

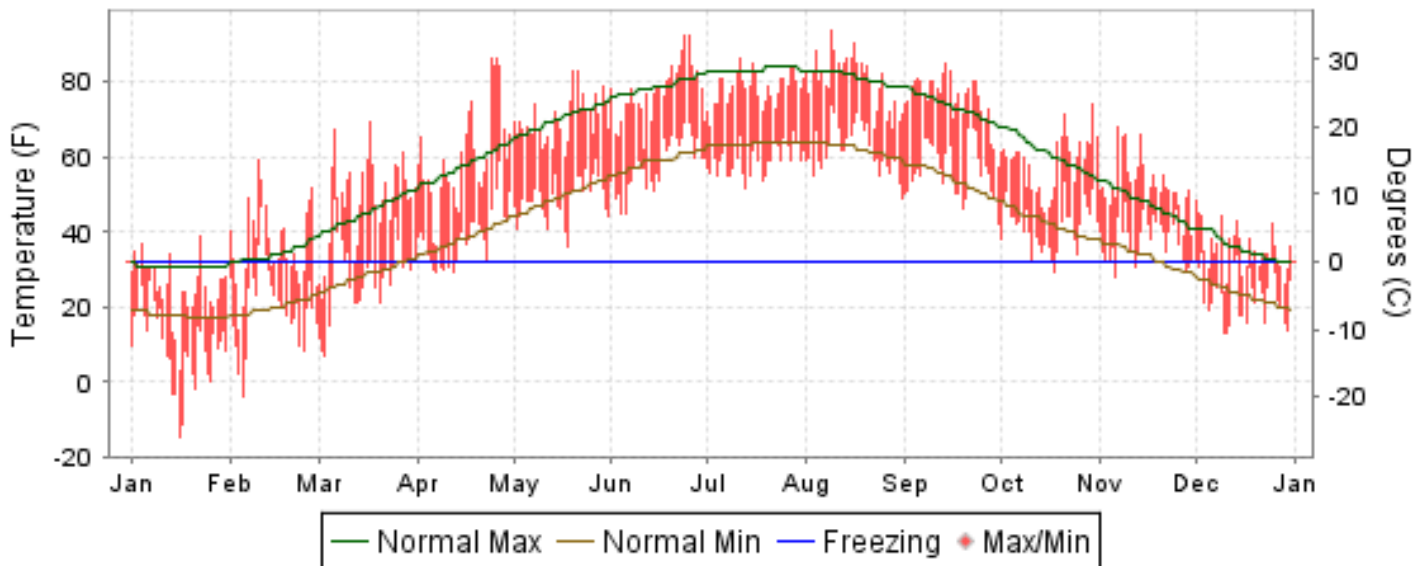


# 2009 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

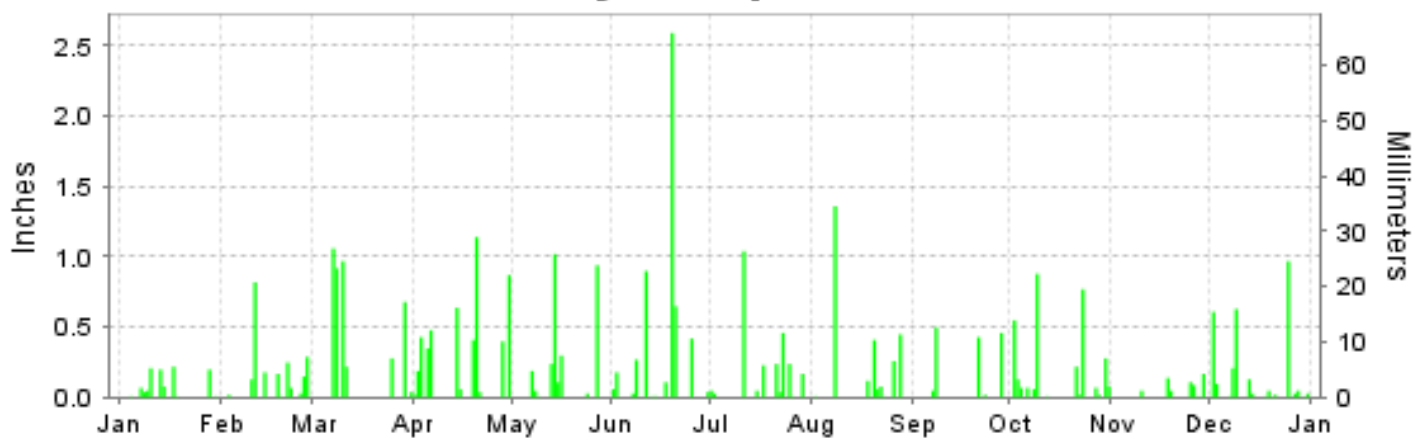
ISSN 0198-2532

## DETROIT, MICHIGAN (KDTW)

### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2009

## DETROIT (KDTW)

LATITUDE: 42 ° 12'N      LONGITUDE: -83 ° 20'W      ELEVATION (FT): GRND: 631    BARO: 631      TIME ZONE: EASTERN (UTC -5)      WBAN: 94847

