

2003

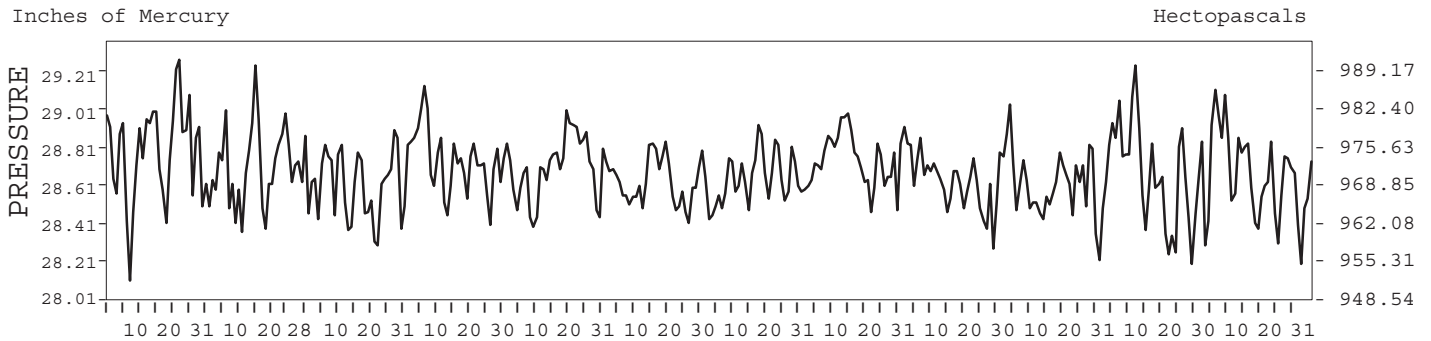
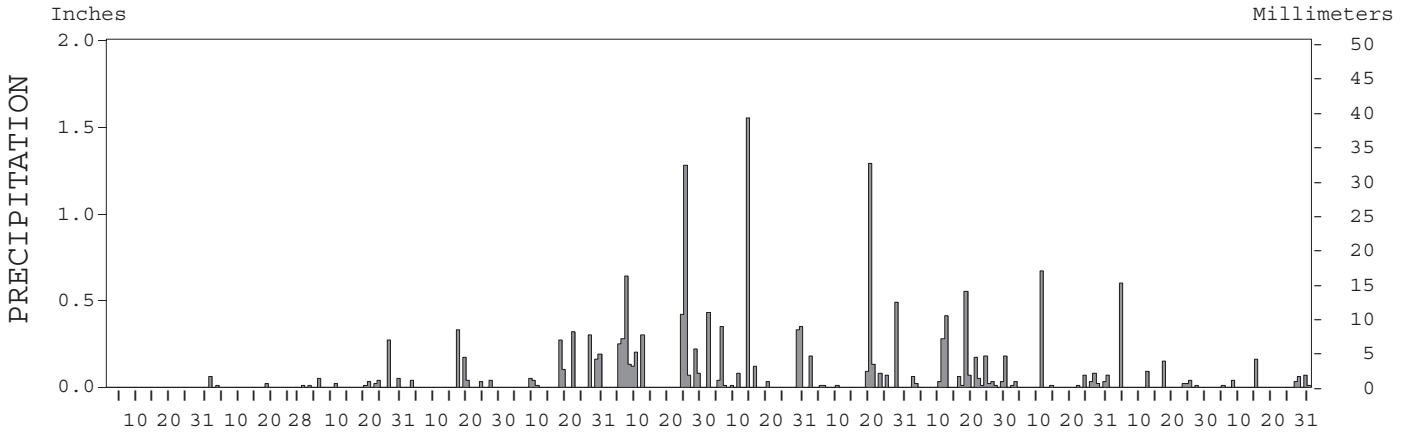
