

1999

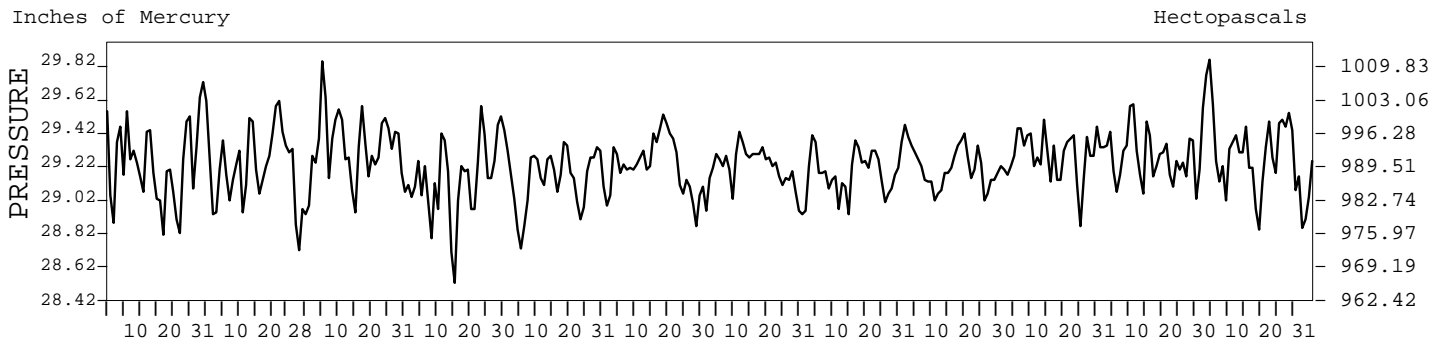
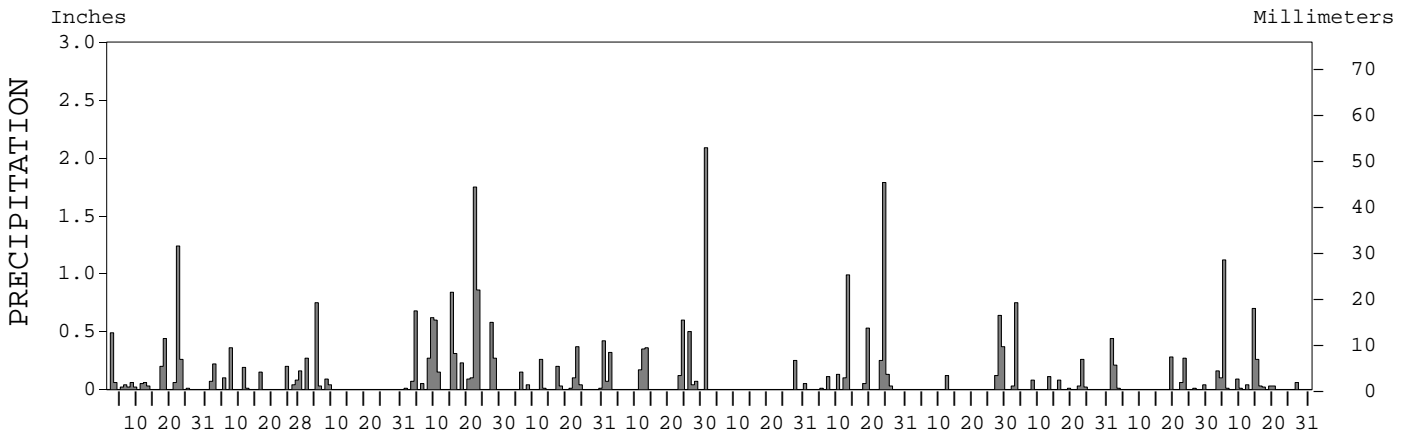
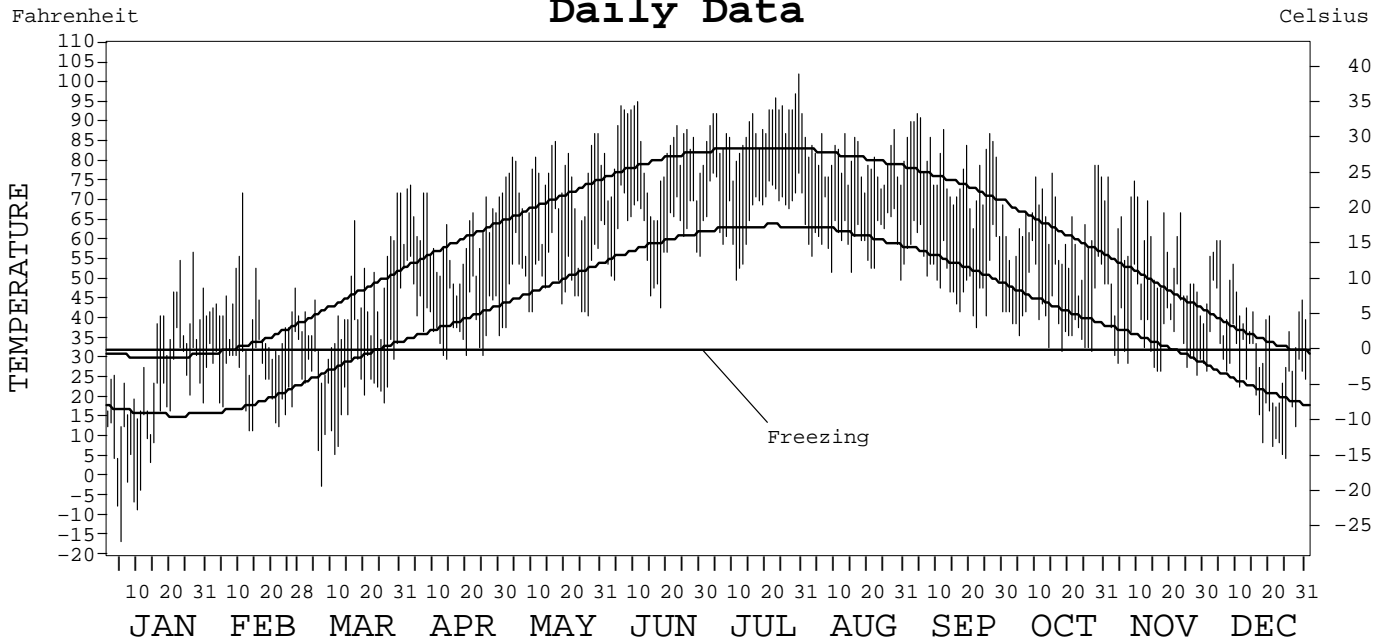
LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



