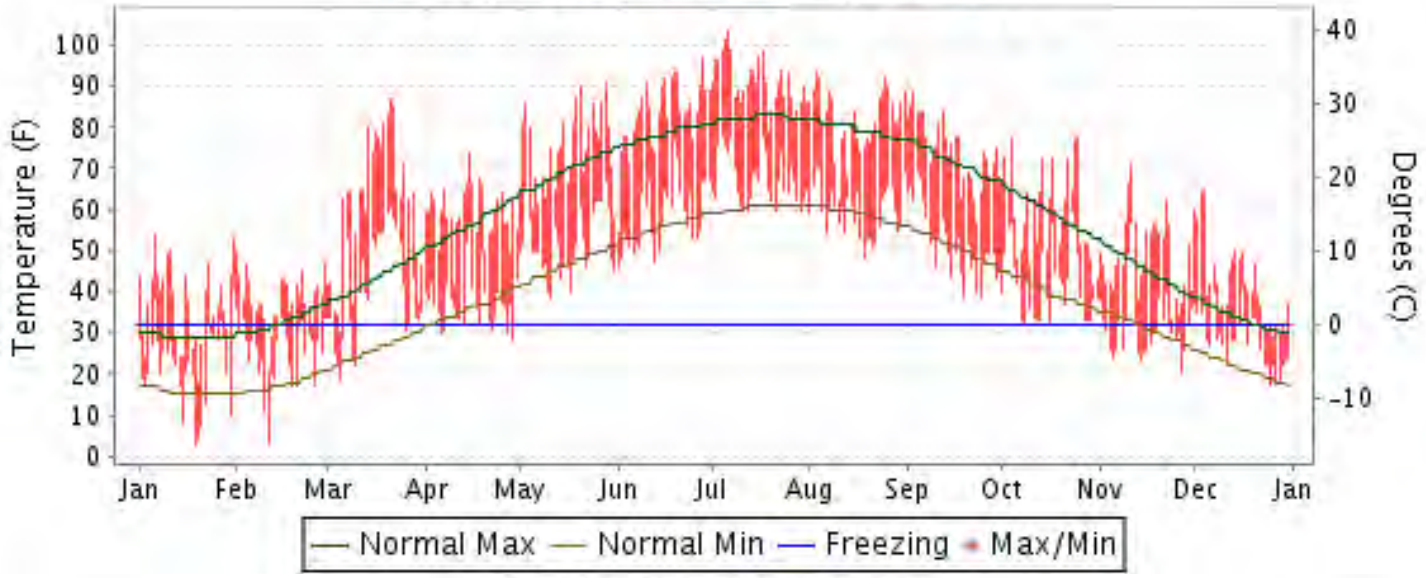
# 2012
# LOCAL CLIMATOLOGICAL DATA
# ANNUAL SUMMARY WITH COMPARATIVE DATA

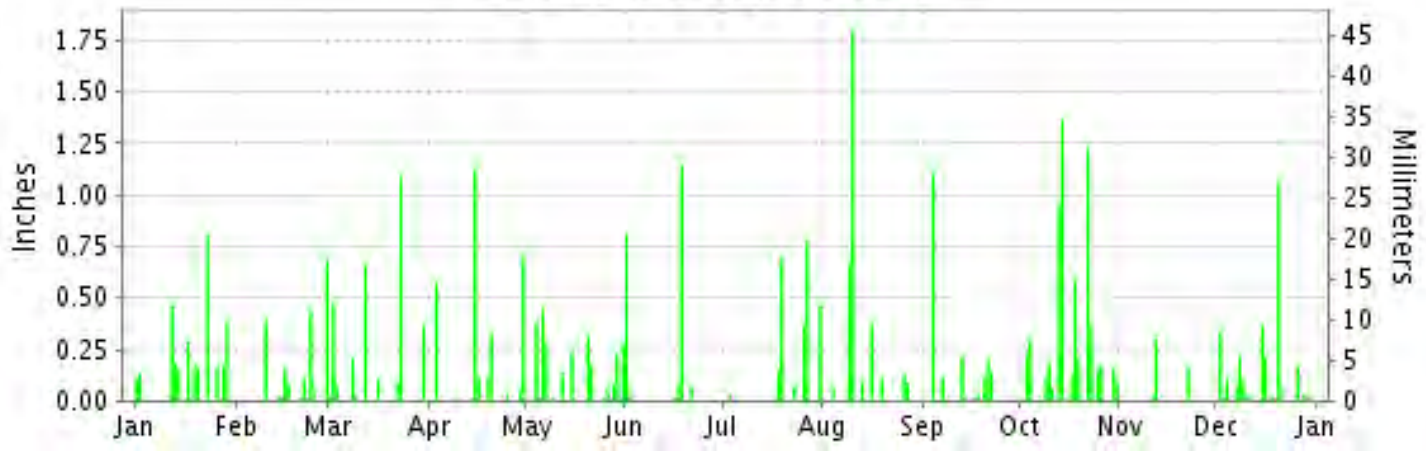
ISSN 0198-2575

## GRAND RAPIDS, MICHIGAN (KGRR)

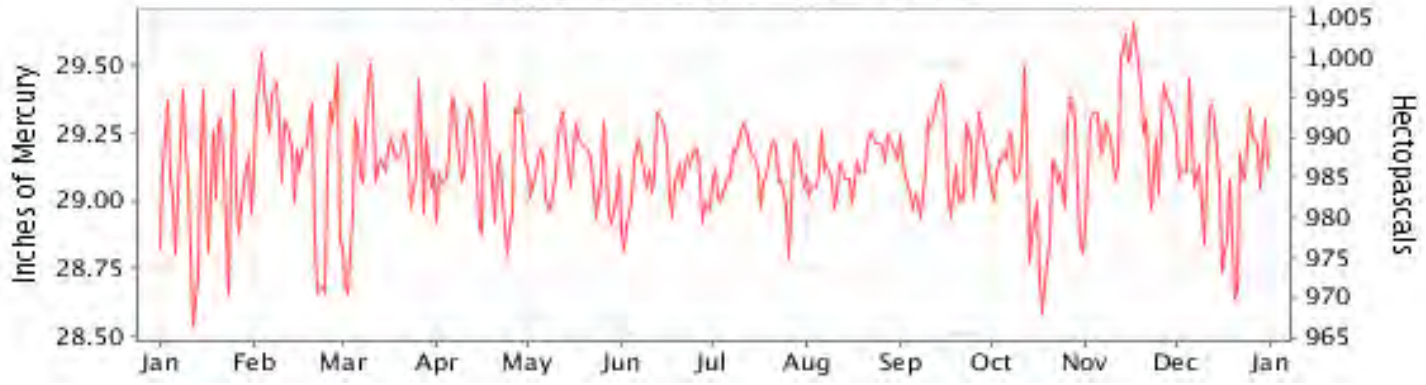
### Daily Max/Min Temperature




### Daily Precipitation




### Daily Station Pressure

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Thomas R. Karl

| NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE | NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA | DIRECTOR NATIONAL CLIMATIC DATA CENTER |
|---|---|---|---|