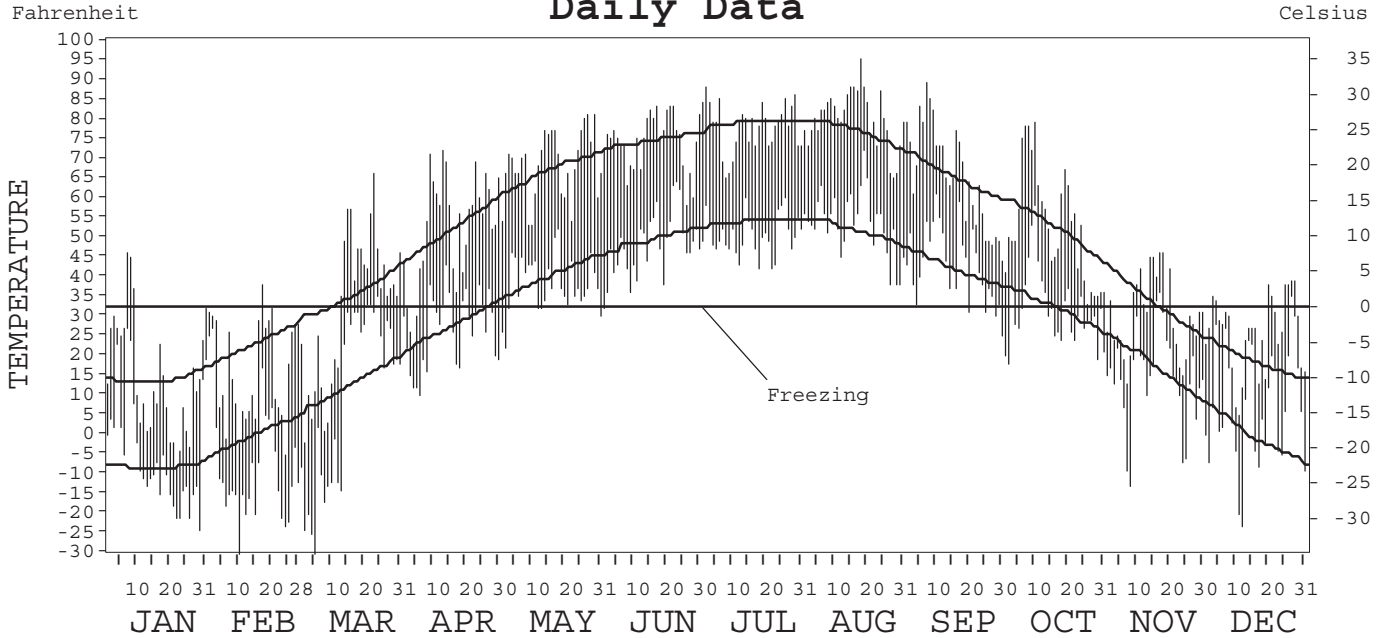
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2710