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	25.1	36.4	48.7	60.1	69.9	77.3	78.4	80.1	75.5	58.5	52.7	35.2	58.2	
	HIGHEST DAILY MAXIMUM	39	59	69	86	83	92	86	94	85	74	68	48	94	
	DATE OF OCCURRENCE	23	10	17	26+	21+	25+	11	09	14	30	07	01	AUG 09	
	MEAN DAILY MINIMUM	9.5	20.6	28.6	39.4	49.0	58.2	59.4	62.2	56.6	41.5	37.9	23.3	40.5	
	LOWEST DAILY MINIMUM	-15	-4	7	29	36	45	52	49	42	29	28	13	-15	
	DATE OF OCCURRENCE	16	05	03	12+	18	05+	13	31	30	18	06	11+	JAN 16	
	AVERAGE DRY BULB	17.3	28.5	38.7	49.8	59.5	67.8	68.9	71.2	66.1	50.0	45.3	29.3	49.4	
	MEAN WET BULB	16.3	26.0	33.3	42.8	52.1	60.7	61.9	64.3	59.7	45.3	41.7	26.8	44.2	
	MEAN DEW POINT	10.5	20.0	25.6	34.4	44.2	55.7	56.8	60.1	55.2	40.3	37.0	22.0	38.5	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	2	0	2	0	0	0	0	0	4
MAXIMUM <= 32°	4	11	4	0	0	0	0	0	0	0	0	11	30		
MINIMUM <= 32°	31	24	22	7	0	0	0	0	0	1	8	28	121		
MINIMUM <= 0°	6	1	0	0	0	0	0	0	0	0	0	0	7		
H/C	HEATING DEGREE DAYS	1469	1014	808	469	180	37	5	14	54	457	584	1099	6190	
	COOLING DEGREE DAYS	0	0	0	20	12	128	131	214	92	0	0	0	597	
RH	MEAN (PERCENT)	72	70	64	60	59	69	67	71	72	72	74	75	69	
	HOUR 01 LST	76	74	73	68	71	81	80	82	86	80	81	78	78	
	HOUR 07 LST	76	78	74	68	64	75	77	79	83	82	84	81	77	
	HOUR 13 LST	66	60	52	48	48	54	52	56	54	56	61	66	56	
	HOUR 19 LST	72	69	63	53	56	63	59	67	70	71	72	74	66	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	1	2	2	2	1	0	0	1	0	1	4	1	15	
	THUNDERSTORMS	0	0	3	2	5	4	3	2	1	1	0	0	21	
CLOUDNESS	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	29.34	29.41	29.23	29.29	29.17	29.22	29.29	29.38	29.28	29.38	29.31	29.29	
	MEAN SEA-LEVEL PRESS. (IN.)	30.03	30.06	30.14	29.95	30.00	29.88	29.93	30.00	30.09	30.00	30.11	30.06	30.02	
WINDS	RESULTANT SPEED (MPH)	4.8	4.4	0.5	1.9	2.6	0.9	3.8	3.4	0.8	2.6	1.2	4.5	2.4	
	RES. DIR. (TENS OF DEGS.)	25	26	26	28	25	32	27	24	02	23	22	23	26	
	MEAN SPEED (MPH)	9.0	9.7	8.3	11.0	8.4	6.1	7.1	7.4	6.3	8.8	7.3	9.5	8.2	
	PREVAIL.DIR.(TENS OF DEGS.)	23	29	17	04	21	04	30	20	04	23	23	24	24	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	25	36	37	39	35	36	28	31	31	33	25	44	44	
	DIR. (TENS OF DEGS.)	30	28	25	22	25	36	19	20	24	23	23	24	24	
	DATE OF OCCURRENCE	23	12	09	27	09	25	15	20	28	31	25	09	DEC 09	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	35	51	47	48	41	46	37	38	39	46	36	56	56	
DIR. (TENS OF DEGS.)	28	29	27	22	25	36	19	19	24	26	30	23	23		
DATE OF OCCURRENCE	02	12	11	27	09	25	15	20	28	07	27	09	DEC 09		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.10	2.12	4.17	5.03	2.89	5.27	2.56	2.76	1.46	3.23	0.62	2.90	34.11	
	GREATEST 24-HOUR (IN.)	0.22	0.82	1.68	1.54	1.26	3.11	1.04	1.36	0.55	0.92	0.19	0.97	3.11	
	DATE OF OCCURRENCE	17	11	07-08	19-20	13-14	19-20	11	08	07-08	08-09	18-19	25	JUN 19-20	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	11	11	7	12	9	12	11	9	5	14	7	16	124	
PRECIPITATION 0.10	3	7	6	9	6	7	6	5	3	6	3	6	67		
PRECIPITATION 1.00	0	0	1	1	1	1	1	1	0	0	0	0	6		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	25.2	8.5	1.0	7.4	T	T	0.0	0.0	T	0.0	0.0	7.8	49.9	
	GREATEST 24-HOUR (IN.)	6.4	3.2	1.0	5.2	T	T	0.0	0.0	T	0.0	0.0	1.7	6.4	
	DATE OF OCCURRENCE	10	14	29	06	16+	08			28			19	JAN 10	
	MAXIMUM SNOW DEPTH (IN.)	14	10	1	4	0	0	0	0	0	0	0	2	14	
	DATE OF OCCURRENCE	18	01	30	06								29+	JAN 18	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	7	3	1	2	0	0	0	0	0	0	0	3	16		