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SOUTH BEND,
INDIANA (SBN)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE
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 ASHEVILLE, NORTH CAROLINA

METEOROLOGICAL DATA FOR 1999

SOUTH BEND, IN (SBN)

LATITUDE: 41° 42' 26" N LONGITUDE: 86° 19' 59" W ELEVATION (FT): GRND: 778 BARO: 778 TIME ZONE: EASTERN (UTC + 5) WBAN: 14848

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	30.4	41.0	43.8	61.0	74.4	81.4	88.5	79.9	78.1	63.2	55.8	39.0	61.4	
	HIGHEST DAILY MAXIMUM	57	72	72	74	87	95	102	88	92	79	76	60	102	
	DATE OF OCCURRENCE	27	11	30+	03	30+	11	30	28	04	29+	01	05+	JUL 30	
	MEAN DAILY MINIMUM	15.0	24.9	23.2	41.0	50.9	61.1	67.5	60.2	51.7	42.0	36.0	24.7	41.5	
	LOWEST DAILY MINIMUM	-16	12	-2	30	38	43	50	50	38	32	26	5	-16	
	DATE OF OCCURRENCE	05	14+	07	14	02+	18	11	30	22	27+	28	25	JAN 05	
	AVERAGE DRY BULB	22.7	33.0	33.5	51.0	62.7	71.3	78.0	70.1	64.9	52.6	45.9	31.9	51.5	
	MEAN WET BULB	21.4	30.7	29.8	45.8	56.0	64.1	70.9	63.6	56.3	47.0	41.3	29.8	46.4	
	MEAN DEW POINT	17.7	25.4	22.1	39.7	49.8	59.2	67.1	59.5	49.5	41.0	35.3	25.5	41.0	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	6	14	0	4	0	0	0	0	24
	MAXIMUM ≤ 32°	16	5	4	0	0	0	0	0	0	0	0	8	33	
	MINIMUM ≤ 32°	28	23	27	4	0	0	0	0	0	2	14	22	120	
	MINIMUM ≤ 0°	6	0	1	0	0	0	0	0	0	0	0	0	7	
H/C	HEATING DEGREE DAYS	1304	893	968	412	134	41	0	3	92	377	566	1020	5810	
	COOLING DEGREE DAYS	0	0	0	0	67	236	410	166	96	3	0	0	978	
RH	MEAN (PERCENT)	81	74	65	69	64	68	71	71	62	67	69	78	70	
	HOUR 01 LST	84	76	74	80	74	82	83	83	77	75	74	79	78	
	HOUR 07 LST	84	80	75	84	78	80	85	87	83	78	78	83	81	
	HOUR 13 LST	76	65	51	57	52	53	54	56	38	55	57	70	57	
	HOUR 19 LST	78	73	60	60	54	57	58	62	54	63	67	78	64	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	7	4	3	0	2	1	1	3	0	1	3	3	28	
	THUNDERSTORMS	4	0	0	7	5	8	3	5	3	1	2	0	38	
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.)	29.23	29.20	29.30	29.12	29.14	29.20	29.18	29.19	29.18	29.28	29.29	29.23	29.21	
	MEAN SEA-LEVEL PRESS. (IN.)	30.10	30.05	30.15	29.96	29.96	30.02	29.99	30.00	30.00	30.11	30.13	30.09	30.05	
WINDS	RESULTANT SPEED (MPH)	3.5	3.6	2.3	2.7	1.8	1.2	2.4	1.7	2.6	2.8	3.9	4.7	1.8	
	RES. DIR. (TENS OF DEGS.)	20	22	32	09	20	19	29	33	27	23	24	22	24	
	MEAN SPEED (MPH)	11.2	10.6	10.2	9.7	9.7	7.6	8.0	7.2	7.9	9.2	9.0	9.8	9.2	
	PREVAIL. DIR. (TENS OF DEGS.)	22	19	33	10	10	20	22	36	22	22	21	22	22	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	33	45	32	40	43	36	32	25	28	30	30	29	45	
	DIR. (TENS OF DEGS.)	21	20	23	24	22	21	23	36	20	33	24	20	20	
	DATE OF OCCURRENCE	23	11	17	06	06	01	21	10	26	23	23	29+	FEB 11	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	43	56	39	48	53	45	41	31	33	38	37	38	56	
DIR. (TENS OF DEGS.)	09	20	25	24	23	21	24	29	30	32	24	31	20		
DATE OF OCCURRENCE	02	11	17	06	06	01	21	13	29+	23	23+	26	FEB 11		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	3.06	1.58	1.18	7.48	1.64	2.60	2.39	4.12	1.25	1.37	1.32	2.66	30.65	
	GREATEST 24-HOUR (IN.)	1.24	0.36	0.78	2.60	0.42	0.72	2.09	1.92	0.86	0.75	0.64	1.21	2.60	
	DATE OF OCCURRENCE	22	07	05-06	22-23	31	23-24	01	24-25	28-29	03	01-02	04-05	APR 22-23	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	16	11	5	17	12	10	3	11	4	9	8	14	120	
PRECIPITATION ≥ 0.10	5	7	2	13	6	7	2	8	4	3	4	5	66		
PRECIPITATION ≥ 1.00	1	0	0	1	0	0	1	1	0	0	0	1	5		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	37.0	10.4	14.2	T	T	0.0	0.0	0.0	0.0	0.0	1.9	7.4	70.9	
	GREATEST 24-HOUR (IN.)	15.4	3.8	7.5	T	T	0.0	0.0	0.0	0.0	0.0	1.8	2.9	15.4	
	DATE OF OCCURRENCE	02	24	05-06	23+	17						29	27	JAN 02	
	MAXIMUM SNOW DEPTH (IN.)	18	3	8	0	0	0	0	0	0	0	1	3	18	
	DATE OF OCCURRENCE	07	25+	09								30	29+	JAN 07	
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	8	4	4	0	0	0	0	0	0	0	1	3	20		

