

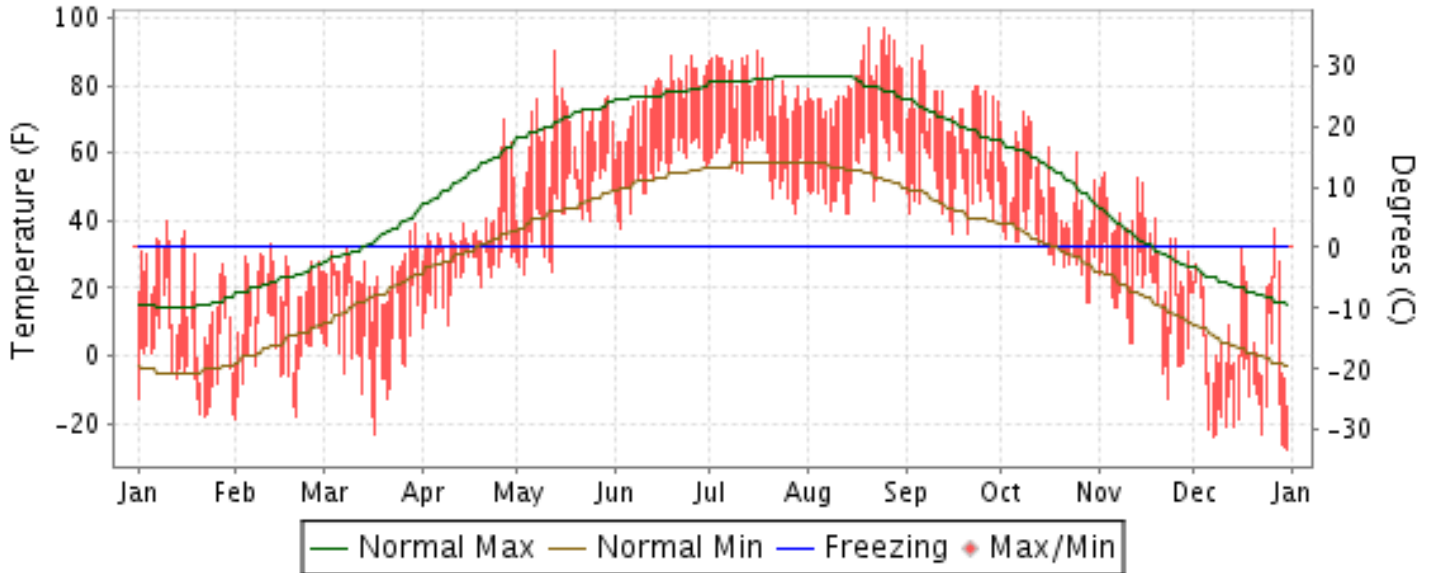


# 2013 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

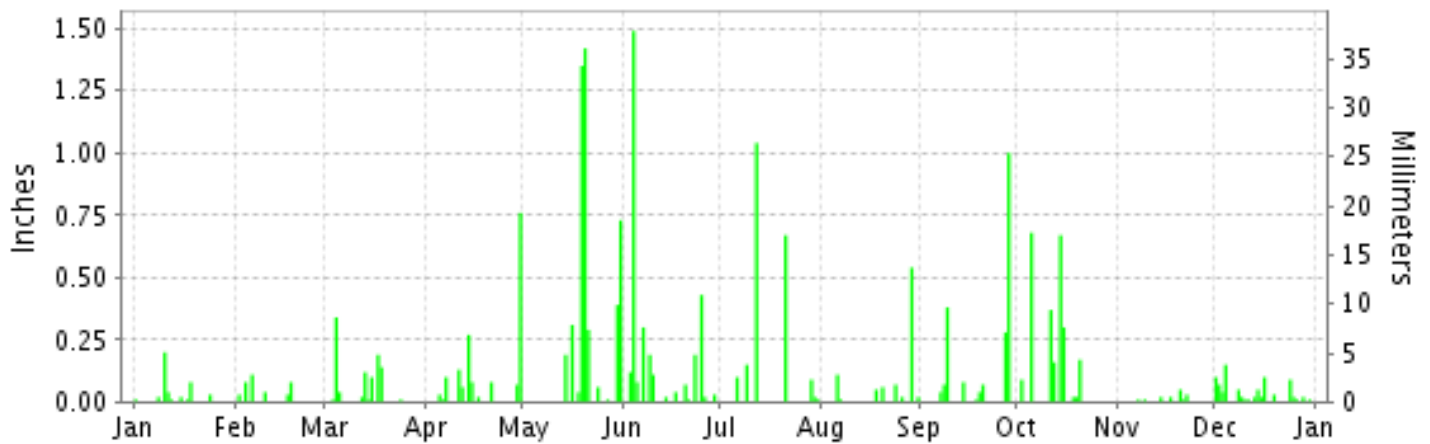
ISSN 1524-5837

## GRAND FORKS, NORTH DAKOTA (KGFK)

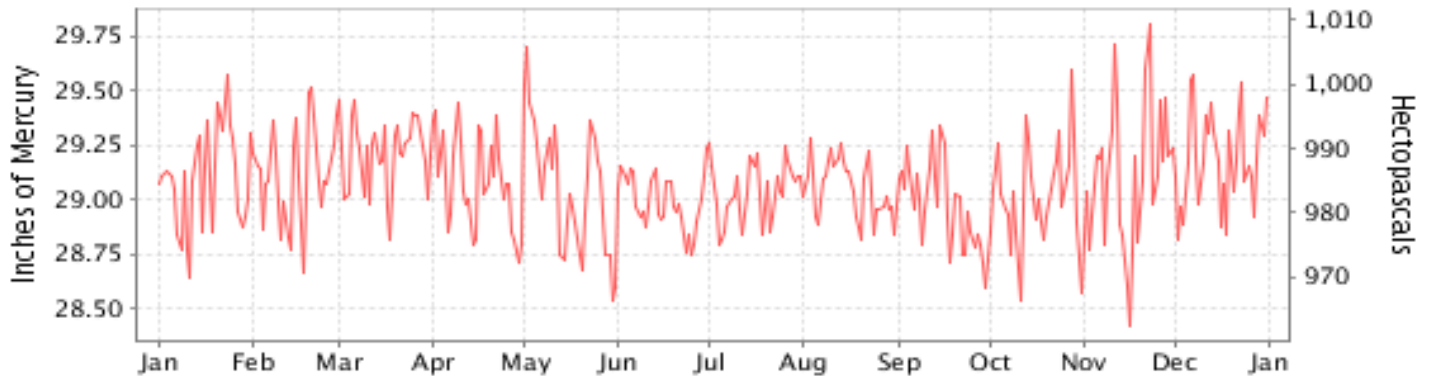
### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2013

## GRAND FORKS (KGFK)

LATITUDE: 47° 56'N      LONGITUDE: 97° 11'W      ELEVATION (FT): GRND: 842 BARO: 842      TIME ZONE: CENTRAL (UTC -6)      WBAN: 14916