# NORMALS, MEANS, AND EXTREMES DETROIT (KDTW)

LATITUDE: 42 ° 12'N      LONGITUDE: -83 ° 20'W      ELEVATION (FT): GRND: 631    BARO: 631      TIME ZONE: EASTERN (UTC -5)      WBAN: 94847

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	31.1	34.4	45.2	57.8	70.2	79.0	83.4	81.4	73.7	61.2	47.8	35.9	58.4
	MEAN DAILY MAXIMUM	51	31.1	34.1	44.6	58.3	69.7	79.0	83.1	81.4	74.2	61.6	48.2	35.6	58.4
	HIGHEST DAILY MAXIMUM	51	64	70	81	89	93	104	102	100	98	91	77	69	104
	YEAR OF OCCURRENCE		2008	1999	2007	1977	1988	1988	1988	1988	1976	1963	1968	1998	JUN 1988
	MEAN OF EXTREME MAXS.	51	50.3	52.8	69.0	79.7	85.9	91.9	93.5	91.8	88.6	79.9	67.4	54.9	75.5
	NORMAL DAILY MINIMUM	30	17.8	20.0	28.5	38.4	49.4	58.9	63.6	62.2	54.1	42.5	33.5	23.4	41.0
	MEAN DAILY MINIMUM	51	17.0	18.9	27.2	37.8	48.0	57.5	62.1	60.9	53.5	41.9	32.9	22.6	40.0
	LOWEST DAILY MINIMUM	51	-21	-15	-4	10	25	36	41	38	29	17	9	-10	-21
	YEAR OF OCCURRENCE		1984	1985	2003	1982	1966	1972	1965	1982	1974	1974	1969	1983	JAN 1984
	MEAN OF EXTREME MINS.	51	-2.4	0.5	9.7	23.7	34.4	44.4	50.5	49.3	38.2	27.4	18.3	3.4	24.8
	NORMAL DRY BULB	30	24.5	27.2	36.9	48.1	59.8	69.0	73.5	71.8	63.9	51.9	40.7	29.6	49.7
	MEAN DRY BULB	51	24.1	26.5	36.0	48.0	58.8	68.4	72.6	71.2	63.8	51.8	40.6	29.2	49.3
	MEAN WET BULB	26	23.1	24.6	31.6	41.6	51.7	61.0	65.0	64.4	57.7	46.5	36.9	27.2	44.3
	MEAN DEW POINT	26	19.7	20.9	27.2	36.7	47.5	57.5	62.0	61.8	54.7	43.1	33.4	24.2	40.7
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.0	0.5	2.8	5.0	2.9	0.8	0.0	0.0	0.0	12.0
	MAXIMUM <= 32	30	16.7	12.9	4.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	10.3	45.6
	MINIMUM <= 32	30	28.5	24.7	21.7	8.7	0.5	0.0	0.0	0.0	0.1	4.0	15.8	25.8	129.8
MINIMUM <= 0	30	3.1	2.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	6.4	
H/C	NORMAL HEATING DEG. DAYS	30	1270	1074	886	527	219	41	5	12	121	426	742	1099	6422
	NORMAL COOLING DEG. DAYS	30	0	0	0	6	42	145	254	208	75	6	0	0	736
RH	NORMAL (PERCENT)	30	76	73	69	65	65	67	69	72	73	72	74	77	71
	HOURLY 01 LST	30	79	78	75	73	75	79	81	84	84	80	79	80	79
	HOURLY 07 LST	30	81	80	79	77	77	79	83	86	87	84	82	81	81
	HOURLY 13 LST	30	70	65	60	53	53	55	55	57	57	58	65	70	60
	HOURLY 19 LST	30	74	71	65	57	56	58	59	63	66	67	72	76	65
S	PERCENT POSSIBLE SUNSHINE	31	40	46	52	53	60	65	68	67	61	51	35	31	52
W/O	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	46	2.3	2.3	2.1	1.0	0.8	0.5	0.5	1.0	1.4	1.5	1.5	2.9	17.8
	THUNDERSTORMS	51	0.2	0.4	1.5	2.9	3.9	6.1	6.1	5.3	3.7	1.1	0.7	0.3	32.2
