



APRIL 2002

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

DULUTH, MN

INTERNATIONAL AIRPORT (DLH)

Lat: 46°50' N Long: 92°11' W Elev (Ground): 1426 Feet

Time Zone: CENTRAL WBAN: 14913 ISSN #:0198-2702

| DATE | TEMPERATURE °F | | | | | | DEG DAYS BASE 65° | | WEATHER | SNOW/ICE ON GND(IN) | | PRECIPITATION (INCHES) | | PRESSURE (INCHES OF HG) | | WIND SPEED = MPH DIR = TENS OF DEGREES | | | | | | | | DATE | |
|---|----------------|---------|---------|--------------------|-------------------|---------------------|----------------------|---------|---|-----------------------------------|-----------------------|---------------------------|------------------------------|----------------------------|-------------------------|---|--|------------------|--------------------------------|------|---------------------|-----|----|------|--|
| | MAXIMUM | MINIMUM | AVERAGE | DEP FROM NORMAL | AVERAGE DEW PT | AVERAGE WET BULB | HEATING | COOLING | | 0600 LST | 1200 LST | 2400 LST | 2400 LST | AVERAGE STATION | AVERAGE SEA LEVEL | RESULTANT SPEED | RES DIR | AVERAGE SPEED | MAXIMUM | | | | | | |
| | | | | | | | | | | | | | | | | | | | 5-SEC | | 2-MIN | | | | |
| | | | | | | | | | | | | | | | | | | | SPEED | DIR | SPEED | DIR | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | |
| 01 | 32 | 7* | 20* | -12 | 16 | 22 | 45 | 0 | | 6 | | 0.0 | 0.00 | 28.40 | 29.98 | 2.2 | 14 | 4.1 | 14 | 10 | 12 | 09 | 01 | | |
| 02 | 34 | 23 | 29 | -4 | 23 | 26 | 36 | 0 | SN FZFG BR | 6 | | 0.9 | 0.06 | 28.47 | 30.04 | 6.6 | 01 | 8.5 | 24 | 34 | 18 | 32 | 02 | | |
| 03 | 26 | 21 | 24 | -9 | 14 | 21 | 41 | 0 | SN BR UP HZ | 6 | | 0.1 | T | 28.78 | 30.37 | 8.3 | 34 | 8.4 | 22 | 34 | 17 | 01 | 03 | | |
| 04 | 28 | 21 | 25 | -9 | 16 | 22 | 40 | 0 | SN | 5 | | T | T | 28.86 | 30.46 | 3.4 | 28 | 4.6 | 17 | 26 | 15 | 28 | 04 | | |
| 05 | 33 | 15 | 24 | -10 | 15 | 22 | 41 | 0 | SN HZ | 5 | | T | T | 28.83 | 30.42 | 6.0 | 33 | 6.8 | 31 | 31 | 18 | 32 | 05 | | |
| 06 | 39 | 13 | 26 | -9 | 18 | 26 | 39 | 0 | | 5 | | 0.0 | 0.00 | 28.60 | 30.18 | 11.3 | 18 | 11.7 | 33 | 21 | 28 | 21 | 06 | | |
| 07 | 56 | 36 | 46 | 11 | 32 | 39 | 19 | 0 | | 5 | | 0.0 | 0.00 | 28.20 | 29.72 | 5.3 | 25 | 10.4 | 31 | 22 | 24 | 22 | 07 | | |
| 08 | 40 | 33 | 37 | 1 | 30 | 33 | 28 | 0 | BR | 2 | | 0.0 | 0.00 | 28.42 | 29.97 | 5.0 | 04 | 7.7 | 21 | 07 | 16 | 10 | 08 | | |
| 09 | 46 | 31 | 39 | 3 | 26 | 33 | 26 | 0 | RA BR | 2 | | 0.0 | 0.03 | 28.67 | 30.23 | 5.0 | 27 | 7.2 | 21 | 22 | 17 | 22 | 09 | | |
| 10 | 37 | 32 | 35 | -1 | 35 | 35 | 30 | 0 | RA SN FG+ BR UP | 0 | | 1.4 | 1.32 | 28.66 | 30.22 | 14.6 | 10 | 15.0 | 33 | 10 | 28 | 10 | 10 | | |
| 11 | 40 | 34 | 37 | 0 | 37 | 37 | 28 | 0 | RA FG+ BR | T | | 0.0 | 0.12 | 28.43 | 29.98 | 4.2 | 06 | 6.2 | 25 | 09 | 21 | 09 | 11 | | |
| 12 | 61 | 31 | 46 | 9 | 40 | 44 | 19 | 0 | BR | T | | 0.0 | 0.00 | 28.54 | 30.09 | 6.2 | 28 | 7.3 | 18 | 27 | 15 | 26 | 12 | | |
| 13 | 64 | 44 | 54 | 16 | 44 | 48 | 11 | 0 | RA BR HZ | 0 | | 0.0 | 0.01 | 28.49 | 30.01 | 7.8 | 19 | 9.3 | 21 | 18 | 17 | 17 | 13 | | |
| 14 | 71* | 44 | 58* | 20 | 45 | 50 | 7 | 0 | RA BR | 0 | | 0.0 | 0.05 | 28.04 | 29.54 | 7.7 | 23 | 11.5 | 26 | 28 | 22 | 27 | 14 | | |
| 15 | 62 | 40 | 51 | 12 | 45 | 47 | 14 | 0 | BR | 0 | | 0.0 | 0.00 | 28.08 | 29.58 | 10.9 | 12 | 11.2 | 25 | 11 | 22 | 11 | 15 | | |
| 16 | 64 | 38 | 51 | 12 | 48 | 50 | 14 | 0 | TSRA RA FG+ BR | 0 | | 0.0 | 0.01 | 28.07 | 29.58 | 10.3 | 13 | 10.8 | 29 | 28 | 24 | 26 | 16 | | |
| 17 | 60 | 46 | 53 | 13 | 40 | 47 | 12 | 0 | RA | 0 | | 0.0 | T | 28.36 | 29.87 | 15.4 | 27 | 16.5 | 37 | 27 | 31 | 28 | 17 | | |
| 18 | 50 | 35 | 43 | 3 | 40 | 43 | 22 | 0 | TS TSRA RA BR | 0 | | 0.0 | 0.20 | 28.28 | 29.81 | 8.7 | 07 | 12.7 | 35 | 08 | 30 | 09 | 18 | | |
| 19 | 41 | 30 | 36 | -5 | 26 | 31 | 29 | 0 | RA | 0 | | 0.0 | T | 28.66 | 30.22 | 11.3 | 35 | 11.5 | 26 | 35 | 21 | 34 | 19 | | |
| 20 | 43 | 25 | 34 | -7 | 20 | 29 | 31 | 0 | | 0 | | 0.0 | 0.00 | 28.74 | 30.32 | 5.2 | 07 | 8.5 | 21 | 03 | 15 | 12 | 20 | | |
| 21 | 34 | 24 | 29 | -13 | 22 | 27 | 36 | 0 | SN FZFG BR | 0 | | 2.1 | 0.16 | 28.59 | 30.16 | 14.2 | 09 | 14.5 | 32 | 10 | 26 | 08 | 21 | | |
| 22 | 43 | 23 | 33 | -9 | 22 | 28 | 32 | 0 | SN BR | 1 | | 0.3 | T | 28.56 | 30.13 | 2.7 | 20 | 6.0 | 17 | 17 | 16 | 19 | 22 | | |
| 23 | 52 | 29 | 41 | -1 | 32 | 37 | 24 | 0 | | 0 | | 0.0 | 0.00 | 28.40 | 29.95 | 10.3 | 15 | 10.6 | 18 | 15 | 16 | 13 | 23 | | |
| 24 | 52 | 27 | 40 | -3 | 34 | 37 | 25 | 0 | TS RA SN BR | 0 | | T | 0.06 | 28.22 | 29.74 | 13.0 | 30 | 17.8 | 40 | 29 | 31 | 30 | 24 | | |
| 25 | 34 | 23 | 29 | -14 | 18 | 25 | 36 | 0 | SN FZFG BR UP | 1 | | 0.7 | 0.05 | 28.49 | 30.06 | 18.5 | 31 | 18.8 | 40* | 31 | 32* | 29 | 25 | | |
| 26 | 46 | 21 | 34 | -10 | 12 | 27 | 31 | 0 | | 0 | | 0.0 | 0.00 | 28.72 | 30.29 | 5.4 | 33 | 9.0 | 22 | 30 | 17 | 29 | 26 | | |
| 27 | 36 | 31 | 34 | -10 | 28 | 31 | 31 | 0 | SN FG+ BR UP | T | | 5.2 | 0.52 | 28.53 | 30.09 | 17.2 | 10 | 17.8 | 37 | 09 | 29 | 09 | 27 | | |
| 28 | 35 | 31 | 33 | -12 | 30 | 32 | 32 | 0 | SN BR | 3 | | 0.6 | 0.02 | 28.41 | 29.96 | 5.5 | 10 | 8.9 | 32 | 08 | 26 | 09 | 28 | | |
| 29 | 52 | 33 | 43 | -2 | 32 | 37 | 22 | 0 | RA SN BR | 0 | | 0.3 | 0.11 | 28.26 | 29.80 | 10.5 | 29 | 12.7 | 39 | 30 | 31 | 30 | 29 | | |
| 30 | 50 | 30 | 40 | -6 | 28 | 35 | 25 | 0 | | 0 | | 0.0 | 0.00 | 28.33 | 29.87 | 7.5 | 31 | 8.3 | 20 | 26 | 16 | 30 | 30 | | |
| 45.4 29.0 37.2 ■■ | | | | | | | | | | < MONTHLY AVERAGES TOTALS-> | | | | 11.6 | 2.72 | 28.47 | 30.02 | 0.6 | 36 | 10.5 | <- MONTHLY AVERAGES | | | | |
| -3.6 0.1 -1.8 ■■ | | | | | | | | | | <-----DEPARTURE FROM NORMAL-----> | | | | | | 0.63 | SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3 | | | | | | | | |
| DEGREE DAYS | | | | | | | | | GREATEST 24-HR PRECIPITATION: 1.32 DATE :10 | | | | SEA LEVEL PRESSURE DATE TIME | | | | | | | | | | | | |
| MONTHLY TOTAL DEPARTURE 826 34 | | | | | | | | | GREATEST 24-HR SNOWFALL: 5.2 DATE :27 | | | | MAXIMUM : 30.50 04 0655 | | | | | | | | | | | | |
| SEASON TO DATE TOTAL DEPARTURE 8089 -1114 | | | | | | | | | GREATEST SNOW DEPTH: 6 DATE :03+ | | | | MINIMUM : 29.42 14 1555 | | | | | | | | | | | | |
| HEATING: 826 34 | | | | | | | | | NUMBER OF DAYS WITH → | | MAXIMUM TEMP ≥ 90: 0 | | | | MINIMUM TEMP ≤ 32 : 20 | | | | PRECIPITATION ≥ 0.01 INCH : 14 | | | | | | |
| COOLING: 0 0 | | | | | | | | | | | MAXIMUM TEMP ≤ 32 : 3 | | | | MINIMUM TEMP ≤ 0 : 0 | | | | PRECIPITATION ≥ 0.10 INCH : 6 | | | | | | |
| | | | | | | | | | | | THUNDERSTORMS : 3 | | | | HEAVY FOG : 4 | | | | SNOWFALL ≥ 1.0 INCH : 3 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

