



## U.S. DEPARTMENT OF COMMERCE

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# LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

## 1969

## WILMINGTON, DELAWARE

### NARRATIVE CLIMATOLOGICAL SUMMARY

Delaware is part of the Atlantic Coastal Plain consisting mainly of the flat low land with many marshes. Small streams and tidal estuaries comprise the drainage of the state. Wilmington, at the northern end of the state, marks the beginning of low rolling hills extending northward and northwestward into Pennsylvania. The Delaware River, the Delaware Bay, and the Atlantic Ocean are along the eastern boundary of the state. The broad Chesapeake Bay lies 35 miles, or less, to the west of the western boundary of nearly the entire state. These large water areas influence to a considerable extent the climate of the Wilmington, Delaware, region.

Summers are warm and humid and winters are usually mild. During the summer maximum temperatures are usually in the eighties. The maximum temperature reaches 100° on the average of one year in six. During the coldest part of the year, mid-January, the normal daily average temperature is 33°. On the average, zero temperatures may be expected one year in three. Most of the winter precipitation falls as rain. Seasonal snowfall has been as little as 1 inch, and there has been a season with nearly 50 inches snowfall. Snow is frequently mixed with rain and sleet. Snow seldom remains on the ground more than a few days.

The average date for the last occurrence in spring of temperature as low as 32° F. is mid-April. The average date for the first occurrence in fall of temperature as low as 32° F. is late October. The average freeze-free period is approximately

200 days.

The proximity of large water areas and the inflow of southerly winds cause the relative humidity to be quite high all year. During the summer months the average relative humidity is approximately 75 percent. Fog is relatively frequent and may occur in any month. Light southeast winds blowing up the Delaware Bay favor the formation of fog. Light north-northeast winds bring in smoke from Philadelphia and from the heavy industry area located along the Delaware River north of Wilmington.

Rainfall distribution throughout the year is fairly uniform; however, the greatest amounts normally come during the summer months. Mostly, the summer rainfall comes in the form of thunderstorms. Moisture deficiencies for crops occur occasionally, but severe droughts are rare. During the fall, winter, and spring seasons, much of the rainfall comes as a result of storms forming over the southern states, or the south Atlantic and then moving northward along the Atlantic Coast. During the late summer and early fall, hurricanes occasionally cause heavy rainfall, but winds seldom reach hurricane force in Wilmington. Heavy rains occasionally cause minor flash flooding, but the streams and rivers of northern Delaware are not subject to major flooding. Strong easterly and southeasterly winds sometimes cause high tides in the Delaware Bay and the Delaware River, resulting in the flooding of lowlands and damage to bay front and river front properties.

# METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: WILMINGTON, DELAWARE      GREATER WILMINGTON AIRPORT      Standard time used: EASTERN      Latitude: 39° 40' N      Longitude: 75° 36' W      Elevation (ground): 74 feet      Year: 1969

