

DECEMBER 1998: Much-above normal temperatures and subnormal precipitation highlighted the final month of 1998. There were 24 days with at or above normal temperatures at DCA, including the first 22 days of the month. Record warmth enveloped the area during the first week as readings soared into the seventies (more typical of September), establishing or tying all-time record monthly highs at the three major airports. DCA reported highs of 77°F on the 6th and 7th, tying the all-time record December maximum for Washington. A high of 79°F at BWI and IAD on the 6th and 7th, respectively, established record monthly highs at both locations. In addition, the abnormal warmth produced 4 daily record highs at both DCA (4th, 7th) and 5 at IAD (3rd, 7th). During the 4th-7th, daily average temperatures were between 20°F and 30°F above normal at DCA. In sharp contrast, much colder conditions commenced on the 23rd and continued until the end of the month. Sub-freezing highs were observed at DCA on the 23rd, 24th, and the 28th, the first such readings since January 1997.

For the sixth consecutive month, drier than normal conditions prevailed across the Washington/Baltimore area, resulting in the driest July-December period (7.45" ever observed at DCA (2nd overall in Washington). Precipitation totals at all five airports were under two inches and about 50% of normal. There were 10 days with measurable precipitation (≥ 0.01") at DCA, but only two precipitation events (8th & 12th) produced more than 0.50" of rain. A storm system on the 23rd produced the first winter precipitation of the season across the local area. Portions of Montgomery, Howard, and Carroll Counties, MD recorded up to three inches of snow. BWI observed 3.0" while IAD (0.6") and DCA (0.4" - the most since February 1997) both recorded less than an inch. In most areas the precipitation changed over to sleet and freezing rain, creating extremely icy conditions, that made travel difficult and dangerous. Farther south, freezing rain produced severe icing that downed numerous trees & power lines, knocking out power for several days for thousands of customers across central and southern Virginia.

DECEMBER 1998 WEATHER STATISTICS FOR THE WASHINGTON/BALTIMORE AREA:

Station Location	Temperatures (°F)					Extreme/Day		Precipitation (In)			
	AvMx	AvMn	AvgT	NmH	DepNml	MaxT	MinT	Total	Norm	DepNml	Snow
National (DCA)	52.0	36.8	44.4	39.4	+5.0	79/7	20/23	1.74	3.12	-1.38	0.4
Baltimore (BWI)	50.8	31.3	41.2	36.7	+4.5	77/6*	9/26	1.27	3.41	-2.14	3.0
Dulles (IAD)	51.8	30.0	40.9	35.4	+5.5	79/6	10/26	1.53	3.22	-1.69	0.6
Ft. Belvoir (DAA)	54.5	35.1	44.8	N/A	N/A	82/6*	18/26*	1.96	3.3	-1.3	0.3
Andrews AFB (ADW)	51.3	32.7	42.0	N/A	N/A	79/6*	14/31	1.74	3.4	-1.7	1.3

Other Occurrences: * December 7th; * December 31st.

