

1999

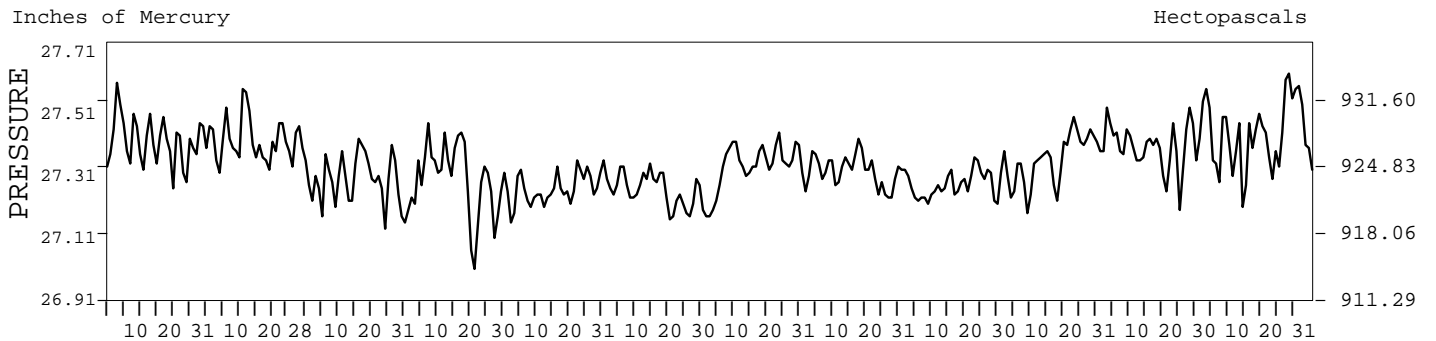
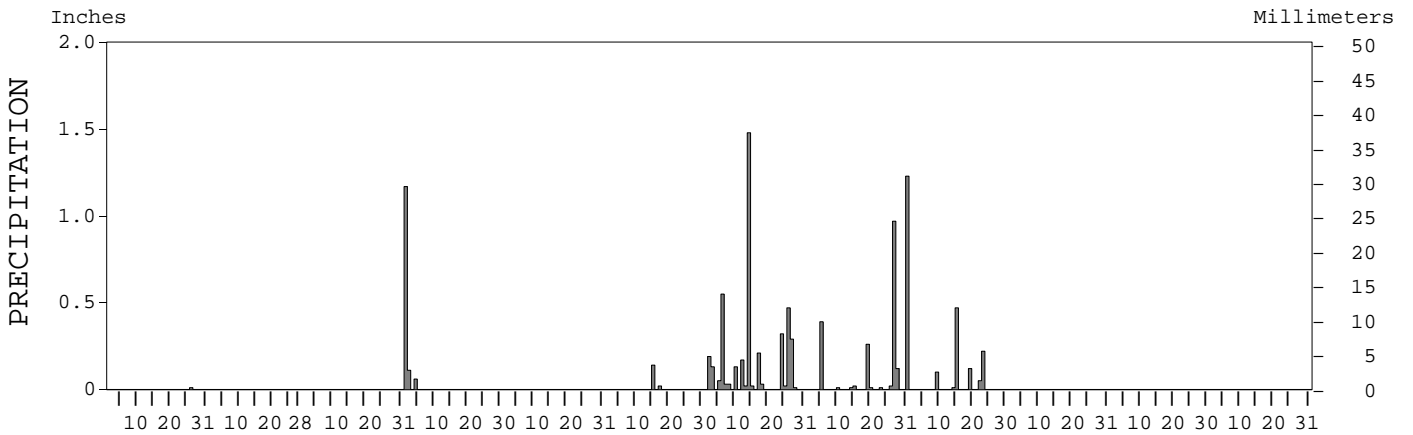
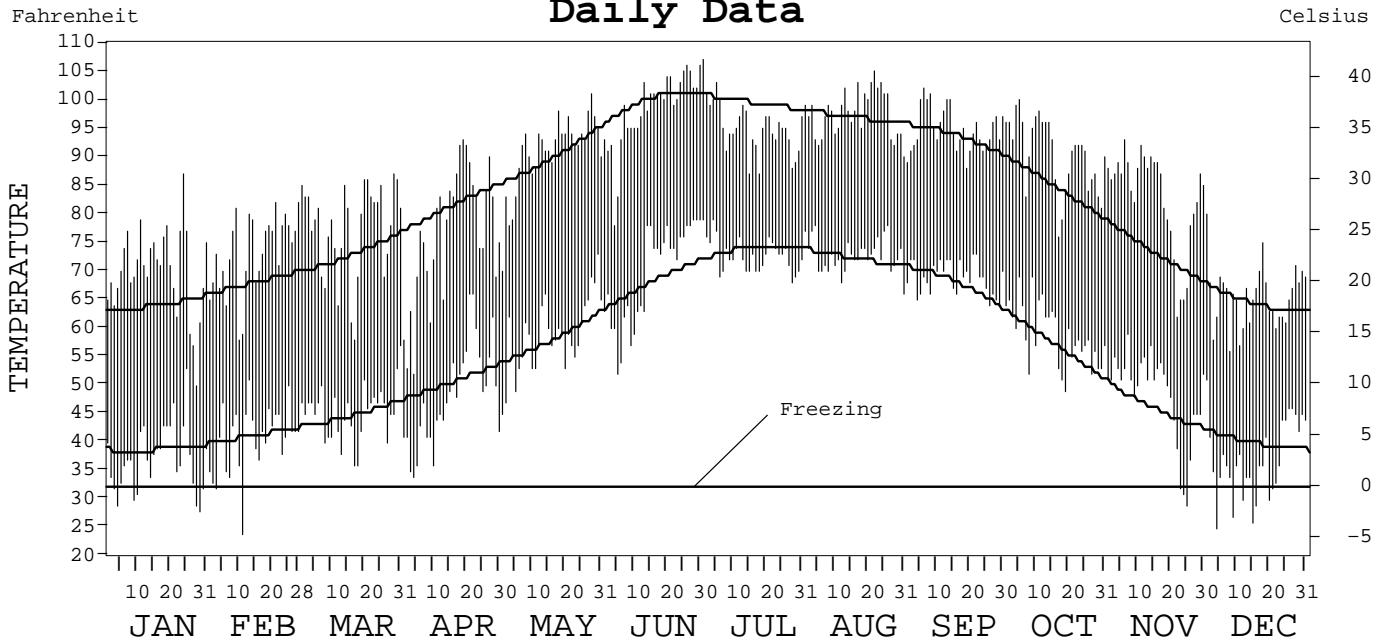
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-0580