NORMALS, MEANS, AND EXTREMES

SOUTH BEND, IN (SBN)

LATITUDE: 41° 42' 26" N LONGITUDE: 86° 19' 59" W ELEVATION (FT): GRND: 778 BARO: 778 TIME ZONE: EASTERN (UTC + 5) WBAN: 14848

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	30.4	34.1	45.6	58.7	70.0	79.5	82.9	80.7	74.1	62.3	48.5	35.4	58.5
	MEAN DAILY MAXIMUM	52	31.1	34.8	45.0	58.5	70.2	79.7	83.0	81.2	74.4	62.8	47.9	35.9	58.7
	HIGHEST DAILY MAXIMUM	60	68	72	85	91	95	104	102	103	99	92	82	70	104
	YEAR OF OCCURRENCE		1950	1999	1981	1942	1942	1988	1999	1988	1953	1963	1950	1982	JUN 1988
	MEAN OF EXTREME MAXS.	52	51.0	53.9	70.6	79.3	86.5	92.5	94.0	91.9	88.9	80.5	68.4	56.0	76.1
	NORMAL DAILY MINIMUM	30	16.1	18.7	29.1	38.7	48.8	58.6	63.0	61.1	53.7	42.8	33.4	22.3	40.5
	MEAN DAILY MINIMUM	52	16.6	19.5	27.9	38.3	48.3	58.4	62.8	61.2	53.6	43.2	32.9	22.5	40.4
	LOWEST DAILY MINIMUM	60	-22	-17	-13	11	24	35	44	40	29	20	-7	-16	-22
	YEAR OF OCCURRENCE		1943	1951	1943	1972	1968	1972	1972	1965	1942	1988	1950	1960	JAN 1943
	MEAN OF EXTREME MINS.	52	-6.2	-1.8	9.8	22.9	33.4	44.0	50.8	49.0	38.3	29.0	17.1	1.6	24.0
	NORMAL DRY BULB	30	23.3	26.4	37.4	48.7	59.4	69.1	72.9	70.9	63.9	52.6	40.9	28.9	49.5
	MEAN DRY BULB	52	23.9	27.2	36.4	48.4	59.4	69.0	72.9	71.1	64.0	53.0	40.4	29.2	49.6
	MEAN WET BULB	16	23.4	26.2	33.2	43.2	53.2	62.1	66.6	65.1	58.0	47.0	37.0	27.9	45.2
	MEAN DEW POINT	16	19.3	21.2	26.9	36.1	46.8	56.9	62.4	61.7	53.8	41.9	32.4	24.1	40.3
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.0	0.6	3.0	4.8	2.9	0.8	*	0.0	0.0	12.1	
MAXIMUM ≤ 32°	30	17.0	12.6	3.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	11.1	46.2	
MINIMUM ≤ 32°	30	28.3	24.5	19.9	8.1	0.8	0.0	0.0	0.0	0.0	3.2	14.0	25.6	124.4	
MINIMUM ≤ 0°	30	4.6	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	8.9	
H/C	NORMAL HEATING DEG. DAYS	30	1293	1081	856	489	233	28	7	22	85	395	723	1119	6331
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	59	151	251	205	52	10	0	0	728
RH	NORMAL (PERCENT)	30	77	75	71	66	66	67	70	73	74	72	76	79	72
	HOUR 01 LST	30	79	78	77	73	75	77	81	84	83	79	79	81	79
	HOUR 07 LST	30	80	81	80	78	79	80	84	88	88	84	82	83	82
	HOUR 13 LST	30	72	69	63	56	54	54	57	59	59	60	68	76	62
	HOUR 19 LST	30	75	72	66	59	56	56	59	63	67	68	74	78	66
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	61	2.7	2.3	2.0	1.3	1.4	1.1	1.2	2.1	1.9	2.1	1.9	3.3	23.3
	THUNDERSTORMS	61	0.4	0.4	2.4	4.4	5.0	7.9	7.2	6.5	4.4	1.9	1.0	0.4	41.9
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	51	6.4	6.2	6.0	5.5	5.0	4.9	4.5	4.5	4.6	4.9	6.1	6.4	5.4
	MIDNIGHT-MIDNIGHT (OKTAS)	32	6.3	5.9	5.7	5.3	4.8	4.6	4.2	4.2	4.4	4.7	6.0	6.4	5.2
	MEAN NO. DAYS WITH:														
