



JANUARY 2004

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

HOUSTON, TX

G BUSH INTCNTL APT/HOU APT (IAH)
 Lat: 29°59' N Long: 95°21' W Elev (Ground): 118 Feet
 Time Zone: CENTRAL WBAN: 12960 ISSN #:0198-5094

JANUARY 2004
HOUSTON, TX

DATE	TEMPERATURE °F						DEG DAYS BASE 65°		WEATHER	SNOW/ICE ON GND(IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES						DATE																																					
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0600 LST	1200 LST	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM																																								
																			5-SEC		2-MIN																																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																				
01	73	59	66	14	65	66	0	1	RA FG+ BR	0		0.0	0.02	30.09	30.21	7.9	14	8.1	16	14	14	14	01																																				
02	76	67	72	20	67	68	0	7	RA BR	0		0.0	T	29.98	30.09	7.4	18	7.6	20	18	15	21	02																																				
03	78*	68	73*	21	65	68	0	8		0		0.0	0.00	29.86	29.97	11.2	17	11.3	26	16	22	17	03																																				
04	76	52	64	12	64	65	1	0	RA	0		0.0	0.09	29.80	29.92	3.9	20	10.3	25	36	21	34	04																																				
05	52	43	48	-4	35	41	17	0	RA	0		0.0	T	30.11	30.22	14.2	36	14.4	30	01	22	01	05																																				
06	46	34	40*	-12	27	35	25	0		0		0.0	0.00	30.42	30.54	14.1	01	14.7	28	36	24	01	06																																				
07	44	38	41	-11	22	35	24	0	RA	0		0.0	0.01	30.38	30.49	8.1	08	9.2	20	06	16	05	07																																				
08	61	42	52	1	53	54	13	0	RA FG+ BR	0		0.0	0.62	30.05	30.16	3.2	09	5.8	18	33	15	33	08																																				
09	62	42	52	1	41	47	13	0		0		0.0	0.00	30.17	30.29	10.9	35	11.2	26	36	22	36	09																																				
10	58	36	47	-4	35	41	18	0		0		0.0	0.00	30.33	30.45	4.5	01	5.4	16	01	13	03	10																																				
11	60	34	47	-4	39	43	18	0	MIFG	0		0.0	0.00	30.31	30.42	5.5	13	5.9	16	13	14	13	11																																				
12	65	40	53	2	50	52	12	0	BR	0		0.0	0.00	30.24	30.35	6.1	12	6.9	17	15	15	14	12																																				
13	67	53	60	9	57	58	5	0	FG+ BR	0		0.0	0.00	30.19	30.31	3.2	13	3.5	10	13	8	12	13																																				
14	70	52	61	10	57	59	4	0	RA FG+ BR HZ	0		0.0	T	30.07	30.19	0.8	25	1.4	10	24	8	24	14																																				
15	68	59	64	13	60	61	1	0	RA BR HZ	0		0.0	0.04	29.96	30.08	3.7	11	4.5	18	14	16	14	15																																				
16	66	61	64	13	62	63	1	0	TSRA RA FG BR	0		0.0	1.88	29.77	29.88	13.1	13	13.5	25	16	22	14	16																																				
17	70	58	64	12	61	62	1	0	TSRA RA FG BR	0		0.0	0.41	29.58	29.69	1.8	17	5.2	25	16	20	31	17																																				
18	58	41	50	-2	41	45	15	0	RA BR	0		0.0	T	29.79	29.90	11.7	29	12.3	25	29	22	31	18																																				
19	53	36	45	-7	31	38	20	0		0		0.0	0.00	30.04	30.15	7.4	34	8.0	21	01	16	36	19																																				
20	53	34	44	-8	35	40	21	0		0		0.0	0.00	30.07	30.19	4.8	09	6.0	14	10	12	10	20																																				
21	61	37	49	-3	34	42	16	0		0		0.0	0.00	30.15	30.27	4.5	04	5.4	15	01	12	04	21																																				
22	65	40	53	1	39	46	12	0		0		0.0	0.00	30.18	30.30	1.0	01	1.7	9	34	7	01	22																																				
23	67	51	59	7	47	52	6	0	RA	0		0.0	T	30.12	30.23	3.5	13	4.8	15	15	13	15	23																																				
24	71	58	65	13	62	63	0	0	RA DZ BR	0		0.0	1.82	29.75	29.87	10.7	18	11.7	33	27	29	27	24																																				
25	74	58	66	14	48	56	0	1	RA BR	0		0.0	0.10	29.59	29.70	6.9	24	7.6	26	26	17	25	25																																				
26	73	42	58	6	38	49	7	0	RA	0		0.0	T	29.80	29.92	12.0	30	13.5	38*	32	32*	33	26																																				
27	53	32	43	-9	19	34	22	0		0		0.0	0.00	30.23	30.35	9.1	34	9.2	29	32	24	33	27																																				
28	57	30*	44	-9	27	37	21	0		0		0.0	0.00	30.22	30.34	6.4	13	7.3	20	13	16	14	28																																				
29	63	47	55	2	50	53	10	0	TSRA RA BR	0		0.0	0.95	29.90	30.02	7.1	10	8.5	21	12	18	12	29																																				
30	56	50	53	0	49	51	12	0	TSRA RA BR	0		0.0	0.07	29.85	29.97	10.2	01	10.9	24	01	20	01	30																																				
31	55	48	52	-1	47	49	13	0	DZ FG BR HZ	0		0.0	T	29.82	29.93	4.5	08	6.2	14	12	12	12	31																																				
62.9										46.5		54.7		■ ■		46.0		50.8		10.6		0.5		< MONTHLY AVERAGES		TOTALS->		0.0		6.01		30.03		30.14		1.3		07		8.1		<- MONTHLY AVERAGES																	
0.6										5.3		2.9		■ ■		<-----DEPARTURE FROM NORMAL----->										2.33		SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																															
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 2.28 DATE: 16-17										SEA LEVEL PRESSURE DATE TIME																																							
MONTHLY TOTAL DEPARTURE										SEASON TO DATE TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 0.0 DATE:										MAXIMUM MINIMUM : 30.59 07 0953																													
HEATING: 328 -99										787 -234										GREATEST SNOW DEPTH: 0 DATE:										MINIMUM TEMP ≤ 32 : 2										PRECIPITATION ≥ 0.01 INCH : 11																			
COOLING: 17 2										17 2										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 0										MINIMUM TEMP ≤ 0 : 0										PRECIPITATION ≥ 0.10 INCH : 6									
																														THUNDERSTORMS : 4										HEAVY FOG : 4										SNOWFALL ≥ 1.0 INCH : 0									