INTERNATIONAL FALLS,
MINNESOTA (INL)

Daily Data



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Thomas R. Karl

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METEOROLOGICAL DATA FOR 2003

INTERNATIONAL FALLS, MN (INL)

LATITUDE: 48° 33' 59" N LONGITUDE: 93° 24' 11" W ELEVATION (FT): GRND: 1182 BARO: 1185 TIME ZONE: CENTRAL (UTC + 6) WBAN: 14918

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	14.6	16.2	32.0	52.3	68.3	74.0	77.9	79.9	65.6	52.9	30.2	25.9	49.2	
	HIGHEST DAILY MAXIMUM	46	38	66	72	81	83	88	95	89	79	46	39	95	
	DATE OF OCCURRENCE	07	17	23	13	29+	22+	02	18	07	10	18+	28+	AUG 18	
	MEAN DAILY MINIMUM	-4.8	-8.0	9.6	26.7	38.1	48.0	50.4	53.5	42.8	31.8	14.4	7.2	25.8	
	LOWEST DAILY MINIMUM	-24	-30	-30	10	22	32	42	38	25	18	-13	-23	-30	
	DATE OF OCCURRENCE	29	10	05	06	02	01	22+	30+	30	02	08	12	MAR 05	
	AVERAGE DRY BULB	4.9	4.1	20.8	39.5	53.2	61.0	64.2	66.7	54.2	42.4	22.3	16.6	37.5	
	MEAN WET BULB	4.3	3.5	18.9	33.7	46.2	55.8	59.6	61.8			21.9	16.3		
	MEAN DEW POINT	-1.7	-4.5	11.9	23.3	36.4	50.8	55.6	58.1			17.7	12.7		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	MAXIMUM ≤ 32°	28	27	12	4	0	0	0	0	0	0	19	23	113	
	MINIMUM ≤ 32°	31	28	28	20	6	1	0	0	4	20	28	30	196	
MINIMUM ≤ 0°	22	21	12	0	0	0	0	0	0	0	4	11	70		
H/C	HEATING DEGREE DAYS	1856	1699	1363	758	358	150	65	52	332	699	1272	1494	10098	
	COOLING DEGREE DAYS	0	0	0	0	0	35	44	114	16	4	0	0	213	
RH	MEAN (PERCENT)	72	65	68	55	55	71	74	75	78	76	79	81	71	
	HOUR 00 LST	77	70	76	61	68	84	90	88	88	84	83	84	79	
	HOUR 06 LST	78	76	80	72	75	85	92	93	94	90	84	85	84	
	HOUR 12 LST	64	58	61	46	40	58	57	59	65	63	73	78	60	
	HOUR 18 LST	69	56	56	42	40	57	57	58	68	70	78	80	61	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	1	0	4	2	1	4	6	3	4	0	3	1	29	
	THUNDERSTORMS	0	0	0	0	1	8	9	8	3	1	1	0	31	
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.)	28.80	28.72	28.63	28.75	28.72	28.65	28.66	28.77	28.65	28.62	28.66	28.69	28.69	
	MEAN SEA-LEVEL PRESS. (IN.)	30.17	30.08	29.95	30.05	30.00	29.91	29.92	30.03			29.98	30.02		
WINDS	RESULTANT SPEED (MPH)	5.3	3.0	1.4	2.8	2.6	1.6	1.7	1.1				1.6		
	RES. DIR. (TENS OF DEGS.)	29	29	31	07	09	18	25	20				22		
	MEAN SPEED (MPH)	8.8	8.2	8.1	9.4	8.2	6.4	6.0	6.4	8.2	7.5	8.6	7.4	7.8	
	PREVAIL. DIR. (TENS OF DEGS.)	30	02	29	07	15	17	19	17	15	32	26	14	16	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	24	26	28	30	32	25	47	31	30	32	26	25	47	
	DIR. (TENS OF DEGS.)	33	33	26	27	11	17	26	27	29	17	31	32	26	
	DATE OF OCCURRENCE	10	11	24	27	09	21	02	20	24	10	30+	18+	JUL 02	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	32	33	37	39	38	32	55	38	38	38	36	33	55	
DIR. (TENS OF DEGS.)	30	28	23	26	01	17	25	28	28	17	27	29	25		
DATE OF OCCURRENCE	19	07	24	27	11+	21	02	20	24	10	30	01	JUL 02		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	T	0.09	0.51	0.65	1.44	3.99	3.30	2.36	2.17	1.03	0.93	0.38	16.85	
	GREATEST 24-HOUR (IN.)	T	0.06	0.27	0.33	0.35	1.67	1.55	1.42	0.64	0.67	0.60	0.16	1.67	
	DATE OF OCCURRENCE	29+	01	27	17	29-30	24-25	14	20-21	11-12	11	04	15	JUN 24-25	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	0	3	10	6	9	12	11	10	18	11	7	7	104	
PRECIPITATION ≥ 0.10	0	0	1	2	6	10	6	4	6	1	2	1	39		
PRECIPITATION ≥ 1.00	0	0	0	0	0	1	1	1	0	0	0	0	3		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	7.0	9.4	11.8	13.0	0.0	0.0	0.0	0.0	1.2	3.9	19.9	7.9	74.1	
	GREATEST 24-HOUR (IN.)	4.0	2.0	5.5	7.0	0.0	0.0	0.0	0.0	1.1	2.0	7.0	3.0	7.0	
	DATE OF OCCURRENCE	27	21+	27	04	8	0	0	0	30	27	04	15	NOV 04	
	MAXIMUM SNOW DEPTH (IN.)	5	6	8	8	0	0	0	0	T	2	11	8	11	
	DATE OF OCCURRENCE	28	23+	04+	04					30	28	25	19+	NOV 25	
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	3	5	5	3	0	0	0	0	1	2	4	3	26		

