

THE CUMULATIVE DEFICIENCY OF PRECIPITATION IN THE WASHINGTON/BALTIMORE AREA DURING THE 1980'S

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The Washington/Baltimore Metropolitan area has averaged much-below-normal precipitation from 1980 through 1986. Measurements at the three major airports in the area (DCA, IAD, BWI) show large cumulative deficiencies during this seven year period. While not receiving the same publicity as the 1986 drought in the Southeast and Mid-Atlantic regions, this long term precipitation deficit is still climatologically significant.

Yearly precipitation totals for 1980 through 1982 (e.g., Table 1) show below normal precipitation at BWI and DCA for all years except 1983, and IAD for all years except 1983 and 1984. Even more impressive are the seven year cumulative deficiencies (e.g., Table 2). BWI has accumulated a deficit of over 32 inches, IAD greater than 24 inches, and DCA more than 19 inches.

The 1983 significant surplus of precipitation in the Washington/Baltimore area appears to be the result of the strong El Nino, which was most pronounced beginning in November 1982 off the coast of Peru and Ecuador, and whose effects lasted through 1983 in the United States (Rasmusson and Hall, 2; Goldberg, Tisnado, and Scofield, 3). This resulted in a continual, and at times rather strong, subtropical jet stream at an unusually southern latitude for much of the year, which brought major storm systems to the Middle Atlantic states.

During only one other time period since official record keeping commenced, has an extensive dry period occurred at all three airports, that being 1962-68 (e.g., Table 3). While National Airport's cumulative deficit was more extreme during this period (e.g., Table 4), Baltimore-Washington International (at the time known as Friendship—"BAL"), and Dulles International cumulative deficiency were greater than during the 1980-86 period. If not for the very wet 1983 El Nino year, the cumulative deficit would be *even greater* than shown.

In summary, the early and mid 1980's has been a period of abnormally dry weather in the Washington/Baltimore area. While extended periods of positive and negative departures from normal are a part of natural variability, this precipitation deficiency is climatologically significant. It is hoped that the meteorological community can not only formulate some ideas as to its cause, but also determine any short or long term consequences from continued cumulative precipitation deficiencies.

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NOTES AND REFERENCES

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Table 1. Yearly Precipitation Totals from 1980-1986

	Observed BWI	Average 41.84	Observed IAD	Average 40.35	Observed DCA	Average 39.00
1980	34.71	B	33.81	B	29.32	B
1981	31.22	B	32.13	B	30.67	B
1982	36.17	B	38.56	B	35.77	B
1983	51.03	A	46.18	A	51.87	A
1984	36.96	B	44.07	A	37.73	B
1985	36.77	B	32.94	B	35.86	B
1986	33.67	B	30.38	B	32.57	B

B = Below Yearly Avg. A = Above Yearly Average

Table 2. Cumulative Deficiency of Precipitation from 1980–1986

	BWI	IAD	DCA
1980	– 7.13	– 6.54	– 9.68
1981	–10.62	– 8.22	– 8.33
1982	– 5.67	– 1.79	– 3.23
1983	+ 9.19	+ 5.83	+12.87
1984	– 4.88	+ 3.72	– 1.27
1985	– 5.07	– 7.41	– 3.14
1986	– 8.17	– 9.97	– 6.43
Total	–32.35	–24.38	–19.21

NOTES: A. Precipitation values are in inches
 B. All figures based on 30 yr. normals (1951–80) except IAD
 C. IAD normals are calculated for the period 1963–80

Table 4. Cumulative Deficiency of Precipitation from 1962–1968

	BAL	IAD	DCA
1962	– 1.60	—	– 5.93
1963	– 2.29	—	+ .34
1964	– 7.16	– 4.38	– 9.52
1965	–13.62	–11.49	–12.06
1966	+ .54	– .30	– 2.98
1967	– 4.91	– .96	– .85
1968	– 2.04	– 1.87	– 2.17
Total	–31.08	–19.00	–33.17

NOTES: A. Precipitation values are in inches
 B. All figures based on 30 yr. normals (1951–1980) except IAD
 C. IAD normals are calculated for the period 1963–80
 D. BWI was known as Friendship Airport (BAL) during this period

Table 3. Yearly Precipitation Totals from 1962–1968

	Observed BAL	Average 41.84	Observed IAD	Average 40.35	Observed DCA	Average 39.00
1962	40.24	B	—		33.07	B
1963	39.55	B	—		39.34	A
1964	34.68	B	35.97	B	29.48	B
1965	28.22	B	28.86	B	26.94	B
1966	42.38	A	40.05	B	36.02	B
1967	36.93	B	39.39	B	38.15	B
1968	39.80	B	38.48	B	36.83	B

B = Below Yearly Avg. A = Above Yearly Average

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