computers. In all, there were hundreds of scattered large limbs and/or trees down between Rockville and Silver Spring, several which blocked area thoroughfares. Montgomery Co fire and rescue logged 300 calls between 1700 and 2000EST.

The storm began weakening as it approached the eastern suburbs of Washington, DC. Still, damage to trees and power lines continued across much of Prince George's Co, especially between Bowie and Upper Marlboro. A few wires were blown down along the Prince George's/southern Anne Arundel Co line in Wayson's Corner.

| | | | | | | | | | |
|---|----|--------------------|-----|-----|---|---|-----|--|-----------------------------|
| Frederick County New Market to 2 E Kempton | 30 | 1930EST 1940EST | | | 0 | 0 | 5K | | Thunderstorm Wind |
| Howard County North Portion | 30 | 2000EST 2015EST | | | 0 | 0 | 12K | | Thunderstorm Wind |
| Harford County 1 W Perryman to Perryman | 30 | 2025EST 2026EST | 0.6 | 100 | 0 | 0 | 15K | | Tornado (F0) |
| Baltimore City (C) 1 SW Highlandtown | 30 | 2030EST 2130EST | | | 0 | 0 | 8K | | Urban/Sml Stream fld |

An isolated rotating thunderstorm moved out of the eastern West Virginia panhandle and into north central Maryland, producing some wind damage during the evening. Other storms developed later in the evening, including another very small supercell which dropped a brief tornado along the western shore of the Chesapeake Bay. The storms formed at the juxtaposition of a weak surface low pressure area along a stationary front parked over north central Maryland.



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|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------|----------|------------------------------|--------------------|

MARYLAND, Central

Some large limbs and numerous wires were blown down in southeastern Frederick Co along Penns Shop Road between New Market and Mt Airy. A swath of damage to trees and wires continued across northern Howard Co, with tree limbs blocking a portion of Interstate 70 and the intersection of state route(s) 97 and 144. More tree limbs and wires were reported down in Ellicott City.

A small tornado developed along the northeast shoreline of the Bush River and moved along a main road near Perryman, snapping dozens of tree tops. One residence sustained damage when a large limb was driven through siding.

Heavy rains of 1 to 2 inches, combined with poor drainage, caused sidewalk flooding in the Fells Point section of Baltimore City. At least two poorly draining intersections reported water "up to car windows" in the south portion of town.

Baltimore Gas and Electric reported 15,000 customers lost power during the storm.

VIRGINIA, North

Augusta County

Mt Solon

02 1912EST 0 0 Hail (1.00)

Staunton (C)

1 W Staunton

02 2005EST 0 0 Hail (0.75)

Staunton (C)

Staunton

02 2010EST 0 0 10K Lightning

An isolated severe thunderstorm tracked slowly through northern and central Augusta Co, producing hail the size of pennies and quarters at two locations west of Staunton. The same storm produced a lightning strike at a home in Staunton. The strike ignited a fire which damaged a portion of the home's roof and attic.

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

20 1100EST 0 0 Excessive Heat
23 1700EST

After an unusually pleasant start to the month, a singular heat wave affected northern Virginia during the climatological peak of highest annual temperatures. The heat wave, caused by the combination of hot and humid air associated with "Bermuda" high pressure and increasingly dry ground, caused temperatures to soar into the mid and upper 90s. The heat index, however, equalled or exceeded 100 each afternoon. Highest temperatures were recorded in the Shenandoah Valley on the 22nd, with Winchester and Luray (VAZ028>029) each reaching 99 degrees and Charlottesville (VAZ037) reaching the century mark. A record high was observed at Washington/Dulles International Airport (VAZ042) on the 22nd when the temperatures soared to 98 degrees. The heat wave was less tolerable than those in recent years since much of the summer had been cooler and less humid than normal.

Across northern Virginia, five persons required brief hospital visits due to heat exhaustion; four in Fairfax Co (VAZ053) and one in Prince William Co (VAZ052). Virginia Power reported record usage on the 22nd; the nearly 16,000 megawatts of emitted power surpassed the day-old record of 15,010. The previous record had been 14,910 megawatts.

The heat wave broke during the evening of the 23rd with the passage of a cool front.

Loudoun County

Lovettsville to Waterford

21 1657EST 0 0 10K 20K Thunderstorm Wind
1710EST

Fairfax County

Reston to Vienna

21 1741EST 0 0 12K Thunderstorm Wind
1754EST

Arlington County

Arlington

21 1758EST 0 0 3K Thunderstorm Wind

A potent line of strong to severe thunderstorms raced through portions of northern Virginia during the early evening, knocking down large limbs and a few trees and wires. Initial damage was noted in northwestern Loudoun Co, where numerous trees and wires were blown down along the gust front. Additional limb and wire damage was noted across northern Fairfax Co, from the Reston/Herndon vicinity to Vienna. At least two large trees fell in Arlington Co; one blocking at least one lane of the George Washington Parkway near Windy Run; another at the intersection of Vermont and 11th Avenue.