PRECIPITATION (inches) 2003 INTERNATIONAL FALLS, MN (INL)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	0.87	0.65	0.99	2.11	3.17	4.64	1.06	6.38	0.86	1.61	1.12	0.79	24.25
1975	3.03	0.51	1.55	1.82	1.37	6.22	2.02	3.34	1.66	2.46	0.87	0.86	25.71
1976	0.99	0.46	1.84	0.94	0.20	7.01	5.70	1.89	1.19	0.81	0.21	0.60	21.84
1977	0.66	1.01	1.91	1.01	5.81	4.20	2.16	3.01	6.81	0.80	3.49	0.96	31.83
1978	0.76	0.27	0.41	1.12	3.86	2.89	6.29	2.96	3.62	0.39	1.60	0.93	25.10
1979	0.54	1.03	1.66	2.70	1.75	4.26	1.08	3.18	0.69	3.88	0.76	0.41	21.94
1980	0.92	0.55	0.87	0.45	0.83	1.70	2.23	4.03	4.08	1.81	1.62	0.56	19.65
1981	0.26	0.22	1.18	1.49	2.47	3.71	2.33	2.03	4.12	2.86	0.67	0.76	22.10
1982	1.24	0.51	1.58	0.84	3.51	2.68	2.37	2.88	3.63	3.67	1.52	0.29	24.72
1983	0.36	0.98	0.72	0.62	1.21	5.02	2.98	3.66	4.23	2.58	1.95	0.66	24.97
1984	0.30	0.76	0.22	0.89	1.77	6.50	2.14	1.30	1.14	4.11	0.91	1.27	21.31
1985	0.38	0.70	0.72	3.17	6.67	6.15	1.22	4.27	2.97	1.97	1.57	0.51	30.30
1986	0.61	0.95	0.26	3.33	0.50	3.67	2.59	1.52	2.42	0.64	1.27	0.35	18.11
1987	0.37	0.48	1.05	0.08	3.13	1.11	7.86	2.50	1.38	0.66	0.72	0.20	19.54
1988	0.44	0.14	1.71	0.30	1.18	4.39	3.04	6.66	3.93	1.03	1.39	0.76	24.97
1989	1.42	0.28	0.81	0.54	1.93	6.59	1.51	4.82	1.92	1.21	0.99	0.45	22.47
1990	0.62	0.50	1.35	1.47	0.98	5.50	3.13	2.15	1.23	1.42	0.75	1.21	20.31
1991	0.79	0.91	1.10	2.52	4.09	4.58	4.10	0.58	4.94	1.47	1.83	0.94	27.85
1992	0.78	1.57	0.56	1.43	2.08	2.17	4.00	5.48	2.34	0.14	1.17	1.70	23.42
1993	0.68	0.10	0.32	1.67	2.82	2.01	6.03	3.84	2.04	0.73	0.81	0.44	21.49
1994	0.46	0.34	0.58	1.47	1.65	4.56	4.02	2.73	3.67	1.97	2.46	0.67	24.58
1995	1.03	0.65	0.70	1.21	2.36	2.66	3.29	3.13	3.56	3.12	1.32	1.26	24.29
1996	1.78	1.47	0.43	1.54	2.10	4.41	3.05	3.52	2.64	3.17	3.00	1.48	28.59
1997	0.72	0.19	1.18	1.31	1.44	2.57	2.65	1.41	3.90	2.37	0.99	0.23	18.96
1998	0.64	1.04	0.30	0.73	4.81	4.33	2.18	1.95	0.28	4.20	1.70	0.37	22.53
1999	0.09	0.51	2.03	1.82	5.70	3.31	6.21	2.67	5.89	0.65	T	0.18	29.06
2000	0.60	0.23	0.73	1.66	2.57	4.05	2.71	4.11	2.00	1.20	2.75	0.20	22.81
2001	0.18	0.25	0.13	3.54	4.50	3.07	8.29	1.65	2.11	2.59	0.90	0.27	27.48
2002	0.07	0.04	0.29	1.48	2.08	8.29	3.79	4.35	1.19	1.07	0.22	0.26	23.13
2003	T	0.09	0.51	0.65	1.44	3.99	3.30	2.36	2.17	1.03	0.93	0.38	16.85
POR= 64 YRS	0.78	0.67	1.01	1.58	2.64	3.98	3.67	3.16	3.05	1.76	1.33	0.78	24.41

