National Weather Service
Storm Data and Unusual Weather Phenomena

June 1998

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

DISTRICT OF COLUMBIA

District Of Columbia
Northwest Portion to Northeast Portion | **02** | **1833EST 1838EST** | | | **0** | **0** | | | **Hail (1.00)**

District Of Columbia
Northeast Portion | **02** | **1835EST** | | | **0** | **0** | **10K** | | **Thunderstorm Wind**

The combination of an upper-level disturbance, increasing atmospheric shear, and ample instability set the stage for scattered severe weather across the District of Columbia during the evening. Individual mini-supercell storms developed over western Maryland, northern Virginia, and eastern West Virginia, and propagated east-southeast towards the metropolitan region. One cell crossed the city, producing hail across the northern half which ranged from 0.5" to 1" in diameter. Peripheral thunderstorm winds gusted in excess of 20 knots at Washington/National Airport (DCA); stronger winds in town caused damage to large tree limbs across some neighborhoods in Northeast.

District Of Columbia
Northwest Portion | **13** | **1440EST** | | | **0** | **0** | **15K** | | **Thunderstorm Wind**

District Of Columbia
Northeast Portion | **13** | **1443EST** | | | **0** | **11** | | | **Lightning**

A vigorous upper-level disturbance acted upon increasingly warm and humid air near the surface to produce a squall line of strong to severe thunderstorms west of the metropolitan region during the early afternoon. This line moved rapidly east, passing through the District of Columbia and surrounding communities before 1500EST. As the line crossed Northwest, numerous trees and large limbs fell, blocking several roads.

The day will be remembered for a devastating lightning strike at RFK stadium, where a crowd of 66,000 had gathered for the Tibetan Freedom Concert. Though ample warning was provided to stadium officials, there was no place for those standing away from the protected portion of the venue to seek shelter. Lightning struck ahead of the storm cell, injuring 11 persons. Four of the injured were taken to DC General Hospital; one was critically injured, another was initially in fair condition, and two other were in good condition. The other seven persons were treated at the scene. The concert was suspended immediately after the lightning strike.

Potomac Electric Power Co. reported over 100 customers were without power during the peak of the storm.

District Of Columbia
Northeast Portion | **15** | **1635EST 1640EST** | | | **0** | **0** | **10K** | | **Thunderstorm Wind**

The juxtaposition of a northward-moving cold front, strong surface low pressure over the midwest, and a fast upper-level jet combined to produce a severe thunderstorm which rumbled through the city during the late afternoon. Damage included downed trees and large limbs mainly across Northeast, concentrated near the Maryland line in the Brookland neighborhood. The strong winds may have blown out windows in buildings on Franklin Street, NE. Hail, of unknown size, also fell across portions of town.

District Of Columbia
Northwest Portion | **23** | **2045EST 2130EST** | | | **0** | **0** | **10K** | | **Flash Flood**

A slow-moving line of thunderstorms dumped between 2.4 and 3 inches of rain over Washington and the immediate suburbs. Rock Creek came out of its banks, and a vehicle with two occupants became stuck - requiring emergency rescue operations.

MARYLAND, Central

Howard County
Ellicott City | **01** | **0000EST** | | | **0** | **0** | **10K** | | **Thunderstorm Wind**

Baltimore City (C)
Druid to Mt Washington | **01** | **0015EST** | | | **0** | **0** | **10K** | | **Thunderstorm Wind**

Harford County
Aberdeen | **01** | **0025EST** | | | **0** | **0** | **5K** | | **Thunderstorm Wind**

A derecho whipped across northern Maryland just after midnight on June 1, knocking down hundreds of trees and producing scattered property damage. Baltimore Gas and Electric (BGE) reported 61,000 customers without power during the overnight hours, mostly in Carroll, Howard, and Baltimore Cos, as well as Baltimore City. Some of the hardest hit areas did not receive power until the following evening. BGE also noted that more than double the normal number of cleanup crews were out removing trees and limbs.

Tree and property damage began in western Carroll Co and continued sporadically through northern Howard, Baltimore (Co. and City), and Harford Co. In Westminster, city crews commented that tree damage was the most they had seen "in 20 years". Many trees and large limbs fell onto roadways; one smashed a vehicle. Ten thousand customers were without power in Carroll Co alone.

MARYLAND, Central

The line of storms scraped northern Howard Co, knocking down more trees, limbs, and power lines.

Widespread, scattered tree and power line damage was reported in Baltimore Co. A wind gust of 66 mph was recorded in Upperco, near the Carroll Co line. The same storm produced a 59 mph gust in Towson approximately 10 minutes later. Numerous trees were reported down between Cockeysville and Towson. Volunteer fire companies answered at least 40 calls for fallen trees. One tree caused damage to a house. Five other trees/large limbs covered the northern suburban light rail line, mainly north of Ruxton, causing commuter delays later that morning. A few crossing gates were blown down as well. Less than a half hour later, numerous trees and limbs were knocked down in the city of Baltimore, most likely in the northwestern section.

The storms weakened a bit as they moved into Harford Co. Still, several trees/limbs were blown down, as were power lines. Several utility poles caught fire; over 6000 customers were without power at the peak of the storm.

An isolated cell produced damage in extreme eastern Baltimore Co before the derecho arrived. On Sparrows Point, near Edgemere, several large trees were either uprooted or snapped off at their bases. Cement slabs were also moved by the high winds.

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
Carroll County									
10 S Taylorsville	**02**	**1636EST**			**0**	**0**			**Hail (0.75)**
Carroll County									
Winfield	**02**	**1743EST 1750EST**			**0**	**0**			**Hail (1.00)**
Carroll County									
Hampstead	**02**	**1752EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Carroll County									
Finksburg	**02**	**1758EST**			**0**	**0**	**3K**		**Hail (1.75)**
Montgomery County									
Clarksburg	**02**	**1804EST**			**0**	**0**			**Hail (0.75)**
Baltimore County									
Reisterstown to Owings Mills	**02**	**1814EST 1824EST**			**0**	**0**		**10K**	**Hail (0.75)**
Montgomery County									
Damascus	**02**	**1820EST 1834EST**			**0**	**0**	**10K**		**Hail (1.75)**
Baltimore City (C)									
Baltimore	**02**	**1829EST**			**0**	**0**	**5K**		**Hail (1.75)**
Montgomery County									
Laytonsville to Ashton	**02**	**1835EST 1850EST**			**0**	**0**	**75K**	**15K**	**Hail (2.25)**
Allegany County									
3 NW Mt Savage Jct to 2 NW Mt Savage Jct	**02**	**1856EST 1858EST**	**1**	**50**	**0**	**0**		**30K**	**Tornado (F1)**
Allegany County									
Cumberland	**02**	**1903EST**			**0**	**0**			**Hail (0.75)**
Prince George'S County									
Laurel	**02**	**1905EST 1920EST**			**0**	**0**	**5K**		**Hail (1.75)**
Allegany County									
Oldtown	**02**	**1920EST**			**0**	**0**	**3K**	**10K**	**Hail (1.00)**
Allegany County									
Oldtown	**02**	**1920EST**			**0**	**0**	**15K**		**Thunderstorm Wind**
Allegany County									
3 SE Cumberland to 3.5 SE Cumberland	**02**	**1921EST 1923EST**	**0.5**	**50**	**0**	**0**		**15K**	**Tornado (F0)**
Anne Arundel County									
Crofton	**02**	**1935EST**			**0**	**0**	**10K**		**Hail (2.00)**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
MARYLAND, Central									
Anne Arundel County									
Annapolis	**02**	**1945EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Anne Arundel County									
South Portion	**02**	**1952EST**			**0**	**0**			**Hail (0.75)**
Allegany County									
1 E Flintstone	**02**	**1953EST**			**0**	**0**			**Hail (0.75)**
Allegany County									
2 NW Frostburg to 2 N Cresaptown	**02**	**2043EST 2050EST**	**8**	**250**	**0**	**5**	**5M**	**250K**	**Tornado (F4)**
Anne Arundel County									
Annapolis	**02**	**2215EST**			**0**	**0**	**10K**		**Thunderstorm Wind**

The combination of an upper-level disturbance, increasing atmospheric shear, and ample instability set the stage for a major severe weather episode across the north half of Maryland during the late afternoon and evening. The episode was highlighted by supercell thunderstorms which produced three tornadoes, numerous instances of large hail, and several downbursts.