# METEOROLOGICAL DATA FOR 2012
## GRAND RAPIDS (KGRR)

**LATITUDE:** 42° 52'N **LONGITUDE:** 85° 31'W **ELEVATION (FT):** GRND: 803 BARO: 788 **TIME ZONE:** EASTERN (UTC -5) **WBAN:** 94860

| | ELEMENT | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMPERATURE °F | MEAN DAILY MAXIMUM | 37.1 | 38.4 | 60.6 | 59.1 | 74.5 | 83.3 | 91.1 | 82.0 | 74.2 | 59.5 | 48.6 | 41.7 | 62.5 |
| | HIGHEST DAILY MAXIMUM | 54 | 50 | 87 | 74 | 91 | 97 | 104 | 93 | 89 | 78 | 71 | 65 | 104 |
| | DATE OF OCCURRENCE | 06 | 01 | 21 | 15 | 28 | 28 | 06 | 03 | 03 | 25 | 11 | 04+ | JUL 06 |
| | MEAN DAILY MINIMUM | 22.3 | 25.3 | 40.8 | 37.5 | 51.8 | 58.3 | 67.4 | 59.7 | 51.7 | 42.1 | 31.5 | 28.5 | 43.1 |
| | LOWEST DAILY MINIMUM | 3 | 3 | 19 | 28 | 39 | 46 | 60 | 48 | 39 | 32 | 20 | 17 | 3 |
| | DATE OF OCCURRENCE | 19 | 11 | 05 | 29 | 11 | 01 | 29+ | 18 | 24+ | 16+ | 27 | 25 | FEB 11 |
| | AVERAGE DRY BULB | 29.7 | 31.9 | 50.7 | 48.3 | 63.2 | 70.8 | 79.3 | 70.9 | 63.0 | 50.8 | 40.1 | 35.1 | 52.8 |
| | MEAN WET BULB | 27.8 | 29.5 | 46.5 | 42.3 | 55.3 | 61.1 | 68.6 | 63.1 | 55.6 | 46.3 | 35.5 | 32.9 | 47.0 |
| | MEAN DEW POINT | 23.1 | 24.8 | 40.4 | 33.8 | 48.6 | 54.0 | 62.6 | 58.2 | 49.9 | 41.2 | 29.6 | 28.7 | 41.2 |
| | NUMBER OF DAYS WITH: | | | | | | | | | | | | | |
| | MAXIMUM >= 90° | 0 | 0 | 0 | 0 | 2 | 8 | 18 | 4 | 0 | 0 | 0 | 0 | 32 |
| | MAXIMUM <= 32° | 11 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 23 |
| | MINIMUM <= 32° | 28 | 23 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 2 | 20 | 22 | 110 |
| | MINIMUM <= 0° | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H/C | HEATING DEGREE DAYS | 1088 | 954 | 463 | 494 | 131 | 28 | 0 | 9 | 125 | 436 | 739 | 919 | 5386 |
| | COOLING DEGREE DAYS | 0 | 0 | 26 | 1 | 81 | 208 | 449 | 197 | 73 | 4 | 0 | 0 | 1039 |
| RH | MEAN (PERCENT) | 76 | 75 | 67 | 60 | 62 | 57 | 60 | 67 | 66 | 72 | 69 | 77 | 67 |
| | HOUR 01 LST | 78 | 80 | 75 | 71 | 75 | 72 | 76 | 83 | 81 | 79 | 75 | 81 | 77 |
| | HOUR 07 LST | 82 | 81 | 76 | 70 | 70 | 64 | 68 | 77 | 79 | 81 | 78 | 82 | 76 |
| | HOUR 13 LST | 68 | 67 | 57 | 47 | 48 | 41 | 42 | 48 | 47 | 58 | 56 | 69 | 54 |
| | HOUR 19 LST | 76 | 75 | 64 | 54 | 56 | 49 | 52 | 63 | 63 | 72 | 69 | 77 | 64 |
| W/O | NUMBER OF DAYS WITH: | | | | | | | | | | | | | |
| | HEAVY FOG(VISBY <= 1/4 MI) | 4 | 5 | 3 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 2 | 3 | 22 |
| | THUNDERSTORMS | 1 | 0 | 3 | 3 | 8 | 2 | 5 | 3 | 2 | 3 | 0 | 1 | 31 |
| PR | MEAN STATION PRESS. (IN.) | 29.06 | 29.19 | 29.14 | 29.14 | 29.12 | 29.09 | 29.11 | 29.13 | 29.15 | 29.07 | 29.29 | 29.10 | 29.13 |
| | MEAN SEA-LEVEL PRESS. (IN.) | 29.95 | 30.08 | 30.01 | 30.01 | 29.98 | 29.94 | 29.96 | 29.98 | 30.01 | 29.94 | 30.18 | 29.99 | 30.00 |
| WINDS | RESULTANT SPEED (MPH) | 4.5 | 3.8 | 3.7 | 1.5 | 1.4 | 3.5 | 1.6 | 1.8 | 1.7 | 3.1 | 2.7 | 0.9 | 2.3 |
| | RES. DIR. (TENS OF DEGS.) | 24 | 25 | 21 | 32 | 21 | 24 | 25 | 26 | 23 | 24 | 22 | 22 | 24 |
| | MEAN SPEED (MPH) | 9.8 | 9.0 | 10.5 | 9.6 | 8.5 | 8.6 | 7.3 | 6.4 | 7.4 | 9.7 | 7.8 | 9.0 | 8.6 |
| | PREVAIL.DIR.(TENS OF DEGS.) | 21 | 24 | 21 | 09 | 25 | 25 | 24 | 16 | 18 | 18 | 16 | 20 | 18 |
| | MAXIMUM 2-MINUTE WIND | | | | | | | | | | | | | |
| | SPEED (MPH) | 33 | 30 | 37 | 40 | 36 | 33 | 36 | 25 | 31 | 35 | 33 | 35 | 40 |
| | DIR. (TENS OF DEGS.) | 27 | 24 | 27 | 25 | 25 | 34 | 01 | 27 | 27 | 24 | 17 | 33 | 25 |
| | DATE OF OCCURRENCE | 28 | 21 | 02 | 16 | 02 | 18 | 31 | 31 | 21 | 11 | 11 | 21 | APR 16 |
| | MAXIMUM 3-SECOND WIND: | | | | | | | | | | | | | |
| | SPEED (MPH) | 41 | 38 | 48 | 52 | 44 | 45 | 45 | 32 | 38 | 48 | 46 | 49 | 52 |
| | DIR. (TENS OF DEGS.) | 28 | 27 | 27 | 25 | 25 | 33 | 36 | 28 | 25 | 23 | 17 | 34 | 25 |
| | DATE OF OCCURRENCE | 28 | 27 | 03 | 16 | 02 | 18 | 31 | 31 | 21 | 05 | 11 | 21 | APR 16 |
| PRECIPITATION | WATER EQUIVALENT: | 3.20 | 2.00 | 3.14 | 3.09 | 2.72 | 2.17 | 2.56 | 3.34 | 1.97 | 6.32 | 0.49 | 2.85 | 33.85 |
| | TOTAL (IN.) | 0.81 | 0.68 | 1.19 | 1.18 | 0.71 | 1.14 | 0.78 | 2.27 | 1.11 | 1.51 | 0.33 | 1.06 | 2.27 |
| | GREATEST 24-HOUR (IN.) | 23 | 29 | 22-23 | 15-16 | 06-07 | 18 | 27 | 09-10 | 04 | 22-23 | 11-12 | 20 | AUG 09-10 |
| | DATE OF OCCURRENCE | | | | | | | | | | | | | |
| | NUMBER OF DAYS WITH: | 13 | 11 | 10 | 11 | 16 | 6 | 7 | 8 | 9 | 17 | 3 | 17 | 128 |
| | PRECIPITATION 0.01 | 12 | 5 | 6 | 6 | 9 | 2 | 5 | 6 | 6 | 14 | 2 | 8 | 81 |
| | PRECIPITATION 0.10 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 8 |
| | PRECIPITATION 1.00 | | | | | | | | | | | | | |
| SNOWFALL | SNOW,ICE PELLETS,HAIL | 27.0 | 16.2 | 2.8 | T | T | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.3 | 7.2 | 53.5 |
| | TOTAL (IN.) | 6.0 | 6.2 | 2.0 | T | T | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.1 | 3.1 | 6.2 |
| | GREATEST 24-HOUR (IN.) | 14 | 10 | 03 | 28+ | 09 | | | | | 31+ | 28+ | 26 | FEB 10 |
| | DATE OF OCCURRENCE | 7 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | T | 3 | 7 |
| | MAXIMUM SNOW DEPTH (IN.) | 15 | 11 | 04 | | | | | | | | 28 | 27+ | JAN 15 |
| | DATE OF OCCURRENCE | | | | | | | | | | | | | |
| | NUMBER OF DAYS WITH: | 9 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 16 |
| | SNOWFALL >= 1.0 | | | | | | | | | | | | | |