WBAN : 14918

AVERAGE TEMPERATURE (°F) 2003 INTERNATIONAL FALLS, MN (INL)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	- .4	6.3	16.6	37.9	47.4	61.4	70.0	61.7	48.6	43.2	27.9	16.8	36.5
1975	6.3	6.8	15.1	33.0	55.1	61.2	70.2	62.2	50.6	44.8	28.7	6.9	36.7
1976	- .4	14.5	17.3	42.8	51.2	64.6	66.0	64.9	53.6	36.3	19.5	-3.0	35.6
1977	-5.8	12.6	29.6	42.9	61.0	61.8	66.6	57.0	52.5	43.3	22.6	3.6	37.3
1978	-3.5	2.6	18.5	37.0	55.5	59.6	63.5	63.0	56.0	43.4	20.5	0.7	34.7
1979	-8.7	- .6	19.7	34.0	46.0	59.5	66.4	60.2	52.9	36.9	22.2	15.1	33.6
1980	2.1	8.1	16.8	44.3	58.8	62.3	68.8	64.9	52.8	38.9	26.1	4.6	37.4
1981	6.2	14.5	28.6	40.9	53.3	61.5	68.6	67.8	54.0	40.1	34.9	10.5	40.1
1982	-10.5	6.5	18.7	35.4	55.8	56.2	67.3	61.1	53.7	45.0	21.6	16.4	35.6
1983	11.2	16.6	27.8	38.2	49.0	61.9	69.6	68.6	55.1	41.7	27.7	-4.3	38.6
1984	0.7	20.7	17.5	44.0	48.9	61.5	65.1	67.7	49.0	44.6	25.6	3.4	37.4
1985	- .1	4.7	26.7	41.7	54.4	54.5	63.6	60.1	51.2	42.1	14.3	0.2	34.5
1986	7.7	9.4	27.6	43.2	56.0	60.4	66.7	61.2	52.4	41.4	19.9	15.9	38.5
1987	11.0	23.5	29.8	47.9	55.8	64.1	67.9	62.5	56.2	38.6	31.0	18.6	42.2
1988	0.2	1.9	21.7	39.5	58.5	67.6	68.4	65.2	53.8	37.8	26.1	8.8	37.5
1989	8.0	-1.7	16.8	36.0	53.4	60.2	69.7	65.2	55.0	43.4	21.0	-1.5	35.5
1990	13.4	9.6	27.0	38.7	49.7	63.2	65.8	66.0	55.6	40.6	28.1	5.9	38.6
1991	- .1	15.4	25.3	44.8	58.1	66.1	66.4	67.9	51.8	38.1	20.2	13.0	38.9
1992	12.3	16.5	23.9	35.6	55.0	57.7	59.4	60.3	53.0	40.4	25.4	8.6	37.3
1993	4.7	9.1	25.5	38.6	50.7	58.6	64.4	65.0	48.5	37.4	22.9	13.1	36.5
1994	-7.8	5.5	29.2	38.7	54.2	64.1	64.8	61.8	57.8	47.5	30.9	19.1	38.8
1995	9.6	6.4	27.0	33.9	52.5	68.1	65.9	67.1	53.2	41.6	15.4	6.5	37.3
1996	-5.4	7.3	15.2	32.0	49.9	63.8	65.0	66.1	55.5	42.5	17.5	6.1	34.6
1997	2.1	10.2	18.4	35.9	46.0	62.7	64.2	60.6	56.4	43.1	23.0	20.4	36.9
1998	12.0	27.1	25.9	44.0	56.0	60.0	64.3	66.2	56.5	44.2	27.2	10.7	41.2
1999	3.7	19.5	26.9	42.0	54.3	61.0	66.6	62.1	51.9	40.0	33.5	17.6	39.9
2000	4.7	18.9	32.2	39.2	53.7	57.5	66.2	63.8	52.1	44.3	28.8	-1.3	38.3
2001	14.0	3.3	23.1	40.8	54.0	62.4	66.3	65.6	54.3	40.4	36.9	18.7	40.0
2002	11.9	18.8	15.4	37.4	46.0	63.4	68.5	64.1	56.9	33.2	23.0	17.3	38.0
2003	4.9	4.1	20.8	39.5	53.2	61.0	64.2	66.7	54.2	42.4	22.3	16.6	37.5
POR= 64 YRS	2.8	8.9	21.9	38.9	51.6	60.9	66.3	63.7	53.4	42.7	25.2	9.2	37.1