The most substantial event was a strong-to-violent tornado which caused excessive damage in western Allegany Co. The multi-vortex twister had estimated wind speeds of 210 mph - the highest in recorded Maryland history - when it ravaged a neighborhood of well-constructed single-family homes along a local plateau just north of Frostburg. The tornado was on the ground for an amazing 33 miles, beginning in Somerset Co, Pennsylvania before crossing northeastern Garrett Co Maryland on its way to Allegany Co. The parent supercell tracked over 200 miles. After descending Big Savage Mountain, the twister produced a swath of destruction across a neighborhood just west of Frostburg. At least eight homes were destroyed and dozens others were damaged. Several cars were damaged, and some were totalled. One two-story home was obliterated. Left in the wake was the foundation and some remnant plywood. The residents of the home - a woman and two children - received ample warning and rode out the storm to safety in the basement. Advance warning likely saved several lives and reduced casualties; in all, only 5 area residents sustained minor injuries.

The tornado continued through Eckhart Mines and Clarysville, causing further damage and destruction to homes and other property. It then continued through undeveloped areas, then passed across Dans Mountain before damaging a few more residences along state route 53 just north of Cresaptown. The twister lifted at that point, but the parent thunderstorm continued producing damage into eastern West Virginia. In all, emergency management officials reported 29 homes destroyed and 125 damaged, with nearly half of the surviving homes receiving moderate to major levels of damage. Initial dollar estimates ranged from $4.5 to $5 million. Hundreds, perhaps thousands, of trees in forested and developed areas were snapped or uprooted. The supercell was so powerful that Frostburg area residents' papers, including personal checks and one high school diploma - were found over 50 miles downstream in the northern Shenandoah Valley region of Virginia.

The "Frostburg Tornado" was not the only twister to affect the county. The area had been on high alert since early evening - tornado warnings had been issued two other times, and funnel clouds were observed by several witnesses prior to sunset. One of the funnels touched down not too far from where the Frostburg Tornado entered the county - along the west side of Big Savage Mountain nearly 2 hours earlier. The funnel lifted while over Frostburg and nearby communities, and continued through Cumberland before touching down again on Irons Mountain 2-3 miles southeast of the city. In each instance, damage was limited to forested areas along the ridges.

Tornadoes were just a portion of the severe weather to affect northern Maryland. The other major player was hail, with dozens of occurrences associated with each mini-supercell. The strongest cells produced hailstones ranging from 1.75" to 2.50" in diameter; the strong updrafts in each storm combined with steep atmospheric lapse rates to produce not only large hail but long-duration hail as well. Some areas experienced up to 20 minutes of hail, and many residents noted hail which covered the ground. Reported damage included some stripped siding, varying sized dings and dents, as well as shattered glass, in numerous vehicles; stripped paint from homes and vehicles, small limb and leaf debris, and likely crop damage or destruction. The main hail-producing storm affected portions of northern Montgomery, Howard, southern Carroll, southern Baltimore, and northern Prince George's and Anne Arundel Cos - all between 1800 and 1945EST.

The episode concluded in Maryland with a few wind damage reports on the western shore of the Chesapeake Bay just before midnight. Winds blew out the door to the Annapolis (Anne Arundel Co) city fire department station, and knocked several large trees down in Eastport at approximately the same time.

Montgomery County									
Countywide	**13**	**1435EST 1450EST**			**0**	**1**	**100K**		**Thunderstorm Wind (G56)**
Howard County									
West Portion	**13**	**1450EST 1505EST**			**0**	**0**	**8K**		**Thunderstorm Wind**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
MARYLAND, Central									
Carroll County									
South Portion	**13**	**1500EST 1515EST**			**0**	**0**	**2K**		**Tstm Wind/Hail**
Anne Arundel County									
Millersville	**13**	**1515EST**			**0**	**0**			**Hail (0.75)**
St. Mary'S County									
Leonardtown	**13**	**1543EST**			**0**	**0**			**Hail (0.75)**
Harford County									
Aberdeen to Havre De Grace	**13**	**1700EST 1745EST**			**0**	**0**	**8K**		**Flash Flood**
Harford County									
Countywide	**13**	**1700EST**			**0**	**0**	**1K**		**Tstm Wind/Hail**
Harford County									
Level	**13**	**1715EST**			**0**	**0**	**5K**		**Lightning**

A vigorous upper-level disturbance acted upon increasingly warm and humid air near the surface to produce a squall line of strong to severe thunderstorms which traversed central and northeastern Maryland during the afternoon. Overall, damage was dominated by numerous downed trees, large limbs, and power lines, though there were scattered occurrences of large hail.

Montgomery Co was hardest hit. Though no one area received major damage, nearly all communities in the eastern two-thirds of the county had some trees, large limbs, or wires down. A portion of Woodfield Road (state route 124) was closed north of Gaithersburg; dozens of trees and large limbs were down along the state route 28 corridor from Darnestown to Rockville. Farther south, fallen trees closed a portion of Persimmon Tree Road in Potomac. The most harrowing experience occurred in Glen Echo, where two vehicles were damaged by a large limb and falling wires. The two males were rescued; the woman was brought to a nearby hospital for observation. In all, county emergency management officials reported a dozen trees on houses and several others on vehicles across the county. The combination of wind and lightning knocked out power to over 40,000 Potomac Electric Power Co. customers in Montgomery and Prince George's Cos.

Across northeastern Maryland, tree damage was confined to smaller limbs and some wires. However, a slower moving storm dropped at least 1 1/2 inches of rain across central and eastern Harford Co, creating a period of flash flooding which required at least one rescue of a stranded vehicle. Several reports of street flooding were received from both Aberdeen and Havre de Grace.

Earlier, tree and wire damage was noted in southern Carroll and western Howard Cos, with the more substantial damage in Howard. Baltimore Gas and Electric reported at least 10,000 customers lost electricity in these areas at the peak of the storm.

Prince George'S County									
Temple Hills	**15**	**1630EST**			**0**	**1**			**Lightning**
Prince George'S County									
Oxon Hill	**15**	**1635EST 1640EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Charles County									
4 W Waldorf	**15**	**1650EST 1655EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Anne Arundel County									
South Portion	**15**	**1700EST 1715EST**			**0**	**0**			**Hail (0.75)**
Charles County									
Doncaster to 1 S Mc Conchie	**15**	**1730EST 1745EST**			**0**	**0**	**20K**		**Thunderstorm Wind**
Calvert County									
St Leonard	**15**	**1745EST**			**0**	**0**	**3K**		**Hail (1.75)**
Charles County									
6 W La Plata	**15**	**1818EST 1830EST**			**0**	**0**			**Hail (1.00)**
Charles County									
6 W La Plata	**15**	**1818EST 1830EST**			**0**	**0**	**8K**		**Thunderstorm Wind**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
MARYLAND, Central									
St. Mary'S County									
Charlotte Hall	**15**	**1833EST**			**0**	**0**			**Hail (0.75)**
Charles County									
Benedict to 1 N Benedict	**15**	**1835EST 1840EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
St. Mary'S County									
Clements	**15**	**1845EST**			**0**	**0**	**35K**		**Thunderstorm Wind**
Calvert County									
Lusby	**15**	**1855EST 1905EST**			**0**	**0**			**Hail (0.75)**
Calvert County									
Lusby	**15**	**1855EST 1905EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

The juxtaposition of a northward-moving warm front, strong surface low pressure over the midwest, and a fast-moving upper-level jet combined to produce an outbreak of severe weather across central and lower southern Maryland during the evening. Damage was highlighted by downed trees and some large hail. The most substantial damage occurred with three cells - one a decaying bow-echo across southern Prince George's and northern Charles Cos; the others rotating mini-supercells which tracked across portions of Charles, St Mary's, and southern Calvert Cos.

