

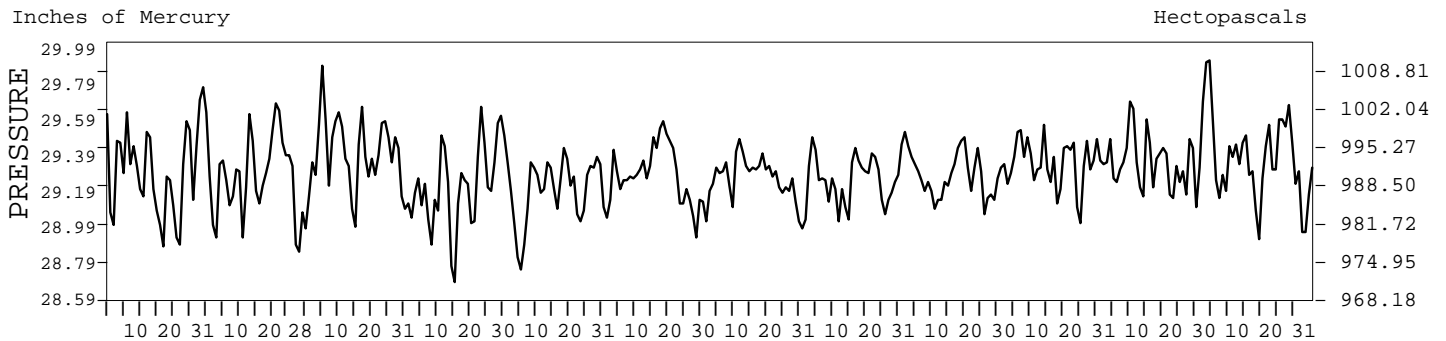
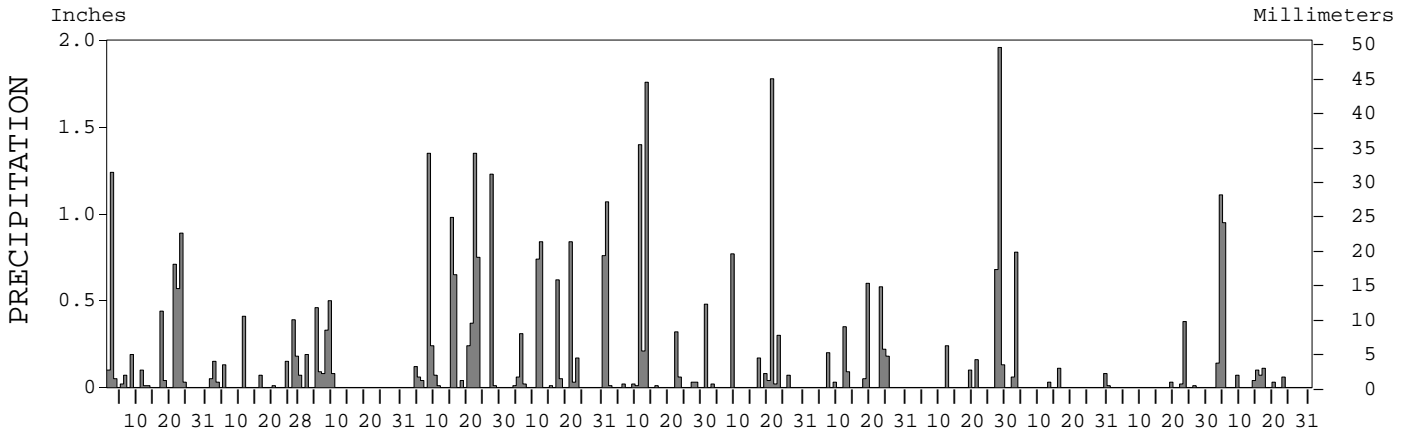
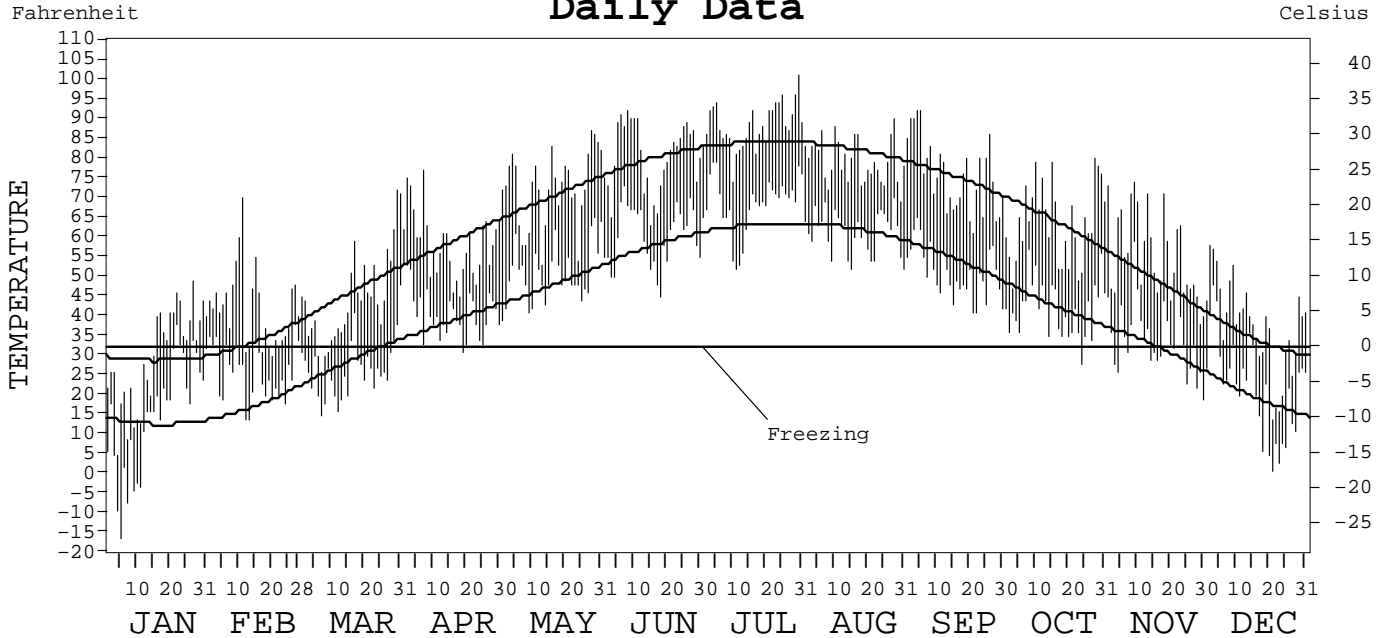
1999

