

1999

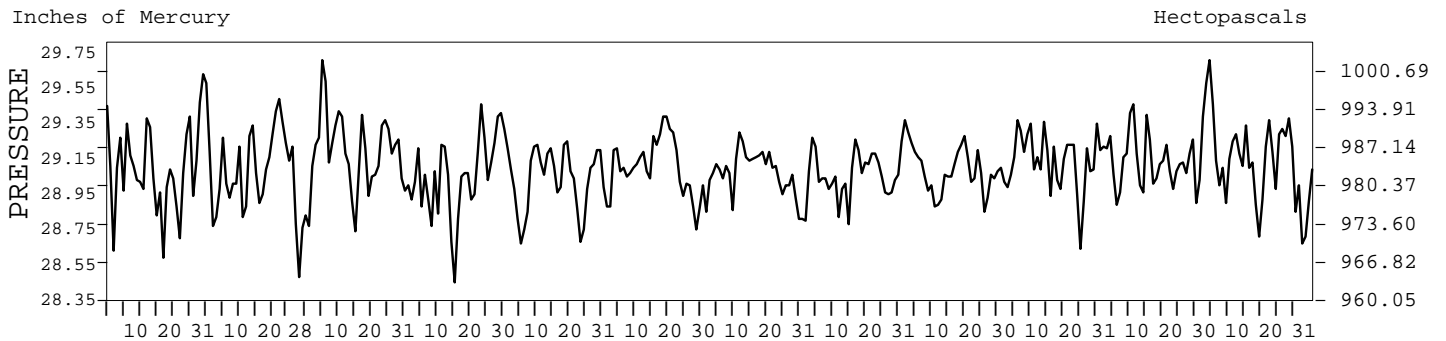
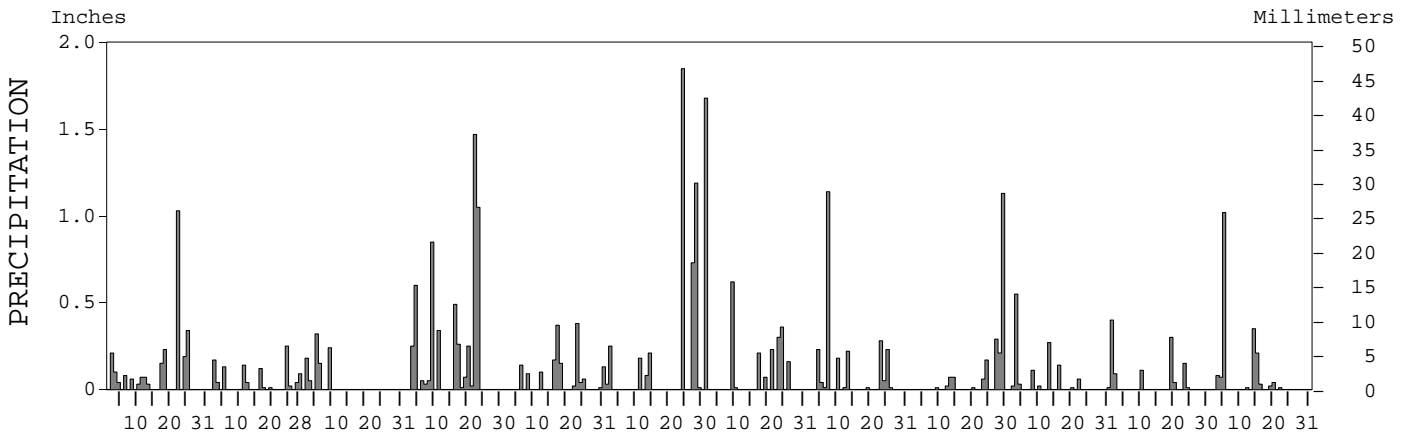
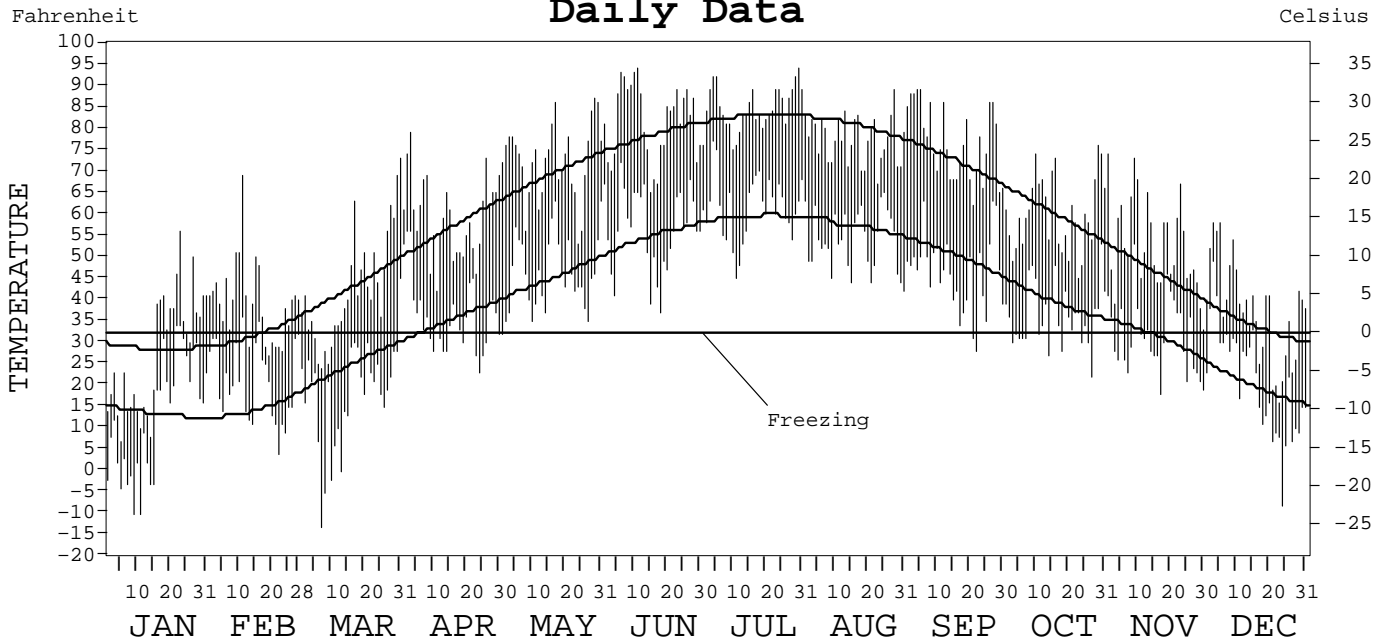
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2613