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

HOUSTON, TX

JANUARY 2004

IAH

WBAN # 12960

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	2400 LST	
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			Water	Equiv.
01	0.02												01												01		0.02		
02													02		T										02		T		
03													03												03		0.00		
04													04			T									04		0.09		
05													05		T	T				0.01	0.02	0.06			05		T		
06													06												06		0.00		
07													07												07		0.01		
08	T	0.02	0.06	0.11	0.12	0.05	0.06	0.11	0.02	T	0.02	0.02	08	0.01	T	0.01	T	0.01	T	T				08		0.62			
09													09												09		0.00		
10													10												10		0.00		
11													11												11		0.00		
12													12												12		0.00		
13													13												13		0.00		
14													14												14		T		
15			0.01	T	T							0.01	15		T	T	T	0.01	T	T			0.01	T	15		0.04		
16	0.01		T				T						16	T	0.01		T	0.07	0.10	T	0.09	0.20	0.01	0.12	1.27	16		1.88	
17	0.20	0.20	0.01										17		T										17		0.41		
18													18												18		T		
19													19												19		0.00		
20													20												20		0.00		
21													21												21		0.00		
22													22												22		0.00		
23													23												23		T		
24													24		T	T									24		1.82		
25	0.06	0.04											25												25		0.10		
26													26	T											26		T		
27													27												27		0.00		
28													28												28		0.00		
29													29	T		0.19	0.20	0.24	0.10	0.02	0.05	0.01	0.01	0.01	0.11	29		0.95	
30	0.06	0.01											30												30		0.07		
31													31												31		T		

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.27	.49	.70	.80	1.13	1.22	1.29	1.37	1.43	1.49	1.58	1.70
Ending Date	24	24	24	17	17	17	17	17	17	17	17	17
Ending Time (Hour/Min)	2315	2320	2324	0000	0001	0006	0003	0003	0028	0040	0137	0137

Date and time are not entered for TRACE amounts.