# NORMALS, MEANS, AND EXTREMES
## GRAND RAPIDS (KGRR)

**LATITUDE:** 42° 52'N **LONGITUDE:** 85° 31'W **ELEVATION (FT):** GRND: 803 BARO: 788 **TIME ZONE:** EASTERN (UTC -5) **WBAN:** 94860

| | ELEMENT | POR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMPERATURE °F | NORMAL DAILY MAXIMUM | 30 | 30.7 | 33.7 | 44.4 | 58.2 | 69.5 | 79.0 | 82.8 | 80.6 | 73.0 | 60.3 | 47.3 | 34.8 | 57.9 |
| | MEAN DAILY MAXIMUM | 75 | 30.1 | 31.8 | 42.9 | 57.1 | 69.4 | 78.4 | 83.0 | 80.7 | 72.5 | 60.9 | 46.1 | 34.3 | 57.3 |
| | HIGHEST DAILY MAXIMUM | 49 | 63 | 69 | 87 | 88 | 91 | 97 | 104 | 100 | 93 | 88 | 77 | 69 | 104 |
| | YEAR OF OCCURRENCE | | 2008 | 1999 | 2012 | 1970 | 2012 | 2012 | 2012 | 1964 | 1973 | 2007 | 1975 | 2001 | JUL 2012 |
| | MEAN OF EXTREME MAXS. | 76 | 48.4 | 49.8 | 67.7 | 79.1 | 85.4 | 91.4 | 92.5 | 91.6 | 87.6 | 78.9 | 66.5 | 53.3 | 74.4 |
| | NORMAL DAILY MINIMUM | 30 | 18.1 | 19.9 | 26.9 | 37.7 | 47.8 | 57.7 | 62.2 | 61.0 | 52.7 | 41.8 | 33.0 | 23.5 | 40.2 |
| | MEAN DAILY MINIMUM | 75 | 16.4 | 16.9 | 25.2 | 36.2 | 46.6 | 55.9 | 61.0 | 59.2 | 51.0 | 41.0 | 31.3 | 21.9 | 38.6 |
| | LOWEST DAILY MINIMUM | 49 | -22 | -19 | -8 | 3 | -22 | -22 | 41 | 39 | 27 | 18 | 5 | -18 | -22 |
| | YEAR OF OCCURRENCE | | 1994 | 1973 | 1978 | 1982 | 1994 | 1994 | 1983 | 1976 | 1991 | 1988 | 1977 | 1983 | JUN 1994 |
| | MEAN OF EXTREME MINS. | 76 | -4.9 | -2.6 | 6.2 | 21.3 | 31.4 | 41.8 | 48.4 | 46.7 | 35.7 | 26.5 | 16.4 | 2.3 | 22.4 |
| | NORMAL DRY BULB | 30 | 24.4 | 26.8 | 35.6 | 48.0 | 58.7 | 68.4 | 72.5 | 70.8 | 62.8 | 51.0 | 40.1 | 29.2 | 49.0 |
| | MEAN DRY BULB | 75 | 23.3 | 24.4 | 34.1 | 46.7 | 58.0 | 67.3 | 72.0 | 70.0 | 61.8 | 51.0 | 38.7 | 28.1 | 48.0 |
| | MEAN WET BULB | 29 | 21.7 | 23.3 | 30.2 | 40.0 | 50.4 | 59.7 | 64.0 | 63.1 | 55.9 | 45.0 | 35.1 | 26.2 | 42.9 |
| | MEAN DEW POINT | 29 | 19.9 | 20.8 | 27.6 | 36.7 | 47.6 | 57.3 | 62.0 | 61.6 | 53.8 | 42.9 | 33.2 | 24.5 | 40.7 |
| | NORMAL NO. DAYS WITH: | | | | | | | | | | | | | | |
| | MAXIMUM >= 90 | 30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.0 | 3.5 | 2.3 | 0.3 | 0.0 | 0.0 | 0.0 | 8.4 |
| | MAXIMUM <= 32 | 30 | 17.0 | 12.5 | 4.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 11.7 | 47.3 |
| | MINIMUM <= 32 | 30 | 27.7 | 24.7 | 21.7 | 8.6 | 0.7 | 0.0 | 0.0 | 0.0 | 0.1 | 3.4 | 14.5 | 25.0 | 126.4 |
| | MINIMUM <= 0 | 30 | 2.2 | 1.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 |
| H/C | NORMAL HEATING DEG. DAYS | 30 | 1258 | 1070 | 910 | 518 | 235 | 45 | 6 | 14 | 132 | 440 | 746 | 1111 | 6485 |
| | NORMAL COOLING DEG. DAYS | 30 | 0 | 0 | 1 | 7 | 39 | 145 | 239 | 194 | 67 | 7 | 0 | 0 | 699 |
| RH | NORMAL (PERCENT) | 30 | 79 | 76 | 71 | 66 | 66 | 69 | 71 | 75 | 76 | 75 | 77 | 80 | 73 |
| | HOUR 01 LST | 30 | 81 | 80 | 77 | 74 | 77 | 81 | 84 | 87 | 87 | 82 | 80 | 82 | 81 |
| | HOUR 07 LST | 30 | 82 | 82 | 81 | 79 | 79 | 82 | 85 | 90 | 90 | 86 | 83 | 83 | 84 |
| | HOUR 13 LST | 30 | 73 | 69 | 63 | 56 | 53 | 55 | 56 | 60 | 60 | 62 | 69 | 74 | 63 |
| | HOUR 19 LST | 30 | 78 | 73 | 66 | 58 | 55 | 57 | 59 | 64 | 69 | 72 | 75 | 79 | 67 |
| S | PERCENT POSSIBLE SUNSHINE | 37 | 28 | 39 | 46 | 51 | 29 | 29 | 64 | 61 | 55 | 44 | 27 | 23 | 41 |
| W/O | MEAN NO. DAYS WITH: | | | | | | | | | | | | | | |
| | HEAVY FOG(VISBY <= 1/4 MI) | 49 | 2.3 | 2.5 | 2.5 | 1.4 | 1.4 | 1.2 | 1.3 | 1.8 | 2.0 | 1.8 | 2.0 | 3.3 | 23.5 |
| | THUNDERSTORMS | 65 | 0.3 | 0.3 | 1.7 | 3.4 | 4.1 | 5.6 | 6.2 | 5.0 | 3.8 | 1.7 | 1.2 | 0.4 | 33.7 |
| CLOUDINESS | MEAN: | | | | | | | | | | | | | | |
| | SUNRISE-SUNSET (OKTAS) | | | | | | | | | | | | | | |
| | MIDNIGHT-MIDNIGHT (OKTAS) | | | | | | | | | | | | | | |
| | MEAN NO. DAYS WITH: | | | | | | | | | | | | | | |
| | CLEAR | | | | | | | | | | | | | | |
| | PARTLY CLOUDY | | | | | | | | | | | | | | |
| | CLOUDY | | | | | | | | | | | | | | |
| PR | MEAN STATION PRESSURE(IN) | 29 | 29.16 | 29.18 | 29.16 | 29.10 | 29.08 | 29.10 | 29.13 | 29.17 | 29.18 | 29.17 | 29.17 | 29.17 | 29.15 |
| | MEAN SEA-LEVEL PRES. (IN) | 29 | 30.05 | 30.07 | 30.05 | 29.98 | 29.97 | 29.95 | 29.98 | 30.02 | 30.04 | 30.04 | 30.05 | 30.06 | 30.02 |
| WINDS | MEAN SPEED (MPH) | 29 | 10.9 | 10.5 | 10.6 | 10.8 | 9.6 | 8.5 | 8.0 | 7.4 | 7.9 | 9.1 | 10.2 | 10.4 | 9.5 |
| | PREVAIL.DIR(TENS OF DEGS) | 38 | 21 | 25 | 26 | 08 | 26 | 25 | 25 | 25 | 19 | 19 | 19 | 21 | 25 |
| | MAXIMUM 2-MINUTE: | | | | | | | | | | | | | | |
| | SPEED (MPH) | 17 | 45 | 55 | 47 | 52 | 45 | 45 | 51 | 41 | 51 | 47 | 49 | 48 | 55 |
| | DIR. (TENS OF DEGS) | | 24 | 24 | 25 | 19 | 24 | 24 | 26 | 22 | 25 | 24 | 23 | 25 | 24 |
| | YEAR OF OCCURRENCE | | 1996 | 1999 | 2002 | 1999 | 1996 | 1996 | 1999 | 2007 | 2010 | 1996 | 1998 | 2008 | FEB 1999 |
| | MAXIMUM 3-SECOND | | | | | | | | | | | | | | |
| | SPEED (MPH) | 17 | 55 | 64 | 58 | 61 | 55 | 55 | 58 | 55 | 72 | 60 | 66 | 64 | 72 |
| | DIR. (TENS OF DEGS) | | 24 | 25 | 25 | 25 | 24 | 28 | 29 | 23 | 27 | 25 | 23 | 20 | 27 |
| | YEAR OF OCCURRENCE | | 1996 | 1999 | 2002 | 1997 | 1996 | 2008 | 1999 | 2007 | 2010 | 1996 | 1998 | 2007 | SEP 2010 |
| PRECIPITATION | NORMAL (IN) | 30 | 2.09 | 1.79 | 2.37 | 3.35 | 3.98 | 3.77 | 3.78 | 3.59 | 4.28 | 3.26 | 3.51 | 2.50 | 38.27 |
| | MAXIMUM MONTHLY (IN) | 49 | 4.67 | 4.80 | 5.12 | 7.19 | 4.67 | 8.04 | 8.83 | 8.46 | 11.85 | 7.64 | 7.90 | 6.63 | 11.85 |
| | YEAR OF OCCURRENCE | | 2005 | 1997 | 1974 | 2011 | 2005 | 2010 | 1992 | 1987 | 1986 | 2009 | 2003 | 1971 | SEP 1986 |
| | MINIMUM MONTHLY (IN) | 49 | 0.47 | 0.33 | 0.54 | .77 | 0.47 | 0.47 | 0.81 | 0.14 | T | 0.60 | 0.49 | T | 0.14 |
| | YEAR OF OCCURRENCE | | 1981 | 1969 | 2001 | 2005 | 1981 | 1981 | 1976 | 1969 | 1979 | 1964 | 2012 | 1952 | AUG 1969 |
| | MAXIMUM IN 24 HOURS (IN) | 49 | 2.16 | 3.05 | 1.78 | 2.66 | 2.16 | 3.27 | 4.16 | 3.68 | 4.55 | 3.19 | 3.00 | 2.79 | 4.55 |
| | YEAR OF OCCURRENCE | | 1993 | 1997 | 1985 | 1999 | 1993 | 2010 | 2011 | 1987 | 1986 | 1993 | 1990 | 1982 | SEP 1986 |
| | NORMAL NO. DAYS WITH: | | | | | | | | | | | | | | |
| | PRECIPITATION >= 0.01 | 30 | 16.0 | 12.2 | 11.8 | 12.7 | 11.2 | 10.1 | 9.7 | 9.6 | 10.7 | 11.8 | 13.2 | 16.0 | 145.0 |
| | PRECIPITATION >= 1.00 | 30 | 0.1 | 0.2 | 0.3 | 0.6 | 0.9 | 1.1 | 1.0 | 0.9 | 1.0 | 0.6 | 0.7 | 0.3 | 7.7 |
| SNOWFALL | NORMAL (IN) | 30 | 20.8 | 14.8 | 8.3 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 6.8 | 21.9 | 74.9 |
| | MAXIMUM MONTHLY (IN) | 49 | 46.8 | 41.6 | 36.0 | 12.4 | 46.8 | 46.8 | T | T | T | 8.4 | 25.3 | 59.2 | 59.2 |
| | YEAR OF OCCURRENCE | | 1999 | 2008 | 1965 | 1982 | 1999 | 1999 | 1990 | 1993 | 1967 | 1967 | 1991 | 2000 | DEC 2000 |
| | MAXIMUM IN 24 HOURS (IN) | 49 | 16.1 | 11.1 | 13.6 | 9.8 | 16.1 | 16.1 | T | T | T | 8.4 | 10.4 | 15.1 | 16.1 |
| | YEAR OF OCCURRENCE' | | 1978 | 2011 | 2002 | 1975 | 1978 | 1978 | 1990 | 1993 | 1967 | 1967 | 1991 | 1970 | JUN 1978 |
| | MAXIMUM SNOW DEPTH (IN) | 64 | 27 | 21 | 15 | 10 | 0 | 0 | 0 | 0 | 0 | 5 | 11 | 22 | 27 |
| | YEAR OF OCCURRENCE | | 1978 | 1985 | 2007 | 1975 | | | | | | 1967 | 1951 | 1951 | JAN 1978 |
| | NORMAL NO. DAYS WITH: | | | | | | | | | | | | | | |
| | SNOWFALL >= 1.0 | 30 | 6.9 | 4.6 | 2.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 2.0 | 6.6 | 23.0 |