APRIL 2002
DULUTH, MN

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

DULUTH, MN

APRIL 2002

DLH

WBAN # 14913

| DATE | FOR HOUR (LST) ENDING AT | | | | | | | | | | | | DATE | FOR HOUR (LST) ENDING AT | | | | | | | | | | | | DATE | Sum if Different (See Note) | 2400 LST | |
|------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------------------|-----------------|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | Water Equiv. | |
| 01 | | | | | | | | | | | | | 01 | | | | | | | | | | | | 01 | | | 0.00 | |
| 02 | | T | T | T | T | T | T | T | T | 0.02 | T | T | 02 | 0.01 | 0.02 | 0.02 | T | 0.01 | | | | | T | T | 02 | 0.08 | | 0.06 | |
| 03 | T | | | | T | | | | | T | T | | 03 | | | | | | | | | | | | 03 | | | T | |
| 04 | | | | | T | | | T | | T | T | | 04 | T | | | | T | T | T | | T | | | 04 | | | T | |
| 05 | | | | | | | | | | | | | 05 | | | | | | | | | | | | 05 | | | T | |
| 06 | | | | | | | | | | | | | 06 | | | | | | | | | | | | 06 | | | 0.00 | |
| 07 | | | | | | | | | | | | | 07 | | | | | | | | | | | | 07 | | | 0.00 | |
| 08 | | | | | | | | | | | | | 08 | | | | | | | | | | | | 08 | | | 0.00 | |
| 09 | | | | | | | | | | | | | 09 | | | | | | | | | T | T | T | 09 | 0.02 | 0.03 | 0.03 | |
| 10 | 0.05 | 0.08 | 0.04 | 0.01 | 0.02 | T | | | | 0.01 | 0.03 | 0.14 | 10 | 0.07 | 0.06 | 0.04 | 0.02 | 0.01 | 0.12 | 0.20 | 0.24 | 0.11 | 0.03 | T | 0.02 | 1.30 | 1.32 | 1.32 | |
| 11 | | | | | | | | | | | 0.01 | 0.05 | 11 | 0.06 | 0.04 | T | | | | | | | | | 11 | 0.16 | 0.12 | | |
| 12 | | | | | | | | | | | | | 12 | | | | | | | | | | | | 12 | | 0.00 | | |
| 13 | | | | | | | | | | | | | 13 | | | | | | | | 0.01 | T | | 0.01 | 13 | 0.02 | 0.01 | 0.01 | |
| 14 | | | | | | T | T | 0.05 | T | | | | 14 | | | | | | | | | | | | 14 | | | 0.05 | |
| 15 | | | | | | | | | | | | | 15 | | | | | | | | | | | | 15 | | | 0.00 | |
| 16 | | | | | | | | | | | | | 16 | | | | | | | | | | | 0.01 | 16 | | | 0.01 | |
| 17 | T | 0.01 | T | | | | | | | | | | 17 | | | | | | | | | | | | 17 | 0.01 | T | T | |
| 18 | | | | 0.02 | 0.04 | 0.14 | 0.02 | 0.04 | | | | | 18 | | | | | | | | | | T | 0.01 | T | 18 | 0.27 | 0.20 | |
| 19 | T | T | | | | | | | | | | | 19 | | | | | | | | | | | | 19 | | | T | |
| 20 | | | | | | | | | | | | | 20 | | | | | | | | | | | | 20 | | | 0.00 | |
| 21 | | | | | | | | | | | | | 21 | | | T | T | T | T | T | T | T | T | T | 21 | T | 0.16 | | |
| 22 | T | T | T | T | | | | 0.04 | 0.07 | | | | 22 | | | | | | | | | | | | 22 | 0.11 | T | T | |
| 23 | | | | | | | | | | | | | 23 | | | | | | | | | | | | 23 | | | 0.00 | |
| 24 | | | T | T | T | T | 0.01 | T | T | 0.03 | T | T | 24 | 0.02 | T | | | | T | T | T | T | T | | 24 | | | 0.06 | |
| 25 | | | | | | | | | | T | T | T | 25 | T | T | | | | | | | | | | 25 | T | | 0.05 | |
| 26 | | | | | | | | | | | | | 26 | | | | | | | | | | | | 26 | | | 0.00 | |
| 27 | | | | | | T | T | T | 0.01 | T | T | T | 27 | T | 0.02 | T | T | T | T | 0.01 | T | T | T | T | 27 | 0.04 | 0.52 | 0.02 | |
| 28 | T | T | | T | 0.03 | 0.01 | T | 0.02 | 0.02 | | | | 28 | | | | | T | T | | | T | 0.01 | 0.01 | 28 | 0.06 | 0.02 | 0.02 | |
| 29 | T | 0.02 | T | T | | | | | | | | | 29 | 0.04 | 0.01 | | | T | T | 0.01 | T | | | | 29 | 0.12 | 0.11 | 0.00 | |
| 30 | | | | | | | | | | | | | 30 | | | | | | | | | | | | 30 | | | 0.00 | |

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

| Time Period (Minutes) | 5 | 10 | 15 | 20 | 30 | 45 | 60 | 80 | 100 | 120 | 150 | 180 |
|------------------------|---|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Precipitation (Inches) | | | | | | | | | | | | |
| Ending Date | | | | | | | | | | | | |
| Ending Time (Hour/Min) | | | | | | | | | | | | |

Date and time are not entered for TRACE amounts.

