

Local Climatological Data

Annual Summary With Comparative Data

1977

HOUSTON, TEXAS



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Narrative Climatological Summary

Houston, the largest city in Texas, is located in the flat Coastal Plains, about 50 miles from the Gulf of Mexico and about 25 miles from Galveston Bay. The climate is predominantly marine. The terrain includes numerous small streams and bayous which, together with the nearness to Galveston Bay, favor the development of both ground and advective fogs. Prevailing winds are from the southeast and south, except in January, when frequent passages of high pressure areas bring invasions of polar air and prevailing northerly winds.

Temperatures are moderated by the influence of winds from the Gulf, which results in mild winters and, on the whole, relatively cool summer nights. Another effect of the nearness of the Gulf is abundant rainfall, except for rare extended dry periods. Polar air penetrates the area frequently enough to provide stimulating variability in the weather.

The average number of days with minimum temperatures of 32° or lower is only 7 per year at the City Office, about 15 at William P. Hobby Airport located in southeast Houston, and about 23 at Intercontinental Airport located in north Houston. Most freezing temperatures last only a few hours since they are usually accompanied by clear skies. The extreme persistence of freezing temperatures was in January-February 1951, when the temperature remained 32° or below for 123 consecutive hours.

Monthly rainfall is evenly distributed throughout the year. Annual downtown rainfall has varied from 72.86 inches in 1900 to 17.66 in 1917; 72.86 inches was also recorded at William P. Hobby Airport in 1946. About 75 percent of the years have total precipitation between 30 and 60 inches. Monthly precipitation at the city office has ranged from 17.64 inches to only a trace. Since thundershowers are the main source of rainfall, precipitation may vary substantially in different sections of the City on a day-to-day basis.

Records of sky cover for daylight hours indicate about one-fourth of the days per year as clear, with a maximum of clear days in October and November. Cloudy days are relatively frequent from December to May and partly cloudy days are the more frequent for June through September. Sunshine averaged near 60 percent of the possible amount for the year at the Federal Building for 1938-1960, ranging from 46 percent for the winter months to 69 percent for the summer. Data from the airport locations since 1961 indicate slightly higher percentages of sunshine. Snow rarely occurs; however, on February 14-15, 1895, 20.0 inches of unmelted snow was measured, but 24-hour amounts were not reported. In only one winter season, 1972-73, were as many as three measurable snows recorded.

Heavy fog occurs on an average of 16 days a year and light fog occurs about 62 days a year in the City, but the frequency of heavy fog is considerably higher at William P. Hobby Airport and at Intercontinental Airport.

Destructive windstorms are fairly infrequent, but both thundersqualls and tropical storms occasionally pass through the area.

At the city office, the average date of the last temperature 32° or lower in spring is February 5. The average date of the first 32° temperature in fall is December 11. The average period from the last 32° temperature in spring to the first in fall is 309 days. The latest date of 32° temperature in spring is March 27, 1955, and the earliest date in fall is October 25, 1892.

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NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL
DATA SERVICE

NATIONAL CLIMATIC CENTER
ASHEVILLE, N.C.

