

1998

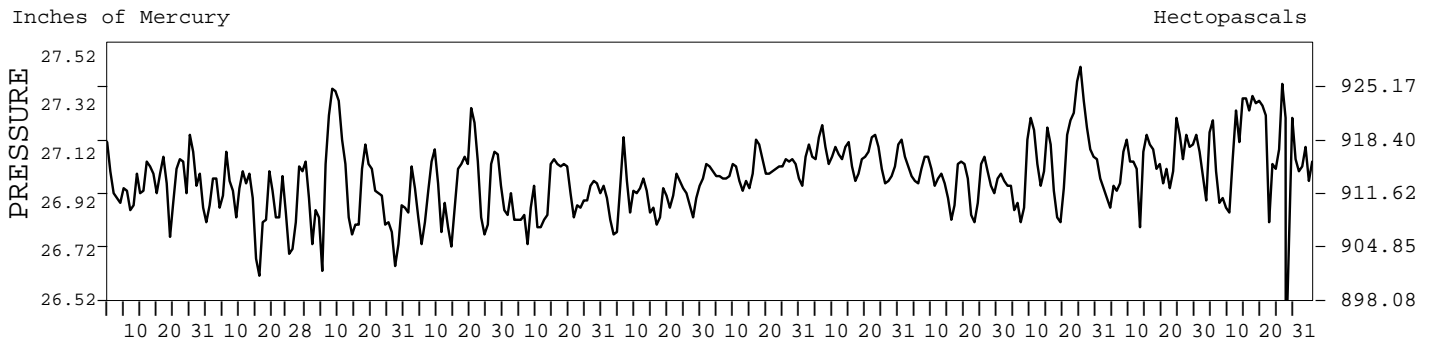
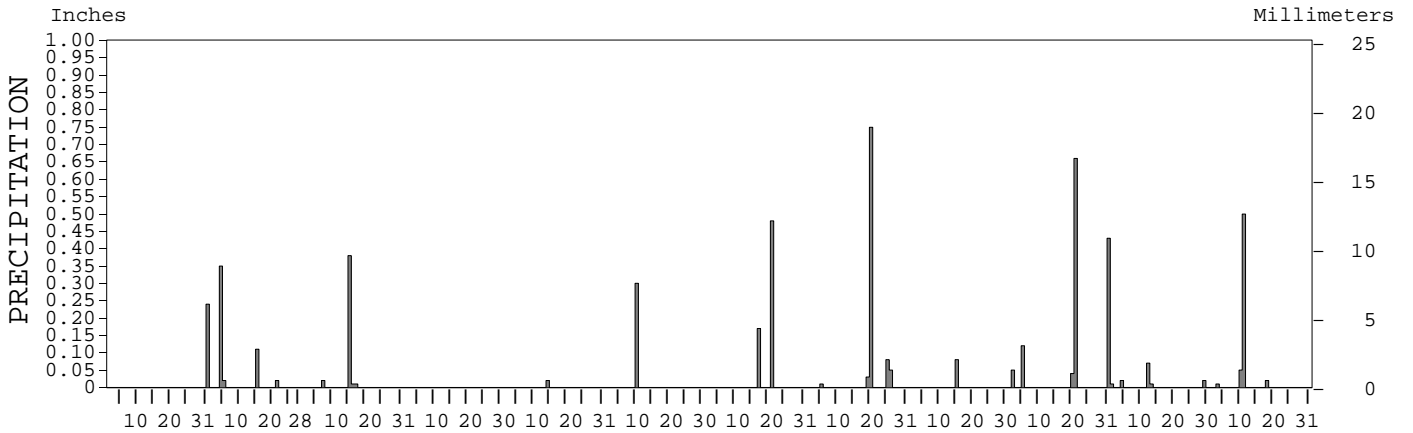
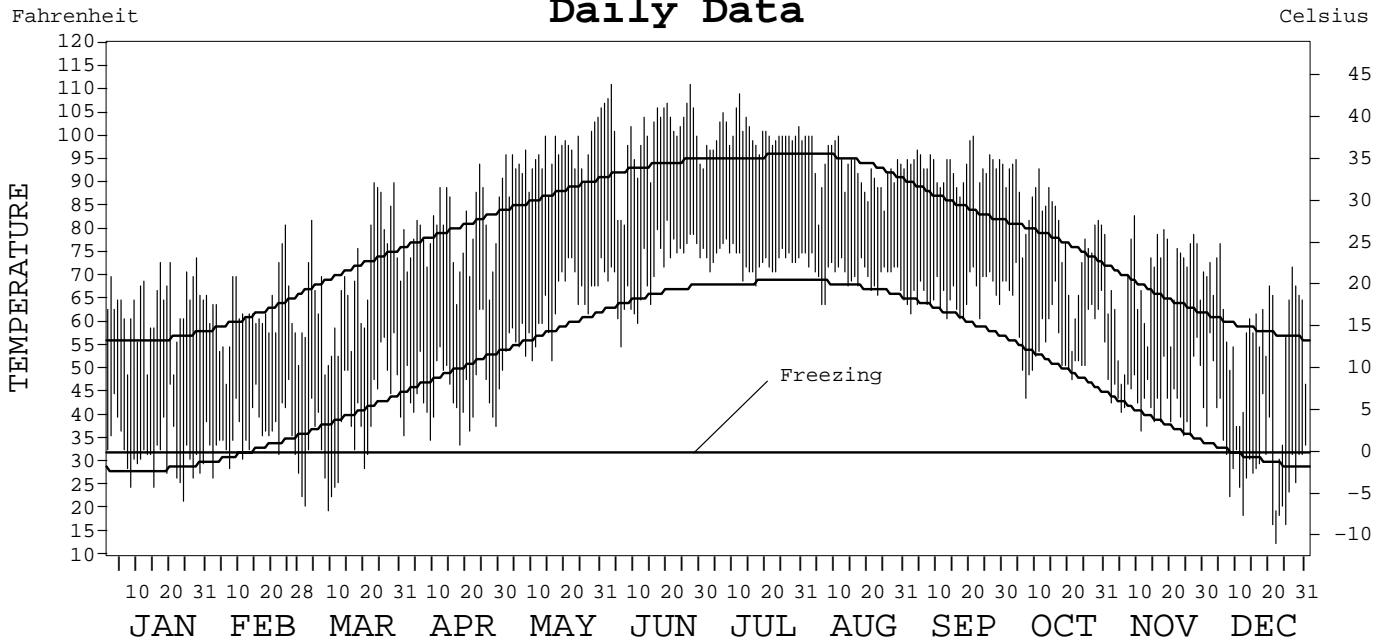
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-5132