Note : The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

* = Extreme for the month (last occurrence if more than one)
T = Trace precipitation amount
+ = also occurs on earlier date
FG+ = Heavy fog, visibility .25 miles or less
BLANK entries denote missing or unreported data

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

WEATHER NOTATIONS

**DULUTH, MN
APRIL 2002**

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0–2 oktas, Partly Cloudy = 3–6 oktas, Cloudy = 7–8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

| DATE | SUNSHINE | | CLOUDINESS (OKTAS) | | | | VISIBILITY (MILES) | | RESERVED |
|---|------------------|---------------------|-----------------------|-----------|------------|-----------|-----------------------|---------|----------|
| | TOTAL MINUTES | PERCENT POSSIBLE | SR—SS | | MN—MN | | MINIMUM | MAXIMUM | |
| | | | CEILOMETER | SATELLITE | CEILOMETER | SATELLITE | | | |
| 01 | | | | | | | 9.00 | 10.00 | |
| 02 | | | | | | | .50 | 10.00 | |
| 03 | | | | | | | .75 | 10.00 | |
| 04 | | | | | | | 5.00 | 10.00 | |
| 05 | | | | | | | 2.00 | 10.00 | |
| 06 | | | | | | | 7.00 | 10.00 | |
| 07 | | | | | | | 7.00 | 10.00 | |
| 08 | | | | | | | 6.00 | 10.00 | |
| 09 | | | | | | | 6.00 | 10.00 | |
| 10 | | | | | | | .25 | 8.00 | |
| 11 | | | | | | | .25 | 10.00 | |
| 12 | | | | | | | 5.00 | 10.00 | |
| 13 | | | | | | | 5.00 | 10.00 | |
| 14 | | | | | | | 1.00 | 10.00 | |
| 15 | | | | | | | 1.25 | 10.00 | |
| 16 | | | | | | | .25 | 10.00 | |
| 17 | | | | | | | 9.00 | 10.00 | |
| 18 | | | | | | | 3.00 | 10.00 | |
| 19 | | | | | | | .00 | 10.00 | |
| 20 | | | | | | | 10.00 | 10.00 | |
| 21 | | | | | | | .50 | 10.00 | |
| 22 | | | | | | | 1.75 | 10.00 | |
| 23 | | | | | | | 10.00 | 10.00 | |
| 24 | | | | | | | 1.75 | 10.00 | |
| 25 | | | | | | | .50 | 10.00 | |
| 26 | | | | | | | 10.00 | 10.00 | |
| 27 | | | | | | | .25 | 10.00 | |
| 28 | | | | | | | 1.75 | 10.00 | |
| 29 | | | | | | | 1.00 | 10.00 | |
| 30 | | | | | | | 10.00 | 10.00 | |
| MONTHLY AVGS | | | | | | | 4.36 | 9.93 | |
| <p align="center">SUNSHINE (MINUTES)</p> <p>Total: Possible:</p> <p> Percent Possible:</p> | | | | | | | | | |
| <p align="center">NUMBER OF DAYS WITH:</p> <p align="center">SKY CONDITION</p> <p align="center">CLR PTLY CLDY CLOUDY MISSING</p> <p align="center">30</p> <p align="center">MINIMUM VISIBILITY (MILES)</p> <p align="center"><=0.25 <=3.0 >=7.0</p> <p align="center">3 15 9</p> | | | | | | | | | |