TUCSON,
ARIZONA (TUS)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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METEOROLOGICAL DATA FOR 1999

TUCSON, AZ (TUS)

LATITUDE: 32° 07' 53" N LONGITUDE: 110° 57' 19" W ELEVATION (FT): GRND: 2579 BARO: 2579 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 23160

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	70.0	73.2	77.5	76.5	90.7	98.2	95.2	97.6	94.8	90.5	82.6	65.5	84.4	
	HIGHEST DAILY MAXIMUM	87	82	87	93	101	106	107	105	102	100	93	75	107	
	DATE OF OCCURRENCE	24	28+	29	19	28	30	01	22	06	05	06	18	JUL 01	
	MEAN DAILY MINIMUM	37.2	40.6	45.2	48.1	58.7	69.4	72.8	72.8	68.8	58.9	48.2	37.0	54.8	
	LOWEST DAILY MINIMUM	28	24	36	34	45	52	68	66	64	49	29	26	24	
	DATE OF OCCURRENCE	29	11	18+	04	01	05	28	31	29+	19	25	15	FEB 11	
	AVERAGE DRY BULB	53.6	56.9	61.4	62.3	74.7	83.8	84.0	85.2	81.8	74.7	65.4	51.3	69.6	
	MEAN WET BULB	39.0	40.5	44.4	46.4	52.1	60.0	69.7	68.4	65.2	52.5	46.4	37.6	51.8	
	MEAN DEW POINT	18.7	15.6	21.7	26.9	26.4	39.6	63.1	59.5	55.0	30.1	24.8	16.9	33.2	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	4	22	28	27	31	28	20	4	0	0	164
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MINIMUM ≤ 32°	7	2	0	0	0	0	0	0	0	0	3	7	19	
MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0		
H/C	HEATING DEGREE DAYS	346	220	126	155	7	0	0	0	0	83	416	1353		
	COOLING DEGREE DAYS	0	1	18	83	318	573	598	635	512	306	103	1	3148	
RH	MEAN (PERCENT)	30	23	26	32	18	23	56	47	45	21	24	29	31	
	HOUR 05 LST	42	33	37	47	28	36	72	65	63	30	34	38	44	
	HOUR 11 LST	23	21	21	28	14	18	42	36	35	16	19	23	25	
	HOUR 17 LST	16	13	15	19	11	14	47	34	31	13	16	18	21	
	HOUR 23 LST	34	25	27	35	19	25	65	53	50	24	27	31	35	
S	PERCENT POSSIBLE SUNSHINE	84	86	85	84	91	91	61	76	89	96	95	86	85	
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	0	0	0	0	0	0	0	0	0	0	0	0	0	
	THUNDERSTORMS	0	0	0	0	0	2	20	14	5	0	0	0	41	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
	CLOUDY														
PR	MEAN STATION PRESS. (IN.)	27.42	27.43	27.30	27.29	27.27	27.26	27.34	27.33	27.28	27.37	27.41	27.43	27.34	
	MEAN SEA-LEVEL PRESS. (IN.)	30.04	30.04	29.89	29.87	29.81		29.87	29.85	29.81	29.93	30.03			
WINDS	RESULTANT SPEED (MPH)	1.8	1.9	2.4	3.4	2.4	0.4	0.6	1.9	1.8	3.6	2.8	2.9	1.5	
	RES. DIR. (TENS OF DEGS.)	17	15	21	23	23	07	13	17	12	11	14	12	16	
	MEAN SPEED (MPH)	6.4	7.1	7.6	8.5	8.2	8.3	7.3	7.0	7.5	8.0	7.0	7.3	7.5	
	PREVAIL. DIR. (TENS OF DEGS.)	14	14	14	14	26	11	14	13	13	14	14	14	14	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	28	34	32	33	28	38	41	44	38	32	28	32	44	
	DIR. (TENS OF DEGS.)	26	12	24	19	24	09	07	09	11	11	11	12	09	
	DATE OF OCCURRENCE	26+	12	07	22	09+	13	10+	27	29	30	02	25	AUG 27	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	37	39	40	44	37	51	54	60	41	36	34	37	60	
DIR. (TENS OF DEGS.)	24	11	24	25	21	09	06	08	11	12	11	12	08		
DATE OF OCCURRENCE	31	12	07	04	09	13	10	27	29	31+	02	25+	AUG 27		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.01	T	T	1.34	0.00	0.16	4.15	3.05	0.97	T	0.00	T	9.68	
	GREATEST 24-HOUR (IN.)	0.01	T	T	1.28	0.00	0.14	1.50	1.23	0.47	T	0.00	T	1.50	
	DATE OF OCCURRENCE	26	04	26+	01-02		15	14-15	31	15	26		31+	JUL 14-15	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	1	0	0	3	0	2	18	11	6	0	0	0	41	
PRECIPITATION ≥ 0.10	0	0	0	2	0	1	10	5	4	0	0	0	22		
PRECIPITATION ≥ 1.00	0	0	0	1	0	0	1	1	0	0	0	0	3		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	
	GREATEST 24-HOUR (IN.)	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	
	DATE OF OCCURRENCE				04									APR 04	
	MAXIMUM SNOW DEPTH (IN.)	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0		