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	19.0	19.7	24.9	39.5	65.9	76.9	81.2	82.1	73.5	51.9	34.8	8.6	48.2	
	HIGHEST DAILY MAXIMUM	40	33	39	70	90	89	90	97	92	72	54	38	97	
	DATE OF OCCURRENCE	10	12	30	27	13	25+	16	25+	06	08	03	27	AUG 25+	
	MEAN DAILY MINIMUM	-1.3	1.9	3.5	24.6	42.5	54.9	57.0	54.4	49.7	33.1	14.0	-8.7	27.1	
	LOWEST DAILY MINIMUM	-18	-19	-23	8	24	38	42	42	36	16	-13	-28	-28	
	DATE OF OCCURRENCE	22	01	17	01	03	03	28	14+	21+	29+	23	31	DEC 31	
	AVERAGE DRY BULB	8.8	10.8	14.2	32.1	54.2	65.9	69.1	68.2	61.6	42.5	24.4	-0.1	37.6	
	MEAN WET BULB	7.8	10.1	14.5	29.9	47.7	59.0	62.4	61.3	55.9	39.0	23.0	0.4	34.3	
	MEAN DEW POINT	3.2	6.5	10.6	25.6	41.5	54.1	57.7	56.6	51.4	34.5	18.1	-4.3	29.6	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	1	0	0	1	6	1	0	0	0	9
	MAXIMUM <= 32°	25	27	29	5	0	0	0	0	0	0	11	30	127	
MINIMUM <= 32°	31	28	31	28	7	0	0	0	0	15	29	31	200		
MINIMUM <= 0°	17	12	13	0	0	0	0	0	0	0	6	24	72		
H/C	HEATING DEGREE DAYS	1734	1509	1566	985	336	77	29	53	132	689	1208	2008	10326	
	COOLING DEGREE DAYS	0	0	0	0	9	113	166	160	39	0	0	0	487	
RH	MEAN (PERCENT)	76	81	80	77	66	69	69	69	72	76	75	77	74	
	HOUR 00 LST	79	84	84	83	77	84	84	84	81	84	79	78	82	
	HOUR 06 LST	79	84	85	85	83	87	88	92	90	84	81	78	85	
	HOUR 12 LST	71	78	74	69	54	55	52	52	57	65	67	74	64	
	HOUR 18 LST	74	80	75	71	54	52	52	48	59	71	72	76	65	
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	3	6	7	0	0	2	2	5	2	2	0	2	31	
	THUNDERSTORMS	0	0	0	0	2	5	2	3	1	1	0	0	14	
PR	MEAN STATION PRESS. (IN.)	29.10	29.11	29.22	29.08	29.05	28.99	29.04	29.05	28.97	29.03	29.13	29.19	29.08	
	MEAN SEA-LEVEL PRESS. (IN.)	30.06	30.07	30.17	30.02	29.95	29.88	29.92	29.93	29.87	29.94	30.06	30.15	30.00	
WINDS	RESULTANT SPEED (MPH)	4.1	1.6	4.0	4.5	3.6	0.5	1.8	1.5	2.4	3.9	2.7	4.5	1.9	
	RES. DIR. (TENS OF DEGS.)	29	32	34	34	06	35	30	23	18	33	28	33	33	
	MEAN SPEED (MPH)	12.2	10.8	9.9	11.8	11.8	9.1	8.0	7.0	9.2	9.5	10.6	11.4	10.1	
	PREVAIL.DIR.(TENS OF DEGS.)	34	35	34	35	05	13	18	18	17	32	33	35	34	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	36	43	33	36	40	30	30	36	31	35	36	43	43	
	DIR. (TENS OF DEGS.)	32	34	33	27	30	14	29	33	15	02	15	31	31	
	DATE OF OCCURRENCE	19	18	18	30	14	14	09	31	22	05	03	17	DEC 17	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	45	51	43	46	48	39	40	46	39	41	45	53	53	
DIR. (TENS OF DEGS.)	32	35	32	27	31	32	31	32	16	02	14	35	35		
DATE OF OCCURRENCE	19	18	18	30	14	27	09	31	23	05	03	28	DEC 28		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.42	0.37	0.98	1.61	4.79	3.10	2.08	0.88	1.97	2.48	0.15	0.82	19.65	
	GREATEST 24-HOUR (IN.)	0.23	0.11	0.35	0.83	1.47	1.55	1.04	0.54	1.01	0.90	0.06	0.17	1.55	
	DATE OF OCCURRENCE	10-11	06	04-05	29-30	19-20	03-04	12	29	27-28	14-15	20-21	03-04	JUN 03-04	
	NUMBER OF DAYS WITH:														
PRECIPITATION 0.01	9	6	10	11	10	14	7	8	9	9	7	18	118		
PRECIPITATION 0.10	1	1	5	4	7	7	4	2	3	6	0	3	43		
PRECIPITATION 1.00	0	0	0	0	2	1	1	0	1	0	0	0	5		
SNOWFALL	SNOW,ICE PELLETS,HAIL	4.1	10.8	13.6	6.7	0.0	0.0	0.0	0.0	0.0	T	1.6	22.8	59.6	
	TOTAL (IN.)	1.3	3.8	8.3	2.4	0.0	0.0	0.0	0.0	0.0	T	0.5	7.3	8.3	
	GREATEST 24-HOUR (IN.)	11	10	04	15						23+	22	04	MAR 04	
	DATE OF OCCURRENCE	7	7	14	7	0	0	0	0	0	0	1	10	14	
	MAXIMUM SNOW DEPTH (IN.)	21	20+	19	01							30+	27+	MAR 19	
	DATE OF OCCURRENCE														
	NUMBER OF DAYS WITH:														
SNOWFALL >= 1.0	2	4	3	3	0	0	0	0	0	0	0	7	19		

# NORMALS, MEANS, AND EXTREMES GRAND FORKS (KGFK)

LATITUDE: 47° 56'N      LONGITUDE: 97° 11'W      ELEVATION (FT): GRND: 842 BARO: 842      TIME ZONE: CENTRAL (UTC -6)      WBAN: 14916