CLOUDNESS	MEAN: SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR														
	PARTLY CLOUDY CLOUDY														
PR	MEAN STATION PRESSURE(IN)	26	29.33	29.37	29.32	29.26	29.26	29.26	29.28	29.32	29.34	29.35	29.33	29.34	29.31
	MEAN SEA-LEVEL PRES. (IN)	26	30.07	30.10	30.05	29.97	29.97	29.96	29.98	30.02	30.05	30.06	30.06	30.08	30.03
WINDS	MEAN SPEED (MPH)	26	11.4	10.8	10.8	10.8	9.6	8.7	8.3	7.6	8.0	9.4	10.7	10.9	9.8
	PREVAIL.DIR(TENS OF DEGS)	42	24	24	30	24	30	24	23	23	24	23	24	24	24
	MAXIMUM 2-MINUTE: SPEED (MPH)	14	46	51	46	47	61	45	53	44	35	47	47	49	61
	DIR. (TENS OF DEGS)		24	22	23	22	22	30	28	24	27	22	27	29	22
	YEAR OF OCCURRENCE		2008	1997	2004	2001	2004	2005	1998	2003	2001	2004	2003	1998	MAY 2004
	MAXIMUM 3-SECOND SPEED (MPH)	14	56	60	59	57	78	60	67	53	45	56	58	60	78
	DIR. (TENS OF DEGS)		27	24	24	24	22	23	28	23	28	24	25	31	22
YEAR OF OCCURRENCE		2008	2001	2004	1997	2004	2008	1998	2003	1997	2004	1998	1998	MAY 2004	
PRECIPITATION	NORMAL (IN)	30	1.91	1.88	2.52	3.05	3.05	3.55	3.16	3.10	3.27	2.23	2.66	2.51	32.89
	MAXIMUM MONTHLY (IN)	51	3.92	5.02	4.48	5.40	8.46	7.04	6.02	7.83	7.52	6.76	5.68	6.00	8.46
	YEAR OF OCCURRENCE		1993	1990	1973	1961	2004	1987	1969	1975	1986	2001	1982	1965	MAY 2004
	MINIMUM MONTHLY (IN)	51	0.27	0.15	.74	0.69	0.87	0.97	0.59	0.27	0.43	.13	0.62	0.46	0.13
	YEAR OF OCCURRENCE		1961	1969	2005	2004	1988	1988	1974	2008	1960	2009	2009	1960	OCT 2005
	MAXIMUM IN 24 HOURS (IN)	51	1.72	2.41	1.82	3.58	2.87	3.11	4.34	3.21	4.08	2.57	2.30	3.71	4.34
	YEAR OF OCCURRENCE		1967	1998	1997	2000	1968	2009	1998	1964	2000	1985	2005	1965	JUL 1998
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	13.4	11.3	12.7	12.6	11.6	10.1	9.6	9.5	9.9	9.8	12.3	13.9	136.7
PRECIPITATION >= 1.00	30	0.1	0.2	0.2	0.4	0.6	0.9	0.8	0.7	0.6	0.3	0.3	0.2	5.3	
SNOWFALL	NORMAL (IN)	30	11.9	9.3	7.0	1.7	0.*	0.0	0.0	0.0	0.0	0.3	2.7	11.1	44.0
	MAXIMUM MONTHLY (IN)	50	29.6	24.2	21.0	9.0	.1	T	0.0	0.0	T	2.9	11.8	34.9	34.9
	YEAR OF OCCURRENCE		1978	2008	2008	1982	2005	2009	2009	2009	2009	1980	1966	1974	DEC 1974
	MAXIMUM IN 24 HOURS (IN)	50	12.2	10.3	9.2	7.4	.1	T	0.0	0.0	T	2.9	5.6	19.2	19.2
	YEAR OF OCCURRENCE		2005	1965	1973	1982	2005	2009	2009	2009	2009	1980	1977	1974	DEC 1974
	MAXIMUM SNOW DEPTH (IN)	49	24	18	9	6	0	0	0	0	0	1	6	19	24
	YEAR OF OCCURRENCE		1999	1982	1982	1982	1982	1982	1982	1982	1982	1980	1966	1974	JAN 1999
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	3.6	2.9	2.1	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.9	3.5	13.6	