Lightning associated with the first cell struck a police cruiser in Temple Hills, with the driver sustaining injuries that required a brief hospital stay. The same cell knocked several trees and large limbs down in Oxon Hill and near Waldorf (Charles Co). Though gradually weakening, this cell continued to produce hail - ranging from 0.75" in southern Anne Arundel Co to golf ball size near St. Leonard in central Calvert Co. A second, more potent rotating thunderstorm moved into Charles Co from the Potomac River, causing numerous trees and large limbs to fall between Doncaster and McConchie.

Another cell tracked across central and eastern Charles Co, knocking down large limbs and wires, as well as producing 1 inch hail, west of La Plata. This cell produced substantial trees damage in the extreme eastern portion of the county between Benedict and Teagues Point. The storm continued into southern Calvert Co, knocking down more trees and dropping 0.75" diameter hail in and around Lusby. Meanwhile, the other cell continued into St Mary's Co, producing additional wind and hail. In Clements, two barns were destroyed and at least a dozen trees were snapped or uprooted.

Though utility statistics were sketchy, one could assume that thousands of customers lost power during the peak of the episode. Potomac Electric Power Co reported 1,700 customers were without power; many more likely lost electricity across the Southern Maryland Electric Co coverage area, which includes St Mary's, Calvert, Charles, and portions of Prince George's Co.

The entire episode ended shortly after 1900EST.

Allegany County									
Cumberland	**16**	**1700EST**			**0**	**0**	**25K**		**Thunderstorm Wind**
Frederick County									
Middletown	**16**	**1705EST 1710EST**			**0**	**0**	**30K**	**5K**	**Thunderstorm Wind**
Washington County									
3 S Halfway to Halfway	**16**	**1712EST 1718EST**	**3**	**200**	**0**	**1**	**200K**		**Tornado (F1)**
Frederick County									
Frederick	**16**	**1715EST**			**0**	**0**	**75K**		**Lightning**
Frederick County									
Jefferson to Buckeystown	**16**	**1715EST 1729EST**			**0**	**0**	**25K**		**Thunderstorm Wind**
Howard County									
North Portion	**16**	**1720EST 1730EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Washington County									
Halfway to Hagerstown	**16**	**1721EST 1729EST**	**5**	**100**	**0**	**0**	**200K**		**Tornado (F1)**
Carroll County									
Countywide	**16**	**1725EST 1755EST**			**0**	**0**	**10K**		**Lightning**

MARYLAND, Central

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
Carroll County									
Sykesville to Eldersburg	**16**	**1729EST 1736EST**			**0**	**0**			**Hail (1.00)**
Frederick County									
Walkersville to Libertytown	**16**	**1730EST 1745EST**			**0**	**0**	**15K**		**Thunderstorm Wind**
Washington County									
Hagerstown Arpt to East Portion	**16**	**1730EST 1740EST**			**0**	**0**	**20K**	**20K**	**Thunderstorm Wind (G60)**
Washington County									
Leitersburg	**16**	**1730EST**			**0**	**0**	**5K**		**Hail (1.75)**
Washington County									
1 NE Maugansville to 3 NE Maugansville	**16**	**1730EST 1734EST**	**2**	**75**	**0**	**0**	**10K**	**20K**	**Tornado (F1)**
Frederick County									
3.5 NE Frederick to 4 NE Frederick	**16**	**1735EST**	**0.5**	**50**	**0**	**0**	**10K**		**Tornado (F0)**
Carroll County									
Finksburg	**16**	**1736EST 1740EST**			**0**	**0**	**35K**	**15K**	**Hail (2.50)**
Carroll County									
3 NE Finksburg to 3.5 NE Finksburg	**16**	**1738EST 1739EST**	**0.5**	**50**	**0**	**0**	**20K**		**Tornado (F0)**
Baltimore County									
Reisterstown	**16**	**1745EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Carroll County									
Westminster	**16**	**1750EST**			**0**	**0**	**50K**		**Thunderstorm Wind (G56)**
Carroll County									
North Portion	**16**	**1800EST 1900EST**			**0**	**0**	**10K**		**Flash Flood**
Charles County									
North Portion	**16**	**1810EST 1823EST**			**0**	**0**	**8K**		**Thunderstorm Wind**
St. Mary'S County									
Milestown to South Portion	**16**	**1820EST**			**0**	**0**	**50K**	**5K**	**Thunderstorm Wind**
Calvert County									
Prince Frederick	**16**	**1832EST**			**0**	**0**	**35K**		**Thunderstorm Wind**

The approach of a cold front combined with impressive jet stream energy at upper-levels of the atmosphere acted on unstable air near the surface to produce a major severe weather episode across northern Maryland for the second time in three weeks. The combustible situation produced a mesoscale low pressure system which focused the most substantial severe which focused the most substantial severe weather in north-central Maryland. The episode featured five tornadoes, nearly a dozen instances of wind damage, and several large hail occurrences.

The most concentrated damage was in and around Hagerstown. Three separate tornadoes dropped from the same parent thunderstorm within moments of each other. The first two caused considerable property damage between the town of Halfway and Hagerstown. The third produced a track of mainly tree and underbrush damage from just south of the Washington County Regional Airport to the Maryland/Pennsylvania state line. The first twister, which developed three miles south of Halfway, toppled and uprooted dozens of trees and blew down wires in the Tammany Manor neighborhood, as well as at the Hickory Elementary School. The tornado saved its worst for the Valley Mall, where a portion of the roof was torn off and damage was noted at an anchor store's loading dock. Another adjacent store had an electrical fire.

More commercial damage occurred a few blocks north, along Wesel Boulevard, where the roofs of several vacant buildings were torn off. Canopy tents at the Wal-Mart department store were flattened; the store's garden center had its greenhouse destroyed; many pieces of equipment, and plants and flowers, were also damaged. An awning at a local automobile dealership was ripped off. This tornado dissipated just southeast of the Washington Co. Detention Center - but not before knocking down trees along Interstate 81, temporarily closing one of the two travel lanes.

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

MARYLAND, Central

Shortly before the first tornado lifted, a second touched down in the Greenbury Hills subdivision of Halfway, uprooting trees and ripping siding from a few homes. This twister, on the ground for five miles, caused much of its damage over the western portion of Hagerstown before dissipating. At the Potomac Center, 44 trees were uprooted, and another 40 were damaged. Dozens more were snapped and uprooted at the nearby Carroll Heights/Hyde Park subdivision; trees were also uprooted and snapped at the Rest Haven Cemetery, with at least four fallen trees knocking over headstones. Hundreds more trees were damaged at both the Hagerstown Business College and the nearby Fountain Head Country Club, whose golf course was closed for two days to clean up the debris.

While eastern Washington Co was being pummelled, another cell was producing wind damage from southwestern through central Frederick Co. Several trees were snapped and uprooted, and some homes sustained damage to shingles, siding, and porch supports, in Middletown. More damage was noted between Jefferson and Buckeystown - another microburst - witnessed by residents as a rolling black cloud. Damage included numerous trees snapped and uprooted, a destroyed cinder block outbuilding, and a damaged garage door. Farther to the northeast, more trees were snapped, including one which fell onto a house near Libertytown. A small tornado touched down just northeast of Frederick city, taking down about a half-dozen trees near the intersection of Gas House and Linganore Roads. Intense lightning caused problems as well. The radio transmission tower which serves the Frederick Co emergency operations center was knocked out, with damage reported to radio and telecommunications equipment. Several homes were struck in the area, as was a fire department vehicle.

