Decorah Weather - January 2024 Summary

by Richard Bernatz

Weather data available online at http://faculty.luther.edu/∼bernatzr/DecWx/
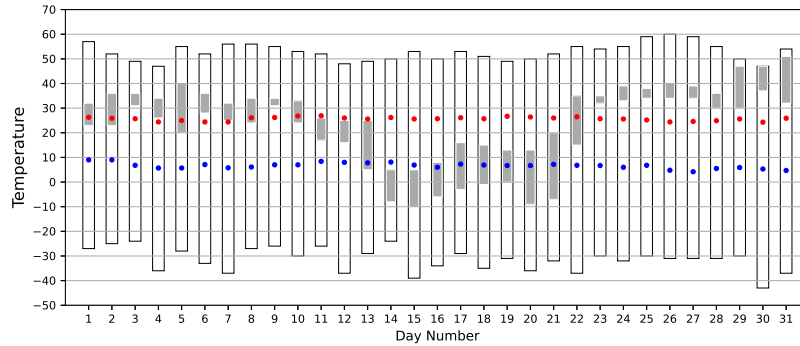
1. JANUARY 2024 TEMPERATURES

Figure 1: **Grey Bar**: Observed temperature range for 2024, **White Bar**: Record temperature range, **Red Circle:** average high, **Blue Circle:** average low.

Temperature (° F)	January 2024	Historical	Deviation
Average High	29.8	25.8	+4.0
Average Low	18.1	7.0	+11.1
Daily Average	24.0	16.4	+7.6

Table 1: January 2024 average temperatures compared to January historical averages.

- JANUARY 2024
  - Daily Records: maximum of 47° F on the 30th (ties with 1988 and 1989), maximum minimum of 33° F on the 24th (old record was 32° F in 1909 and 2017), maximum minimum of 37° F on the 30th (ties with 1988)
  - The seven-day interval of January 25th through January 31st recorded an average temperature of 37.8 ° F . It is the second warmest for that seven-day interval. The warmest was in 1944 with an average of 38.6° F .
  - Monthly average temperature : 24.0° F (7.6° F warmer than average)
  - Warmest temperature : 51° F on the 31st
  - Coldest temperature : -10° F on the 15th
  - Heating Degree Days : 1272.5, 234.0 less than the average of 1506.5
- ALL JANUARIES SINCE 1894 (131 years)
  - Compared with January 2024, 13 Januaries were warmer and 117 Januaries were colder
  - Warmest January average : 31.3° F in 2006
  - Coldest January average : -2.1° F in 1912
  - Warmest January temperature : 60° F on the 26th of 2002
  - Coldest January temperature : -43° F on the 30th of 1951

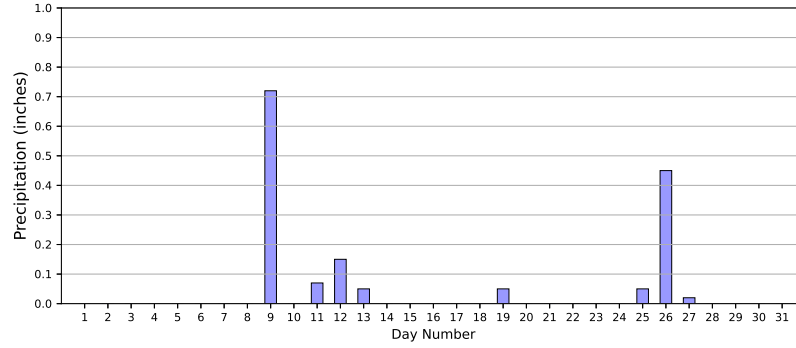2. $\boxed{\text{January 2024 Precipitation}}$

Figure 2: January precipitation for Decorah.

- JANUARY 2024
  - Total precipitation for January 2024: 1.56 inches, 0.51 inches more than the average of 1.04 inches
  - Eight days with measurable precipitation. Maximum of 0.72 inches on the 9th.
  - Five days with measurable snowfall. Maximum of 5.0 inches on the 9th.
  - Total snowfall of 11.5 inches, 2.3 inches more than average of 9.1 inches
- ALL JANUARIES SINCE 1894 (131 years)
  - Compared with January 2024, 23 Januaries were wetter and 107 Januaries were drier
  - Wettest January : 3.74 inches in 1996
  - Driest January : 0.09 inches in 1948
  - Snowiest January : 34.7 inches in 1996

