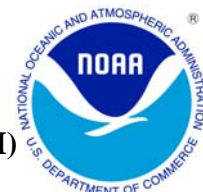




NOVEMBER 2009 LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

HOUSTON, TX
G BUSH INTERCONTINENTAL AP/HOUSTON AP (KIAH)
Lat:29° 59'N Long: 95° 21'W Elev (Ground) 94 Feet
Time Zone : CENTRAL WBAN: 12960 ISSN#: 0198-5094



Date 1	Temperature °F						Deg Days BASE 65°		WEATHER 10	SNOW/ICE ON GND(IN)		PRECIPITATION ON GND(IN)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES								Date 24
	MAXIMUM 2	MINIMUM 3	AVERAGE 4	DEP FROM NORMAL 5	AVERAGE DEW PT 6	AVERAGE WET BULB 7	HEATING 8	COOLING 9		0600 LST 11	1200 LST 12	2400 LST 13	2400 LST 14	AVERAGE STATION 15	AVERAGE SEA LEVEL 16	RESULTANT SPEED 17	RES DIR 18	AVERAGE SPEED 19	MAXIMUM					
																			3-SEC		2-MIN			
01	75	48	62	-3	49	54	3	0		0		0.0	0.00	30.05	30.17	1.2	10	2.0	18	10	10	09	01	
02	77	51	64	-1	51	56	1	0		0		0.0	0.00	30.08	30.19	2.4	04	3.1	13	11	9	05	02	
03	78	52	65	0	52	57	0	0		0		0.0	0.00	30.12	30.24	2.2	04	2.4	14	03	12	03	03	
04	79	51	65	1	54	58	0	0		0		0.0	0.00	30.18	30.29	0.6	03	1.2		5		03	04	
05	79	53	66	2	55	59	0	1		0		0.0	0.00	30.20	30.32	1.6	10	2.5	16	30	9	05	05	
06	79	52	66	2	57	60	0	1	MIFG BR	0		0.0	0.00	30.08	30.21	3.6	13	3.9	17	14	14	12	06	
07	79	52	66	3	58	61	0	1	BR	0		0.0	0.00	29.98	30.11	3.3	12	4.3	17	13	14	13	07	
08	73	62	68	5	64	66	0	3	RA BR	0		0.0	0.04	29.92	30.04	7.9	08	8.6	18	09	14	09	08	
09	75	64	70	7	64	65	0	5	RA	0		0.0	0.03	29.95	30.05	7.4	02	8.3		11	36	09	09	
10	80	61	71	8	60	63	0	6	BR	0		0.0	0.00	30.03	30.14	7.4	35	8.0	26	03	22	01	10	
11	79	59	69	7	56	61	0	4		0		0.0	0.00	30.04	30.16	5.1	35	5.5		13	36	11	11	
12	74	53	64	2	52	56	1	0	BR	0		0.0	0.00	29.91	30.05	1.7	11	3.0	22	20	8	14	12	
13	78	48	63	2	55	58	2	0	BR	0		0.0	0.00	29.78	29.91	2.2	16	3.2	15	20	12	16	13	
14	81*	59	70	9	62	64	0	5	BR	0		0.0	0.00	29.78	29.89	4.9	14	5.6	18	18	15	13	14	
15	80	62	71	10	66	67	0	6	RA BR	0		0.0	0.01	29.82	29.93	4.8	16	4.9	21	15	17	15	15	
16	71	46	59	-2	51	56	6	0	RA BR	0		0.0	0.24	29.99	30.08	8.3	32	9.9	36*	33	24	33	16	
17	64	43	54	-6	37	46	11	0		0		0.0	0.00	30.02	30.14	6.4	29	6.9	24	32	18	31	17	
18	71	40	56	-4	38	47	9	0		0		0.0	0.00	29.97	30.10	1.9	20	2.7	16	27	9	16	18	
19	74	45	60	0	54	57	5	0		0		0.0	0.00	29.93	30.05	9.7	12	9.9	30	14	23	13	19	
20	69	58	64	4	59	60	1	0	TS TSRA RA BR	0		0.0	0.17	29.89	30.01	10.1	09	11.4	33	13	28*	13	20	
21	58	50	54	-5	52	53	11	0	RA DZ BR	0		0.0	0.68	29.83	29.96	7.8	36	9.0	20	36	16	06	21	
22	69	47	58	-1	50	53	7	0	BR	0		0.0	0.00	29.87	29.98	1.2	27	2.1	13	28	8	28	22	
23	74	46	60	1	56	57	5	0	BR HZ	0		0.0	0.00	29.91	30.03	5.4	14	5.8	20	14	16	15	23	
24	68	51	60	1	52	56	5	0	RA BR	0		0.0	0.06	29.99	30.09	7.0	36	8.9	23	03	16	36	24	
25	67	43	55	-3	38	47	10	0		0		0.0	0.00	30.09	30.19	4.6	36	5.3	22	04	16	03	25	
26	67	43	55	-3	35	45	10	0		0		0.0	0.00	30.16	30.27	6.0	36	6.6	24	36	21	36	26	
27	67	39*	53*	-5	41	47	12	0		0		0.0	0.00	30.08	30.21	2.3	19	2.8	12	15	9	15	27	
28	71	51	61	4	55	58	4	0	RA	0		0.0	T	29.88	30.02	7.3	13	7.6	22	13	18	13	28	
29	79	66	73*	16	64	66	0	8	RA	0		0.0	T	29.78	29.91	7.2	16	7.4	24	17	17	14	29	
30	70	50	60	3	49	51	5	0	RA BR HZ	0		0.0	0.43	29.96	30.06	10.3	36	11.1	30	36	24	35	30	

