

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
 IN COOPERATION WITH UNIVERSITY OF NEW HAMPSHIRE
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 27

LATITUDE 44° 29'
 LONGITUDE 71° 10'
 ELEV. (GROUND) 1110 ft.

STATION BERLIN, NEW HAMPSHIRE

MEANS AND EXTREMES FOR PERIOD 1951-1960

Month	Temperature (°F)								** Mean degree days	Precipitation Totals (Inches)						Mean number of days										
	Means				Extremes					Mean	Greatest daily	Year	Snow, Sleet			Precip. .10 inch or more	Temperatures				Month					
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year	Mean					Maximum monthly	Year	Greatest daily		Year	90° and above	Max.			Min.				
																			32° and below	32° and below		32° and below	0° and below			
(a)	50	30	50	50		50		50	50	30		50	50	30	50	50	50	50	50							
Jan	27.8	4.5	16.1	67	1950	-35	1954	1510	2.92	1.93	1956	21.9	50.0	1956	18.0	1944	7	0	20	50	14	Jan				
Feb	29.6	4.9	17.6	64	1957	-39	1943	1360	2.52	2.45	1941	20.9	38.7	1960	20.0	1958+	6	0	17	28	11	Feb				
Mar	37.9	15.6	28.8	80	1946	-29	1938	1180	3.15	2.56	1953	22.2	51.7	1940	20.0	1941	7	0	9	29	4	Mar				
Apr	50.9	50.0	40.5	87	1941	-1	1954	750	2.94	2.85	1954	6.5	19.2	1956	14.0	1955	8	0	*	19	*	Apr				
May	64.8	40.0	52.4	91	1957	21	1946	380	3.18	2.25	1945	0.5	14.0	1945	15.0	1945	8	*	0	7	0	May				
Jun	74.2	49.2	61.7	97	1944	29	1945+	150	3.94	3.62	1942	T	T	1952+	T	1952+	8	1	0	*	0	Jun				
Jul	79.1	55.8	66.5	97	1959+	34	1946	50	3.81	1.80	1951	0	0	0	0	0	8	2	0	0	0	Jul				
Aug	77.4	51.1	64.5	97	1947	32	1942+	90	3.02	4.14	1946	0	0	0	0	0	7	2	0	*	0	Aug				
Sep	68.8	43.7	56.3	94	1939	20	1947	270	3.85	5.15	1952	T	T	1958+	T	1958+	7	1	0	4	0	Sep				
Oct	57.9	37.3	47.6	86	1938	11	1936	535	3.12	3.44	1959	1.0	11.1	1954	10.8	1954	7	0	*	15	0	Oct				
Nov	45.4	25.3	34.4	77	1938	-15	1938	910	3.46	3.60	1950	9.5	62.8	1945	34.0	1945	7	0	5	23	*	Nov				
Dec	30.4	10.0	20.2	65	1934	-41	1935	1365	2.95	2.52	1957	16.7	34.4	1946	17.0	1942	7	0	17	50	9	Dec				
Year	55.5	30.4	42.0	97	July 1959+	-41	Dec. 1935	8550	38.44	5.15	Sep. 1952	99.2	62.8	Nov. 1945	34.0	Nov. 1945	87	6	68	161	58	Year				

(a) Average length of record, years.

+ Also on earlier dates, months, or years.

T Trace, an amount too small to measure.

* Less than one half.

** Base 65°F

CLIMATE OF BERLIN

Berlin lies in the valley of the Androscoggin River. The River's elevation above the sea falls from near 1100 feet north of the urban center to near 900 feet southward. The Valley slopes sharply in places to some peaks rising 800 to 1200 feet above the Androscoggin within about a mile of the River. The valley floor tends to widen somewhat northward toward Milan and in this section more flat or gently rolling land may be found. The ridge of the Mahoosuc Range, with a section of the Appalachian Trail, lies about 4 miles to the southeast of the Berlin weather observatory and contains peaks rising to 2000 to 3000 feet elevation, mostly. Mount Washington is 17 miles to the south-southwest and numerous other peaks reach 3000 feet or higher within this radius in all but the northern quadrant. The Atlantic Ocean is 75 miles to the southeast.