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	16.5	21.9	34.2	53.9	68.0	76.1	81.0	80.2	69.6	54.3	35.1	20.3	50.9	
	MEAN DAILY MAXIMUM	24	15.9	19.7	33.1	52.3	66.9	74.5	81.9	80.0	69.4	55.4	36.2	20.8	50.5	
	HIGHEST DAILY MAXIMUM	16	47	67	74	88	95	96	98	97	96	89	73	51	98	
	YEAR OF OCCURRENCE		2012	2000	2012	2005	2006	2011	2006	2013	2001	2011	1999	2011	2011	JUL 2006
	MEAN OF EXTREME MAXS.	24	39.2	39.8	54.7	77.4	85.6	89.8	92.1	91.9	90.0	76.8	59.0	40.9	69.8	
	NORMAL DAILY MINIMUM	30	-3.1	2.1	16.1	30.0	41.5	52.0	56.3	54.0	44.2	31.9	17.0	2.6	28.7	
	MEAN DAILY MINIMUM	24	-2.4	0.4	14.3	30.4	41.4	51.5	57.2	54.5	44.7	33.5	18.6	3.5	29.0	
	LOWEST DAILY MINIMUM	16	-43	-33	-25	6	20	31	37	32	25	12	-13	-28	-43	
	YEAR OF OCCURRENCE		2004	2008	2003	2000	2008	2009	2001	2004	2012	2001	2013	2013	2013	JAN 2004
	MEAN OF EXTREME MINS.	24	-24.5	-20.9	-10.8	17.6	27.4	38.8	46.4	41.3	30.8	18.4	-1.5	-17.0	12.2	
	NORMAL DRY BULB	30	6.7	12.0	25.2	42.0	54.8	64.0	68.6	67.1	56.9	43.1	26.1	11.5	39.8	
	MEAN DRY BULB	24	6.7	10.1	23.7	41.3	54.2	63.3	69.6	67.2	57.1	44.5	27.4	12.2	39.8	
	MEAN WET BULB	16	6.0	9.3	21.4	34.3	44.5	55.5	61.3	58.7	49.9	37.2	24.2	9.7	34.3	
	MEAN DEW POINT	16	6.2	9.5	21.2	34.5	44.8	55.8	61.7	59.0	50.2	37.3	24.7	10.1	34.6	
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.1	0.5	1.8	2.8	3.0	0.7	0.0	0.0	0.0	8.9	
	MAXIMUM <= 32	30	26.7	20.7	11.7	1.3	0.0	0.0	0.0	0.0	0.0	0.8	12.1	24.0	97.3	
MINIMUM <= 32	30	30.9	27.7	28.7	18.7	4.3	0.1	0.0	0.1	2.0	15.9	28.0	30.9	187.3		
MINIMUM <= 0	30	17.5	13.1	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	13.6	51.2		
H/C	NORMAL HEATING DEG. DAYS	30	1807	1484	1235	693	334	103	28	54	269	680	1168	1660	9515	
	NORMAL COOLING DEG. DAYS	30	0	0	0	1	16	75	141	119	26	1	0	0	379	
RH	NORMAL (PERCENT)	30														
	hour 00 LST	30														
	hour 06 LST	30														
	hour 12 LST	30														
	hour 18 LST	30														
S	PERCENT POSSIBLE SUNSHINE															
W/O	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	16	2.3	2.6	3.8	1.1	0.8	0.9	1.3	2.0	1.6	1.3	1.3	2.4	21.4	
	THUNDERSTORMS	16	0.0	0.3	0.4	0.9	3.9	6.1	5.8	5.4	2.3	0.8	0.9	0.3	27.1	
CLOUDINESS	MEAN: SUNRISE-SUNSET (OKTAS)															
	MIDNIGHT-MIDNIGHT (OKTAS)															
	MEAN NO. DAYS WITH: CLEAR															
	PARTLY CLOUDY CLOUDY															
