

2004

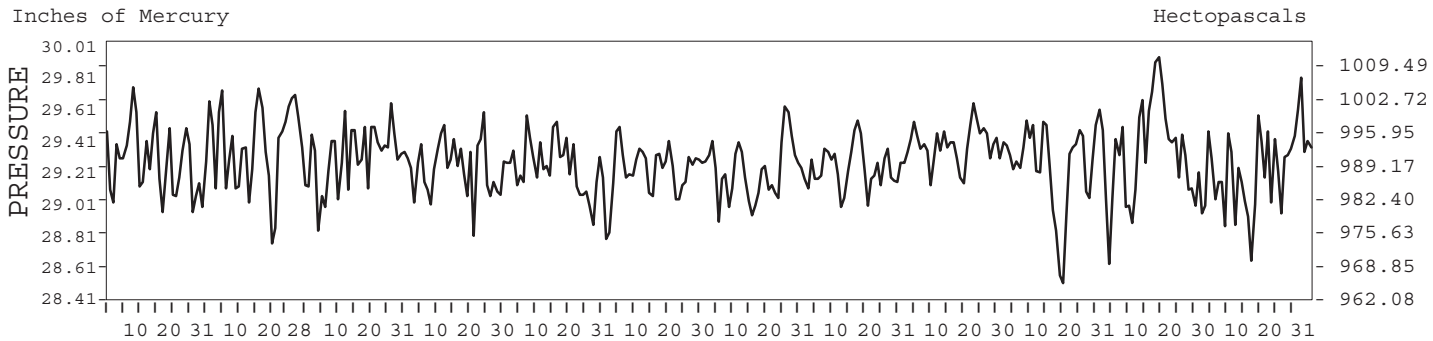
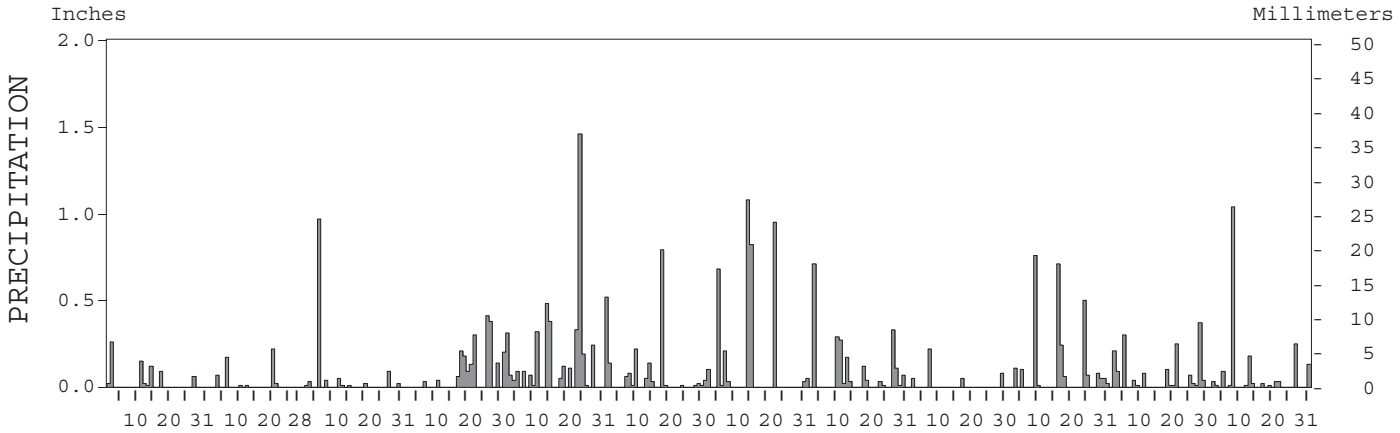