**PRECIPITATION (inches) 2009 DETROIT (KDTW)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1980	0.69	1.00	3.88	4.23	3.22	6.42	4.33	6.09	2.94	1.26	0.88	2.30	37.24
1981	0.57	3.13	0.82	3.44	2.60	3.33	4.29	2.32	5.47	3.92	1.26	2.38	33.53
1982	3.43	1.10	3.14	1.60	2.83	4.11	4.78	0.72	2.55	1.01	5.68	3.29	34.24
1983	0.84	0.89	1.87	4.20	5.47	4.88	4.53	1.57	2.49	2.85	4.28	3.78	37.65
1984	0.78	1.31	3.12	2.48	3.62	1.04	0.95	3.00	2.30	2.28	2.49	2.90	26.27
1985	2.63	3.83	4.42	2.11	3.11	1.62	3.96	4.88	2.59	3.91	5.51	1.51	40.08
1986	1.30	3.46	2.29	2.73	1.36	5.75	2.47	3.52	7.52	3.05	1.88	2.28	37.61
1987	2.35	0.53	2.19	2.14	2.50	7.04	2.20	6.87	2.69	2.00	3.17	4.60	38.28
1988	1.30	2.02	1.16	1.50	0.87	0.97	2.43	3.13	3.65	3.57	4.29	1.97	26.86
1989	1.28	0.77	2.16	2.22	4.16	3.79	4.21	2.14	3.03	1.73	2.53	1.24	29.26
1990	1.80	5.02	1.91	2.72	3.74	4.92	1.47	3.85	6.06	4.14	2.64	4.37	42.64
1991	1.44	0.94	1.41	2.66	6.20	1.89	1.23	4.31	0.90	4.14	2.61	1.91	29.64
1992	1.78	1.54	3.34	4.34	1.33	2.35	5.91	2.50	5.55	2.01	4.33	2.35	37.33
1993	3.92	1.27	2.12	3.32	1.24	6.05	2.17	1.60	4.26	2.21	1.69	0.78	30.63
1994	2.79	1.38	2.29	4.04	1.18	3.97	3.20	3.30	2.38	1.35	2.74	2.39	31.01
1995	2.47	0.89	1.73	3.44	3.55	1.55	3.40	3.71	0.62	3.53	3.08	0.85	28.82
1996	1.85	1.76	1.56	3.39	2.82	2.37	2.64	0.43	4.42	1.59	1.99	2.57	27.39
1997	1.57	3.90	3.22	1.56	5.23	3.17	2.68	3.22	3.41	1.91	0.94	1.61	32.42
1998	2.60	3.56	3.62	3.86	2.46	2.69	5.72	4.19	1.50	1.41	1.36	1.16	34.13
1999	3.00	1.98	1.12	5.13	2.20	5.46	3.62	1.31	3.11	1.56	1.49	2.22	32.20
2000	1.29	0.84	1.55	4.35	5.11	4.90	5.40	4.63	6.71	3.05	1.69	2.63	42.15
2001	0.69	2.88	0.93	3.20	3.70	3.40	1.16	2.87	4.28	6.76	2.35	2.23	34.45
2002	3.36	1.91	2.12	4.48	3.76	1.07	3.50	3.32	1.95	1.15	2.72	1.16	30.50
2003	0.42	0.66	1.46	2.07	4.73	2.50	2.59	4.36	4.27	2.74	2.97	2.62	31.39
2004	1.43	0.63	3.29	0.69	8.46	2.86	2.85	4.51	0.65	2.08	3.21	2.91	33.57
2005	3.40	3.02	0.74	1.66	1.85	1.95	5.38	1.32	1.63	0.13	4.70	2.52	28.30
2006	3.24	2.71	3.21	2.71	4.60	3.95	4.38	2.05	1.73	4.11	2.90	3.65	39.24
2007	3.02	0.82	3.09	2.68	2.56	3.10	2.10	6.61	1.44	2.00	1.77	3.48	32.67
2008	2.13	3.61	3.17	0.96	2.03	4.05	3.24	0.27	5.99	1.15	3.31	4.07	33.98
2009	1.10	2.12	4.17	5.03	2.89	5.27	2.56	2.76	1.46	3.23	0.62	2.90	34.11
POR= 51 YRS	1.96	1.82	2.42	3.03	3.12	3.52	3.20	3.28	2.88	2.26	2.56	2.54	32.59