DULUTH, MN

APRIL 2002

DLH

WBAN # 14913

| Hour (LST) | | | SATELLITE | | Weather | Temperature °F | | | Relative Humidity (Pct) | Wind | | Pressure (Inches,Hg) | | Hour (LST) | | | SATELLITE | | Weather | Temperature °F | | | Relative Humidity (Pct) | Wind | | Pressure (Inches,Hg) | | | |
|---|-----------|----------------------|------------------------|-----------------------------|----------|---|----------|-----------|-------------------------|----------|-------------|--------------------------|---------|------------|-----------|-----------|----------------------|------------------------|---------|-----------------------------|--------------------|----------|-------------------------|-----------|----------|----------------------|--------------------------|---------|-----------|
| | Sky Cover | Ceiling 100's Off Ft | Observation Time (LST) | Eff Cld Amt <i>Oktas</i> | | Visibility (Miles) | Dry Bulb | Dew Point | | Wet Bulb | Speed (MPH) | Direction Tens of Deg | Station | | Sea Level | Sky Cover | Ceiling 100's Off Ft | Observation Time (LST) | | Eff Cld Amt <i>Oktas</i> | Visibility (Miles) | Dry Bulb | | Dew Point | Wet Bulb | Speed (MPH) | Direction Tens of Deg | Station | Sea Level |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sunrise: 0548 APR 01 Sunset: 1837 | | | | | | Sunrise: 0537 APR 07 Sunset: 1845 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CLR | NC | | 10.00 | | 15 | 11 | 14 | 84 | 0 | 00 | 28.43 | 30.01 | 03 | OVC | 050 | | 10.00 | 41 | 28 | 36 | 60 | 18 | 23 | 28.14 | 29.67 | | | |
| 06 | CLR | NC | | 10.00 | | 11 | 9 | 10 | 92 | 0 | 00 | 28.43 | 30.02 | 06 | OVC | 032 | | 9.00 | 40 | 30 | 36 | 68 | 13 | 23 | 28.14 | 29.67 | | | |
| 09 | CLR | NC | | 10.00 | | 25 | 15 | 22 | 66 | 9 | 18 | 28.43 | 30.00 | 09 | OVC | 025 | | 8.00 | 44 | 33 | 39 | 65 | 12 | 24 | 28.16 | 29.69 | | | |
| 12 | CLR | NC | | 10.00 | | 29 | 16 | 25 | 58 | 0 | 00 | 28.40 | 29.98 | 12 | CLR | NC | | 7.00 | 49 | 37 | 43 | 64 | 7 | 24 | 28.19 | 29.71 | | | |
| 15 | CLR | NC | | 10.00 | | 32 | 17 | 27 | 54 | 3 | VR | 28.36 | 29.93 | 15 | CLR | NC | | 10.00 | 55 | 36 | 46 | 49 | 3 | VR | 28.18 | 29.70 | | | |
| 18 | BKN | 075 | | 10.00 | | 31 | 18 | 27 | 59 | 6 | 13 | 28.37 | 29.96 | 18 | CLR | NC | | 10.00 | 52 | 32 | 43 | 47 | 8 | 02 | 28.21 | 29.72 | | | |
| 21 | OVC | 050 | | 10.00 | | 28 | 21 | 26 | 75 | 6 | 13 | 28.40 | 29.96 | 21 | CLR | NC | | 10.00 | 41 | 30 | 36 | 65 | 7 | 02 | 28.26 | 29.80 | | | |
| 24 | OVC | 060 | | 9.00 | | 28 | 24 | 27 | 85 | 7 | 11 | 28.38 | 29.95 | 24 | CLR | NC | | 10.00 | 37 | 29 | 34 | 73 | 7 | 05 | 28.30 | 29.83 | | | |
| Sunrise: 0546 APR 02 Sunset: 1838 | | | | | | Sunrise: 0535 APR 08 Sunset: 1846 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 021 | | 2.00 | -SN BR | 27 | 24 | 26 | 89 | 8 | 09 | 28.40 | 29.96 | 03 | BKN | 009 | | 9.00 | 34 | 31 | 33 | 89 | 12 | 09 | 28.30 | 29.83 | | | |
| 06 | OVC | 024 | | 3.00 | -SN BR | 26 | 24 | 25 | 92 | 8 | 03 | 28.42 | 29.98 | 06 | OVC | 007 | | 6.00 | BR | 33 | 31 | 32 | 92 | 6 | 04 | 28.37 | 29.91 | | |
| 09 | OVC | 018 | | 2.50 | -SN BR | 28 | 25 | 27 | 88 | 7 | 03 | 28.43 | 30.00 | 09 | OVC | 011 | | 7.00 | | 36 | 31 | 34 | 82 | 5 | 09 | 28.41 | 29.95 | | |
| 12 | OVC | 025 | | 2.00 | -SN | 31 | 26 | 29 | 82 | 5 | 16 | 28.44 | 30.00 | 12 | OVC | 015 | | 10.00 | | 37 | 31 | 35 | 79 | 6 | 02 | 28.42 | 29.96 | | |
| 15 | OVC | 020 | | 0.50 | -SN FZFG | 31 | 28 | 30 | 89 | 12 | 35 | 28.47 | 30.03 | 15 | OVC | 035 | | 10.00 | | 37 | 31 | 35 | 79 | 10 | 14 | 28.44 | 29.98 | | |
| 18 | BKN | 050 | | 10.00 | | 30 | 19 | 26 | 64 | 13 | 35 | 28.51 | 30.09 | 18 | OVC | 037 | | 10.00 | | 38 | 31 | 35 | 76 | 0 | 00 | 28.46 | 30.01 | | |
| 21 | CLR | NC | | 10.00 | | 26 | 18 | 23 | 71 | 13 | 35 | 28.59 | 30.17 | 21 | OVC | 033 | | 10.00 | | 35 | 27 | 32 | 72 | 7 | 36 | 28.51 | 30.07 | | |
| 24 | OVC | 041 | | 10.00 | | 23 | 18 | 21 | 81 | 13 | 35 | 28.63 | 30.21 | 24 | OVC | 035 | | 10.00 | | 33 | 26 | 30 | 75 | 9 | 35 | 28.55 | 30.11 | | |
| Sunrise: 0544 APR 03 Sunset: 1839 | | | | | | Sunrise: 0533 APR 09 Sunset: 1847 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 049 | | 10.00 | | 22 | 16 | 20 | 78 | 7 | 34 | 28.67 | 30.25 | 03 | OVC | 033 | | 10.00 | | 32 | 25 | 29 | 75 | 6 | 35 | 28.58 | 30.15 | | |
| 06 | OVC | 045 | | 10.00 | | 21 | 16 | 20 | 81 | 8 | 34 | 28.73 | 30.31 | 06 | OVC | 033 | | 10.00 | | 31 | 24 | 28 | 76 | 5 | 33 | 28.64 | 30.20 | | |
| 09 | OVC | 012 | | 1.00 | -SN BR | 23 | 19 | 22 | 85 | 10 | 34 | 28.76 | 30.35 | 09 | OVC | 029 | | 10.00 | | 33 | 22 | 29 | 64 | 3 | 25 | 28.69 | 30.26 | | |
| 12 | OVC | 042 | | 10.00 | | 26 | 11 | 22 | 53 | 15 | 34 | 28.79 | 30.38 | 12 | CLR | NC | | 10.00 | | 39 | 25 | 34 | 57 | 9 | 25 | 28.70 | 30.26 | | |
| 15 | OVC | 040 | | 10.00 | | 26 | 11 | 22 | 53 | 9 | 35 | 28.80 | 30.40 | 15 | CLR | NC | | 10.00 | | 45 | 27 | 38 | 49 | 12 | 25 | 28.66 | 30.22 | | |
| 18 | OVC | 044 | | 10.00 | | 25 | 13 | 21 | 60 | 7 | 36 | 28.83 | 30.43 | 18 | OVC | 046 | | 10.00 | | 44 | 26 | 37 | 49 | 7 | 24 | 28.67 | 30.23 | | |
| 21 | OVC | 044 | | 10.00 | | 24 | 14 | 21 | 65 | 5 | 33 | 28.87 | 30.46 | 21 | OVC | 060 | | 10.00 | | 39 | 31 | 36 | 73 | 8 | 26 | 28.73 | 30.29 | | |
| 24 | OVC | 040 | | 10.00 | | 23 | 16 | 21 | 74 | 3 | 01 | 28.88 | 30.47 | 24 | OVC | 040 | | 6.00 | -RA BR | 37 | 33 | 35 | 86 | 7 | 22 | 28.73 | 30.29 | | |
| Sunrise: 0542 APR 04 Sunset: 1841 | | | | | | Sunrise: 0531 APR 10 Sunset: 1849 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 042 | | 10.00 | | 22 | 15 | 20 | 75 | 3 | 32 | 28.88 | 30.48 | 03 | OVC | 037 | | 2.00 | -RA BR | 36 | 36 | 36 | 100 | 5 | 10 | 28.71 | 30.27 | | |
| 06 | OVC | 042 | | 10.00 | | 21 | 14 | 19 | 74 | 0 | 00 | 28.89 | 30.50 | 06 | VV | 001 | | 0.25 | FG | 36 | 36 | 36 | 100 | 7 | 11 | 28.73 | 30.28 | | |
| 09 | OVC | 044 | | 10.00 | | 24 | 13 | 21 | 62 | 3 | VR | 28.90 | 30.49 | 09 | VV | 001 | | 0.25 | FG | 37 | 37 | 37 | 100 | 14 | 10 | 28.72 | 30.28 | | |
| 12 | OVC | 035 | | 7.00 | -SN | 25 | 15 | 22 | 66 | 3 | VR | 28.88 | 30.47 | 12 | OVC | 005 | | 3.00 | -RA BR | 37 | 37 | 37 | 100 | 21 | 10 | 28.72 | 30.28 | | |
| 15 | OVC | 040 | | 10.00 | | 28 | 15 | 24 | 58 | 12 | 32 | 28.84 | 30.43 | 15 | OVC | 003 | | 1.00 | -SN BR | 33 | 33 | 33 | 100 | 17 | 10 | 28.68 | 30.24 | | |
| 18 | OVC | 060 | | 10.00 | | 26 | 17 | 23 | 69 | 8 | 29 | 28.84 | 30.43 | 18 | OVC | 003 | | 3.00 | RA BR | 33 | 33 | 33 | 100 | 22 | 08 | 28.60 | 30.16 | | |
| 21 | BKN | 055 | | 10.00 | | 24 | 20 | 23 | 84 | 0 | 00 | 28.83 | 30.42 | 21 | OVC | 003 | | 8.00 | -RA | 34 | 34 | 34 | 100 | 20 | 09 | 28.56 | 30.12 | | |
| 24 | OVC | 060 | | 10.00 | | 22 | 18 | 21 | 85 | 5 | 28 | 28.81 | 30.40 | 24 | OVC | 001 | | 2.00 | -RA BR | 35 | 35 | 35 | 100 | 17 | 10 | 28.51 | 30.07 | | |
| Sunrise: 0540 APR 05 Sunset: 1842 | | | | | | Sunrise: 0529 APR 11 Sunset: 1850 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | BKN | 060 | | 10.00 | | 20 | 13 | 18 | 74 | 3 | 32 | 28.80 | 30.40 | 03 | VV | 001 | | 0.25 | FG | 34 | 34 | 34 | 100 | 9 | 08 | 28.46 | 30.01 | | |
| 06 | CLR | NC | | 10.00 | | 17 | 12 | 16 | 80 | 6 | 33 | 28.81 | 30.41 | 06 | VV | 001 | | 0.25 | FG | 35 | 35 | 35 | 100 | 7 | 10 | 28.45 | 30.01 | | |
| 09 | BKN | 046 | | 10.00 | | 27 | 18 | 24 | 69 | 7 | 01 | 28.82 | 30.41 | 09 | OVC | 001 | | 1.50 | BR | 36 | 36 | 36 | 100 | 7 | 08 | 28.42 | 29.97 | | |
| 12 | BKN | 027 | | 5.00 | -SN | 30 | 21 | 27 | 69 | 12 | 33 | 28.82 | 30.42 | 12 | OVC | 003 | | 3.00 | -RA BR | 37 | 37 | 37 | 100 | 3 | 03 | 28.40 | 29.95 | | |
| 15 | BKN | 040 | | 10.00 | | 31 | 18 | 27 | 59 | 13 | 32 | 28.82 | 30.42 | 15 | OVC | 003 | | 2.50 | BR | 40 | 40 | 40 | 100 | 0 | 00 | 28.38 | 29.93 | | |
| 18 | BKN | 055 | | 10.00 | | 31 | 14 | 26 | 49 | 7 | 35 | 28.84 | 30.44 | 18 | OVC | 005 | | 3.00 | BR | 39 | 39 | 39 | 100 | 5 | 36 | 28.40 | 29.95 | | |
| 21 | CLR | NC | | 10.00 | | 25 | 15 | 22 | 66 | 0 | 00 | 28.85 | 30.45 | 21 | BKN | 038 | | 8.00 | | 38 | 37 | 38 | 97 | 6 | 34 | 28.44 | 29.98 | | |
| 24 | CLR | NC | | 10.00 | | 18 | 14 | 17 | 84 | 0 | 00 | 28.85 | 30.45 | 24 | OVC | 030 | | 10.00 | | 38 | 37 | 38 | 97 | 0 | 00 | 28.47 | 30.02 | | |
| Sunrise: 0538 APR 06 Sunset: 1843 | | | | | | Sunrise: 0527 APR 12 Sunset: 1852 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CLR | NC | | 10.00 | | 15 | 13 | 14 | 91 | 0 | 00 | 28.85 | 30.45 | 03 | BKN | 028 | | 8.00 | | 35 | 35 | 35 | 100 | 5 | 31 | 28.48 | 30.03 | | |
| 06 | CLR | NC | | 10.00 | | 15 | 13 | 14 | 91 | 3 | 15 | 28.82 | 30.42 | 06 | FEW | NC | | 7.00 | | 33 | 33 | 33 | 100 | 9 | 28 | 28.53 | 30.09 | | |
| 09 | CLR | NC | | 10.00 | | 28 | 16 | 24 | 61 | 13 | 18 | 28.77 | 30.36 | 09 | CLR | NC | | 9.00 | | 46 | 42 | 44 | 86 | 8 | 32 | 28.55 | 30.10 | | |
| 12 | BKN | 100 | | 10.00 | | 32 | 18 | 27 | 56 | 12 | 16 | 28.69 | 30.28 | 12 | CLR | NC | | 10.00 | | 55 | 44 | 49 | 67 | 10 | 31 | 28.56 | 30.10 | | |
| 15 | SCT | NC | | 10.00 | | 37 | 19 | 31 | 48 | 21 | 17 | 28.51 | 30.09 | 15 | CLR | NC | | 10.00 | | 60 | 44 | 52 | 56 | 10 | 27 | 28.54 | 30.08 | | |
| 18 | OVC | 060 | | 10.00 | | 36 | 21 | 31 | 55 | 16 | 15 | 28.37 | 29.94 | 18 | CLR | NC | | 10.00 | | 58 | 42 | 50 | 56 | 7 | 28 | 28.53 | 30.08 | | |
| 21 | OVC | 065 | | 10.00 | | 37 | 23 | 32 | 57 | 13 | 17 | 28.33 | 29.89 | 21 | CLR | NC | | 10.00 | | 50 | 42 | 46 | 74 | 7 | 23 | 28.57 | 30.11 | | |
| 24 | OVC | 075 | | 10.00 | | 39 | 25 | 34 | 57 | 21 | 21 | 28.22 | 29.75 | 24 | CLR | NC | | 10.00 | | 47 | 41 | 44 | 80 | 7 | 24 | 28.60 | 30.13 | | |