## PRECIPITATION (inches) 2012 GRAND RAPIDS (KGRR)

| YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | 1.33 | 1.12 | 3.30 | 5.06 | 4.64 | 2.09 | 4.76 | 1.49 | 4.87 | 2.66 | 3.00 | 2.79 | 37.11 |
| 1984 | 0.94 | 1.15 | 2.77 | 2.10 | 4.77 | 0.62 | 2.12 | 1.49 | 2.16 | 3.34 | 2.85 | 4.37 | 28.68 |
| 1985 | 1.94 | 3.26 | 4.20 | 2.54 | 1.36 | 1.68 | 3.09 | 6.48 | 4.26 | 4.64 | 5.45 | 2.00 | 40.90 |
| 1986 | 1.07 | 3.34 | 2.35 | 2.58 | 3.88 | 7.14 | 5.27 | 5.30 | 11.85 | 2.76 | 0.95 | 1.04 | 47.53 |
| 1987 | 0.67 | 0.37 | 1.15 | 2.40 | 0.94 | 3.56 | 2.93 | 8.46 | 4.47 | 2.33 | 2.49 | 3.29 | 33.06 |
| 1988 | 2.39 | 1.14 | 2.12 | 3.11 | 1.07 | 0.25 | 3.69 | 3.04 | 7.49 | 5.37 | 4.82 | 1.88 | 36.37 |
| 1989 | 0.95 | 1.01 | 2.47 | 1.79 | 4.33 | 5.02 | 1.29 | 4.78 | 4.90 | 1.53 | 4.86 | 0.97 | 33.90 |
| 1990 | 2.39 | 2.08 | 1.96 | 2.23 | 4.39 | 3.00 | 3.73 | 3.40 | 4.22 | 5.05 | 7.14 | 2.97 | 42.56 |
| 1991 | 1.32 | 0.64 | 3.58 | 5.58 | 4.44 | 1.76 | 6.24 | 3.79 | 2.93 | 5.61 | 6.41 | 2.63 | 44.93 |
| 1992 | 1.52 | 1.06 | 3.51 | 3.98 | 1.45 | 1.61 | 8.83 | 3.55 | 5.60 | 2.34 | 5.64 | 3.27 | 42.36 |
| 1993 | 4.21 | 1.13 | 2.31 | 4.93 | 2.17 | 6.05 | 1.83 | 7.73 | 8.20 | 4.32 | 2.12 | 1.47 | 46.47 |
| 1994 | 2.68 | 1.70 | 1.46 | 3.25 | 2.64 | 7.17 | 8.07 | 7.39 | 2.38 | 3.29 | 5.44 | 1.11 | 46.58 |
| 1995 | 2.73 | 0.94 | 1.49 | 3.85 | 2.85 | 3.97 | 6.11 | 3.10 | 1.54 | 2.78 | 4.37 | 1.52 | 35.25 |
| 1996 | 1.18 | 0.90 | 0.96 | 2.41 | 4.83 | 6.33 | 1.28 | .33 | 2.72 | 2.76 | 1.40 | 2.45 | 27.55 |
| 1997 | 2.63 | 4.80 | 1.40 | 1.70 | 3.05 | 2.76 | 1.95 | 1.99 | 4.85 | 2.02 | 1.49 | 0.98 | 29.62 |
| 1998 | 4.09 | 1.50 | 4.93 | 2.75 | 1.86 | 2.11 | 2.49 | 1.70 | 2.49 | 2.98 | 2.27 | 1.20 | 30.37 |
| 1999 | 3.54 | 1.49 | 0.96 | 6.69 | 2.46 | 3.81 | 2.88 | 3.22 | 3.21 | 1.00 | 0.95 | 2.31 | 32.52 |
| 2000 | 1.02 | 1.09 | 1.33 | 3.98 | 8.65 | 4.67 | 4.06 | 2.31 | 6.31 | 1.85 | 2.82 | 2.07 | 40.16 |
| 2001 | 0.71 | 2.58 | 0.54 | 2.05 | 10.01 | 3.35 | 2.00 | 3.48 | 3.76 | 7.38 | 2.26 | 2.37 | 40.49 |
| 2002 | 1.12 | 1.48 | 2.65 | 3.72 | 4.32 | 2.06 | 2.09 | 4.67 | 0.97 | 2.04 | 2.40 | 1.97 | 29.49 |
| 2003 | 0.91 | 0.61 | 1.58 | 2.96 | 5.68 | 1.72 | 3.56 | 3.75 | 2.45 | 1.76 | 7.90 | 1.23 | 34.11 |
| 2004 | 2.01 | 1.03 | 4.79 | 2.04 | 9.29 | 3.09 | 2.56 | 3.41 | 0.67 | 3.98 | 4.03 | 2.38 | 39.28 |
| 2005 | 4.67 | 2.54 | 1.41 | 0.77 | 2.04 | 7.35 | 4.08 | 1.42 | 3.82 | 0.71 | 5.29 | 2.43 | 36.53 |
| 2006 | 4.30 | 2.39 | 3.31 | 2.22 | 4.92 | 1.77 | 6.90 | 1.62 | 5.38 | 5.02 | 2.80 | 3.76 | 44.39 |
| 2007 | 2.19 | 1.98 | 3.50 | 4.27 | 1.68 | 3.39 | 1.24 | 6.10 | 1.21 | 3.13 | 1.06 | 3.03 | 32.78 |
| 2008 | 3.76 | 4.16 | 2.47 | 3.56 | 2.13 | 5.66 | 5.42 | 1.05 | 9.54 | 2.71 | 2.07 | 6.27 | 48.80 |
| 2009 | 1.74 | 3.31 | 2.66 | 5.56 | 2.65 | 6.17 | 2.35 | 4.74 | 1.56 | 7.64 | 1.48 | 2.99 | 42.85 |
| 2010 | 0.85 | 1.80 | 1.17 | 3.81 | 3.80 | 8.04 | 4.66 | 1.74 | 2.80 | 2.61 | 2.81 | 1.78 | 35.87 |
| 2011 | 1.31 | 2.96 | 4.01 | 7.19 | 4.54 | 3.34 | 6.87 | 4.42 | 2.23 | 3.13 | 2.50 | 2.59 | 45.09 |
| 2012 | 3.20 | 2.00 | 3.14 | 3.09 | 2.72 | 2.17 | 2.56 | 3.34 | 1.97 | 6.32 | 0.49 | 2.85 | 33.85 |
| POR= 76 YRS | 2.15 | 1.77 | 2.57 | 3.36 | 3.35 | 3.74 | 3.44 | 3.14 | 3.60 | 2.86 | 3.05 | 2.63 | 35.66 |