General climatic features of Berlin include: Changeableness of the weather, a large range of temperature both daily and annual, great differences between the same seasons in different years, and a good monthly distribution of the annual precipitation. The frequent weather changes are shared with other New England communities as this region is a favored path of weather-making low pressure centers. The large daily and annual temperature changes denote a decidedly continental climatic character, though moderating influences from the Atlantic are occasionally noted both in winter and summer. Also in common with the region, Berlin has no "rainy" or "dry" seasons. There is a tendency toward increased rainfall in the summer season, when most needed for plant growth and water supply.

The regularity of the annual precipitation fortunately assures a water supply for industrial and water power uses as well as for irrigation. The latter may be desirable for high value fruit and truck crops to cope with the fairly common short dry spells during the growing season, though periods of severe drought are rare. In over 85% of the years the annual precipitation total has exceeded 85% of normal. In the warmer half of the year much of the rainfall comes from showers and thunderstorms which frequently attend frontal passages. Frontal precipitation in the colder season is occasionally supplemented by coastal "North-easters" which can bring strong winds and heavy snowfall or, less often, rain or sleet.

Days with 0.01 inch or more of precipitation average 160 per year, and have ranged from as many as 188 down to 154 days. January, with 15 days, has the highest number while the late summer and fall months of August through October, with 12 days each, have the least. The number of days with 1.00 inch or more averages 6 per year. An occurrence may come in any month but is most likely in summer and early fall. The annual frequency of these days has varied from 2 to 12. Thunderstorms have been recorded on from 7 to 25 days per year, with an average of 16 days. These may occur in all seasons but summer accounts for three-fourths of the annual quota.

Summers are very comfortable, with afternoon temperatures mostly in the middle and upper 70's. Nighttime minima usually drop to near 50°. The number of days with 90° or higher has ranged from none to 15 in a season. Only one summer in five reaches 96° or higher. The summers which

do reach this mark may have several occurrences, however. There were 6 in 1944. Prior to the period covered by this summary, a maximum of 98° was recorded in June 1919 and July 1921. The average annual maximum is 83°. The warmest summer was that of 1959, which averaged 66.9°. The coolest summer, in 1954, averaged 61.5°.

Winters are cold, with a December through February normal mean of 18.0°. The winter of 1953-54 was the coldest, with an 11.4° average. The mildest winter was that of 1956-57, with 24.1°. The lowest recorded temperature, 44° below zero, occurred on the 30th and 31st of December, 1917. The greatest number of days with zero was 65 in the winter of 1945-44 and the least was 17 in 1951-52. The average dates of the first and last seasonal zero occurrences are December 7 and March 14. The first occurrence has come as early as Nov. 21 and as late as Dec. 27. The last occurrence has ranged in date from Feb. 23 to April 5. The average annual minimum temperature is 25° below zero. The highest annual minimum was 10 below in 1957.

Seasonal snowfall varies widely from the 99.2 inches average. Only 45.0 inches fell in the 1948-49 season while 1945-44 brought 147.0 inches. Though large season to season differences are the rule, no significant trend toward either snowier or less snowy winters is apparent.