Month	Temperature						Degree days (Base 65°)		Precipitation						Relative humidity				Wind &				Number of days										Average daily solar radiation - langbeys								
	Averages			Extremes			Heating	Cooling	Total	Greatest in 24 hrs.	Date	Snow, ice pellets			Hourly	Hourly	Hourly	Hourly	Resultant		Fastest mile		Percent of possible sunshine	Average sky cover sunrise to sunset	Sunrise to sunset				Temperatures												
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest						Date	Total	Greatest in 24 hrs.					Date	Hour	Hour	Hour			Hour	Direction	Speed	Speed	Direction	Date	Precipitation 0.1 inch or more	Snow, ice pellets 1.0 inch or more		Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	0° and below		
JAN	37.8	23.8	36.8	48	31+	12	6+	1052	0	1.68	0.50	21	2.9	2.9	6-7	65	68	53	60	29	9.7	12.0	39	27	1	7.2	10	5	16	11	1	0	0	5	1	0	9	23	0		
FEB	39.7	27.4	33.6	47	24	17	15	874	0	1.76	0.68	23	5.5	4.7	19-20	64	66	59	97	32	8.9	13.3	36	30	9	7.7	4	6	18	8	2	0	2	0	0	22	0	0			
MAR	48.3	30.8	39.6	65	18	19	12	780	0	1.71	0.82	24-25	7.8	6.3	1-2	61	65	46	51	28	6.4	13.1	30	28	7	5.4	11	10	10	8	2	0	1	4	0	0	1	0	0	0	0
APR	65.6	44.6	55.1	86	27	25	1	298	8	1.58	0.51	15	0.0	0.0		71	76	50	62	20	3.8	10.9	27	20	10	6.3	8	7	15	10	0	1	4	0	0	0	1	0	0	0	0
MAY	74.7	53.6	64.2	92	29	41	12	92	7	3.21	2.02	19-20	0.0	0.0		71	70	47	54	20	3.0	9.7	23	26	11+	5.1	11	10	10	7	0	2	2	1	0	0	0	0	0	0	0
JUN	81.9	64.9	73.4	95	28	53	4	1	258	3.62	1.80	18-19	0.0	0.0		78	77	55	65	16	3.6	9.1	23	15	14	7.0	5	10	15	8	0	10	2	2	1	0	0	0	0	0	0
JUL	83.0	68.3	75.7	94	18+	60	9	0	236	6.48	3.21	27-28	0.0	0.0		80	81	61	69	12	1.3	8.0	25	26	28+	7.6	2	11	18	10	0	5	2	3	0	0	0	0	0	0	
AUG	84.4	66.4	75.4	91	25	54	21	0	230	2.34	1.36	3-4	0.0	0.0		81	83	59	67	23	2.9	7.1	21	34	26+	5.3	10	8	13	8	0	0	0	1	1	0	0	0	0	0	
SEP	77.6	58.7	68.2	90	1	43	30	41	143	6.84	5.37	2-3	0.0	0.0		84	85	58	68	29	1.9	6.9	20	34	28	5.8	16	11	13	6	0	0	0	0	0	0	0	4	0	0	0
OCT	67.6	44.4	56.0	84	3	24	24	288	14	1.47	0.64	21	1	T	23	80	82	49	65	29	2.9	7.7	32	29	21	6.6	8	7	15	11	0	1	3	0	0	14	0	0	0		
NOV	53.8	35.3	44.6	70	3	22	25+	606	0	1.79	0.65	19-20	0.1	0.1	30	80	89	56	74	28	3.2	9.1	27	27	5	6.6	8	6	15	11	0	1	3	0	0	4	27	0	0		
DEC	39.4	26.0	32.7	59	10	16	25	993	0	7.90	2.22	25-26	6.8	3.9	25	76	78	63	68	30	6.5	11.5	35	28	27	6.7	8	6	17	11	1	0	0	0	0	0	0	0	0	0	
YEAR	62.8	45.4	54.1	95	JUN. 28	12	JAN. 6+	5025	1162	40.38	5.37	2-3	23.1	4.7	19-20	74	76	53	63	28	2.6	9.9	39	27	JAN. 1	6.2	93	103	169	104	6	31	30	7	13	113	0	0	0		