	CLEAR	57	3.4	3.7	4.7	5.8	6.9	7.2	8.2	8.6	8.8	8.7	3.6	3.0	72.6
PARTLY CLOUDY	57	5.9	5.6	7.3	7.6	9.6	10.4	12.7	12.1	9.0	8.0	6.0	5.6	99.8	
CLOUDY	57	21.7	18.9	19.1	16.6	14.5	12.4	10.1	10.3	12.2	14.4	20.4	22.5	193.1	
PR	MEAN STATION PRESSURE (IN)	27	29.22	29.23	29.17	29.13	29.14	29.14	29.18	29.21	29.23	29.23	29.20	29.23	29.19
	MEAN SEA-LEVEL PRES. (IN)	16	30.08	30.08	30.05	29.96	29.98	29.96	29.99	30.04	30.05	30.06	30.06	30.09	30.03
WINDS	MEAN SPEED (MPH)	42	11.7	11.2	12.0	11.7	10.1	9.0	8.1	7.6	8.5	9.5	11.1	11.1	10.1
	PREVAIL. DIR (TENS OF DEGS)	25	23	23	22	33	21	21	22	23	23	21	23	23	23
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	3	33	45	40	43	44	36	44	39	36	30	41	37	45
	DIR. (TENS OF DEGS)		21	20	33	24	31	21	32	31	25	33	23	29	20
	YEAR OF OCCURRENCE		1999	1999	1998	1997	1997	1999	1997	1997	1997	1999	1998	1998	FEB 1999
	MAXIMUM 5-SECOND:														
SPEED (MPH)	3	43	56	48	54	54	46	55	51	44	38	52	49	56	
DIR. (TENS OF DEGS)		09	20	33	23	31	31	32	32	28	32	24	30	20	
YEAR OF OCCURRENCE		1999	1999	1998	1997	1997	1998	1998	1997	1997	1999	1998	1998	FEB 1999	
PRECIPITATION	NORMAL (IN)	30	2.23	1.90	3.10	3.82	3.22	4.11	3.82	3.67	3.62	3.08	3.27	3.30	39.14
	MAXIMUM MONTHLY (IN)	60	5.28	5.23	7.96	9.20	8.09	10.86	7.47	8.30	9.01	9.75	6.72	5.50	10.86
	YEAR OF OCCURRENCE		1959	1976	1976	1947	1996	1993	1982	1979	1977	1954	1985	1965	JUN 1993
	MINIMUM MONTHLY (IN)	60	0.44	0.54	0.54	0.50	0.80	0.48	0.02	0.32	0.01	0.42	1.24	0.60	0.01
	YEAR OF OCCURRENCE		1945	1969	1958	1971	1994	1988	1946	1950	1979	1950	1998	1943	SEP 1979
	MAXIMUM IN 24 HOURS (IN)	60	2.81	2.64	2.33	3.14	2.99	4.70	3.64	4.88	3.00	3.49	3.95	3.33	4.88
	YEAR OF OCCURRENCE		1960	1954	1972	1947	1976	1968	1989	1995	1977	1988	1990	1965	AUG 1995
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	16.0	12.5	14.5	13.3	10.6	10.4	10.0	9.9	9.6	11.1	13.0	16.6	147.5	
PRECIPITATION ≥ 1.00	30	0.3	0.2	0.4	0.9	0.4	1.1	1.1	1.0	0.9	0.6	0.5	0.5	7.9	
SNOWFALL	NORMAL (IN)	30	22.8	16.0	9.7	2.7	0.*	0.0	0.0	0.0	0.0	1.0	8.6	21.0	81.8
	MAXIMUM MONTHLY (IN)	60	86.1	35.1	33.9	14.0	0.6	T	T	T	1.2	8.8	30.3	41.9	86.1
	YEAR OF OCCURRENCE		1978	1958	1960	1982	1966	1992	1996	1996	1942	1989	1977	1962	JAN 1978
	MAXIMUM IN 24 HOURS (IN)	60	16.7	14.4	14.8	8.7	0.6	T	T	T	1.0	8.8	17.5	13.7	17.5
	YEAR OF OCCURRENCE		1978	1993	1960	1982	1966	1992	1994	1989	1994	1989	1977	1981	NOV 1977
	MAXIMUM SNOW DEPTH (IN)	51	41	35	21	6	0	0	0	0	0	6	20	23	41
	YEAR OF OCCURRENCE		1978	1978	1960	1982						1989	1977	1962	JAN 1978
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	6.6	5.4	3.3	0.9	0.0	0.0	0.0	0.0	0.0	0.3	2.4	6.3	25.2	

