

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: HOUSTON BUSH INTL AP, TX

1971-2000

COOP ID: 414300

Climate Division: TX 8

NWS Call Sign: IAH

Elevation: 95 Feet

Lat: 30°00N

Lon: 95°22W

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	62.3	41.2	51.8	84	1975	26	57.2	1989	12	1982	11	40.8	1978	427	15	.0	.0	26.0	.1	6.3	.0
Feb	66.5	44.3	55.4	91	1986	20	61.7	2000	20+	1985	2	45.2	1978	298	21	.0	.1	25.6	.2	3.8	.0
Mar	73.3	51.3	62.3	91	1989	30	67.3	1974	22	1980	2	57.8	1978	156	63	.0	.1	30.7	.0	1.3	.0
Apr	79.1	57.9	68.5	95	1987	28	73.4	1981	31+	1987	3	64.1	1983	48	147	.0	.9	30.0	.0	.1	.0
May	85.5	66.1	75.8	99	1996	29	81.4	1996	44	1978	4	71.4	1976	2	328	.0	6.4	31.0	.0	.0	.0
Jun	90.7	71.8	81.3	103	1980	30	85.5	1998	52	1970	3	78.4	1984	0	485	.4	20.1	30.0	.0	.0	.0
Jul	93.6	73.5	83.6	104+	1980	17	87.2	1980	62+	1990	14	81.2	1972	0	573	1.9	27.3	31.0	.0	.0	.0
Aug	93.5	73.0	83.3	107+	2000	31	86.8	1999	60	1992	17	79.4	1992	0	563	2.0	25.7	31.0	.0	.0	.0
Sep	89.3	68.4	78.9	109	2000	4	83.1	1980	48	1975	24	75.6	1974	1	412	.4	15.9	30.0	.0	.0	.0
Oct	82.0	58.8	70.4	96	1991	12	74.2	1984	29	1993	31	61.6	1976	37	196	.0	3.1	31.0	.0	.1	.0
Nov	72.0	49.8	60.9	89+	1989	8	68.0	1973	19	1976	30	52.5	1976	189	65	.0	.0	29.2	.0	1.3	.0
Dec	64.6	42.8	53.7	85	1995	3	63.2	1984	7	1989	23	44.1	1989	367	25	.0	.0	27.7	.2	5.1	.0
Ann	79.4	58.2	68.8	109	Sep 2000	4	87.2	Jul 1980	7	Dec 1989	23	40.8	Jan 1978	1525	2893	4.7	99.6	353.2	.5	18.0	.0

+ 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: 1969-2001

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

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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	3.68	2.97	2.58	1995	26	9.78	1991	.36	1971	10.5	6.1	2.4	1.1	.63	.95	1.49	1.99	2.51	3.07	3.71	4.49	5.53	7.22	8.83
Feb	2.98	2.65	2.22	1985	10	5.99	1992	.38	1976	8.5	4.7	2.1	.9	.63	.90	1.34	1.74	2.14	2.57	3.05	3.62	4.39	5.60	6.75
Mar	3.36	3.04	7.47	1972	20	8.52	1972	.12	1996	9.1	4.8	2.0	.8	.60	.90	1.39	1.85	2.31	2.82	3.40	4.10	5.02	6.52	7.95
Apr	3.60	2.61	8.16	1976	18	10.92	1976	.43	1983	7.0	4.2	1.9	1.2	.41	.69	1.19	1.69	2.23	2.83	3.53	4.40	5.58	7.53	9.42
May	5.15	4.66	6.87	2000	19	13.56	1989	.04	1998	8.2	5.6	3.2	1.7	.62	1.02	1.75	2.47	3.23	4.08	5.07	6.29	7.95	10.69	13.34
Jun	5.35	3.83	10.34	1989	26	16.28	1989	.59	1974	9.7	6.4	3.5	1.7	.82	1.28	2.05	2.79	3.56	4.40	5.36	6.54	8.12	10.69	13.15
Jul	3.18	2.73	3.59	1982	13	8.10	1979	.47	1993	8.9	5.2	1.9	.9	.64	.93	1.40	1.83	2.26	2.72	3.24	3.86	4.69	6.02	7.28
Aug	3.83	3.52	6.69	1983	18	10.58	1996	.31	1990	8.9	6.0	2.3	1.1	.69	1.02	1.58	2.11	2.64	3.22	3.88	4.67	5.73	7.44	9.08
Sep	4.33	3.90	7.66	1976	20	11.35	1976	.80	1975	8.9	5.9	2.4	1.2	.72	1.10	1.73	2.33	2.94	3.60	4.36	5.29	6.52	8.53	10.44
Oct	4.50	3.64	9.25	1984	25	16.05	1984	.05	1978	7.5	5.1	2.6	1.5	.32	.61	1.18	1.80	2.49	3.29	4.25	5.46	7.15	10.00	12.83
Nov	4.19	3.40	4.68	1998	12	10.21	1998	.41	1988	8.6	5.6	2.7	1.2	.93	1.32	1.93	2.48	3.04	3.63	4.29	5.08	6.12	7.78	9.35
Dec	3.69	3.54	3.41	1991	21	9.34	1991	.80	1989	9.4	5.5	2.3	1.2	1.18	1.53	2.05	2.49	2.91	3.36	3.84	4.41	5.14	6.28	7.33
Ann	47.84	48.67	10.34	Jun 1989	26	16.28	Jun 1989	.04	May 1998	105.2	65.1	29.3	14.5	31.43	34.51	38.51	41.58	44.33	47.01	49.80	52.90	56.69	62.23	67.06