## NORMALS, MEANS, AND EXTREMES

Month	Temperature						Normal heating degree days (Base 65°)	Precipitation										Relative humidity				Wind &				Mean number of days										Average daily solar radiation - langbeys					
	Normal			Extremes				Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, ice pellets				Hourly	Hourly	Hourly	Hourly	Fastest mile		Pct. of possible sunshine	Mean sky cover sunrise to sunset	Sunrise to sunset				Temperatures										
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest									Year	Mean total	Maximum monthly	Year					Maximum in 24 hrs.	Year			Hour	Hour	Hour	Hour	Speed	Direction	Year	Clear	Partly cloudy		Cloudy	Precipitation 0.1 inch or more	Snow, ice pellets 1.0 inch or more	Thunderstorms	Heavy fog
(a)	(b)	(b)	(b)	22	22	(b)	(b)	22	22	22	22	22	22	22	22	22	22	22	22	21	16	21	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22			
J	41.3	25.5	33.4	75	1950	-4	1957	980	3.40	5.55	1966	0.59	1955	1.61	1968	5.8	17.2	1966	11.2	1966	74	75	61	69	9.8	NW	4.6	29	1957	6.6	7	8	16	11	2	*	4	0	6	25	*
F	42.4	25.2	33.0	74	1954+	-4	1961	874	2.95	4.90	1969	1.52	1968	2.29	1966	6.2	18.7	1967	9.9	1967	73	75	59	67	10.5	NW	4.0	29	1956	6.4	7	7	14	10	2	*	4	0	4	23	*
M	50.5	32.0	41.3	86	1948	9	1960	735	4.02	5.72	1953	0.81	1966	2.75	1958	4.5	20.3	1959	15.6	1958	73	75	64	64	11.2	NW	4.3	16	1952	6.2	8	9	14	12	1	3	0	0	1	17	0
A	62.5	41.6	52.1	89	1960	22	1965	387	3.33	5.97	1964	1.12	1963	2.56	1961	0.1	1.1	1959	1.1	1959	75	74	51	62	10.4	NW	4.5	29	1963+	6.5	7	8	15	11	*	2	3	0	0	0	0
M	73.4	52.0	62.7	95	1962	32	1966	112	3.53	7.35	1948	0.22	1964	2.35	1968	T	T	1963	T	1963	79	76	53	64	8.9	S	4.5	27	1957	6.5	6	11	14	11	0	4	3	1	0	*	0
J	81.8	61.0	71.4	99	1952	44	1966+	6	4.07	6.34	1955	0.44	1954	2.67	1955	0.0	0.0	0.0	0.0	1960	83	79	53	66	8.3	S	4.0	23	1960	5.9	8	11	11	9	0	6	2	4	0	0	0
J	86.2	65.8	76.0	102	1966+	50	1952	0	4.25	7.51	1958	0.16	1955	6.24	1952	0.0	0.0	0.0	0.0	1963	84	81	53	67	7.6	NW	4.8	27	1963	6.0	7	12	12	9	0	6	2	8	0	0	0
A	84.2	64.3	74.3	101	1955+	46	1965	0	5.59	12.09	1955	1.17	1968	4.00	1955	0.0	0.0	0.0	0.0	1960	86	84	56	71	7.4	S	4.0	22	1960+	5.8	9	10	12	9	0	6	3	5	0	0	0
S	77.9	57.3	67.6	100	1953	37	1963+	51	3.95	9.53	1960	1.16	1967+	5.62	1960	0.0	0.0	0.0	0.0	1960	85	85	58	72	7.9	S	4.0	07	1956	5.5	10	9	11	8	0	6	2	3	2	0	0
U	67.3	45.9	56.6	91	1951	24	1969	270	2.91	5.17	1966	0.21	1963	3.88	1966	T	0.3	1962	0.3	1962	83	85	59	71	8.1	NW	5.8	20	1954	5.2	12	8	11	7	0	5	1	9	*	0	
N	55.1	35.7	45.4	85	1950	14	1955	588	3.33	7.32	1951	0.94	1965	3.83	1958	1.3	11.6	1953	11.9	1953	79	81	56	70	9.0	NW	4.6	16	1950	6.2	8	9	13	9	0	1	4	0	*	12	0
D	43.5	26.7	35.1	72	1966	3	1962	927	3.03	7.90	1969	0.19	1955	2.22	1969	4.7	21.5	1966	12.4	1966	76	77	66	70	9.2	NW	4.4	29	1962	6.3	8	8	15	10	1	*	4	0	5	23	0
YR	63.8	44.4	54.1	102	JUL. 1966+	-4	FEB. 1961+	4930	44.56	12.09	1955	0.16	JUL. 1955	6.24	JUL. 1952	22.6	DEC. 1966	15.6	MAR. 1958	79	79	55	68	9.0	NW	5.8	20	OCT. 1954	6.1	97	110	158	116	6	30	40	19	16	104	*	

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 107 in August 1918; lowest temperature -15 in February 1934; maximum monthly precipitation 14.91 in August 1911; minimum monthly precipitation 0.06 in October 1924; maximum precipitation in 24 hours 6.53 in August 1945; maximum monthly snowfall 27.0 in January 1935; maximum snowfall in 24 hours 22.0 in December 1909.