Culpeper County

Mitchells

22 1515EST 0 0 12K Thunderstorm Wind



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|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

VIRGINIA, North

King George County King George

| | | | | | | | | | |
|----|---------|--|--|--|---|---|-----|--|--------------------------|
| 22 | 1700EST | | | | 0 | 0 | 15K | | Thunderstorm Wind |
|----|---------|--|--|--|---|---|-----|--|--------------------------|

An isolated strong to severe thunderstorm developed over the western piedmont and pulsed to varying intensities as it moved into the Northern Neck region during the evening. A large, healthy oak tree snapped at a residence in Mitchells, with the bulk of the tree smashing the roof of a late-model automobile. An outbuilding, with an open door to the windward exposure, had a portion of its roof peeled back.

The same storm weakened as it pushed across east-central Virginia, but re-intensified for a brief period as it moved into the Northern Neck region, knocking down numerous trees, large limbs, and power lines in the city of King George.

Falls Church (C) Falls Church

| | | | | | | | | | |
|----|---------|--|--|--|---|---|------|--|------------------|
| 23 | 1630EST | | | | 0 | 0 | 1.5K | | Lightning |
|----|---------|--|--|--|---|---|------|--|------------------|

Fairfax County South Portion

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|-----|--|------------------|
| 23 | 1730EST 1830EST | | | | 0 | 0 | 70K | | Lightning |
|----|--------------------|--|--|--|---|---|-----|--|------------------|

Scattered thunderstorms with abundant cloud-to-ground lightning struck different sections of Fairfax Co during the evening, causing several instances of damage. In Falls Church, a large oak tree was split by a strike, with limbs crushing a fence and falling onto two sedans. Later that evening, direct strikes in southern Fairfax Co caused four separate fires. The strikes included: two strikes to roofs of single-family homes, one to the roof of a garden apartment, and another to a shed. One of the fires, in the Groveton area, damaged the second floor, rendering the home temporarily uninhabitable. The other single-family house fire caused damage to the attic.

Frederick County Gainesboro

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|----|--|------------------|
| 30 | 1705EST 1715EST | | | | 0 | 0 | 8K | | Lightning |
|----|--------------------|--|--|--|---|---|----|--|------------------|

Frederick County Gainesboro

| | | | | | | | | | |
|----|---------|--|--|--|---|---|----|--|-----------------------|
| 30 | 1710EST | | | | 0 | 0 | 2K | | Tstm Wind/Hail |
|----|---------|--|--|--|---|---|----|--|-----------------------|

Frederick County 3 E Gainesboro to 3.5 NE Gainesboro

| | | | | | | | | | |
|----|---------|-----|----|--|---|---|-----|--|---------------------|
| 30 | 1715EST | 0.5 | 75 | | 0 | 0 | 10K | | Tornado (F0) |
|----|---------|-----|----|--|---|---|-----|--|---------------------|

An isolated rotating thunderstorm developed along a stationary front over western Frederick Co and moved east, producing some wind damage and a small tornado near and east of Gainesboro. At a residence on Hunting Ridge Road just east of Gainesboro, a brief tornado snapped or uprooted 50 to 60 trees, including pines and oaks. One of the trees smashed a portion of a fence. Moments earlier, in Gainesboro, lightning started two grass fires and struck a home, causing minor damage. Strong winds blew down several power lines as well.

WEST VIRGINIA, East

WVZ051>053

Morgan - Berkeley - Jefferson

| | | | | | | | | | |
|----|---------|--|--|--|---|---|--|--|-----------------------|
| 21 | 1100EST | | | | 0 | 0 | | | Excessive Heat |
| 22 | 1700EST | | | | | | | | |

After an unusually pleasant start to the month, a singular heat wave affected the eastern panhandle of West Virginia during the climatological peak of the highest annual temperatures. The heat wave, caused by the combination of hot humid air associated with "Bermuda" high pressure and increasingly dry ground, caused temperatures to soar into the mid and upper 90s. The heat index, however, equalled or exceeded 100 each afternoon. This heat wave was less tolerable than those in recent years since much of the summer had been cooler and less humid than normal.