The number of days with snowfall of 1 inch or more averages 26 per season, with 6 each in January and February, 5 each in December and March, 2 each in November and April, and only occasional occurrences in October and May. The number of days with snowfall of 2 inches or more averages 17 per season; 4 inches or more, 7 per season; 6 inches or more, 4 per season. Ten inch daily falls average 2 per season with 12 inches only once per season. A day with 14 inches occurs about once in two years and with 20 inches, once in 10 years. The maximum daily fall, 34 inches in November 1945, was a part of a snowstorm which produced 55.0 inches in a 45 hour period. The number of 1 inch daily snowfalls has varied from only 14 (1960-61) to 37 (1958-59). The 4 inch fall count has varied from 1 to 15 per season. Ten inch daily falls come on 5 out of 4 seasons, with a maximum tally of 4. Measurable snow lies on the ground continuously for 6 weeks or longer nearly every winter, though 5 weeks was the longest in 1956-57. For the 29 out of the 30 seasons which had a longer snow cover, the average date of beginning is December 19 and the ending March 19, a period of exactly 5 months. The earliest date of beginning of a prolonged cover was November 15 and the latest ending date was April 10. The longest snow cover season was 155 days, in 1945-44. The average seasonal maximum snow depth is 28 inches, with average date of February 15. However, the greatest depth has come as early as November 24 and as late as March 29.

Based upon the occurrence of the freezing temperature, 32°, Berlin's "growing season" for susceptible tender vegetation averaged 110 days, from May 28 to September 15. These dates differ from year to year but about two-thirds of the occurrences will fall within 10 days, either way, from the above average dates. The extreme dates for the last spring freeze are May 6 and June 28. For the first in fall the extreme range of dates is from August 26 to October 1.

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BERLIN, N. H.

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	16.8	18.4	20.5	41.2	52.8	60.8	69.0	68.6	58.2	47.9	39.0	25.1	43.2
1932	24.2	17.4	33.6	41.2	52.0	59.9	63.4	65.0	56.5	44.3	27.0	14.4	41.2
1933	24.4	21.1	23.2	39.8	53.0	62.5	64.8	63.2	57.2	44.3	27.0	14.4	41.2
1934	14.2	5.7	26.9	39.2	53.4	63.8	65.8	64.8	59.8	42.6	27.0	14.4	40.9
1935	8.5	15.7	25.6	39.2	48.2	61.5	68.2	64.8	53.7	46.2	35.8	17.5	40.5
1936	12.7	11.4	34.0	38.0	56.0	62.8	64.3	63.2	56.9	45.3	28.3	23.8	41.4
1937	25.9	22.7	28.0	39.8	54.2	61.4	68.5	69.7	56.6	44.8	33.9	19.3	45.2
1938	14.2	19.6	28.0	42.6	52.0	63.7	66.8	67.1	53.5	49.0	35.2	22.5	42.8
1939	14.4	19.5	20.0	35.8	51.6	62.0	66.4	67.4	56.5	44.8	29.4	20.0	40.6
1940	9.5	15.5	22.8	36.2	52.4	60.0	66.0	63.0	54.4	42.3	33.4	20.2	39.6
1941	11.9	18.6	21.8	46.2	53.0	62.8	67.2	61.0	56.6	43.3	35.7	22.6	41.7
1942	14.6	14.0	32.2	42.8	56.4	62.9	65.0	64.0	57.6	43.2	32.0	13.5	42.0
1943	10.8	17.0	23.9	33.8	52.0	64.0	64.0	62.9	54.6	45.8	33.6	13.1	39.9
1944	16.4	14.2	22.7	36.6	55.7	61.0	66.6	67.2	56.6	42.8	32.7	16.2	40.7
1945	8.6	18.6	35.0	45.2	48.8	61.0	66.0	64.2	58.1	43.5	33.2	15.2	41.4
1946	14.5	11.6	37.3	38.8	51.1	61.4	65.1	61.1	58.2	48.5	35.6	22.0	42.1
1947	16.2	17.5	27.2	37.5	49.5	59.2	69.0	67.9	57.0	52.5	30.8	16.7	41.7
1948	11.4	11.8	26.5	41.1	48.7	58.2	66.8	65.9	56.1	44.2	41.0	24.0	41.5
1949	23.0	21.7	27.9	42.0	52.7	61.5	68.8	65.8	54.4	49.4	31.4	24.0	43.9
1950	23.1	13.7	20.5	37.1	52.8	62.6	65.4	62.6	50.5	47.5	37.9	24.1	41.5
1951	18.7	20.5	28.5	42.1	52.5	59.8	66.1	62.7	56.8	46.5	30.5	20.4	42.1
1952	18.9	19.4	29.5	42.0	48.8	61.8	69.4	64.2	57.6	43.4	35.2	22.4	42.9
1953	21.8	21.2	28.4	42.0	53.8	63.0	65.9	62.2	55.6	46.8	39.3	29.3	44.2
1954	14.2	23.7	27.6	32.7	50.5	61.2	62.7	60.7	53.3	48.8	35.4	20.1	41.3
1955	12.2	17.0	24.7	42.3	56.0	61.5	69.6	67.6	54.9	45.8	32.5	12.4	41.5
1956	19.0	19.6	19.5	38.0	47.2	62.5	63.0	62.5	52.9	46.3	35.1	24.5	40.9
1957	8.7	21.2	30.2	41.9	52.7	65.8	64.3	60.7	57.9	46.7	37.7	27.3	43.0
1958	19.7	13.9	34.2	42.8	48.8	56.4	66.1	64.7	56.8	44.6	37.5	11.0	41.4
1959	18.7	11.4	25.9	42.4	56.3	61.4	70.5	69.1	60.4	47.0	35.3	24.7	43.3
1960	18.0	23.7	22.6	42.6	58.3	62.4	65.3	65.1	57.8	44.1	38.2	17.0	43.0