- (a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
- (b) Climatological standard normals (1931-1960).
- \* Less than one half.
- + Also on earlier dates, months, or years.
- T Trace, an amount too small to measure.
- Below zero temperatures are preceded by a minus sign.
- The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
- † ≥ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions, and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

AVERAGE TEMPERATURE

Table with columns for Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., Annual. Rows list years from 1931 to 1969, plus RECDRN, MEAN, MAX, and MIN.

TOTAL DEGREE DAYS

WILMINGTON, DELAWARE

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, Total. Rows list seasons from 1930-31 to 1969-70, plus RECDRN, MEAN, MAX, and MIN.

TOTAL PRECIPITATION

Table with columns for Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., Annual. Rows list years from 1931 to 1969, plus RECDRN and MEAN.

TOTAL SNOWFALL

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, Total. Rows list seasons from 1930-31 to 1969-70, plus RECDRN and MEAN.

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1895 for temperature and 1894 for precipitation.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Data are from Cooperative locations through 1947; temperatures through February 1912 and precipitation through July 11, 1912, from 6th & King Streets, otherwise from Porter Reservoir. Data are from Airport locations beginning January 1948.

# STATION LOCATION

WILMINGTON, DELAWARE

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above										Remarks
						Sea level	Ground								Sea level	
							Ground at temperature site	Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage		
<u>COOPERATIVE</u>																
Wilmington, Delaware 6th and King Streets	4- 1-94	7-12-16		39° 45'	75° 33'	86							35'	Ordinary thermometer exposed outside N window; Sept. '09 max. and min. in use, exposure of thermometers poor.		
Porter Reservoir Wilmington, Delaware 1.9 miles NNE of P. O.	3- 1-12	Present		39° 46'	75° 33'	260		3'					3'	Home made shelter in use; C. R. shelter September 1936, good exposure over sod. Precipitation record began 7-12-12.		
Wilmington, Delaware 10th and King Streets 1 block S of P. O.	7-12-16	10-31-58	1.9 mi. SSW	39° 45'	75° 33'	99							47'	Precipitation only most of time.		
<u>AIRPORT STATION</u>																
Bellanca Field New Castle, Delaware 6.1 miles SSW Wilmington Post Office	4-20-31	6- ?-34		39° 40'	75° 36'											
DuPont Airport Wilmington Delaware 3 miles WNW Wilmington Post Office	4-27-42	12- 8-42	6.8 mi. N	39° 46'	75° 36'											
New Castle County Airport Tower, Wilmington, Delaware, 5.6 miles SW of Post Office	5-19-47	11- 6-47	5.6 mi. SSW	39° 40'	75° 36'		75							Airway Observation by County Tower employees.		
New Castle County Airport, Admn. Bldg.	11- 7-47	12- 5-47	125 yds. SW	39° 40'	75° 36'	73	75	5	5				3	Wind instruments of previous location used.		
New Castle County Airport, Terminal Bldg.	12- 5-47	7-16-56	150 ft. NE	39° 40'	75° 36'	73	34	5	5				4	Exposure of instruments good.		
New Terminal Building New Castle County AP *	7-16-56	Present	7/8 mi. SE	39° 40'	75° 36'	b74	20	s5	s5			5	4 a4	Exposure of instruments excellent. * Name changed to Greater Wilmington Airport in May 1961. a - Commissioned 1,000 feet from thermometer site 4-11-67. b - 78 feet to 4-11-67. s - Standby after 4-11-67.		

Requests for additional information should be directed to the Weather Bureau Office for which this summary was issued.

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