WBAN : 94860

## AVERAGE TEMPERATURE (°F) 2012 GRAND RAPIDS (KGRR)

| YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | 27.6 | 30.9 | 36.9 | 42.6 | 52.8 | 67.7 | 74.7 | 72.2 | 62.4 | 50.7 | 40.7 | 19.2 | 48.2 |
| 1984 | 17.1 | 34.0 | 28.9 | 47.3 | 53.5 | 70.1 | 70.1 | 73.0 | 60.5 | 54.2 | 40.3 | 32.2 | 48.4 |
| 1985 | 18.6 | 21.3 | 36.2 | 51.7 | 60.4 | 63.8 | 70.7 | 67.4 | 63.6 | 50.6 | 38.4 | 22.3 | 47.1 |
| 1986 | 22.7 | 22.5 | 36.7 | 49.7 | 58.8 | 64.4 | 72.5 | 66.0 | 62.8 | 50.2 | 35.0 | 29.8 | 47.6 |
| 1987 | 25.4 | 29.9 | 37.3 | 50.1 | 62.6 | 71.2 | 74.1 | 69.3 | 62.2 | 45.0 | 41.1 | 31.5 | 50.0 |
| 1988 | 20.8 | 20.7 | 34.1 | 47.1 | 60.9 | 68.5 | 74.7 | 73.4 | 61.3 | 44.2 | 40.7 | 27.3 | 47.8 |
| 1989 | 30.5 | 19.7 | 31.8 | 43.9 | 55.8 | 65.9 | 71.9 | 68.4 | 59.4 | 51.1 | 35.7 | 17.2 | 45.9 |
| 1990 | 32.1 | 28.1 | 37.1 | 47.7 | 55.0 | 67.1 | 70.3 | 69.0 | 62.8 | 49.9 | 43.3 | 30.0 | 49.4 |
| 1991 | 22.2 | 29.2 | 37.9 | 50.8 | 64.6 | 71.2 | 72.4 | 70.5 | 60.1 | 52.0 | 35.7 | 29.4 | 49.7 |
| 1992 | 27.5 | 30.3 | 33.7 | 44.0 | 57.4 | 64.3 | 67.2 | 65.0 | 59.7 | 48.2 | 38.2 | 30.5 | 47.2 |
| 1993 | 25.9 | 21.9 | 32.4 | 44.0 | 58.2 | 65.2 | 72.7 | 71.4 | 56.5 | 48.0 | 37.9 | 27.8 | 46.8 |
| 1994 | 14.5 | 19.2 | 34.1 | 47.9 | 56.1 | 68.6 | 71.1 | 66.6 | 63.8 | 51.7 | 42.3 | 33.2 | 47.4 |
| 1995 | 26.5 | 23.2 | 37.0 | 42.8 | 56.4 | 69.8 | 72.5 | 74.8 | 59.1 | 51.4 | 32.0 | 24.2 | 47.5 |
| 1996 | 21.7 | 24.4 | 28.4 | 43.0 | 55.6 | 67.7 | 68.2 | 72.2 | 62.3 | 50.2 | 33.2 | 28.7 | 46.3 |
| 1997 | 21.6 | 27.3 | 34.6 | 44.1 | 50.3 | 68.3 | 70.8 | 66.1 | 61.1 | 49.9 | 35.6 | 31.1 | 46.7 |
| 1998 | 29.6 | 34.1 | 36.1 | 48.6 | 64.3 | 67.4 | 72.2 | 72.2 | 66.0 | 52.7 | 42.1 | 33.3 | 51.6 |
| 1999 | 21.2 | 31.4 | 32.9 | 48.8 | 61.0 | 69.4 | 74.7 | 67.8 | 62.7 | 49.5 | 43.6 | 30.4 | 49.5 |
| 2000 | 23.4 | 31.4 | 42.2 | 45.9 | 59.6 | 66.1 | 68.6 | 69.1 | 60.4 | 53.6 | 37.6 | 19.0 | 48.1 |
| 2001 | 25.5 | 25.9 | 32.5 | 50.0 | 59.6 | 66.3 | 71.3 | 71.6 | 59.3 | 50.4 | 46.8 | 33.9 | 49.4 |
| 2002 | 30.2 | 30.7 | 31.0 | 47.0 | 52.7 | 69.4 | 74.9 | 70.4 | 65.6 | 47.0 | 36.2 | 28.2 | 48.6 |
| 2003 | 19.1 | 20.0 | 33.3 | 45.7 | 54.9 | 64.7 | 70.1 | 71.2 | 61.3 | 48.9 | 41.1 | 31.6 | 46.8 |
| 2004 | 19.5 | 25.7 | 39.3 | 49.9 | 59.7 | 66.3 | 70.5 | 66.1 | 65.5 | 50.5 | 40.4 | 27.9 | 48.4 |
| 2005 | 21.7 | 28.2 | 29.9 | 50.6 | 54.7 | 72.9 | 72.8 | 72.2 | 66.7 | 52.7 | 40.5 | 25.8 | 49.1 |
| 2006 | 33.2 | 26.4 | 36.5 | 50.6 | 58.2 | 67.7 | 74.7 | 71.2 | 60.1 | 47.2 | 41.3 | 35.2 | 50.2 |
| 2007 | 27.3 | 18.7 | 39.6 | 45.1 | 62.7 | 70.6 | 72.3 | 73.3 | 66.1 | 58.1 | 39.0 | 29.2 | 50.2 |
| 2008 | 26.6 | 22.3 | 32.8 | 50.5 | 55.5 | 68.9 | 72.2 | 70.7 | 64.7 | 49.9 | 39.0 | 26.2 | 48.3 |
| 2009 | 17.5 | 27.8 | 37.4 | 47.5 | 58.3 | 67.6 | 67.1 | 69.0 | 63.6 | 48.3 | 44.1 | 27.9 | 48.0 |
| 2010 | 25.1 | 27.2 | 41.2 | 53.7 | 61.6 | 69.2 | 75.5 | 74.9 | 62.7 | 53.6 | 41.8 | 27.4 | 51.2 |
| 2011 | 21.4 | 25.7 | 33.8 | 46.6 | 60.1 | 69.1 | 77.1 | 71.8 | 61.9 | 52.5 | 43.7 | 35.0 | 49.9 |
| 2012 | 29.7 | 31.9 | 50.7 | 48.3 | 63.2 | 70.8 | 79.3 | 70.9 | 63.0 | 50.8 | 40.1 | 35.1 | 52.8 |
| POR= 75 YRS | 23.3 | 24.4 | 34.1 | 46.7 | 58.0 | 67.3 | 72.0 | 70.0 | 61.8 | 51.0 | 38.7 | 28.1 | 47.9 |