73.5	51.5	62.5	☼	52.9	56.8	3.6	1.3	< MONTHLY AVERAGES TOTALS >				0.0	1.66	29.98	30.09	1.7	06	5.8	< MONTHLY AVERAGES			
1.5	1.7	1.6		-----DEPARTURE FROM NORMAL -----								-2.53	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS				GREATEST 24-HR PRECIPITATION : 0.69 DATE : 20-21				SEA LEVEL PRESSURE					
MONTHLY		SEASON TO DATE		GREATEST 24-HR SNOWFALL : 0.0 DATE :				MAXIMUM : 30.39		DATE 05		TIME 1000	
TOTAL DEPARTURE		TOTAL DEPARTURE		GREATEST SNOW DEPTH : 0 DATE :				MINIMUM : 29.83		13		1806	
HEATING :	108	-81	140	-87	NUMBER OF -> DAYS WITH		MAXIMUM TEMP >= 90 : 0	MINIMUM TEMP <= 32 : 0	PRECIPITATION >= 0.01 INCH: 8		PRECIPITATION >= 0.10 INCH: 4		
COOLING :	40	-25	3411	543	THUNDERSTORMS : 1	MAXIMUM TEMP <= 32 : 0	MINIMUM TEMP <= 0 : 0	HEAVY FOG : 0		SNOWFALL >= 1.0 INCH : 0			

NOVEMBER 2009
HOUSTON, TX

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

HOUSTON, TX (KIAH)
NOVEMBER 2009

WBAN # 12960

Date	FOR HOUR (LST) ENDING AT												Date	FOR HOUR (LST) ENDING AT												Date	Sum of Hourly Data	2400 LST Water Equiv.
	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													01												01	0.00	0.00	
02													02												02	0.00	0.00	
03													03												03	0.00	0.00	
04													04												04	0.00	0.00	
05													05												05	0.00	0.00	
06													06												06	0.00	0.00	
07													07												07	0.00	0.00	
08													08								T	0.03	0.01	08	0.04	0.04		
09	0.01	T	0.02	T									09											09	0.03	0.03		
10													10											10	0.00	0.00		
11													11											11	0.00	0.00		
12													12											12	0.00	0.00		
13													13											13	0.00	0.00		
14													14											14	0.00	0.00		
15													15	T	T	T		T	0.01					15	0.01	0.01		
16													16											16	0.24	0.24		
17													17											17	0.00	0.00		
18													18											18	0.00	0.00		
19													19											19	0.00	0.00		
20	T	0.02	0.06	T									20											20	0.17	0.17		
21		0.01	0.14	0.23	0.11	0.05	0.03	0.03	0.01	0.02	T	0.03	21	0.01	0.01	T	T	T					21	0.68	0.68			
22													22											22	0.00	0.00		
23													23											23	0.00	0.00		
24													24											24	0.06	0.06		
25													25											25	0.00	0.00		
26													26											26	0.00	0.00		
27													27											27	0.00	0.00		
28													28		T	T								28	T	T		
29													29											29	T	T		
30	0.13	0.15	0.06	T	T	0.05	0.04	T	T	T	T		30	T										30	0.43	0.43		

* Indicates sum of Hourly and Daily disagree.

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	0.22	0.24	0.24	0.24	0.24	0.24	0.24	0.30	0.36	0.41	0.47	0.49
Ending Date	16	16	16	16	16	16	21	21	21	21	21	21
Ending Time (Hr/Min)	0634	0638	0638	0638	0638	0638	0345	0407	0427	0436	0447	0519

Note : The hourly and daily precipitation totals are printed in the last 2 columns and hi-lighted in red when they disagree. 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.