Note : The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

* = Extreme for the month (last occurrence if more than one)

T = Trace precipitation amount

+ = also occurs on earlier date

FG+ = Heavy fog, visibility .25 miles or less

BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971–2000

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
TS Thunderstorm	SN Snow	VA Volcanic Ash	
VC In the Vicinity	UP Unknown Precipitation		

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '-' = Light

HOUSTON, TX JANUARY 2004

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR–SS), or midnight to midnight (MN–MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0–2 oktas, Partly Cloudy = 3–6 oktas, Cloudy = 7–8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR–SS		MN–MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							.00	10.00	
02							2.50	10.00	
03							10.00	10.00	
04							7.00	10.00	
05							10.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							.25	10.00	
09							8.00	10.00	
10							10.00	10.00	
11							7.00	10.00	
12							.50	10.00	
13							.25	10.00	
14							.25	10.00	
15							2.00	8.00	
16							.50	9.00	
17							.25	10.00	
18							6.00	10.00	
19							10.00	10.00	
20							10.00	10.00	
21							10.00	10.00	
22							10.00	10.00	
23							9.00	10.00	
24							1.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							10.00	10.00	
28							9.00	10.00	
29							.50	10.00	
30							.00	10.00	
31							.25	10.00	
MONTHLY AVGS							5.69	9.90	
SUNSHINE (MINUTES)									
Total: Possible: Percent Possible:									
NUMBER OF DAYS WITH:									
SKY CONDITION									
CLR PTLY CLDY CLOUDY MISSING									
31									
MINIMUM VISIBILITY (MILES)									
<=0.25 <=3.0 >=7.0									
6 13 17									