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



CHICAGO, O'HARE INTERNATIONAL AIRPORT, ILLINOIS (ORD) ISSN 0198-1846

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

CHICAGO, IL (ORD)

LATITUDE: 41° 59' 10" N LONGITUDE: 87° 54' 51" W ELEVATION (FT): GRND: 658 BARO: 658 TIME ZONE: CENTRAL (UTC + 6) WBAN: 94846

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	29.9	42.1	44.4	58.4	72.4	80.4	88.3	79.3	75.7	63.7	55.6	37.7	60.7	
	HIGHEST DAILY MAXIMUM	49	70	72	77	87	92	101	90	92	80	74	58	101	
	DATE OF OCCURRENCE	27	11	30	07	28	08	30	28	05+	28	09	02	JUL 30	
	MEAN DAILY MINIMUM	15.3	25.9	26.8	40.8	50.9	60.3	68.4	61.3	51.1	42.0	34.5	22.0	41.6	
	LOWEST DAILY MINIMUM	-16	14	15	31	39	45	52	52	41	28	19	1	-16	
	DATE OF OCCURRENCE	05	13+	07	19	01	18	11	31+	22+	24	30	21	JAN 05	
	AVERAGE DRY BULB	22.6	34.0	35.6	49.6	61.7	70.4	78.4	70.3	63.4	52.9	45.1	29.9	51.2	
	MEAN WET BULB	21.8	31.4	32.0	44.9	55.2	63.8	71.0	64.5	56.7	46.9	40.6	28.2	46.4	
	MEAN DEW POINT	18.1	25.8	24.4	39.1	49.0	59.3	66.8	60.4	50.9	40.1	33.2	23.7	40.9	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	5	12	1	4	0	0	0	22	
	MAXIMUM ≤ 32°	15	6	4	0	0	0	0	0	0	0	0	9	34	
	MINIMUM ≤ 32°	28	20	26	1	0	0	0	0	0	1	13	25	114	
	MINIMUM ≤ 0°	6	0	0	0	0	0	0	0	0	0	0	0	6	
H/C	HEATING DEGREE DAYS	1309	860	903	456	149	34	1	4	110	368	591	1081	5866	
	COOLING DEGREE DAYS	0	0	0	0	52	201	422	176	70	2	2	0	925	
RH	MEAN (PERCENT)	81	72	65	71	65	69	69	72	66	65	64	77	70	
	HOUR 00 LST	85	75	73	78	74	82	79	85	79	73	71	81	78	
	HOUR 06 LST	83	81	76	85	77	80	83	84	85	77	75	82	81	
	HOUR 12 LST	78	64	53	60	56	54	56	57	47	53	51	69	58	
	HOUR 18 LST	81	67	60	62	56	60	60	64	57	61	60	76	64	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	4	3	4	0	0	0	0	0	0	0	0	1	12	
	THUNDERSTORMS	1	3	0	5	7	9	4	6	1	0	0	0	36	
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.)	29.33	29.28	29.40	29.21	29.21	29.29	29.26	29.28	29.28	29.37	29.40	29.34	29.30	
	MEAN SEA-LEVEL PRESS. (IN.)	30.08	30.02	30.14	29.94	29.93	30.00	29.96	30.00	29.99	30.09	30.12	30.07	30.03	
WINDS	RESULTANT SPEED (MPH)	1.6	3.7	1.9	4.7	1.6	1.7	2.8	1.8	2.0	2.7	4.1	3.6	1.3	
	RES. DIR. (TENS OF DEGS.)	27	24	01	06	31	16	30	02	29	26	25	26	28	
	MEAN SPEED (MPH)	10.6	10.9	10.8	10.7	9.9	7.9	8.6	7.8	8.1	9.2	9.0	9.6	9.4	
	PREVAIL. DIR. (TENS OF DEGS.)	25	20	34	04	18	19	22	26	26	21	21	19	19	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	37	38	33	34	34	31	34	25	28	29	29	31	38	
	DIR. (TENS OF DEGS.)	09	24	24	02	15	29	20	11	21	33	27	31	24	
	DATE OF OCCURRENCE	02	11	17	23+	05	06	21	23	26	22	23	26	FEB 11	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	47	56	44	45	46	40	61	32	36	34	38	40	61	
DIR. (TENS OF DEGS.)	09	24	29	02	16	29	20	05	20	33	28	32	20		
DATE OF OCCURRENCE	02	11	17	23	05	06	21	29	26	22	23	26	JUL 21		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	4.47	1.64	1.73	7.51	4.46	4.95	3.73	2.30	3.27	1.07	0.44	2.68	38.25	
	GREATEST 24-HOUR (IN.)	1.27	0.57	0.50	1.99	1.57	1.97	1.80	0.77	1.96	0.78	0.40	2.04	2.04	
	DATE OF OCCURRENCE	21-22	26-27	09	22-23	11-12	12-13	21-22	23-24	28	03	22-23	04-05	DEC 04-05	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	15	11	7	16	13	13	10	9	6	6	4	10	120	
PRECIPITATION ≥ 0.10	8	6	4	10	7	5	5	6	6	2	1	5	65		
PRECIPITATION ≥ 1.00	1	0	0	3	0	3	1	0	1	0	0	1	10		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	29.6	1.9	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	53.2	
	GREATEST 24-HOUR (IN.)	18.6	1.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	18.6	
	DATE OF OCCURRENCE	02	24	09									17	JAN 02	
	MAXIMUM SNOW DEPTH (IN.)	18	1	12	0	0	0	0	0	0	0	0	1	18	
	DATE OF OCCURRENCE	04	25	10									19+	JAN 04	
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	6	1	6	0	0	0	0	0	0	0	0	1	14		

