

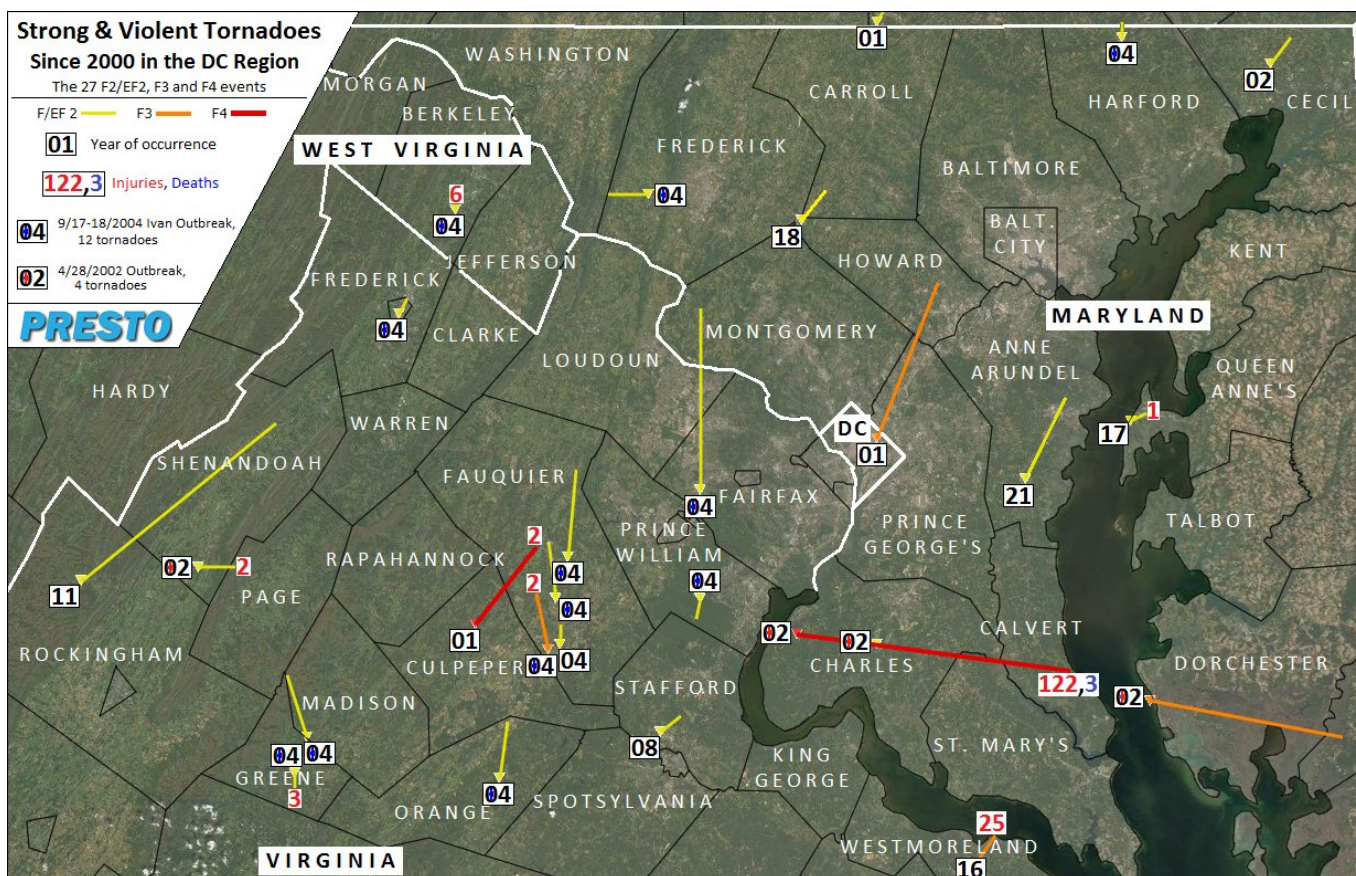


PRESTO

PREcipitation Summary and Temperature Observations
For the Washington, DC and Baltimore, MD Area



SEPTEMBER 2021: 9/1's IDA Brings Flooding, EF-2 Tornado; More Flooding 22nd-23rd; Rather Warm, Ample Rainfall