NORMALS, MEANS, AND EXTREMES

TUCSON, AZ (TUS)

LATITUDE: 32° 07' 53" N LONGITUDE: 110° 57' 19" W ELEVATION (FT): GRND: 2579 BARO: 2579 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 23160

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	63.9	67.8	72.8	81.2	89.9	99.6	99.4	96.8	93.3	84.3	72.7	64.3	82.2
	MEAN DAILY MAXIMUM	51	64.6	68.2	73.1	81.3	89.9	99.6	99.0	96.8	93.9	84.6	72.9	65.2	82.4
	HIGHEST DAILY MAXIMUM	59	87	92	99	104	107	117	114	112	107	102	93	84	117
	YEAR OF OCCURRENCE		1999	1957	1988	1989	1996	1990	1995	1993	1990	1993	1999	1954	JUN 1990
	MEAN OF EXTREME MAXS.	51	77.9	81.2	86.3	93.4	100.6	107.9	107.6	104.3	101.9	95.4	84.8	77.6	93.2
	NORMAL DAILY MINIMUM	30	38.6	41.0	44.6	50.4	58.0	67.9	73.6	72.1	67.5	56.6	45.6	39.8	54.6
	MEAN DAILY MINIMUM	51	38.6	40.9	44.5	50.4	58.2	67.7	73.7	72.2	67.5	56.7	45.1	39.2	54.6
	LOWEST DAILY MINIMUM	59	16	20	20	27	38	47	59	61	44	26	24	16	16
	YEAR OF OCCURRENCE		1949	1955	1965	1945	1950	1955	1992	1956	1965	1971	1979	1974	DEC 1974
	MEAN OF EXTREME MINS.	51	26.6	29.1	32.2	39.0	46.2	56.6	66.9	66.5	58.6	43.4	32.3	27.0	43.7
	NORMAL DRY BULB	30	51.3	54.4	58.7	65.8	74.0	83.8	86.6	84.5	80.4	70.4	59.2	52.0	68.4
	MEAN DRY BULB	51	51.4	54.5	58.9	65.9	74.1	83.7	86.3	84.5	80.7	70.7	58.9	52.1	68.5
	MEAN WET BULB	16	41.9	44.1	46.5	49.4	54.5	59.4	67.1	69.0	63.4	54.5	46.1	41.9	53.1
	MEAN DEW POINT	16	29.4	30.3	29.5	29.0	32.8	37.1	54.8	60.2	51.7	39.5	31.7	30.2	38.0
	NORMAL NO. DAYS WITH:														
	MAXIMUM ≥ 90°	30	0.0	0.0	0.7	4.0	16.8	28.1	29.3	28.6	22.3	7.5	*	0.0	137.3
MAXIMUM ≤ 32°	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MINIMUM ≤ 32°	30	5.9	3.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	*	1.1	4.7	16.1	
MINIMUM ≤ 0°	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
H/C	NORMAL HEATING DEG. DAYS	30	425	302	229	97	7	0	0	0	0	27	188	403	1678
	NORMAL COOLING DEG. DAYS	30	0	5	33	121	286	564	670	605	462	194	14	0	2954
RH	NORMAL (PERCENT)	30	48	43	37	27	22	21	42	47	42	38	43	50	38
	HOUR 05 LST	30	62	58	53	41	35	33	58	64	57	53	56	63	53
	HOUR 11 LST	30	40	35	29	21	17	17	34	38	34	31	34	41	31
	HOUR 17 LST	30	31	26	22	16	13	13	28	32	28	24	28	34	25
	HOUR 23 LST	30	56	49	41	30	24	23	47	52	46	44	49	58	43
S	PERCENT POSSIBLE SUNSHINE	51	80	81	86	92	93	92	78	80	87	88	85	79	85
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	59	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.1
	THUNDERSTORMS	59	0.4	0.3	0.5	0.7	1.6	2.6	13.7	13.6	5.6	1.9	0.5	0.3	41.7
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	1			2.4		0.0	1.6							