OBSERVATIONS AT 3-HOURLY INTERVALS

DULUTH, MN

APRIL 2002

DLH

WBAN # 14913

| HOUR (LST) | | | SATELLITE | | WEATHER | TEMPERATURE °F | | | RELATIVE HUMIDITY (PCT) | WIND | | PRESSURE (INCHES, HG) | | HOUR (LST) | | | SATELLITE | | WEATHER | TEMPERATURE °F | | | RELATIVE HUMIDITY (PCT) | WIND | | PRESSURE (INCHES, HG) | | | |
|---|-----------|---------------------|------------------------|---------------------------------|---------|---|----------|-----------|-------------------------|----------|-------------|-----------------------|---------|------------|-----------|-----------|---------------------|------------------------|---------|---------------------------------|--------------------|----------|-------------------------|-----------|----------|-----------------------|-----------------------|---------|-----------|
| | SKY COVER | CEILING 100'S OF FT | OBSERVATION TIME (LST) | EFF CLD AMT <small>Okta</small> | | VISIBILITY (MILES) | DRY BULB | DEW POINT | | WET BULB | SPEED (MPH) | DIRECTION TENS OF DEG | STATION | | SEA LEVEL | SKY COVER | CEILING 100'S OF FT | OBSERVATION TIME (LST) | | EFF CLD AMT <small>Okta</small> | VISIBILITY (MILES) | DRY BULB | | DEW POINT | WET BULB | SPEED (MPH) | DIRECTION TENS OF DEG | STATION | SEA LEVEL |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SUNRISE: 0525 APR 13 SUNSET: 1853 | | | | | | SUNRISE: 0514 APR 19 SUNSET: 1901 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | BKN | 100 | | | 10.00 | 46 | 41 | 44 | 83 | 5 | 22 | 28.60 | 30.13 | 03 | OVC | 014 | | | 10.00 | 33 | 30 | 32 | 89 | 18 | 35 | 28.50 | 30.04 | | |
| 06 | OVC | 095 | | | 5.00 | 46 | 44 | 45 | 93 | 7 | 25 | 28.58 | 30.11 | 06 | SCT | NC | | | 10.00 | 30 | 26 | 29 | 85 | 9 | 34 | 28.59 | 30.15 | | |
| 09 | CLR | NC | | | 8.00 | 55 | 47 | 51 | 74 | 13 | 23 | 28.58 | 30.11 | 09 | BKN | 021 | | | 10.00 | 32 | 25 | 29 | 75 | 12 | 36 | 28.65 | 30.21 | | |
| 12 | CLR | NC | | | 10.00 | 60 | 44 | 52 | 56 | 14 | 19 | 28.53 | 30.05 | 12 | CLR | NC | | | 10.00 | 37 | 26 | 33 | 65 | 10 | 36 | 28.70 | 30.26 | | |
| 15 | CLR | NC | | | 10.00 | 61 | 44 | 52 | 54 | 12 | 16 | 28.45 | 29.97 | 15 | CLR | NC | | | 10.00 | 40 | 27 | 35 | 60 | 12 | 33 | 28.71 | 30.27 | | |
| 18 | CLR | NC | | | 10.00 | 52 | 43 | 47 | 72 | 9 | 14 | 28.40 | 29.92 | 18 | FEW | NC | | | 10.00 | 38 | 24 | 33 | 57 | 12 | 36 | 28.71 | 30.28 | | |
| 21 | OVC | 060 | | | 10.00 | 49 | 46 | 47 | 90 | 9 | 19 | 28.35 | 29.87 | 21 | CLR | NC | | | 10.00 | 32 | 23 | 29 | 69 | 9 | 35 | 28.73 | 30.30 | | |
| 24 | OVC | 048 | | | 10.00 | 48 | 45 | 46 | 89 | 12 | 16 | 28.26 | 29.78 | 24 | CLR | NC | | | 10.00 | 30 | 21 | 27 | 69 | 6 | 35 | 28.75 | 30.33 | | |
| SUNRISE: 0523 APR 14 SUNSET: 1854 | | | | | | SUNRISE: 0512 APR 20 SUNSET: 1903 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | BKN | 060 | | | 10.00 | 45 | 42 | 44 | 90 | 8 | 16 | 28.17 | 29.68 | 03 | CLR | NC | | | 10.00 | 28 | 18 | 25 | 66 | 5 | 32 | 28.78 | 30.36 | | |
| 06 | OVC | 080 | | | 6.00 | 44 | 42 | 43 | 93 | 8 | 16 | 28.09 | 29.60 | 06 | CLR | NC | | | 10.00 | 26 | 20 | 24 | 78 | 5 | 34 | 28.79 | 30.37 | | |
| 09 | OVC | 004 | | | 2.00 | 46 | 46 | 46 | 100 | 12 | 19 | 28.00 | 29.51 | 09 | CLR | NC | | | 10.00 | 34 | 20 | 29 | 56 | 7 | VR | 28.78 | 30.36 | | |
| 12 | SCT | NC | | | 10.00 | 60 | 52 | 56 | 75 | 13 | 24 | 27.97 | 29.47 | 12 | CLR | NC | | | 10.00 | 39 | 23 | 33 | 53 | 9 | 03 | 28.76 | 30.33 | | |
| 15 | BKN | 070 | | | 10.00 | 68 | 50 | 58 | 53 | 20 | 25 | 27.94 | 29.42 | 15 | CLR | NC | | | 10.00 | 42 | 22 | 34 | 45 | 7 | 11 | 28.71 | 30.28 | | |
| 18 | CLR | NC | | | 10.00 | 67 | 42 | 54 | 41 | 20 | 27 | 27.97 | 29.46 | 18 | CLR | NC | | | 10.00 | 36 | 19 | 30 | 50 | 13 | 11 | 28.69 | 30.27 | | |
| 21 | CLR | NC | | | 10.00 | 54 | 42 | 48 | 64 | 8 | 31 | 28.04 | 29.55 | 21 | CLR | NC | | | 10.00 | 30 | 18 | 26 | 61 | 10 | 12 | 28.72 | 30.29 | | |
| 24 | CLR | NC | | | 10.00 | 48 | 42 | 45 | 80 | 3 | 33 | 28.07 | 29.57 | 24 | CLR | NC | | | 10.00 | 28 | 21 | 26 | 75 | 10 | 10 | 28.70 | 30.27 | | |
| SUNRISE: 0521 APR 15 SUNSET: 1856 | | | | | | SUNRISE: 0511 APR 21 SUNSET: 1904 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CLR | NC | | | 10.00 | 42 | 41 | 42 | 96 | 0 | 00 | 28.10 | 29.60 | 03 | CLR | NC | | | 10.00 | 29 | 24 | 27 | 82 | 12 | 09 | 28.68 | 30.24 | | |
| 06 | CLR | NC | | | 10.00 | 47 | 43 | 45 | 86 | 8 | 12 | 28.10 | 29.59 | 06 | CLR | NC | | | 10.00 | 29 | 21 | 26 | 72 | 14 | 11 | 28.63 | 30.20 | | |
| 09 | CLR | NC | | | 10.00 | 55 | 46 | 50 | 72 | 15 | 12 | 28.06 | 29.56 | 09 | BKN | 026 | | | 10.00 | 32 | 22 | 28 | 66 | 22 | 09 | 28.61 | 30.18 | | |
| 12 | CLR | NC | | | 10.00 | 61 | 48 | 54 | 63 | 13 | 14 | 28.02 | 29.52 | 12 | FEW | NC | | | 10.00 | 33 | 19 | 28 | 56 | 21 | 09 | 28.59 | 30.16 | | |