LANSING,
MICHIGAN (LAN)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE	NATIONAL SATELLITE, DATA, AND INFORMATION SERVICE	NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA	DIRECTOR NATIONAL CLIMATIC DATA CENTER
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METEOROLOGICAL DATA FOR 1999

LANSING, MI (LAN)

LATITUDE: 42° 46' 49" N LONGITUDE: 84° 34' 44" W ELEVATION (FT): GRND: 869 BARO: 869 TIME ZONE: EASTERN (UTC + 5) WBAN: 14836

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	27.6	39.2	42.5	59.2	72.4	81.6	84.7	77.5	76.6	60.1	52.9	37.4	59.3	
	HIGHEST DAILY MAXIMUM	56	69	73	79	87	94	94	89	89	76	74	58	94	
	DATE OF OCCURRENCE	23	11	31	03	29	11	30	28	05+	29	01	05+	JUL 30	
	MEAN DAILY MINIMUM	12.6	20.9	18.2	36.1	46.0	56.3	61.4	53.8	46.2	36.3	31.3	20.8	36.7	
	LOWEST DAILY MINIMUM	-10	4	-13	23	32	37	45	42	28	22	18	-8	-13	
	DATE OF OCCURRENCE	11+	22	07	24	01	18	11	31	22	27	17	24	MAR 07	
	AVERAGE DRY BULB	20.1	30.1	30.4	47.7	59.2	69.0	73.1	65.7	61.4	48.2	42.1	29.1	48.0	
	MEAN WET BULB	19.8	28.5	28.2	44.4	55.2	63.4	69.5	62.3	56.3	45.8	39.4	28.5	45.1	
	MEAN DEW POINT	16.0	23.4	22.0	40.6	51.2	59.1	67.2	59.8	52.1	42.1	35.3	25.5	41.2	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	5	4	0	0	0	0	0	0	9
	MAXIMUM ≤ 32°	17	7	6	0	0	0	0	0	0	0	0	9	39	
	MINIMUM ≤ 32°	29	26	30	11	1	0	0	0	2	11	18	27	155	
	MINIMUM ≤ 0°	8	0	4	0	0	0	0	0	0	0	0	1	13	
H/C	HEATING DEGREE DAYS	1385	971	1065	515	202	58	7	48	148	515	681	1106	6701	
	COOLING DEGREE DAYS	0	0	0	3	30	182	265	76	48	0	0	0	604	
RH	MEAN (PERCENT)	81	75	69	78	74	71	80	81	74	78	77	84	77	
	HOUR 01 LST	84	81	77	87	85	83	91	92	89	86	83	88	86	
	HOUR 07 LST	85	83	80	90	84	83	92	93	91	90	84	87	87	
	HOUR 13 LST	76	64	57	66	61	57	69	67	54	65	65	77	65	
	HOUR 19 LST	79	70	63	70	67	61	70	72	67	77	78	83	71	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	6	4	2	0	0	1	2	3	1	1	3	2	25	
	THUNDERSTORMS	1	0	1	5	5	6	5	3	4	1	0	0	32	
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.)	29.11	29.08	29.17	29.04	29.04	29.10	29.06	29.08	29.07	29.15	29.17	29.10	29.10	
	MEAN SEA-LEVEL PRESS. (IN.)	30.09	30.04	30.14	29.99	29.98	30.03	29.98	30.01	30.00	30.10	30.11	30.06	30.04	
WINDS	RESULTANT SPEED (MPH)	3.7	4.3	3.0	2.7	2.8	2.0	2.2	1.5	3.1	4.2	5.1	5.0	2.5	
	RES. DIR. (TENS OF DEGS.)	23	23	31	07	23	21	24	32	25	24	25	23	24	
	MEAN SPEED (MPH)	11.3	10.6	9.9	9.3	9.6	7.3	8.0	6.6	7.3	9.1	9.8	9.8	9.1	
	PREVAIL. DIR. (TENS OF DEGS.)	24	28	31	05	13	14	22	36	23	19	23	20	20	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	33	38	38	36	44	30	29	24	29	30	33	34	44	
	DIR. (TENS OF DEGS.)	23	26	27	25	21	26	27	30	24	29	25	25	21	
	DATE OF OCCURRENCE	23	12	17	06	17	07	09	13	23	22	24	20	MAY 17	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	40	48	46	44	53	36	34	32	32	38	43	41	53	
DIR. (TENS OF DEGS.)	09	26	26	07	22	31	28	30	24	28	25	24	22		
DATE OF OCCURRENCE	02	11	17	23+	17	28+	09	13	23	22	24	20	MAY 17		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	2.63	1.06	0.94	5.79	1.66	4.53	3.64	2.41	2.04	1.22	1.10	1.84	28.86	
	GREATEST 24-HOUR (IN.)	1.03	0.25	0.32	1.47	0.38	1.85	1.68	1.14	1.20	0.58	0.49	1.04	1.85	
	DATE OF OCCURRENCE	22	24	05	22	23	24	01	07	28-29	03-04	01-02	04-05	JUN 24	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	14	12	5	15	12	9	9	12	10	10	7	10	125	
PRECIPITATION ≥ 0.10	7	5	4	9	7	6	7	6	4	4	4	3	66		
PRECIPITATION ≥ 1.00	1	0	0	2	0	2	1	1	1	0	0	1	9		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	34.6	4.2	11.2	T	0.0	0.0	0.0					5.8		
	GREATEST 24-HOUR (IN.)	6.2	2.5	4.4	T	0.0	0.0	0.0					1.4		
	DATE OF OCCURRENCE	03	24	09+	17								14		
	MAXIMUM SNOW DEPTH (IN.)	23	3	9	0	0	0	0					3		
	DATE OF OCCURRENCE	16+	24	10									24		
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	10	1	3	0	0	0	0					3			