	MIDNIGHT-MIDNIGHT (OKTAS)	1					0.0	1.6							
	MEAN NO. DAYS WITH:														
CLEAR	1	1.0	5.0	12.0		27.0	15.0								
PARTLY CLOUDY	1	1.0	3.0	3.0		1.0	2.0								
CLOUDY	1		4.0	1.0			1.0								
PR	MEAN STATION PRESSURE (IN)	27	27.40	27.38	27.32	27.28	27.25	27.25	27.31	27.31	27.30	27.33	27.37	27.40	27.32
	MEAN SEA-LEVEL PRES. (IN)	16	30.04	29.98	29.92	29.85	29.78	29.76	29.82	29.84	29.83	29.89	29.98	30.03	29.89
WINDS	MEAN SPEED (MPH)	34	7.8	7.9	8.4	8.9	8.7	8.6	8.4	7.8	8.0	8.0	8.0	7.6	8.2
	PREVAIL. DIR (TENS OF DEGS)	20	14	14	14	14	14	14	14	14	14	14	14	14	14
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	4	33	37	33	33	33	38	41	44	38	37	32	32	44
	DIR. (TENS OF DEGS)		28	20	20	19	19	09	07	09	11	25	12	12	09
	YEAR OF OCCURRENCE		1996	1998	1998	1999	1997	1999	1999	1999	1999	1996	1996	1999	AUG 1999
	MAXIMUM 5-SECOND:														
SPEED (MPH)	4	40	48	43	44	43	51	54	60	43	53	37	40	60	
DIR. (TENS OF DEGS)		27	22	21	25	24	09	06	08	11	26	12	10	08	
YEAR OF OCCURRENCE		1996	1998	1998	1999	1997	1999	1999	1999	1998	1996	1996	1998	AUG 1999	
PRECIPITATION	NORMAL (IN)	30	0.87	0.70	0.72	0.30	0.18	0.20	2.37	2.19	1.67	1.06	0.67	1.07	12.00
	MAXIMUM MONTHLY (IN)	59	4.81	3.20	2.26	1.66	1.11	1.46	6.17	7.93	5.11	4.98	1.90	5.02	7.93
	YEAR OF OCCURRENCE		1993	1998	1952	1951	1992	1954	1981	1955	1964	1983	1952	1965	AUG 1955
	MINIMUM MONTHLY (IN)	59	T	0.00	0.00	0.00	0.00	0.00	0.04	0.23	0.00	0.00	0.00	0.00	0.00
	YEAR OF OCCURRENCE		1970	1972	1956	1972	1974	1983	1995	1976	1953	1982	1980	1981	JUN 1983
	MAXIMUM IN 24 HOURS (IN)	59	1.46	1.49	1.19	1.28	0.89	1.27	3.93	2.48	3.05	3.58	1.86	2.12	3.93
	YEAR OF OCCURRENCE		1993	1942	1952	1999	1943	1954	1958	1961	1964	1983	1968	1994	JUL 1958
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	4.8	3.6	4.3	2.0	1.7	2.0	10.6	9.5	5.6	3.2	3.3	5.0	55.6	
PRECIPITATION ≥ 1.00	30	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.3	0.4	0.3	*	0.1	1.7	
SNOWFALL	NORMAL (IN)	30	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.*	0.4	1.4
	MAXIMUM MONTHLY (IN)	59	4.7	3.9	5.7	2.0	T	0.0	T	T	T	T	6.4	6.8	6.8
	YEAR OF OCCURRENCE		1987	1965	1964	1976	1992		1995	1995	1996	1991	1958	1971	DEC 1971
	MAXIMUM IN 24 HOURS (IN)	58	4.3	3.9	5.7	2.0	T	0.0	T	T	T	T	6.4	6.8	6.8
	YEAR OF OCCURRENCE		1987	1965	1964	1976	1992		1995	1995	1990	1991	1958	1971	DEC 1971
	MAXIMUM SNOW DEPTH (IN)	50	1	4	5	0	0	0	0	0	0	0	1	5	5
	YEAR OF OCCURRENCE		1987	1965	1964								1958	1971	DEC 1971
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	0.1	0.2	0.1	0.*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	