PR	MEAN STATION PRESSURE(IN)	16	29.14	29.15	29.13	29.07	29.00	28.97	29.02	29.04	29.04	29.07	29.08	29.13	29.07	
	MEAN SEA-LEVEL PRES. (IN)	16	30.10	30.11	30.08	29.98	29.90	29.86	29.91	29.93	29.95	29.98	30.01	30.08	29.99	
WINDS	MEAN SPEED (MPH)	16	10.8	10.7	10.9	11.1	11.4	9.6	8.3	8.6	9.6	10.4	10.4	10.5	10.2	
	PREVAIL.DIR(TENS OF DEGS)	8	18	35	35	35	35	35	18	18	17	31	17	35	35	
	MAXIMUM 2-MINUTE: SPEED (MPH)	16	45	47	45	41	49	46	45	62	41	46	46	43	62	
	DIR. (TENS OF DEGS)		34	27	31	15	19	26	35	30	18	20	31	31	30	
	YEAR OF OCCURRENCE		2010	2002	2004	2010	2004	2003	2006	2001	2008	2011	1999	2013	AUG 2001	
	MAXIMUM 3-SECOND SPEED (MPH)	16	53	58	55	51	66	58	54	70	51	60	54	53	70	
	DIR. (TENS OF DEGS)		35	28	34	14	19	22	02	31	18	20	31	35	31	
YEAR OF OCCURRENCE		2010	2002	2011	2010	2004	2010	2010	2001	2008	2011	1999	2013	AUG 2001		
PRECIPITATION	NORMAL (IN)	30	0.55	0.52	0.96	1.01	2.68	3.48	3.15	2.88	2.05	1.97	0.95	0.61	20.81	
	MAXIMUM MONTHLY (IN)	16	0.99	1.65	2.30	2.40	5.74	7.50	7.17	6.21	5.28	5.79	3.94	0.98	7.50	
	YEAR OF OCCURRENCE		1999	2000	2007	2011	2004	2005	2001	2002	2010	1998	2000	2008	JUN 2005	
	MINIMUM MONTHLY (IN)	16	0.05	0.03	0.08	0.41	0.84	0.68	0.76	0.88	0.20	0.12	0.11	0.24	0.03	
	YEAR OF OCCURRENCE		2008	2002	1998	2004	2000	2004	2006	2013	2012	1999	2004	1998	FEB 2002	
	MAXIMUM IN 24 HOURS (IN)	16	0.57	1.54	0.97	1.00	2.02	4.30	3.32	3.18	2.00	2.07	1.56	0.54	4.30	
	YEAR OF OCCURRENCE		2010	2000	2009	2011	2010	2002	2002	2005	2004	2008	2008	2010	JUN 2002	
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	8.1	6.6	7.5	7.0	10.6	11.6	10.5	9.1	8.3	8.5	6.9	8.5	103.2	
PRECIPITATION >= 1.00	30	0.0	0.0	0.0	0.0	0.5	0.9	0.7	0.4	0.5	0.5	0.1	0.0	3.6		
SNOWFALL	NORMAL (IN)	30	10.7	6.6	7.2	2.6	0.1	0.0	0.0	0.0	0.0	1.5	7.7	10.7	47.1	
	MAXIMUM MONTHLY (IN)	16	27.3	12.3	16.1	9.4	0.8	T	0.0	T	0.0	10.9	22.4	26.7	27.3	
	YEAR OF OCCURRENCE		1999	2006	2007	2011	2002	2010	T	2009	T	2001	1998	2008	JAN 1999	
	MAXIMUM IN 24 HOURS (IN)	16	12.9	4.0	8.3	7.9	0.5	T	0.0	T	0.0	10.8	12.4	7.3	12.9	
	YEAR OF OCCURRENCE		2004	2001	2013	2011	2002	2010	T	2009	T	2001	1998	2013	JAN 2004	
	MAXIMUM SNOW DEPTH (IN)	16	18	14	16	8	T	0	0	0	0	11	16	15	18	
	YEAR OF OCCURRENCE		2004	2010	2007	2011	2011	T	T	T	T	2001	1998	2009	JAN 2004	
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	3.0	2.1	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.4	2.4	3.4	14.3		