Severe weather propagated eastward into Carroll and Baltimore Cos. Damaging winds snapped and uprooted many trees in Westminster, including one which fell onto a home. Two trees crashed through residents' roofs along state route 31 near Westminster. Large hail the size of tennis balls caused scattered damage to homes and vehicles in Finksburg. The heavy rains associated with the stronger cells caused flash flooding across portions of the Big Pipe Creek watershed in northern Carroll Co; several roads were temporarily closed near Taneytown where the Bear Branch overflowed its banks. One road was washed out. Lightning struck at least one home and barn, causing small fires and minor damage.

Just west of the Baltimore/Carroll line (1 mile southwest of Fowblesburg), a small tornado knocked down several trees, some which fell onto a house, a camper, and a shed. Sheet metal was stripped from the shed; the trees were severely twisted, according to the resident. More trees or large limbs fell in Reisterstown (Baltimore Co) and in northern Howard Co.

As events were winding down across northern Maryland, another severe storm moved out of east-central Virginia and into lower southern Maryland, causing damage in counties that had been struck the previous evening. Trees and large limbs fell across portions of northern and eastern Charles Co, but the storm apparently saved its worst for St Mary's Co, where three barns were destroyed and numerous trees were snapped or uprooted along the state route(s) 239/520 corridor near Milestown. In Calvert Co, more trees/large limbs fell, and a portion of roof and some siding were stripped from one home.

Thousands of Maryland residents lost power yet again due to the storms; a total of at least 25,000 customers in the Baltimore Gas and Electric and Allegheny Power service areas had no electricity during the height of the storm.

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Killed	Injured	Property	Crops	Character of Storm
Washington County									
Hagerstown	**17**	**1700EST**			**0**	**0**	**2K**		**Tstm Wind/Hail**

Estimated wind gusts to 50 mph with a late afternoon thunderstorm knocked down small tree limbs and a few power lines in Hagerstown.

Washington County									
3 W Hagerstown to 2 W Hagerstown	**19**	**0630EST 0632EST**	**1**	**75**	**0**	**0**	**8K**		**Tornado (F0)**
Frederick County									
Urbana to New Market	**19**	**0730EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

Scattered severe thunderstorms developed along a warm front during the early morning, producing wind damage near Hagerstown and Frederick within an hour. A small tornado touched down briefly along Hopewell Road between Hagerstown and Williamsport, knocking several Bradford pear trees down and an additional 10 larger trees in nearby Doub's Woods Park. One tree fell onto a car. Several eyewitnesses noted a "swirling black mass" as the storm passed. In Frederick Co, a few trees fell between Urbana and New Market.

Carroll County									
1 W Westminster	**23**	**1830EST 1930EST**			**0**	**0**	**5K**		**Flash Flood**
Montgomery County									
Damascus	**23**	**1830EST 1930EST**			**0**	**0**			**Flash Flood**

A slow-moving line of thunderstorms, containing pockets of very heavy rain, caused local flash flooding which extended from extreme northern Montgomery Co through western Carroll Co during the evening. Measured rainfall of 2.5 inches (1.1" in a half

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

MARYLAND, Central

hour), falling onto saturated soil, caused small streams and creeks to escape their banks near Damascus. In western Carroll Co, the Meadow Branch overflowed its banks just west of Westminster, causing temporary closure of state highway 140.

Carroll County									
Millers	**26**	**1408EST**			**0**	**0**			**Hail (0.88)**
Baltimore County									
2 N Cockeysville	**26**	**1415EST**			**0**	**0**			**Hail (0.75)**
Baltimore County									
Reisterstown to Towson	**26**	**1600EST 1614EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Baltimore County									
Towson to Essex	**26**	**1615EST 1630EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Montgomery County									
2 N Gaithersburg	**26**	**1615EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Baltimore County									
Reisterstown	**26**	**1630EST**			**0**	**1**	**25K**		**Hail (1.00)**
Carroll County									
South Portion	**26**	**1650EST 1700EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Baltimore City (C)									
West Baltimore	**26**	**1730EST**			**1**	**1**			**Lightning**
	F9UT								
Anne Arundel County									
Countywide	**26**	**1910EST 1925EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Anne Arundel County									
Arnold	**26**	**1920EST**			**0**	**0**	**20K**		**Lightning**
Calvert County									
Lusby	**26**	**1930EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
St. Mary'S County									
Mechanicsville	**26**	**1930EST**			**0**	**0**			**Hail (0.75)**
St. Mary'S County									
2 W Patuxent River Nas	**26**	**1930EST**			**0**	**0**	**25K**		**Lightning**
St. Mary'S County									
Charlotte Hall to Leonardtown	**26**	**1940EST 1955EST**			**0**	**0**	**10K**		**Thunderstorm Wind**

A weak upper-level disturbance, combined with a surface trough, triggered a hot, humid, unstable air mass lying across much of Maryland. Strong to severe thunderstorms developed rapidly in northern Maryland and tracked east-southeast into east-central and lower southern Maryland during the early evening. The main culprits for damage were gusty winds and lightning, through a few occurrences of large hail were noted.

Initial thunderstorms produced large hail in central Baltimore and northern Carroll Cos during the mid afternoon. The real action began during the early evening commuting hours, when a severe thunderstorm knocked down numerous trees and large limbs on an east-southeast trek from Reisterstown to Essex. The same cell produced wind-driven hail which broke windows of several automobiles in Reisterstown. The flying glass shards injured one occupant of a vehicle; the shards had to be removed from his scalp. Other wind damage was noted across southern Carroll Co and central Montgomery Co.

The final round of storms fired during the mid-evening, producing damaging wind gusts (mainly trees and power lines), first in northern and eastern Anne Arundel Co. Other storms developed over lower southern Maryland, producing tree and wire damage in St Mary's and Calvert Cos.

Lightning was a major factor with the storms. A lightning death occurred in southwest Baltimore City at 1730EST when two youngsters were running home to escape the storm. They made it to the shelter of a large tree, which was struck. The attendant current burned over half of the deceased's (a nine-year old girl) body. Her 8 year-old friend survived with lesser burns. Farther south, a small house fire was ignited by a lightning strike in Arnold. Power outages of at least 33,000 Southern Maryland Electric Co. customers were directly attributed to a lightning strike at a supply station in St Mary's Co. In all, at least 50,000 Maryland

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

MARYLAND, Central

residents west of the Chesapeake Bay lost electricity during the outbreak of storms.

Washington County									
5 SW Hagerstown to Hagerstown Arpt	**30**	**1639EST**			**0**	**0**	**5K**		**Thunderstorm Wind (G50)**
Washington County									
Leitersburg to Smithsburg	**30**	**1700EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Frederick County									
Middletown	**30**	**1705EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Frederick County									
1 S Thurmont	**30**	**1715EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Carroll County									
Sykesville	**30**	**1730EST 1736EST**			**0**	**0**	**8K**		**Thunderstorm Wind**
Howard County									
Northwest Portion	**30**	**1735EST 1750EST**			**0**	**0**	**12K**		**Thunderstorm Wind**
Carroll County									
Eldersburg	**30**	**1736EST**			**0**	**0**			**Hail (0.75)**
Baltimore County									
Owings Mills	**30**	**1755EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

A fast-moving cold front, aided by another strong upper-level disturbance, concluded June's wild weather with one more severe weather episode - once again confined mainly to the northern tier of Maryland. Downburst and gust-front wind damage were the main severe weather types this day.

Wind damage began in Washington Co, when a tractor-trailer was blown over along Interstate 81 southwest of Hagerstown. Farther up the highway, at the junction if I-81 and I-70, a large tree was down, blocking some traffic. The same line of storms produced a wind gust to 58 mph at the Washington County Regional Airport near the Mason-Dixon Line. Smithsburg and Leitersburg, in eastern Washington Co, were hardest hit. Several trees and large limbs were damaged, and a shed, tiller, and swing set sustained damage at one residence. Numerous wires were blown down as well.