WBAN : 94847

**AVERAGE TEMPERATURE (°F) 2009 DETROIT (KDTW)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1980	24.5	22.2	31.3	45.9	59.8	63.7	72.7	72.7	63.8	46.3	37.4	26.0	47.2
1981	19.0	28.8	36.5	49.8	55.9	68.0	72.4	70.0	60.9	47.6	41.1	27.8	48.2
1982	17.1	20.7	33.0	43.2	64.3	64.2	72.4	67.7	61.8	52.6	41.6	37.3	48.0
1983	28.7	31.6	38.4	44.2	54.4	68.2	74.5	73.6	64.0	51.6	41.2	20.8	49.3
1984	18.0	33.3	28.9	47.8	54.5	70.8	70.8	72.7	61.2	54.9	38.6	34.0	48.8
1985	20.4	23.5	38.4	51.0	60.1	62.8	71.3	69.2	64.3	53.0	42.4	22.2	48.2
1986	23.9	24.6	37.6	50.6	61.3	67.3	75.0	68.9	65.9	52.6	37.3	31.7	49.7
1987	26.1	29.6	39.8	50.8	63.3	71.3	76.1	71.6	64.6	46.6	43.5	33.6	51.4
1988	23.8	23.4	36.9	48.5	62.0	70.4	77.1	75.1	63.3	46.0	42.2	28.7	49.8
1989	32.8	24.1	35.2	45.1	57.5	67.5	73.0	69.9	61.9	52.1	38.2	18.0	47.9
1990	33.6	30.7	39.5	49.0	56.6	68.5	72.2	71.2	64.5	52.8	44.2	32.8	51.3
1991	25.0	31.2	40.3	52.0	66.5	72.4	74.9	73.4	63.1	54.8	38.5	32.1	52.0
1992	28.3	30.8	35.5	46.3	58.3	65.5	68.8	66.7	61.4	49.7	40.5	33.2	48.8
1993	29.4	24.2	34.7	47.8	60.2	67.5	75.5	74.5	61.0	51.9	41.2	30.8	49.9
1994	17.3	23.5	37.1	51.2	58.7	72.3	74.2	69.6	66.2	53.8	45.5	35.4	50.4
1995	28.4	24.9	39.2	45.7	59.7	71.6	74.8	77.2	62.8	55.1	35.5	25.6	50.0
1996	24.3	26.0	30.8	45.2	56.7	70.7	70.6	72.9	64.1	52.0	34.3	31.5	48.3
1997	23.0	30.6	37.2	45.8	52.0	69.5	72.2	68.1	62.7	51.8	37.1	32.2	48.5
1998	32.8	36.7	39.5	50.4	65.6	69.1	73.4	73.2	68.0	53.8	43.8	35.3	53.5
1999	23.1	32.8	34.8	50.7	62.4	70.8	76.8	70.2	65.5	51.6	45.2	32.0	51.3
2000	24.6	31.9	44.0	48.0	61.8	69.4	70.3	70.8	62.5	55.1	40.2	19.3	49.8
2001	26.2	29.7	35.1	51.2	61.2	69.6	73.6	74.1	62.3	52.5	47.6	35.9	51.6
2002	32.7	32.9	34.8	49.8	54.5	70.9	76.5	73.1	68.9	50.0	39.2	28.7	51.0
2003	20.5	23.2	35.6	48.4	56.5	66.6	72.6	72.9	63.2	50.9	44.3	33.1	49.0
2004	20.0	28.5	40.4	50.9	60.9	67.1	71.8	68.5	67.5	53.3	43.0	29.7	50.1
2005	24.1	28.5	33.2	50.7	56.6	74.1	75.4	74.9	68.4	55.2	43.2	25.8	50.8
2006	35.3	29.8	38.1	52.3	60.7	69.4	76.1	72.9	62.0	49.7	42.6	37.4	52.2
2007	29.6	19.4	40.2	47.7	61.7	71.4	72.0	73.9	66.7	59.1	40.0	29.6	50.9
2008	29.0	25.2	33.4	51.8	57.4	70.6	73.2	72.1	66.3	50.6	39.0	27.5	49.7
2009	17.3	28.5	38.7	49.8	59.5	67.8	68.9	71.2	66.1	50.0	45.3	29.3	49.4
POR= 51 YRS	24.1	26.5	36.0	48.0	58.8	68.4	72.6	71.2	63.8	51.8	40.6	29.2	49.3

**HEATING DEGREE DAYS (base 65°F) 2009 DETROIT (KDTW)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1980-81	0	0	110	578	822	1201	1418	1008	878	452	293	19	6779
1981-82	3	9	167	534	710	1144	1477	1237	985	647	75	70	7058
1982-83	2	39	145	383	696	852	1119	928	816	618	323	59	5980
1983-84	6	0	125	418	708	1367	1450	912	1112	507	334	9	6948
1984-85	11	4	164	310	785	955	1377	1154	818	435	177	93	6283
1985-86	2	8	129	366	672	1317	1271	1125	842	435	166	48	6381
1986-87	1	33	76	380	824	1028	1198	984	776	423	158	11	5892
1987-88	4	30	69	566	639	969	1273	1201	864	486	138	46	6285
1988-89	2	3	90	590	679	1118	991	1138	916	591	254	33	6405
1989-90	0	11	151	400	797	1451	966	955	785	506	258	27	6307
1990-91	1	1	112	380	618	994	1234	939	761	394	125	5	5564
1991-92	0	0	151	319	788	1013	1129	985	906	555	224	59	6129
1992-93	15	30	153	469	725	976	1097	1138	931	506	161	51	6252
1993-94	0	2	155	404	710	1050	1472	1156	858	433	238	24	6502
1994-95	0	9	55	345	579	910	1129	1115	793	573	170	17	5695
1995-96	2	0	125	306	877	1215	1253	1122	1055	589	289	8	6841
1996-97	3	0	102	397	915	1033	1297	959	855	566	394	25	6546
1997-98	3	13	103	435	830	1008	991	787	791	431	69	80	5541
1998-99	0	2	44	350	629	914	1293	898	927	424	115	33	5629
1999-00	0	3	81	413	585	1016	1246	958	645	504	159	31	5641
2000-01	1	13	148	307	737	1412	1194	983	920	415	146	45	6321
2001-02	9	0	131	382	514	898	992	891	929	480	342	21	5589
2002-03	0	0	38	481	766	1119	1372	1165	907	499	256	48	6651
2003-04	0	0	102	432	610	980	1388	1052	757	431	174	36	5962
2004-05	5	15	35	356	653	1087	1261	1017	978	421	264	8	6100
2005-06	0	1	30	329	647	1207	912	979	828	377	200	15	5525
2006-07	0	0	113	471	664	851	1094	1272	765	515	163	17	5925
2007-08	3	11	62	229	744	1089	1112	1148	970	390	252	11	6021
2008-09	1	3	37	438	770	1154	1469	1014	808	469	180	37	6380
2009-	5	14	54	457	584	1099							