**PRECIPITATION (inches) 2013 GRAND FORKS (KGFK)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	0.45	1.49	0.08	1.04	2.37	5.31	2.30	1.68	0.26	5.79	1.73	0.24	22.74
1999	0.99	0.23	1.04	1.90	5.01	3.48	1.63	4.44	2.55	0.12	T	0.35	21.74
2000	0.07	1.65	0.56	1.06	0.84	7.20	2.32	2.45	1.53	2.51	3.94	0.53	24.66
2001	0.14	0.40	0.21	1.34	3.73	1.74	7.17	3.20	1.37	1.50	0.43	0.28	21.51
2002	0.06	0.03	0.37	0.77	1.66	6.03	4.36	6.21	0.87	1.00	0.21	0.32	21.89
2003	0.22	0.19	0.47	1.00	4.27	3.25	2.87	1.00	2.38	0.73	0.71	0.67	17.76
2004	0.73	0.34	1.59	0.41	5.74	0.68	2.05	2.34	4.24	2.19	0.11	0.96	21.38
2005	0.69	0.17	0.30	0.65	3.89	7.50	0.91	5.27	1.27	2.16	1.33	0.50	24.64
2006	0.61	0.57	1.34	1.09	2.37	0.94	0.76	3.18	2.45	1.03	0.42	0.62	15.38
2007	0.22	0.60	2.30	0.47	5.12	4.19	1.50	1.79	0.80	3.09	0.26	0.75	21.09
2008	0.05	0.59	0.50	0.53	1.00	2.96	4.21	2.55	4.39	4.20	2.37	0.98	24.33
2009	0.27	0.91	2.17	1.24	1.29	3.55	0.86	3.17	0.78	2.61	0.29	0.69	17.83
2010	0.69	0.44	1.45	1.30	4.56	4.03	2.16	4.12	5.28	2.44	0.58	0.72	27.77
2011	0.85	0.04	0.76	2.40	2.45	3.34	2.69	3.23	2.89	0.30	0.12	0.65	19.72
2012	0.38	0.51	1.79	1.45	1.75	2.38	3.35	2.01	0.20	2.14	0.85	0.31	17.12
2013	0.42	0.37	0.98	1.61	4.79	3.10	2.08	0.88	1.97	2.48	0.15	0.82	19.65
POR= 24 YRS	0.50	0.57	0.89	1.00	2.91	3.35	2.65	2.96	1.94	1.84	0.94	0.57	20.12