Date and time are not entered for TRACE amounts.

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		
DESCRIPTOR	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	
PR Partial	RA Rain	PY Spray	SQ Squalls
SH Shower(s)	SG Snow Grains	SA Sand	SS Sandstorm
TS Thunderstorm	SN Snow	VA Volcanic Ash	GL Glaze
VC In the Vicinity	UP Unkown Precipitation		

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

HOUSTON, TX NOVEMBER 2009

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	
			Sky Cover	Satellite	Sky Cover	Satellite			
01							10.00	10.00	
02							10.00	10.00	
03							10.00	10.00	
04							10.00	10.00	
05							9.00	10.00	
06							5.00	10.00	
07							4.00	10.00	
08							2.00	10.00	
09							7.00	10.00	
10							6.00	10.00	
11							9.00	10.00	
12							6.00	10.00	
13							4.00	10.00	
14							5.00	10.00	
15							6.00	10.00	
16							8.00	10.00	
17							9.00	10.00	
18							10.00	10.00	
19							10.00	10.00	
20							3.00	10.00	
21							4.00	10.00	
22							6.00	10.00	
23							1.00	10.00	
24							0.12	10.00	
25							6.00	10.00	
26							10.00	10.00	
27							10.00	10.00	
28							10.00	10.00	
29							10.00	10.00	
30							2.00	10.00	
MONTHLY AVGS							6.74	10.00	
SUNSHINE (Minutes)									
Total : 0					Possible : 19173				
Percent Possible : 0									
NUMBER OF DAYS WITH : SKY CONDITION									
Clear		Partly CLDY			Cloudy			Missing	
MINIMUM VISIBILITY (MILES)									
<= .25			<= 3.0				>= 7.0		
1			5				15		

OBSERVATIONS AT 3-HOURLY INTERVALS

HOUSTON, TX NOVEMBER 2009

KIAH

WBAN # 12960

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE		WEATHER	TEMPERATURE °F			WIND SPEED (MPH) DIRECTION Tens of Deg	PRESSURE (INCHES, HG)			
			Observation Time (LST)	Eff Cld Amt Oktas		DRY BULB	DEW POINT	WET BULB		STATION	SEA LEVEL		
			RELATIVE HUMIDITY (PCT)										
SUNRISE: 0655 NOV 25						SUNSET: 1722							
03	CLR	NC				48	39	44	71	3	35	30.06	30.17
06	CLR	NC				44	38	41	80	6	34	30.09	30.20
09	CLR	NC				53	40	47	62	3	02	30.14	30.26
12	CLR	NC				64	33	49	32	11	35	30.11	30.22
15	FEW	250				67	31	50	26	8	35	30.03	30.15
18	FEW	250				57	34	46	42	3	30	30.05	30.16
21	CLR	NC				46	40	43	80	0	00	30.10	30.21
24	CLR	NC				47	40	44	77	0	00	30.11	30.23
SUNRISE: 0655 NOV 26						SUNSET: 1722							
03	CLR	NC				45	37	41	74	0	00	30.10	30.21
06	CLR	NC				45	36	41	71	8	35	30.14	30.26
09	SCT	250				51	38	45	61	9	01	30.22	30.33
12	SCT	250				64	29	48	27	16	36	30.19	30.30
15	OVC	250				66	31	50	27	21	01	30.14	30.25
18	BKN	250				57	35	47	44	5	31	30.14	30.26
21	SCT	250				49	39	44	69	0	00	30.19	30.30
24	SCT	250				45	39	42	80	0	00	30.16	30.28
SUNRISE: 0656 NOV 27						SUNSET: 1722							
03	BKN	250				41	38	40	89	0	00	30.16	30.27
06	SCT	250				40	38	39	93	0	00	30.16	30.28
09	BKN	250				50	45	48	83	0	00	30.18	30.29
12	OVC	250				62	39	51	43	5	20	30.14	30.25
15	OVC	250				64	37	51	37	6	20	30.06	30.17
18	BKN	250				53	42	48	66	0	00	30.03	30.14
21	BKN	250				57	42	50	57	3	18	30.03	30.14
24	BKN	250				57	48	52	72	5	20	29.98	30.10
SUNRISE: 0657 NOV 28						SUNSET: 1722							
03	BKN	250				53	50	51	90	3	35	29.97	30.08
06	BKN	250				54	50	52	86	3	12	29.94	30.06
09	SCT	250				63	53	57	70	6	13	29.96	30.06
12	OVC	048				69	56	61	63	13	14	29.92	30.03
15	OVC	046				68	57	62	68	14	13	29.85	29.96
18	OVC	040				67	60	63	78	11	12	29.84	29.95
21	BKN	080				66	61	63	84	10	14	29.85	29.96
24	OVC	042				66	63	64	90	3	14	29.83	29.93
SUNRISE: 0658 NOV 29						SUNSET: 1722							
03	OVC	060				68	64	66	87	7	16	29.80	29.91
06	OVC	130				68	64	66	87	6	16	29.81	29.92
09	OVC	060				69	65	66	87	6	13	29.83	29.94
12	OVC	140				77	63	68	62	11	19	29.81	29.92
15	OVC	120				75	64	68	69	8	16	29.74	29.85
18	CLR	NC				72	64	67	76	11	15	29.75	29.86
21	OVC	075				69	66	67	90	7	15	29.78	29.88
24	SCT	055				70	67	68	90	5	19	29.78	29.88
SUNRISE: 0659 NOV 30						SUNSET: 1721							
03	OVC	011			-RA	55	53	54	93	15	33	29.86	29.97
06	OVC	015			-RA	52	49	50	90	13	34	29.95	30.05
09	OVC	013			-RA BR	51	49	50	93	15	35	30.01	30.12
12	OVC	008			BR	51	48	49	90	16	01	29.98	30.10
15	OVC	016			BR	53	49	51	86	10	01	29.96	30.07
18	OVC	250				53	48	50	83	6	02	29.97	30.08
21	OVC	250				52	45	49	77	7	02	29.97	30.08
24	OVC	250				50	43	47	77	8	03	29.96	