| 15 | CLR | NC | | | 10.00 | 56 | 47 | 51 | 72 | 14 | 14 | 28.05 | 29.56 | 15 | BKN | 026 | | | 10.00 | 32 | 22 | 28 | 66 | 20 | 10 | 28.53 | 30.10 | | |
| 18 | BKN | 004 | | | 4.00 | 47 | 46 | 46 | 97 | 15 | 11 | 28.08 | 29.59 | 18 | VV | 009 | | | 0.50 | -SN FZFG | 27 | 25 | 26 | 92 | 13 | 08 | 28.53 | 30.11 | |
| 21 | FEW | NC | | | 7.00 | 46 | 45 | 46 | 96 | 17 | 10 | 28.10 | 29.61 | 21 | OVC | 025 | | | 3.00 | -SN BR | 26 | 24 | 25 | 92 | 10 | 08 | 28.55 | 30.12 | |
| 24 | OVC | 002 | | | 1.25 | 43 | 43 | 43 | 100 | 16 | 12 | 28.10 | 29.61 | 24 | OVC | 035 | | | 4.00 | -SN BR | 24 | 22 | 23 | 91 | 3 | 11 | 28.52 | 30.10 | |
| SUNRISE: 0520 APR 16 SUNSET: 1857 | | | | | | SUNRISE: 0509 APR 22 SUNSET: 1905 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | VV | 001 | | | 0.25 | 39 | 39 | 39 | 100 | 12 | 13 | 28.07 | 29.59 | 03 | OVC | 031 | | | 5.00 | -SN BR | 24 | 23 | 24 | 96 | 3 | 01 | 28.53 | 30.11 | |
| 06 | VV | 001 | | | 0.25 | 40 | 40 | 40 | 100 | 10 | 13 | 28.08 | 29.60 | 06 | OVC | 031 | | | 10.00 | 23 | 22 | 23 | 96 | 3 | 33 | 28.56 | 30.15 | | |
| 09 | BKN | 020 | | | 6.00 | 46 | 46 | 46 | 100 | 10 | 14 | 28.09 | 29.61 | 09 | CLR | NC | | | 10.00 | 30 | 21 | 27 | 69 | 3 | 23 | 28.58 | 30.16 | | |
| 12 | FEW | NC | | | 10.00 | 61 | 52 | 56 | 72 | 13 | 14 | 28.08 | 29.59 | 12 | CLR | NC | | | 10.00 | 37 | 18 | 30 | 46 | 7 | 17 | 28.58 | 30.15 | | |
| 15 | CLR | NC | | | 10.00 | 64 | 53 | 58 | 68 | 15 | 15 | 28.03 | 29.54 | 15 | CLR | NC | | | 10.00 | 41 | 17 | 32 | 38 | 9 | 18 | 28.56 | 30.12 | | |
| 18 | CLR | NC | | | 10.00 | 63 | 55 | 58 | 76 | 10 | 13 | 28.05 | 29.56 | 18 | CLR | NC | | | 10.00 | 39 | 21 | 32 | 48 | 9 | 16 | 28.55 | 30.12 | | |
| 21 | FEW | NC | | | 9.00 | 57 | 53 | 55 | 87 | 10 | 11 | 28.03 | 29.53 | 21 | CLR | NC | | | 10.00 | 32 | 25 | 29 | 75 | 8 | 21 | 28.56 | 30.13 | | |
| 24 | BKN | 110 | | | 10.00 | 58 | 54 | 56 | 87 | 5 | 28 | 28.06 | 29.55 | 24 | CLR | NC | | | 10.00 | 30 | 25 | 28 | 82 | 6 | 18 | 28.54 | 30.11 | | |
| SUNRISE: 0518 APR 17 SUNSET: 1858 | | | | | | SUNRISE: 0507 APR 23 SUNSET: 1907 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | BKN | 036 | | | 10.00 | 56 | 55 | 55 | 97 | 14 | 24 | 28.08 | 29.57 | 03 | FEW | NC | | | 10.00 | 29 | 24 | 27 | 82 | 7 | 17 | 28.53 | 30.09 | | |
| 06 | OVC | 022 | | | 9.00 | 47 | 41 | 44 | 80 | 22 | 26 | 28.22 | 29.72 | 06 | OVC | 038 | | | 10.00 | 32 | 25 | 29 | 75 | 8 | 17 | 28.50 | 30.06 | | |
| 09 | BKN | 028 | | | 10.00 | 50 | 40 | 45 | 68 | 24 | 28 | 28.32 | 29.84 | 09 | OVC | 100 | | | 10.00 | 38 | 30 | 35 | 73 | 9 | 16 | 28.47 | 30.02 | | |
| 12 | OVC | 034 | | | 10.00 | 52 | 39 | 46 | 61 | 26 | 28 | 28.42 | 29.94 | 12 | CLR | NC | | | 10.00 | 50 | 37 | 44 | 61 | 13 | 15 | 28.41 | 29.96 | | |
| 15 | FEW | NC | | | 10.00 | 59 | 37 | 48 | 44 | 22 | 27 | 28.46 | 29.97 | 15 | CLR | NC | | | 10.00 | 51 | 37 | 44 | 59 | 13 | 14 | 28.36 | 29.90 | | |
| 18 | CLR | NC | | | 10.00 | 58 | 33 | 46 | 39 | 14 | 27 | 28.46 | 29.98 | 18 | CLR | NC | | | 10.00 | 47 | 36 | 42 | 66 | 15 | 13 | 28.31 | 29.85 | | |
| 21 | CLR | NC | | | 10.00 | 50 | 33 | 42 | 52 | 5 | 21 | 28.49 | 30.01 | 21 | CLR | NC | | | 10.00 | 38 | 32 | 35 | 79 | 9 | 14 | 28.30 | 29.84 | | |
| 24 | BKN | 120 | | | 10.00 | 46 | 34 | 41 | 63 | 5 | 18 | 28.51 | 30.05 | 24 | CLR | NC | | | 10.00 | 40 | 36 | 38 | 86 | 10 | 14 | 28.20 | 29.72 | | |
| SUNRISE: 0516 APR 18 SUNSET: 1860 | | | | | | SUNRISE: 0505 APR 24 SUNSET: 1908 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 085 | | | 10.00 | 50 | 34 | 43 | 54 | 16 | 16 | 28.45 | 29.96 | 03 | BKN | 100 | | | 8.00 | 49 | 44 | 47 | 83 | 14 | 17 | 28.06 | 29.57 | | |
| 06 | OVC | 045 | | | 10.00 | 46 | 44 | 45 | 93 | 20 | 12 | 28.29 | 29.81 | 06 | BKN | 075 | | | 5.00 | -RA BR | 51 | 48 | 49 | 89 | 12 | 22 | 28.05 | 29.56 | |
| 09 | OVC | 042 | | | 10.00 | 47 | 45 | 46 | 93 | 17 | 09 | 28.23 | 29.74 | 09 | OVC | 016 | | | 10.00 | 43 | 39 | 41 | 86 | 22 | 33 | 28.12 | 29.65 | | |
| 12 | OVC | 018 | | | 10.00 | 45 | 42 | 44 | 90 | 23 | 09 | 28.18 | 29.70 | 12 | OVC | 016 | | | 10.00 | 38 | 35 | 37 | 89 | 23 | 31 | 28.21 | 29.74 | | |
| 15 | OVC | 010 | | | 10.00 | 46 | 42 | 44 | 86 | 10 | 07 | 28.17 | 29.69 | 15 | OVC | 024 | | | 10.00 | 34 | 27 | 31 | 76 | 29 | 31 | 28.26 | 29.79 | | |
| 18 | OVC | 008 | | | 10.00 | 44 | 42 | 43 | 93 | 3 | 36 | 28.20 | 29.72 | 18 | OVC | 034 | | | 10.00 | 32 | 23 | 29 | 69 | 24 | 31 | 28.34 | 29.88 | | |
| 21 | OVC | 010 | | | 9.00 | 40 | 39 | 40 | 97 | 0 | 00 | 28.34 | 29.87 | 21 | BKN | 070 | | | 10.00 | 31 | 22 | 28 | 69 | 14 | 30 | 28.38 | 29.93 | | |
| 24 | OVC | 012 | | | 10.00 | 35 | 33 | 34 | 93 | 15 | 36 | 28.44 | 29.99 | 24 | CLR | NC | | | | | | | | | | | | | |