HEATING DEGREE DAYS (base 65°F) 2003 INTERNATIONAL FALLS, MN (INL)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1974-75	12	133	485	669	1106	1491	1815	1629	1542	950	322	163	10317
1975-76	41	118	426	622	1085	1801	2025	1463	1475	659	420	83	10218
1976-77	40	94	362	883	1359	2112	2195	1461	1089	658	183	114	10550
1977-78	34	246	367	666	1266	1908	2126	1745	1436	832	312	195	11133
1978-79	95	119	299	661	1329	1992	2287	1837	1402	923	580	177	11701
1979-80	36	161	364	862	1277	1539	1951	1646	1488	618	257	124	10323
1980-81	19	56	365	805	1161	1873	1818	1411	1119	716	359	108	9810
1981-82	32	17	324	764	894	1685	2343	1638	1431	882	280	256	10546
1982-83	21	161	354	612	1298	1500	1664	1352	1145	797	490	153	9547
1983-84	27	23	320	715	1116	2149	1995	1276	1470	621	494	112	10318
1984-85	50	50	474	626	1176	1908	2015	1687	1182	688	324	307	10487
1985-86	74	163	411	704	1520	2011	1773	1555	1152	646	313	161	10483
1986-87	34	145	367	723	1346	1517	1671	1158	1084	513	299	103	8960
1987-88	31	127	257	809	1018	1433	2011	1828	1337	756	237	53	9897
1988-89	29	85	331	834	1162	1743	1765	1868	1490	863	363	170	10703
1989-90	11	73	308	670	1312	2062	1596	1548	1171	796	464	88	10099
1990-91	39	59	284	748	1101	1833	2017	1383	1219	601	261	35	9580
1991-92	44	43	393	826	1338	1610	1631	1404	1267	875	335	233	9999
1992-93	173	155	354	756	1178	1746	1868	1560	1221	787	434	211	10443
1993-94	58	73	492	845	1257	1606	2263	1666	1102	784	339	80	10565
1994-95	58	135	221	535	1019	1416	1714	1640	1174	924	390	80	9306
1995-96	50	36	358	719	1484	1809	2183	1672	1540	984	462	111	11408
1996-97	50	37	309	691	1419	1819	1943	1531	1436	865	579	88	10767
1997-98	105	164	262	677	1253	1377	1637	1053	1205	621	291	169	8814
1998-99	68	40	259	637	1129	1676	1895	1268	1174	682	339	153	9320
1999-00	57	110	387	768	936	1465	1865	1330	1011	767	351	223	9270
2000-01	49	70	384	634	1078	2051	1574	1723	1297	724	335	148	10067
2001-02	62	72	339	756	836	1429	1639	1288	1529	822	590	121	9483
2002-03	25	69	289	979	1254	1470	1856	1699	1363	758	358	150	10270
2003-	65	52	332	699	1272	1494							

WBAN : 14918

COOLING DEGREE DAYS (base 65°F) 2003 INTERNATIONAL FALLS, MN (INL)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	0	0	0	0	3	43	175	38	0	0	0	0	259
1975	0	0	0	0	23	54	211	38	0	2	0	0	328
1976	0	0	0	0	0	80	76	98	27	0	0	0	281
1977	0	0	0	0	65	26	92	4	0	0	0	0	187
1978	0	0	0	0	24	41	57	63	34	0	0	0	219
1979	0	0	0	0	1	18	86	18	8	0	0	0	131
1980	0	0	0	2	69	51	142	62	5	0	0	0	331
1981	0	0	0	0	5	9	151	112	3	0	0	0	280
1982	0	0	0	2	1	0	101	46	22	0	0	0	172
1983	0	0	0	0	0	67	178	142	30	0	0	0	417
1984	0	0	0	0	4	16	61	139	0	1	0	0	221
1985	0	0	0	0	0	1	41	19	2	0	0	0	63
1986	0	0	0	0	41	32	96	34	0	0	0	0	203
1987	0	0	0	7	20	83	130	56	0	0	0	0	296
1988	0	0	0	0	40	136	141	96	3	0	0	0	416
1989	0	0	0	0	11	32	165	85	14	5	0	0	312
1990	0	0	0	11	0	40	72	96	10	0	0	0	229
1991	0	0	0	0	54	76	90	137	6	0	0	0	363
1992	0	0	0	0	33	22	5	16	1	0	0	0	77
1993	0	0	0	0	0	26	47	81	0	0	0	0	154
1994	0	0	0	0	14	60	56	42	13	0	0	0	185
1995	0	0	0	0	9	180	84	108	9	0	0	0	390
1996	0	0	0	0	0	81	60	78	32	0	0	0	251
1997	0	0	0	0	0	24	85	37	10	4	0	0	160
1998	0	0	0	0	18	25	53	84	13	0	0	0	193
1999	0	0	0	0	14	40	112	26	2	0	0	0	194
2000	0	0	0	0	10	3	93	42	5	0	0	0	153
2001	0	0	0	4	0	78	109	98	26	0	0	0	315
2002	0	0	0	0	8	79	140	47	50	0	0	0	324
2003	0	0	0	0	0	35	44	114	16	4	0	0	213