ANNUAL 1998: The year was highlighted by above-normal temperatures and subnormal precipitation across the Washington/ Baltimore area. In fact, it was the second warmest year ever recorded in Washington (tied with 1990), warmest on record at IAD, and third at BWI due in large part to abnormally mild conditions during the winter months. Despite the near-record warmth across the local area, 1998 will be remembered as a year with a sharp contrast in precipitation between the first and last halves of the year. The year began with wetter than normal conditions for each of the first six months as nearly 30" of precipitation (28.48" at DCA) fell on most of the local area, producing 6-month precipitation surpluses of more than 10 inches at many locations. The last half of the year featured 6 consecutive months with subnormal precipitation, leading to drought conditions and the driest July-December period ever observed at DCA (7.45" - 2nd overall in Washington), BWI (7.06") and IAD (7.27"). During this period, six-month precipitation deficits exceeding 12" were reported at most locations. Subnormal annual precipitation across the region was hard to fathom after such a wet January-June. The abnormally wet winter and spring were due in large part to the strong El Nino episode. The result was a very active subtropical jet stream that provided abundant moisture and energy for numerous storm systems that moved through the local area. In addition, the polar jet was displaced well to the north (across Canada) most of the Winter, so there were no outbreaks of cold Arctic air in our area. Winter precipitation totals exceeded 1 foot at all 5 local airports, producing the second wettest winter ever observed at both BWI (14.10") and IAD (13.16"). Despite the abundant moisture, there was very little snowfall in the Washington/Baltimore area. In fact, it was the least snowiest meteorological winter ever observed in Washington (0.1" - tied with 1972-73) and at BWI (1.1"). Some of the northern and western suburbs did record somewhat higher amounts (5.9" at IAD), but seasonal snowfall totals were still well below normal. A series of coastal storms moved through the area from mid-January through February, bringing unusually wet weather. Of note were a powerful Nor'easter on January 27th-28th and a storm of similar intensity in early February. Each storm generated about two inches of rain locally, heavy snows in the Appalachians, gale force winds, beach erosion, and property damage along the mid-Atlantic coast. Abundant moisture continued during Spring (March-May) with totals once again topping 1 foot at all 5 local airports. However, most of each month's precipitation fell during the first part of the month, followed by a prolonged period with little or no precipitation. A slow-moving storm system drenched the area with up to three inches of rain during March 17th -21st and generated thunderstorms on the 20th. While April precipitation amounts were somewhat lower than in March, monthly totals were significant enough to push January-April 1998 totals to 20.00" at DCA, 20.64" at BWI and 19.76" at IAD, the wettest such 4-month period on record at all three airports. May began with an extended period of wetness as measurable precipitation (>0.01") fell on 11 of the first 12 days at DCA. Enough precipitation fell during this period to exceed monthly normals at both DCA and IAD. Wetter than normal conditions continued into June with DCA recording 4.42", the wettest such month in nearly ten years. The most notable event of the month occurred on the 4th when severe thunderstorms spawned the strongest tornado ever observed in Maryland (F4 - winds in excess of 200 mph). The twister touched down in Frostburg and generated significant property damage. Fortunately, no fatalities were reported due in large part to early warning by the NWS Forecast Office in Sterling, VA. Abnormally dry conditions developed in July and continued for the remainder of the year. IAD reported its third driest July (1.32") on record while BWI reported the eighth driest (1.42") such month. BWI observed 21 consecutive July days (9th-29th) without measurable precipitation. In August, IAD recorded its driest such month on record while BWI observed its second driest and DCA reported its driest since 1962 as all three airports recorded less than an inch of rain. The dryness in July and August contributed to the driest summer since 1980 in Washington and the third driest summer on record at BWI. Unprecedented dryness continued to plague the area through Autumn (September-November), and all three major airports reported their driest such season on record. DCA recorded only 3.33" of rainfall (35% of normal) while BWI recorded just 3.46" (40% of normal) and IAD reported 3.97" (40% of normal). On September 22nd, 1.24" of rain was observed at DCA, their last daily precipitation total of 1998 exceeding an inch at this location. In October, Washington recorded its driest month (0.59") since April 1985 (equalling the August 1998 total) and only 0.91" of precipitation fell at DCA during November, yielding the airport's driest July-November on record (5.71" - 2nd overall in Washington). Subnormal precipitation continued in December with all three major airports recording less than two inches.

