

# Climatology of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: PROVIDENCE GREEN AP, RI

1971-2000

COOP ID: 376698

Climate Division: RI 1

NWS Call Sign: PVD

Elevation: 51 Feet

Lat: 41°43N

Lon: 71°26W

Temperature (°F)																					
Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	37.1	20.3	28.7	69	1995	14	36.3	1990	-13	1976	23	20.3	1981	1125	0	.0	.0	4.3	10.4	27.3	1.0
Feb	39.3	22.5	30.9	72+	1981	18	37.4	1981	-7+	1979	12	19.7	1979	965	0	.0	.0	4.7	7.3	23.6	.5
Mar	47.7	30.0	38.8	85	1998	31	43.7	1973	1+	1950	4	33.8+	1984	817	0	.0	.0	12.4	1.3	18.8	.0
Apr	58.1	39.1	48.6	98	1976	19	52.6	1976	14	1954	4	44.3	1972	494	3	.0	.1	24.9	@	4.6	.0
May	68.5	48.8	58.7	95	1996	20	63.9	1991	29	1956	9	55.4	1997	221	25	.0	.7	30.7	.0	.1	.0
Jun	77.3	57.9	67.6	97+	1952	26	70.5	1999	41+	1967	1	63.9	1982	44	122	.0	2.0	30.0	.0	.0	.0
Jul	82.6	64.1	73.3	102	1991	21	76.6	1983	48	1988	1	70.0	1976	3	265	.2	4.0	31.0	.0	.0	.0
Aug	80.9	62.8	71.9	104	1975	2	75.3	1988	40	1965	31	69.2	1982	9	223	@	2.7	31.0	.0	.0	.0
Sep	73.4	54.5	64.0	100	1983	11	69.6	1983	32	1951	30	59.5	1978	101	71	@	.7	30.0	.0	.0	.0
Oct	62.9	43.1	53.0	88	1949	10	59.2	1971	20	1976	27	48.2	1974	377	5	.0	.0	29.6	.0	2.8	.0
Nov	52.4	35.1	43.8	81	1950	2	48.5	1994	6	1989	24	37.9	1976	637	0	.0	.0	18.1	.2	12.6	.0
Dec	42.1	25.6	33.8	77	1998	7	39.5	1990	-10	1980	25	21.8	1989	961	0	.0	.0	7.0	5.1	24.1	.2
Ann	60.2	42.0	51.1	104	Aug 1975	2	76.6	Jul 1983	-13	Jan 1976	23	19.7	Feb 1979	5754	714	.2	10.2	253.7	24.3	113.9	1.7

+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: [www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

003-A

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### 1971-2000

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#### Precipitation (inches)

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	4.37	4.30	2.90	1982	4	11.66	1979	.77	1981	11.2	7.2	3.1	1.3	1.10	1.51	2.15	2.71	3.26	3.85	4.50	5.28	6.29	7.89	9.39
Feb	3.45	3.11	2.59	1966	13	7.20	1984	.39	1987	9.8	5.9	2.3	.9	1.13	1.45	1.93	2.34	2.74	3.15	3.59	4.12	4.79	5.83	6.79
Mar	4.43	4.07	3.15	1987	31	8.84	1983	.56	1981	12.3	7.5	2.9	1.3	1.50	1.92	2.54	3.05	3.55	4.06	4.62	5.28	6.11	7.41	8.60
Apr	4.16	3.68	4.30	1983	10	12.74	1983	1.54	1999	11.5	6.8	2.8	1.1	1.45	1.84	2.41	2.89	3.35	3.83	4.35	4.95	5.72	6.92	8.01
May	3.66	3.14	5.15	1984	31	8.38	1984	1.12	1993	11.8	7.1	2.4	.7	1.21	1.56	2.07	2.50	2.92	3.35	3.82	4.37	5.07	6.17	7.18
Jun	3.38	2.80	3.29	1998	13	11.08	1982	.17	1999	10.5	5.9	2.1	.9	.55	.84	1.33	1.80	2.28	2.80	3.40	4.13	5.11	6.69	8.21
Jul	3.17	2.90	4.78	1976	30	8.08	1976	.82	1999	8.8	5.4	1.8	.8	.87	1.17	1.62	2.02	2.41	2.83	3.28	3.82	4.52	5.62	6.65
Aug	3.90	3.07	6.31	1979	4	10.09	1979	.71	1984	9.2	5.9	2.4	.9	.95	1.31	1.88	2.39	2.89	3.42	4.02	4.73	5.65	7.12	8.50
Sep	3.70	3.70	4.71	1961	21	7.47	1987	.90	1980	8.9	5.8	2.5	1.0	.99	1.34	1.88	2.35	2.81	3.29	3.83	4.46	5.30	6.60	7.81
Oct	3.69	3.40	5.39	1962	5	8.37	1989	.40	1994	8.9	6.3	2.4	1.0	1.09	1.44	1.96	2.42	2.86	3.33	3.84	4.44	5.21	6.43	7.56
Nov	4.40	4.34	3.52	1983	25	11.01	1983	.81	1976	10.0	6.6	2.9	1.4	1.42	1.84	2.45	2.98	3.49	4.01	4.59	5.26	6.13	7.48	8.72
Dec	4.14	3.87	3.47	1969	26	8.09	1986	1.03	1988	12.0	7.5	2.5	1.1	1.07	1.46	2.07	2.59	3.12	3.66	4.27	5.00	5.94	7.43	8.82
Ann	46.45	46.07	6.31	Aug 1979	4	12.74	Apr 1983	.17	Jun 1999	124.9	77.9	30.1	12.4	34.64	36.97	39.93	42.16	44.14	46.04	47.99	50.14	52.73	56.47	59.69