September Highlights

- Slightly above normal **temperatures**: DCA 73.2°F (+0.8); BWI 71.5°F (+2.3); IAD 70.0°F (+1.3), & a **record high** tied at IAD on 9/16
- Near to well above normal **precipitation**: DCA 4.03" (+0.10); BWI 6.04" (+1.60); IAD 4.72" (+0.78), **9-13"** in Frederick Co., MD
- 1st-2nd – **Post-Tropical Storm IDA** brought **2-4"** rain to most spots, with **8.16"** near Frederick (Frederick Co.), MD; BWI and MRB set daily records with **4.13"** and **3.54"**, respectively. **2 tornadoes** tracked just west of the Chesapeake Bay, including a long track **EF-2** that damaged western Annapolis (Anne Arundel Co.), MD, and a subsequent **EF-0** along coastal Baltimore Co., MD. Flooding also led to at least **6 swift/high water rescues** in Frederick Co., MD, with 11 people rescued from a school bus in Thurmont, MD.
- 8th-9th – Thunderstorms blew down trees/power lines, with several roads closed due to high water, mainly in Frederick Co., MD
- 15th – Storms brought down multiple trees/power lines, with **1-2"** rain to parts of Washington and Frederick Counties, MD
- 16th – Heavy rains in Piedmont (up to **3.43"** in Lincolnia (Fairfax Co.), VA strand several vehicles and block lanes in numerous highways
- 21st-23rd – Widespread 2-3" rainfall totals, with **4.08"** near Emmitsburg (Frederick Co.), MD and **3.83"** in Friendship Heights (Northwest), DC, led to widespread flooding with **2 swift water rescues** in Frederick Co., MD. Dozens of roads, bridges, and exit ramps were closed from Frederick Co., VA to Washington, D.C. to Harford Co., MD, including major highways and interstates.
- 28th – Slow-moving cells bring a dozen reports of severe hail as large as **1.75"** across VA, accumulating **1-2"** deep in Greene Co.

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September 2021

September Temperatures: A mix of very warm and rather cool periods led to a near to slightly above normal month: DCA 73.2°F (+0.8); BWI 71.5°F (+2.3); IAD 70.0°F (+1.3). September 2021 was an accurate representation of the “new normals”, being the 5th coolest of the last 10 years at DCA and the 5th warmest at BWI and IAD. The month started on a cool note during the 2nd-4th, with an autumnal blast bringing mornings in the 40s and 50s across the mountains and Piedmont respectively, while Bayard (Grant Co.), WV dropped to 39°F on all three mornings. Very warm weather returned on the 13th-18th, with highs commonly in the mid 80s to low 90s, and lows near 70°F. The National Arboretum (Northeast), DC peaked in the mid-90s for the first 3 days, including 96°F on the 15th, while IAD tied a record high minimum of **69°F** on the 16th. Slightly below normal readings were common from the 23rd onward, as the deep trough that crossed the eastern US brought a pattern change that cut off southern warmth and moisture. On the 24th-27th, Mill Gap (Highland Co.), VA dropped to 38°F each morning, while lows 45-55°F were common outside the metros.

September Precipitation and Flooding: Monthly rainfall totals were driven by the heavy rains of both Post-Tropical Storm Ida on the 1st and the deep trough’s system of the 22nd-23rd, which contributed to a strong gradient between **7-13”** totals across northern/western zones and **2-4”** over much of the Coastal Plain – the reverse of the trend often seen in convective months in recent years. In between were the metro areas, with adequate rains: DCA 4.03” (+0.10); BWI 6.04” (+1.60); IAD 4.72” (+0.78).

Ida brought an impressive **2-4”** to most locations, with generally **1-2”** across the Coastal Plain, while several extreme storm totals were reported along the Mason-Dixon Line. Greatest was the **4-7”** across Frederick and western Carroll Counties, with **8.16”** reported on the north side of Frederick, MD; almost as notable were widespread **4-6”** totals across both northwestern and northeastern corners of MD, with **6.07”** along Deep Creek Lake (Garrett Co.) and **6.18”** near Woodlawn (Cecil Co.). Resultant widespread flood reports included half of Ellersie (Allegany Co.), MD **evacuated**, major flood stage on Big Elm Creek (Cecil Co.), MD, and at least 6 **swift/high water rescues** across Frederick Co., MD, including 11 people rescued from a school bus in Thurmont. Scores of roads, including highways from VA to northeastern MD, were closed due to flooding.