NORMALS, MEANS, AND EXTREMES

CHICAGO, IL (ORD)

LATITUDE: 41° 59' 10" N LONGITUDE: 87° 54' 51" W ELEVATION (FT): GRND: 658 BARO: 658 TIME ZONE: CENTRAL (UTC + 6) WBAN: 94846

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	29.0	33.5	45.8	58.6	70.1	79.6	83.7	81.8	74.8	63.3	48.4	34.0	58.5
	MEAN DAILY MAXIMUM	41	29.4	34.1	45.3	58.3	70.0	79.6	83.7	81.9	74.8	63.0	47.9	34.8	58.6
	HIGHEST DAILY MAXIMUM	41	65	71	88	91	93	104	104	101	99	91	78	71	104
	YEAR OF OCCURRENCE		1989	1976	1986	1980	1977	1988	1995	1991	1985	1963	1978	1982	JUL 1995
	MEAN OF EXTREME MAXS.	41	49.4	54.1	72.3	80.5	87.5	93.1	95.1	92.9	89.9	81.7	68.0	56.0	76.7
	NORMAL DAILY MINIMUM	30	12.9	17.2	28.5	38.6	47.7	57.5	62.6	61.6	53.9	42.2	31.6	19.1	39.5
	MEAN DAILY MINIMUM	41	13.8	18.5	28.0	38.5	48.1	57.4	62.9	62.0	53.9	42.3	31.6	20.3	39.8
	LOWEST DAILY MINIMUM	41	-27	-19	-8	7	24	36	40	41	28	17	1	-25	-27
	YEAR OF OCCURRENCE		1985	1996	1962	1982	1966	1972	1965	1965	1974	1981	1976	1983	JAN 1985
	MEAN OF EXTREME MINS.	41	-9.5	-3.2	9.7	23.0	33.9	43.4	50.2	50.6	38.5	27.1	15.0	-1.9	23.1
	NORMAL DRY BULB	30	21.0	25.4	37.2	48.6	58.9	68.6	73.2	71.7	64.4	52.8	40.0	26.6	49.0
	MEAN DRY BULB	41	21.5	26.3	36.7	48.3	59.1	68.5	73.3	71.9	64.4	52.7	39.6	27.6	49.2
	MEAN WET BULB	16	22.3	25.9	33.8	42.9	53.1	62.1	66.8	65.8	58.4	47.5	34.3	26.9	45.0
	MEAN DEW POINT	16	17.6	20.7	27.8	36.1	46.9	57.0	62.4	61.7	53.6	42.2	29.5	22.1	39.8
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	*	0.8	3.8	6.7	4.2	1.5	0.1	0.0	0.0	17.1	
MAXIMUM ≤ 32°	30	17.6	12.7	3.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.7	11.9	47.9	
MINIMUM ≤ 32°	30	28.7	25.0	21.0	7.8	0.9	0.0	0.0	0.0	0.2	5.3	16.5	26.7	132.1	
MINIMUM ≤ 0°	30	7.0	3.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	13.3	
H/C	NORMAL HEATING DEG. DAYS	30	1364	1109	862	492	235	35	5	19	84	391	750	1190	6536
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	46	143	259	226	66	12	0	0	752
RH	NORMAL (PERCENT)	30	72	72	70	65	64	66	68	71	71	69	72	76	70
	HOUR 00 LST	30	75	76	76	72	73	75	79	81	81	76	77	78	77
	HOUR 06 LST	30	76	77	79	77	77	78	82	85	85	81	80	80	80
	HOUR 12 LST	30	67	65	61	55	53	55	57	57	57	55	64	70	60
	HOUR 18 LST	30	71	69	64	57	54	55	58	61	63	64	70	74	63
S	PERCENT POSSIBLE SUNSHINE	16	44	49	51	50	58	67	66	62	59	55	38	43	54
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	42	1.7	1.8	2.2	0.9	1.2	0.6	0.5	0.7	0.4	0.8	1.3	1.8	13.9
	THUNDERSTORMS	42	0.3	0.5	2.0	3.9	5.0	6.6	5.9	5.9	4.1	1.7	1.1	0.6	37.6
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	38	5.5	5.4	5.8	5.5	5.0	4.7	4.4	4.4	4.5	4.7	5.7	5.6	5.1
	MIDNIGHT-MIDNIGHT (OKTAS)	32	5.3	5.0	5.1	5.0	4.5	4.3	4.0	4.0	4.2	4.3	5.4	5.5	4.7
	MEAN NO. DAYS WITH:														
	CLEAR	39	6.8	6.0	4.9	6.0	7.2	7.3	8.0	8.6	8.5	8.6	5.2	5.7	82.8
PARTLY CLOUDY	39	6.2	6.5	8.5	7.6	9.9	11.5	12.1	11.2	9.5	8.5	6.2	5.9	103.6	
CLOUDY	39	18.0	15.7	17.6	16.4	13.9	11.2	10.1	10.4	11.2	13.3	17.7	18.5	174.0	
PR	MEAN STATION PRESSURE (IN)	27	29.30	29.30	29.30	29.20	29.20	29.20	29.30	29.30	29.30	29.30	29.31	29.30	29.28
	MEAN SEA-LEVEL PRES. (IN)	16	30.10	30.09	30.06	29.96	29.98	30.01	30.00	30.04	30.06	30.07	30.06	30.11	30.04
WINDS	MEAN SPEED (MPH)	36	11.7	11.4	12.0	12.0	10.5	9.4	8.6	8.4	9.0	10.2	11.1	11.0	10.4
	PREVAIL. DIR (TENS OF DEGS)	31	27	29	29	04	04	04	23	23	18	19	21	27	21
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	3	37	38	41	43	37	39	37	34	37	43	41	31	43
	DIR. (TENS OF DEGS)		09	24	02	26	28	30	01	26	28	07	23	31	07
	YEAR OF OCCURRENCE		1999	1999	1998	1997	1998	1998	1997	1998	1997	1997	1998	1999	OCT 1997
	MAXIMUM 5-SECOND:														
SPEED (MPH)	3	47	56	47	56	54	48	61	48	47	52	57	40	61	
DIR. (TENS OF DEGS)		09	24	02	25	27	30	20	27	27	07	24	32	20	
YEAR OF OCCURRENCE		1999	1999	1998	1997	1998	1998	1999	1998	1997	1997	1998	1999	JUL 1999	
PRECIPITATION	NORMAL (IN)	30	1.53	1.36	2.69	3.64	3.32	3.78	3.66	4.22	3.82	2.41	2.92	2.47	35.82
	MAXIMUM MONTHLY (IN)	41	4.47	5.56	5.91	7.69	7.14	9.96	8.33	17.10	11.44	7.36	8.22	8.56	17.10
	YEAR OF OCCURRENCE		1999	1997	1976	1983	1970	1993	1982	1987	1961	1991	1985	1982	AUG 1987
	MINIMUM MONTHLY (IN)	41	0.10	0.12	0.63	0.97	0.30	0.95	1.18	0.51	0.02	0.16	0.44	0.23	0.02
	YEAR OF OCCURRENCE		1981	1969	1981	1971	1992	1991	1977	1969	1979	1964	1999	1962	SEP 1979
	MAXIMUM IN 24 HOURS (IN)	41	2.00	3.78	2.39	2.78	3.45	3.79	2.90	9.35	3.00	4.62	2.99	4.53	9.35
	YEAR OF OCCURRENCE		1960	1997	1985	1983	1981	1994	1993	1987	1978	1969	1990	1982	AUG 1987
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	11.1	9.4	12.4	12.6	10.9	10.1	9.8	9.5	9.5	9.2	10.9	11.6	127.0	
PRECIPITATION ≥ 1.00	30	0.2	0.1	0.4	0.7	0.5	0.9	1.0	1.2	1.1	0.3	0.5	0.5	7.4	
SNOWFALL	NORMAL (IN)	30	10.7	8.4	6.5	1.8	0.1	0.0	0.0	0.0	0.5	1.9	8.8	38.7	
	MAXIMUM MONTHLY (IN)	40	34.3	26.2	24.7	11.1	1.6	T	T	T	T	6.6	10.4	35.3	35.3
	YEAR OF OCCURRENCE		1979	1994	1965	1975	1966	1992	1995	1989	1967	1967	1959	1978	DEC 1978
	MAXIMUM IN 24 HOURS (IN)	40	18.6	9.7	10.6	10.9	1.6	T	T	T	T	6.6	5.8	11.0	18.6
	YEAR OF OCCURRENCE		1999	1990	1970	1975	1966	1992	1995	1989	1967	1967	1975	1969	JAN 1999
	MAXIMUM SNOW DEPTH (IN)	39	28	27	20	11	1	0	0	0	0	3	6	12	28
	YEAR OF OCCURRENCE		1979	1967	1965	1975	1966					1989	1975	1973	JAN 1979
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	3.3	2.7	2.0	0.4	0.*	0.0	0.0	0.0	0.0	0.2	0.6	2.6	11.8	