WBAN : 14916

**AVERAGE TEMPERATURE (°F) 2013 GRAND FORKS (KGFK)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	8.7	25.7	24.4	47.6	58.5	61.4	68.8	70.1	60.4	45.4	25.5	12.2	42.4
1999	3.7	17.1	26.1	43.7	55.2	63.5	69.1	65.4	53.5	41.9	34.2	20.5	41.2
2000	7.4	22.8	34.0	39.6	53.9	61.3	69.3	67.2	55.5	45.3	24.6	-4	40.0
2001	13.8	3.8	24.4	42.5	55.9	63.3	69.7	69.4	57.9	41.2	36.5	16.8	41.3
2002	13.9	21.9	17.8	38.7	47.9	66.5	71.1	66.3	59.5	34.6	25.6	18.7	40.2
2003	8.5	4.7	21.6	42.9	53.7	63.7	68.2	70.3	56.7	46.6	20.6	17.6	39.6
2004	-8	11.8	25.4	40.8	49.5	60.0	65.8	59.6	59.8	44.6	31.7	15.3	38.6
2005	1.2	11.2	23.7	46.5	52.4	66.2	69.7	65.7	60.0	44.6	29.0	15.9	40.5
2006	21.3	4.9	22.9	48.2	56.2	66.3	72.4	68.2	56.8	41.0	28.7	22.5	42.5
2007	10.3	3.2	26.5	40.9	56.6	66.6	71.4	65.4	58.1	47.0	28.4	7.2	40.1
2008	3.5	4.0	21.3	40.0	50.6	61.9	67.6	68.0	57.4	45.7	29.5	1.7	37.6
2009	-0.9	8.7	21.3	40.1	50.8	62.1	65.5	64.9	64.2	39.9	35.9	6.9	38.3
2010	7.3	8.4	32.9	49.2	56.3	64.6	71.2	70.7	55.4	47.8	26.6	8.3	41.6
2011	0.5	9.2	19.4	40.9	53.1	64.8	72.4	69.6	59.3	50.2	31.5	22.3	41.1
2012	16.4	19.1	38.1	46.1	57.4	66.4	74.9	67.6	57.3	41.9	26.8	12.1	43.7
2013	8.8	10.8	14.2	32.1	54.2	65.9	69.1	68.2	61.6	42.5	24.4	-0.1	37.6
POR= 24 YRS	6.7	10.1	23.7	41.3	54.2	63.3	69.6	67.2	57.1	44.5	27.4	12.2	39.8

**HEATING DEGREE DAYS (base 65°F) 2013 GRAND FORKS (KGFK)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1997-98							1740	1093	1252	515	206	150	
1998-99	20	3	178	597	1179	1630	1895	1334	1199	631	306	104	9076
1999-00	18	52	337	708	915	1375	1779	1219	950	754	338	150	8595
2000-01	29	43	287	604	1209	2023	1580	1708	1249	673	283	124	9812
2001-02	23	33	240	730	849	1485	1575	1202	1455	782	544	65	8983
2002-03	10	49	215	935	1176	1430	1743	1684	1341	657	344	84	9668
2003-04	18	23	285	567	1328	1462	2032	1535	1221	719	474	163	9827
2004-05	76	168	186	623	991	1536	1971	1500	1273	554	393	42	9313
2005-06	38	52	181	626	1074	1518	1354	1678	1297	498	305	36	8657
2006-07	6	11	273	741	1083	1309	1688	1721	1184	715	263	67	9061
2007-08	10	61	250	551	1091	1787	1900	1762	1348	744	441	111	10056
2008-09	18	27	240	591	1057	1957	2038	1569	1346	740	432	149	10164
2009-10	47	66	77	771	864	1793	1778	1576	990	466	290	68	8786
2010-11	0	21	283	526	1145	1747	1989	1555	1405	714	364	68	9817
2011-12	4	6	208	477	998	1319	1499	1326	829	560	250	42	7518
2012-13	0	25	256	708	1139	1630	1734	1509	1566	985	336	77	9965
2013-	29	53	132	689	1208	2008							