MIDLAND - ODESSA,
TEXAS (MAF)

Daily Data



I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER.

Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE	NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE	NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA	DIRECTOR NATIONAL CLIMATIC DATA CENTER
---	---	---	---	---

METEOROLOGICAL DATA FOR 1998

MIDLAND-ODESSA, TX (MAF)

LATITUDE: 31° 55' 56" N LONGITUDE: 102° 12' 29" W ELEVATION (FT): GRND: 2862 BARO: 2865 TIME ZONE: CENTRAL (UTC+ 6) WBAN: 23023

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	63.6	62.1	69.1	79.0	95.7	100.2	100.2	92.8	93.2	80.5	68.6	57.1	80.2	
	HIGHEST DAILY MAXIMUM	74	81	90	94	106	111	109	100	100	95	83	77	111	
	DATE OF OCCURRENCE	28	24	29+	24	31	27+	12	11+	21	04	09	05	JUN 27+	
	MEAN DAILY MINIMUM	32.5	36.4	38.5	45.3	62.3	71.1	73.5	70.2	66.0	57.5	44.1	30.9	52.4	
	LOWEST DAILY MINIMUM	22	27	20	34	50	55	68	64	61	44	36	13	13	
	DATE OF OCCURRENCE	24	02	09	18	01	06	17	07+	23+	07	26+	22	DEC 22	
	AVERAGE DRY BULB	48.1	49.3	53.8	62.2	79.0	85.7	86.9	81.5	79.6	69.0	56.4	44.0	66.3	
	MEAN WET BULB	40.0	40.8	43.3	47.5	60.1	66.1	68.5	68.2	66.2	58.8	48.8			
	MEAN DEW POINT	30.4	31.6	31.0	30.2	44.7	54.1	58.5	60.9	58.5	51.5	42.2			
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	2	1	28	27	31	23	26	4	0	0	0	142
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	2	2	2
	MINIMUM ≤ 32°	17	6	9	0	0	0	0	0	0	0	0	21	53	53
	MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/C	HEATING DEGREE DAYS	518	434	367	129	0	0	0	0	48	259	644	2399		
	COOLING DEGREE DAYS	0	0	27	52	441	626	684	519	444	178	6	2978		
RH	MEAN (PERCENT)	59	59	49	34	34	39	41	54	52	61	67	65	51	
	HOUR 06 LST	78	76	71	57	54	61	60	75	77	81	86	82	72	
	HOUR 12 LST	44	49	38	23	24	28	32	45	40	46	52	51	39	
	HOUR 18 LST	38	40	28	18	17	23	27	36	32	44	50	51	34	
	HOUR 24 LST	70	68	57	39	40	45	46	62	58	68	77	73	59	
S	PERCENT POSSIBLE SUNSHINE	73	65		95		89	89	78	75	73	70	62		
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	6	4	0	0	0	0	0	0	1	4	5	20		
	THUNDERSTORMS	2	0	2	0	3	3	5	1	1	4	0	21		
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.)	27.00	26.92	26.98	26.98	26.94	26.94	27.06	27.11	27.01	27.09	27.09			
	MEAN SEA-LEVEL PRESS. (IN.)	29.93	29.84	29.88	29.86	29.76	29.75	29.87	29.95	29.84	29.96	30.00			
WINDS	RESULTANT SPEED (MPH)	2.4	2.4	2.9	2.9	1.6	5.4	0.8	3.6	4.2	5.7	2.4			
	RES. DIR. (TENS OF DEGS.)	24	25	21	20	17	18	16	10	16	16	16			
	MEAN SPEED (MPH)	9.5	10.3	12.7	11.5	10.8	13.2	10.3	9.6	9.6	12.0	9.9	9.7	10.8	
	PREVAIL. DIR. (TENS OF DEGS.)	17	26	16	18	16	17	16	15	17	17	18	17	17	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	31	37	40	40	36	37	45	30	26	32	35	32	45	
	DIR. (TENS OF DEGS.)	25	24	24	25	26	20	14	08	31	15	27	02	14	
	DATE OF OCCURRENCE	20	09	27+	06+	08	17	21	20	14	15+	29	21	JUL 21	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	40	44	48	52	47	46	59	38	36	41	45	37	59	
DIR. (TENS OF DEGS.)	27	25	24	25	26	28	19	08	04	04	21	02	19		
DATE OF OCCURRENCE	20	09	27+	06	19	10	21	20	11	05	09	21+	JUL 21		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.24	0.50	0.42	0.00	0.02	0.30	0.65	0.92	0.08	1.30	0.13	0.58	5.14	
	GREATEST 24-HOUR (IN.)	0.24	0.35	0.38	0.00	0.02	0.30	0.48	0.75	0.08	0.67	0.07	0.52	0.75	
	DATE OF OCCURRENCE	31	04	15		14	10	21	20	15	20-21	12	10-11	AUG 20	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	1	4	4	0	1	1	2	5	1	5	5	4	33	
PRECIPITATION ≥ 0.10	1	2	1	0	0	1	2	1	0	3	0	1	12		
PRECIPITATION ≥ 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	T	0.0	T	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	9.8	9.8	
	GREATEST 24-HOUR (IN.)	0.0	0.0	T	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	9.8	9.8	
	DATE OF OCCURRENCE			08+			17						11	DEC 11	
	MAXIMUM SNOW DEPTH (IN.)	0	0	0	0	0	0	0	0	0	0	0	5	5	
	DATE OF OCCURRENCE												11	DEC 11	
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	0	0	0	0	0	0	0	0	0	0	0	1	1		