PRECIPITATION (inches) 1999 CHICAGO, O'HARE INTERNATIONAL AIRPORT, IL (ORD)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0.82	0.59	2.12	4.29	7.14	7.14	4.08	1.50	8.69	2.48	2.78	1.77	43.40
1971	0.93	1.94	1.54	0.97	2.23	2.62	3.57	3.97	2.39	0.72	1.32	5.37	27.57
1972	1.01	0.73	3.45	4.77	3.02	3.55	4.97	6.97	8.14	2.92	3.05	2.89	45.47
1973	1.24	1.38	3.91	4.99	3.69	2.87	5.27	6.01	2.86	1.50	3.71	38.10	38.10
1974	3.29	2.11	2.40	4.27	5.09	4.69	2.96	2.60	1.47	1.88	2.47	2.12	35.35
1975	3.69	2.48	2.02	5.50	3.02	5.07	2.19	7.37	0.80	1.90	2.53	3.05	39.62
1976	0.85	1.87	5.91	4.05	4.03	2.93	1.44	1.29	1.49	1.41	0.65	0.64	26.56
1977	0.55	0.71	3.67	2.62	1.88	5.12	1.18	5.39	6.07	1.36	2.05	1.96	32.56
1978	1.48	0.43	1.16	3.94	2.80	6.36	4.61	1.96	6.88	1.08	2.24	4.41	37.35
1979	2.81	1.02	4.49	4.92	2.58	4.63	2.19	7.57	0.02	1.49	2.80	2.58	37.10
1980	1.04	1.24	1.96	3.41	3.22	3.42	3.56	8.54	5.65	2.09	1.10	3.43	38.66
1981	0.10	2.35	0.63	6.14	5.85	4.46	4.50	6.60	3.25	1.80	2.46	1.05	39.19
1982	2.90	0.41	4.15	2.78	2.08	1.56	8.33	3.93	1.15	1.88	6.95	8.56	44.68
1983	0.66	2.06	3.56	7.69	6.26	4.11	4.25	2.08	5.41	4.41	5.87	2.99	49.35
1984	1.15	1.39	3.00	4.11	4.49	2.02	3.19	2.10	3.84	3.15	2.64	2.92	34.00
1985	1.48	3.46	4.73	1.48	2.79	1.97	3.75	3.90	1.82	4.98	8.22	1.49	40.07
1986	0.39	2.58	1.49	1.85	3.11	3.49	4.30	1.15	7.12	3.75	1.41	1.09	31.73
1987	1.67	0.99	1.59	2.34	2.21	2.19	4.19	17.10	0.94	1.59	2.77	3.77	41.35
1988	1.88	1.29	2.15	2.08	1.19	1.05	2.74	3.29	3.79	5.05	6.45	2.40	33.36
1989	0.82	0.77	1.67	1.37	1.59	2.01	5.89	7.31	3.91	1.49	2.16	0.46	29.45
1990	1.97	2.25	3.09	1.79	6.85	4.50	2.25	7.75	1.03	4.10	5.60	1.94	43.12
1991	1.41	0.62	3.54	4.00	5.20	0.95	1.32	2.81	2.51	7.36	3.59	1.71	35.02
1992	0.87	1.39	2.67	2.21	0.30	1.35	3.77	3.56	4.31	1.79	5.41	2.49	30.12
1993	3.83	0.82	4.52	4.57	1.83	9.96	4.45	5.74	4.47	2.19	1.52	1.00	44.90
1994	1.77	2.56	1.09	2.20	0.58	6.09	1.62	4.05	1.04	3.23	3.75	1.61	29.59
1995	3.21	0.41	1.43	5.79	4.47	1.40	3.17	3.49	1.04	4.20	3.68	0.59	32.88
1996	1.58	0.71	0.95	2.59	6.95	4.80	3.95	1.45	2.73	2.32	1.48	1.21	30.72
1997	1.38	5.56	1.57	1.76	2.69	3.81	3.04	4.50	1.69	2.75	1.46	1.50	31.71
1998	2.67	1.70	4.29	3.56	3.02	2.90	1.75	6.88	2.34	5.22	2.00	1.20	37.53
1999	4.47	1.64	1.73	7.51	4.46	4.95	3.73	2.30	3.27	1.07	0.44	2.68	38.25
POR= 41 YRS	1.76	1.48	2.60	3.63	3.29	3.79	3.55	4.07	3.40	2.62	2.74	2.14	35.07