DULUTH, MN

APRIL 2002

DLH

WBAN # 14913

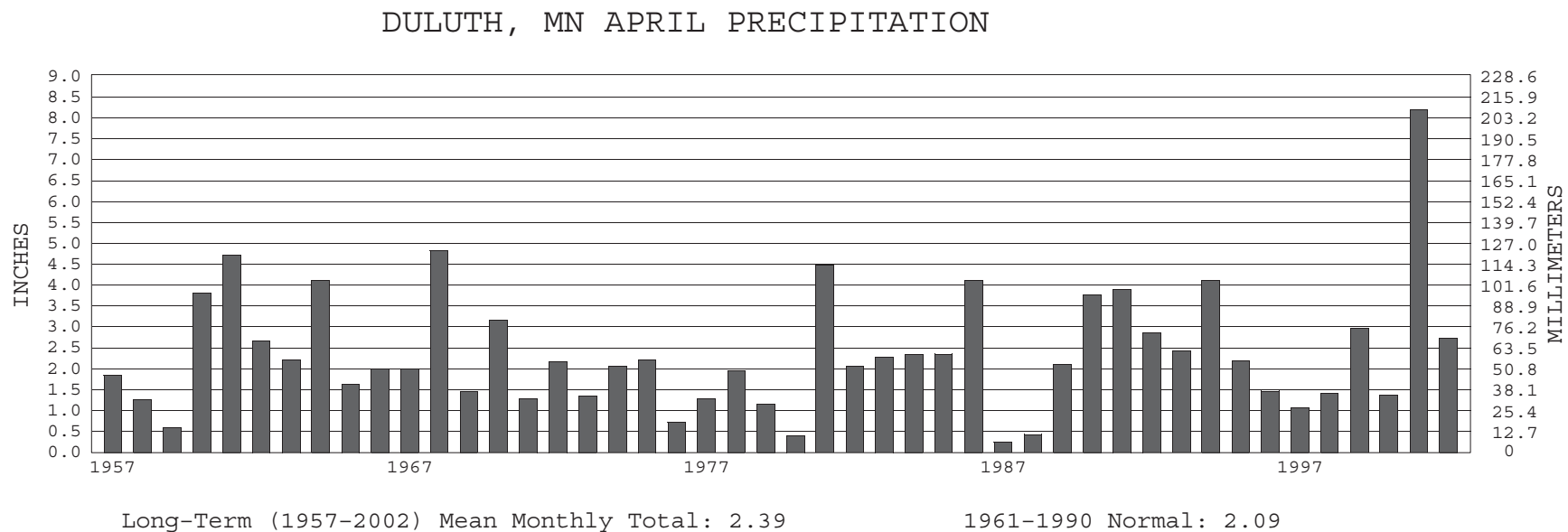
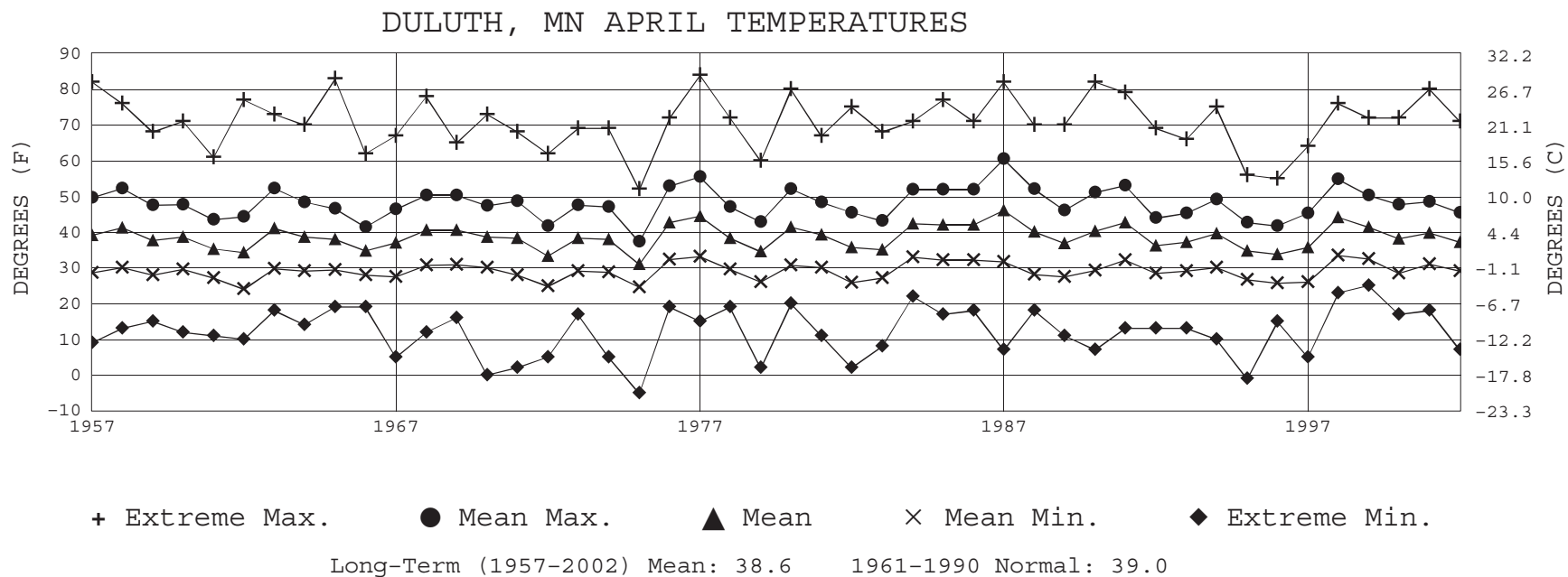
| Hour (LST) | | | Satellite | | Weather | Temperature °F | | | Relative Humidity (Pct) | Wind | | Pressure (Inches,Hg) | | Hour (LST) | | | Satellite | | Weather | Temperature °F | | | Relative Humidity (Pct) | Wind | | Pressure (Inches,Hg) | | | |
|------------|-----------|-------------------|------------------------|------------------------------|---------------|--------------------|----------|-----------|-------------------------|----------|-------------|-----------------------|---------|------------|-----------|-----------|-------------------|------------------------|---------|------------------------------|--------------------|----------|-------------------------|-----------|----------|----------------------|-----------------------|---------|-----------|
| | Sky Cover | Ceiling 100's Off | Observation Time (LST) | Eff Clld Amt <i>Oktas</i> | | Visibility (Miles) | Dry Bulb | Dew Point | | Wet Bulb | Speed (Mph) | Direction Tens of Deg | Station | | Sea Level | Sky Cover | Ceiling 100's Off | Observation Time (LST) | | Eff Clld Amt <i>Oktas</i> | Visibility (Miles) | Dry Bulb | | Dew Point | Wet Bulb | Speed (Mph) | Direction Tens of Deg | Station | Sea Level |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0504 | APR 25 | | | SUNSET: 1909 | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 010 | | | 0.75 | -SN BR | 27 | 25 | 26 | 92 | 13 | 32 | 28.33 | 29.89 | | | | | | | | | | | | | | | |
| 06 | BKN | 048 | | | 10.00 | | 23 | 14 | 20 | 68 | 21 | 31 | 28.40 | 29.96 | | | | | | | | | | | | | | | |
| 09 | OVC | 033 | | | 10.00 | | 24 | 14 | 21 | 65 | 26 | 32 | 28.45 | 30.02 | | | | | | | | | | | | | | | |
| 12 | OVC | 037 | | | 10.00 | | 29 | 18 | 25 | 64 | 25 | 30 | 28.50 | 30.06 | | | | | | | | | | | | | | | |
| 15 | BKN | 039 | | | 10.00 | | 33 | 18 | 28 | 54 | 21 | 30 | 28.53 | 30.10 | | | | | | | | | | | | | | | |
| 18 | OVC | 039 | | | 10.00 | | 31 | 18 | 27 | 59 | 24 | 30 | 28.58 | 30.16 | | | | | | | | | | | | | | | |
| 21 | CLR | NC | | | 10.00 | | 27 | 18 | 24 | 69 | 12 | 29 | 28.63 | 30.21 | | | | | | | | | | | | | | | |
| 24 | CLR | NC | | | 10.00 | | 26 | 17 | 23 | 69 | 9 | 31 | 28.65 | 30.23 | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0502 | APR 26 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CLR | NC | | | 10.00 | | 23 | 13 | 20 | 65 | 9 | 31 | 28.69 | 30.27 | | | | | | | | | | | | | | | |
| 06 | CLR | NC | | | 10.00 | | 24 | 11 | 20 | 57 | 9 | 33 | 28.72 | 30.30 | | | | | | | | | | | | | | | |
| 09 | CLR | NC | | | 10.00 | | 33 | 11 | 26 | 40 | 13 | 32 | 28.75 | 30.34 | | | | | | | | | | | | | | | |
| 12 | CLR | NC | | | 10.00 | | 41 | 13 | 31 | 32 | 13 | 31 | 28.73 | 30.31 | | | | | | | | | | | | | | | |
| 15 | CLR | NC | | | 10.00 | | 44 | 13 | 33 | 28 | 8 | 28 | 28.71 | 30.28 | | | | | | | | | | | | | | | |
| 18 | CLR | NC | | | 10.00 | | 43 | 10 | 32 | 26 | 8 | 30 | 28.70 | 30.27 | | | | | | | | | | | | | | | |
| 21 | SCT | NC | | | 10.00 | | 37 | 12 | 29 | 36 | 5 | 08 | 28.71 | 30.27 | | | | | | | | | | | | | | | |
| 24 | OVC | 080 | | | 10.00 | | 35 | 18 | 29 | 50 | 8 | 11 | 28.73 | 30.29 | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0500 | APR 27 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 070 | | | 10.00 | | 35 | 15 | 28 | 44 | 12 | 10 | 28.68 | 30.24 | | | | | | | | | | | | | | | |
| 06 | OVC | 016 | | | 2.00 | -SN | 33 | 28 | 31 | 82 | 17 | 13 | 28.67 | 30.23 | | | | | | | | | | | | | | | |
| 09 | OVC | 006 | | | 4.00 | -SN BR | 32 | 31 | 32 | 96 | 15 | 11 | 28.63 | 30.20 | | | | | | | | | | | | | | | |
| 12 | OVC | 014 | | | 2.50 | -SN BR | 34 | 33 | 34 | 97 | 16 | 11 | 28.57 | 30.14 | | | | | | | | | | | | | | | |
| 15 | OVC | 008 | | | 0.75 | -SN BR | 31 | 30 | 31 | 96 | 21 | 08 | 28.47 | 30.03 | | | | | | | | | | | | | | | |
| 18 | OVC | 004 | | | 0.50 | SN FG | 32 | 31 | 32 | 96 | 23 | 09 | 28.42 | 29.97 | | | | | | | | | | | | | | | |
| 21 | OVC | 006 | | | 1.50 | -SN BR | 32 | 31 | 32 | 96 | 24 | 09 | 28.38 | 29.93 | | | | | | | | | | | | | | | |
| 24 | OVC | 004 | | | 5.00 | -SN BR | 32 | 31 | 32 | 96 | 25 | 08 | 28.33 | 29.88 | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0459 | APR 28 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 006 | | | 10.00 | | 32 | 30 | 31 | 92 | 16 | 06 | 28.32 | 29.88 | | | | | | | | | | | | | | | |
| 06 | OVC | 012 | | | 10.00 | | 32 | 30 | 31 | 92 | 10 | 05 | 28.40 | 29.96 | | | | | | | | | | | | | | | |
| 09 | OVC | 015 | | | 10.00 | | 34 | 29 | 32 | 82 | 9 | 06 | 28.43 | 29.98 | | | | | | | | | | | | | | | |
| 12 | OVC | 017 | | | 10.00 | | 34 | 30 | 32 | 85 | 7 | 13 | 28.44 | 29.99 | | | | | | | | | | | | | | | |
| 15 | OVC | 018 | | | 10.00 | | 33 | 30 | 32 | 89 | 7 | 15 | 28.45 | 30.01 | | | | | | | | | | | | | | | |
| 18 | OVC | 022 | | | 10.00 | | 34 | 29 | 32 | 82 | 6 | 16 | 28.43 | 29.98 | | | | | | | | | | | | | | | |
| 21 | OVC | 018 | | | 10.00 | | 33 | 30 | 32 | 89 | 6 | 17 | 28.41 | 29.96 | | | | | | | | | | | | | | | |
| 24 | OVC | 019 | | | 9.00 | | 33 | 32 | 33 | 96 | 10 | 20 | 28.36 | 29.91 | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0457 | APR 29 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | OVC | 003 | | | 4.00 | BR | 33 | 32 | 33 | 96 | 13 | 22 | 28.28 | 29.83 | | | | | | | | | | | | | | | |
| 06 | OVC | 003 | | | 2.50 | -RA BR | 35 | 32 | 34 | 89 | 10 | 26 | 28.26 | 29.80 | | | | | | | | | | | | | | | |
| 09 | BKN | 017 | | | 10.00 | | 43 | 33 | 39 | 68 | 13 | 30 | 28.26 | 29.80 | | | | | | | | | | | | | | | |
| 12 | BKN | 048 | | | 10.00 | -RA | 49 | 33 | 42 | 55 | 10 | 28 | 28.19 | 29.72 | | | | | | | | | | | | | | | |
| 15 | BKN | 033 | | | 10.00 | | 49 | 33 | 42 | 55 | 18 | 32 | 28.22 | 29.74 | | | | | | | | | | | | | | | |
| 18 | CLR | NC | | | 10.00 | | 46 | 33 | 40 | 61 | 17 | 31 | 28.25 | 29.78 | | | | | | | | | | | | | | | |
| 21 | CLR | NC | | | 10.00 | | 38 | 31 | 35 | 76 | 15 | 31 | 28.29 | 29.83 | | | | | | | | | | | | | | | |
| 24 | CLR | NC | | | 10.00 | | 36 | 29 | 33 | 76 | 13 | 31 | 28.32 | 29.85 | | | | | | | | | | | | | | | |
| | | | | | SUNRISE: 0455 | APR 30 | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CLR | NC | | | 10.00 | | 32 | 27 | 30 | 82 | 9 | 31 | 28.32 | 29.86 | | | | | | | | | | | | | | | |
| 06 | CLR | NC | | | 10.00 | | 33 | 27 | 31 | 78 | 9 | 32 | 28.35 | 29.89 | | | | | | | | | | | | | | | |
| 09 | FEW | NC | | | 10.00 | | 41 | 28 | 36 | 60 | 9 | 31 | 28.36 | 29.90 | | | | | | | | | | | | | | | |
| 12 | BKN | 048 | | | 10.00 | | 46 | 30 | 39 | 54 | 12 | 27 | 28.33 | 29.87 | | | | | | | | | | | | | | | |
| 15 | BKN | 065 | | | 10.00 | | 49 | 32 | 41 | 52 | 8 | 29 | 28.30 | 29.84 | | | | | | | | | | | | | | | |
| 18 | FEW | NC | | | 10.00 | | 47 | 28 | 39 | 48 | 7 | 32 | 28.30 | 29.84 | | | | | | | | | | | | | | | |
| 21 | CLR | NC | | | 10.00 | | 38 | 25 | 33 | 60 | 0 | 00 | 28.34 | 29.88 | | | | | | | | | | | | | | | |
| 24 | CLR | NC | | | 10.00 | | 35 | 22 | 30 | 59 | 3 | 36 | 28.35 | 29.88 | | | | | | | | | | | | | | | |

