U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

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

Station: HARTFORD BRADLEY INTL AP, CT **COOP ID: 063456**

Climate Division: CT 2 **NWS Call Sign: BDL** **Elevation: 160 Feet** **Lat: 41˚56N** **Lon: 72˚41W**

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	34.1	17.2	25.7	65	1967	24	34.7	1990	-26	1961	22	17.8	1981	1218	0	.0	.0	2.3	13.4	28.1	2.8
Feb	37.7	19.9	28.8	73	1985	24	36.2	1998	-21	1961	2	18.0	1979	1024	0	.0	.0	3.6	8.7	24.9	1.4
Mar	47.7	28.3	38.0	89	1998	31	43.7	2000	-6	1967	19	31.4	1984	844	1	.0	.0	12.4	1.7	20.9	.0
Apr	59.9	37.9	48.9	96	1976	19	53.3	1976	9	1970	1	44.3	1972	486	5	.0	.3	24.9	.1	7.6	.0
May	71.7	48.1	59.9	99	1996	20	65.8	1991	28+	1956	9	56.0	1984	195	38	.0	1.2	30.7	.0	.5	.0
Jun	80.0	57.0	68.5	100	1964	30	72.7	1976	37+	1964	6	63.7	1985	38	144	.0	3.4	30.0	.0	.0	.0
Jul	84.9	62.4	73.7	102	1966	3	77.1	1994	44	1962	2	69.6	2000	3	277	.2	7.4	31.0	.0	.0	.0
Aug	82.5	60.7	71.6	102	2001	9	76.4	1973	36	1965	31	69.0	1987	12	220	@	4.4	31.0	.0	.0	.0
Sep	74.3	52.1	63.2	99	1983	11	67.7	1971	30+	1957	27	58.6	1978	120	68	.0	1.0	30.0	.0	.3	.0
Oct	63.1	40.6	51.9	91	1963	7	58.3	1971	17	1978	18	47.3	1974	413	5	.0	.0	29.3	.0	6.1	.0
Nov	50.9	32.6	41.8	81	1974	1	48.2	1975	1	1989	24	37.9	1980	697	1	.0	.0	15.8	.5	16.2	.0
Dec	39.0	22.6	30.8	76	1998	7	36.8	1998	-14	1980	26	18.1	1989	1054	0	.0	.0	4.2	7.5	26.4	.6
Ann	60.5	40.0	50.2	102+	Aug 2001	9	77.1	Jul 1994	-26	Jan 1961	22	17.8	Jan 1981	6104	759	.2	17.7	245.2	31.9	131.0	4.8

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1954-2001

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Climate Division: CT 2 **NWS Call Sign: BDL** **Elevation: 160 Feet** **Lat: 41°56N** **Lon: 72°41W**

Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	3.84	3.37	2.20	1976	27	9.61	1978	.38	1981
Feb	2.96	2.96	2.16	1965	25	7.27	1981	.45	1987
Mar	3.88	3.74	2.52	1987	31	6.86	1983	.27	1981
Apr	3.86	3.59	2.98	1969	22	9.90	1983	1.10	1999
May	4.39	3.47	4.81	1989	24	12.00	1989	1.65	1980
Jun	3.85	3.25	5.88	1982	5	13.60	1982	.67	1988
Jul	3.67	3.39	2.96	1994	28	8.43	1988	1.07	1983
Aug	3.98	3.61	7.70	1955	19	8.69	1991	.54	1981
Sep	4.13	3.44	5.72	1999	16	11.22	1999	.84	1986
Oct	3.94	3.61	4.31	1959	24	9.46	1995	1.07	2000
Nov	4.06	3.90	2.90	1988	20	8.53	1972	.51	1976
Dec	3.60	3.43	2.96	1973	21	8.31	1973	.82	1980
Ann	46.16	44.76	7.70	Aug 1955	19	13.60	Jun 1982	.27	Mar 1981

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.4	6.9	3.0	.9
Feb	10.1	5.8	2.2	.7
Mar	11.9	7.4	2.6	1.0
Apr	11.3	6.9	2.3	1.0
May	12.6	8.0	2.8	1.1
Jun	11.3	6.6	2.3	1.0
Jul	9.9	6.5	2.3	.9
Aug	10.0	6.1	2.6	1.2
Sep	9.7	6.3	2.7	1.1
Oct	9.0	6.1	2.6	1.1
Nov	10.3	6.3	2.8	1.2
Dec	11.6	6.8	2.3	1.0
Ann	129.1	79.7	30.5	12.2

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.79	1.14	1.70	2.22	2.73	3.29	3.92	4.67	5.67	7.26	8.77
Feb	1.02	1.30	1.70	2.05	2.38	2.72	3.09	3.52	4.08	4.93	5.72
Mar	1.28	1.65	2.19	2.65	3.09	3.54	4.04	4.62	5.37	6.53	7.60
Apr	1.40	1.76	2.28	2.72	3.14	3.57	4.04	4.58	5.27	6.34	7.33
May	1.45	1.87	2.48	3.00	3.50	4.01	4.57	5.23	6.08	7.39	8.60
Jun	.62	.95	1.51	2.04	2.58	3.18	3.86	4.70	5.81	7.62	9.35
Jul	1.44	1.78	2.27	2.67	3.04	3.43	3.85	4.33	4.94	5.87	6.72
Aug	1.12	1.50	2.07	2.57	3.06	3.57	4.13	4.79	5.65	7.01	8.27
Sep	.88	1.25	1.86	2.41	2.96	3.55	4.22	5.02	6.07	7.76	9.35
Oct	1.29	1.66	2.21	2.68	3.13	3.60	4.11	4.71	5.48	6.67	7.78
Nov	1.49	1.87	2.42	2.87	3.31	3.76	4.24	4.80	5.52	6.63	7.64
Dec	.94	1.28	1.80	2.26	2.71	3.19	3.72	4.35	5.17	6.47	7.68
Ann	34.68	36.95	39.83	42.00	43.91	45.76	47.65	49.73	52.24	55.86	58.97