WBAN : 94846

AVERAGE TEMPERATURE (°F) 1999 CHICAGO, O'HARE INTERNATIONAL AIRPORT, IL (

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	16.3	26.1	34.8	51.7	61.9	69.4	74.7	72.9	65.2	55.4	40.7	30.8	50.0
1971	18.9	28.2	35.0	48.6	57.2	73.5	71.5	72.0	69.7	61.7	41.7	34.2	51.0
1972	19.6	23.6	34.0	44.8	61.0	65.7	73.6	73.8	63.5	49.3	37.7	23.9	47.5
1973	28.2	28.7	44.0	48.1	54.8	71.1	74.7	74.6	66.0	57.9	41.9	28.1	51.5
1974	24.8	27.4	38.6	52.3	56.8	65.5	73.6	70.0	60.5	52.8	40.6	30.2	49.4
1975	27.3	26.2	34.1	43.3	62.3	70.5	75.5	76.3	61.4	55.8	47.2	31.5	51.0
1976	19.9	35.2	42.8	52.3	55.9	70.1	74.0	70.8	62.7	48.3	32.4	19.4	48.7
1977	10.7	26.9	44.9	55.0	67.2	69.3	77.5	71.9	66.0	51.5	40.0	24.2	50.4
1978	15.7	16.8	31.9	47.5	58.3	67.6	72.0	72.4	68.8	51.4	40.8	25.8	47.4
1979	12.5	16.2	36.4	45.5	59.3	69.2	72.0	71.0	66.1	53.3	40.6	33.7	48.0
1980	23.4	21.5	32.6	46.5	59.7	65.3	75.7	75.7	66.0	48.4	39.9	28.0	48.6
1981	22.6	28.0	37.6	51.8	55.3	69.8	72.5	71.2	61.7	49.1	40.8	24.9	48.8
1982	12.2	21.5	35.1	44.5	64.3	62.1	74.1	68.8	62.1	53.2	39.1	36.0	47.8
1983	26.3	30.5	37.4	43.4	53.2	69.7	76.7	77.3	64.6	52.8	41.1	14.3	48.9
1984	17.1	33.9	29.5	45.8	55.5	70.3	70.3	72.8	61.1	54.7	37.9	31.0	48.3
1985	14.4	20.4	39.4	52.6	60.2	63.6	71.4	69.2	65.4	52.5	37.8	17.0	47.0
1986	22.8	24.0	40.4	51.5	59.5	66.3	74.9	68.5	66.8	53.7	36.0	30.6	49.6
1987	25.9	33.9	40.8	50.6	63.4	72.4	76.7	71.9	65.1	47.3	43.9	32.2	52.0
1988	19.8	22.7	38.1	48.2	61.0	71.7	76.8	76.8	65.9	46.1	41.7	27.7	49.7
1989	32.4	19.6	36.6	46.8	57.8	67.5	73.9	71.4	62.0	54.0	37.7	17.4	48.1
1990	33.9	31.3	41.3	49.9	56.2	69.6	71.7	71.9	65.9	51.6	44.7	28.6	51.4
1991	20.8	31.0	40.4	52.0	65.6	71.9	75.5	73.6	63.7	53.2	35.2	30.3	51.1
1992	28.1	33.3	37.5	46.1	56.9	64.9	69.3	67.0	62.7	50.4	38.3	28.6	48.6
1993	26.2	24.4	34.2	45.0	59.7	66.4	74.3	73.3	59.2	49.5	38.7	29.8	48.4
1994	15.9	22.1	38.5	51.1	58.2	70.2	73.4	68.7	66.8	54.7	44.4	34.8	49.9
1995	24.0	26.5	40.2	46.0	58.8	72.3	77.6	79.0	62.5	53.7	32.8	26.3	50.0
1996	23.4	26.0	30.8	45.2	55.0	68.0	69.9	72.3	63.5	51.9	33.4	27.7	47.3
1997	19.3	29.0	37.9	45.2	53.8	68.3	73.2	69.5	64.2	53.2	36.4	31.5	48.5
1998	29.6	38.7	39.0	49.8	64.8	69.3	74.5	73.5	67.7	55.5	44.8	34.7	53.5
1999	22.6	34.0	35.6	49.6	61.7	70.4	78.4	70.3	63.4	52.9	45.1	29.9	51.2
POR= 41 YRS	21.5	26.3	36.7	48.4	59.3	68.5	73.2	71.8	64.4	52.7	39.6	27.5	49.2