WBAN : 94847

**COOLING DEGREE DAYS (base 65°F) 2009 DETROIT (KDTW)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1980	0	0	0	3	38	69	246	248	79	3	0	0	686
1981	0	0	0	1	17	118	241	168	51	0	0	0	596
1982	0	0	0	0	58	55	237	129	57	5	0	0	541
1983	0	0	0	2	0	160	306	272	104	6	0	0	850
1984	0	0	0	0	15	189	197	252	55	2	0	0	710
1985	0	0	0	25	32	32	201	146	116	0	0	0	552
1986	0	0	0	10	55	120	319	160	110	3	0	0	777
1987	0	0	0	4	111	207	355	245	64	0	1	0	987
1988	0	0	0	0	52	214	385	322	46	8	0	0	1027
1989	0	0	0	0	29	114	256	171	64	5	0	0	639
1990	0	0	1	32	8	139	234	200	101	11	0	0	726
1991	0	0	0	10	179	233	315	268	104	9	0	0	1118
1992	0	0	0	0	27	80	143	91	51	0	0	0	392
1993	0	0	0	0	21	135	334	302	41	5	0	0	838
1994	0	0	0	24	49	248	290	160	97	2	0	0	870
1995	0	0	0	0	11	222	312	383	67	7	0	0	1002
1996	0	0	0	2	37	185	184	251	82	0	0	0	741
1997	0	0	0	0	0	165	231	114	40	29	0	0	579
1998	0	0	7	0	95	209	268	261	136	9	0	0	985
1999	0	0	0	0	43	213	372	171	104	2	0	0	905
2000	0	0	3	0	66	172	170	199	78	4	0	0	692
2001	0	0	0	6	36	190	279	290	58	4	0	0	863
2002	0	0	0	30	23	203	364	257	161	23	0	0	1061
2003	0	0	0	8	2	104	242	252	54	0	0	0	662
2004	0	0	0	12	53	106	222	132	116	1	0	0	642
2005	0	0	0	2	9	290	328	311	136	33	0	0	1109
2006	0	0	0	3	70	155	352	254	31	3	0	0	868
2007	0	0	2	2	67	216	227	294	120	57	0	0	985
2008	0	0	0	2	22	188	262	231	82	0	0	0	787
2009	0	0	0	20	12	128	131	214	92	0	0	0	597