HOUR (LST)	SKY COVER	CEILING 100's of FT.	SATELLITE		WEATHER	TEMPERATURE °F			WIND SPEED (MPH) DIRECTION Tens of Deg	PRESSURE (INCHES, HG)			
			Observation Time (LST)	Eff Cld Amt Oktas		DRY BULB	DEW POINT	WET BULB		STATION	SEA LEVEL		
			RELATIVE HUMIDITY (PCT)										

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, W = 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.

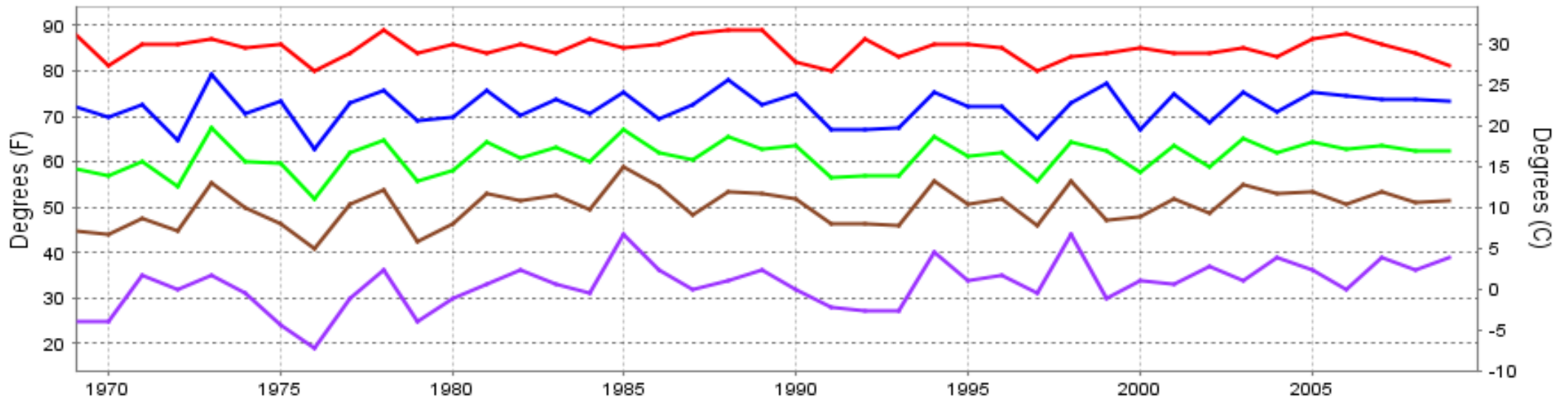
& = Original observation contained additional weather elements.