NORMALS, MEANS, AND EXTREMES

LANSING, MI (LAN)

LATITUDE: 42° 46' 49" N LONGITUDE: 84° 34' 44" W ELEVATION (FT): GRND: 869 BARO: 869 TIME ZONE: EASTERN (UTC + 5) WBAN: 14836

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	28.5	31.6	42.7	56.7	69.1	78.2	82.6	80.4	71.9	59.4	45.8	33.5	56.7
	MEAN DAILY MAXIMUM	47	29.6	32.3	42.2	56.5	69.0	78.6	82.5	80.3	72.6	60.5	46.0	34.3	57.0
	HIGHEST DAILY MAXIMUM	41	66	69	78	86	94	99	100	100	97	89	77	66	100
	YEAR OF OCCURRENCE		1967	1999	1998	1980	1977	1988	1988	1988	1973	1963	1975	1998	AUG 1988
	MEAN OF EXTREME MAXS.	47	49.1	50.7	67.7	78.3	85.0	91.2	93.1	91.8	87.5	79.1	66.7	54.4	74.5
	NORMAL DAILY MINIMUM	30	13.3	14.2	24.5	35.1	44.9	54.5	59.0	56.9	49.9	39.2	30.8	19.3	36.8
	MEAN DAILY MINIMUM	47	14.6	15.6	23.9	35.0	45.0	55.0	58.9	57.1	49.6	39.3	30.3	20.3	37.0
	LOWEST DAILY MINIMUM	41	-29	-25	-15	-2	19	30	37	35	22	15	4	-17	-29
	YEAR OF OCCURRENCE		1981	1994	1978	1982	1966	1966	1972	1976	1991	1966	1976	1976	JAN 1981
	MEAN OF EXTREME MINS.	47	-8.2	-6.4	3.1	19.0	29.6	39.2	44.8	42.7	32.7	23.4	14.2	-2.1	19.3
	NORMAL DRY BULB	30	20.9	22.9	33.6	45.9	57.0	66.4	70.8	68.7	60.9	49.3	38.3	26.4	46.8
	MEAN DRY BULB	47	22.1	24.0	33.1	45.6	57.0	66.7	70.8	68.7	61.1	49.9	38.2	27.2	47.0
	MEAN WET BULB	15	22.1	23.8	30.7	41.7	51.7	60.6	60.9	63.5	52.6	45.6	33.4	24.9	42.6
	MEAN DEW POINT	15	18.1	19.2	25.2	35.7	46.0	55.7	57.3	60.3	49.3	41.3	29.5	21.5	38.3
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.0	0.4	2.3	4.5	2.5	0.7	0.0	0.0	0.0	10.4	
MAXIMUM ≤ 32°	30	19.4	14.8	5.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	14.3	56.8	
MINIMUM ≤ 32°	30	29.5	26.3	24.4	12.8	2.6	0.1	0.0	0.0	0.7	7.8	18.3	27.4	149.9	
MINIMUM ≤ 0°	30	6.2	4.6	0.9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	14.2	
H/C	NORMAL HEATING DEG. DAYS	30	1367	1179	973	573	283	60	8	26	147	487	801	1197	7101
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	35	102	188	141	24	0	0	0	490
RH	NORMAL (PERCENT)	30	79	76	73	68	67	69	71	75	78	76	79	81	74
	HOUR 01 LST	30	82	80	79	76	77	80	84	88	88	84	83	83	82
	HOUR 07 LST	30	83	82	82	80	79	81	85	90	91	87	85	84	84
	HOUR 13 LST	30	74	69	64	57	54	56	56	58	62	62	70	76	63
	HOUR 19 LST	30	77	74	68	59	57	58	59	64	73	74	78	81	68
S	PERCENT POSSIBLE SUNSHINE	42	36	44	49	52	61	65	69	64	59	50	31	29	51
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	45	2.1	1.8	2.2	1.0	1.0	1.3	1.2	2.1	1.9	2.1	1.7	2.3	20.7
	THUNDERSTORMS	45	0.3	0.2	1.4	3.2	3.7	6.4	6.2	5.6	4.0	1.2	1.0	0.4	33.6
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	42	6.3	5.9	5.8	5.5	5.1	4.8	4.5	4.5	4.8	5.1	6.2	6.4	5.4
	MIDNIGHT-MIDNIGHT (OKTAS)	32	6.2	5.7	5.3	5.2	4.8	4.4	4.2	4.1	4.4	4.8	6.0	6.2	5.1