## HEATING DEGREE DAYS (base 65°F) 2012 GRAND RAPIDS (KGRR)

| YEAR | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983-84 | 16 | 2 | 149 | 440 | 721 | 1413 | 1480 | 892 | 1107 | 532 | 353 | 13 | 7118 |
| 1984-85 | 16 | 4 | 189 | 333 | 735 | 1014 | 1431 | 1216 | 886 | 428 | 173 | 81 | 6506 |
| 1985-86 | 9 | 17 | 157 | 436 | 790 | 1316 | 1302 | 1186 | 871 | 466 | 214 | 75 | 6839 |
| 1986-87 | 11 | 56 | 118 | 452 | 894 | 1084 | 1220 | 978 | 849 | 440 | 178 | 20 | 6300 |
| 1987-88 | 18 | 36 | 118 | 610 | 712 | 1032 | 1364 | 1277 | 950 | 531 | 169 | 60 | 6877 |
| 1988-89 | 3 | 21 | 135 | 639 | 722 | 1162 | 1062 | 1263 | 1023 | 625 | 297 | 51 | 7003 |
| 1989-90 | 2 | 23 | 203 | 424 | 874 | 1477 | 1014 | 1026 | 865 | 549 | 306 | 45 | 6808 |
| 1990-91 | 11 | 15 | 139 | 475 | 645 | 1077 | 1323 | 997 | 830 | 430 | 157 | 18 | 6117 |
| 1991-92 | 5 | 4 | 211 | 404 | 871 | 1098 | 1155 | 1001 | 964 | 626 | 262 | 75 | 6676 |
| 1992-93 | 25 | 66 | 197 | 512 | 794 | 1060 | 1204 | 1203 | 1004 | 624 | 227 | 84 | 7000 |
| 1993-94 | 1 | 16 | 259 | 524 | 810 | 1150 | 1561 | 1274 | 950 | 520 | 297 | 42 | 7404 |
| 1994-95 | 0 | 46 | 94 | 405 | 675 | 980 | 1186 | 1165 | 860 | 659 | 265 | 28 | 6363 |
| 1995-96 | 14 | 0 | 212 | 417 | 982 | 1260 | 1337 | 1166 | 1130 | 653 | 320 | 29 | 7520 |
| 1996-97 | 10 | 2 | 147 | 451 | 944 | 1119 | 1338 | 1048 | 935 | 616 | 448 | 24 | 7082 |
| 1997-98 | 8 | 43 | 136 | 473 | 876 | 1046 | 1091 | 858 | 899 | 486 | 76 | 98 | 6090 |
| 1998-99 | 0 | 2 | 58 | 380 | 682 | 975 | 1353 | 940 | 989 | 481 | 156 | 49 | 6065 |
| 1999-00 | 1 | 17 | 116 | 474 | 634 | 1066 | 1282 | 971 | 706 | 567 | 213 | 64 | 6111 |
| 2000-01 | 15 | 19 | 199 | 348 | 815 | 1420 | 1218 | 1089 | 1001 | 444 | 189 | 80 | 6837 |
| 2001-02 | 20 | 1 | 194 | 449 | 538 | 955 | 1072 | 955 | 1048 | 561 | 399 | 43 | 6235 |
| 2002-03 | 0 | 4 | 69 | 559 | 857 | 1132 | 1416 | 1255 | 976 | 579 | 309 | 72 | 7228 |
| 2003-04 | 3 | 5 | 152 | 495 | 709 | 1025 | 1407 | 1135 | 789 | 462 | 194 | 53 | 6429 |
| 2004-05 | 7 | 50 | 61 | 443 | 733 | 1149 | 1334 | 1023 | 1082 | 433 | 321 | 15 | 6651 |
| 2005-06 | 4 | 3 | 56 | 404 | 727 | 1206 | 979 | 1073 | 876 | 426 | 264 | 20 | 6038 |
| 2006-07 | 0 | 0 | 163 | 547 | 706 | 919 | 1159 | 1290 | 787 | 589 | 137 | 25 | 6322 |
| 2007-08 | 2 | 11 | 83 | 263 | 770 | 1102 | 1185 | 1231 | 990 | 431 | 298 | 20 | 6386 |
| 2008-09 | 1 | 3 | 62 | 468 | 776 | 1194 | 1466 | 1035 | 850 | 524 | 216 | 47 | 6642 |
| 2009-10 | 25 | 28 | 80 | 513 | 622 | 1142 | 1229 | 1053 | 732 | 345 | 193 | 20 | 5982 |
| 2010-11 | 1 | 1 | 117 | 346 | 689 | 1160 | 1344 | 1095 | 962 | 551 | 204 | 25 | 6495 |
| 2011-12 | 0 | 0 | 157 | 385 | 631 | 922 | 1088 | 954 | 463 | 494 | 131 | 28 | 5253 |
| 2012- | 0 | 9 | 125 | 436 | 739 | 919 | | | | | | | |