Average Temperature

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1938	54.4	59.8	66.6	65.4	73.8	79.8	82.2	81.9	77.4	72.1	57.9	53.7	68.9
1939	53.8	59.9	63.4	67.6	75.6	80.6	82.4	82.1	79.5	71.2	57.6	56.6	69.0
#1940	42.1	52.9	61.4	66.3	76.6	80.6	81.7	82.1	76.0	70.0	60.6	57.4	66.8
1941	56.1	52.4	56.7	69.0	74.9	80.8	83.3	83.4	79.7	75.2	58.4	56.1	68.8
1942	50.1	53.0	59.6	67.1	74.9	81.2	81.4	82.4	76.2	71.2	63.5	55.8	68.0
1943	52.4	58.3	58.6	70.2	77.0	81.6	83.0	83.6	76.0	68.6	57.8	53.2	68.4
1944	52.3	61.4	61.7	69.5	73.3	82.0	84.4	83.8	79.4	69.9	61.8	52.2	69.3
1945	52.4	58.6	67.8	68.8	73.1	80.9	83.0	83.0	79.9	68.5	65.5	51.4	69.4
1946	51.6	56.4	64.0	70.6	75.4	79.2	82.2	82.8	78.4	72.1	62.2	57.8	69.4
1947	52.6	48.8	56.0	69.4	73.4	81.4	82.6	82.6	80.0	75.0	59.0	55.0	68.1
1948	46.2	54.8	61.7	71.4	76.7	82.4	84.3	84.5	77.3	69.6	60.5	59.0	69.0
1949	52.5	59.0	62.3	66.1	78.0	82.6	83.2	82.0	80.0	71.9	62.8	58.2	69.9
1950	63.1	61.3	60.3	67.0	78.0	80.3	82.3	82.4	79.3	73.0	60.7	55.1	70.2
1951	53.8	55.2	62.9	67.0	75.0	82.1	84.3	85.8	79.6	72.4	58.2	58.1	69.5
1952	62.0	58.8	60.1	64.9	73.3	81.3	82.7	84.6	78.5	65.9	59.0	53.7	68.7
1953	56.6	59.8	68.3	68.7	78.7	83.9	84.1	82.1	79.4	71.5	60.0	51.4	69.9
1954	56.4	60.6	60.9	71.5	72.4	81.3	84.8	84.5	81.4	73.0	60.0	57.4	70.3
1955	54.1	56.1	64.7	71.2	77.0	79.4	83.1	82.8	80.3	70.7	61.5	56.2	69.8
1956	54.3	59.2	62.6	67.7	77.3	80.8	84.3	83.8	80.2	73.3	59.9	59.0	70.2
1957	57.9	62.9	61.2	68.6	76.5	80.5	85.4	83.8	76.9	67.9	61.3	57.3	70.0
1958	50.3	49.9	57.8	69.2	77.2	83.4	84.8	84.2	79.7	69.6	62.5	52.6	68.4
1959	50.3	56.3	60.3	66.7	76.9	82.3	82.3	82.3	80.1	72.2	59.8	55.0	68.4
#1960	51.8	49.7	57.4	69.8	79.9	82.4	84.7	82.4	79.5	73.2	64.3	52.6	68.5
1961	49.5	57.9	66.8	68.0	77.0	80.4	82.6	82.2	79.7	70.5	59.8	56.3	69.2
1962	49.3	63.9	58.9	68.1	75.7	79.8	84.1	85.9	81.3	74.6	60.1	54.8	69.7
1963	48.3	52.6	64.9	74.5	77.5	82.0	84.3	80.4	79.0	64.1	47.1	49.6	66.6
1964	51.6	49.4	60.4	70.2	75.8	80.4	83.7	84.4	79.3	67.8	65.0	55.9	68.7
1965	56.0	59.1	59.7	73.3	77.1	80.4	83.1	83.1	81.2	69.4	69.1	58.9	70.9
1966	48.4	52.8	61.5	67.6	75.9	80.0	84.3	82.4	79.6	69.7	64.7	54.2	68.7
1967	54.9	54.5	67.6	73.7	75.9	82.6	82.1	81.4	77.6	70.5	64.1	55.4	70.2
1968	52.7	50.4	59.0	71.1	76.3	80.5	82.5	84.0	78.6	73.5	59.7	55.7	68.7
#1969	56.7	56.9	59.1	70.3	75.4	80.0	84.4	83.2	78.2	71.0	59.5	58.2	68.8
1970	46.7	53.9	56.9	69.3	72.1	78.4	81.4	83.1	78.9	66.7	56.9	60.5	67.1
1971	56.7	55.7	59.4	66.6	74.1	80.3	83.9	80.4	78.3	72.0	60.0	59.9	68.9
1972	56.5	55.2	64.3	71.2	73.7	80.8	80.3	80.3	79.6	69.8	54.7	52.0	68.2
1973	47.4	51.4	63.7	64.6	72.8	79.2	83.0	79.5	78.1	71.8	67.3	53.5	67.7
1974	53.0	56.2	66.8	67.2	76.9	79.9	82.8	81.6	74.6	70.6	60.2	54.6	68.9
1975	56.9	55.4	61.1	68.3	75.9	80.0	81.5	81.1	74.9	69.5	59.7	52.7	68.1
1976	50.6	60.1	62.2	67.7	70.5	78.4	80.5	81.4	76.2	60.6	51.8	49.2	65.8
1977	42.7	53.8	60.9	66.9	74.5	81.0	82.4	83.1	80.0	69.2	61.8	53.7	67.3
RECORD MEAN	51.6	55.2	61.9	67.7	73.8	79.8	82.2	81.5	77.6	69.0	59.0	54.6	67.8
MAX	62.3	67.7	72.8	78.3	84.1	90.2	93.0	91.9	87.5	80.6	70.8	60.1	78.8
MIN	40.8	42.7	51.0	57.1	63.5	69.3	71.4	71.1	67.7	57.4	47.1	43.0	56.8