	MEAN NO. DAYS WITH:														
	CLEAR	42	3.2	4.2	5.2	5.9	7.0	7.2	8.0	8.4	7.9	7.1	3.6	2.8	70.5
PARTLY CLOUDY	42	6.6	6.9	7.8	7.1	9.8	11.3	13.2	11.8	9.5	8.6	5.7	5.6	103.9	
CLOUDY	42	21.2	17.2	18.0	17.0	14.2	11.5	9.8	10.8	12.7	15.3	20.7	22.6	191.0	
PR	MEAN STATION PRESSURE (IN)	26	29.10	29.10	29.10	29.00	29.00	29.00	29.10	29.10	29.11	29.10	29.10	29.10	29.08
	MEAN SEA-LEVEL PRES. (IN)	14	30.06	30.07	30.06	29.96	30.00	30.01	30.00	30.05	30.07	30.07	30.05	30.09	30.04
WINDS	MEAN SPEED (MPH)	34	12.2	11.7	12.1	11.8	10.3	9.0	8.5	7.8	8.7	9.7	11.4	11.6	10.4
	PREVAIL. DIR (TENS OF DEGS)	25	23	27	27	27	27	27	27	27	22	22	22	22	27
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	3	36	38	38	44	44	45	38	26	38	31	49	34	49
	DIR. (TENS OF DEGS)		25	26	27	26	21	27	26	25	28	26	23	25	23
	YEAR OF OCCURRENCE		1997	1999	1999	1997	1999	1998	1998	1997	1997	1998	1998	1999	NOV 1998
	MAXIMUM 5-SECOND:														
	SPEED (MPH)	3	41	48	46	53	53	53	48	33	48	38	60	41	60
DIR. (TENS OF DEGS)		24	26	26	25	22	27	26	25	27	28	22	24	22	
YEAR OF OCCURRENCE		1997	1999	1999	1997	1999	1998	1998	1997	1997	1999	1998	1999	NOV 1998	
PRECIPITATION	NORMAL (IN)	30	1.49	1.36	2.30	2.81	2.61	3.71	2.52	3.20	3.56	2.10	2.63	2.33	30.62
	MAXIMUM MONTHLY (IN)	48	3.61	4.21	4.36	5.79	6.57	10.21	6.43	9.81	8.34	5.58	5.40	4.70	10.21
	YEAR OF OCCURRENCE		1950	1954	1974	1999	1989	1986	1992	1975	1986	1990	1990	1949	JUN 1986
	MINIMUM MONTHLY (IN)	48	0.39	0.22	0.92	1.07	0.62	0.20	0.50	0.17	T	0.28	0.51	0.37	T
	YEAR OF OCCURRENCE		1981	1969	1960	1982	1977	1988	1965	1969	1979	1956	1962	1960	SEP 1979
	MAXIMUM IN 24 HOURS (IN)	47	1.59	2.40	1.59	2.73	3.28	5.01	2.16	3.75	3.43	3.46	2.47	1.62	5.01
	YEAR OF OCCURRENCE		1949	1954	1954	1993	1989	1986	1972	1975	1981	1981	1990	1970	JUN 1986
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	14.5	11.5	13.3	12.2	10.3	10.5	9.7	9.3	10.5	9.8	12.2	14.8	138.6	
PRECIPITATION ≥ 1.00	30	0.1	0.1	0.2	0.4	0.5	0.9	0.5	0.7	0.9	0.3	0.3	0.2	5.1	
SNOWFALL	NORMAL (IN)	30	13.2	10.3	8.6	3.2	T	0.0	0.0	0.0	T	0.5	4.8	12.6	53.2
	MAXIMUM MONTHLY (IN)	43	34.6	23.7	19.8	17.0	0.3	T	0.0	0.0	T	7.5	16.8	27.8	34.6
	YEAR OF OCCURRENCE		1999	1986	1971	1970	1994	1992			1994	1967	1966	1951	JAN 1999
	MAXIMUM IN 24 HOURS (IN)	43	20.4	9.0	15.5	17.0	0.3	T	0.0	0.0	T	7.5	11.0	15.1	20.4
	YEAR OF OCCURRENCE		1967	1965	1973	1970	1994	1992			1994	1967	1951	1970	JAN 1967
	MAXIMUM SNOW DEPTH (IN)	45	24	23	17	13	0	0	0	0	0	4	11	20	24
	YEAR OF OCCURRENCE		1978	1978	1973	1975						1967	1951	1951	JAN 1978
	NORMAL NO. DAYS WITH:														
SNOWFALL ≥ 1.0	30	4.0	3.2	2.7	0.8	0.0	0.0	0.0	0.0	0.0	0.1	1.6	4.1	16.5	