NORMALS, MEANS, AND EXTREMES

MIDLAND-ODESSA, TX (MAF)

LATITUDE: 31° 55' 56" N LONGITUDE: 102° 12' 29" W ELEVATION (FT): GRND: 2862 BARO: 2865 TIME ZONE: CENTRAL (UTC+ 6) WBAN: 23023

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	56.5	61.6	71.2	79.8	87.4	93.4	95.4	94.1	85.4	77.3	66.2	58.4	77.2
	MEAN DAILY MAXIMUM	50	56.9	62.0	69.9	78.6	86.4	93.0	94.3	93.1	86.4	77.9	66.1	59.0	77.0
	HIGHEST DAILY MAXIMUM	51	84	90	95	101	108	116	112	107	107	100	90	85	116
	YEAR OF OCCURRENCE		1974	1986	1989	1996	1989	1994	1989	1964	1953	1979	1996	1954	JUN 1994
	MEAN OF EXTREME MAXS.	50	75.7	80.4	86.8	92.9	99.1	102.9	101.7	101.1	97.4	91.0	82.1	76.4	90.6
	NORMAL DAILY MINIMUM	30	28.5	32.6	40.2	49.4	58.1	65.7	68.5	67.5	61.1	50.6	38.9	30.8	49.3
	MEAN DAILY MINIMUM	50	29.8	33.8	40.4	49.3	58.9	66.8	69.2	68.1	61.9	51.5	39.0	31.8	50.0
	LOWEST DAILY MINIMUM	51	-8	-11	9	20	34	47	53	54	36	24	13	-1	-11
	YEAR OF OCCURRENCE		1962	1985	1980	1973	1970	1983	1978	1989	1989	1993	1993	1989	FEB 1985
	MEAN OF EXTREME MINS.	50	13.3	17.7	22.8	33.4	45.0	56.7	62.9	62.3	48.8	37.2	24.1	17.1	36.8
	NORMAL DRY BULB	30	42.5	47.1	55.7	64.6	72.8	79.6	82.0	80.8	73.3	64.0	52.6	44.6	63.3
	MEAN DRY BULB	50	43.3	47.9	55.1	64.0	72.6	79.9	81.8	80.6	74.2	64.7	52.6	45.3	63.5
	MEAN WET BULB	15	35.7	39.7	44.3	47.4	59.9	66.5	67.7	67.5	63.2	54.7	43.9	37.2	52.3
	MEAN DEW POINT	15	26.2	29.5	31.7	36.6	49.6	58.8	60.0	60.9	57.1	46.9	34.8	28.1	43.4
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	*	0.5	3.7	11.7	20.9	25.7	23.1	10.8	2.2	0.0	0.0	98.6	
MAXIMUM ≤ 32°	30	1.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	3.2	
MINIMUM ≤ 32°	30	20.4	13.4	5.7	0.7	0.0	0.0	0.0	0.0	0.0	0.1	6.3	17.7	64.3	
MINIMUM ≤ 0°	30	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*	0.2	
H/C	NORMAL HEATING DEG. DAYS	30	698	501	309	108	10	0	0	0	10	106	377	632	2751
	NORMAL COOLING DEG. DAYS	30	0	0	21	96	252	438	527	490	259	75	5	0	2163
RH	NORMAL (PERCENT)	30	57	55	46	45	51	53	51	54	61	60	59	58	54
	HOUR 06 LST	30	63	62	54	52	60	61	57	60	69	70	68	65	62
	HOUR 12 LST	30	71	72	66	66	75	77	73	75	80	79	76	72	74
	HOUR 18 LST	30	46	44	36	34	38	42	42	43	50	46	45	45	43
	HOUR 24 LST	30	41	36	28	27	31	33	34	36	44	43	44	44	37
S	PERCENT POSSIBLE SUNSHINE	17	66	68	75	78	77	80	80	76	75	73	73	65	74
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	50	3.5	2.8	0.8	0.6	0.5	0.1	0.0	0.1	0.6	1.3	2.4	2.9	15.6
	THUNDERSTORMS	50	0.3	0.6	1.3	3.0	6.8	5.8	5.8	6.0	3.6	2.5	0.6	0.4	36.7
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	48	4.2	4.1	3.8	3.7	3.8	3.2	3.5	3.4	3.4	3.0	3.4	3.8	3.6