Morgan County Countywide

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|-----|----|--------------------------|
| 21 | 1615EST 1630EST | | | | 0 | 0 | 12K | 5K | Thunderstorm Wind |
|----|--------------------|--|--|--|---|---|-----|----|--------------------------|

Berkeley County Hedgesville to Marlinsburg

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|-----|-----|--------------------------------|
| 21 | 1630EST 1640EST | | | | 0 | 0 | 75K | 25K | Thunderstorm Wind (G71) |
|----|--------------------|--|--|--|---|---|-----|-----|--------------------------------|

Jefferson County Shepherdstown to Harpers Ferry

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|-----|-----|--------------------------------|
| 21 | 1642EST 1650EST | | | | 0 | 0 | 35K | 15K | Thunderstorm Wind (G71) |
|----|--------------------|--|--|--|---|---|-----|-----|--------------------------------|

A small but potent line of severe thunderstorms developed over the eastern West Virginia panhandle during the late afternoon. Microbursts produced wind gusts in excess of 80 mph across portions of northern Berkeley and Jefferson Cos, increasing the amount of damage, which was fairly extensive to trees and wires. Some property damage was observed as well.

The storms first intensified in Morgan Co. Widespread scattered damage occurred mainly to trees/large limbs and power lines. The main cell developed an impressive microburst as it traversed northern Berkeley Co, producing widespread damage to trees,



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

WEST VIRGINIA, East

large limbs, and power lines. A 50 by 30 area of double-metal roof was ripped from an automobile manufacturing plant in Martinsburg, with associated structural damage noted to the supporting steel girders. Assorted minor property damage (e.g. shingles, siding, yard articles) was noted in neighborhoods north of Martinsburg between Hedgesville and Falling Waters.

Moments later, the storm raced southeast through northern and eastern Jefferson Co. An identical wind gust (82 mph) was recorded by a spotter in Shepherdstown; emergency management officials noted tree/limb and wire damage in the area. An off-duty meteorologist reported numerous trees had been knocked down in the Harpers Ferry/Bolivar area of eastern Jefferson Co.

Berkeley County

| | | | | | | | | | |
|--|-----------|----------------------------|----------|------------|----------|----------|------------|------------|---------------------|
| 1 S Bunker Hill to 1 SE Bunker Hill | 30 | 1700EST 1702EST | 1 | 150 | 0 | 0 | 80K | 10K | Tornado (F1) |
|--|-----------|----------------------------|----------|------------|----------|----------|------------|------------|---------------------|

Berkeley County

| | | | | | | | | |
|--------------------|-----------|----------------------------|--|--|----------|----------|-----------|--------------------|
| Bunker Hill | 30 | 1705EST 1710EST | | | 0 | 0 | 3K | Hail (1.75) |
|--------------------|-----------|----------------------------|--|--|----------|----------|-----------|--------------------|

Berkeley County

| | | | | | | | | | |
|--------------------|-----------|----------------------------|--|--|----------|----------|------------|------------|--------------------------|
| Bunker Hill | 30 | 1705EST 1710EST | | | 0 | 0 | 50K | 10K | Thunderstorm Wind |
|--------------------|-----------|----------------------------|--|--|----------|----------|------------|------------|--------------------------|

A pulse-severe mini-supercell thunderstorm rapidly developed near the border of Frederick Co, Virginia and Berkeley Co during the late afternoon. Shortly after the storm exhibited strong low- and mid-level rotation, a combination of large hail, damaging straight-line winds, and a tornado occurred in the Bunker Hill area.

The most impressive event was a brief tornado, witnessed for much of its path by a local resident. The twister touched down along Tory Town Road and continued east-southeast along Sam Mason Road, crossing Interstate 81 before dissipating shortly after crossing federal highway 11. The tornado had multiple vortices - the eyewitness noted at least 5 spinning finger-shaped tendrils as the twister passed.

Damage on Tory Town Road included a pushed in a wall of a home, one uprooted tree which totalled a parked sport-utility vehicle, and a destroyed barn. Along and just north of Sam Mason Road, damage included numerous snapped and twisted tree tops. One uprooted tree smashed into a home causing substantial damage to an adjacent shop. Five windows were blown out. Along Sam Mason Road east of Interstate 81, at least a dozen large trees were uprooted, and several sheds were damaged. One of the sheds was large - 12 by 36 feet. Two horses inside sustained minor injuries (from cuts).

Straight-line wind damage occurred about a mile northeast of the tornado's location - along and near Runnymede Road. Two barns were blown down, and several large trees fell, one onto a vehicle and another onto a house. Hail, ranging in size from marble to occasionally golf ball, fell - in one case prior to the tornado touch down.

Allegheny Power estimated between 500 and 1,000 customers lost electricity during the storms.