3. $\boxed{\text{Twelve-Month Summary}}$

Month	Year	Ave Temp (^{o}F)	Deviation (^{o}F)	Rank† (#/Total)	Precip (inches)	Deviation (inches)	Rank‡ (#/Total)
February	2023	26.6	+6.5	21/113	2.00	+1.04	9/129
March	2023	36.2	+3.4	36/131	1.89	-0.11	70/131
April	2023	50.5	+3.2	23/130	2.84	-0.26	66/130
May	2023	63.0	+4.1	17/128	4.19	-0.04	58/127
June	2023	71.1	+2.8	22/129	2.36	-2.39	109/129
July	2023	72.5	-0.1	63/129	3.32	-0.76	69/130
August	2023	74.9	+4.5	11/131	0.91	-3.14	125/131
September	2023	69.3	+7.0	1/130	5.54	+1.84	26/130
October	2023	54.3	+4.0	19/130	2.78	+0.45	46/130
November	2023	40.0	+4.7	19/131	0.18	-1.65	128/131
December	2023	36.0	+14.1	1/131	1.07	-0.14	71/131
January	2024	24.0	+7.6	14/131	1.56	+0.51	24/131

Table 2: A summary of the last twelve months. †- The smaller the number (#), the warmer the month. ‡- The smaller the number (#), the wetter the month. Boxed entries are within the historical top or bottom ten.

- Eleven of the past 12 months were warmer than average.
- Eight of the past 12 months were drier than average.
- Precipitation deviations from average (in inches) - last 3 months : -1.27, last 6 months : -2.13, last 9 months : -5.32, last 12 months : -4.67

4. WINTER SEVERITY

Daily maximum temperatures, minimum temperatures, and snowfall amounts comprise three sub-categories for comparing how severe, or wintry, a given season (or segment) compares with other seasons (or segments). Severity indexes are calculated for each of the sub-categories. These numerical index values allow the seasons (or their segments) for all years in the historical record to be ranked in each of the sub-categories. The three indices are then used to determine an overall index that can be used to rank the season relative to other seasons. More details on how an index for a given sub-category is determined is given at the end of this section.

November-January Segment. Winter severity for the November 2023 through January 2024 segment of this season ranks **129th out of the 131 years on record**. That is, 128 winters were more severe (more "wintry") than this winter for the period November through January, and only two were less severe (the years 1913 and 2001). Individually, maximum temperatures, minimum temperatures, and snow fall indices ranked 128th, 129th, and 103rd out of 131, respectively. Other significant features of this season's November through January segment include:

- The average maximum temperature so far is 41.4° F , 8.0° F warmer than the average of 33.4° F .
- The average minimum temperature so far is 25.0° F , 9.7° F warmer than the average of 15.3° F .
- So far, only 12 days have recorded a maximum temperature less than 32° F . The average number by the end of January is 38.
- There have been 10 days with a minimum temperature of less than 10° F . The average number is 29.
- Measurable snowfall has occurred on 10 days, the average is 11.
- Total snowfall so far is 13.3 inches. The average is 21.2 inches.
- The number of days from the first measurable snowfall (November 26) to the last measurable snowfall (January 19) at this point is 55. The average number is 65 days.

Winter Severity Defined:

As a way of judging the "severity" of a given winter season (the winter "season" corresponds to the months of November through March), fifteen statistics are calculated:

- average high temperature,
- number of days with a maximum temperature less the 32° F ,
- number of days with a maximum temperature less than 20° F ,
- number of days with a maximum temperature less than 10° F ,
- number of days with a maximum temperature less than 0° F ,
- number of days with a maximum temperature less than -9° F ,
- average low temperature,
- number of days with a minimum temperature less than 10° F ,
- number of days with a minimum temperature less than 0° F ,
- number of days with a minimum temperature less than -9° F ,
- number of days with a minimum temperature less than -19° F ,
- number of days with a minimum temperature less than -29° F ,
- total inches of snow fall,
- number of days with significant snowfall (at least an inch of snow),
- the number of days between the first snowfall and the last snowfall.

These statistics give some measure of the length, frequency, and severity of "winter" events for the season.

Each statistic is used to determine an average (a mean), from which the standard deviation from the mean may be determined. The categorical standard deviations are used to create a weighted severity index for each segment of a season. The numerical severity indexes provide a way of ranking the corresponding segments of the different seasons. The segments are: November-December, November-January, November-February, and November-March.