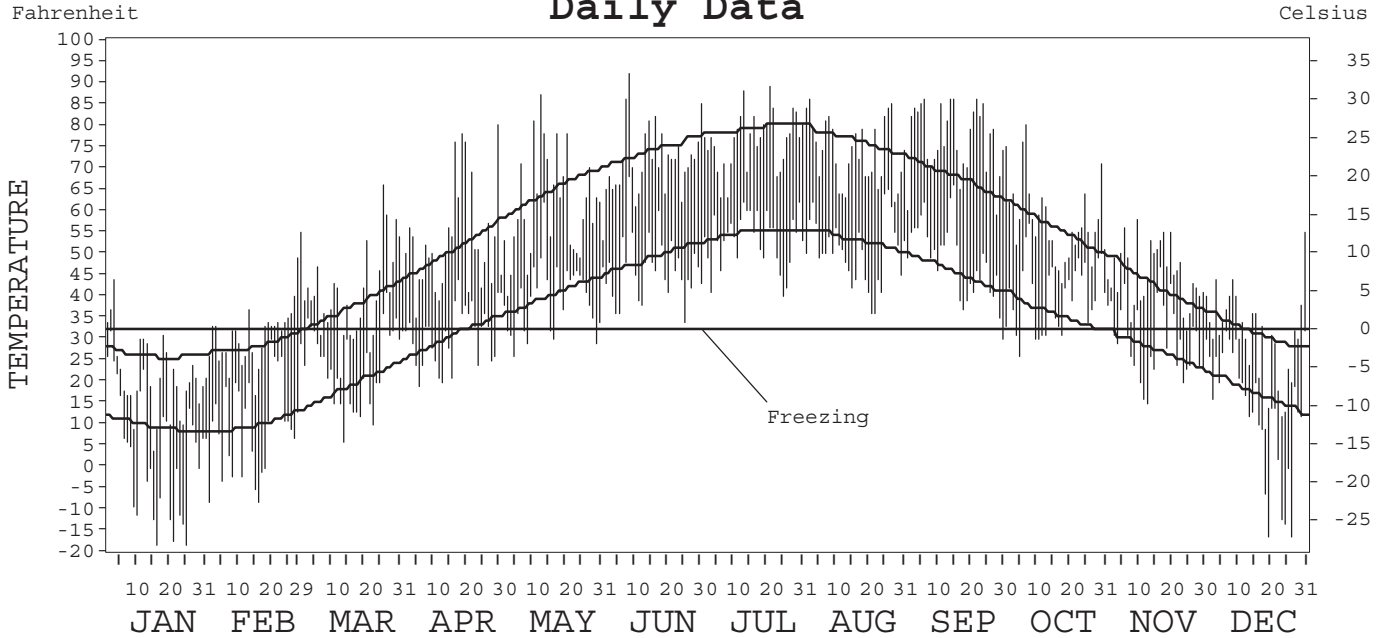
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2494