	MIDNIGHT-MIDNIGHT (OKTAS)	32	3.9	3.8	3.3	3.3	3.4	3.0	3.1	3.2	3.3	2.8	3.2	3.4	3.3
	MEAN NO. DAYS WITH:														
CLEAR	48	12.4	11.1	13.1	13.3	12.9	15.0	13.1	14.2	14.2	16.9	14.6	13.8	164.6	
PARTLY CLOUDY	48	6.4	7.0	7.7	8.0	9.6	9.5	11.1	10.4	7.9	6.3	6.5	6.0	96.4	
CLOUDY	48	12.2	10.1	10.2	8.7	8.5	5.5	6.8	6.3	8.0	7.7	8.9	11.2	104.1	
PR	MEAN STATION PRESSURE (IN)	26	27.12	27.08	27.00	26.99	26.97	27.01	27.07	27.08	27.09	27.10	27.10	27.12	27.06
	MEAN SEA-LEVEL PRES. (IN)	15	30.08	30.02	29.94	27.86	29.82	29.83	29.90	29.92	29.94	29.98	30.02	30.09	29.78
WINDS	MEAN SPEED (MPH)	42	10.4	11.2	12.5	12.6	12.4	12.2	10.7	9.9	9.9	9.9	10.3	10.1	11.0
	PREVAIL. DIR (TENS OF DEGS)	27	18	18	18	18	18	16	16	16	16	18	18	18	18
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	2	33	37	40	40	36	43	45	53	29	36	35	38	53
	DIR. (TENS OF DEGS)		02	24	24	25	02	26	14	23	01	26	27	27	23
	YEAR OF OCCURRENCE		1997	1998	1998	1998	1997	1997	1998	1997	1997	1997	1998	1997	AUG 1997
	MAXIMUM 5-SECOND:														
SPEED (MPH)	2	40	44	48	52	47	49	59	64	37	44	45	49	64	
DIR. (TENS OF DEGS)		26	25	24	25	26	25	19	23	12	27	21	26	23	
YEAR OF OCCURRENCE		1997	1998	1998	1998	1998	1997	1998	1997	1997	1997	1998	1997	AUG 1997	
PRECIPITATION	NORMAL (IN)	30	0.40	0.62	0.58	0.83	1.98	1.55	1.70	1.69	2.62	1.74	0.69	0.56	14.96
	MAXIMUM MONTHLY (IN)	51	3.66	2.55	2.86	2.85	7.63	3.93	8.50	4.43	9.70	7.45	2.32	3.30	9.70
	YEAR OF OCCURRENCE		1949	1992	1970	1949	1992	1949	1991	1974	1980	1986	1968	1986	SEP 1980
	MINIMUM MONTHLY (IN)	51	0.00	T	T	0.00	0.02	0.01	T	0.17	0.08	0.00	0.00	T	0.00
	YEAR OF OCCURRENCE		1967	1996	1994	1964	1998	1990	1983	1967	1979	1952	1950	1958	JAN 1967
	MAXIMUM IN 24 HOURS (IN)	45	1.15	1.32	2.20	1.62	4.75	3.07	5.99	2.41	4.37	3.59	2.16	0.77	5.99
	YEAR OF OCCURRENCE		1958	1997	1970	1979	1968	1993	1961	1965	1986	1985	1975	1997	JUL 1961
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	3.4	3.7	2.8	3.1	5.8	5.2	4.8	6.1	6.4	4.4	3.3	3.7	52.7	
PRECIPITATION ≥ 1.00	30	0.0	0.1	0.1	0.2	0.5	0.4	0.4	0.3	0.7	0.5	0.3	0.1	3.6	
SNOWFALL	NORMAL (IN)	30	1.6	1.0	0.6	0.*	0.0	0.0	0.0	0.0	0.0	T	0.6	0.9	4.7
	MAXIMUM MONTHLY (IN)	51	9.0	3.9	5.9	2.0	T	T	T	T	0.0	0.6	7.2	9.8	9.8
	YEAR OF OCCURRENCE		1985	1973	1970	1996	1995	1993	1995	1992		1993	1980	1998	DEC 1998
	MAXIMUM IN 24 HOURS (IN)	45	6.8	3.9	5.0	2.0	T	T	T	T	0.0	0.6	5.7	9.8	9.8
	YEAR OF OCCURRENCE		1974	1985	1970	1996	1995	1993	1995	1992		1993	1980	1998	DEC 1998
	MAXIMUM SNOW DEPTH (IN)	49	7	5	3	0	0	0	0	0	0	1	6	5	7
	YEAR OF OCCURRENCE		1974	1985	1989							1993	1980	1998	JAN 1974
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.9	