## SNOWFALL (inches) 2009 DETROIT (KDTW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1980-81	0.0	0.0	0.0	2.9	3.4	10.5	7.6	13.4	0.6	0.0	0.0	0.0	38.4
1981-82	0.0	0.0	0.0	0.1	0.7	17.3	20.0	13.3	13.6	9.0	0.0	0.0	74.0
1982-83	0.0	0.0	0.0	T	1.8	1.4	1.5	4.3	7.6	3.4	0.0	0.0	20.0
1983-84	0.0	0.0	0.0	0.0	3.5	19.9	9.9	8.7	9.7	0.1	0.0	0.0	51.8
1984-85	0.0	0.0	0.0	0.0	4.1	6.2	20.9	16.9	6.1	0.9	0.0	0.0	55.1
1985-86	0.0	0.0	0.0	0.0	2.0	14.1	8.6	20.8	7.4	1.3	0.0	0.0	54.2
1986-87	0.0	0.0	0.0	T	3.3	6.0	24.0	2.0	13.3	1.1	0.0	0.0	49.7
1987-88	0.0	0.0	0.0	T	0.7	15.3	7.0	19.2	2.7	0.2	0.0	0.0	45.1
1988-89	0.0	0.0	0.0	T	1.0	6.3	5.3	9.6	2.4	0.5	T	0.0	25.1
1989-90	0.0	0.0	0.0	2.7	2.4	11.8	4.0	11.1	7.8	2.0	0.0	0.0	41.8
1990-91	0.0	0.0	T	0.0	T	13.2	8.8	9.2	0.2	T	T	0.0	31.4
1991-92	0.0	0.0	0.0	T	2.2	8.6	18.4	2.4	11.7	0.2	0.0	0.0	43.5
1992-93	0.0	0.0	0.0	0.4	0.9	5.0	11.0	15.2	15.7	4.0	0.0	0.0	52.2
1993-94	0.0	0.0	0.0	0.4	0.6	1.9	17.9	17.1	3.7	4.2	T	0.0	45.8
1994-95	0.0	0.0	T	0.0	T	9.6	13.1	5.7	3.5	1.6	0.0	0.0	33.5
1995-96	0.0	0.0	0.0	0.0	1.3	4.5	6.3		11.8				
1996-97													
1997-98					4.6	6.0	8.3	T	4.4	0.0	T	0.0	
1998-99	0.0	0.0	T	0.0	0.0	1.2	27.3	7.8	13.2	0.0	0.0	0.0	49.5
1999-00	0.0	0.0	0.0	T	T	4.0	9.6	8.1	1.1	0.6	T	0.0	23.4
2000-01	0.0	0.0	0.0	T	1.3	25.1	3.4	2.9	5.4	0.9	0.0	0.0	39.0
2001-02	0.0	0.0	0.0	T	0.0	4.9	15.0	6.7	7.1	T	0.0	0.0	33.7
2002-03	0.0	0.0	0.0	0.0	1.4	13.1	13.9	19.2	8.1	5.0	T	0.0	60.7
2003-04	0.0	0.0	0.0	0.0	0.4	3.4	14.0	0.9	5.1	T	T	0.0	23.8
2004-05	0.0	0.0	0.0	0.0	0.1	12.5	26.9	12.5	7.4	4.3	0.1	0.0	63.8
2005-06	0.0	0.0	0.0	0.0	4.3	19.8	5.0	3.8	3.4	T	0.0	T	36.3
2006-07	0.0	0.0	0.0	0.2	0.1	2.4	6.4	14.1	5.5	1.6	0.0	0.0	30.3
2007-08	0.0	0.0	0.0	0.0	0.5	12.2	13.8	24.2	21.0	T	0.0	T	71.7
2008-09	0.0	0.0	0.0	0.0	2.2	21.4	25.2	8.5	1.0	7.4	T	T	65.7
2009-	0.0	0.0	T	0.0	0.0	7.8							
POR= 50 YRS	0.0	0.0	T	0.1	2.4	10.0	11.3	9.2	6.9	1.7	T	T	41.6

WBAN : 94847

### REFERENCE NOTES :

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).

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).

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 (1971 - 2000).  
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.  
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.

GENERAL CONTINUED:  
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.  
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.  
STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED HISTORY GO TO "MULTI-NETWORK METADATA SYSTEM", URL IS: <https://mi3.ncdc.noaa.gov/mi3qry/login.cfm>

#### NOTE:

The "Period of Record:(POR) for all "averages" is based on the "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.

# 2009 DETROIT MICHIGAN (KDTW)

Detroit and the immediate suburbs, including nearby urban areas in Canada, occupy an area approximately 25 miles in radius. The waterway, consisting of the Detroit and St. Clair Rivers, Lake St. Clair, and the west end of Lake Erie, lies at an elevation of 568 to 580 feet above sea level. Nearly flat land slopes up gently from the waters edge northwestward for about 10 miles and then gives way to increasingly rolling terrain. The Irish Hills, parallel to and about 40 miles northwest of the waterway, have tops 1,000 to 1,250 feet above sea level. On the Canadian side of the waterway the land is relatively level.

Northwest winds in winter bring snow flurry accumulations to all of Michigan except in the Detroit Metropolitan area while summer showers moving from the northwest weaken and sometimes dissipate as they approach Detroit. On the other hand, much of the heaviest precipitation in winter comes from southeast winds, especially to the northwest suburbs of the city.

The climate of Detroit is influenced by its location with respect to major storm tracks and the influence of the Great Lakes. The normal wintertime storm track is south of the city, which brings on the average, about 3 inch snowfalls. Winter storms can bring combinations of rain, snow, freezing rain, and sleet with heavy snowfall accumulations possible at times. In summer, most storms pass to the north allowing for intervals of warm, humid, sunny skies with occasional thunderstorms followed by days of mild, dry, and fair weather. Temperatures of 90 degrees or higher are reached during each summer.

The most pronounced lake effect occurs in the winter when arctic air moving across the lakes is warmed and moistened. This produces an excess of cloudiness but a moderation of cold wave temperatures.

Local climatic variations are due largely to the immediate effect of Lake St. Clair and the urban heat island. On warm days in late spring or early summer, lake breezes often lower temperatures by 10 to 15 degrees in the eastern part of the city and the northeastern suburbs. The urban heat island effect shows up mainly at night where minimum temperatures at the Metropolitan Airport average 4 degrees lower than downtown Detroit. On humid summer nights or on very cold winter nights, this difference can exceed 10 degrees.

The growing season averages 180 days and has ranged from 145 days to 205 days. On average, the last freezing temperature occurs in late April while the average first freezing temperature occurs in late October. A freeze has occurred as late as mid-May and as early as late September.

Air pollution comes primarily from heavy industry spread along both shores of the waterway from Port Huron to Toledo. However, wind dispersion is usually sufficient to keep it from becoming a major hazard.

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