WBAN : 94860

## COOLING DEGREE DAYS (base 65°F) 2012 GRAND RAPIDS (KGRR)

| YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 | 0 | 0 | 0 | 0 | 2 | 146 | 325 | 234 | 76 | 5 | 0 | 0 | 788 |
| 1984 | 0 | 0 | 0 | 7 | 5 | 174 | 179 | 259 | 60 | 6 | 0 | 0 | 690 |
| 1985 | 0 | 0 | 0 | 36 | 39 | 52 | 193 | 99 | 119 | 0 | 0 | 0 | 538 |
| 1986 | 0 | 0 | 0 | 14 | 26 | 64 | 252 | 94 | 61 | 0 | 0 | 0 | 511 |
| 1987 | 0 | 0 | 0 | 2 | 110 | 213 | 306 | 174 | 38 | 0 | 0 | 0 | 843 |
| 1988 | 0 | 0 | 0 | 0 | 50 | 170 | 310 | 289 | 29 | 2 | 0 | 0 | 850 |
| 1989 | 0 | 0 | 0 | 0 | 19 | 84 | 223 | 135 | 40 | 0 | 0 | 0 | 501 |
| 1990 | 0 | 0 | 6 | 37 | 6 | 115 | 185 | 144 | 83 | 13 | 0 | 0 | 589 |
| 1991 | 0 | 0 | 0 | 12 | 155 | 211 | 240 | 182 | 71 | 7 | 0 | 0 | 878 |
| 1992 | 0 | 0 | 0 | 2 | 36 | 60 | 99 | 74 | 44 | 1 | 0 | 0 | 316 |
| 1993 | 0 | 0 | 0 | 0 | 21 | 94 | 244 | 222 | 10 | 5 | 0 | 0 | 596 |
| 1994 | 0 | 0 | 0 | 13 | 29 | 159 | 196 | 102 | 65 | 1 | 0 | 0 | 565 |
| 1995 | 0 | 0 | 0 | 0 | 5 | 179 | 252 | 315 | 40 | 6 | 0 | 0 | 797 |
| 1996 | 0 | 0 | 0 | 0 | 33 | 118 | 116 | 230 | 74 | 0 | 0 | 0 | 571 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 131 | 194 | 81 | 26 | 13 | 0 | 0 | 445 |
| 1998 | 0 | 0 | 9 | 0 | 62 | 177 | 230 | 233 | 95 | 4 | 0 | 0 | 810 |
| 1999 | 0 | 0 | 0 | 3 | 39 | 186 | 308 | 110 | 55 | 0 | 0 | 0 | 701 |
| 2000 | 0 | 0 | 2 | 0 | 48 | 102 | 132 | 154 | 66 | 2 | 0 | 0 | 506 |
| 2001 | 0 | 0 | 0 | 0 | 27 | 128 | 223 | 212 | 30 | 3 | 0 | 0 | 623 |
| 2002 | 0 | 0 | 0 | 29 | 23 | 180 | 316 | 179 | 96 | 10 | 0 | 0 | 833 |
| 2003 | 0 | 0 | 0 | 8 | 3 | 69 | 165 | 205 | 46 | 1 | 0 | 0 | 497 |
| 2004 | 0 | 0 | 0 | 15 | 38 | 103 | 186 | 92 | 83 | 0 | 0 | 0 | 517 |
| 2005 | 0 | 0 | 0 | 4 | 8 | 259 | 255 | 234 | 112 | 30 | 0 | 0 | 902 |
| 2006 | 0 | 0 | 0 | 2 | 59 | 108 | 306 | 200 | 21 | 0 | 0 | 0 | 696 |
| 2007 | 0 | 0 | 5 | 1 | 73 | 199 | 234 | 279 | 124 | 56 | 0 | 0 | 971 |
| 2008 | 0 | 0 | 0 | 3 | 8 | 143 | 229 | 186 | 61 | 5 | 0 | 0 | 635 |
| 2009 | 0 | 0 | 0 | 6 | 16 | 129 | 97 | 160 | 47 | 0 | 0 | 0 | 455 |
| 2010 | 0 | 0 | 0 | 12 | 95 | 153 | 335 | 313 | 56 | 0 | 0 | 0 | 964 |
| 2011 | 0 | 0 | 0 | 5 | 59 | 151 | 381 | 218 | 73 | 7 | 0 | 0 | 894 |
| 2012 | 0 | 0 | 26 | 1 | 81 | 208 | 449 | 197 | 73 | 4 | 0 | 0 | 1039 |

## SNOWFALL (inches) 2012 GRAND RAPIDS (KGRR)

| YEAR | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983-84 | 0.0 | 0.0 | 0.0 | T | 4.7 | 34.8 | 19.6 | 1.6 | 10.6 | 0.1 | T | 0.0 | 71.4 |
| 1984-85 | 0.0 | 0.0 | 0.0 | 0.0 | T | 15.7 | 22.6 | 21.3 | 6.7 | 3.3 | 0.0 | 0.0 | 69.6 |
| 1985-86 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 30.7 | 18.4 | 20.2 | 6.1 | 0.2 | 0.0 | 0.0 | 79.1 |
| 1986-87 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 12.7 | 19.2 | 0.9 | 5.7 | 3.8 | 0.0 | 0.0 | 47.6 |
| 1987-88 | 0.0 | 0.0 | 0.0 | 1.6 | 0.7 | 18.2 | 21.9 | 18.1 | 3.4 | 0.3 | 0.0 | 0.0 | 64.2 |
| 1988-89 | 0.0 | 0.0 | 0.0 | 0.2 | 5.5 | 14.4 | 8.7 | 25.1 | 6.3 | 2.2 | T | 0.0 | 62.4 |
| 1989-90 | 0.0 | 0.0 | 0.0 | 5.8 | 19.4 | 25.2 | 10.6 | 23.8 | 2.7 | 2.1 | 0.2 | 0.0 | 89.8 |
| 1990-91 | T | 0.0 | 0.0 | T | 2.0 | 18.6 | 27.7 | 9.5 | 2.8 | T | 0.0 | 0.0 | 60.6 |
| 1991-92 | 0.0 | 0.0 | 0.0 | 0.3 | 25.3 | 27.9 | 13.4 | 3.5 | 15.1 | 2.3 | 0.0 | 0.0 | 87.8 |
| 1992-93 | 0.0 | 0.0 | 0.0 | 2.3 | 4.2 | 14.2 | 11.1 | 18.6 | 11.6 | 3.3 | 0.0 | 0.0 | 65.3 |
| 1993-94 | 0.0 | T | 0.0 | T | 1.9 | 17.7 | 25.3 | 29.6 | 1.9 | T | 0.1 | 0.0 | 76.5 |
| 1994-95 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 8.9 | 21.6 | 18.6 | 4.4 | 0.8 | 0.0 | 0.0 | 54.9 |
| 1995-96 | 0.0 | 0.0 | 0.0 | T | 20.8 | 17.4 | 13.5 | 6.9 | 19.3 | 1.8 | 0.0 | 0.0 | 79.7 |
| 1996-97 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 22.8 | 45.5 | 14.0 | 5.2 | 3.5 | T | 0.0 | 96.6 |
| 1997-98 | 0.0 | 0.0 | 0.0 | 2.4 | 10.1 | 11.5 | 20.3 | 0.5 | 13.8 | 0.0 | 0.0 | 0.0 | 58.6 |
| 1998-99 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 7.5 | 46.8 | 8.0 | 14.2 | T | T | 0.0 | 76.7 |
| 1999-00 | 0.0 | 0.0 | 0.0 |  | 0.1 | 18.4 | 15.7 | 11.5 | 0.6 | 6.8 | T | 0.0 |  |
| 2000-01 | 0.0 | 0.0 | 0.0 | 0.0 | 19.0 | 59.2 | 4.1 | 7.4 | 4.1 | 0.2 | T | 0.0 | 94.0 |
| 2001-02 | 0.0 | 0.0 | 0.0 | 0.5 | T | 53.9 | 17.5 | 7.5 | 22.6 | 2.0 | T | T | 104.0 |
| 2002-03 | 0.0 | 0.0 | 0.0 | T | 7.6 | 15.6 | 30.2 | 18.9 | 14.4 | 1.3 | T | T | 88.0 |
| 2003-04 | 0.0 | 0.0 | T | T | 4.3 | 8.4 | 44.2 | 13.0 | 3.9 | 0.2 | T | 0.0 | 74.0 |
| 2004-05 | 0.0 | 0.0 | 0.0 | T | 10.3 | 13.1 | 27.8 | 15.1 | 14.4 | 1.0 | T | T | 81.7 |
| 2005-06 | 0.0 | 0.0 | 0.0 | 0.0 | 17.3 | 28.9 | 9.6 | 10.1 | 3.3 | T | 0.0 | 0.0 | 69.2 |
| 2006-07 | 0.0 | 0.0 | 0.0 | 2.1 | 0.3 | 11.6 | 15.4 | 33.6 | 13.6 | 6.7 | 0.0 | 0.0 | 83.3 |
| 2007-08 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 25.0 | 28.3 | 41.6 | 9.2 | T | 0.0 | 0.0 | 107.0 |
| 2008-09 | 0.0 | 0.0 | 0.0 | T | 10.0 | 54.6 | 29.9 | 10.0 | 0.4 | T | 0.0 | 0.0 | 104.9 |
| 2009-10 | 0.0 | 0.0 | 0.0 | T | 0.7 | 35.4 | 9.3 | 24.8 | 2.0 | T | 0.0 | 0.0 | 72.2 |
| 2010-11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 11.4 | 21.2 | 38.2 | 1.2 | 1.9 | 0.0 | 0.0 | 74.0 |
| 2011-12 | 0.0 | 0.0 | 0.0 | T | 0.7 | 4.5 | 27.0 | 16.2 | 2.8 | T | T | 0.0 | 51.2 |
| 2012- | 0.0 | 0.0 | 0.0 | T | 0.3 | 7.2 |  |  |  |  |  |  |  |
| POR= 68 YRS | T | T | T | 0.4 | 7.2 | 17.8 | 20.7 | 13.3 | 9.9 | 2.3 | 0.1 | T | 71.7 |