HEATING DEGREE DAYS (base 65°F) 1999 CHICAGO, O'HARE INTERNATIONAL AIRPORT, IL (OR

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	2	0	85	302	725	1055	1422	1026	923	484	262	14	6300
1971-72	7	3	64	154	693	948	1405	1197	954	602	178	80	6285
1972-73	15	10	109	481	811	1269	1135	1012	645	503	311	0	6301
1973-74	0	0	72	244	687	1139	1240	1046	812	383	266	63	5952
1974-75	0	1	176	384	724	1072	1160	1078	951	643	152	30	6371
1975-76	1	0	147	303	531	1033	1392	859	681	411	285	17	5660
1976-77	0	9	119	522	973	1408	1679	1060	616	332	115	41	6874
1977-78	0	8	42	413	741	1254	1521	1346	1020	518	264	46	7173
1978-79	1	4	59	418	718	1206	1622	1360	879	580	233	30	7110
1979-80	16	19	62	382	722	967	1281	1254	995	558	198	83	6537
1980-81	0	3	71	511	746	1140	1308	1031	846	397	313	6	6372
1981-82	8	6	135	489	719	1236	1632	1213	922	608	93	118	7179
1982-83	7	37	152	372	772	891	1194	961	847	643	364	38	6278
1983-84	16	0	125	383	714	1568	1479	894	1095	575	300	18	7167
1984-85	19	1	189	320	807	1046	1563	1245	787	418	183	103	6681
1985-86	0	6	141	380	813	1480	1302	1142	765	417	202	74	6722
1986-87	3	29	64	343	863	1060	1205	866	742	432	162	14	5783
1987-88	4	19	74	541	629	1011	1396	1221	828	503	176	40	6442
1988-89	0	9	63	583	693	1149	1003	1265	882	540	261	43	6491
1989-90	0	5	131	344	813	1471	956	938	733	491	271	33	6186
1990-91	10	5	103	425	605	1120	1365	945	756	393	142	13	5882
1991-92	0	0	163	367	887	1066	1137	913	847	560	284	77	6301
1992-93	9	37	136	449	795	1122	1196	1133	948	595	184	69	6673
1993-94	0	3	185	479	784	1084	1516	1197	817	433	253	51	6802
1994-95	1	23	63	322	611	932	1262	1074	760	561	199	25	5833
1995-96	1	0	150	349	958	1193	1284	1124	1054	589	343	58	7103
1996-97	9	0	119	399	940	1148	1410	1003	832	587	344	53	6844
1997-98	9	4	77	406	852	1030	1091	732	813	449	87	69	5619
1998-99	0	0	35	289	598	933	1309	860	903	456	149	34	5566
1999-	1	4	110	368	591	1081							

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COOLING DEGREE DAYS (base 65°F) 1999 CHICAGO, O'HARE INTERNATIONAL AIRPORT

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1971	0	0	0	0	27	275	213	228	213	59	0	0	1015
1972	0	0	0	0	64	106	289	289	72	0	0	0	820
1973	0	0	0	5	3	189	308	301	108	32	0	0	946
1974	0	0	0	10	21	83	274	162	48	12	0	0	610
1975	0	0	0	0	76	203	332	358	46	24	1	0	1040
1976	0	0	0	36	6	178	286	196	56	8	0	0	766
1977	0	0	0	39	191	178	395	229	76	0	0	0	1108
1978	0	0	0	0	60	132	227	243	181	2	0	0	845
1979	0	0	0	2	61	164	241	213	99	26	0	0	806
1980	0	0	0	10	43	101	338	342	107	2	0	0	943
1981	0	0	0	9	20	157	248	204	44	0	0	0	682
1982	0	0	0	0	79	38	295	161	69	14	0	0	656
1983	0	0	1	0	4	189	385	388	122	10	0	0	1099
1984	0	0	0	5	11	184	190	254	77	8	0	0	729
1985	0	0	0	53	42	71	204	142	158	0	0	0	670
1986	0	0	7	17	37	118	318	145	123	3	0	0	768
1987	0	0	0	6	116	241	377	238	83	0	1	0	1062
1988	0	0	0	5	59	247	373	383	96	1	0	0	1164
1989	0	0	2	0	44	121	282	207	48	11	0	0	715
1990	0	0	7	43	8	179	226	224	137	11	1	0	836
1991	0	0	0	11	167	226	334	273	132	10	0	0	1153
1992	0	0	0	1	40	79	152	106	75	4	0	0	457
1993	0	0	0	0	28	118	294	266	19	5	0	0	730
1994	0	0	0	23	47	212	268	143	126	10	0	0	829
1995	0	0	0	0	13	254	398	445	81	8	0	0	1199
1996	0	0	0	0	41	154	166	235	79	2	0	0	677
1997	0	0	0	0	4	158	265	154	59	44	0	0	684
1998	0	0	13	0	88	205	301	267	123	5	0	0	1002
1999	0	0	0	0	52	201	422	176	70	2	2	0	925

