

Climatography of the United States

No. 20

1971-2000

Station: HAYS 1 S, KS

COOP ID: 143527

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,010 Feet Lat: 38° 52N

Lon: 99° 20W

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	39.4	14.6	27.0	79+	1986	21	36.6	1986	-26	1905	14	13.5	1979	1177	0	.0	.0	9.0	9.9	30.8	3.6
Feb	45.7	19.5	32.6	88	1970	18	41.2	1999	-26	1905	13	19.7	1978	907	0	.0	.0	12.5	6.4	25.9	2.5
Mar	55.3	28.9	42.1	97	1907	21	48.8	1986	-23	1948	11	34.9	1975	710	0	.0	.1	19.9	2.1	20.0	.4
Apr	66.2	40.0	53.1	107	1989	23	60.9	1981	6	1936	6	46.1	1983	368	10	.1	.7	26.6	.2	6.6	.0
May	74.7	50.9	62.8	106	1939	23	67.8	1998	17	1907	15	56.5	1995	143	74	@	1.8	30.7	.0	.4	.0
Jun	86.2	60.8	73.5	114	1911	26	79.7	1988	36	1998	6	67.3	1982	19	274	2.4	11.6	30.0	.0	.0	.0
Jul	92.2	65.9	79.1	117	1934	13	86.7	1980	38	1904	5	74.9	1992	0	435	6.0	20.4	31.0	.0	.0	.0
Aug	89.9	63.9	76.9	115	1936	13	84.7	1983	36+	1910	26	70.2	1992	8	376	4.4	17.8	31.0	.0	.0	.0
Sep	81.2	54.2	67.7	111+	1947	4	74.6	1998	24	1918	20	61.3	1974	61	142	1.3	8.8	29.7	.0	.6	.0
Oct	69.7	40.7	55.2	100+	1994	1	58.8	1998	9+	1997	27	48.8	1976	310	6	@	1.3	29.2	@	5.7	.0
Nov	53.1	27.3	40.2	87+	1980	7	48.6	1999	-6	1952	28	32.1	1985	745	0	.0	.0	18.3	1.8	21.9	.2
Dec	42.7	18.3	30.5	83	1939	6	35.9	1999	-20	1989	23	13.4	1983	1069	0	.0	.0	10.9	6.9	29.6	1.7
Ann	66.4	40.4	53.4	117	Jul 1934	13	86.7	Jul 1980	-26+	Feb 1905	13	13.4	Dec 1983	5517	1317	14.2	62.5	278.8	27.3	141.5	8.4

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1900-2001

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

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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: HAYS 1 S, KS

COOP ID: 143527

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,010 Feet Lat: 38°52N

Lon: 99°20W

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	.52	.41	1.09	1995	27	1.67	1979	.00+	1997	3.7	1.5	.2	@	.00	.00	.12	.20	.29	.39	.51	.65	.84	1.16	1.48
Feb	.65	.39	1.20+	1903	27	2.72	1993	.00+	1991	4.0	1.6	.4	.1	.00	.03	.11	.20	.31	.44	.59	.79	1.06	1.53	2.00
Mar	1.98	1.31	2.59	1987	17	7.92	1973	.01	1997	6.4	3.8	1.2	.5	.09	.19	.41	.67	.98	1.34	1.79	2.37	3.20	4.62	6.05
Apr	2.18	1.92	3.09	1987	14	5.29	1984	.12	1989	7.4	4.6	1.6	.3	.47	.67	.99	1.28	1.57	1.88	2.23	2.64	3.19	4.07	4.89
May	3.15	2.82	4.53	1919	3	8.97	1995	.87	1988	9.8	6.3	2.1	.5	.94	1.24	1.69	2.07	2.45	2.84	3.27	3.78	4.43	5.45	6.40
Jun	2.59	1.98	3.49	1932	9	6.61	1975	.00	1985	8.6	4.9	1.7	.4	.31	.63	1.06	1.43	1.81	2.21	2.66	3.20	3.91	5.05	6.13
Jul	3.76	3.86	4.03	1940	2	11.57	1993	.09	1975	9.0	5.5	2.8	1.3	.53	.84	1.39	1.91	2.45	3.05	3.75	4.60	5.74	7.61	9.41
Aug	2.93	2.49	3.46	1920	5	7.10	1977	.23	1976	7.8	4.8	2.0	.9	.34	.57	.98	1.39	1.83	2.31	2.88	3.58	4.53	6.10	7.63
Sep	1.62	1.30	5.26	1955	19	5.02	1973	.22	1974	6.0	3.5	.9	.3	.28	.42	.65	.88	1.10	1.35	1.63	1.98	2.43	3.17	3.88
Oct	1.38	1.05	2.65	1920	21	3.76	1984	.00	1975	5.1	2.9	.7	.3	.07	.19	.40	.61	.82	1.06	1.35	1.70	2.18	2.97	3.74
Nov	1.22	.71	2.92	1996	16	3.70	1996	.00	1980	4.7	2.5	1.0	.2	.01	.07	.20	.36	.56	.79	1.08	1.46	2.00	2.94	3.89
Dec	.65	.49	2.15	1933	1	2.13	1984	.00	1976	3.9	1.8	.3	@	.01	.06	.14	.23	.33	.45	.60	.79	1.05	1.49	1.94
Ann	22.63	22.50	5.26	Sep 1955	19	11.57	Jul 1993	.00+	Jan 1997	76.4	43.7	14.9	4.8	14.28	15.82	17.83	19.39	20.79	22.16	23.59	25.18	27.13	30.01	32.52