ALPENA,
MICHIGAN (APN)

Daily Data



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METEOROLOGICAL DATA FOR 2004

ALPENA, MI (APN)

LATITUDE: 45° 04' 18" N LONGITUDE: 83° 34' 52" W ELEVATION (FT): GRND: 683 BARO: 686 TIME ZONE: EASTERN (UTC + 5) WBAN: 94849

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	21.1	31.6	40.5	53.0	61.0	72.3	76.4	73.6	76.8	57.5	45.2	30.4	53.3	
	HIGHEST DAILY MAXIMUM	44	55	66	80	87	92	89	86	86	80	58	55	92	
	DATE OF OCCURRENCE	03	29	25	29	12	08	21	02	22+	07	10	31	JUN 08	
	MEAN DAILY MINIMUM	3.8	10.4	23.8	30.9	39.7	46.5	53.2	50.4	48.5	40.2	30.0	13.8	32.6	
	LOWEST DAILY MINIMUM	-18	-8	6	19	26	34	40	36	30	26	15	-16	-18	
	DATE OF OCCURRENCE	25+	16+	13	05	04	25	25	22+	30	05	13	27+	JAN 25+	
	AVERAGE DRY BULB	12.5	21.0	32.2	42.0	50.4	59.4	64.8	62.0	62.7	48.9	37.6	22.1	43.0	
	MEAN WET BULB		20.6		36.6	46.5	54.8	60.1	57.8	57.0	45.4	35.2	21.8		
	MEAN DEW POINT		15.9		29.4	42.4	49.8	56.5	54.1	52.9	41.6	30.5	17.9		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	MAXIMUM ≤ 32°	28	15	8	0	0	0	0	0	0	0	1	17	69	
	MINIMUM ≤ 32°	31	29	26	15	8	0	0	0	1	7	19	31	167	
MINIMUM ≤ 0°	14	8	0	0	0	0	0	0	0	0	0	6	28		
H/C	HEATING DEGREE DAYS	1623	1270	1011	685	460	184	65	130	126	497	815	1322	8188	
	COOLING DEGREE DAYS	0	0	0	0	8	20	65	47	62	2	0	0	204	
RH	MEAN (PERCENT)	76	78	76	65	76	70	76	77	74	79	76	80	75	
	HOUR 01 LST	83	84	84	73	85	88	90	91	90	87	82	83	85	
	HOUR 07 LST	80	86	86	77	84	81	90	90	91	88	83	83	85	
	HOUR 13 LST	67	67	64	54	64	54	60	58	49	66	61	75	62	
	HOUR 19 LST	78	76	72	64	72	57	67	67	72	81	76	79	72	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	3	7	6	0	6	2	2	2	7	3	3	2	43	
	THUNDERSTORMS	0	0	0	5	9	4	5	5	1	0	0	0	29	
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.)	29.28	29.38	29.31	29.24	29.23	29.24	29.21	29.25	29.39	29.22	29.35	29.23	29.28	
	MEAN SEA-LEVEL PRESS. (IN.)		30.16		30.00	29.99	29.98	29.95	30.00	30.13	29.97	30.12	30.01		
WINDS	RESULTANT SPEED (MPH)	3.9	1.7		2.0	0.4	1.6	0.6	2.1	1.6	2.0	3.3	2.7		
	RES. DIR. (TENS OF DEGS.)	30	25		33	10	23	29	26	20	23	25	26		
	MEAN SPEED (MPH)	8.7	7.3	8.4	8.4	8.1	7.0	6.0	6.6	6.4	8.0	7.1	9.3	7.6	
	PREVAIL. DIR. (TENS OF DEGS.)	29	24	18	32	14	21	31	33	19	24	21	20	31	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	26	24	28	31	31	24	26	25	28	30	25	30	31	
	DIR. (TENS OF DEGS.)	10	24	33	17	07	35	33	20	18	24	01	24	07	
	DATE OF OCCURRENCE	26+	13	21+	28+	24+	18	15+	02	06	30	24+	31	MAY 24+	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	36	33	40	43	37	32	32	35	33	40	33	44	44	
DIR. (TENS OF DEGS.)	09	24	31	23	07	31	34	20	19	23	27	22	22		
DATE OF OCCURRENCE	26	13	12	19	24+	18	15+	02	06	30	28	31	DEC 31		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.73	0.50	1.25	2.17	4.89	1.62	3.96	2.21	0.40	2.76	1.61	1.90	24.00	
	GREATEST 24-HOUR (IN.)	0.26	0.23	0.97	0.43	1.64	0.80	1.90	0.71	0.22	0.82	0.38	1.05	1.90	
	DATE OF OCCURRENCE	02	20-21	05	20-21	23-24	17-18	13-14	02	06	15-16	26-27	06-07	JUL 13-14	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	8	6	10	12	19	15	10	14	4	13	15	15	141	
PRECIPITATION ≥ 0.10	3	2	1	8	11	4	6	7	1	6	5	4	58		
PRECIPITATION ≥ 1.00	0	0	0	0	1	0	1	0	0	0	0	1	3		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)														
	GREATEST 24-HOUR (IN.)														
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0															