WBAN : 94860

## REFERENCE NOTES :

PAGE 1:
THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).
PAGE 2 AND 3:
H/C INDICATES HEATING AND COOLING DEGREE DAYS.
RH INDICATES RELATIVE HUMIDITY
W/O INDICATES WEATHER AND OBSTRUCTIONS
S INDICATES SUNSHINE.
PR INDICATES PRESSURE.
CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).
GENERAL:
T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE.
+ INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES.
BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA.
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.
GENERAL CONTINUED:
WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH.
RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION.
AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2.
SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL.
A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F.
DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR.
DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY.
WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.
ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.
STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED SATION HISTORY INFORMATION GO TO "Historical Observing Metadata Repository", URL IS:
http://www.ncdc.noaa.gov/homr/
SNOWFALL STOPPED MONTH & YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.

### NOTE:

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.

The 2012 Annual Publications were reproduced on 6/05/13 to correct two problems that occurred when the Publications were first produced on 02/28/13.

1) A small number of stations did not correctly show number of days with thunderstorms and heavy fog.
2) Climate Normals in the Annual Publications were based on a first edition of the 1981-2010 Normals release. With the release of Service Pack 1 (SP1) new normals for 83 stations are available and now included. Additional information on SP1 is available at: http://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/status.txt.

# 2012
# GRAND RAPIDS
# MICHIGAN (KGRR)

Grand Rapids, Michigan, is located in the west-central part of Kent County, in the picturesque Grand River valley about 30 air miles east of Lake Michigan. The Grand River, the longest stream in Michigan, flows through the city and bisects it into east and west sections. High hills rise on either side of the valley. Elevations range from 602 feet on the valley floor to 1,020 feet in the extreme southern part of Kent County, southwest of the airport.

Grand Rapids is under the natural climatic influence of Lake Michigan. In spring the cooling effect of Lake Michigan helps retard the growth of vegetation until the danger of frost has passed. The warming effect in the fall retards frost until most of the crops have matured. Fall is a colorful time of year in western Michigan, compensating for the late spring. During the winter, excessive cloudiness and numerous snow flurries occur with strong westerly winds. The tempering effect of Lake Michigan on cold waves coming in from the west and northwest is quite evident.

The tempering effect of the lake promotes the growth of a great variety of fruit trees and berries, especially apples, peaches, cherries, and blueberries. The intense cold of winter is modified, thus reducing winter kill of fruit trees. Summer days are pleasantly warm and most summer nights are quite comfortable, although there are about three weeks of hot, humid weather during most summers. Prolonged severe cold waves with below-zero temperatures are infrequent. The temperature usually rises to above zero during the daytime hours regardless of early morning readings.

July is the sunniest month and December is the month with the least sunshine. November through January is usually a period of excessive cloudiness and minimal sunshine.

Precipitation is usually ample for the growth and development of all vegetation. About one-half of the annual precipitation falls during the growing season, May through September. Droughts occur occasionally, but are seldom of protracted length. The snowfall season extends from mid-November to mid-March. Some winters have had continuous snow cover throughout this period, although there is usually a mid-winter thaw. The Grand River flows through the city and reaches critical heights a couple of times each year, generally once in January-February and again in March-April. Overflow is generally limited to the lowlands of the flood plain.

November is one of the windiest months and although violent windstorms are infrequent, gusts have on occasion exceeded 65 mph. Summer thunderstorms occasionally produce gusty winds over 60 mph.

# Station History

GRAND RAPIDS, MI

| NAME | Begin Date | End Date | Latitude | Longitude | Elevation Feet | Relocation | Platform |
|---|---|---|---|---|---|---|---|
| GRAND RAPIDS KENT COUNTY AP | 1963-11-01 | 1964-01-01 | 42° 52' | -85° 31' | 784 | | COOP |
| GRAND RAPIDS KENT COUNTY AP | 1973-01-01 | 1981-06-17 | 42° 52' | -85° 31' | 784 | | COOP,WXSVC |
| GRAND RAPIDS KENT COUNTY INTL AP | 1999-05-27 | 2000-01-01 | 42° 52' | -85° 31' | 803 | | ASOS,COOP,WXSVC |
| GRAND RAPIDS KENT COUNTY AP | 1964-01-01 | 1973-01-01 | 42° 52' | -85° 31' | 784 | | AIRWAYS,COOP |
| GRAND RAPIDS KENT COUNTY INTL AP | 1981-06-17 | 1995-08-01 | 42° 52' | -85° 31' | 784 | | COOP,WXSVC |
| GRAND RAPIDS GERALD R FORD INTL AP | 2009-06-24 | Present | 42° 52' | -85° 31' | 803 | | ASOS,COOP,WXSVC |
| GRAND RAPIDS KENT COUNTY INTL AP | 1995-08-01 | 1999-05-27 | 42° 52' | -85° 31' | 793 | | ASOS,COOP,WXSVC |
| GRAND RAPIDS KENT COUNTY INTL AP | 2000-01-01 | 2000-08-25 | 42° 52' | -85° 31' | 803 | | ASOS,COOP,WXSVC |
| GRAND RAPIDS GERALD R FORD INTL AP | 2000-08-25 | 2009-06-24 | 42° 52' | -85° 31' | 803 | | ASOS,COOP,WXSVC |

# Element History

| Element | Begin Date | End Date | Frequency | Time Of Observation | Equipment * | Equipment * Modifications | Equipment Exposure |
|---|---|---|---|---|---|---|---|
| TEMP | 1963-11-01 | 1982-01-01 | DAILY | 2400 | | | |
| PRECIP | 1982-01-01 | 1986-10-17 | HOURLY | 2400 | | | |
| TEMP | 1995-07-01 | 1999-05-27 | DAILY | 2400 | MXMN | | |
| PRECIP | 1999-05-27 | 2000-01-01 | DAILY | 2400 | TB | RCRD | |
| PRECIP | 2000-01-01 | Present | DAILY | 2400 | SRG | | |
| PRECIP | 1963-11-01 | 1982-01-01 | DAILY | | UNIV | RCRD | |
| TEMP | 1982-01-01 | 1986-10-17 | DAILY | 2400 | | | |
| PRECIP | 1986-10-17 | 1995-07-01 | DAILY | | UNIV | RCRD | |
| TEMP | 1986-10-17 | 1995-07-01 | DAILY | 2400 | MXMN | | |
| PRECIP | 1986-10-17 | 1995-07-01 | HOURLY | 2400 | | | |
| TEMP | 2000-01-01 | Present | DAILY | 2400 | HYGR | | |
| PRECIP | 2000-01-01 | 2009-06-24 | DAILY | VAR | SRG | | |
| PRECIP | 1995-07-01 | 1999-05-27 | HOURLY | 2400 | UNIV | RCRD | |
| PRECIP | 1999-05-27 | 2000-01-01 | HOURLY | 2400 | TB | RCRD | |
| PRECIP | 1995-07-01 | 1999-05-27 | DAILY | 2400 | UNIV | RCRD | |
| PRECIP | 1982-01-01 | 1986-10-17 | DAILY | | UNIV | RCRD | |
| TEMP | 1999-05-27 | 2000-01-01 | DAILY | 2400 | HYGR | | |
| PRECIP | 2000-01-01 | 2009-06-24 | HOURLY | VAR | AWPAG | RCRD;HTD | |
| PRECIP | 2000-01-01 | Present | HOURLY | 2400 | AWPAG | RCRD;HTD | |

* For explanation of codes and abbrevitions 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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