PRECIPITATION (inches) 1999 LANSING, MI (LAN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0.91	0.66	2.20	3.13	2.89	3.02	3.37	2.36	4.61	3.77	2.85	2.48	32.25
1971	0.68	2.40	2.33	1.50	1.93	5.13	4.82	2.50	5.25	2.29	1.61	4.24	34.68
1972	1.51	1.19	2.82	4.56	2.86	3.28	3.27	5.06	2.65	3.30	2.72	4.16	37.38
1973	1.17	1.44	3.59	2.22	3.78	3.62	2.04	1.77	2.81	2.07	4.22	3.09	31.82
1974	3.00	2.58	4.36	2.07	4.07	2.81	1.21	2.67	2.60	1.44	2.50	2.39	31.70
1975	2.77	2.08	2.43	4.76	2.96	2.93	2.47	9.81	1.65	0.95	3.43	3.32	39.56
1976	1.59	2.54	3.85	3.55	2.52	4.50	2.56	0.58	1.66	2.32	1.02	0.96	27.65
1977	0.95	0.66	2.65	2.53	0.62	3.50	2.00	1.60	4.46	1.20	2.17	2.30	24.64
1978	2.60	0.46	1.91	1.55	2.06	2.73	1.23	3.69	3.80	1.98	2.58	2.85	27.44
1979	2.13	0.56	1.78	2.69	1.35	5.53	1.86	2.30	T	1.99	3.25	2.30	25.74
1980	0.70	0.99	1.94	2.41	1.84	3.20	3.56	4.76	3.22	2.02	0.90	3.06	28.60
1981	0.39	1.39	1.10	5.16	4.69	3.22	1.71	1.98	8.01	1.28	1.50	1.10	31.53
1982	1.55	0.55	2.98	1.07	2.52	3.00	3.00	1.99	3.51	0.43	4.21	3.54	28.35
1983	1.00	0.81	3.25	4.10	3.97	4.27	2.54	2.70	3.74	2.57	3.22	1.83	34.00
1984	0.49	0.89	2.54	3.02	4.05	0.32	2.64	3.16	2.69	3.09	2.54	3.79	29.22
1985	2.04	3.03	3.53	2.90	2.14	2.17	3.06	4.36	3.34	3.25	3.08	1.29	34.19
1986	0.89	2.62	1.56	1.96	1.97	10.21	1.69	2.88	8.34	2.66	1.21	1.13	37.12
1987	1.00	0.35	0.97	1.58	1.37	3.30	3.35	5.64	4.88	1.77	2.89	3.40	30.50
1988	1.53	1.10	1.52	3.95	0.63	0.20	2.56	5.08	5.97	3.35	4.26	1.26	31.41
1989	1.15	0.67	2.13	1.44	6.57	3.61	0.93	4.90	3.49	1.29	3.65	0.86	30.69
1990	1.55	2.65	1.40	2.36	3.43	2.50	3.61	2.40	4.00	5.58	5.40	2.79	37.67
1991	1.28	0.79	3.76	4.41	1.75	2.60	2.41	3.83	1.05	3.80	3.02	2.13	30.83
1992	1.38	1.36	2.68	4.64	2.09	2.07	6.43	2.79	3.21	2.18	3.88	2.16	34.87
1993	3.22	1.17	1.74	4.86	1.37	6.50	2.94	3.80	4.80	2.99	1.39	0.70	35.48
1994	1.87	1.10	1.95	3.60	1.12	5.54	3.90	5.30	2.99	2.63	3.87	1.55	35.42
1995	2.34	1.18	2.01	2.85	2.83	0.95	2.04	2.87	1.06	2.55	3.37	1.05	25.10
1996	1.26	0.78	1.02	3.58	3.39		1.82	3.71	2.41	2.73	1.59	2.58	
1997	1.24	3.83	2.07	1.69	3.19	1.74	2.22	3.92	3.10	1.66	1.39	0.89	26.94
1998	3.34	2.15	3.97	2.62	1.58	3.45	2.15	2.62	1.55	2.40	1.63	1.53	28.99
1999	2.63	1.06	0.94	5.79	1.66	4.53	3.64	2.41	2.04	1.22	1.10	1.84	28.86
POR= 94 YRS	1.73	1.60	2.38	2.91	3.18	3.45	2.68	3.01	2.96	2.38	2.36	1.99	30.63