PRECIPITATION (inches) 2004 ALPENA, MI (APN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	2.14	1.26	2.26	1.70	4.45	3.23	7.17	5.76	1.97	0.91	2.51	0.93	34.29
1976	1.73	2.24	4.44	1.33	2.43	2.82	2.03	2.54	1.30	2.14	0.79	0.61	24.40
1977	0.72	2.19	2.49	2.15	1.85	1.38	3.38	4.75	4.01	1.22	2.33	2.28	28.75
1978	3.31	0.60	1.07	1.18	2.69	1.13	2.96	2.65	6.09	1.26	1.55	2.26	26.75
1979	1.79	1.06	2.13	3.02	2.50	2.76	4.54	2.14	0.28	2.58	1.94	2.09	26.83
1980	0.95	0.47	1.22	4.15	1.87	3.34	2.11	3.29	2.51	0.99	1.03	2.19	24.12
1981	0.46	1.93	1.01	3.41	1.14	2.11	1.50	2.20	2.38	2.98	1.12	1.17	21.41
1982	2.06	0.12	2.33	1.62	1.68	3.37	1.65	3.07	3.61	1.45	2.73	2.81	26.50
1983	1.80	1.48	2.82	2.70	8.29	1.76	2.48	2.62	3.50	3.90	1.74	1.92	35.01
1984	0.89	0.81	2.22	2.89	1.89	2.88	2.35	5.92	3.76	2.79	2.01	2.22	30.63
1985	1.71	2.77	2.77	2.63	2.70	1.00	3.80	4.74	3.07	2.80	3.24	2.60	33.83
1986	1.04	1.06	2.30	1.86	2.41	3.36	5.28	1.83	7.12	2.83	0.61	0.95	30.65
1987	0.94	0.87	0.94	1.20	1.75	3.38	1.17	4.77	3.29	2.00	2.21	2.17	24.69
1988	1.51	1.04	2.72	3.25	0.99	0.84	2.61	4.48	1.50	3.43	3.54	1.24	27.15
1989	1.42	0.61	2.68	2.20	1.89	2.67	0.22	2.29	1.90	2.20	2.27	1.53	21.88
1990	2.44	1.17	2.89	2.32	2.88	4.18	3.69	2.35	1.58	3.07	2.89	1.79	31.25
1991	0.96	0.49	3.04	2.57	6.26	0.20	5.16	3.38	2.24	6.53	1.50	1.44	33.77
1992	1.70	1.70	1.50	2.61	1.10	1.69	3.37	2.65	2.53	2.34	4.01	1.24	26.44
1993	1.33	0.81	0.34	3.16	2.49	4.00	1.71	5.67	1.51	1.98	2.56	0.41	25.97
1994	1.95	1.04	1.29	2.64	1.58	3.23	5.53	6.26	1.61	1.38	2.90	0.39	29.80
1995	1.77	0.84	0.99	3.16	1.29	2.01	2.96	2.34	1.72	1.89	4.17	1.36	24.50
1996	1.42	1.51	0.49	2.78	1.20	2.29	4.06	1.75	6.16	2.37	0.76	5.07	29.86
1997	4.12	3.88	2.49	1.77	2.66	0.42	3.05	5.83	2.86	1.82	1.31	0.73	30.94
1998	3.73	0.82	7.37	1.24	2.36	2.91	1.09	2.47	2.92	4.61	2.24	1.41	33.17
1999	2.32	1.39	0.73	1.39	1.56	3.32	2.07	1.32	2.30	1.39	0.78	1.64	20.21
2000	1.69	2.05	0.92	1.65	3.82	2.75	1.34	1.38	3.60	0.87	3.22	0.67	23.96
2001	0.78	1.37	0.36	2.46	4.19	2.01	0.39	2.74	6.46	3.32	1.48	1.46	27.02
2002	0.39	1.82	2.11	2.66	3.87	2.95	3.72	1.99	1.24	2.20	1.32	0.53	24.80
2003	0.19	0.31	1.61	2.16	3.05	2.45	4.68	1.70	2.58	1.15	3.18	1.39	24.45
2004	0.73	0.50	1.25	2.17	4.89	1.62	3.96	2.21	0.40	2.76	1.61	1.90	24.00
POR= 132 YRS	1.81	1.52	1.96	2.30	2.91	2.96	2.72	2.99	3.03	2.50	2.29	1.91	28.90