PRECIPITATION (inches) 1999 TUCSON, AZ (TUS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	T	0.34	1.13	0.45	0.03	0.33	2.53	1.43	3.58	1.73	0.00	0.43	11.98
1971	0.04	0.50	T	0.56	0.01	T	2.18	3.29	1.75	1.18	0.69	1.97	12.17
1972	0.00	0.00	0.01	0.00	0.24	0.68	3.49	2.93	1.09	4.51	1.30	0.61	14.86
1973	0.06	1.60	2.20	0.02	0.09	0.50	1.74	0.54	T	0.00	0.47	0.00	7.22
1974	0.93	T	0.55	T	0.00	0.01	4.44	1.04	1.69	2.12	0.81	0.33	11.92
1975	0.36	0.13	0.95	0.27	0.11	0.00	2.38	0.32	1.26	T	0.34	0.52	6.64
1976	0.06	0.53	0.38	0.57	0.23	0.10	1.18	0.23	1.68	0.37	0.48	0.47	6.28
1977	1.83	0.04	0.74	0.43	0.08	0.06	0.76	0.80	1.41	2.36	0.33	1.33	10.17
1978	2.05	1.75	0.89	0.01	0.61	0.22	0.78	1.59	1.66	1.86	1.58	2.73	15.73
1979	2.94	0.42	0.64	0.04	0.67	0.53	2.04	2.60	0.02	0.33	0.01	0.15	10.39
1980	0.73	2.90	1.22	0.08	T	0.23	1.78	1.95	2.93	0.22	0.00	0.19	12.23
1981	1.29	0.71	1.98	0.56	0.26	0.16	6.17	0.80	1.10	0.06	0.61	0.00	13.70
1982	1.56	0.06	1.26	0.05	0.51	0.13	2.13	2.51	2.69	0.00	1.30	1.59	13.79
1983	1.70	0.94	1.28	0.14	T	0.00	1.98	4.24	4.28	4.98	1.71	0.61	21.86
1984	0.62	0.00	0.00	0.36	0.06	1.05	2.92	4.19	1.81	0.77	0.45	3.30	15.53
1985	1.71	1.08	0.20	0.45	T	0.07	3.14	1.97	1.13	2.03	0.95	0.15	12.88
1986	0.98	1.13	1.30	T	0.44	0.06	1.82	3.56	0.31	0.50	0.42	1.28	11.80
1987	0.59	1.64	0.83	0.80	0.74	0.16	0.37	2.79	2.30	0.34	0.44	1.50	12.50
1988	0.41	0.53	0.35	1.15	0.02	0.15	1.69	3.64	0.80	2.09	0.75	0.05	11.63
1989	0.96	0.23	0.62	0.00	0.13	0.06	1.42	0.90	0.02	1.84	0.12	0.18	6.48
1990	0.96	0.71	0.38	0.10	0.03	0.64	5.45	2.70	1.63	0.58	0.23	1.54	14.95
1991	1.15	0.91	1.40	0.00	0.00	0.20	0.44	2.17	1.54	0.73	0.80	1.44	10.78
1992	1.21	1.80	2.12	0.19	1.11	0.07	0.93	4.55	0.94	0.03	T	3.47	16.42
1993	4.81	1.50	0.49	0.00	0.59	0.02	0.26	4.93	0.46	0.81	0.98	0.14	14.99
1994	0.02	1.03	1.14	0.04	0.52	0.26	0.41	0.45	1.46	0.76	1.83	3.71	11.63
1995	1.41	1.32	0.54	0.28	0.15	T	0.04	3.71	2.29	0.36	0.86	0.22	11.18
1996	0.01	0.82	0.32	T	0.00	T	1.88	1.87	3.68	1.74	0.19	T	10.51
1997	0.93	0.67	0.02	0.47	0.44	0.02	0.51	2.32	1.43	0.38	0.49	2.88	10.56
1998	0.17	3.20	1.64	0.39	T	0.00	4.06	1.70	1.10	0.24	0.67	0.45	13.62
1999	0.01	T	T	1.34	0.00	0.16	4.15	3.05	0.97	T	0.00	T	9.68
POR= 100 YRS	0.86	0.85	0.73	0.34	0.21	0.25	2.12	2.20	1.32	0.70	0.68	0.50	10.76