SNOWFALL (inches) 2003 INTERNATIONAL FALLS, MN (INL)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1974-75	0.0	0.0	1.0	1.8	7.8	16.2	43.0	6.2	18.2	2.1	0.2	0.0	96.5
1975-76	0.0	0.0	0.0	2.1	5.5	14.8	21.4	9.7	28.1	0.2	0.4	0.0	82.2
1976-77	0.0	0.0	0.0	6.9	3.8	12.4	11.2	14.2	14.0	0.2	0.0	0.0	62.7
1977-78	0.0	0.0	0.0	T	24.4	9.7	13.4	4.6	5.4	9.2	0.0	0.0	66.7
1978-79	0.0	T	0.0	0.3	21.0	15.0	10.8	18.3	11.5	2.1	0.8	0.0	79.8
1979-80	0.0	0.0	0.0	2.1	10.3	6.2	16.3	11.0	12.5	5.8	T	0.0	64.2
1980-81	0.0	0.0	0.0	1.7	19.1	9.3	6.8	3.9	1.7	3.3	T	0.0	45.8
1981-82	0.0	0.0	1.4	8.5	5.3	16.2	28.4	4.5	14.8	10.8	0.0	0.0	89.9
1982-83	0.0	0.0	0.0	T	13.9	3.9	5.7	16.4	2.3	3.7	0.1	0.0	46.0
1983-84	0.0	0.0	T	0.9	26.5	15.4	5.7	6.1	3.9	T	0.2	0.0	58.7
1984-85	0.0	0.0	T	2.1	10.9	12.4	9.8	15.3	13.9	2.0	T	0.0	66.4
1985-86	0.0	0.0	T	4.8	27.1	15.5	16.4	15.4	5.2	0.1	0.3	0.0	84.8
1986-87	0.0	0.0	0.0	0.7	11.5	8.4	14.1	12.6	6.9	0.5	0.0	0.0	54.7
1987-88	0.0	0.0	0.0	1.4	0.1	8.1	14.7	4.9	16.1	0.2	0.0	0.0	45.5
1988-89	0.0	0.0	0.0	5.4	20.8	21.4	28.9	6.7	12.5	7.1	1.9	0.0	104.7
1989-90	0.0	0.0	T	T	8.5	10.8	9.8	11.7	3.0	17.1	T	T	60.9
1990-91	T	0.0	T	2.5	7.8	31.1	18.5	18.3	12.1	5.1	1.8	0.0	97.2
1991-92	0.0	0.0	T	3.9	23.8	22.2	16.7	32.3	2.7	9.3	0.1	T	111.0
1992-93	T	0.0	0.1	1.8	24.9	43.9	17.6	1.6	6.8	2.0	T	0.0	98.7
1993-94	0.0	0.0	1.3	4.7	18.4	5.7	15.4	8.8	10.0	10.6	T	T	74.9
1994-95	0.0	T	T	1.1	10.6	10.1	17.5	13.8	4.0	12.8	T	0.0	69.9
1995-96	0.0	T	T	4.7	16.5	21.4	30.0	18.1	7.7	17.6	T	0.0	116.0
1996-97	0.0	T	T	5.4	23.9	24.7	11.3	5.4	13.0	1.4	0.2	0.0	85.3
1997-98	0.0	0.0	0.0	3.3	10.8	4.7	17.1	5.6	4.2	5.7	T	0.0	51.4
1998-99	0.0	0.0	0.0	T	22.4	12.9	4.0	9.2	11.4	5.9	T	0.0	65.8
1999-00	0.0	0.0	0.0	T	T	3.3	17.0	1.9	1.4	3.5	0.0	0.0	27.1
2000-01	0.0	0.0	0.0	T	3.4	15.4	7.7	10.4	2.9	21.6	0.0	0.0	61.4
2001-02	0.0	0.0	0.0	1.6	17.5								
2002-03							7.0	9.4	11.8	13.0	0.0	0.0	
2003-	0.0	0.0	1.2	3.9	19.9	7.9							
POR= 62 YRS	T	T	0.1	1.8	12.2	12.0	12.6	9.3	9.2	6.5	1.1	0.0	64.8