OBSERVATIONS AT 3-HOURLY INTERVALS

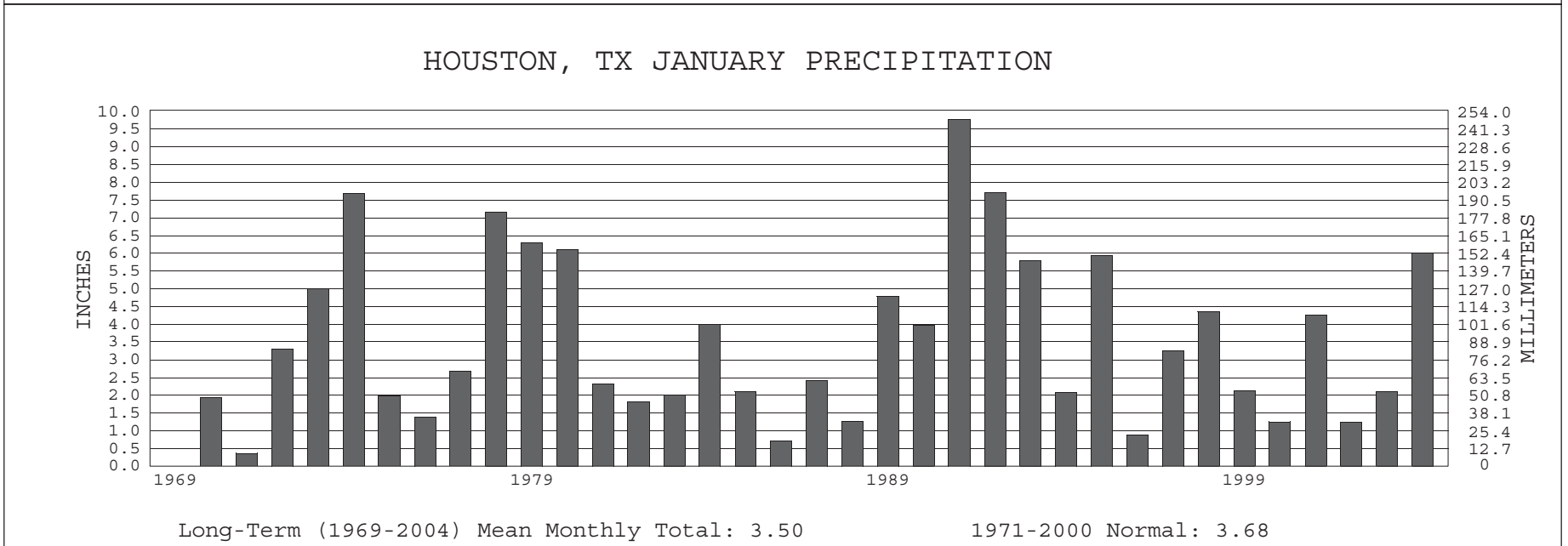
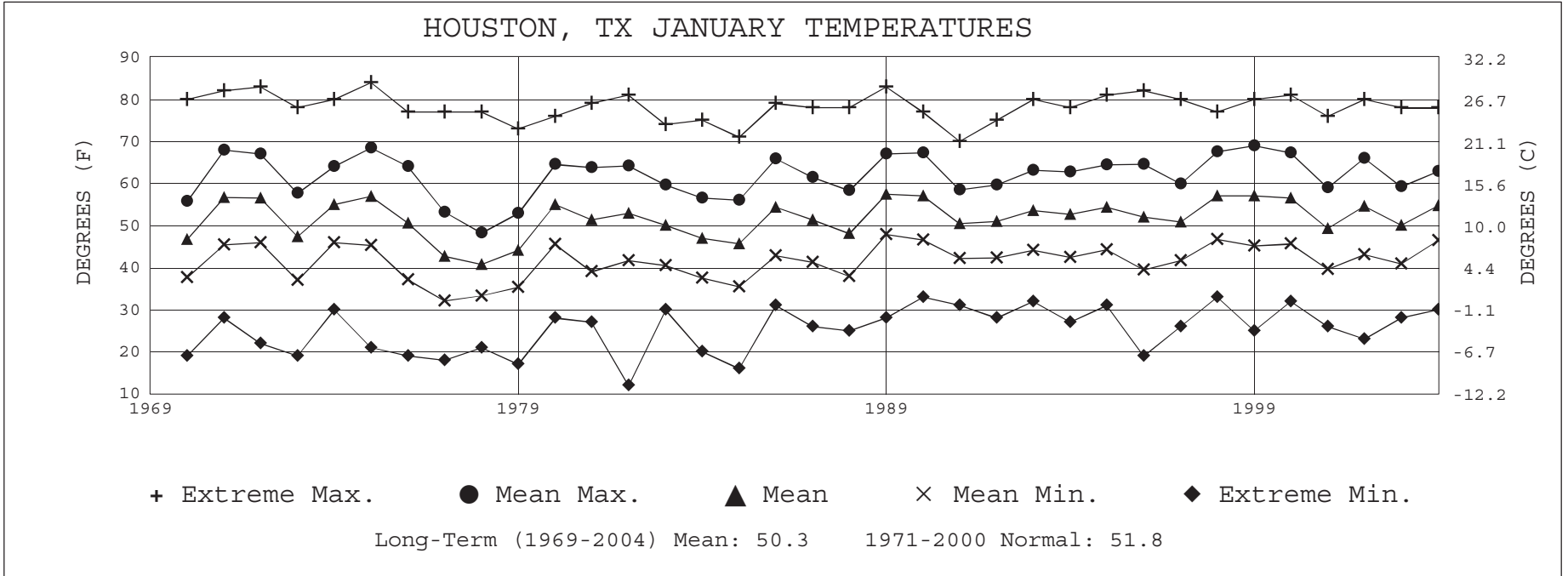
HOUSTON, TX