On the 8th-9th, training overnight rains brought scattered patches of **1-3”**, which included some the same areas that had seen extreme rains from Ida. Greatest reports were **2.95”** in Mount Airy (Carroll Co.), MD and **2.03”** at Shenandoah NP HQ (Page Co.), VA; training rains after midnight led to flooding along the Shenandoah Valley and in Buckeystown (Frederick Co.), MD. On the 15th, scattered storms brought isolated **1”+** totals, including **2.47”** in the City of Hagerstown (Washington Co.), MD. The 16th saw afternoon storms develop over eastern counties before tracking westward into the evening, with locally impressive totals extending from northern Virginia into the MD Piedmont, including **3.43”** in Lincolnia (Fairfax Co.) and **2.75”** near Damascus (Montgomery Co.), MD, with several reports that **vehicles were trapped** in floodwaters in Fairfax Co., VA

On the 22nd-23rd the moist conveyor around the deep cut-off trough brought the month’s second widespread heavy rain, with greatest 1-day totals of **3.96”** near New Market (Frederick Co.), MD (through dawn on the 23rd) and **3.51”** at Ridge (St. Mary’s Co.), MD (after dawn on the 23rd). Storm totals included widespread **2-3”**, and scattered **3-4”** on the MD Piedmont, with **4.90”** near Monterey (Highland Co.), VA, **4.08”** near Emmitsburg (Frederick Co.), MD, **3.83”** in Friendship Heights, DC, **3.28”** in Waynesboro, VA, and **3.26”** in Shannondale (Jefferson Co.), WV. Widespread flooding was reported: **swift water rescues** were needed in Frederick and Montgomery Co., MD, while over 50 roads were closed or blocked due to flooding, including highways in Baltimore City, Washington, D.C., and Harford County, MD.

September Severe Weather: Post-Tropical Storm Ida spawned an **EF-2 tornado** that tracked 11.5 miles through Anne Arundel Co., MD, with estimated peak wind 125 mph, maximum width 200 yards, as it toppled scores of trees and caused extensive roof and structure damage to communities, shopping centers, a school campus’ stadium, as well as homes in western Annapolis. This was only the region’s fourth EF-2+ since 2011 (see above graphic), yet no one was injured; the same supercell then spawned an **EF-0 tornado** that tracked 6.9 miles through Baltimore Co., MD, with estimated peak winds of 85 mph, maximum width 75 yards, and scattered minor tree damage.

The month’s other 29 days saw sporadic severe winds/hail, as is customary for early autumn in the Mid-Atlantic. The 15th’s scattered late day-early evening storms crossed MD’s northern counties, with multiple trees/wires downed over Washington Co. and Frederick Co., before a gust to **63** mph was recorded in Aberdeen (Harford Co.), MD. On the 22nd, in Kensington (Montgomery Co.), MD, downed wires caused a fire and a light pole hit a vehicle. On the 28th, 2 individuals were **hospitalized** after being on a roof struck by lightning in Herndon (Fairfax Co.), VA, and then during the early afternoon, large hail was reported across several VA counties between Harrisonburg and Charlottesville.

September 2021 Weather Statistics for the Washington/Baltimore Area

Location	Station Temperatures (°F)					Extreme/Day		Precipitation (inches)			
	Av Max	Av Min	Avg T	Nml T	ΔNml	Max	Min	Total	Nml P	ΔNml	Year To Date
National (DCA)	81.7	64.7	73.2	72.4	+0.8	90/13,15	54/30	4.03	3.93	+0.10	39.21
Baltimore (BWI)	81.9	61.0	71.5	69.2	+2.3	91/15	50/25	6.04	4.44	+1.60	33.40
Dulles (IAD)	80.8	59.1	70.0	68.7	+1.3	89/14,15	45/30	4.72	3.94	+0.78	29.31

Looking Ahead: Much of the region experiences its first frost/freeze in October but in 2020, some areas west and north of the metro had the first frost/freeze in late September. Below is a list of the first freeze dates at the three airports since 2011.

First 32°F (or lower) reading at DCA, BWI and IAD in Last 10 Years							
Year	DCA	BWI	IAD	Year	DCA	BWI	IAD
2020	Nov 19	Nov 18	Oct 31	2015	Nov 23	Oct 19	Oct 18
2019	Nov 9	Nov 2	Oct 22	2014	Nov 15	Nov 8	Nov 8
2018	Nov 11	Oct 22	Oct 22	2013	Nov 13	Oct 26	Oct 25
2017	Nov 10	Nov 10	Oct 26	2012	Nov 26	Nov 5	Oct 13
2016	Nov 23	Oct 26	Oct 18	2011	Dec 10	Oct 30	Oct 30

Normal (1991-2020) first freezes are... DCA – Nov 17; BWI – Oct 29; IAD – Oct 19