WBAN : 23160

AVERAGE TEMPERATURE (°F) 1999 TUCSON, AZ (TUS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	50.0	57.0	55.9	61.1	75.2	83.4	87.2	84.8	76.4	65.1	60.1	51.8	67.3
1971	50.5	52.3	59.8	62.8	69.3	81.2	87.5	81.3	79.1	64.2	56.8	47.1	66.0
1972	50.4	55.8	65.0	65.8	72.3	81.6	86.6	82.9	78.6	66.5	53.0	49.0	67.3
1973	47.6	53.4	51.6	59.7	73.0	81.4	84.3	84.7	79.6	70.7	58.4	52.3	66.4
1974	50.2	51.9	60.1	66.1	74.3	86.9	83.5	83.0	77.8	69.1	57.5	47.0	67.3
1975	49.8	50.7	55.3	57.9	69.8	80.5	84.2	85.8	80.0	69.5	59.3	53.0	66.3
1976	52.6	58.4	58.2	64.8	74.5	83.4	83.9	85.3	77.7	67.8	60.0	52.2	68.2
1977	50.7	56.9	55.7	67.0	70.8	84.7	87.0	86.4	82.0	73.3	61.7	56.9	69.4
1978	53.1	53.6	61.8	65.2	73.1	85.8	88.1	84.7	80.9	73.8	58.5	49.7	69.0
1979	48.4	53.8	56.4	65.6	72.2	83.1	87.5	83.4	84.2	73.0	56.6	55.0	68.3
1980	54.3	57.9	57.5	65.6	71.5	84.9	88.6	84.6	80.5	69.6	59.5	58.1	69.4
1981	54.8	57.1	57.1	69.1	73.4	86.1	85.2	86.4	80.7	68.1	62.2	55.0	69.6
1982	50.7	54.7	57.7	66.1	72.3	80.5	84.8	83.9	79.2	67.0	57.7	50.1	67.1
1983	52.9	53.8	57.3	60.4	73.8	81.6	86.9	84.0	82.2	69.5	57.4	53.5	67.8
1984	51.8	53.7	60.5	64.0	79.9	83.1	84.2	82.9	81.5	66.3	57.8	51.5	68.1
1985	50.3	53.1	58.7	68.7	75.9	85.8	87.5	86.1	77.4	70.0	58.0	52.9	68.7
1986	58.7	56.9	63.8	69.0	76.8	86.6	85.5	86.0	79.0	69.6	59.8	52.3	70.3
1987	50.9	54.2	57.9	70.1	74.3	86.3	87.4	85.1	79.9	75.1	58.9	50.3	69.2
1988	53.0	59.4	61.4	68.0	76.4	86.8	87.9	85.9	80.4	75.3	59.2	51.9	70.5
1989	49.9	58.2	65.0	73.8	77.4	85.4	90.0	86.6	84.5	71.1	61.7	53.0	71.4
1990	51.8	52.8	61.8	69.7	75.2	88.7	85.0	82.6	82.2	73.1	61.6	51.1	69.6
1991	52.3	59.8	55.4	65.2	73.5	81.5	87.5	86.6	80.7	74.0	58.9	54.3	69.1
1992	51.6	57.3	59.4	70.8	76.7	84.5	86.8	85.1	83.6	74.2	56.1	51.4	69.8
1993	55.2	54.0	61.3	68.6	78.1	85.0	88.0	85.5	81.4	72.6	58.8	53.4	70.2
1994	53.7	55.2	62.9	68.6	75.6	89.2	90.4	90.3	84.2	70.5	56.7	53.9	70.9
1995	52.6	60.7	61.2	64.8	72.6	83.3	88.4	87.3	82.9	72.4	63.1	54.0	70.3
1996	53.6	58.8	61.1	68.9	79.0	87.4	88.6	86.4	77.7	70.4	61.0	53.7	70.6
1997	52.4	53.6	64.8	65.8	79.7	83.1	88.0	85.8	84.2	70.0	60.7	48.6	69.7
1998	53.2	50.8	57.9	61.4	72.9	81.8	86.5	86.5	82.6	70.7	60.5	52.0	68.1
1999	53.6	56.9	61.4	62.3	74.7	83.8	84.0	85.2	81.8	74.7	65.4	51.3	69.6
POR= 100 YRS	50.7	53.7	58.2	65.0	73.1	82.5	86.1	84.2	80.1	69.8	58.4	51.5	67.8