JANUARY 2004

IAH

WBAN # 12960

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)	
	OBSERVATION TIME (LST)	EFF CLD AMT Ok/as		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as			DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as		OBSERVATION TIME (LST)	EFF CLD AMT Ok/as			DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
SUNRISE: 0715 JAN 25								SUNSET: 1752								SUNRISE: 0712 JAN 31								SUNSET: 1757							
03	OVC	075			10.00			63	61	62	93	6	23	29.54	29.66	03	OVC	008			8.00			49	46	47	90	7	05	29.84	29.96
06	SCT	NC			10.00			59	52	55	78	6	24	29.56	29.68	06	OVC	006			4.00	BR		49	47	48	93	7	04	29.83	29.95
09	CLR	NC			10.00			61	48	54	63	6	VR	29.63	29.75	09	OVC	003			0.25	-DZ BR		48	47	47	96	7	05	29.86	29.98
12	CLR	NC			10.00			70	43	56	38	13	26	29.63	29.75	12	OVC	008			3.00	BR		50	46	48	86	6	VR	29.85	29.97
15	SCT	NC			10.00			73	40	56	30	13	24	29.55	29.67	15	OVC	012			6.00	HZ		53	47	50	80	0	00	29.78	29.91
18	BKN	250			10.00			69	44	56	41	5	23	29.55	29.67	18	OVC	022			8.00			53	47	50	80	3	36	29.76	29.88
21	BKN	250			10.00			64	44	54	48	5	20	29.61	29.72	21	SCT	NC			7.00			51	47	49	86	3	12	29.78	29.90
24	BKN	250			10.00			61	47	54	60	8	20	29.63	29.75	24	OVC	015			10.00			52	48	50	86	9	11	29.79	29.91
SUNRISE: 0715 JAN 26								SUNSET: 1753								3-HOURLY OBSERVATION NOTES															
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, VV = Vertical Visibility = 8/8.																															
Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet.																															
NC= No ceiling detected.																															
& = Original observation contained additional weather elements.																															
See page 3 for additional notes.																															
03	SCT	NC			10.00			59	50	54	72	6	20	29.64	29.76	03	CLR	NC			10.00			38	17	31	43	12	34	30.17	30.29
06	BKN	250			10.00			54	50	52	87	3	26	29.67	29.78	06	CLR	NC			10.00			34	17	28	50	8	34	30.19	30.31
09	BKN	120			10.00			60	45	52	58	5	27	29.74	29.85	09	CLR	NC			10.00			36	16	29	44	9	34	30.27	30.39
12	SCT	NC			10.00			71	36	53	28	14	31	29.74	29.86	12	CLR	NC			10.00			46	15	35	29	13	35	30.27	30.40
15	SCT	NC			10.00			73	39	55	29	18	30	29.72	29.84	15	FEW	NC			10.00			53	16	39	23	15	33	30.19	30.31
18	SCT	NC			10.00			64	24	47	22	21	29	29.85	29.97	18	FEW	NC			10.00			48	19	37	32	7	35	30.23	30.35
21	CLR	NC			10.00			48	29	40	48	24	32	30.07	30.19	21	CLR	NC			10.00			42	23	35	47	3	03	30.27	30.39
24	CLR	NC			10.00			42	21	34	43	23	32	30.14	30.27	24	CLR	NC			10.00			36	25	32	64	0	00	30.29	30.41
SUNRISE: 0714 JAN 27								SUNSET: 1754								SUMMARY BY HOUR															
AVERAGES																															
HOUR (LST)	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	RESULTANT WIND (MPH)																				
							STATION	SEA LEVEL			SPEED	DIRECTION																			
01			52	46	50	82	30.03	30.15	8.69	7	2	2																			
02			51	46	49	83	30.03	30.15	8.41	7	2	2																			
03			51	46	49	84	30.03	30.15	8.28	6	2	4																			
04			51	46	48	84	30.02	30.14	8.33	6	2	3																			
05			50	45	48	84	30.02	30.14	7.98	7	2	2																			
06			50	45	48	85	30.03	30.14	7.99	7	2	3																			
07			50	45	48	85	30.04	30.16	7.74	7	2	5																			
08			50	45	48	84	30.05	30.17	7.18	7	2	5																			
09			52	45	49	79	30.06	30.19	7.02	8	3	5																			
10			54	45	50	74	30.08	30.19	6.93	10	3	8																			
11			56	45	51	70	30.07	30.19	7.45	9	1	6																			
12			58	45	52	66	30.05	30.17	7.66	9	2	10																			
13			60	46	53	64	30.02	30.14	8.03	9	1	11																			
14			61	46	53	62	29.99	30.11	8.43	10	1	12																			
15			61	46	54	61	29.98	30.10	8.46	9	1	13																			
16			61	46	54	61	29.98	30.10	8.64	10	1	14																			
17			60	46	53	63	29.98	30.10	8.65	10	2	10																			
18			58	46	53	67	29.99	30.11	8.65	8	2	11																			
19			57	47	52	73	30.00	30.12	8.70	8	2	11																			
20			56	47	52	75	30.01	30.13	8.74	8	2	12																			
21			54	47	51	79	30.02	30.14	8.61	8	1	11																			
22			53	47	50	80	30.02	30.14	8.42	8	1	8																			
23			53	46	50	80	30.03	30.15	8.45	8	1	5																			
24			52	46	49	82	30.03	30.15	7.98	7	1	36																			





JANUARY 2004

HOUSTON, TX

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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