3-Hourly Observation Notes

Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, VV = Vertical Visibility = 8/8. Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC= No ceiling detected. & = Original observation contained additional weather elements. See page 3 for additional notes.

Summary by Hour

| Hour (LST) | Averages | | | | | | | | | | Resultant Wind (Mph) | |
|------------|------------|--------------|----------|-----------|----------|-------------------|----------------------|-----------|--------------------|------------------|----------------------|-----------|
| | Ceilometer | Eff Clld Amt | Dry Bulb | Dew Point | Wet Bulb | Relative Humidity | Pressure (Inches,Hg) | | Visibility (Miles) | Wind Speed (Mph) | Speed | Direction |
| | | | | | | | Station | Sea Level | | | | |
| 01 | | | 33 | 28 | 32 | 81 | 28.47 | 30.02 | 8.56 | 9 | 1 | 12 |
| 02 | | | 33 | 28 | 31 | 82 | 28.46 | 30.01 | 8.26 | 8 | 1 | 10 |
| 03 | | | 33 | 28 | 31 | 83 | 28.46 | 30.01 | 7.97 | 9 | 1 | 12 |
| 04 | | | 32 | 28 | 30 | 84 | 28.46 | 30.01 | 8.04 | 8 | 0 | 0 |
| 05 | | | 32 | 28 | 30 | 85 | 28.46 | 30.02 | 8.12 | 9 | 0 | 0 |
| 06 | | | 32 | 28 | 30 | 85 | 28.47 | 30.03 | 7.51 | 9 | 0 | 0 |
| 07 | | | 34 | 29 | 32 | 83 | 28.48 | 30.04 | 7.83 | 10 | 2 | 32 |
| 08 | | | 35 | 29 | 33 | 79 | 28.48 | 30.04 | 7.83 | 11 | 2 | 35 |
| 09 | | | 37 | 29 | 34 | 76 | 28.48 | 30.04 | 7.97 | 11 | 1 | 36 |
| 10 | | | 39 | 30 | 35 | 72 | 28.48 | 30.03 | 8.65 | 13 | 1 | 31 |
| 11 | | | 40 | 30 | 36 | 68 | 28.48 | 30.03 | 8.68 | 12 | 0 | 0 |
| 12 | | | 41 | 30 | 37 | 68 | 28.47 | 30.02 | 8.65 | 12 | 1 | 29 |
| 13 | | | 42 | 30 | 37 | 66 | 28.47 | 30.02 | 8.75 | 13 | 1 | 30 |
| 14 | | | 42 | 30 | 37 | 64 | 28.46 | 30.01 | 8.97 | 12 | 2 | 31 |
| 15 | | | 43 | 30 | 38 | 63 | 28.45 | 30.00 | 8.82 | 13 | 1 | 26 |
| 16 | | | 42 | 29 | 37 | 63 | 28.45 | 30.00 | 8.88 | 12 | 1 | 35 |
| 17 | | | 42 | 29 | 37 | 63 | 28.46 | 30.01 | 8.43 | 11 | 1 | 36 |
| 18 | | | 41 | 29 | 36 | 65 | 28.45 | 30.01 | 8.70 | 12 | 1 | 1 |
| 19 | | | 39 | 28 | 35 | 68 | 28.46 | 30.01 | 8.83 | 10 | 2 | 4 |
| 20 | | | 38 | 29 | 34 | 72 | 28.47 | 30.02 | 8.83 | 10 | 2 | 6 |
| 21 | | | 36 | 29 | 33 | 75 | 28.48 | 30.03 | 9.18 | 9 | 1 | 8 |
| 22 | | | 36 | 29 | 33 | 78 | 28.48 | 30.03 | 8.53 | 9 | 1 | 8 |
| 23 | | | 35 | 29 | 33 | 79 | 28.47 | 30.03 | 8.57 | 9 | 1 | 7 |
| 24 | | | 34 | 29 | 32 | 80 | 28.47 | 30.02 | 8.88 | 9 | 1 | 10 |





APRIL 2002

DULUTH, MN

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

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