WBAN : 14918

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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2003
INTERNATIONAL FALLS,
MINNESOTA (INL)

Situated on the Canadian border, International Falls is subjected to frequent outbreaks of continental polar air throughout most of the year. These are tempered to mildness during June, July, and August, when the land and lake areas to the north and northwest have been warmed by long days of sunshine. Periods of fine, mild weather occur, interspersed with showers and an occasional three or four day period of cloudy, rainy weather. The area of small lakes, covering up to 30 percent of the area to the north and northwest, supplies a good deal of the moisture for the late afternoon and evening showers and stores heat that tempers southward flow of cold air during September and October. This prolongs the fall season until early November. In November the water surfaces freeze and snow returns to International Falls. From December through February, temperatures fall below zero on most days and occasionally fail to rise above zero for a week or more.

In winter, frost penetrates into the ground to depths of 36 to 60 inches. If winter begins abruptly so that a heavy blanket of snow covers the ground before protracted freezing occurs, it may freeze to only a few inches deep. This is very important to loggers, who depend upon deep soil freezing for road foundations into otherwise inaccessible places. The wide expanse of deep snow and ice prolongs winter. The transition to summer is rapid after the spring thaw. Spring lasts only about a month.

By June 1st, the ground generally is warm enough for successful planting, but vigilance against freezing temperatures is required through most of June. Crops that do not mature by September 1st have little chance of providing a harvest. Heaviest precipitation coincides with the growing season.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is September 15 and the average last occurrence in the spring is May 26.

Heavy deposits of glaze occur only about once a year at International Falls. Occasional storms that intensify over the southern plateau or plains states and move rapidly northeastward, drawing up moist gulf air, bring the most violent weather changes. They often produce severe thunderstorms and windstorms in early fall and blizzards with heavy snowfall and drifting in winter. Quite often such a storm brings an abrupt end to fall weather. During winter, a variation of 100 miles in the paths of such storms as they approach the border is of tremendous importance to local transportation and road maintenance.

Surrounding terrain is generally level. Forests of varying density and swampland surround the station for many miles to the east, south, and west. Rainy Lake, approximately 300 square miles in area, lies to the north. The lake is 5 miles from the station at its closest point.

STATION LOCATION

INTERNATIONAL FALLS,
MINNESOTA

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATED OBSERVING EQUIPMENT *	* TYPE M = AMOS T = AUTOB S = ASOS W = AWOS REMARKS
						SEA LEVEL		GROUND									
						GROUND	TEMPERATURE	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET	RAINING GAUGE	WINDHOLE GAUGE	8 INCH RAIN GAGE		
*NOTE:																	
<u>AIRPORT</u>																	
Weather Bureau Building Municipal Airport	7/20/46	10/25/50	2.3 mi. SSE	48°34'	93°23'	1179	28	5	5				3	3			
Weather Bureau Building Municipal Airport	10/25/50	9/16/53	300' W	48°34'	93°23'	1177	28	5	5				3	3			
Administration Building Municipal Airport ++	9/16/53	11/01/96	NA	48°34'	93°23'	1179	b20 e6	d5	d5				a6	5	f5		a. 3 feet to 10/29/62. b. 23 feet to 9/30/63, and 34 feet to 8/25/65. c. Commissioned 948 feet W of thermometer site 8/25/65. d. Standby status after 8/25/65. e. Minor move 6/26/79. f. Minor move 9/4/85.
Falls International AP	11/01/96	Present	NA	48°34'	93°24'	g1182									S		ASOS Commissioned 11/01/96 g. Ground elevation.

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* NOTES: For earlier station history see previous edition.