PRECIPITATION (inches) 1999 SOUTH BEND, IN (SBN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	1.34	0.76	2.81	5.43	3.35	3.92	4.14	3.37	5.37	3.68	3.57	1.78	39.52
1971	1.55	2.12	2.10	0.50	1.64	1.13	4.16	2.80	5.16	2.23	1.83	4.58	29.80
1972	1.82	1.39	3.63	3.23	3.01	2.72	4.52	3.85	7.67	3.76	2.90	4.78	43.28
1973	1.64	1.02	3.85	3.88	3.61	4.85	3.33	1.29	2.11	3.49	1.45	4.30	34.82
1974	3.24	2.20	2.81	4.17	4.82	4.08	1.17	1.70	4.65	2.46	3.21	3.00	37.51
1975	4.58	3.26	2.96	6.02	2.08	5.46	2.58	7.55	1.15	1.31	4.73	3.72	45.40
1976	2.21	5.23	7.96	5.20	6.67	6.60	5.96	2.44	3.34	3.23	3.23	2.21	54.28
1977	1.63	1.27	7.05	2.75	1.92	5.71	2.68	6.03	9.01	3.08	4.27	3.65	49.05
1978	4.03	0.86	2.37	4.35	3.35	3.79	5.21	3.80	3.07	3.99	2.79	4.43	42.04
1979	3.22	1.51	4.03	5.80	3.03	4.66	1.75	8.30	0.01	4.79	4.88	3.66	45.64
1980	1.52	1.51	3.74	3.44	1.65	5.97	3.29	7.84	5.64	3.35	1.47	3.91	43.33
1981	0.68	1.92	0.88	5.28	6.79	6.97	3.71	2.30	3.81	1.23	2.23	1.81	37.61
1982	2.95	1.17	4.54	1.46	5.51	3.12	7.47	2.84	2.51	0.91	4.52	3.40	40.40
1983	0.77	0.79	2.46	5.36	4.83	2.04	2.45	1.28	2.81	1.66	2.60	3.23	30.28
1984	0.86	1.45	2.10	4.22	4.02	3.43	1.76	1.47	4.02	4.38	2.73	4.42	34.86
1985	2.58	4.32	3.86	1.93	1.50	2.88	3.80	3.82	1.88	3.36	6.72	2.51	39.16
1986	1.24	2.46	2.09	1.87	3.42	5.06	6.15	1.90	4.27	3.81	2.90	1.67	36.84
1987	2.31	1.32	1.18	2.67	3.50	3.57	3.61	3.34	3.64	3.20	2.11	4.12	34.57
1988	2.21	1.98	3.03	2.91	1.40	0.48	1.28	5.63	4.42	6.68	5.72	2.91	38.65
1989	1.58	1.05	2.27	2.83	2.72	3.49	5.90	5.65	3.78	1.45	3.55	1.83	36.10
1990	2.36	3.66	2.79	2.91	6.86	4.40	5.45	4.60	3.76	7.09	6.69	5.04	55.61
1991	1.64	1.79	2.79	4.58	4.01	0.62	1.32	3.68	2.71	8.75	2.75	1.67	36.31
1992	1.64	1.73	2.93	2.19	1.17	1.74	5.24	2.07	8.84	1.60	5.54	3.99	38.68
1993	3.35	1.20	2.62	3.64	2.34	10.86	1.51	4.38	7.76	4.09	2.39	1.50	45.64
1994	2.46	1.45	0.80	2.80	0.80	5.10	4.97	4.19	4.68	3.49	4.36	2.50	37.60
1995	2.46	2.00	1.84	4.56	3.67	2.36	6.50	8.29	0.89	3.22	4.40	1.89	42.08
1996	1.66	2.09	1.24	3.60	8.09	7.20	6.69	1.75	3.30	3.27	3.70	2.90	45.49
1997	2.63	3.86	2.02	1.36	3.77	3.16	1.98	5.05	2.86	2.16	2.45	2.14	33.44
1998	3.76	1.69	3.62	3.78	2.49	3.98	2.27	5.84	1.54	2.50	1.24	2.04	34.75
1999	3.06	1.58	1.18	7.48	1.64	2.60	2.39	4.12	1.25	1.37	1.32	2.66	30.65
POR= 106 YRS	2.28	1.84	2.81	3.44	3.53	3.69	3.40	3.53	3.35	2.97	2.88	2.59	36.31