WBAN : 14836

AVERAGE TEMPERATURE (°F) 1999 LANSING, MI (LAN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	16.4	23.6	29.1	46.5	58.6	65.5	70.2	68.2	61.5	51.8	39.1	25.8	46.4
1971	19.1	26.5	30.2	44.2	55.0	70.4	67.2	66.9	64.3	58.2	38.3	31.9	47.7
1972	21.3	21.8	29.7	41.6	58.2	61.6	68.1	67.1	59.9	44.9	35.3	26.5	44.7
1973	27.5	21.3	39.8	46.2	52.9	67.7	70.1	73.0	62.0	54.3	39.9	26.6	48.4
1974	24.9	19.4	34.1	48.0	53.6	64.2	71.3	68.4	57.5	47.6	39.4	29.3	46.5
1975	27.1	26.1	30.6	40.3	61.3	68.4	70.6	69.6	56.2	52.2	45.0	27.8	47.9
1976	17.4	29.9	38.2	48.1	54.0	69.1	70.9	66.8	59.3	44.8	31.6	18.0	45.7
1977	11.1	23.2	40.2	50.8	64.3	64.0	73.6	68.5	62.7	48.3	39.5	25.3	47.6
1978	17.6	11.3	25.6	43.8	58.6	65.7	69.5	69.5	65.1	48.4	39.8	26.8	45.1
1979	16.1	13.0	37.8	44.5	57.1	67.3	70.3	67.5	63.0	49.5	38.4	30.6	46.3
1980	22.2	19.6	29.9	45.0	58.5	63.5	72.5	71.8	61.8	45.2	36.7	23.7	45.9
1981	17.6	28.2	35.5	48.6	54.3	67.2	71.1	69.7	58.1	46.1	39.1	27.1	46.9
1982	15.1	19.8	31.2	41.5	63.9	62.3	70.8	66.7	60.4	51.8	40.1	34.8	46.5
1983	26.5	30.9	35.9	42.1	52.4	67.1	74.4	72.3	62.4	48.9	39.5	17.8	47.5
1984	14.9	32.6	27.1	46.5	52.6	69.7	69.6	71.9	59.6	52.7	38.2	31.3	47.2
1985	17.8	20.2	36.0	51.1	59.3	63.3	70.5	67.2	63.0	50.7	39.0	21.2	46.6
1986	21.9	21.1	36.0	49.2	58.1	64.6	72.3	65.4	62.6	50.3	35.0	29.9	47.2
1987	24.7	29.0	37.5	49.2	62.4	70.6	74.6	69.4	62.3	44.7	41.5	31.7	49.8
1988	20.6	19.9	34.0	46.5	59.7	68.1	74.6	72.6	61.2	44.1	40.7	27.1	47.4
1989	30.9	19.9	32.5	43.6	55.1	65.8	71.3	68.4	59.8	50.7	33.6	15.8	45.6
1990	31.8	26.8	37.0	47.8	54.1	66.5	69.3	68.4	62.1	49.7	42.5	29.2	48.8
1991	20.9	29.4	37.6	50.2	63.7	69.3	71.4	69.3	58.6	51.9	35.5	28.8	48.9
1992	25.9	29.5	32.2	43.4	56.2	63.3	66.1	63.9	58.8	47.3	37.7	30.8	46.3
1993	25.7	20.9	32.4	44.7	57.6	65.1	72.1	70.5	56.5	47.8	36.9	27.5	46.5
1994	14.1	18.1	33.5	47.5	54.8	67.3	70.4	65.5	62.4	50.8	41.7	31.6	46.5
1995	25.5	21.2	35.9	42.0	55.3	67.6	71.3	74.2	58.5	52.0	31.9	23.3	46.6
1996	21.6	24.2	28.4	42.6	55.1	67.3	66.6	69.5	60.3	49.6	32.6	28.4	45.5
1997	21.1	26.3	34.0	42.7	48.3	66.3	68.7	64.5	59.6	47.7	34.8	30.0	45.3
1998	29.7	33.7	35.6	46.8	62.5	65.9	70.0	70.4	64.4	51.2	41.0	31.9	50.3
1999	20.1	30.1	30.4	47.7	59.2	69.0	73.1	65.7	61.4	48.2	42.1	29.1	48.0
POR= 94 YRS	22.0	22.7	32.7	45.0	56.8	66.2	70.8	68.9	61.5	50.3	38.0	26.7	46.8

HEATING DEGREE DAYS (base 65°F) 1999 LANSING, MI (LAN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	26	31	159	409	771	1208	1416	1070	1069	621	318	34	7132
1971-72	35	39	129	234	792	1016	1348	1246	1089	696	219	142	6985
1972-73	56	56	173	616	884	1186	1158	1218	774	564	370	20	7075
1973-74	11	5	179	339	745	1182	1233	1270	949	513	359	94	6879
1974-75	6	27	256	538	762	1099	1166	1085	1057	737	180	57	6970
1975-76	11	13	266	402	593	1145	1469	1011	826	528	338	30	6632
1976-77	4	57	210	619	994	1449	1666	1164	761	439	137	99	7599
1977-78	7	50	118	514	757	1226	1461	1496	1215	627	244	84	7799
1978-79	24	13	105	507	751	1181	1509	1452	834	608	289	58	7331
1979-80	19	41	118	491	792	1058	1323	1308	1081	600	229	124	7184
1980-81	0	5	136	607	842	1271	1464	1026	907	483	330	24	7095
1981-82	12	23	227	579	770	1168	1540	1259	1044	696	108	113	7539
1982-83	7	62	184	406	739	930	1187	951	895	681	386	66	6494
1983-84	14	9	152	500	756	1456	1546	936	1166	554	387	17	7493
1984-85	21	13	208	374	798	1039	1458	1248	891	439	202	94	6785
1985-86	12	26	168	438	772	1350	1330	1224	893	480	237	77	7007
1986-87	11	63	125	451	895	1079	1240	1005	846	469	188	23	6395
1987-88	16	38	124	621	700	1026	1371	1301	955	547	199	74	6972
1988-89	7	35	147	644	721	1165	1049	1255	999	637	320	53	7032
1989-90	6	28	199	437	934	1520	1023	1062	869	546	336	55	7015
1990-91	22	20	154	484	667	1102	1359	990	841	449	171	30	6289
1991-92	7	13	244	407	877	1114	1207	1023	1007	642	294	95	6930
1992-93	33	88	224	543	813	1050	1215	1231	1003	604	234	81	7119
1993-94	3	22	264	533	835	1158	1574	1307	973	535	331	62	7597
1994-95	1	61	121	432	692	1027	1216	1221	895	682	295	49	6692
1995-96	22	1	225	405	985	1285	1340	1180	1130	663	331	28	7595
1996-97	38	8	174	472	966	1130	1352	1075	953	661	513	57	7399
1997-98	23	70	175	538	898	1079	1090	871	916	540	122	119	6441
1998-99	11	11	95	429	715	1017	1385	971	1065	515	202	58	6474
1999-	7	48	148	515	681	1106							