WBAN : 94849

AVERAGE TEMPERATURE (°F) 2004 ALPENA, MI (APN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	22.4	21.9	25.0	35.8	58.0	63.7	68.7	65.7	53.6	49.0	40.7	23.8	44.0
1976	12.6	23.6	30.6	45.0	50.9	65.8	67.5	66.1	57.0	43.4	30.4	15.0	42.3
1977	10.2	19.4	35.9	43.3	56.5	59.2	67.2	61.3	58.2	45.7	34.7	22.4	42.8
1978	16.2	14.1	24.5	36.0	55.4	60.7	65.9	65.6	58.5	46.3	36.0	23.7	41.9
1979	13.9	8.6	31.3	41.1	50.8	60.8	66.9	63.1	59.0	44.7	33.9	28.4	41.9
1980	19.8	16.8	26.1	40.4	53.7	56.8	67.6	68.6	57.2	43.7	33.6	18.6	41.9
1981	14.7	24.5	32.1	44.3	52.0	62.4	67.5	64.9	54.1	41.4	35.8	26.3	43.3
1982	11.2	17.3	25.4	37.5	56.9	56.4	67.9	61.6	57.4	48.7	36.0	31.4	42.3
1983	22.2	25.1	30.8	39.8	47.0	61.9	72.2	68.5	59.8	45.6	35.0	18.7	43.9
1984	13.1	28.4	24.6	43.3	48.5	63.2	66.4	67.5	54.4	48.6	35.3	27.9	43.4
1985	16.3	17.6	30.5	44.8	53.7	58.5	65.8	63.9	59.1	46.8	35.3	19.6	42.7
1986	18.3	19.3	30.1	45.0	54.6	58.7	68.2	62.4	57.2	45.9	33.3	29.2	43.5
1987	23.2	22.4	32.5	44.9	55.5	65.3	70.4	65.6	59.8	43.4	38.0	29.4	45.9
1988	18.6	15.4	27.6	41.6	56.0	64.8	71.6	68.1	58.0	43.1	37.4	23.9	43.8
1989	25.7	16.8	23.9	39.2	53.7	60.8	68.7	64.8	56.2	47.8	31.1	12.5	41.8
1990	26.9	22.1	31.1	44.3	50.4	61.9	66.8	65.8	57.1	45.4	38.5	26.7	44.8
1991	18.6	26.2	31.2	45.4	58.4	65.6	67.7	68.3	55.5	47.9	33.9	25.0	45.3
1992	22.3	23.5	26.8	38.5	52.6	58.5	61.3	62.0	55.7	44.3	34.1	27.9	42.3
1993	21.5	16.1	26.8	39.1	51.4	59.8	69.5	67.8	52.2	43.7	34.6	25.9	42.4
1994	8.1	11.6	28.9	43.1	53.1	64.1	66.9	63.5	59.9	49.0	38.9	32.1	43.3
1995	24.0	16.8	32.0	37.9	53.1	65.6	68.6	68.5	55.2	49.0	29.4	20.6	43.4
1996	15.8	17.5	24.7	36.9	48.4	62.0	64.2	66.4	59.6	46.5	31.4	26.0	41.6
1997	17.4	20.7	26.1	39.1	46.0	64.4	66.1	62.0	57.6	46.0	33.0	29.4	42.3
1998	24.3	29.7	29.9	43.4	58.1	62.0	67.4	67.2	59.9	47.9	38.4	29.0	46.4
1999	18.1	24.6	28.9	43.2	54.4	65.0	70.1	63.3	58.4	45.8	40.5	26.5	44.9
2000	19.5	24.1	36.8	40.7	54.4	60.9	64.8	63.8	56.6	48.8	35.9	16.6	43.6
2001	23.6	20.5	27.4	44.1	56.9	64.5	67.0	69.3	57.2	47.2	42.8	32.2	46.1
2002	26.3	24.9	25.5	41.6	48.0	62.7	71.1	65.9	63.2	42.1	33.0	26.3	44.2
2003	16.3	13.4	26.9	37.5	50.0	60.3	66.6	67.5	57.6	45.1	37.3	27.5	42.2
2004	12.5	21.0	32.2	42.0	50.4	59.4	64.8	62.0	62.7	48.9	37.6	22.1	43.0
POR= 130 YRS	19.3	19.0	27.0	39.8	51.2	61.0	66.6	64.8	57.2	47.2	35.4	24.8	42.8

