

We are now two-thirds of the way through “meteorological winter”; December through February. January was certainly erratic, as unseasonably warm and quiet weather early and late in the month was interrupted by a period of extreme cold and snow right in the middle. In fact, despite this period of cold and snow, December-January average temperatures were far above normal across Iowa.

January, 2024: A Tale Of Two Seasons

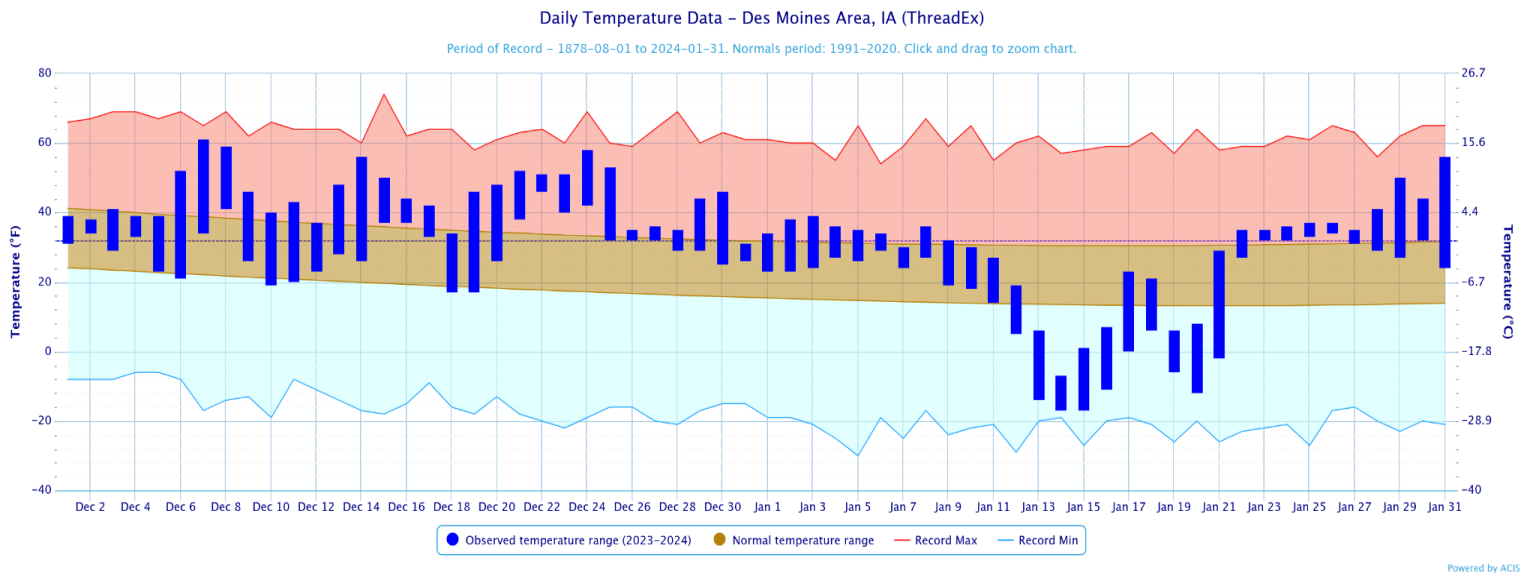
The period from January 8-20 will long be remembered for its rapid series of heavy snow and extreme cold events. The first snow storm moved into Iowa on the 8th and persisted into the 9th, producing widespread heavy accumulations, and was quickly followed by a second heavy snowfall on January 11-12. This resulted in extraordinary 5-day snowfall amounts. At Des Moines, 22.3” of snow recorded from January 8-12 was the second-highest 5-day total on record, only behind the New Year’s Eve storm of 1941-42. At Waterloo, the second snow storm lingered into January 13 and their 6-day total snowfall of 23.1” was the highest ever recorded, shattering the 17.0” that fell from November 30-December 5, 1934.

On the heels of the second snow storm, strong winds and extreme cold flooded into the state. From January 13-16 wind chills were frequently 20-40 degrees below zero, occasionally even colder. The average temperature (average of daily high and low temperatures) over those four days was -4.2 at Waterloo, and at Des Moines the average temperature of -6.5 qualified as the coldest 4-day stretch in nearly 28 years, since the historic Arctic outbreak of 1996. Even after two heavy snow storms and a period of extreme cold, one more shot was in store as a third winter storm dropped additional moderate snowfall across much of Iowa on January 18, followed by more dangerous cold. On January 13-14 the snow depth on the ground reached 16” at Waterloo, and by the morning of January 19 the snow depth of 14” at Des Moines was the deepest there since February of 2010.

While the period of extreme winter weather in the middle of January was impressive, it was bookended by unseasonably mild and dry weather on either side. The total snowfall amounts for the month were thus highly ranked, with the 27.2” at Des Moines making it the 5th-snowiest calendar month on record (despite nearly the entire total falling in just 11 days), and at Waterloo the 25.1” of snow that fell ranked as the 4th-snowiest month on record. Despite this, the average temperature for January (22.2; the average of the high and low temperatures for every day of the month) was only 0.1 degrees below normal at Des Moines, and at Waterloo the average temperature (21.9) was actually 2.5 degrees above normal.