\+ 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: 1954-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	14.3	10.5	3	1	14.1	1978	20	42.8	1996	38	1996	13	14	1996	6.7	3.3	1.6	1.0	.2	16.6	10.9	7.9	2.5
Feb	10.7	9.0	3	2	12.8	1978	6	29.4+	1994	26	1983	12	11	1978	5.5	2.5	1.1	.7	.2	14.8	10.1	5.5	1.8
Mar	7.7	5.3	1	1	12.3	1993	13	31.1	1993	16	1993	14	5	1978	4.4	2.1	.9	.4	@	6.4	3.6	1.9	.4
Apr	1.5	.3	#	0	14.1	1982	6	14.3	1982	14	1982	7	1	1982	1.1	.4	.1	@	@	.6	.3	.1	.1
May	.1	.0	#	0	1.3	1977	9	1.3	1977	#	1977	9	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	1.7	1979	10	1.7	1979	1	1979	11	#	1979	.1	.0	.0	.0	.0	@	.0	.0	.0
Nov	2.5	.7	#	0	7.6	1971	25	8.7	1986	8+	1971	27	1+	1986	1.6	.7	.3	.2	.0	1.6	.9	.2	.0
Dec	8.4	6.7	1	0	10.8	1977	14	23.4	1977	13+	1995	22	5	1995	5.8	2.6	.9	.2	@	8.4	3.0	1.6	.3
Ann	45.3	32.5	N/A	N/A	14.1+	Apr 1982	6	42.8	Jan 1996	38	Jan 1996	13	14	Jan 1996	25.2	11.6	4.9	2.5	.4	48.4	28.8	17.2	5.1

+ 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

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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	5/22	5/17	5/14	5/11	5/08	5/05	5/02	4/29	4/24
32	5/10	5/05	5/02	4/29	4/26	4/23	4/20	4/16	4/11
28	4/22	4/18	4/15	4/12	4/10	4/08	4/05	4/02	3/29
24	4/10	4/05	4/02	3/30	3/28	3/26	3/23	3/20	3/15
20	3/31	3/27	3/24	3/22	3/20	3/18	3/15	3/13	3/09
16	3/27	3/23	3/19	3/16	3/14	3/11	3/08	3/05	2/28

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	9/19	9/23	9/26	9/28	9/30	10/03	10/05	10/08	10/12
32	9/26	10/01	10/04	10/07	10/09	10/12	10/14	10/17	10/22
28	10/08	10/13	10/17	10/20	10/23	10/26	10/29	11/02	11/07
24	10/20	10/26	10/31	11/04	11/08	11/12	11/16	11/21	11/27
20	11/02	11/09	11/14	11/18	11/22	11/26	12/01	12/06	12/13
16	11/20	11/25	11/28	12/01	12/04	12/07	12/10	12/13	12/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	161	155	151	148	145	141	138	134	128
32	185	178	173	169	166	162	158	153	146
28	213	207	203	199	196	192	189	184	178
24	250	241	235	229	224	219	214	208	199
20	268	261	255	251	247	243	238	233	226
16	286	279	273	269	265	260	256	251	243

***** 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

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Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1218	1024	844	486	195	38	3	12	120	413	697	1054	6104
60	1065	873	683	336	91	5	0	0	31	270	547	905	4806
57	972	789	590	252	52	1	0	0	13	197	458	812	4136
55	910	733	528	201	33	0	0	0	6	154	399	750	3714
50	755	593	378	96	7	0	0	0	1	73	263	598	2764
32	264	171	39	0	0	0	0	0	0	0	12	161	647

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	53	72	226	509	866	1095	1292	1229	936	615	306	95	7294
55	0	0	6	35	185	406	579	516	261	57	11	1	2057
57	0	0	4	24	143	348	517	454	211	38	7	0	1746
60	0	0	2	14	93	264	424	363	145	21	4	0	1330
65	0	0	1	5	38	144	277	220	68	5	1	0	759
70	0	0	0	1	11	60	139	103	24	0	0	0	338

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	9	18	90	286	626	865	1055	988	707	382	134	25	9	27	117	403	1029	1894	2949	3937	4644	5026	5160	5185
45	0	3	42	167	472	715	900	833	557	245	70	6	0	3	45	212	684	1399	2299	3132	3689	3934	4004	4010
50	0	0	15	89	325	565	745	678	408	136	29	2	0	0	15	104	429	994	1739	2417	2825	2961	2990	2992
55	0	0	4	37	191	417	590	523	270	61	10	0	0	0	4	41	232	649	1239	1762	2032	2093	2103	2103
60	0	0	1	15	98	275	436	370	149	23	4	0	0	0	1	16	114	389	825	1195	1344	1367	1371	1371
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	9	56	172	376	560	711	661	441	225	75	12	3	12	68	240	616	1176	1887	2548	2989	3214	3289	3301

(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:
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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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html
Snow Climatology Project Description, 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