PRECIPITATION (inches) 1998 MIDLAND - ODESSA, TX (MAF)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0.02	1.79	0.51	2.10	3.28	2.68	0.74	0.32	1.53	2.52	0.85	0.60	16.94
1970	0.01	1.40	2.86	0.29	0.18	0.99	0.23	0.87	2.00	0.78	T	0.11	9.72
1971	T	0.01	T	0.81	2.77	1.07	0.79	3.27	2.55	0.67	0.42	0.24	12.60
1972	0.37	0.04	T	0.29	1.20	1.70	0.58	3.80	1.05	2.26	0.22	0.15	11.66
1973	0.93	1.63	1.73	1.38	0.87	0.34	2.47	0.25	1.09	0.59	T	0.00	11.28
1974	0.54	0.28	0.18	1.17	0.34	0.75	0.26	4.43	6.16	5.42	0.72	0.25	20.50
1975	0.81	0.69	0.08	0.09	3.44	2.05	7.73	1.68	3.44	0.70	2.16	0.37	23.24
1976	0.03	0.18	0.30	2.02	1.08	2.14	3.56	0.84	1.25	1.84	0.26	0.08	13.58
1977	0.63	0.55	0.61	1.22	0.60	0.81	0.40	0.37	0.09	1.27	0.02	0.27	6.84
1978	0.22	0.34	T	0.09	1.97	1.15	2.51	1.01	5.02	2.51	2.27	0.20	17.29
1979	0.16	0.26	0.81	1.63	1.14	2.98	3.05	2.17	0.08	0.97	T	2.80	16.05
1980	0.49	0.29	T	0.86	1.85	1.59	T	0.93	9.70	0.12	0.78	1.15	17.76
1981	0.56	0.67	0.56	2.15	2.21	0.46	0.40	3.33	1.68	5.53	T	0.05	17.60
1982	0.42	0.16	0.01	1.08	3.16	1.45	3.24	0.67	1.43	1.01	0.62	1.40	14.65
1983	1.14	0.26	0.21	0.06	0.50	0.19	T	0.43	0.62	4.64	1.62	0.33	10.00
1984	0.41	0.17	T	0.01	3.40	2.15	0.84	2.45	1.89	1.99	2.31	0.83	16.45
1985	0.84	0.59	0.63	0.21	0.99	2.23	0.90	0.81	3.15	5.93	0.08	0.05	16.41
1986	0.23	0.17	0.03	0.01	3.89	3.42	1.26	3.94	6.98	7.45	1.45	3.30	32.13
1987	0.10	1.93	1.23	0.63	4.13	2.98	0.33	0.51	1.37	0.44	0.02	0.38	14.05
1988	0.01	0.44	0.74	0.08	2.26	0.84	6.66	1.66	5.07	T	T	0.53	18.29
1989	0.25	1.28	0.34	0.05	0.95	0.61	0.34	1.19	2.78	0.17	0.04	0.14	8.14
1990	0.21	1.09	0.94	1.97	0.35	0.01	1.65	2.15	2.89	1.46	0.75	0.69	14.16
1991	1.80	0.25	T	0.01	0.54	3.50	8.50	1.58	3.76	0.58	0.71	2.23	23.46
1992	1.20	2.55	0.97	1.03	7.63	2.12	1.63	2.75	0.16	0.03	0.70	0.61	21.38
1993	1.28	0.82	0.26	0.57	1.45	3.11	0.89	4.37	2.11	1.11	0.06	0.34	16.37
1994	1.02	0.08	T	0.52	1.30	1.00	2.43	1.75	0.45	0.38	1.30	0.46	10.69
1995	0.72	0.46	0.19	0.40	2.51	1.45	2.28	0.34	1.77	0.34	T	0.24	10.70
1996	0.08	T	0.05	1.22	0.11	1.71	0.13	2.94	0.97	0.20	1.43	T	8.84
1997	0.21	1.69	0.26	2.02	0.73	3.27	2.26	2.41	0.86	1.60	0.44	1.35	17.10
1998	0.24	0.50	0.42	0.00	0.02	0.30	0.65	0.92	0.08	1.30	0.13	0.58	5.14
POR= 68 YRS	0.62	0.64	0.45	0.82	2.00	1.65	1.77	1.62	2.03	1.58	0.50	0.60	14.28