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**COOLING DEGREE DAYS (base 65°F) 2013 GRAND FORKS (KGFK)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1998	0	0	0	0	12	49	144	168	44	0	0	0	417
1999	0	0	0	0	11	61	152	73	2	0	0	0	299
2000	0	0	0	0	1	44	169	120	7	0	0	0	341
2001	0	0	0	3	6	81	179	178	35	0	0	0	482
2002	0	0	0	0	21	121	203	94	57	0	0	0	496
2003	0	0	0	0	5	52	125	195	43	3	0	0	423
2004	0	0	0	0	0	21	105	10	38	0	0	0	174
2005	0	0	0	5	8	85	191	82	39	0	0	0	410
2006	0	0	0	0	39	79	240	120	35	5	0	0	518
2007	0	0	0	0	9	120	216	82	53	0	0	0	480
2008	0	0	0	0	0	22	106	129	17	0	0	0	274
2009	0	0	0	0	0	66	68	73	61	0	0	0	268
2010	0	0	0	0	27	63	199	203	0	0	0	0	492
2011	0	0	0	0	1	71	239	159	43	25	0	0	538
2012	0	0	0	0	22	91	313	114	32	0	0	0	572
2013	0	0	0	0	9	113	166	160	39	0	0	0	487

**SNOWFALL (inches) 2013 GRAND FORKS (KGFK)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2000-01	0.0	0.0	0.0	0.2	11.1	18.7	3.3	9.7	1.3	1.0	0.0	0.0	45.3
2001-02	0.0	0.0	0.0	10.9	8.2	3.8	2.3	0.6	10.7	1.3	0.8	0.0	38.6
2002-03	0.0	0.0	0.0	1.8	3.0	5.5	6.7	4.0	4.1	9.0	0.0	0.0	34.1
2003-04	0.0	0.0	0.0	1.2	10.9	7.0	23.7	6.0	10.7	T	T	0.0	59.5
2004-05	0.0	0.0	0.0	T	1.3	13.5	14.0	2.3	5.1	0.5	0.3	0.0	37.0
2005-06	0.0	0.0	0.0	0.7	3.5	6.8	9.1	12.3	7.5	T	0.0	0.0	39.9
2006-07	0.0	0.0	0.0	2.8	1.3	7.4	1.9	10.9	16.1	3.6	0.0	0.0	44.0
2007-08	0.0	0.0	0.0	0.0	1.5	18.5	1.5	9.8	7.7	5.1	0.2	0.0	44.3
2008-09	0.0	0.0	0.0	0.1	1.0	26.7	5.1	4.9	14.1	1.5	0.0	0.0	53.4
2009-10	0.0	T	0.0	0.7	0.2	18.3	5.9	6.9	0.1	0.0	T	T	32.1
2010-11	0.0	0.0	0.0	T	7.4	11.8	15.0	2.2	9.6	9.4	0.1	0.0	55.5
2011-12	0.0	0.0	0.0	0.0	1.2	5.1	4.3	6.3	5.9	T	0.0	0.0	22.8
2012-13	0.0	0.0	0.0	2.7	7.0	5.3	4.1	10.8	13.6	6.7	0.0	0.0	50.2
2013-	0.0	0.0	0.0	T	1.6	22.8							
POR= 24 YRS	0.0	T	0.0	1.0	5.9	9.4	8.1	6.0	7.4	2.3	0.1	T	40.2

WBAN : 14916

**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. 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 CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS.</p> <p>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</p>	<p>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 STATION HISTORY INFORMATION GO TO "Historical Observing Metadata Repository", URL IS: <a href="http://www.ncdc.noaa.gov/homr/">http://www.ncdc.noaa.gov/homr/</a> SNOWFALL STOPPED MONTH &amp; YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.</p> <p><b>NOTE:</b> The "Period of Record:(POR)" for all "averages" is based on "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.</p>
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# 2013 GRAND FORKS NORTH DAKOTA (KGFK)

Grand Forks North Dakota and it's sister city East Grand Forks straddle the Red River of the North, dividing North Dakota and Minnesota. The northward flowing Red River is one of only 2 major rivers in the continental United States that drain a large basin into Canada, ultimately draining into Hudson Bay. The Red River Valley drains approximately 100,000 square miles, is very shallow and is subject to frequent spring flooding.

The twin cities of Grand Forks/East Grand Forks contain approximately 50,000 people. Primary industries are directly related to or in support of agriculture, as the Red River Valley of the North contains some of the most fertile land in the world. A wide variety of crops are grown in the rich, clay based soil. The NWS/University of North Dakota weather station is located at the Weather Forecast Office (WFO), approximately 2 miles west of the Red River. The terrain around the WFO is extremely flat, with a grade of under 1 foot per mile north to south and near zero west to east.