WBAN : 23160

HEATING DEGREE DAYS (base 65°F) 1999 TUCSON, AZ (TUS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0	0	0	58	143	403	445	350	200	111	12	0	1722
1971-72	0	0	0	120	249	548	444	259	73	50	0	0	1743
1972-73	0	0	0	96	358	489	533	320	410	174	19	0	2399
1973-74	0	0	0	23	216	390	451	362	161	49	5	0	1657
1974-75	0	0	0	53	218	552	465	393	299	217	29	0	2226
1975-76	0	0	0	38	191	365	378	180	221	88	5	0	1466
1976-77	0	0	0	45	178	390	435	221	287	65	9	0	1630
1977-78	0	0	0	1	117	242	365	313	144	64	24	0	1270
1978-79	0	0	0	15	213	470	511	311	260	76	20	0	1876
1979-80	0	0	0	26	252	302	323	202	227	84	3	0	1419
1980-81	0	0	0	66	197	210	310	220	244	31	0	0	1278
1981-82	0	0	0	34	106	304	437	291	223	46	10	0	1451
1982-83	0	0	0	41	211	456	371	309	239	168	6	0	1801
1983-84	0	0	0	0	232	348	402	323	140	110	0	0	1555
1984-85	0	0	0	49	221	413	448	328	200	41	0	0	1700
1985-86	0	0	0	9	217	369	193	244	117	22	6	0	1177
1986-87	0	0	0	11	154	387	429	299	225	24	0	0	1529
1987-88	0	0	0	0	188	452	366	171	161	46	12	0	1396
1988-89	0	0	0	0	220	402	461	199	82	9	4	0	1377
1989-90	0	0	0	25	107	361	402	340	156	16	3	0	1410
1990-91	0	0	0	5	152	427	384	140	296	47	3	0	1454
1991-92	0	0	0	56	195	325	408	215	169	24	0	0	1392
1992-93	0	0	0	0	261	418	298	299	129	28	0	0	1433
1993-94	0	0	0	5	186	355	345	272	94	42	0	0	1299
1994-95	0	0	0	24	255	335	377	123	143	84	17	0	1358
1995-96	0	0	0	3	64	332	344	173	135	23	0	0	1074
1996-97	0	0	0	91	147	346	386	315	66	77	0	0	1428
1997-98	0	0	0	52	146	502	360	392	232	153	3	0	1840
1998-99	0	0	0	20	136	398	346	220	126	155	7	0	1408
1999-	0	0	0	0	83	416							

WBAN : 23160

COOLING DEGREE DAYS (base 65°F) 1999 TUCSON, AZ (TUS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0	5	0	25	333	561	693	620	347	68	4	0	2656
1971	6	0	45	51	152	493	706	514	430	101	12	0	2510
1972	0	1	82	82	236	506	678	563	414	150	1	0	2713
1973	0	0	0	21	272	495	603	615	445	206	26	2	2685
1974	0	0	18	87	301	664	581	564	387	185	1	0	2788
1975	0	0	4	11	184	471	604	651	458	182	27	0	2592
1976	2	0	14	89	306	557	597	636	386	139	34	0	2760
1977	0	0	5	133	198	597	691	669	517	266	23	0	3099
1978	0	0	54	76	283	630	721	616	483	293	28	0	3184
1979	0	0	1	101	249	551	706	576	580	282	6	0	3052
1980	0	4	1	109	211	606	742	615	474	216	37	3	3018
1981	0	8	4	159	267	639	633	670	476	137	27	2	3022
1982	0	4	4	82	244	471	622	594	437	112	0	0	2570
1983	0	0	8	36	288	503	688	600	523	145	10	0	2801
1984	0	0	6	87	469	549	601	562	503	96	12	0	2885
1985	0	1	7	159	345	633	704	660	379	173	14	0	3075
1986	2	23	88	150	378	653	643	657	431	158	3	0	3186
1987	0	2	12	184	297	644	702	630	452	325	12	0	3260
1988	2	13	58	142	374	658	716	657	471	327	51	1	3470
1989	0	16	89	281	397	619	780	676	592	221	16	0	3687
1990	0	6	63	164	327	719	625	553	522	262	56	0	3297
1991	0	1	6	58	274	501	703	675	479	345	21	0	3063
1992	0	0	4	204	372	590	683	627	563	291	1	0	3335
1993	1	0	22	142	413	604	721	641	500	250	11	3	3308
1994	0	4	34	156	332	733	794	788	584	203	11	0	3639
1995	0	8	31	85	261	558	733	698	544	241	12	0	3171
1996	0	1	24	148	440	679	740	670	387	266	33	2	3390
1997	0	2	65	105	462	549	718	651	581	212	26	0	3371
1998	1	0	19	54	255	512	672	671	536	203	9	1	2933
1999	0	1	18	83	318	573	598	635	512	306	103	1	3148

SNOWFALL (inches) 1999 TUCSON, AZ (TUS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	0.0	T
1971-72	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	6.8
1972-73	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1973-74	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	T	0.0	0.0	0.0	0.4
1974-75	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.5	0.0	0.0	0.0	0.5
1975-76	0.0	0.0	0.0	0.0	T	T	0.0	0.0	3.8	2.0	0.0	0.0	5.8
1976-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977-78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978-79	0.0	0.0	0.0	0.0	0.0	T	1.2	0.0	0.0	0.0	0.0	0.0	1.2
1979-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1980-81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1981-82	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	0.0	0.0	T
1982-83	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T
1983-84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984-85	0.0	0.0	0.0	0.0	0.0	T	0.0	2.2	0.0	0.0	0.0	0.0	2.2
1985-86	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	0.0	0.0	0.0	T
1986-87	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	T	0.0	0.0	0.0	4.7
1987-88	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.6
1988-89	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	0.0	0.0	0.0	T
1989-90	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.3	0.0	T	0.0	0.0	5.0
1990-91	0.0	T	T	0.0	0.0	0.6	0.0	T	0.3	0.0	0.0	0.0	0.9
1991-92	0.0	0.0	0.0	T	0.0	T	0.0	0.0	T	0.0	T	0.0	T
1992-93	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T
1993-94	0.0	T	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1994-95	0.0	0.0	0.0	0.0	T	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1995-96	T	T	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1996-97	0.0	0.0	T	0.0	0.0	0.0	T	0.0	0.0	T	0.0	0.0	T
1997-98	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T	T	0.0	0.0	T
1998-99	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T	0.0	0.0	T
1999-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	T
POR= 58 YRS	T	T	T	T	0.1	0.3	0.3	0.2	0.2	0.1	T	0.0	1.2