WBAN : 23023

AVERAGE TEMPERATURE (°F) 1998 MIDLAND - ODESSA, TX (MAF)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	47.6	48.1	47.5	65.2	69.3	78.2	84.1	82.7	74.2	61.0	51.4	47.6	63.1
1970	42.0	47.6	49.8	61.5	69.9	77.5	82.2	79.9	73.4	61.9	53.1	50.7	62.5
1971	47.4	47.2	55.8	62.8	72.2	78.4	80.7	74.4	71.6	64.0	53.3	47.8	63.0
1972	44.2	49.3	60.0	69.7	70.4	78.9	79.2	75.7	72.5	62.5	46.4	43.5	62.7
1973	38.9	43.8	54.4	57.1	68.8	77.0	78.1	78.9	72.0	65.0	56.6	46.7	61.4
1974	45.2	49.5	62.7	66.1	77.5	81.1	83.4	79.5	67.8	64.3	53.6	45.6	64.7
1975	45.9	48.0	54.9	63.0	71.8	80.3	77.8	79.0	70.6	64.9	53.5	46.7	63.0
1976	43.9	56.2	57.0	64.6	68.5	78.1	75.8	78.8	71.7	58.4	46.6	44.3	62.0
1977	40.5	50.2	54.8	61.6	76.4	82.1	83.6	85.4	82.1	67.0	55.0	49.4	65.7
1978	38.2	43.8	58.1	67.8	72.1	78.1	81.9	78.9	71.4	61.3	52.3	42.6	62.2
1979	35.9	45.3	55.4	62.6	70.7	77.4	82.1	79.0	75.1	68.1	49.5	46.4	62.3
1980	44.9	46.3	52.4	59.1	69.1	81.9	84.1	80.8	72.7	60.2	47.2	46.2	62.1
1981	43.2	48.6	52.4	63.9	70.2	79.1	83.6	80.2	75.7	65.6	57.0	47.8	63.9
1982	43.6	45.9	57.5	63.8	70.7	79.1	82.3	82.8	77.4	64.2	52.2	43.4	63.6
1983	41.8	48.0	55.9	59.5	71.5	79.3	83.7	84.1	77.8	67.8	55.0	37.5	63.5
1984	40.1	48.2	55.0	63.6	74.1	79.8	80.9	80.2	71.5	61.7	50.7	48.0	62.8
1985	37.5	44.3	56.7	66.9	74.8	77.3	81.2	84.1	74.2	63.7	54.6	41.1	63.0
1986	46.3	51.3	58.9	68.4	72.8	77.2	80.8	79.6	74.2	61.7	50.7	43.7	63.8
1987	42.6	47.5	49.5	59.2	69.2	75.7	80.5	81.3	73.1	66.3	50.8	44.2	61.7
1988	39.3	46.2	54.3	63.1	70.8	78.5	77.7	79.3	72.5	64.7	54.9	43.7	62.1
1989	45.9	43.3	56.9	66.8	76.9	78.7	83.1	80.5	71.7	65.2	53.6	38.7	63.4
1990	46.4	50.5	54.9	64.7	73.0	86.5	79.0	78.6	75.0	63.8	55.6	43.4	64.3
1991	41.7	50.6	56.9	65.9	76.6	79.5	79.2	77.6	69.9	64.6	47.7	45.8	63.0
1992	41.3	50.9	57.3	63.2	68.0	77.0	79.9	76.9	74.8	66.4	49.2	46.5	62.6
1993	43.4	47.1	54.6	63.3	71.2	78.9	83.5	81.1	71.9	61.9	49.5	46.9	62.8
1994	44.1	48.0	57.2	63.3	72.0	84.5	83.3	81.8	73.6	66.0	55.5	48.7	64.8
1995	45.9	51.8	54.5	64.0	71.8	78.1	83.0	81.8	73.9	66.6	54.8	46.4	64.4
1996	44.6	51.3	51.2	63.4	81.1	82.9	84.5	80.0	72.3	64.1	52.9	47.4	64.6
1997	41.4	44.8	57.9	59.1	70.8	77.9	82.8	81.9	77.0	65.0	50.2	42.0	62.6
1998	48.1	49.3	53.8	62.2	79.0	85.7	86.9	81.5	79.6	69.0	56.4	44.0	66.3
POR= 68 YRS	43.4	47.9	55.0	63.8	72.3	79.7	81.5	80.7	74.3	64.9	52.5	45.3	63.4

WBAN : 23023

HEATING DEGREE DAYS (base 65°F) 1998 MIDLAND - ODESSA, TX (MAF)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0	0	0	216	405	532	706	482	463	137	48	5	2994
1970-71	0	0	41	150	348	441	540	493	297	119	15	0	2444
1971-72	0	0	51	71	350	528	639	446	176	37	12	0	2310
1972-73	0	0	19	158	551	660	804	587	320	249	55	0	3403
1973-74	0	0	15	81	252	561	607	429	121	68	1	0	2135
1974-75	0	0	44	65	344	594	582	468	314	135	2	3	2551
1975-76	0	0	40	82	340	560	652	258	261	73	38	0	2304
1976-77	0	0	10	220	545	635	755	409	320	117	0	0	3011
1977-78	0	0	0	47	295	478	823	586	245	49	30	0	2553
1978-79	0	0	36	138	374	689	893	546	297	106	34	3	3116
1979-80	0	0	3	63	459	566	619	535	384	184	34	0	2847
1980-81	0	0	20	173	531	575	669	452	383	99	20	0	2922
1981-82	0	0	0	109	234	527	655	535	245	112	21	0	2438
1982-83	0	0	0	128	378	661	711	469	281	224	19	3	2874
1983-84	0	0	9	56	304	844	768	481	313	100	7	0	2882
1984-85	0	0	66	135	426	521	843	573	277	53	2	1	2897
1985-86	0	0	30	87	308	734	575	390	192	39	11	0	2366
1986-87	0	0	2	137	423	653	689	484	473	205	14	0	3080
1987-88	0	0	2	38	427	636	788	540	338	100	11	0	2880
1988-89	0	0	10	54	321	654	586	601	279	102	2	0	2609
1989-90	0	0	36	98	341	806	569	401	324	105	58	0	2738
1990-91	0	0	2	101	295	662	715	398	260	47	8	0	2488
1991-92	0	0	47	107	513	587	728	404	235	113	29	0	2763
1992-93	0	0	1	32	475	564	665	494	322	118	16	0	2687
1993-94	0	3	10	185	457	556	639	468	265	117	18	0	2718
1994-95	0	0	3	80	284	500	586	363	343	119	8	0	2286
1995-96	0	0	29	45	301	573	626	410	423	139	0	0	2546
1996-97	0	0	25	101	358	538	726	560	232	206	22	0	2768
1997-98	0	0	3	119	437	704	518	434	367	129	0	0	2711
1998-	0	0	0	48	259	644							