See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES										RESULTANT WIND (MPH)	
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (Inches, HG)		VISIBILITY (Miles)	WIND SPEED (MPH)	SPEED	DIRECTION
							STATION	SEA LEVEL				
01			57	53	55	89	29.99	30.09	9.34	3	2	07
02			56	53	54	90	29.98	30.09	8.55	3	1	06
03			55	53	54	91	29.97	30.08	8.51	3	1	06
04			55	52	53	92	29.97	30.08	8.74	3	1	05
05			55	52	53	91	29.98	30.09	8.74	3	1	03
06			54	52	53	91	29.99	30.10	8.58	4	1	06
07			54	51	53	92	30.00	30.11	7.81	4	1	05
08			57	54	55	89	30.01	30.12	7.74	5	2	08
09			61	55	58	81	30.03	30.14	8.41	6	2	08
10			65	55	59	70	30.03	30.14	8.95	8	4	08
11			68	53	60	62	30.03	30.14	9.42	9	3	08
12			70	53	60	58	30.00	30.11	9.35	10	1	08
13			71	52	60	55	29.97	30.08	9.67	9	2	08
14			71	52	61	54	29.95	30.06	9.70	9	2	08
15			71	52	60	53	29.95	30.06	9.63	9	2	08
16			70	52	60	55	29.95	30.06	9.50	9	2	08
17			68	53	59	61	29.95	30.06	9.57	8	2	08
18			63	54	58	72	29.95	30.06	9.97	6	3	08
19			62	54	57	76	29.97	30.08	9.97	5	2	08
20			61	54	57	78	29.98	30.09	9.87	6	2	08
21			60	53	56	80	29.99	30.10	9.73	5	2	08
22			59	53	56	83	29.99	30.10	9.63	4	2	07
23			58	53	55	85	29.99	30.10	9.37	4	2	08
24			57	53	55	87	29.98	30.09	9.27	3	1	07

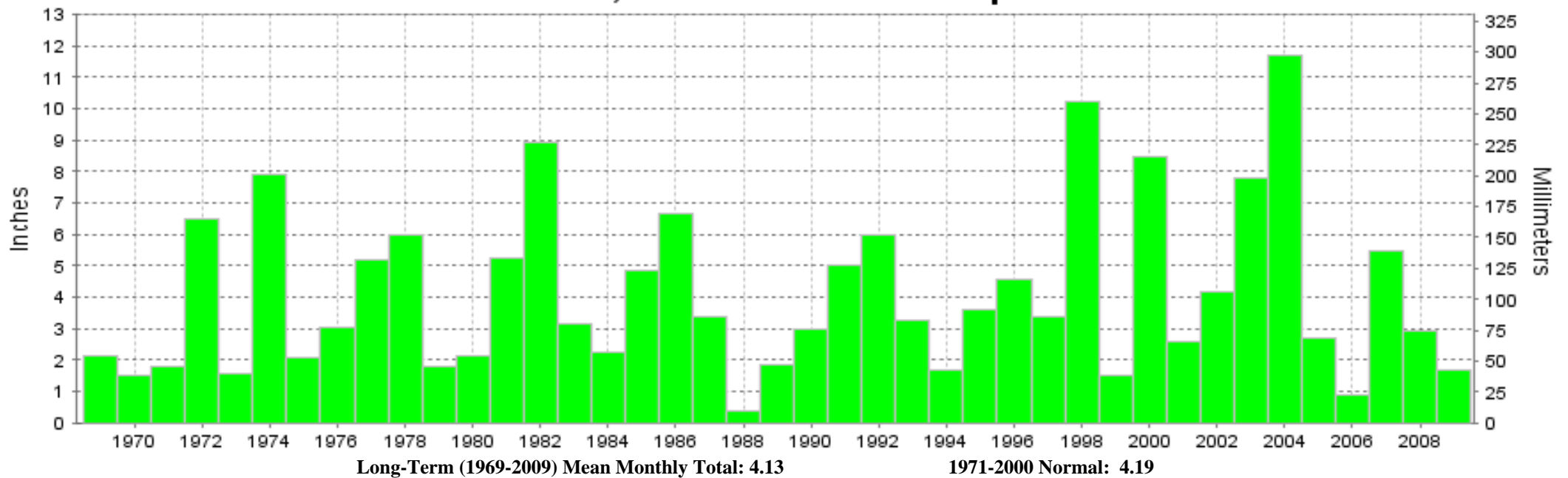
HOUSTON, TX NOVEMBER Temperatures



— Extreme Max — Mean Max — Mean — Mean Min — Extreme Min

Long-Term (1969-2009) Mean: 61.1
1971-2000 Normal: 60.9

HOUSTON, TX NOVEMBER Precipitation



Long-Term (1969-2009) Mean Monthly Total: 4.13

1971-2000 Normal: 4.19



NOVEMBER 2009
HOUSTON, TX

LOCAL CLIMATOLOGICAL DATA NOAA, National Climatic Data Center

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