CLIMATE OF BERLIN (continued)

Additional statistics are available for portions of the period of record, including periods prior to 1930. Some will now be mentioned. The annual prevailing winds are from the westerly directions with southwest predominating in the warmer months and northwest during the winter. The average wind velocity is near 4 mph, which is lighter than winds of the less sheltered surrounding areas. Some average annual and extreme values are: Clear days, 130; partly cloudy, 99; cloudy, 186; greatest 24-hour temperature range, 53°; highest daily minimum, 86°; lowest daily maximum, 11° below zero; greatest 24-hour precipitation, 2.41 inches; days with 0.1 inch or more of snowfall, 56; date of first snowfall in fall, October 30; and date of last snow in spring, April 19.

Local severe wind and hail storms are not common in the Berlin area. However, on the afternoon of May 5, 1923, a tornado cut a narrow path down Main St. with much destruction of property. Damage was estimated at \$500,000. No injuries or deaths occurred, as this was a Sunday and a minimum number of people were in the affected business section.

In summary, Berlin is nearly free of very uncomfortable summer heat and, even in the warmest weather, nights are relatively cool. Winters are cold and provide plentiful snow for winter sports. Prolonged periods of severe cold are rare. However, from January 19 through February 6, 1961, a 19 day stretch with zero readings did occur. Precipitation is frequent and usually well distributed but not excessive and is therefore a valuable local asset. The frequent variation in day to day conditions is considered stimulating to mental and physical activities.

BERLIN, N. H.