HEATING DEGREE DAYS (base 65°F) 2004 ALPENA, MI (APN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	43	72	334	488	724	1267	1621	1197	1061	612	430	68	7917
1976-77	27	70	270	663	1031	1547	1696	1270	892	643	294	206	8609
1977-78	49	156	206	587	902	1317	1506	1421	1245	860	331	191	8771
1978-79	63	48	212	577	862	1270	1580	1576	1038	712	443	164	8545
1979-80	45	107	217	630	929	1128	1396	1390	1201	729	352	281	8405
1980-81	25	15	248	652	937	1430	1551	1129	1013	616	397	115	8128
1981-82	43	62	325	725	868	1193	1663	1330	1219	819	249	250	8746
1982-83	29	145	258	501	864	1034	1319	1112	1053	748	551	154	7768
1983-84	24	32	216	600	893	1427	1605	1054	1247	644	505	105	8352
1984-85	42	39	314	502	884	1144	1502	1321	1060	613	353	197	7971
1985-86	50	88	217	554	885	1401	1441	1272	1075	594	338	209	8124
1986-87	43	105	240	588	945	1100	1289	1188	1002	594	332	75	7501
1987-88	45	64	164	660	805	1096	1431	1433	1151	697	290	112	7948
1988-89	8	77	213	673	824	1269	1211	1342	1268	769	345	147	8146
1989-90	16	90	272	525	1010	1621	1173	1194	1045	639	443	131	8159
1990-91	39	38	259	600	787	1181	1433	1080	1040	595	262	63	7377
1991-92	34	40	304	525	927	1233	1317	1197	1177	784	392	213	8143
1992-93	123	136	286	639	919	1144	1341	1362	1178	772	418	170	8488
1993-94	9	39	378	655	902	1207	1767	1491	1114	655	376	105	8698
1994-95	37	90	177	488	774	1014	1264	1344	1018	805	369	74	7454
1995-96	25	21	303	490	1059	1369	1518	1373	1243	839	521	137	8898
1996-97	53	32	191	564	1004	1202	1469	1231	1198	771	584	85	8384
1997-98	73	125	225	583	952	1097	1255	984	1081	640	235	156	7406
1998-99	24	36	171	525	790	1109	1448	1125	1110	645	339	100	7422
1999-00	18	89	208	586	727	1188	1404	1180	867	725	347	157	7496
2000-01	76	80	267	495	863	1493	1276	1242	1161	620	254	100	7927
2001-02	55	20	255	543	661	1011	1192	1115	1219	710	520	144	7445
2002-03	21	45	132	709	950	1192	1503	1439	1173	819	455	167	8605
2003-04	23	40	223	608	824	1153	1623	1270	1011	685	460	184	8104
2004-	65	130	126	497	815	1322							