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AVERAGE TEMPERATURE (°F) 1999 SOUTH BEND, IN (SBN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	16.8	25.7	32.3	48.8	61.0	67.8	72.0	70.4	64.4	54.4	39.4	30.4	48.6
1971	20.0	28.6	33.9	46.2	56.3	73.9	69.5	68.1	67.1	60.4	40.9	36.0	50.1
1972	23.9	26.5	33.4	45.4	60.0	63.6	71.4	69.4	62.9	49.7	38.1	28.8	47.8
1973	29.9	30.0	46.7	50.1	56.1	72.3	74.4	74.1	67.0	58.3	44.4	29.2	52.7
1974	27.9	28.1	39.6	51.7	57.3	66.8	75.0	71.9	62.0	53.0	42.4	32.9	50.7
1975	30.0	27.8	34.4	43.6	63.2	70.3	71.8	73.6	60.1	55.9	48.1	32.7	51.0
1976	21.6	35.3	43.6	52.5	57.0	70.9	72.8	69.0	61.3	47.9	33.2	22.8	49.0
1977	12.3	26.8	44.1	55.4	68.7	67.1	76.2	69.8	65.3	50.5	42.6	25.9	50.4
1978	18.5	14.8	31.2	48.7	59.5	69.2	71.7	71.9	68.9	51.9	42.9	29.5	48.2
1979	17.9	16.3	39.2	46.2	58.5	70.1	72.3	71.3	65.4	54.2	42.3	34.8	49.0
1980	27.1	23.6	35.5	49.0	62.1	67.8	76.6	75.0	66.3	50.4	41.6	31.1	50.5
1981	23.4	32.1	40.7	52.5	56.6	69.2	71.4	70.6	62.8	50.0	41.5	27.6	49.9
1982	15.6	22.7	35.1	44.7	66.0	64.5	73.3	68.9	63.3	54.0	42.5	39.0	49.1
1983	29.3	33.2	40.2	45.5	55.3	72.0	78.7	78.3	66.5	53.8	43.8	18.4	51.3
1984	18.5	35.9	30.0	48.2	56.1	72.3	71.7	74.4	63.8	57.1	41.0	34.4	50.3
1985	19.6	23.7	41.3	55.2	63.1	66.8	73.1	69.8	65.6	54.6	41.6	20.1	49.5
1986	25.8	24.8	40.4	51.3	59.9	67.7	74.8	67.6	65.9	53.0	36.1	31.2	49.9
1987	25.3	30.8	40.0	50.4	64.7	72.8	75.8	71.7	64.6	46.8	43.7	32.8	51.6
1988	21.3	22.7	37.3	48.4	62.2	72.0	76.4	75.9	64.5	45.9	42.5	28.8	49.8
1989	33.4	22.2	37.0	47.3	57.2	68.0	73.9	70.6	61.8	52.9	38.8	17.7	48.4
1990	34.0	31.3	40.9	48.7	56.7	68.8	71.2	69.9	65.0	52.3	45.9	31.8	51.4
1991	24.2	32.3	41.5	52.6	67.5	74.0	75.7	73.2	63.2	54.9	36.6	32.1	52.3
1992	29.1	33.2	37.4	46.1	58.4	65.1	70.0	67.4	62.3	51.4	40.0	30.9	49.3
1993	28.3	24.4	35.0	46.9	60.7	67.7	74.5	73.6	58.9	50.5	39.4	29.7	49.1
1994	16.3	22.5	36.6	51.0	57.4	71.4	72.9	67.9	65.0	54.0	44.6	35.1	49.6
1995	25.3	25.3	40.3	46.5	57.9	71.3	74.9	77.2	62.2	54.3	34.8	26.0	49.7
1996	24.1	27.8	32.3	46.0	57.3	68.9	68.5	71.1	62.6	52.4	33.8	29.4	47.9
1997	20.6	29.6	37.6	43.7	52.5	68.3	72.2	67.9	62.4	51.6	36.2	30.7	47.8
1998	31.6	37.0	38.6	49.5	65.0	68.3	72.5	73.0	67.4	53.8	43.6	34.6	52.9
1999	22.7	33.0	33.5	51.0	62.7	71.3	78.0	70.1	64.9	52.6	45.9	31.9	51.5
POR= 106 YRS	24.5	26.2	36.4	48.2	59.3	68.9	73.3	71.5	64.6	53.2	40.1	28.7	49.6

HEATING DEGREE DAYS (base 65°F) 1999 SOUTH BEND, IN (SBN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	18	11	93	327	766	1066	1387	1012	959	562	280	7	6488
1971-72	16	13	86	171	716	892	1269	1110	972	582	197	109	6133
1972-73	24	35	112	468	801	1115	1080	977	561	446	268	0	5887
1973-74	0	4	60	229	611	1102	1142	1028	780	403	250	51	5660
1974-75	0	3	144	378	672	985	1077	1035	944	634	136	37	6045
1975-76	13	1	175	300	503	992	1338	856	658	407	253	9	5505
1976-77	0	19	139	525	949	1302	1628	1063	640	327	85	68	6745
1977-78	2	18	58	443	669	1206	1436	1401	1041	480	233	41	7028
1978-79	5	4	57	399	656	1095	1453	1356	795	560	241	22	6643
1979-80	3	17	73	353	672	928	1172	1195	908	482	147	58	6008
1980-81	0	1	62	449	694	1047	1282	915	749	374	271	6	5850
1981-82	4	8	132	460	700	1154	1523	1178	922	604	64	72	6821
1982-83	2	30	114	353	668	798	1100	886	760	581	298	30	5620
1983-84	6	0	94	352	628	1440	1431	838	1080	503	290	4	6666
1984-85	7	0	128	244	714	940	1401	1153	727	339	116	47	5816
1985-86	0	4	121	319	694	1381	1208	1117	760	425	192	46	6267
1986-87	3	48	81	369	858	1038	1224	950	766	436	139	16	5928
1987-88	5	25	78	558	638	993	1347	1220	851	498	158	37	6408
1988-89	1	11	72	581	670	1116	972	1190	865	528	271	40	6317
1989-90	0	12	147	381	779	1462	954	936	751	521	257	46	6246
1990-91	6	14	110	408	565	1021	1260	910	722	378	106	2	5502
1991-92	0	1	167	318	844	1012	1104	915	850	561	247	75	6094
1992-93	6	25	139	417	742	1049	1130	1130	925	536	157	55	6311
1993-94	0	7	198	450	765	1087	1505	1186	875	441	273	28	6815
1994-95	0	30	92	336	606	921	1224	1105	759	548	221	20	5862
1995-96	7	0	135	337	896	1202	1258	1072	1005	566	276	23	6777
1996-97	22	1	140	384	928	1098	1368	983	844	631	383	39	6821
1997-98	12	20	120	437	858	1057	1026	775	824	458	74	80	5741
1998-99	0	0	52	346	632	936	1304	893	968	412	134	41	5718
1999-	0	3	92	377	566	1020							