+ Also occurred on an earlier date(s)

# Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

\*\* Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:

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**Climate Division: RI 1**

**NWS Call Sign: PVD**

**Elevation: 51 Feet**

**Lat: 41°43N**

**Lon: 71°26W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	10.6	9.8	1	1	25.0	1979	21	37.8	1978	19	1996	8	5	1994	5.5	3.0	1.2	.5	.1	11.1	6.4	3.8	.5
Feb	9.0	6.8	1	1	18.0	1978	6	28.6	1978	27+	1978	10	12	1978	5.1	2.6	.8	.4	.1	9.6	5.1	2.5	.9
Mar	4.9	2.7	#	1	8.7	1978	16	17.8	1993	11+	1978	5	3	1978	3.3	1.4	.6	.3	.0	3.0	1.4	.7	.1
Apr	.7	.0	#	0	7.3	1982	6	7.6	1982	5+	1982	8	#	1990	.7	.2	@	@	.0	.3	.1	.1	.0
May	.3	.0	#	0	6.7	1977	9	7.0	1977	2	1977	10	#	1996	.1	.0	@	@	.0	@	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1977	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1997	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	2.5	1979	10	2.5	1979	1	1979	11	#	1979	.1	.0	.0	.0	.0	@	.0	.0	.0
Nov	1.4	.1	#	0	8.0	1989	23	8.0+	1989	7+	1989	24	1	1989	.8	.4	.2	.1	.0	.6	.3	.2	.0
Dec	6.0	4.6	#	0	8.2	1989	16	21.7	1989	12	1981	7	2+	1989	3.8	1.7	.6	.4	.0	4.3	1.8	.7	.1
Ann	33.0	24.0	N/A	N/A	25.0	Jan 1979	21	37.8	Jan 1978	27+	Feb 1978	10	12	Feb 1978	19.4	9.3	3.4	1.7	.2	28.9	15.1	8.0	1.6

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

Complete documentation available from:

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**Lat: 41° 43N**

**Lon: 71° 26W**

Freeze Data									
Spring Freeze Dates (Month/Day)									
Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	5/15	5/10	5/07	5/04	5/01	4/28	4/25	4/22	4/17
32	4/29	4/25	4/22	4/19	4/16	4/14	4/11	4/08	4/04
28	4/14	4/10	4/08	4/05	4/03	4/01	3/29	3/26	3/22
24	4/05	4/01	3/29	3/26	3/24	3/21	3/19	3/15	3/11
20	4/01	3/26	3/22	3/19	3/16	3/13	3/09	3/05	2/28
16	3/25	3/19	3/15	3/11	3/08	3/04	3/01	2/25	2/19
Fall Freeze Dates (Month/Day)									
Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	9/29	10/03	10/06	10/08	10/10	10/13	10/15	10/18	10/22
32	10/07	10/12	10/16	10/19	10/22	10/25	10/28	11/01	11/06
28	10/19	10/25	10/29	11/01	11/05	11/08	11/11	11/16	11/21
24	10/29	11/05	11/10	11/14	11/18	11/22	11/27	12/02	12/09
20	11/17	11/23	11/26	11/30	12/03	12/06	12/09	12/13	12/19
16	11/27	12/03	12/06	12/09	12/12	12/15	12/18	12/22	12/27
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	179	173	169	165	162	158	155	150	144
32	209	201	196	192	188	184	179	174	167
28	238	230	224	219	215	210	206	200	192
24	264	255	249	244	239	234	229	222	214
20	288	279	272	267	261	256	250	243	234
16	300	292	287	283	279	275	270	265	258

\* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

**0/00** Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

Complete documentation available from:  
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Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1125	965	817	494	221	44	3	9	101	377	637	961	5754
60	971	815	657	344	96	5	0	0	29	240	487	811	4455
57	878	731	564	258	51	1	0	0	12	171	398	718	3782
55	816	675	502	205	30	0	0	0	6	132	341	656	3363
50	661	535	350	97	5	0	0	0	1	59	210	510	2428
32	205	138	24	0	0	0	0	0	0	0	6	114	487

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	84	95	241	499	826	1069	1282	1236	959	652	360	146	7449
55	0	0	4	27	151	379	569	523	278	68	13	1	2013
57	0	0	3	18	112	322	507	461	225	47	8	1	1704
60	0	0	1	9	67	239	414	369	156	24	4	0	1283
65	0	0	0	3	25	122	265	223	71	5	0	0	714
70	0	0	0	1	7	46	129	103	25	1	0	0	312

Growing Degree Units (2)																								
Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	20	29	89	277	589	834	1043	997	726	416	172	45	20	49	138	415	1004	1838	2881	3878	4604	5020	5192	5237
45	4	6	39	152	434	684	888	842	576	269	90	19	4	10	49	201	635	1319	2207	3049	3625	3894	3984	4003
50	0	0	12	72	286	534	733	687	427	154	41	2	0	0	12	84	370	904	1637	2324	2751	2905	2946	2948
55	0	0	4	30	159	385	578	532	282	71	12	0	0	0	4	34	193	578	1156	1688	1970	2041	2053	2053
60	0	0	1	11	71	245	423	378	165	24	2	0	0	0	1	12	83	328	751	1129	1294	1318	1320	1320
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	9	14	50	141	326	533	716	678	447	226	86	28	9	23	73	214	540	1073	1789	2467	2914	3140	3226	3254

(1) Derived from the 1971-2000 Monthly Normals

(2) Derived from 1971-2000 serially complete daily data

**Note:** For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:

[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

## Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.  
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set.  
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.  
Documentation for the Snow Climatology project is available from the link under references.

## Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html)  
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,  
[www1.ncdc.noaa.gov/pub/data/special/serialcomplete\\_jam\\_0900.pdf](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)