



# December 2024 Climate Summary



Ice Jam in the Missouri River, Photo Courtesy of Omaha Public Power District

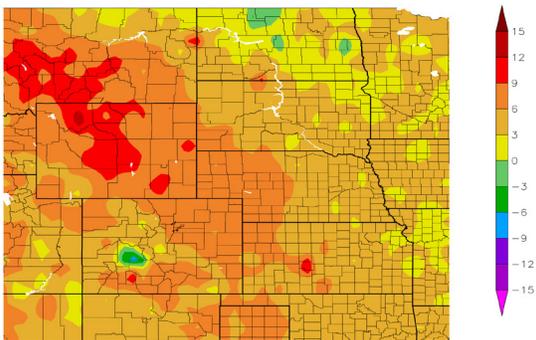
## Regional Breakdown

After a year full of extremes, December was a relatively quiet month for the High Plains. Temperatures continued to be above normal for the entire region, while many observed near-zero precipitation. Despite the warmer temperatures lingering into the end of the year, drought conditions did not change much this month.

In an otherwise less than notable month, a fast-moving and impactful blizzard struck North Dakota in the middle of the month. Over 6 inches (15.24 cm) of snow fell in some places, with a few locations reporting more than 10 inches (25.4 cm). While not extreme nor significant by North Dakota standards, the snow combined with wind gusts of up to 50 mph (80 km/h) which created hazardous road conditions. 15 people were injured due to an accident caused by icy roads in the southwest part of the state. Of the injuries, 5 were considered serious. A no-travel advisory was issued, with a stretch of Interstate 94 closed for a short time.

## Temperature and Precipitation Overview

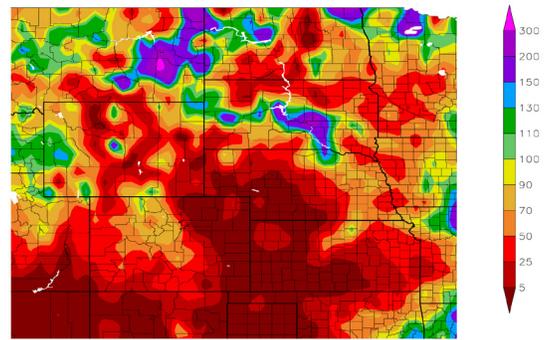
Departure from Normal Temperature (F)  
12/1/2024 - 12/31/2024



Generated 1/20/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)  
12/1/2024 - 12/31/2024



Generated 1/20/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Departure from 1991-2020 normal temperature (left) and percent of normal precipitation (right) for December 2024 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: <http://hprcc.unl.edu/maps/current>.

## Precipitation

Outside of the blizzard in North Dakota, the region experienced minimal to zero precipitation. Nearly the entire region received less than an inch (2.54 cm) of precipitation this month, with a large swath reporting less than 0.10 inches (2.54 mm).

Western Kansas was among the driest this month, with dozens of stations reporting zero or trace amounts of precipitation. Among those reporting zero included Garden City, Greensburg, and WaKeeney. Dodge City experienced a massive flip, with 6.38 inches (16.21 cm) in November to trace amounts in December. The dryness also extended into the eastern portions of the state, with Wichita reporting a meager 0.03 inches (0.76 mm)

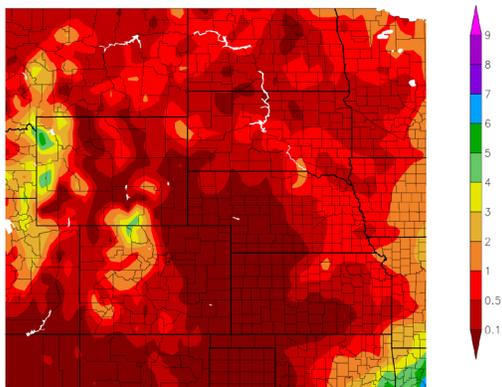
Just to the north in western Nebraska, several stations reported near-zero precipitation. No precipitation occurred in McCook, tying with 1922 and 1928 for the driest December. Nearby towns such as Cambridge and Culbertson also reported zero. Scottsbluff, Lexington, and Sidney reported trace, while North Platte, Holdrege, and Alliance observed less than 0.05 inches (1.27 mm).

Along the Front Range, dozens of stations reported minimal amounts and nearly no snowfall. For Colorado, this included Denver, Fort Collins, Akron, and Lamar. Across the border in Wyoming, areas such as Sheridan, Lander, and Cheyenne all reported less than 0.06 inches (1.52 mm) of precipitation.

