



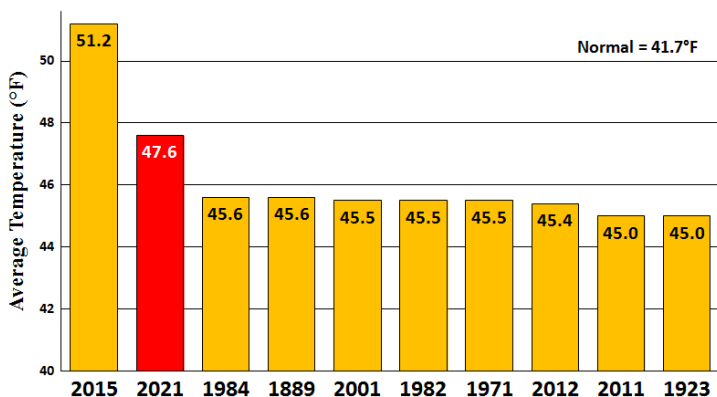
PRESTO

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

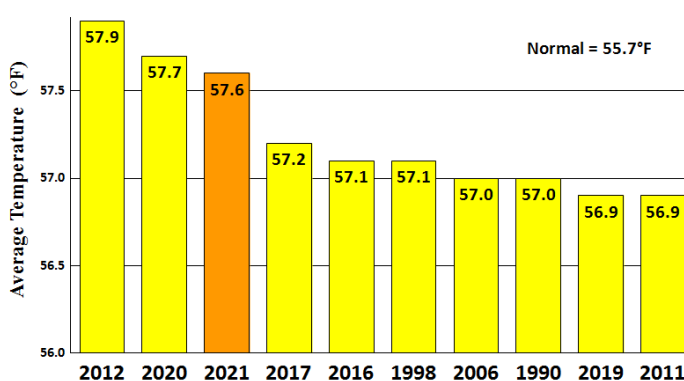


DEC 2021: Unseasonably Mild; Very Dry; No Snow ANNUAL: Very Warm; Dry Outside Metro; Little Snow

Washington's 2nd Mildest December (Since 1872)



3rd Warmest Year At Dulles (Since 1962)



December Highlights

- Well above normal **temperatures**: DCA 47.6°F (+5.9°); BWI 45.5°F (+6.9°); IAD 45.0°F (+7.3°)
- DCA record maxes **70F, 65F** (11th, 17th); record high minimum at all sites (17th); IAD: 3 other record high mins (11th, 30th, 31st)
- Near record low **precipitation**: DCA 0.63" (-2.78"); BWI 0.82" (-2.89"); IAD 0.46" (-2.84")
- Less than 0.30" fell prior to Christmas Day at all 3 airports; 2nd driest December at Dulles (just behind 1965's 0.42" record)
- 2nd driest Nov-Dec combined precipitation total on record for DC sites (behind 1965's): DCA 1.61" (0.84); IAD 1.37" (0.88)
- No snow observed at any of the three airports; only the third such occurrence in December (following 1994, 2001)
- 27th: only measurable snowfall that fell east of mountains, yet this thin coating was confined to far northern MD