Heating Degree Days

HOUSTON, TX

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1957-58	0	0	0	71	185	245	449	417	234	30	0	0	1631
1958-59	0	0	0	48	145	275	452	254	163	58	0	0	1495
1959-60	0	0	0	7	309	306	416	441	260	8	1	0	1748
#1960-61	0	0	0	17	104	390	473	227	56	61	0	0	1328
1961-62	0	0	0	16	184	287	480	99	209	32	0	0	1307
1962-63	0	0	0	8	157	313	513	351	88	7	0	0	1439
1963-64	0	0	0	0	108	351	413	446	158	19	0	0	1693
1964-65	0	0	0	31	114	315	300	284	250	0	0	0	1294
1965-66	0	2	20	23	212	516	334	144	12	0	0	0	1263
1966-67	0	0	0	27	99	359	342	298	68	0	0	0	1193
1967-68	0	0	3	18	99	312	390	415	229	17	0	0	1483
#1968-69	0	0	0	5	199	297	284	234	281	1	0	2	1303
1969-70	0	0	0	29	238	304	579	309	252	51	12	0	1774
1970-71	0	0	0	72	274	209	298	273	219	72	3	0	1420
1971-72	0	0	2	6	195	194	315	295	85	17	0	0	1109
1972-73	0	0	2	50	320	410	540	379	75	117	5	0	1898
1973-74	0	0	0	8	74	364	330	273	95	60	0	0	1204
1974-75	0	0	0	15	196	336	290	270	179	48	0	0	1334
1975-76	0	0	0	26	217	399	441	178	153	24	7	0	1449
1976-77	0	0	0	34	150	398	687	312	166	25	0	0	1245
1977-78	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
#1969	35	13	11	167	328	456	608	569	402	222	48	9	2868
1970	18	3	17	188	238	409	513	567	423	131	38	76	2611
1971	48	18	55	126	292	466	594	485	409	229	52	44	2818
1972	58	20	71	208	275	480	480	482	447	205	17	12	2756
1973	1	4	41	111	253	434	564	458	401	225	151	12	2655
1974	24	33	158	132	374	454	558	519	295	196	60	18	2821
1975	47	8	61	153	342	435	514	505	303	174	68	24	2656
1976	5	43	75	110	182	408	490	520	341	42	9	0	2225
1977	0	5	44	91	302	487	547	565	456	173	58	23	2751