WBAN : 23023

COOLING DEGREE DAYS (base 65°F) 1998 MIDLAND - ODESSA, TX (MAF)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	66	170	402	597	559	286	97	5	0	2182
1970	0	0	0	37	205	389	542	467	301	59	0	1	2001
1971	0	0	19	59	245	410	491	301	256	47	3	0	1831
1972	0	0	31	187	183	423	446	338	249	88	0	0	1945
1973	0	0	0	18	178	368	414	437	229	88	5	0	1737
1974	0	0	58	109	394	488	575	455	136	50	5	0	2270
1975	0	0	10	80	220	466	404	439	217	86	5	0	1927
1976	0	10	21	68	155	398	344	434	219	22	0	0	1671
1977	0	0	9	21	359	522	584	638	518	112	1	0	2764
1978	0	0	38	139	260	401	531	438	233	30	0	0	2070
1979	0	0	5	43	216	383	539	442	314	167	0	0	2109
1980	0	0	0	17	166	514	600	498	260	33	2	0	2090
1981	0	0	0	71	188	428	583	480	327	135	0	0	2212
1982	0	3	20	84	204	429	543	556	374	111	1	0	2325
1983	0	0	5	64	227	439	588	599	401	151	11	0	2485
1984	0	0	10	69	296	447	500	482	267	39	2	0	2112
1985	0	1	26	115	311	376	505	599	310	56	3	0	2302
1986	0	13	13	147	259	371	496	460	286	38	0	0	2083
1987	0	0	0	39	151	328	487	511	251	86	7	0	1860
1988	0	0	13	51	198	414	397	452	242	52	22	0	1841
1989	0	0	36	164	376	416	569	487	244	111	4	0	2407
1990	0	0	15	103	312	651	441	428	310	68	19	0	2347
1991	0	1	17	80	374	440	447	399	200	101	0	0	2059
1992	0	0	1	68	131	367	468	377	303	83	4	0	1802
1993	0	0	6	75	213	422	579	510	224	95	0	0	2124
1994	0	0	27	74	240	594	576	526	271	118	7	0	2433
1995	0	0	26	94	227	398	566	529	302	97	3	0	2242
1996	0	18	6	98	510	546	611	471	252	77	4	0	2593
1997	2	0	18	35	211	395	557	531	373	125	0	0	2247
1998	0	0	27	52	441	626	684	519	444	178	6	1	2978

SNOWFALL (inches) 1998 MIDLAND - ODESSA, TX (MAF)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0.0	0.0	0.0	0.0	1.3	0.5	0.1	1.7	5.9	0.0	0.0	0.0	9.5
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	T	0.1	T	0.0	0.0	0.0	0.1
1971-72	0.0	0.0	0.0	0.0	0.0	T	2.4	T	T	0.0	0.0	0.0	2.4
1972-73	0.0	0.0	0.0	0.0	0.6	T	2.9	3.9	0.0	T	0.0	0.0	7.4
1973-74	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.7	0.0	0.0	0.0	0.0	7.7
1974-75	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.6	T	0.0	0.0	0.0	2.1
1975-76	0.0	0.0	0.0	0.0	0.0	1.3	0.3	T	0.0	0.0	0.0	0.0	1.6
1976-77	0.0	0.0	0.0	0.0	5.1	T	0.7	0.0	0.0	0.0	0.0	0.0	5.8
1977-78	0.0	0.0	0.0	0.0	0.0	T	1.1	T	T	0.0	0.0	0.0	1.1
1978-79	0.0	0.0	0.0	0.0	0.0	1.1	T	2.0	0.0	0.0	0.0	0.0	3.1
1979-80	0.0	0.0	0.0	0.0	0.0	2.1	0.1	3.2	0.0	T	0.0	0.0	5.4
1980-81	0.0	0.0	0.0	T	7.2	T	4.4	0.0	0.0	0.0	0.0	0.0	11.6
1981-82	0.0	0.0	0.0	0.0	0.0	0.0	3.8	T	0.0	0.0	0.0	0.0	3.8
1982-83	0.0	0.0	0.0	0.0	0.1	6.4	5.3	T	T	0.5	0.0	0.0	12.3
1983-84	0.0	0.0	0.0	0.0	0.0	2.1	T	T	T	0.0	0.0	0.0	2.1
1984-85	0.0	0.0	0.0	0.0	0.0	T	9.0	0.7	0.0	0.0	0.0	0.0	9.7
1985-86	0.0	0.0	0.0	0.0	0.0	0.5	2.0	0.2	0.0	0.0	0.0	0.0	2.7
1986-87	0.0	0.0	0.0	0.0	T	8.5	1.1	2.0	0.1	0.0	0.0	0.0	11.7
1987-88	0.0	0.0	0.0	0.0	0.0	1.2	T	3.2	0.1	0.0	0.0	0.0	4.5
1988-89	0.0	0.0	0.0	0.0	0.0	1.5	0.6	T	5.5	0.0	0.0	T	7.6
1989-90	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.3	0.0	0.0	1.0
1990-91	0.0	0.0	0.0	0.0	T	0.2	5.8	T	0.0	0.0	0.0	T	6.0
1991-92	0.0	0.0	0.0	0.1	0.0	T	5.8	2.1	T	0.0	T	T	8.0
1992-93	0.0	T	0.0	0.0	T	4.2	T	T	T	0.0	0.0	T	4.2
1993-94	0.0	0.0	0.0	0.6	0.0	0.9	5.5	T	T	T	T	0.0	7.0
1994-95	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	T	0.0	T	0.0	2.1
1995-96	T	0.0	0.0	0.0	0.0	T	0.6	0.2	0.2	2.0		0.0	
1996-97	0.0	0.0	0.0	0.0	0.2	T	4.5	1.0	0.0	0.0	0.0	0.0	
1997-98	0.0	T	0.0	0.0	T	3.0	T	0.0	T	0.0	0.0	T	3.0
1998-	0.0	0.0	0.0	0.0	0.0	9.8							
POR= 50 YRS	T	T	0.0	0.0	0.4	1.0	1.9	0.8	0.4	0.1	T	T	4.6

WBAN : 23023

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>
---	---

1998
MIDLAND - ODESSA,
TEXAS (MAF)

The Midland-Odesa region is on the southern extension of the South Plains of Texas. The terrain is level with only slight occasional undulations.