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COOLING DEGREE DAYS (base 65°F) 1999 SOUTH BEND, IN (SBN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0	0	0	19	63	158	240	185	82	5	0	0	752
1971	0	0	0	3	17	283	163	114	155	34	0	0	769
1972	0	0	0	0	47	74	226	180	55	0	0	0	582
1973	0	0	0	7	1	226	297	292	126	29	0	0	978
1974	0	0	0	10	17	114	321	222	60	11	0	0	755
1975	0	0	0	0	86	203	232	274	32	25	1	0	853
1976	0	0	1	37	13	192	249	150	36	4	0	0	682
1977	0	0	0	47	206	137	355	173	74	0	2	0	994
1978	0	0	0	0	70	173	218	227	179	0	1	0	868
1979	0	0	0	2	48	181	236	220	93	21	0	0	801
1980	0	0	0	9	65	145	367	319	107	6	0	0	1018
1981	0	0	2	6	15	137	211	191	72	0	0	0	634
1982	0	0	0	3	105	65	266	159	71	17	0	0	686
1983	0	0	0	1	3	247	440	417	146	13	0	0	1267
1984	0	0	0	5	19	228	226	298	98	7	0	0	881
1985	0	0	0	52	64	109	260	159	147	3	0	0	794
1986	0	0	4	22	41	135	312	136	113	2	0	0	765
1987	0	0	0	3	136	256	345	240	71	0	3	0	1054
1988	0	0	0	3	77	254	362	357	65	0	0	0	1118
1989	0	0	1	6	37	137	283	194	55	11	0	0	724
1990	0	0	9	37	8	167	203	171	117	21	0	0	733
1991	0	0	0	13	189	281	338	264	121	11	0	0	1217
1992	0	0	0	2	50	90	168	103	66	2	0	0	481
1993	0	0	0	0	29	144	302	284	18	9	0	0	786
1994	0	0	0	26	45	226	255	124	98	2	0	0	776
1995	0	0	0	0	9	216	320	382	57	10	0	0	994
1996	0	0	0	1	44	147	136	201	74	0	0	0	603
1997	0	0	0	0	0	146	241	117	48	29	0	0	581
1998	0	0	9	0	82	185	238	253	131	8	0	0	906
1999	0	0	0	0	67	236	410	166	96	3	0	0	978

SNOWFALL (inches) 1999 SOUTH BEND, IN (SBN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.0	11.0	20.0	22.5	7.5	19.1	2.6	0.0	0.0	82.7
1971-72	0.0	0.0	0.0	0.0	16.3	4.4	19.2	21.2	16.1	7.1	0.0	0.0	84.3
1972-73	0.0	0.0	0.0	1.5	12.6	19.7	5.5	10.6	4.7	1.7	0.0	0.0	56.3
1973-74	0.0	0.0	0.0	0.0	1.0	22.6	14.4	11.9	9.4	1.2	0.0	0.0	60.5
1974-75	0.0	0.0	0.0	0.6	7.9	19.9	9.2	13.9	17.8	5.4	0.0	0.0	74.7
1975-76	0.0	0.0	0.0	0.0	10.7	14.0	31.2	13.9	3.8	0.6	0.1	0.0	74.3
1976-77	0.0	0.0	0.0	0.8	21.6	37.6	37.2	13.9	15.8	2.3	0.0	0.0	129.2
1977-78	0.0	0.0	0.0	0.3	30.3	33.6	86.1	16.6	5.1	T	0.0	0.0	172.0
1978-79	0.0	0.0	0.0	0.0	7.5	26.4	45.1	15.9	6.3	0.1	0.0	0.0	101.3
1979-80	0.0	0.0	0.0	T	7.5	13.6	11.5	22.3	9.8	1.7	0.0	0.0	66.4
1980-81	0.0	0.0	0.0	1.1	8.8	24.3	23.8	20.7	6.3	T	0.0	0.0	85.0
1981-82	0.0	0.0	0.0	0.1	9.1	41.3	41.3	19.2	10.2	14.0	0.0	0.0	135.2
1982-83	0.0	0.0	0.0	0.0	2.1	2.5	8.0	9.6	12.0	1.1	0.0	0.0	35.3
1983-84	0.0	0.0	0.0	0.0	1.4	35.6	16.7	15.9	11.1	0.4	0.0	0.0	81.1
1984-85	0.0	0.0	0.0	0.0	0.6	14.1	40.0	28.9	1.6	3.1	0.0	0.0	88.3
1985-86	0.0	0.0	0.0	0.0	2.2	40.4	26.3	11.3	3.6	0.2	0.0	0.0	84.0
1986-87	0.0	0.0	0.0	0.0	9.7	4.8	31.4	5.9	2.0	1.5	0.0	0.0	55.3
1987-88	0.0	0.0	T	T	1.6	13.1	11.4	22.9	12.1	T	0.0	0.0	61.1
1988-89	0.0	0.0	0.0	0.3	7.8	14.8	3.1	16.3	2.5	1.7	T	T	46.5
1989-90	T	T	0.0	8.8	15.2	29.4	1.2	13.9	3.4	1.1	0.0	0.0	73.0
1990-91	0.0	0.0	0.0	T	T	17.5	15.7	23.4	2.4	T	T	0.0	59.0
1991-92	0.0	0.0	0.0	T	7.6	11.7	19.9	10.9	16.7	0.9	0.0	T	67.7
1992-93	0.0	0.0	0.0	1.2	7.7	12.6	8.1	32.2	19.0	1.4	0.0	0.0	82.2
1993-94	0.0	0.0	0.1	T	2.2	11.3	21.5	20.0	0.1	0.8	T	0.0	56.0
1994-95	T	0.0	1.0	0.0	T	2.4	17.3	25.8	2.8	0.6	0.0	0.0	49.9
1995-96	0.0	0.0	0.0	T	6.2	22.1	12.2	7.9	8.3	0.9	T	0.0	57.6
1996-97	T	T	0.0	0.0	15.3	10.5	36.4	10.2	3.3	0.4	T	0.0	76.1
1997-98	0.0	0.0	0.0	0.2	5.6	18.1	7.8	T	20.8	0.0	0.0	T	52.5
1998-99	T	0.0	0.0	0.0	T	17.1	37.0	10.4	14.2	T	T	0.0	78.7
1999-	0.0	0.0	0.0	0.0	1.9	7.4							
POR= 59 YRS	T	T	0.0	0.7	7.6	17.3	19.2	14.6	8.8	1.9	0.3	T	70.4