+ 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: 1969-2001

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

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Elevation: 95 Feet

Lat: 30°00N

Lon: 95°22W

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	.2	.0	#	0	2.0	1973	11	2.0	1973	1	1973	12	#	1973	.2	.1	.0	.0	.0	@	.0	.0	.0
Feb	.2	.0	#	0	1.4	1973	17	2.8	1973	1	1973	9	#	1973	.2	.1	.0	.0	.0	@	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1994	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	0	0	#	1979	23	#+	1979	#	1976	29	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.1	.0	0	0	1.7	1989	22	1.7	1989	#+	1996	17	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.5	.0	N/A	N/A	2.0	Jan 1973	11	2.8	Feb 1973	1+	Feb 1973	9	#+	May 1994	.4	.2	.0	.0	.0	.0	.0	.0	.0

+ 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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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	4/01	3/25	3/20	3/16	3/12	3/08	3/03	2/26	2/19
32	3/30	3/20	3/13	3/07	3/01	2/23	2/17	2/10	1/31
28	3/10	2/25	2/16	2/08	1/31	1/24	1/16	1/06	12/22
24	2/14	2/03	1/25	1/17	1/08	12/26	0/00	0/00	0/00
20	1/22	1/12	12/31	0/00	0/00	0/00	0/00	0/00	0/00
16	12/27	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
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	10/26	11/01	11/06	11/10	11/13	11/17	11/21	11/25	12/01
32	11/05	11/13	11/20	11/25	11/30	12/05	12/10	12/16	12/25
28	11/24	12/02	12/08	12/13	12/18	12/23	12/28	1/04	1/14
24	12/07	12/19	12/28	1/05	1/15	1/29	0/00	0/00	0/00
20	12/20	1/04	1/20	0/00	0/00	0/00	0/00	0/00	0/00
16	1/14	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	274	265	257	251	246	240	234	227	217
32	309	297	288	280	273	266	258	249	236
28	>365	352	337	327	319	311	303	294	282
24	>365	>365	>365	>365	>365	353	337	325	312
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

* 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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Climate Division: TX 8 NWS Call Sign: IAH Elevation: 95 Feet Lat: 30°00N Lon: 95°22W

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	427	298	156	48	2	0	0	0	1	37	189	367	1525
60	306	177	51	6	0	0	0	0	0	7	109	244	900
57	242	127	24	1	0	0	0	0	0	3	71	184	652
55	206	99	13	0	0	0	0	0	0	1	51	150	520
50	127	44	2	0	0	0	0	0	0	0	20	78	271
32	6	0	0	0	0	0	0	0	0	0	0	0	6

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	618	657	935	1089	1352	1475	1598	1587	1402	1183	862	677	13435
55	89	117	253	402	639	785	885	874	712	474	225	110	5565
57	67	90	205	346	577	725	823	812	652	414	185	86	4982
60	42	58	142	265	484	635	730	719	562	327	132	58	4154
65	15	21	63	147	328	485	573	563	412	196	65	25	2893
70	3	5	21	62	187	335	420	409	271	96	23	6	1838

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	394	468	698	857	1112	1247	1358	1351	1174	945	634	447	394	862	1560	2417	3529	4776	6134	7485	8659	9604	10238	10685
45	270	339	545	707	957	1097	1203	1196	1024	790	485	311	270	609	1154	1861	2818	3915	5118	6314	7338	8128	8613	8924
50	167	222	402	557	802	947	1048	1041	874	638	349	193	167	389	791	1348	2150	3097	4145	5186	6060	6698	7047	7240
55	93	131	263	411	647	797	893	886	724	484	230	117	93	224	487	898	1545	2342	3235	4121	4845	5329	5559	5676
60	42	66	148	272	492	647	738	731	574	334	140	65	42	108	256	528	1020	1667	2405	3136	3710	4044	4184	4249
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	239	287	442	573	777	864	930	922	805	636	401	273	239	526	968	1541	2318	3182	4112	5034	5839	6475	6876	7149

(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