Annual Highlights

- Anomalously high **temperatures** were 3rd - 5th warmest on record: DCA 60.4°F (+1.1); BWI 58.7°F (+2.5); IAD 57.6°F (+1.9); IAD set or tied at least 1 daily record high or record high minimum every month from March to December.
- Days at 90°F or above: DCA 48, BWI 52, IAD 57; Days with high temperature 32°F or below: DCA 3, BWI 5, IAD 6
- Precipitation** generally below normal outside of DC beltway: DCA 44.09" (+2.27); BWI 40.79" (-4.21); IAD 34.96" (-8.28)
- 2/18: Wintry mix included freezing rain from the metros, south/east with 0.31" ice in St. Mary's County, MD; 1"-2" of sleet near the metros; 4"-7" snow north/west. **February snow totals** ranged from 18-36" north/west, to only 3-6" inside the DC beltway.
- March: DCA recorded 50+ mph peak wind gusts on four days - the most of any month in at least the last decade
- 5/3: 2 cells produced 4 tornadoes: **EF1 injures 1** in Ranson (Jefferson Co.), WV; 2 **EF1's** in Frederick Co., MD; **EF0** in Carroll Co., MD
- 7/1: **EF1 tornado** tracked from Arlington, VA to downtown D.C.; **EF0 tornado** struck Northeast D.C.; **5 injured** when winds collapsed a building in Brightwood Park, D.C.; a long damage path from winds (est. as high as 80 mph) from Mitchellville (Prince George's Co.) to south of the Bay Bridge.
- 7/17's storms: **Microburst** near Martinsburg, WV, **1 injury** in Pendleton Co., WV, and **water rescues** just east of Baltimore, MD
- 8/26-28: Widespread wind damage from storms occurred each day, including **62 mph** wind gusts in Potomac and Gaithersburg (Montgomery Co.), MD (26th). Three people were **injured** (27th) when power lines and a tree blew down on a vehicle in Silver Spring (Montgomery Co.), MD. One person was **injured** (28th) by lightning on the Univ. of Virginia campus (Albemarle Co.), VA.
- 9/1-2: **Post-Tropical Storm IDA** brought **2-4"** rain to most spots, with **8.16"** in Frederick Co., MD; BWI/Martinsburg set daily records with **4.13"/3.54"**. **2 tornadoes** tracked just west of the Chesapeake Bay, including a long track **EF-2** that damaged western Annapolis (Anne Arundel Co.), MD. Flooding led to at least **6 swift/high water rescues** in Frederick Co., MD.
- On 10/28- 10/29, easterly winds and rain led to coastal flooding along the Chesapeake Bay and Potomac River.

December & Annual 2021 Summary

December Temperatures: Numerous storm systems tracking well to the west and north of the region promoted a very mild final month of 2021, with most areas averaging at least 6°F above normal. Relative warmth was most prevalent during the 16th-18th and 25th-31st, when daily temperatures averaged 10-20°F above normal. Several record highs were set, especially on the 17th and at IAD (see above). None of the 3 airports had a day held below 41°F. Minimums were unseasonably mild at times with readings in the 50s.

December Precipitation: Consistently dry conditions were also promoted by the jet stream's retracted position well north of the region, with the metros totaling a mere 14-22% of normal precipitation. Daily observations of 0.10"+ were only recorded on 2-4 days, and most of the meager moisture did not fall until after Christmas Eve. It was the 2nd driest December in IAD's 60-yr record, and the 6th driest for the Washington and Baltimore Areas. While no daily reports outside of Garrett County, MD reached 1.00", Port Tobacco Village (Charles Co.), MD did squeeze out 2.07" for the month. No snow was observed at the 3 airports; 0.0" in December is nearly a 40-yr return for the Baltimore Area. However, on the 27th, northern MD did see a thin coating of snow. The 3 airports all measured sub-severe peak wind gusts of 50+ mph from the northwest on the 6th. Fog was common on the 28th-31st.

December 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	Snow
National (DCA)	55.7	39.5	47.6	41.7	+5.9	70/6,11	28/20,23	0.63	3.41	-2.78	0.0
Baltimore (BWI)	54.7	36.3	45.5	38.6	+6.9	70/6,11	24/20	0.82	3.71	-2.89	0.0
Dulles (IAD)	55.2	34.7	45.0	37.7	+7.3	69/16,25	20/23	0.46	3.30	-2.84	0.0

Annual (Jan-Dec) Temperatures: While only the 4th warmest of the last 6 years, 2021 still tied for the overall 5th warmest year in the Washington Area's 150-year record. Similar patterns existed for BWI and IAD, with the year finishing as 3rd warmest. Numerous record highs were recorded across the 3 airports: DCA set or tied 12 record highs or high minimums, including 5 in December. On 3/11, all 3 airports set a daily record high of 79°F. 5/30 saw a record low maximum of 57°F at both BWI and IAD. On 6/23 and 6/24, morning lows dropped to the 40s as far east as the MD Piedmont. Anomalous warmth in March, October and December led 2021's well above normal temperatures.