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COOLING DEGREE DAYS (base 65°F) 1999 LANSING, MI (LAN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0	0	0	15	42	117	193	134	60	5	0	0	566
1971	0	0	0	0	14	202	112	103	113	28	0	0	572
1972	0	0	0	0	12	46	161	127	26	1	0	0	373
1973	0	0	0	7	0	106	176	264	92	12	0	0	657
1974	0	0	0	8	11	80	208	138	37	5	0	0	487
1975	0	0	0	0	73	165	192	162	5	11	0	0	608
1976	0	0	0	25	4	162	198	121	45	1	0	0	556
1977	0	0	0	19	124	76	282	162	56	0	0	0	719
1978	0	0	0	0	53	110	170	157	115	0	0	0	605
1979	0	0	0	0	48	133	192	125	63	17	0	0	578
1980	0	0	0	4	33	86	239	223	46	0	0	0	631
1981	0	0	0	1	7	101	210	178	27	0	0	0	524
1982	0	0	0	0	80	40	193	122	53	6	0	0	494
1983	0	0	0	0	1	134	311	242	79	7	0	0	774
1984	0	0	0	5	10	164	173	234	51	1	0	0	638
1985	0	0	0	32	31	50	189	100	116	0	0	0	518
1986	0	0	0	10	31	68	246	83	59	0	0	0	497
1987	0	0	0	0	114	199	322	181	48	0	1	0	865
1988	0	0	0	0	41	173	307	277	41	4	0	0	843
1989	0	0	0	0	22	85	209	138	49	1	0	0	504
1990	0	0	6	37	7	106	163	134	74	14	0	0	541
1991	0	0	0	14	139	165	213	151	59	9	0	0	750
1992	0	0	0	2	28	48	74	62	45	1	0	0	260
1993	0	0	0	0	13	92	228	200	13	5	0	0	551
1994	0	0	0	15	22	135	177	85	50	0	0	0	484
1995	0	0	0	0	4	133	222	292	35	8	0	0	694
1996	0	0	0	0	30	105	96	152	41	0	0	0	424
1997	0	0	0	0	0	102	145	60	18	9	0	0	334
1998	0	0	11	0	52	153	173	185	81	7	0	0	662
1999	0	0	0	3	30	182	265	76	48	0	0	0	604

SNOWFALL (inches) 1999 LANSING, MI (LAN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.0	0.9	26.1	8.9	5.7	19.8	1.2	0.0	0.0	62.6
1971-72	0.0	0.0	0.0	0.0	13.0	3.7	16.9	14.6	9.3	5.8	0.0	0.0	63.3
1972-73	0.0	0.0	0.0	T	11.8	18.3	1.9	21.3	16.5	5.5	T	0.0	75.3
1973-74	0.0	0.0	0.0	0.0	T	23.6	14.9	16.5	10.4	0.5	T	0.0	65.9
1974-75	0.0	0.0	0.0	0.5	6.9	20.4	4.4	12.7	10.4	13.2	0.0	0.0	68.5
1975-76	0.0	0.0	0.0	0.0	10.0	20.2	23.5	4.6	6.8	5.5	T	0.0	70.6
1976-77	0.0	0.0	0.0	1.4	4.6	20.5	17.2	3.5	8.7	1.1	0.0	0.0	57.0
1977-78	0.0	0.0	0.0	0.0	8.1	13.3	34.0	6.7	4.6	T	0.0	0.0	66.7
1978-79	0.0	0.0	0.0	0.0	7.0	14.7	27.1	4.1	4.2	1.5	T	0.0	58.6
1979-80	0.0	0.0	0.0	T	7.2	3.2	6.7	5.5	8.8	3.3	0.0	0.0	34.7
1980-81	0.0	0.0	0.0	T	4.2	14.2	5.9	12.2	2.2	T	0.0	0.0	38.7
1981-82	0.0	0.0	0.0	0.3	2.2	15.9	15.6	8.2	12.9	7.0	0.0	0.0	62.1
1982-83	0.0	0.0	0.0	0.0	1.1	4.3	5.1	3.5	15.2	4.3	0.0	0.0	33.5
1983-84	0.0	0.0	0.0	0.1	3.0	21.4	9.1	3.2	12.1	0.5	0.0	0.0	49.4
1984-85	0.0	0.0	0.0	0.0	1.2	11.7	25.5	17.5	3.8	0.9	0.0	0.0	60.6
1985-86	0.0	0.0	0.0	0.0	3.7	16.4	12.5	23.7	4.9	T	0.0	0.0	61.2
1986-87	0.0	0.0	0.0	T	4.1	6.8	16.8	1.4	5.7	2.5	0.0	0.0	37.3
1987-88	0.0	0.0	0.0	0.5	T	12.9	9.7	18.7	4.9	1.2	0.0	0.0	47.9
1988-89	0.0	0.0	0.0	T	3.8	8.5	7.2	13.5	4.4	2.5	0.0	0.0	39.9
1989-90	0.0	0.0	T	3.9	11.8	10.2	3.6	21.3	5.0	0.6	T	0.0	56.4
1990-91	0.0	0.0	0.0	0.0	0.1	12.9	13.8	6.5	2.8	0.1	0.0	0.0	36.2
1991-92	0.0	0.0	0.0	1.3	3.8	19.1	11.0	4.2	14.1	4.8	0.0	T	58.3
1992-93	0.0	0.0	0.0	1.2	4.3	8.7	17.6	19.2	13.1	3.3	0.0	0.0	67.4
1993-94	0.0	0.0	0.0	T	1.5	5.7	16.0	21.6	5.1	0.1	0.3	0.0	50.3
1994-95	0.0	0.0	T	0.0	0.9	9.0	20.9	13.7	5.6	1.7	0.0	0.0	51.8
1995-96	0.0	0.0	0.0	0.0	7.9	11.2	5.3	3.9	10.3	0.6	0.0		
1996-97													
1997-98													
1998-99						6.3	34.6	4.2	11.2	T	0.0	0.0	
1999-	0.0					5.8							
POR= 93 YRS	0.0	0.0	0.0	0.4	4.5	10.6	12.1	9.9	8.3	2.6	0.2	T	48.6