WBAN : 94849

COOLING DEGREE DAYS (base 65°F) 2004 ALPENA, MI (APN)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	0	0	0	0	39	71	167	102	1	0	0	0	380
1976	0	0	0	18	0	96	113	112	36	0	0	0	375
1977	0	0	0	0	36	39	125	48	9	0	0	0	257
1978	0	0	0	0	39	68	99	73	26	0	0	0	305
1979	0	0	0	0	10	47	112	55	41	7	0	0	272
1980	0	0	0	0	9	43	114	133	19	0	0	0	318
1981	0	0	0	3	1	44	124	65	3	0	0	0	240
1982	0	0	0	0	6	1	125	43	37	0	0	0	212
1983	0	0	0	0	0	68	254	144	67	3	0	0	536
1984	0	0	0	0	0	58	92	123	5	0	0	0	278
1985	0	0	0	14	9	8	81	61	46	0	0	0	219
1986	0	0	0	0	24	26	150	34	10	0	0	0	244
1987	0	0	0	0	46	91	218	88	13	0	0	0	456
1988	0	0	0	0	18	113	217	179	9	0	0	0	536
1989	0	0	0	0	1	26	134	89	16	0	0	0	266
1990	0	0	0	25	0	45	101	70	30	0	0	0	271
1991	0	0	0	11	65	88	125	150	25	2	0	0	466
1992	0	0	0	0	13	25	14	51	16	4	0	0	123
1993	0	0	0	0	3	21	153	130	5	0	0	0	312
1994	0	0	0	2	17	83	107	51	30	0	0	0	290
1995	0	0	0	0	7	99	146	136	15	2	0	0	405
1996	0	0	0	0	10	51	36	82	36	0	0	0	215
1997	0	0	0	0	0	75	114	41	9	1	0	0	240
1998	0	0	0	0	28	71	105	111	26	0	0	0	341
1999	0	0	0	0	18	108	185	41	14	0	0	0	366
2000	0	0	0	0	28	42	75	49	22	0	0	0	216
2001	0	0	0	0	13	94	125	161	28	0	0	0	421
2002	0	0	0	16	2	82	218	83	85	10	0	0	496
2003	0	0	0	0	0	33	83	122	9	0	0	0	247
2004	0	0	0	0	8	20	65	47	62	2	0	0	204

SNOWFALL (inches) 2004 ALPENA, MI (APN)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	0.0	0.0	0.0	T	10.9	16.0	34.3	18.0	18.9	3.5	0.1	0.0	101.7
1976-77	0.0	0.0	0.0	2.5	8.0	13.8	17.3	11.3	3.4	4.6	0.0	0.0	60.9
1977-78	0.0	0.0	0.0	T	19.5	26.1	43.5	16.8	8.5	0.1	T	0.0	114.5
1978-79	0.0	0.0	0.0	T	7.8	29.1	23.3	13.5	4.8	9.1	2.2	0.0	89.8
1979-80	0.0	0.0	0.0	0.2	6.2	20.0	12.0	11.8	15.7	12.3	0.0	0.0	78.2
1980-81	0.0	0.0	0.0	1.5	4.6	32.2	14.0	20.5	9.3	T	0.0	0.0	82.1
1981-82	0.0	0.0	0.0	0.3	3.9	18.0	39.8	3.6	20.1	3.6	0.0	0.0	89.3
1982-83	0.0	0.0	0.0	0.2	4.7	4.7	22.4	18.3	16.3	7.1	0.0	0.0	73.7
1983-84	0.0	0.0	0.0	T	5.5	22.1	21.2	8.8	9.2	7.4	0.3	0.0	74.5
1984-85	0.0	0.0	T	0.0	4.5	15.3	40.6	30.7	26.8	4.8	0.0	0.0	122.7
1985-86	0.0	0.0	0.0	T	15.4	27.7	17.2	16.0	12.6	3.6	T	0.0	92.5
1986-87	0.0	0.0	0.0	0.1	4.1	11.1	12.3	17.2	3.5	7.9	0.0	0.0	56.2
1987-88	0.0	0.0	0.0	0.7	6.6	16.2	13.6	22.7	21.5	5.2	0.0	0.0	86.5
1988-89	0.0	0.0	0.0	0.9	3.3	15.3	17.0	12.7	29.8	8.0	0.1	0.0	87.1
1989-90	0.0	0.0	T	0.7	19.1	41.3	25.0	16.4	2.8	10.3	0.3	0.0	115.9
1990-91	0.0	T	0.0	0.3	10.2	19.7	17.1	12.8	6.5	1.7	0.0	0.0	68.3
1991-92	0.0	T	T	T	2.7	26.6	16.5	21.3	5.3	12.7	0.0	0.0	85.1
1992-93	0.0	0.0	0.0	2.8	10.2	8.1	16.3	19.3	7.9	12.5	T	0.0	77.1
1993-94	0.0	0.0	T	0.2	2.7	4.7	43.0	21.3	9.4	4.8	0.2	0.0	86.3
1994-95	0.0	0.0	0.0	T	11.9	1.8	18.1	18.5	8.7	2.9	0.0	0.0	61.9
1995-96	0.0	0.0	T	0.2	34.8	25.0	20.8	15.8	8.4	8.1	0.9	0.0	114.0
1996-97	T	T	0.0	0.2	6.6								
1997-98													
1998-99					4.7								
1999-00					2.2	6.5	19.4	15.6	2.0				
2000-01													
2001-02													
2002-03													
2003-04													
2004-													
POR= 37 YRS	0.0	T	T	0.6	8.6	19.7	21.8	16.0	12.7	4.9	0.5	0.0	84.8