Annual Precipitation and Severe Weather: Yearly precipitation totals were driven by several heavy rain events, which were most pronounced during summer months in and near the DC metro. After 2020's snowfall drought, impacts were felt through late winter from several ice and generally light snow events. Severe weather was active from May to September including several tornadoes, flooding rains by late summer, and Post-Tropical Storm Ida (see highlights, above). On 1/25: Most areas reported light snow and ice; Wintergreen, (Augusta County), VA, 0.50" ice. Washington ended its 3rd longest streak without measurable snowfall at 372 days with 0.3". On 2/12, snow up to 6" fell south and west of the metro; DCA ended a streak of 731 consecutive days at or above 32°F. On 2/13, sleet and freezing rain impacted most of the region, ice amounts were as high as 0.6" in Fairfax County, VA; DCA had its second day at or below 32°F for the first time since January 2018. 2/15-16 saw significant ice accumulations up to 0.25". 2/22 brought light to moderate snow over much of the area, highest totals were 4-5" across the northern MD Piedmont. On 3/24, heavy rain fell across the metros and east. 4/1's snow brought 0.3" on MD Piedmont ridges. On 5/28-30, heavy rains dropped 2-3" across southern MD.

On 6/8-11, 4-day rains totaled as much as 4-8", with flooding in Culpepper Co., VA. On 6/14, storms dropped 1-1.25" hail near both metros, while heavy rains led to a **water rescue** in Towson (Baltimore Co.), MD. On 7/14, storms brought widespread wind damage south of DC, and a **63 mph** gust near Fredericksburg, VA. Storms on 7/26 downed over 100 trees in DC, with a **63 mph** gust at Catholic Univ., while 1-1.50" hail fell near Staunton, VA. 7/29's supercells brought a **downburst** and 2.25" hail to the Fredericksburg, VA area, and an **EF0 tornado** to Howard Co., MD. 8/10-11 saw widespread thunderstorm wind damage and large hail in VA on both days. On 8/13, widespread storm wind damage occurred once again across much of WV, VA and MD, with gusts as high as **74 mph** at the Warrenton Airport (Fauquier Co.), VA; as well as 1.75" hail in Oakton (Fairfax Co.), VA. On 8/14-15, heavy rains led to flooding from northern VA to parts of MD, with upwards of 5" in Fairfax Co., VA & Charles Co., MD.

On 9/16, heavy rains up to 3.43" in Lincolnia (Fairfax Co.), VA stranded several vehicles and blocked numerous highways. 9/21- 9/23 saw widespread 2-3" of rain, while 4.08" at Emmitsburg (Frederick Co.), MD and 3.83" in Friendship Heights (NW), 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. On 10/28- 10/29, easterly winds and rain led to coastal flooding along the Chesapeake Bay and Potomac River. 11/14-15 saw the first snowfall (generally 1-3") in the mountains of MD and WV.

Year 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	Year	Nml P	ΔNml	Snow	Greatest Day
National (DCA)	69.0	51.9	60.4	59.3	+1.1	97/7-26	24/1-29	44.09	41.82	+2.27	5.4	2.38/8-14
Baltimore (BWI)	68.8	48.6	58.7	56.2	+2.5	99/6-30	19/1-30	40.79	45.00	-4.21	9.3	4.13/ 9-1
Dulles (IAD)	68.2	47.1	57.6	55.7	+1.9	100/8-12	16/2-21	34.96	43.24	-8.28	9.6	2.42/10-25

Looking Ahead: What typically follows a mild and dry December in Washington? The last six occasions (since December 1998) often featured mild Januaries while there was no discernible pattern for precipitation.

DCA	1998 - 1999		1999 - 2000		2001 - 2002		2006 - 2007		2012 - 2013		2016 - 2017		2021 - 2022	
	DEC	JAN	DEC	JAN	DEC	JAN	DEC	JAN	DEC	JAN	DEC	JAN	DEC	JAN
Av Temp	44.4°	38.1°	42.0°	35.8°	45.5°	41.6°	44.2°	40.7°	45.4°	40.3°	41.8°	42.1°	47.6°	??
Precip	1.27"	5.42"	2.96"	3.70"	1.73"	1.32"	1.88"	2.46"	3.11"	2.53"	2.77"	2.75"	0.63"	??

DCA 1991 - 2000 Normal Monthly Temperatures, Precipitation (°F, In.): DEC (41.7°, 3.41") ... JAN (37.5°, 2.86")