Season Summary (so far)

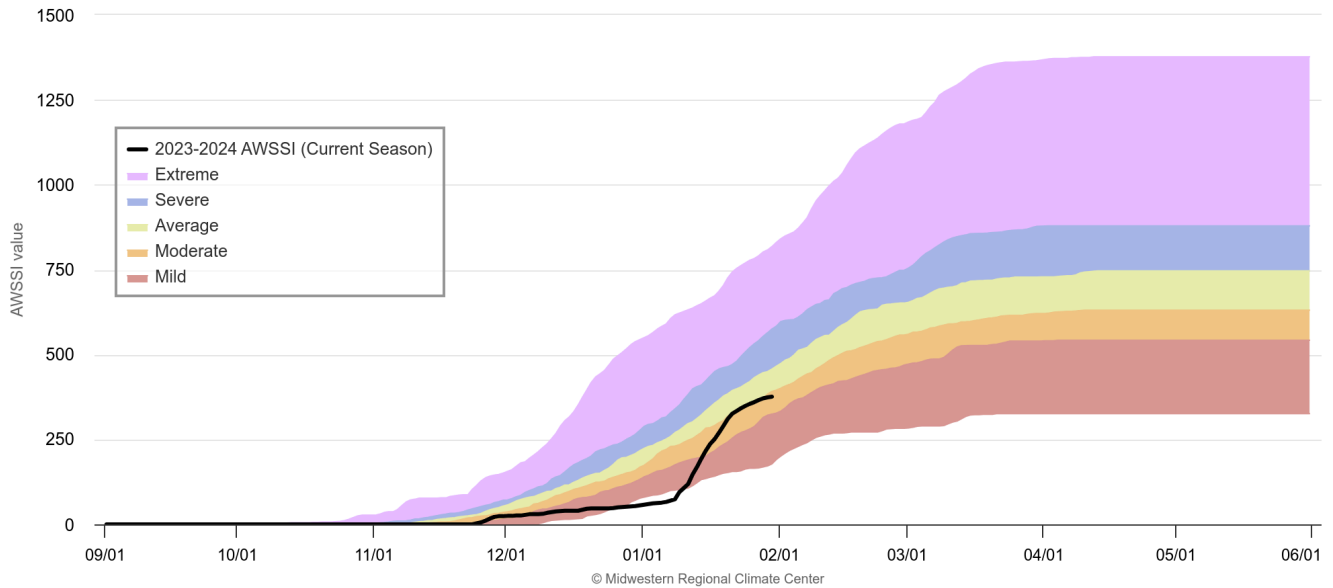
The winter so far, that is, December-January, has been characterized by mild, dry, and quiet weather with the exception of the 13-day stretch in the middle of January. In spite of that outbreak of extreme cold and snow, the average temperature from December-January was actually far above normal at both Des Moines and Waterloo, ranking as the 3rd-warmest on record at Waterloo and 12th-warmest at Des Moines. A plot of temperatures over those two months at Des Moines really illustrates the persistent warmth, as well as the extreme cold of that period in mid-January:



Note that the “brown” band encompasses the normal high and low temperatures each day, while the “red” and “blue” lines indicate the record high and low temperatures for each day. Similarly, here is a plot of the Accumulated Winter Season Severity Index (AWSSI), which takes into account the cumulative magnitude and impacts of temperature, precipitation, snow, wind chill, and other winter weather factors. Up through the first week of January, the “black line” indicates we were experiencing a historically mild winter, then the step increase over the second and third weeks of January threw us into the “average” category before late January warmth trended us back into a “moderate” category for the winter so far:

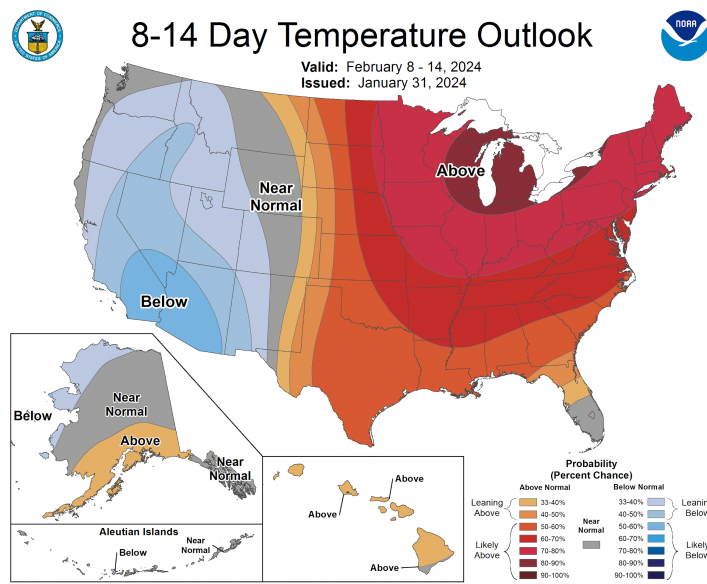
2023-2024 AWSSI: "IA - Des Moines"

Season: 2023-11-24 to 2024-01-30, 68 days



Looking Ahead

It is difficult to know what February will hold for Iowa weather, however, the forecast and extended outlooks through the first half of the month indicate generally warmer than normal temperatures will continue. The first week of February has very little chance for precipitation, but there are indications of higher chances by the second week. Here is the temperature outlook for February 8-14 from the Climate Prediction Center:



Regardless of how the rest of the season plays out, the winter of 2023-24 is likely to be long remembered for its period of extreme cold and snow, but the bulk of the season will actually go down as one of the warmest and quietest on record.