SNOWFALL (inches) 1999 CHICAGO, O'HARE INTERNATIONAL AIRPORT, IL (ORD)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.0	0.2	2.7	10.0	1.4	8.0	0.8	T	0.0	23.1
1971-72	0.0	0.0	0.0	0.0	1.3	0.2	7.6	7.7	16.8	3.3	0.0	0.0	36.9
1972-73	0.0	0.0	0.0	0.1	0.9	11.2	0.5	9.3	3.4	0.2	T	0.0	25.6
1973-74	0.0	0.0	0.0	0.0	T	18.8	7.4	9.6	1.4	T	0.0	0.0	37.2
1974-75	0.0	0.0	0.0	0.0	1.0	9.4	3.5	8.2	4.5	11.1	0.0	0.0	37.7
1975-76	0.0	0.0	0.0	0.0	6.4	6.8	10.0	1.6	1.9	0.8	T	0.0	27.5
1976-77	0.0	0.0	0.0	1.6	0.5	6.5	7.2	4.0	4.9	T	0.0	0.0	24.7
1977-78	0.0	0.0	0.0	0.0	5.2	12.7	21.9	7.9	4.5	0.2	0.0	0.0	52.4
1978-79	0.0	0.0	0.0	0.0	5.2	35.3	34.3	6.8	2.0	0.1	0.0	0.0	83.7
1979-80	0.0	0.0	0.0	0.0	4.0	0.9	6.2	14.7	11.6	4.2	0.0	0.0	41.6
1980-81	0.0	0.0	0.0	T	5.1	9.7	2.0	15.9	2.3	0.0	0.0	0.0	35.0
1981-82	0.0	0.0	0.0	T	3.6	4.9	21.1	4.8	14.3	10.6	0.0	0.0	59.3
1982-83	0.0	0.0	0.0	0.0	0.4	2.1	5.0	8.9	9.0	1.2	0.0	0.0	26.6
1983-84	0.0	0.0	0.0	0.0	1.0	16.5	17.2	1.9	9.7	2.7	0.0	0.0	49.0
1984-85	0.0	0.0	0.0	0.0	T	6.6	18.9	13.3	0.3	T	0.0	0.0	39.1
1985-86	0.0	0.0	0.0	0.0	1.1	5.2	6.9	10.9	4.1	0.8	0.0	0.0	29.0
1986-87	0.0	0.0	0.0	T	3.8	0.4	17.3	T	4.7	T	0.0	0.0	26.2
1987-88	0.0	0.0	0.0	0.1	1.0	18.7	5.4	15.5	1.9	T	0.0	0.0	42.6
1988-89	0.0	0.0	0.0	T	0.9	5.0	0.4	15.1	2.0	0.6	0.5	0.0	24.5
1989-90	0.0	T	0.0	6.3	3.9	5.4	3.2	13.6	1.3	0.1	T	0.0	33.8
1990-91	0.0	0.0	0.0	T	T	3.2	11.1	3.3	5.9	T	0.0	0.0	23.5
1991-92	0.0	0.0	0.0	T	1.2	7.6	5.6	1.3	11.6	1.1	0.0	T	28.4
1992-93	T	0.0	0.0	0.3	0.2	5.7	15.2	8.0	13.8	3.7	0.0	0.0	46.9
1993-94	0.0	0.0	0.0	T	0.2	1.2	14.2	26.2	T	T	0.0	0.0	41.8
1994-95	0.0	0.0	0.0	0.0	T	7.0	13.1	0.4	3.5	0.1	0.0	0.0	24.1
1995-96	T	0.0	0.0	T	3.9	9.9	5.9	0.3	3.9	T	T	0.0	23.9
1996-97	0.0	0.0											
1997-98							11.0	T	8.2	0.0	0.0	T	
1998-99	0.0	0.0	0.0	0.0	0.2	1.0	29.6	1.9	18.2	0.0	0.0	0.0	50.9
1999-	0.0	0.0	0.0	0.0	0.0	3.5							
POR= 39 YRS	T	T	T	0.4	1.9	8.0	10.9	7.8	6.8	1.6	0.1	T	37.5

WBAN : 94846

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
CHICAGO, O'HARE INTERNATIONAL AIRPORT,
ILLINOIS (ORD)

Chicago is located along the southwest shore of Lake Michigan and occupies a plain which, for the most part, is only some tens of feet above the lake. Lake Michigan averages 579 feet above sea level. Natural water drainage over most of the city would be into Lake Michigan, and from areas west of the city is into the Mississippi River System. But actual drainage over most of the city is artificially channeled also into the Mississippi system. Topography does not significantly affect air flow in or near the city except that lesser frictional drag over Lake Michigan causes winds to be frequently stronger along the lakeshore, and often permits air masses moving from the north to reach shore areas an hour or more before affecting western parts of the city.

Chicago is in a region of frequently changeable weather. The climate is predominately continental, ranging from relatively warm in summer to relatively cold in winter. However, the continentality is partially modified by Lake Michigan, and to a lesser extent by other Great Lakes. In late autumn and winter, air masses that are initially very cold often reach the city only after being tempered by passage over one or more of the lakes. Similarly, in late spring and summer, air masses reaching the city from the north, northeast, or east are cooler because of movement over the Great Lakes. Very low winter temperatures most often occur in air that flows southward to the west of Lake Superior before reaching the Chicago area. In summer the higher temperatures are with south or southwest flow and are therefore not influenced by the lakes, the only modifying effect being a local lake breeze. Strong south or southwest flow may overcome the lake breeze and cause high temperatures to extend over the entire city.