Farther east, in northwest Frederick Co, large limbs were knocked down near Thurmont, including one tree which barely missed striking bears at the Catoctin Mountain Zoo along federal highway 15. Damage at the zoo was estimated to be $1,000. As the line bore down on Frederick city, several residents claim to have seen funnel clouds. However, only several large limbs were felled, and no trees were (reportedly) uprooted. Additional tree, limb, and wire damage occurred as the line headed into southern Carroll, northern Howard, and western Baltimore Cos. Heaviest damage was noted in northwestern Howard Co, where several roads were blocked by fallen trees and tree debris. A tree fell onto a house in Sykesville.

Power outages included at least 34,000 customers in the BGE service area, and perhaps hundreds of others in the Allegheny Power service area in western Maryland.

VIRGINIA, North

Fairfax County									
Tysons Corner	**02**	**1808EST**			**0**	**0**			**Hail (0.75)**
Fairfax County									
Great Falls	**02**	**1823EST**			**0**	**0**			**Hail (1.00)**
Frederick County									
4 E White Hall	**02**	**2022EST**			**0**	**0**			**Hail (0.75)**
Clarke County									
4 N Berryville	**02**	**2050EST**			**0**	**0**	**10K**	**3K**	**Hail (1.75)**
Clarke County									
Berryville	**02**	**2050EST 2052EST**	**0.5**	**50**	**0**	**0**	**15K**		**Tornado (F0)**
Loudoun County									
3 E Middleburg	**02**	**2104EST**			**0**	**0**	**10K**	**3K**	**Hail (1.75)**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
VIRGINIA, North									
Loudoun County									
3 SE Bluemont to 4 SE Bluemont	**02**	**2110EST 2114EST**	**1**	**50**	**0**	**0**		**10K**	**Tornado (F0)**
Winchester (C)									
4 N Winchester	**02**	**2200EST**			**0**	**0**			**Hail (1.00)**
Clarke County									
Berryville	**02**	**2210EST**			**0**	**0**			**Hail (1.00)**
Prince William County									
Dale City	**02**	**2210EST**			**0**	**0**			**Hail (0.88)**
Fauquier County									
The Plains	**02**	**2245EST**			**0**	**0**	**5K**		**Hail (1.75)**

The combination of an upper level disturbance, increasing atmospheric shear, and ample instability set the stage for a severe weather episode across northwestern Virginia during the evening. Individual mini-supercell storms contained large hail, damaging winds, and a few small tornadoes. The storms originated in eastern Ohio during the late afternoon and propagated through southwestern Pennsylvania, extreme northwestern Virginia, and portions of eastern West Virginia before scooting into northern Virginia.

Two weak tornadoes, emanating from the same mini-supercell, struck in Clarke and Loudoun Cos. Damage was noted near Berryville (Clarke Co) in the form of several uprooted trees and an unroofed barn. In western Loudoun Co, tree damage indicative of a tornado was surveyed along Snickersville Turnpike (local route 734). Elsewhere in northern Virginia, the main culprit was large hail, ranging in diameter from three-quarters of an inch to golf ball (1.75 inches). Damage likely occurred to some crop fields - the hail, in most cases, lasted from 5 to 15 minutes.

Warren County									
North Portion	**13**	**1319EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Harrisonburg (C)									
Harrisonburg	**13**	**1321EST**			**0**	**0**			**Hail (0.75)**
Clarke County									
South Portion	**13**	**1330EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Fauquier County									
Upperville to Paris	**13**	**1330EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Greene County									
Geer to Quinque	**13**	**1330EST 1335EST**			**0**	**0**	**3K**		**Hail (1.50)**
Greene County									
2 S Quinque to Ruckersville	**13**	**1345EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Orange County									
Gordonsville	**13**	**1345EST**			**0**	**0**	**3K**		**Hail (1.75)**
Orange County									
South Portion	**13**	**1345EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Loudoun County									
Round Hill	**13**	**1347EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Charlottesville (C)									
Charlottesville	**13**	**1355EST 1405EST**			**0**	**0**	**3K**		**Tstm Wind/Hail**
Loudoun County									
Lucketts to Leesburg	**13**	**1355EST 1410EST**			**0**	**0**	**10K**	**5K**	**Thunderstorm Wind**
Loudoun County									
Middleburg	**13**	**1355EST**			**0**	**0**	**2K**	**2K**	**Hail (1.75)**
Loudoun County									
Leesburg	**13**	**1412EST**			**0**	**0**			**Hail (0.75)**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
VIRGINIA, North									
Culpeper County									
Countywide	**13**	**1415EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Culpeper County									
Elkwood	**13**	**1415EST 1420EST**			**0**	**0**	**75K**	**15K**	**Hail (2.50)**
Fairfax County									
Herndon	**13**	**1415EST**			**0**	**0**			**Hail (0.75)**
Loudoun County									
Leesburg	**13**	**1418EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Stafford County									
Stafford	**13**	**1425EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Fairfax (C)									
Fairfax	**13**	**1430EST**			**0**	**0**	**7K**		**Thunderstorm Wind**
Falls Church (C)									
Falls Church	**13**	**1430EST**			**0**	**0**	**7K**		**Thunderstorm Wind**
Alexandria (C)									
Alexandria	**13**	**1435EST**			**0**	**0**	**13K**		**Thunderstorm Wind**
Fredericksburg (C)									
Fredericksburg	**13**	**1435EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Spotsylvania County									
North Portion	**13**	**1435EST 1440EST**			**0**	**0**	**10K**		**Thunderstorm Wind**
Albemarle County									
Scottsville	**13**	**1440EST**			**0**	**2**			**Lightning**

A vigorous upper-level disturbance acted upon increasingly warm and humid air near the surface to produce a squall line of strong to severe thunderstorms which traversed all of northern Virginia during the afternoon. Overall, damage was dominated by numerous downed trees, large limbs, and power lines, though there were scattered occurrences of large hail with the more intense cells. Localized small stream and poor drainage flooding was noted, but true flash flooding did not occur due to the rapid movement of the line.

Initial damage occurred across northwestern Virginia, where there were several instances of scattered trees and large limbs down across portions of Clarke, Loudoun, Warren, and Fauquier Cos. There were several citizen and police reports of funnel clouds in the area, but surveys determined that damage was straight-line in nature - either due to embedded microbursts or the gust front. Farther south, hail fell, most between three-quarters and one inch in diameter. However, at least one cell produced more substantial hail across Greene, Orange, and Culpeper Cos. In Elkwood (Culpeper Co), a wholesale greenhouse shop sustained considerable damage - broken glass and double-layered plastic - when hail, estimated at tennis-ball size, fell. Medium-sized limbs and twigs were blown off trees at the University of Virginia in Charlottesville.

As the storms raced east, more tree and power line damage was noted, in Fairfax, Arlington, Stafford, and Spotsylvania Cos. Damage appeared to be most significant in northern Spotsylvania Co. In Fredericksburg, one tree fell onto a car and another onto a garage; the wind blew over several tents at a local arts festival, damaging most of one vendor's work and about $1,000 worth of pottery at another stand. Elsewhere in the county, a tree fell on a house and another fell onto a mobile home, each causing some damage. At least a half dozen large trees were reported down in Falls Church; several others were knocked down in Alexandria.

The combination of wind damage and lightning knocked power out to at least 56,000 Virginia Power customers in northern Virginia; several thousand other residents served by Allegheny Power and local electric co-operatives likely lost power in western Virginia as well. One notable lightning strike occurred on the James River just south of Scottsville (Albemarle Co); two youths were shocked while swimming to shore after "tubing". Each sustained only minor injuries, and were treated and released from the University of Virginia medical center.