+ 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: 1900-2001

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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: HAYS 1 S, KS

COOP ID: 143527

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,010 Feet

Lat: 38°52N

Lon: 99°20W

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	4.2	3.0	1	1	7.5	1979	13	17.1	1979	13	1974	2	6	1993	3.0	1.5	.6	.2	.0	8.9	5.4	3.2	.8
Feb	4.2	2.0	1	#	9.0	1980	8	15.7	1993	13	1978	15	7	1993	2.4	1.2	.5	.3	.0	6.8	4.2	2.9	.7
Mar	4.4	3.0	#	#	11.0	1980	24	17.5	1987	11	1980	24	2	1993	1.7	1.3	.5	.3	.1	2.9	1.2	.8	.1
Apr	.8	.0	#	#	5.5	1994	5	6.5	1994	6	1994	5	#+	1998	.6	.4	.1	@	.0	.6	.2	@	.0
May	.0	.0	#	0	.0	0	0	.0	0	#	1997	26	#	1997	.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	.1	.0	#	0	2.0	1985	29	2.0+	1995	1	1995	21	#	1995	.1	.1	.0	.0	.0	@	.0	.0	.0
Oct	.4	.0	#	0	4.0	1997	26	4.0	1997	4	1997	27	#+	1997	.1	.1	.1	.0	.0	.2	.1	.0	.0
Nov	1.8	1.0	#	#	4.5	1992	25	8.0	1992	8	1992	25	1	1992	1.1	.7	.2	.0	.0	1.9	.7	.3	.0
Dec	3.6	2.5	1	#	7.0	1983	28	16.0	1973	11	1983	28	5	1983	2.5	1.6	.6	.1	.0	5.5	2.5	.8	.0
Ann	19.5	11.5	N/A	N/A	11.0	Mar 1980	24	17.5	Mar 1987	13+	Feb 1978	15	7	Feb 1993	11.5	6.9	2.6	.9	.1	26.8	14.3	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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Station: HAYS 1 S, KS

COOP ID: 143527

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,010 Feet

Lat: 38° 52N

Lon: 99° 20W

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	5/21	5/16	5/12	5/09	5/06	5/03	4/29	4/26	4/20
32	5/10	5/05	5/02	4/29	4/26	4/23	4/20	4/17	4/12
28	4/29	4/24	4/21	4/18	4/15	4/12	4/09	4/06	4/01
24	4/13	4/09	4/06	4/03	4/01	3/30	3/27	3/24	3/20
20	4/07	4/02	3/29	3/26	3/23	3/20	3/17	3/13	3/08
16	4/03	3/26	3/20	3/15	3/10	3/05	2/28	2/22	2/14
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	9/16	9/21	9/24	9/27	9/30	10/02	10/05	10/09	10/13
32	9/23	9/28	10/02	10/05	10/09	10/12	10/15	10/19	10/25
28	10/03	10/08	10/12	10/15	10/18	10/21	10/24	10/28	11/02
24	10/19	10/24	10/28	10/31	11/03	11/06	11/09	11/13	11/18
20	10/29	11/02	11/06	11/09	11/12	11/14	11/17	11/21	11/25
16	11/03	11/10	11/14	11/18	11/22	11/26	11/30	12/04	12/11
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	166	159	154	150	146	142	138	133	126
32	186	179	174	169	165	161	157	151	144
28	206	199	194	189	185	181	177	171	164
24	238	230	225	220	215	211	206	200	192
20	255	247	242	237	233	228	224	218	210
16	287	276	269	262	256	250	243	236	225

* 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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Station: HAYS 1 S, KS

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Climate Division: KS 5 NWS Call Sign: Elevation: 2,010 Feet Lat: 38°52N Lon: 99°20W

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	1177	907	710	368	143	19	0	8	61	310	745	1069	5517
60	1022	773	556	240	68	4	0	1	19	179	595	914	4371
57	930	694	470	176	38	1	0	0	7	116	507	821	3760
55	869	642	412	139	24	0	0	0	3	83	451	759	3382
50	719	516	279	67	6	0	0	0	0	30	318	612	2547
32	264	178	29	0	0	0	0	0	0	0	40	182	693

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	110	196	342	632	955	1245	1458	1392	1071	719	286	135	8541
55	1	15	12	82	266	555	745	679	385	89	7	0	2836
57	0	12	7	58	218	496	683	617	329	60	3	0	2483
60	0	6	1	32	154	409	590	524	250	30	0	0	1996
65	0	0	0	10	74	274	435	376	142	6	0	0	1317
70	0	0	0	2	27	161	288	242	68	1	0	0	789

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	18	69	184	409	710	1013	1222	1158	846	498	139	31	18	87	271	680	1390	2403	3625	4783	5629	6127	6266	6297
45	1	30	105	281	556	863	1067	1003	698	359	72	6	1	31	136	417	973	1836	2903	3906	4604	4963	5035	5041
50	0	8	54	179	406	714	912	848	552	234	28	0	0	8	62	241	647	1361	2273	3121	3673	3907	3935	3935
55	0	1	19	101	271	564	757	693	415	133	9	0	0	1	20	121	392	956	1713	2406	2821	2954	2963	2963
60	0	0	4	48	153	417	602	539	290	62	0	0	0	0	4	52	205	622	1224	1763	2053	2115	2115	2115
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	38	80	149	264	436	655	797	756	540	333	124	47	38	118	267	531	967	1622	2419	3175	3715	4048	4172	4219

(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

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
- 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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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