Climatologically, the Red River Valley is wind swept year round, with frequent significant polar and arctic outbreaks common in the winter months. On average snow covers the ground from mid December through late March, yet tremendous variability exists; some winters experience little snow while some winters see snow covered ground from late October into early May. The magnitude of the afore mentioned flooding, particularly spring flooding, is strongly modulated by the winters snowfall. The period of November through February is typically cloudy, an average 75% of the time. In a normal winter, 55 to 60 days will experience temperatures below zero. An average of 4 blizzards per year strike the Red River Valley region, yet tremendous variability exists in this phenomena as well. Some winters experience no blizzards, with some having more than 10! Average winter snowfall is near 40 inches, much of which falls in the months of November and March.

Summer months are typically warm and relatively humid, with tremendous amounts of moisture being generated locally by transpiration from vegetation and other foliage. Thunderstorms are fairly common, with a strong bias to nighttime thunderstorms, leaving the days usually very sunny. Summer floods, though rare, can be initiated by strong and persistent thunderstorms.

Around 20 inches of precipitation falls per year in the Grand Forks area. Most of the annual precipitation is generated by the late spring through mid summer thunderstorm season, which amounts for 13 to 15 inches of rain. Historically hailstorms are fairly rare, with 1 to 2 per summer storm season.

Annual temperature variations are quite dramatic, with record lows below -40F and record highs about +110F. The climatological mean temperature varies from 5 degrees in January to 70 degrees in July.

# Station History

GRAND FORKS, ND

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
GRAND FORKS INTL AP	1987-09-29	1988-11-16	47° 57'	-97° 10'	839	.1 MI E	AIRWAYS, COOP
GRAND FORKS INTL AP	2004-07-23	Present	47° 56'	-97° 11'	842		AIRWAYS, ASOS, COOP, WXSVC
GRAND FORKS INTL AP	1988-11-16	1995-01-01	47° 57'	-97° 10'	839		AIRWAYS, COOP
GRAND FORKS INTL AP	2003-08-01	2004-07-23	47° 56'	-97° 11'	847		AIRWAYS, ASOS, COOP, WXSVC
GRAND FORKS MUNI AP	1948-01-01	1965-03-31	47° 55'	-97° 4'	850		AIRWAYS, COOP
GRAND FORKS INTL AP	1965-03-31	1987-09-29	47° 57'	-97° 10'	839		AIRWAYS, COOP
GRAND FORKS MUNI AP	1939-01-01	1948-01-01	47° 55'	-97° 4'			AIRWAYS
GRAND FORKS INTL AP	1997-12-18	2003-08-01	47° 56'	-97° 10'	839		AIRWAYS, ASOS, COOP, WXSVC
GRAND FORKS INTL AP	1995-01-01	1997-12-18	47° 57'	-97° 10'	839		COOP, WXSVC

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
PRECIP	2004-07-23	2004-10-01	DAILY	2400			
DEWPNTTEMP	2013-04-11	Present	DAILY	VAR	ATEMP		
TEMP	1965-03-31	2003-08-01	DAILY	2400	HYGR		
TEMP	2013-04-11	Present	DAILY	2400	ATEMP		
PRECIP	2013-04-11	Present	HOURLY	VAR	AWPAG	RCRD;HTD	
TEMP	2013-04-11	Present	DAILY	VAR	ATEMP		
DEWPNTTEMP	2013-04-11	Present	DAILY	2400	ATEMP		
PRECIP	2004-10-01	2013-04-11	DAILY	2400	AWPAG	RCRD;HTD	
DEWPNTTEMP	2004-10-01	2013-04-11	DAILY	2400	ATEMP		
PRECIP	2013-04-11	Present	DAILY	2400	PCPNX		
PRECIP	2004-10-01	2013-04-11	HOURLY	VAR	AWPAG	RCRD;HTD	
TEMP	2004-10-01	2013-04-11	DAILY	2400	ATEMP		
PRECIP	2004-07-23	2004-10-01	HOURLY	2400	TB	RCRD	
TEMP	2004-07-23	2004-10-01	DAILY	2400	ATEMP		
PRECIP	1965-03-31	2003-08-01	DAILY	2400	SRG		
PRECIP	2003-08-01	2004-07-23	DAILY	2400			
TEMP	2003-08-01	2004-07-23	DAILY	2400	ATEMP		

\* For explanation of codes and abbreviations see Station Metadata link below.

Other Station Information can be found at:

ASOS Implementation by NWS: <http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm>

Station Metadata website: <http://www.ncdc.noaa.gov/homr>

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Fax Number : (828) 271-4876

TDD : (828) 271-4010

Email : [ncdc.orders@noaa.gov](mailto:ncdc.orders@noaa.gov)

NOAA/National Climatic Data Center

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151 Patton Avenue

Asheville, NC 28801-5001

Visit our Web Site for other weather data: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)