WBAN : 14848

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
SOUTH BEND,
INDIANA (SBN)

South Bend is located on the Saint Joseph River in the northern portion of Saint Joseph County, situated on mostly level to gently rolling terrain and some former marshland. Drainage for the area is through the Saint Joseph River and Kankakee River.

South Bend is under the climatic influence of Lake Michigan with its nearest shore 20 miles to the northwest. The lake has a moderating effect on the temperature. Temperatures of 100 degrees or higher are rare and cold waves are less severe than at many locations at the same latitude. This results in favorable conditions for orchard and vegetable growth.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is October 18 and the average last occurrence in the spring is May 1.

Precipitation is fairly evenly distributed throughout the year with the greatest amounts during the growing season. The predominant snow season is from November through March, although there are also generally lighter amounts in October and April.

Winter is marked by considerable cloudiness and rather high humidity along with frequent periods of snow. Heavy snowfalls, resulting from a cold northwest wind passing over Lake Michigan are not uncommon.

STATION LOCATION

SOUTH BEND, INDIANA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUCOMPTCH	* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS	
						SEA LEVEL	GROUND												
							WIND	EMERPH	EMERPH	EMERPH	EMERPH	EMERPH	EMERPH	EMERPH	EMERPH				EMERPH
COOPERATIVE Swain Family Farms 4 mi. SW of P.O.	12/01/93	4/26/38		41° 36'	86° 19'														
University of Notre Dame Moreau Seminary	4/01/12	1/01/54		41° 42'	86° 14'	733												Data source for temperature May 1938 through March 1939 and precipitation May 1938 through July 1939.	
AIRPORT South Bend Municipal Airport, 6.5 mi. NE of Post Office. (Later Cadet Field).	12/01/29	2/28/33		41° 45'	86° 19'													Aviation observations only.	
South Bend Municipal Airport, Bendix Field 3.5 mi. NW of P.O.	2/28/33	10/19/37	7.5 mi. SW	41° 42'	86° 19'	765	30			4								Aviation observations only.	
South Bend Municipal Airport, Bendix Field	10/19/37	11/04/38	None	41° 42'	86° 19'	766	37			4								Weather Bureau Airport Station established 10/11/37.	
South Bend Municipal Airport, Bendix Field	11/04/38	2/10/42	300 ft. S	41° 42'	86° 19'	766	35	b4		4		b5	c5					b - Installed 12/10/39. c - Installed 8/1/39.	
St. Joseph County Airport, Bendix Field	2/10/42	11/10/49	300 ft. SE	41° 42'	86° 19'	766	24		4	4			3	3				Change in name of airport.	
St. Joseph County Airport, Bendix Field+ Michiana Regional Airport Effective July 1976	11/10/49	1/14/81	600 ft. W	41° 42'	86° 19'	d773	e21		5	5	NA	NA	5	5	f5	NA		d - 768 ft. to 8/1/63. e - 58 ft. to 3/5/63. f - Commissioned 2300 ft. NE of instrument shelter 8/1/63.	
Terminal Building Michiana Regional AP	1/14/81	07/01/96	450' E	41° 42'	86° 19'	773	g21		6	5	NA	h5	5	5	g5 15	NA		g - Not moved 1/14/81 h - Commissioned 8/16/82. i - Type change 9/11/85.	
Michiana Regional AP	07/01/96	Present	NA	41°42'	86°20'	778											S	ASOS Commissioned 07/01/96	

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
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