WBAN : 14836

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
LANSING,
MICHIGAN (LAN)

The climate at Lansing alternates between continental and semi-marine, depending on meteorological conditions. The marine type is due to the influence of the Great Lakes and is governed by the force and direction of the wind. When there is little or no wind, the weather becomes continental in character, which means pronounced fluctuation in temperature, hot weather in summer and severe cold in winter. On the other hand, a strong wind from the Lakes may immediately transform the weather into a semi-marine type.

Since large bodies of water are less responsive to temperature changes, the Great Lakes hold the winter cold longer in the spring and the summer heat longer in the fall than do the land areas. This fact is illustrated by looking at some monthly mean temperatures at Lansing as compared to similar latitudes west of the Lakes. Such a comparison shows cooler summers and milder winters in Lansing because of the lake effect.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is September 30 and the average last occurrence in the spring is May 13.

Precipitation is fairly well distributed through the year, and no conspicuous annual variation is noted, although there is about 1 inch less per month in winter than in summer. The heavier amounts in summer occur in thunderstorms. The wettest months are May and June. Snowfall for Lansing is moderate, averaging about 52 inches per year.

There are almost twice as many cloudy days as clear days throughout the year. Much cloudiness prevails during the winter season, but sunshine is abundant during the summer months. Similarly, relative humidity remains rather high during the winter, but is only moderate in summer.

Tornadoes sometimes occur in this area, but their frequency is less than in states farther to the south and west. Destructive thunder and wind storms are not uncommon. Flooding of streams and rivers in the upper grand Basin occurs in about one year out of three, with floods causing considerable damage in about one year out of ten.

STATION LOCATION

LANSING MICHIGAN

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											AUCI T O M A T I C A L I N S T R U M E N T S * *	* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS	
						SEA LEVEL	GROUND													
							WIND IZON	EMER	EMER	EMER	EMER	EMER	EMER	EMER	EMER	EMER				EMER
CITY																				
Michigan Agri. College (Later Mich. St. Col.)	4/1/63	11/7/02	NA	42° 44'	84° 28'													Latitude and Longitude approximate.		
Michigan Agri. College Experiment Station	11/8/02	4/30/10	Unknown	42° 43'	84° 28'	820														
Weather Bureau Building Mich. State College 109 W. Grand River East Lansing	5/1/10	2/20/28	0.75 mi. NW	42° 44'	84° 29'	856	62	11	11	62	3			3				Wind records were defective due to interference of trees.		
Weather Bureau Building MSC grounds 257 W. Michigan Avenue	2/21/28	6/30/48	750 feet W	42° 44'	84° 29'	856	49 a90	6	6	87	3	4	3					a - Raised to avoid tree interference 12/8/30.		
Building & Loan Assoc. Building, 303 Abbott Rd East Lansing	6/30/48	5/1/59	Unknown	42° 44'	84° 29'	856	45	5	4	b41		4						b - Moved to airport 1954.		
AIRPORT																				
NW Corner, Capital City Airport, Lansing	7/1/30	2/14/38	NA	42° 47'	84° 36'		32											Intermittent observations.		
NW Corner, Capital City Airport, Lansing	2/15/38	6/30/44	NA	42° 47'	84° 36'	859	47		5					3				Observations by CAA.		
NW Corner, Capital City Airport, Lansing	7/1/44	7/31/54	NA	42° 47'	84° 36'	859	52	5	5		3	4	3					Weather Bureau - CAA operation.		
NW Corner, Capital City Airport, Lansing	8/1/54	4/30/59	NA	42° 47'	84° 36'	859	52	5	5	c Unk	3	4	3	e				CAA operations. c - Height unknown.		
South Central, Capital City Airport, Lansing	5/1/59	11/1/79	0.6 mi. ESE	42° 47'	84° 36'	852 f841	78 d19 g20	5 h26	5 h26	74	3	5 h3	25	e5	NA			Weather Bureau operation. d - Effective 8/2/63. e - Telepsychrometer (5') 8/1/54-8/17/63. Hygro. comm. 3500' NNE of thermometer site 8/17/63. f - Effective 8/17/63. g - Effective 10/21/63. h - Temporary relocations 10/1/79.		
General Aviation Bldg. Capital City Airport	11/1/79	06/01/96	0.13 mi. SW	42° 46'	84° 36'	841	i20	6	6	65	65	5	5	i5 j5	NA			i - Not moved 11/1/79. j - Minor move & type change 6/18/85.		
Capitol City Airport	06/01/96	Present	NA	42°47'	84°35'	869									S			ASOS Commissioned 06/01/96		

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

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