Shenandoah County									
Woodstock to Maurertown	**15**	**1400EST 1408EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Shenandoah County									
Woodstock	**15**	**1407EST**			**0**	**0**			**Hail (1.25)**
Warren County									
Front Royal	**15**	**1420EST**			**0**	**0**			**Hail (1.00)**

National Weather Service
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Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
VIRGINIA, North									
Shenandoah County									
Woodstock to Toms Brook	**15**	**1430EST 1530EST**			**0**	**0**	**35K**		**Flash Flood**
Warren County									
3 SE Front Royal to Linden	**15**	**1445EST 1456EST**			**0**	**0**			**Hail (0.75)**
Fauquier County									
2 SE Upperville to Marshall	**15**	**1510EST 1525EST**			**0**	**0**			**Hail (0.75)**
Rappahannock County									
North Portion	**15**	**1515EST 1530EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Fauquier County									
Warrenton to Paris	**15**	**1530EST 1540EST**			**0**	**0**			**Hail (1.00)**
Warren County									
2 SW Front Royal	**15**	**1530EST 1630EST**			**0**	**0**	**2K**		**Flash Flood**
Prince William County									
1 W Hickory Grove	**15**	**1543EST**			**0**	**0**			**Hail (1.00)**
Fauquier County									
The Plains	**15**	**1552EST**			**0**	**0**			**Hail (1.00)**
Manassas (C)									
Manassas	**15**	**1554EST 1604EST**			**0**	**0**	**2K**		**Hail (1.75)**
Fairfax County									
Centreville	**15**	**1556EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Fairfax County									
Chantilly to Oakton	**15**	**1556EST 1601EST**			**0**	**0**	**5K**		**Hail (1.75)**
Fairfax County									
Burke to Annandale	**15**	**1609EST 1615EST**			**0**	**0**	**15K**		**Hail (2.00)**
Fairfax (C)									
Fairfax	**15**	**1610EST 1630EST**			**0**	**0**	**15K**		**Lightning**
Fauquier County									
The Plains	**15**	**1615EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Prince William County									
Greenwich	**15**	**1617EST 1620EST**			**0**	**0**			**Hail (1.00)**
Arlington County									
Central Portion	**15**	**1620EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Manassas (C)									
Manassas	**15**	**1624EST**			**0**	**0**	**3K**	**2K**	**Hail (1.75)**
Fairfax County									
Springfield to Franconia	**15**	**1627EST 1632EST**			**0**	**0**			**Hail (1.00)**
Alexandria (C)									
Central Portion	**15**	**1630EST 1636EST**			**0**	**0**			**Hail (1.00)**
Fairfax County									
Springfield to Mt Vernon	**15**	**1631EST**			**0**	**1**	**15K**		**Thunderstorm Wind**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
VIRGINIA, North									
Prince William County									
Dumfries	**15**	**1634EST**			**0**	**0**			**Hail (1.00)**
Rappahannock County									
South Portion	**15**	**1635EST 1650EST**			**0**	**0**	**8K**		**Thunderstorm Wind**
Alexandria (C)									
Central Portion	**15**	**1636EST**			**0**	**0**	**20K**		**Thunderstorm Wind**
Prince William County									
Triangle	**15**	**1745EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Stafford County									
Widewater	**15**	**1755EST 1800EST**			**0**	**0**	**12K**		**Thunderstorm Wind**
Nelson County									
East Portion	**15**	**1935EST**			**0**	**0**	**25K**		**Thunderstorm Wind**

The juxtaposition of a northward moving warm front, strong surface low pressure over the midwest, and a fast upper-level jet combined to produce another outbreak of severe weather - this coming two days after a notable episode over much of northern Virginia on the 13th. Once again, damage was highlighted by downed trees, large hail, and several cases of flash flooding. Much of the notable tree damage occurred over and east of the piedmont; flash flooding was seen over and west of the piedmont.

The episode was dominated by a single supercell which developed over the west central piedmont near the Blue Ridge and propagated east through Fauquier, Prince William, Fairfax, and Arlington Cos, as well as the independent city of Alexandria. Earlier cells caused scattered severe weather generally northwest of these areas.

The first event of consequence occurred in Woodstock (Shenandoah Co), where a localized storm dumped at least 2 inches of rain in 2 hours - on top of saturated soil - producing flash flooding in portions of town. Poor drainage and low-lying areas were hard hit, in some instances worse than the flooding in 1996 (associated with tropical storm Fran). A two-block area was evacuated. Included in this area was a barbecue catering company, which had some equipment washed out of the store. A small sport utility vehicle was washed up against a low-water bridge, with water cascading over the vehicle's roof. Several side streets were flooded, not only in Woodstock but in nearby Toms Brook as well.

As the storms tracked east, there were several reports of hail ranging from 0.75" to 1" in diameter. Additional flash flooding occurred in Warren Co, where a minor mud slide temporarily closed a portion of Browntown Road. Low-lying flooding closed the intersection of River and Harrell Road. Around this time, one thunderstorm cell became dominant as it crossed into Fauquier Co. Soon after, the storm exhibited a bow-echo feature, and accounts of damaging winds increased accordingly.

Large hail, ranging from 0.75" to 2" in diameter, fell across portions of Prince William and Fairfax Cos. Wind gusts knocked trees and large limbs down in Centreville. Heavier damage occurred as the bow-echo strengthened, in southern Fairfax Co and Alexandria. In Springfield and Mt Vernon, trees fell on two cars; one motorist was injured (in Springfield) but the other(s) escaped unharmed. Farther east, at least a dozen trees were felled in Alexandria; large limbs fell on power lines in the south portion of Arlington. Several more large limbs and/or trees fell alongside or onto the Capital Beltway. A bit farther south, numerous trees fell along federal highway 1 (west of Wide Water) in extreme northern Stafford Co.

A final event occurred in eastern Nelson Co, where several trees fell, including one onto a porch and another onto the roof of the same residence, causing substantial structural damage to the home.

In all, 31,000 Virginia Power customers lost power during the storms. Frequent lightning was also a problem, though there were no house fires, and no injuries were reported.

Augusta County									
Craigsville	**16**	**1500EST**			**0**	**0**			**Hail (1.25)**
Augusta County									
Craigsville	**16**	**1500EST**			**0**	**0**	**15K**		**Thunderstorm Wind**
Augusta County									
Churchville	**16**	**1518EST 1530EST**			**0**	**0**	**25K**	**10K**	**Hail (1.75)**
Augusta County									
West Portion	**16**	**1518EST 1530EST**			**0**	**0**	**35K**		**Thunderstorm Wind**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
VIRGINIA, North									
Albemarle County									
Covesville	**16**	**1527EST**			**0**	**0**			**Hail (1.00)**
Madison County									
Wolftown	**16**	**1530EST 1545EST**			**0**	**0**	**50K**	**50K**	**Hail (2.75)**
Albemarle County									
North Portion	**16**	**1535EST**			**0**	**0**	**7K**	**10K**	**Hail (2.75)**
Greene County									
Standardsville	**16**	**1541EST**			**0**	**0**	**15K**	**8K**	**Hail (2.00)**
Albemarle County									
5 E (Cho)Charlottesville	**16**	**1545EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Harrisonburg (C)									
Harrisonburg	**16**	**1550EST 1600EST**			**0**	**0**	**15K**		**Thunderstorm Wind**
Rockingham County									
3 S Linville to Broadway	**16**	**1550EST 1600EST**			**0**	**0**	**25K**		**Thunderstorm Wind**
Rockingham County									
South Portion	**16**	**1550EST 1600EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Madison County									
Madison	**16**	**1600EST**			**0**	**0**	**10K**	**10K**	**Hail (1.75)**
Culpeper County									
Culpeper	**16**	**1601EST 1604EST**			**0**	**0**	**10K**	**5K**	**Hail (1.75)**
Shenandoah County									
Woodstock	**16**	**1604EST**			**0**	**0**			**Hail (0.88)**
Culpeper County									
1 N Jeffersonton	**16**	**1607EST**			**0**	**0**			**Hail (1.00)**
Albemarle County									
Northeast Portion	**16**	**1620EST 1630EST**			**0**	**0**	**7K**		**Thunderstorm Wind**
Frederick County									
Clear Brook to 2.5 NE Clear Brook	**16**	**1635EST 1641EST**	**2.5**	**100**	**0**	**0**	**50K**	**50K**	**Tornado (F1)**
Fauquier County									
Countywide	**16**	**1641EST 1650EST**			**0**	**0**	**7K**		**Thunderstorm Wind**
Loudoun County									
Middleburg	**16**	**1642EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Prince William County									
Quantico Mcas	**16**	**1642EST**			**0**	**0**			**Thunderstorm Wind (G55)**
Charlottesville (C)									
Charlottesville	**16**	**1645EST 1655EST**			**0**	**0**	**7K**		**Thunderstorm Wind**
Clarke County									
Berryville	**16**	**1645EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Fauquier County									
Markham	**16**	**1645EST 1730EST**			**0**	**0**			**Flash Flood**
Loudoun County									
Central Portion	**16**	**1645EST 1700EST**			**0**	**0**	**200K**		**Lightning**