WBAN : 94849

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 (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.</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 EIGHTS (OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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2004
ALPENA,
MICHIGAN (APN)

The city of Alpena lies on the northwest shore of Thunder Bay, 8 miles from the open waters of Lake Huron. Lake Huron and Thunder Bay lie at an elevation of 580 feet above sea level. Generally, the land slopes up westward from the lakeshore to 689 feet at the airport. Farther to the west and southwest the land becomes higher and more rolling. A range of hills with tops 1,000 to 1,350 feet lies northwest to southeast about 25 miles southwest of the station.

Summer showers moving from the southwest weaken and sometimes dissipate as they approach Alpena. Winter storms often bring winds with an easterly component. Precipitation from these is increased by moisture and instability picked up from Lake Huron and by forced upslope flow.

The climate of Alpena is influenced by its location with respect to major storm tracks and the effects of the Great Lakes. The normal wintertime storm track is south of the city, and most passing storms bring snow. Rain, freezing rain, and sleet are uncommon, but not unknown, in winter. In summer, most storms pass to the north, often bringing brief showers to the area, but occasionally, heavy thunderstorms with damaging winds occur. The Great Lakes modify most climatic extremes. Precipitation amounts are distributed evenly throughout the year. The lake effect is most pronounced in early winter, before ice forms. Minimum temperatures during this season are higher than would be expected at this latitude. But as nearby waters, particularly the Straits of Mackinac, freeze over, sub-zero temperatures become fairly common by February.

Summers in Alpena are warm and sunny. Brief showers usually occur every few days, often falling on only part of the area. Hailstorms average less than one a year. During prolonged heat waves the highest temperatures in Michigan often occur in the forest area southwest of Alpena. Winter months are cloudy and marked by frequent snow flurries. Storms bring heavier snowfall. Snow cover is sufficiently deep and persistent to provide good protection for grasses and winter grains.

The climate along the immediate Lake Huron shore is semi-maritime and lacks the temperature extremes experienced just a few miles inland. Maximum temperatures near the lake shore average 1.6 degrees lower than those at the airport, minimum temperatures average 5 degrees higher. Afternoon lake breezes which are strongest in the late spring and early summer cause lake shore maximum temperatures to average 3.6 degrees lower during the month of May.

Freezing temperatures have occurred as late as late June and as early as late August. Principal crops in the area are hay, potatoes, berries, and apples.

Prevailing winds are from the northwest except during May and June when southeast winds predominate. Southeast winds are common in the afternoon during all the summer months.

STATION LOCATION

ALPENA, MICHIGAN

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATIC OBSERVING EQUIPMENT *	* TYPE M = AMOS T = AUTOB S = ASOS W = AWOS REMARKS	
						SEA LEVEL	GROUND											
							GROUND	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET	WEIGHING RAIN GAGE	8 INCH RAIN GAGE	HYGROMETER			
*NOTE:																		
<u>AIRPORT</u>																		
Terminal Building Phelps Collins Field	8/25/59	04/01/96	7 mi. W	45°04'	83°34'	689	33 g22	5 j5		18	3 f4 i4 j5	5 f4 j5	3 j4	h5 k5	f. Effective 6/20/62. g. Effective 7/26/74. h. Commissioned 950' NE of thermometer site 10/2/75. i. Minor move 7/25/78. j. Relocated 5/22/80 k. Type change 11/16/84.			
Phelps Collins Airport	04/01/96	Present	NA	45°04'	83°35'	1683								S	ASOS Commissioned 04/01/96 l. Ground elevation.			

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* NOTES: For earlier station history see previous edition.