The climate is typical of a semi-arid region. The vegetation of the area consists mostly of native grasses and a few trees, mostly of the mesquite variety.

Most of the annual precipitation in the area comes as a result of very violent spring and early summer thunderstorms. These are usually accompanied by excessive rainfall, over limited areas, and sometimes hail. Due to the flat nature of the countryside, local flooding occurs, but is of short duration. Tornadoes are occasionally sighted.

During the late winter and early spring months, blowing dust occurs frequently. The flat plains of the area with only grass as vegetation offer little resistance to the strong winds. The sky is occasionally obscured by dust but in most storms visibilities range from 1 to 3 miles.

Daytime temperatures are quite hot in the summer, but there is a large diurnal range of temperature and most nights are comfortable. The temperature drops below 32 degrees in the fall about mid-November and the last temperature below 32 degrees in spring comes early in April.

Winters are characterized by frequent cold periods followed by rapid warming. Cold frontal passages are followed by chilly weather for two or three days. Cloudiness is at a minimum. Summers are hot and dry with numerous small convective showers.

The prevailing wind direction in this area is from the southeast. This, together with the upslope of the terrain from the same direction, causes occasional low cloudiness and drizzle during winter and spring months. Snow is infrequent. Maximum temperatures during the summer months frequently are from 2 to 6 degrees cooler than those at places 100 miles southeast, due to the cooling effect of the upslope winds.

Very low humidities are conducive to personal comfort, because even though summer afternoon temperatures are frequently above 90 degrees, the low humidity with resultant rapid evaporation, has a cooling effect. The climate of the area is generally quite pleasant with the most disagreeable weather concentrated in the late winter and spring months.

STATION LOCATION

MIDLAND - ODESSA, TEXAS

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATED	* Type	REMARKS	
						SEA LEVEL	GROUND												HEIGHT
							G	W	E	P	S	T	R	W	8				
Sloan Field, 9 miles WSW of Post Office	6/01/30	9/30/35		31°56'	102°12'	2856	20	12	12				4		4				
Bankhead Highway at Texas Street	10/01/35	8/31/36	9.5 mi. ENE	32°00'	102°04'	2779				6					3			H. T. Sloan, Co-op Observer.	
Sloan Field, 2 miles WSW of Post Office	9/01/36	2/28/42	9.5 mi. WSW	31°56'	102°12'	2856	20	12	12				4		4			Record resumed by Signal Corps 9/1/36. Air Force took over records 2/14/41.	
Midland Air Force Base 9.3 miles WSW of P.O.	2/28/42	2/28/46	1 mi. NW	31°56'	102°12'	2858	20	12	12				4	4	4			Air Force discontinued operations. Gulf Refining Company Co-op Observer Weighing gage operative 4/3/47-11/14/53.	
Gulf Oil Pumping Station, 3.8 mi. ENE of P.O.	3/01/46	1/31/48	13.1 mi. ENE	32°01'	102°12'	2740				6				4	3			a - 30 feet to 4/14/48 and 44 feet to 2/12/51.	
Midland Air Terminal 9.3 mi. WSW of P.O.	2/01/48	11/14/53	13.1 mi. WSW	31°56'	102°12'	2858	a42		5	4					4			Instrumental addition and relocation. a - 42 feet to 9/30/54.	
Midland Air Terminal	11/14/53	12/04/59	Office not moved	31°56'	102°12'	2854	a36		6	5					4	2		Thermometer exposure on roof poor.	
Midland Air Terminal * * Name changed 2/15/67 to Midland-Odessa Regional Airport	12/04/59	4/24/72	360 ft. E	31°56'	102°12'	b2851	22	31	30				c5	31	a4			a - Commissioned 2100 feet E of thermometer site 6/30/63. b - 2854 feet to 6/30/63. c - 31 feet until moved 120 feet NNW 5/11/65.	
NWS Building Midland-Odessa Regional Airport + + Midland Regional Air Terminal, effective in 1974 Midland International Airport eff. 3/1988.	4/24/72	Present	1.0 mi. ENE	31°56'	102°11'	2851 j2862	d22	4	4	NA hl5	2	2		4	d4 16	NA		d - Same site as prior to 4/24/72 g - Added 2/11/77 h - Installed 10/8/80. i - Type change and minor relocation 7/27/82. j - Effective 3/21/88. S ASOS Commissioned 03/01/96	

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

National Climatic Data Center
151 Patton Avenue, Rm 120
Asheville NC 28801-5001

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
FORWARD AND ADDRESS CORRECTION

FIRST CLASS
POSTAGE & FEES PAID
United States Department of Commerce
NOAA Permit No. G - 19