VIRGINIA, North

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
Prince William County									
Northwest Portion	**16**	**1645EST**			**0**	**0**	**3K**		**Thunderstorm Wind**
Fauquier County									
1 E Rectortown	**16**	**1650EST**			**0**	**0**			**Hail (0.75)**
Loudoun County									
Northwest Portion	**16**	**1650EST 1700EST**			**0**	**0**	**15K**	**20K**	**Thunderstorm Wind**
Stafford County									
North Portion	**16**	**1650EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Loudoun County									
Lovettsville	**16**	**1655EST**	**0.5**	**75**	**0**	**0**	**10K**	**15K**	**Tornado (F0)**
Orange County									
1 W Thornhill	**16**	**1655EST**			**0**	**0**	**8K**		**Thunderstorm Wind**
Fredericksburg (C)									
Fredericksburg	**16**	**1715EST 1730EST**			**0**	**0**	**10K**		**Lightning**
Fairfax County									
Ft Belvoir	**16**	**1800EST**			**0**	**1**			**Lightning**
Highland County									
Countywide	**16**	**1800EST**			**0**	**0**	**15K**	**25K**	**Thunderstorm Wind**
Highland County									
Monterey	**16**	**1800EST**			**0**	**0**			**Hail (0.75)**

Like a broken record, severe weather erupted again in northern and western Virginia - exactly one day after thunderstorms pounded many of the same areas. This time around, a cold front aided in triggering the episode, though upper-level wind shear was a major player in destabilizing the atmosphere much like it had done the previous day. Incredibly, the 16th would be the third out of four afternoons that severe weather had occurred in some portion of northern and western Virginia.

A comma-shaped line of thunderstorms - indicative of a mesoscale low pressure system - developed by the middle of the afternoon. The comma "head" curled from eastern West Virginia into western Maryland, then formed a line through western and central Virginia. Several tornadoes touched down in the vicinity of the comma head, from extreme northwestern Virginia through eastern West Virginia and northern and western Maryland; along the comma tail, individual cells produced large hail with some damaging wind gusts.

Damage to trees and wires occurred in many areas but, overall, was not quite as substantial when compared to that of the 13th. Nevertheless, several trees were uprooted, including one which fell onto an automobile, between Harrisonburg and Broadway (Rockingham Co). Numerous trees were reported down near Craigsville (Augusta Co). Farther east, trees were down in portions of Fauquier, Loudoun, and Prince William Cos. A late storm produced damaging winds across much of Highland Co; numerous trees and wires were knocked down.

A small tornado struck in and northeast of Clear Brook (northeast Frederick Co), uprooting at least 7 maple trees, smashing a storm window, flattening a barn, and snapping or uprooting 24 additional trees along Grace Church Road. The parent thunderstorm would continue into eastern West Virginia and western Maryland, producing additional tornadoes. Allegheny Power reported 2300 customers lost electricity in Frederick Co alone. Another small tornado touched down in Lovettsville, causing structural damage at one residence and felling numerous trees in a 200-300 ft. wide path. Straight-line wind damage (mainly to trees) was also noted in other areas of northwestern Loudoun Co.

The main severe weather culprit this day was large hail. Hailstones the size of baseballs dented cars, broke vehicle windows, and stripped paint and siding in portions of Madison, Augusta, Albemarle, Greene, and Culpeper Cos. In general, hail ranged from 1 to 2.75 inches in diameter. There were likely dozens of crop fields which sustained losses; a few residential gardens were wiped out by the large hail, which lasted 5 minutes or more in some locations.

Lightning also caused some damage. A home was set afire in Loudoun Co, causing an estimated $200 thousand in damage. A security guard at Fort Belvoir (southern Fairfax Co) was shocked while opening a metal door; he was treated and released from the Army community hospital after slight numbness ensued. Other lightning damage was noted in Fredericksburg; one home was struck, sustaining minor damage; there were several instances of personal electronics equipment failures (as reported by a local repair shop).

Power outages were widespread; in all, Virginia Power reported approximately 64,000 customers without electricity in northern

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

VIRGINIA, North

and western Virginia; Allegheny Power and several rural electric co-operatives reported at least 3,000 additional outages.

Highland County

Monterey	**19**	**0730EST 0800EST**			**0**	**0**			**Flash Flood**

Slow-moving thunderstorms along a warm front moving through central Virginia caused heavy rains over the western highlands. Rainfall of at least one inch on top of saturated soil produced flash flooding in Monterey which closed two roads.

Nelson County

Faber	**23**	**1455EST 1500EST**			**0**	**0**			**Hail (0.75)**

Nelson County

Faber	**23**	**1455EST 1500EST**			**0**	**0**	**2K**		**Tstm Wind/Hail**

Albemarle County

2 W Esmont	**23**	**1515EST 1520EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

Shenandoah County

1 SW Maurertown	**23**	**1515EST**			**0**	**0**	**10K**		**Thunderstorm Wind**

Albemarle County

2 E White Hall	**23**	**1540EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

Madison County

Madison	**23**	**1545EST 1630EST**			**0**	**0**			**Flash Flood**

Charlottesville (C)

Charlottesville	**23**	**1550EST 1630EST**			**0**	**0**			**Flash Flood**

Culpeper County

Elkwood	**23**	**1600EST 1630EST**			**0**	**0**			**Flash Flood**

Charlottesville (C)

Charlottesville	**23**	**1605EST 1615EST**			**0**	**0**	**50K**		**Thunderstorm Wind**

Prince William County

2 N Bristow	**23**	**2030EST 2130EST**			**0**	**0**			**Flash Flood**

Spotsylvania County

Massaponax	**23**	**2055EST 2130EST**			**0**	**0**			**Flash Flood**

A warm front, combined with another potent (for the season) upper-level disturbance, set the stage for strong to severe thunderstorms across the western piedmont and central Shenandoah Valley during the afternoon and evening. Severe weather, mainly in the form of thunderstorm winds, was confined to Albemarle and Nelson Cos. Heaviest damage was noted in the Charlottesville area, where dozens of trees and large limbs fell, several onto cars and a few onto homes. Another severe storm, containing estimated winds gusts between 60 and 80 mph, mangled tree branches and split other trees in two in Maurertown along local route 625. One of the trees fell onto a home, causing minor damage.

The storms, which moved rather slowly over saturated ground, induced flash flooding in several counties. Rainfall totals, ranging between 2 and 6 inches in the strongest storms, produced street flooding in Charlottesville and Madison. The town of Elkwood received 6.2 inches of rain which brought area creeks and small streams out of their banks. In Prince William Co, just west of Manassas, several low-lying areas were flooded, and a few streams overspilled their banks. Over an inch of rain in 20 minutes forced creeks out of their banks near Massaponax. The storms knocked out power to at least 12,500 customers in northern and central Virginia.