Precipitation

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1938	5.88	1.83	1.03	3.88	7.77	4.12	2.05	3.09	4.42	1.53	2.17	2.08	39.87
1939	3.14	1.98	1.21	1.10	5.84	2.35	8.27	2.39	1.42	3.34	1.98	2.04	35.32
#1940	0.92	2.25	1.89	1.12	1.20	5.80	3.11	0.76	3.67	4.20	9.53	4.58	39.03
1941	1.97	2.57	6.43	6.54	4.51	9.23	3.24	11.17	11.48	2.41	2.35	67.86	
1942	1.28	2.41	2.93	4.94	1.77	3.31	12.38	5.22	3.93	3.72	45.85		
1943	3.69	1.31	3.98	1.78	1.92	3.19	1.04	12.14	4.79	49.30			
1944	10.51	2.15	6.64	1.14	12.44	2.17	0.24	2.61	9.15	0.65	3.71	6.38	37.79
1945	1.97	2.58	2.18	3.43	7.35	5.69	2.29	18.51	3.44	4.44	0.21	7.15	60.44
1946	6.54	2.82	2.48	3.87	9.60	9.77	5.35	4.32	8.84	2.01	14.36	2.88	72.86
1947	4.39	1.09	2.79	2.02	8.54	1.74	2.17	8.86	1.25	1.91	4.58	3.82	43.20
1948	4.44	4.11	1.94	2.19	5.35	3.82	2.74	2.80	2.74	0.92	7.23	1.37	39.42
1949	4.74	5.24	4.43	6.17	1.18	2.55	9.39	3.87	1.31	22.31	0.18	9.80	71.19
1950	4.62	5.00	1.22	4.94	2.49	7.10	3.29	0.72	1.50	0.69	1.17	1.12	33.88
1951	5.37	1.42	4.84	1.28	3.32	3.32	1.06	2.01	5.40	1.18	1.55	2.53	33.28
1952	0.86	7.12	2.16	6.12	3.51	3.74	4.33	1.09	2.62	1.07	6.58	5.53	43.66
1953	1.37	3.40	0.07	1.27	7.84	3.49	2.08	8.38	0.14	2.62	5.27	7.24	49.37
1954	1.46	0.08	0.89	2.81	2.70	1.24	4.88	3.89	0.88	1.76	1.44	28.76	
1955	5.57	6.03	0.93	3.51	3.54	1.58	2.01	10.10	5.34	0.63	1.04	1.60	41.88
1956	2.94	2.42	0.78	1.84	3.32	4.07	0.38	0.38	1.88	2.66	1.52	5.11	28.32
1957	0.91	2.46	11.42	8.07	1.87	3.98	0.84	3.23	8.29	11.53	6.70	1.83	61.11
1958	4.69	3.59	1.47</										

STATION LOCATION

HOUSTON, TEXAS

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
<u>Cotton Station</u>	7/14/81	9/15/09													Location of cotton station not available.
<u>CITY</u>															
4th Floor, Stewart Bldg. Preston & Fannin Sts.	9/16/09	12/13/09		29° 46'	95° 22'	51	122	111	111	104	104				
8th Floor, Stewart Bldg. Preston & Fannin Sts.	12/14/09	2/28/26		29° 46'	95° 22'	51	122	111	111	104	104				
19th Floor, Shell Bldg. Texas & Fannin Sts.	3/01/26	12/22/32	1/8 mi. SW	29° 46'	95° 22'	52	314	293	293	287	287				
22nd Floor, Shell Bldg. Texas & Fannin Sts.	12/23/32	6/21/35		29° 46'	95° 22'	52	314	293	293	287	287				
14th Floor, Shell Bldg. Texas & Fannin Sts.	6/22/35	8/25/38		29° 46'	95° 22'	52	314	293	293	287	287				
10th Floor, Federal Building Franklin & Fannin Sts.	8/26/38	Present	1/4 mi. NE	29° 46'	95° 22'	41	190	162	158	160	159				Temperature and precipitation data telemetered to airport office 3/31/61 to 6/14/67. Summary published through August 1967.
<u>COOPERATIVE</u>															
Harrisburg, Texas	11/01/23	2/29/32		29° 42'	95° 17'	38			4			4			Suburb of the City of Houston.
<u>AIRPORT</u>															
Houston Municipal AP	7/16/30	8/01/40		29° 39'	95° 17'	50	37	30	30			25			
Houston International Airport	8/01/40	7/29/60	1000 ft. S	29° 39'	95° 17'	50	87	28	28			21			Known as Houston Municipal Airport until 4/15/55.
Houston International Airport William P. Hobby Airport effective 9/1/67.	7/29/60	5/31/69		29° 39'	95° 17'	50	20	23	23		a23	22	4		Moved from third to ground floor of same building and hygrothermometer installed 1500 feet E of thermometer site. a - Added 9/1/68.
Trailer, NW corner of Houston Intercontinental Airport	6/01/69	8/15/72	23 mi. NNW	29° 59'	95° 22'	96	20	5	5		c4	3	b4		b - Commissioned 11/14/69. c - Commissioned 1/1/70.
Qualitron Building Intercontinental Airport 17795 J. F. Kennedy Blvd.	8/15/72	Present	1.6 mi. SE	29° 58'	95° 21'	96	d20				45	45	d4		d - Same site as prior to 8/15/72.

Requests for additional climatic information should be addressed to: Director, National Climatic Center, Federal Building, Asheville, N. C. 28801

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