Total Precipitation (inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	2.19	1.56	1.80	2.38	2.57	4.95	5.62	2.03	5.90	2.55	1.09	2.55	36.18
1932	3.72	1.34	3.52	2.89	2.76	2.11	4.82	3.60	7.51	4.73	3.58	1.56	39.38
1933	2.15	2.18	3.81	6.05	2.16	1.78	5.31	1.72	4.73	1.78	1.78	3.76	40.18
1934	5.74	2.39	4.41	5.49	3.41	4.57	5.45	5.59	4.64	1.91	5.14	2.77	44.84
1935	3.19	1.76	1.54	2.49	2.36	6.15	3.12	1.48	4.60	1.23	4.27	1.27	36.01
1936	6.08	2.12	10.46	3.60	3.02	2.16	1.71	1.98	4.30	5.81	2.41	5.14	48.69
1937	3.62	3.32	3.22	2.90	6.28	4.69	2.82	3.58	4.39	5.70	2.41	4.01	49.25
1938	3.54	2.56	2.56	2.73	2.94	2.96	6.08	3.75	7.65	1.69	3.16	3.96	43.54
1939	2.42	2.52	3.53	4.25	2.00	4.46	2.62	1.72	3.13	5.08	7.75	2.25	34.71
1940	2.13	1.99	5.90	2.69	2.82	3.40	4.96	2.19	5.77	1.05	4.46	2.90	41.24
1941	1.72	2.81	2.72	.47	3.45	2.20	5.32	2.72	2.28	3.50	2.94	2.95	33.56
1942	1.52	2.75	4.77	3.45	1.88	6.16	1.53	2.07	3.54	1.64	2.88	2.94	35.03
1943	1.10	2.01	2.58	3.50	3.86	7.02	4.63	5.10	4.38	5.03	8.11	1.73	49.15
1944	2.23	2.13	1.97	2.41	1.59	5.41	3.82	1.82	4.92	2.71	3.12	3.92	36.05
1945	3.58	2.42	1.65	4.08	6.58	3.89	3.19	1.84	4.53	3.59	4.56	3.46	43.37
1946	2.95	2.25	.75	2.19	3.13	2.98	2.83	6.96	2.65	4.33	2.19	3.30	37.31
1947	2.88	2.66	2.55	1.81	4.04	5.60	3.83	2.00	1.04	4.46	4.67	1.37	32.91
1948	1.64	1.04	1.91	1.90	4.86	2.93	2.09	1.89	1.71	2.60	4.82	2.57	28.96
1949	3.23	1.84	1.67	2.89	2.43	3.34	1.80	2.23	3.21	1.97	2.95	2.16	29.74
1950	3.09	1.85	3.58	1.88	1.40	3.92	1.82	3.77	1.87	1.80	7.28	3.28	35.52
1951	1.78	3.79	3.49	4.63	1.49	1.63	5.09	3.90	2.96	2.17	5.05	3.08	38.96
1952	1.94	3.26	2.53	2.75	3.03	4.73	1.61	2.57	2.29	1.32	5.79	3.41	34.15
1953	2.28	1.96	6.72	4.02	2.62	1.89	4.35	2.52	2.03	3.41	2.88	2.62	37.28
1954	3.77	3.01	3.75	3.45	5.59	7.50	3.51	12.28	4.19	4.08	3.40	58.00	59.00
1955	.78	3.35	3.18	2.23	4.00	5.43	1.51	6.48	.62	2.98	2.42	.89	33.84
1956	4.49	2.07	3.96	2.24	3.17	2.08	3.54	3.92	3.26	1.40	2.35	2.13	34.61
1957	2.29	.89	.94	2.07	3.41	3.63	4.43	1.74	3.12	1.39	3.97	5.58	32.44
1958	7.15	1.88	3.50	3.34	1.72	1.80	4.48	1.96	2.37	7.40	4.81	1.24	40.40
1959	2.58	1.76	2.10	.76	3.12	1.18	1.18	3.12	2.57	7.40	3.58	1.81	32.66
1960	1.72	4.01	1.14	1.72	3.88	4.23	3.82	1.00	4.72	3.30	2.25	2.18	33.97

HISTORY OF WEATHER OBSERVATIONS AT BERLIN, N. H.

Official weather observations in Berlin have been recorded continuously by the Brown Co. at their research laboratory since October 1, 1917. Company officials in charge of weather observations were W. B. Vandravet through September 1932, followed by Edward Fein through June 1956, Leo Kruger through February 1958, and E. W. Lovring to the present time. All data and references in this summary concern data collected at this site. Data presented in the tables of this summary are for the 30 years, 1931-60. The World Meteorological Organization has adopted this period as the standard normal period for use in the 60's. Averages in this summary may therefore be compared with those for other stations using this base period. The narrative summary is also based upon this period except as noted. The reference to freeze dates used the 30 years, 1926-55. Weather observations were made previously by the Brown Co. at two other sites, one from June 1886 through April 1906 and the other from February 1886 through May 1896.

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