During the warm season, when the lake is cold relative to land, there is frequently a lake breeze that reduces daytime temperature near the shore, sometimes by 10 degrees or more below temperatures farther inland. When the breeze off the lake is light this effect usually reaches inland only a mile or two, but with stronger on-shore winds the whole city is cooled. On the other hand, temperatures at night are warmer near the lake so that 24-hour averages on the whole are only slightly different in various parts of the city and suburbs.

At the O'Hare International Airport temperatures of 96 degrees or higher occur in about half the summers, while about half the winters have a minimum as low as -15 degrees. The average occurrence of the first temperature as low as 32 degrees in the fall is mid-October and the average occurrence of the last temperature as low as 32 degrees in the spring is late April.

Precipitation falls mostly from air that has passed over the Gulf of Mexico. But in winter there is sometimes snowfall, light inland but locally heavy near the lakeshore, with Lake Michigan as the principal moisture source. The heavy lakeshore snow occurs when initially colder air moves from the north with a long trajectory over Lake Michigan and impinges on the Chicago lakeshore. In this situation the air mass is warmed and its moisture content increased up to a height of several thousand feet. Snowfall is produced by upward currents that become stronger, because of frictional effects, when the air moves from the lake onto land. This type of snowfall therefore tends to be heavier and to extend farther inland in south-shore areas of the city and in Indiana suburbs, where the angle between wind-flow and shoreline is greatest. The effect of Lake Michigan, both on winter temperatures and lake-produced snowfall, is enhanced by non-freezing of much of the lake during the winter, even though areas and harbors are often ice-choked.

Summer thunderstorms are often locally heavy and variable, parts of the city may receive substantial rainfall and other parts none. Longer periods of continuous precipitation are mostly in autumn, winter, and spring. About one-half the precipitation in winter, and about 10 percent of the yearly total precipitation, falls as snow. Snowfall from month to month and year to year is greatly variable. There is a 50 percent likelihood that the first and last 1-inch snowfall of a season will occur by December 5 and March 20, respectively.

Channeling of winds between tall buildings often causes locally stronger gusts in the central business area. However, the nickname, windy city, is a misnomer as the average wind speed is not greater than in many other parts of the U.S.

STATION LOCATION

CHICAGO, ILLINOIS
O'HARE INTERNATIONAL AIRPORT

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	NORTH	WEST	ELEVATION ABOVE												A U 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													
							W I N D I N G S P E E D	W I N D D I R E C T I O N	W I N D S P E E D	W I N D D I R E C T I O N	W I N D S P E E D	W I N D D I R E C T I O N	W I N D S P E E D	W I N D D I R E C T I O N	W I N D S P E E D	W I N D D I R E C T I O N	W I N D S P E E D			
CITY OFFICE LOCATIONS FROM 1870-1970 ARE AVAILABLE ON THE 1979 AND PREVIOUS LCD ANNUALS PUBLISHED FOR CHICAGO, MIDWAY AIRPORT.																				
UNIVERSITY OF CHICAGO Rosenwald Hall 58th Street and University Avenue 5730 S Woodlawn Avenue	1/01/16	3/31/62		41° 47'	87° 36'	594	131	7	7				3	3	3			Chicago Observatory 1/1/26 through 6/30/42, otherwise climatological observations.		
AIRPORT (MIDWAY) National Airtransport Hangar, 5940 South Cicero Avenue	2/13/28	11/03/32		41° 47'	87° 45'	610	54	43	43						41			Climatological observations.		
South Terminal Building Midway Airport 6200 South Cicero Ave.	11/03/32	1/16/80	5/16 mi. S	41° 47'	87° 45'	e607	b20	c6	c5	%27	a26	a26	26	d4	NA	M		Chicago Observatory beginning 7/1/42, ending 1/16/80. a - Added 7/1/42. b - 36 feet to 7/20/49; 38 feet to 4/14/58; 48 feet to 4/24/62. c - 21 feet to 5/15/41. Standby status after 8/1/63. Discontinued 11/25/70. d - Commissioned 5000 feet WNW of station 8/1/63. e - 610 feet to 8/1/63. % - Commissioned 1967. M - Ramos 1/14/80 to Present.		
AIRPORT (O'HARE) International Terminal Building	10/30/58	3/7/85	NA	41° 59'	87° 54'	f656	g20	h39	i39	j39	k39	l39	m39	n39	o39	p39	q39	r39	f - HYGR Commissioned 3300' SW of office 12/3/60. g - Effective 12/8/60. h - Commissioned 6/4/62. i - Moved 1200' E 4/12/63. j - Type change 8/24/65. k - Type change 12/5/69. l - Minor adjustment 9/15/71. m - Minor adjustment 7/1/80. n - Installed 7/1/80.	
Hardstand Operational Bldg.	3/7/85	01/19/89	3/4 mi. ESE	41° 59'	87° 54'	658	q20	q39	q39	q53	q39	q39	q39	q39	q4	NA		Chicago Observatory beginning 1/16/80. q - Instruments not moved 3/7/85. r - Instruments moved 3/11/85. t - Removed 3/11/85. u - Type change 4/7/86.		
O'Hare Corporate Tower II, Rosemont, IL	01/19/89	02/01/96	1.2 mi. NE	42° 00'	87° 53'	658	v20	5	5	v24	NA	x4	4	v4	NA			WSO closed and consolidated with WSFO. v - Not moved 01/19/89. w - Moved 08/31/90. x - Shield added 02/07/92. y - Changed 03/29/95		
O'Hare International AP	02/01/96	Present	NA	41°59'	87°55'	658									S			ASOS Commissioned 02/01/96		

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