WBAN : 23160

REFERENCE NOTES:

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1961 - 1990). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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1999
TUCSON,
ARIZONA (TUS)

Tucson lies at the foot of the Catalina Mountains, north of the airport. The area within about 15 miles of the airport station is flat or gently rolling, with many dry washes. The soil is sandy, and vegetation is mostly brush, cacti, and small trees. Rugged mountains encircle the valley. The mountains to the north, east, and south rise to over 5,000 feet above the airport. The western hills and mountains range from 500 to 4,000 feet.

The climate of Tucson is characterized by a long hot season, from April to October. Temperatures above 90 degrees prevail from May through September. Temperatures of 100 degrees or higher average 41 days annually, including 14 days each for June and July, but these extreme temperatures are moderated by low relative humidities. The temperature range is large, averaging 30 degrees or more a day.

More than 50 percent of the annual precipitation falls between July 1 and September 15, and over 20 percent falls from December through March. During the summer, scattered convective or orographic showers and thunderstorms often fill dry washes to overflowing. On occasion, brief, torrential downpours cause destructive flash floods in the Tucson area. Hail rarely occurs in thunderstorms. The December through March precipitation occurs as prolonged rainstorms that replenish the ground water. During these storms, snow often falls on the higher mountains, but snow in Tucson is infrequent, particularly in accumulations exceeding an inch in depth.

From the first of the year, the humidity decreases steadily until the summer thunderstorm season, when it shows a marked increase. From mid-September, the end of the thunderstorm season, the humidity decreases again until late November. Occasionally during the summer, humidities are high enough to produce discomfort, but only for short periods. During the hot season, humidity values sometimes fall below 5 percent.

Tucson lies in the zone receiving more sunshine than any other section of the United States. Cloudless days are commonplace, and average cloudiness is low.

Surface winds are generally light, with no major seasonal changes in velocity or direction. Occasional duststorms occur in areas where the ground has been disturbed. During the spring, winds may briefly be strong enough to cause some damage to trees and buildings. Wind velocities and directions are influenced by the surrounding mountains, and the general slope of the terrain. Usually local winds tend to be in the southeast quadrant during the night and early morning hours, veering to northwest during the day. Highest velocities usually occur with winds from the southwest and east to south.

While dust and haze are frequently visible, their effect on the general clarity of the atmosphere is not great. Visibility is normally high.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is November 29 and the average last occurrence in the spring is February 28.

STATION LOCATION

TUCSON, ARIZONA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS
						SEA LEVEL	GROUND											
							WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND	WIND		
<u>COOPERATIVE</u> University of Arizona	10/1891	Present	NA	32°14'	110°57'	2391	a40	11 a5	11 a5									a - Effective 9/1894.
<u>AIRPORT</u> Tucson Municipal (later Davis-Monthan Air Force Base)	1/22/30	10/14/48	NA	32°11'	110°55'	2553	b33	Unk c5	Unk c5	e14	b3 d14	Unk c5 d14						Army Signal Service to Nov. 1932. b - Added 6/17/40. c - Effective 6/17/40. d - Moved to roof 7/23/47. e - Added 10/1/47.
Tucson Municipal	10/14/48	10/15/58	4.9 mi. SW	32°08'	110°57'	2558	33	5	5	Unk	5	5	%4					New airport.
Tower & Operations Bldg Tucson Municipal AP + + Tucson International AP effective 3/13/63	10/15/58	6/4/80	4500 ft. E	32°07'	110°56'	2584	20	5	5	109	3	NA	4	%5	NA			% - Telepsychrometer. Removed 11/21/82.
Nat. Weather Svc. Bldg, Tucson International AP	6/4/80	01/01/96	600 ft. NE	32°07'	110°56'	2580	f20	5	5	h35	3 i4	NA	4 i3	%5 g7 j4	NA			f - Not moved 6/4/80. g - Installed 11/21/82. h - Raised 5/14/85. i - Moved 5-10' NW 5/14/85. j - Minor adjustment & type change 2/20/86.
International Airport	01/01/96	Present	NA	32°08'	110°57'	2579									S			ASOS Commissioned 01/01/96

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
INQUIRIES/COMMENTS CALL: (828) 271-4800

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