As mentioned earlier, warmer than normal conditions during the winter months played an important role in establishing 1998 as one of the three warmest years on record at all three major airports. The Winter of 1997-98 produced seasonal temperature departures exceeding +5°F at all three major airports, yielding the warmest Winter on record at both BWI and IAD and the second warmest at DCA (fourth overall in Washington). There were 75 winter days (83%) with at or above normal temperatures at DCA, including 13 days with 60°F+ highs and no days with highs of 32°F or lower. January observed a record eight consecutive days (2nd-9th) with 60°F+ highs, and 29 of the last 30 days were warmer than normal at DCA. In addition, daily record highs were reported at IAD on four consecutive days (6th, 9th) and were tied and/or established on three days at BWI (4th, 8th, & 9th) and once at DCA (8th). The abnormal warmth even prevailed at night as lows only dropped into the forties and fifties from the 6th-9th, including a low of 57°F at DCA on the 8th. January temperatures averaged more than 8°F above normal at all three major airports, producing the second warmest such month at both BWI & IAD. Abnormally warmth continued through February (26 of 28 days at or above normal temperatures at DCA) with monthly temperature departures between +5°F and +8°F. This was the third warmest February on record at both BWI and IAD. Warm conditions continued through Spring with all three major airports recording their warmest March-May since 1991. March began on a cold note with subnormal temperatures recorded on 18 days, including 10 days with lows at or below freezing and three days (11th-13th) with daily average temperatures of 32°F or lower. However, a dramatic change to summer-like warmth was observed from the 26th-31st as highs soared above 80°F, including an all-time record March high of 89°F at both BWI and IAD on the 30th. Slightly above-normal temperatures prevailed in April with the most noteworthy event occurring on the 26th when the mercury plunged from 80°F to 50°F in just a few hours following the passage of a strong cold front. May was highlighted by cooler than normal temperatures during the first half of the month due mainly to cloudy and rainy conditions while warmer than normal conditions prevailed during the last half, including the first 90°F+ reading of the year on the 19th at DCA. Summer temperatures averaged near normal across the local area as prolonged periods of extreme heat and humidity were relatively absent. There were 54 days with at or below normal temperatures and only 23 days with 90°F+ highs at DCA (about 9 below average). In June, there were only 3 days with 90°F+ highs (the fewest in five years) and 20 days with at or below normal temperatures. Conditions more typical of summer developed by mid-July as highs exceeded 90°F from the 20th-23rd. During this period, heat combined with high humidity to produce apparent temperatures between 105°F-110°F across parts of the local area. August featured cooler than normal conditions during the first 8 days followed by typical hot and humid weather from the 22nd through month's end, with highs topping 90°F on 9 of the last 10 days at DCA accompanied by poor air quality. Abnormal warmth in September contributed significantly to the warmest Autumn since 1985 at DCA and the third warmest on record at IAD. There were 23 September days with above-normal temperatures at DCA, including 10 days that topped 90°F (1 more than in July), the most such September days since 1980 and the first time since 1906 with more 90°F days in September than in July in Washington. More seasonable temperatures prevailed during October and November. The first freeze of Autumn occurred on October 2nd at IAD, October 31st at BWI and November 5th at DCA. Late-year warmth enveloped the area beginning in late November and extended through the first week of December, establishing December all-time record monthly highs and several daily record highs at the three major airports.

ANNUAL 1998 WEATHER STATISTICS FOR THE WASHINGTON/BALTIMORE AREA:

Station Location	Temperatures (°F)					Extreme/Month-Day		Precipitation (In)			
	AvMx	AvMn	AvgT	NmH	DepNml	MaxT	MinT	Total	Norm	DepNml	Snow
National (DCA)	68.4	51.5	60.0	58.0	+2.0	97/7-22*	18/1-1	35.93	38.63	-2.70	0.4
Baltimore (BWI)	68.1	46.8	57.5	55.1	+2.4	99/7-22	9/12-26	34.39	40.76	-6.38	5.8
Dulles (IAD)	68.4	45.7	57.1	53.8	+3.3	98/7-22	10/1-1*	37.43	40.24	-2.81	1.8
Ft. Belvoir (DAA)	72.4	50.2	61.3	N/A	N/A	104/7-22	16/1-1	43.45	41.7	+1.7	0.3
Andrews AFB (ADW)	68.0	48.8	58.4	N/A	N/A	99/7-22	14/12-31	40.48	42.5	-2.0	1.3

Other Occurrences: * August 25th; * December 26th.

LOOKING AHEAD TO JANUARY: A seventh consecutive month with subnormal precipitation in Washington?

As mentioned earlier, each of the final six months of 1998 produced below-normal precipitation across the local area. With the start of the new year, the question arises whether or not 1999 will begin with subnormal precipitation. Below is a list of the total precipitation & departure from normal for each of the last six months of 1998 at DCA.

Month	Total Prec. (In.)	Departure from Normal (In.)	Month	Total Prec. (In.)	Departure from Normal (In.)
July	1.79	-2.01	October	0.59	-2.43
August	0.59	-3.32	November	1.91	-2.21
September	1.83	-1.48	December	1.74	-1.38