Highland County

Monterey to Hightown	**27**	**2132EST**			**0**	**0**	**7K**	**10K**	**Thunderstorm Wind**

A local severe thunderstorm knocked large trees and limbs onto federal highway 220 near Monterey. Additional limb and line damage was noted near the intersection of federal highway 250 and local road 600, with more damage seen across the southern portion of the county. Neighboring Bath Co. had more substantial damage.

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
WEST VIRGINIA, East									
Mineral County									
3.4 SE Patterson Creek t 4.4 SE Patterson Creek	**02**	**1936EST 1937EST**	**1**	**100**	**0**	**0**	**5K**	**10K**	**Tornado (F1)**
Hampshire County									
2.5 W Donaldson to Levels	**02**	**1937EST 1946EST**	**8**	**150**	**0**	**0**	**20K**	**100K**	**Tornado (F1)**
Hampshire County									
Green Spg to Levels	**02**	**1937EST 1943EST**			**0**	**0**	**5K**	**50K**	**Hail (1.75)**
Mineral County									
5 SW Keyser to 3 E Burlington	**02**	**2133EST 2146EST**	**10**	**150**	**0**	**0**	**150K**	**100K**	**Tornado (F2)**
Mineral County									
New Creek	**02**	**2133EST**			**0**	**0**		**3K**	**Hail (1.25)**
Hampshire County									
2 NW Junction to 3 S Junction	**02**	**2147EST 2151EST**	**5**	**150**	**0**	**5**	**100K**	**50K**	**Tornado (F1)**

The combination of an upper-level disturbance, increasing atmospheric shear, and ample instability set the stage for a major severe weather episode across portions of eastern West Virginia during the late afternoon and evening. The episode was highlighted by supercell thunderstorms which produced two multi-county tornadoes and several instances of large hail. For many residents of the Potomac highlands, the storms were a watershed event; the locals believed that tornadoes "like those in the midwest and Great Plains" could never strike.

The first twister, originally associated with a supercell which had produced a long (11-13 mile track) tornado in Somerset Co, Pennsylvania, re-emerged in extreme northeastern Mineral Co just east of Wagoner. The storm crossed into Hampshire Co, then passed an Allegheny Power substation before causing minor damage at some homes just north of Donaldson. Damage included a destroyed gazebo, stripped siding/trim from homes, and several uprooted or snapped trees. The tornado crossed River Mountain, causing damage primarily to forested areas. The path continued across the South Branch of the Potomac River before the tornado dissipated just outside the town of Levels.

The second tornado produced significantly more property damage. Initial reports of a funnel cloud over Bloomington, Maryland (Garrett Co) became prophetic as the first touchdown occurred 5 miles southwest of Keyser. Damage increased as the storm descended the Allegheny front range (Green Mountain). A car was blown over, a garage destroyed, and several trees were snapped or uprooted. A pine tree landed on one home, another home sustained minor damage, and a nearby mobile home had its skirting blown off.

The twister crossed New Creek Mountain, levelling numerous trees in heavily forested areas. Damage intensified after the tornado descended the mountain. One mobile home was destroyed - and, after the storm crossed federal highway 220, more tree damage was noted, as was minor damage to homes and extensive damage to outbuildings. The storm continued along federal highway(s) 50/220 to Ridgeville, rolling one mobile home, causing minor damage to nearby buildings, and destroying a barn near the Mill Creek Country Club just west of Burlington. From there, the tornado continued over Patterson Creek Mountain and into Hampshire Co, where several mobile homes were damaged or rolled along Davy Road. Five persons in one of the homes sustained minor injuries; only one accepted transport to a local hospital for head trauma. A station wagon was completely turned around and sustained minor damage. The twister then tracked three miles south of Junction, where it likely dissipated.

Hail was associated with each mini-supercell - and several residents, including fruit farmers, noted varying amounts of damage due to prolonged and, in some cases, sizeable hail. One grower reported total damage to his orchard (near Levels); other damage was seen in the form of stripped leaves and downed small limbs.

Conditions quieted after the final supercell (that which produced the second tornado) passed.

Hardy County									
2 NE Oldfields	**13**	**1220EST**			**0**	**0**	**5K**		**Thunderstorm Wind**
Jefferson County									
Charles Town to Harpers Ferry	**13**	**1400EST 1410EST**			**0**	**0**	**20K**		**Thunderstorm Wind (G56)**

A vigorous upper-level disturbance acted upon increasingly warm and humid air near the surface to produce scattered strong to severe thunderstorms across eastern West Virginia during the early afternoon. The individual cells eventually formed into a line, causing wind damage, large hail, and numerous power outages in northern Virginia and central Maryland. Two separate events were reported. The first was an area of downed trees and limbs near the South Branch of the Potomac River just north of Old Fields. The other was a measured wind gust of 65 mph in Jefferson Co. This cell also produced damage in the form of numerous downed trees and some wires. One tree fell onto a home near Harpers Ferry.

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

WEST VIRGINIA, East

The storms moved out of the area by mid afternoon.

Hardy County

5 W Wardensville	**15**	**1400EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

Hampshire County

Countywide	**15**	**1545EST 1700EST**			**0**	**0**			**Flash Flood**

Isolated strong to severe thunderstorms developed across eastern West Virginia's Potomac highlands during the mid afternoon, knocking down some trees and large limbs along the Big Ridge west of Wardensville. A slower-moving area of storms caused flooding in portions of Hampshire Co; specifically, the intersection of Kirby and Rio roads was reportedly under water.

Berkeley County

.5 SE Ridgeway to .5 NE Ridgeway	**16**	**1643EST 1645EST**	**1**	**50**	**0**	**0**	**50K**		**Tornado (F0)**

Jefferson County

Southeast Portion	**16**	**1655EST 1705EST**			**0**	**0**	**5K**		**Thunderstorm Wind**

Berkeley County

4 E Martinsburg to 4 NE Martinsburg	**16**	**1708EST 1710EST**	**1**	**150**	**0**	**0**	**100K**		**Tornado (F1)**

The approach of a cold front combined with impressive jet stream energy aloft acted on an unstable low-level atmosphere to produce a severe weather episode across eastern West Virginia for the second time in as many days. The combustible situation produced a mesoscale low pressure system which focused the most substantial severe weather in north-central Maryland and the eastern West Virginia panhandle. The episode featured two small tornadoes and one wind damage event.

The main event was a short-lived tornado which tracked through the small community of Swan Pond just east of Martinsburg. In Swan Pond Orchard, the tornado ripped a garage off the back of a home and knocked down eight miniature apple trees. The twister moved through a heavily wooded area, knocking down numerous trees before tracking across an open field where it tore the roof off a barn. It also flipped a trailer, moved a hay wagon, blew out doors to a hangar, and damaged a cinder block outbuilding.

This was the second tornado associated with the parent thunderstorm. The first, perhaps a continuation of one that had struck in extreme northern Frederick Co Virginia moments earlier, cut a brief path across extreme southern Berkeley Co near Ridgeway. Several trees were blown down, including one onto a mobile home and two more onto nearby homes. Interestingly, this same storm would spawn three more tornadoes in Washington Co, Maryland, a bit later.

In southeastern Jefferson Co, trees were knocked down along federal highway 340 near Harpers Ferry and along state route 9 just east of the Shenandoah River.

Pendleton County

3 NW Ruddle	**27**	**1030EST**	**0.3**	**50**	**0**	**0**	**8K**		**Tornado (F0)**

A brief, small tornado whipped through a turkey farm, blowing a portion of the roof off of one turkey house, sucking the insulation out, and blowing two doors off their hinges. A portion of aluminum was found wrapped around a sycamore tree 35 feet from the house. Approximately 50 turkeys were discovered outside a nearby poultry house after its screen door was lifted off the ground.

Pendleton County

North Portion	**28**	**2230EST**			**0**	**0**	**2K**		**Thunderstorm Wind**

A local severe thunderstorm knocked doen large limbs across a couple of roads in northern Pendleton Co.