Snow water equivalent (SWE) in the west is in good shape, with only a few basins below median. Percentiles in Wyoming have improved since November, with only three basins reporting below 70 percent as of January 5th.

### Regional Precipitation

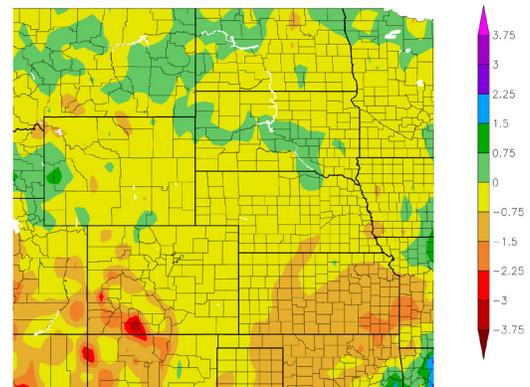
Precipitation (in)  
12/1/2024 – 12/31/2024



Generated 1/20/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)  
12/1/2024 – 12/31/2024



Generated 1/20/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Total precipitation in inches (left) and departure from normal precipitation in inches (right) for December 2024. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

## Temperatures

Dozens of stations recorded their warmest December in Wyoming, particularly in the upper elevations. Casper Mountain at an elevation of 7,740 feet (2,359 m) broke their record by a degree (0.6 degrees C), with an average temperature of 29.1 degrees F (-1.6 degrees C). A notable record broken was from Worland just north of Riverton. The town recorded an average temperature of 29.7 degrees F (-1.3 degrees C), breaking the December record for the nearly 120-year-old station.

To the south in Colorado, numerous stations also recorded their warmest December, most notably along the Front Range. These included Akron and Sedgewick, while others such as Denver and Colorado Springs fell just short. The warmth also spread into the mountains, with the popular skiing town of Vail setting its record average maximum temperature for December with an average high of 34.2 degrees F (1.2 degrees C).

## Drought Conditions

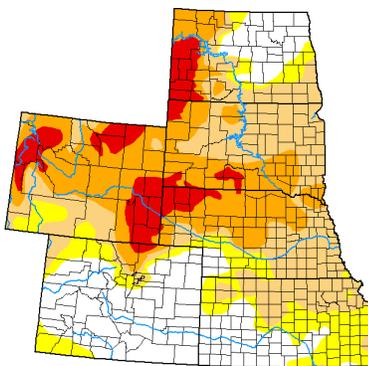
Despite the overall warmth and dryness this month, significant changes to drought conditions did not occur. What changes did occur were predominantly in the western portions of Colorado and Wyoming. Overall, the region observed a decrease of less than a percent in abnormally dry to exceptional drought conditions (D0 to D4).

Due to the tremendous snowfall totals in the winter storm in November, drought conditions improved along the Rockies in central Colorado. The northern part of the Front Range near Fort Collins was not as fortunate, with extreme drought (D3) expanding in the area. The southwestern part of the state had been nearly drought-free the previous few months, however, D0 remerged after little precipitation this month.

### U.S. Drought Monitor

#### U.S. Drought Monitor High Plains

December 31, 2024  
(Released Wednesday, Jan. 1, 2025)  
Valid 7 a.m. EST



**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/About.aspx>

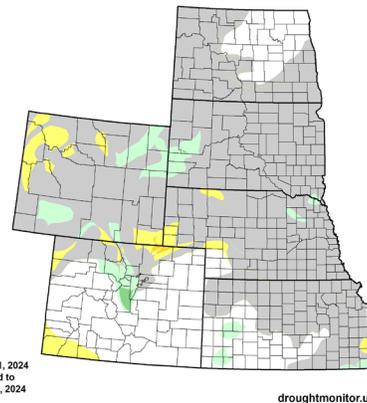
Author:  
Rocky Billotta  
NCEI/NOAA



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

### Drought Monitor 1-Month Change

U.S. Drought Monitor Class Change - High Plains Climate Region  
4 Week



December 31, 2024  
compared to  
December 3, 2024

[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)



5 Class Degradation  
4 Class Degradation  
3 Class Degradation  
2 Class Degradation  
1 Class Degradation  
No Change  
1 Class Improvement  
2 Class Improvement  
3 Class Improvement  
4 Class Improvement  
5 Class Improvement

The U.S. Drought Monitor is produced as a joint effort of the U.S. Department of Agriculture (USDA), National Drought Mitigation Center, U.S. Department of Commerce, and the National Oceanic and Atmospheric Administration (NOAA). For current Drought Monitor information, please see: <http://droughtmonitor.unl.edu/>.

# Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions are present. A La Niña watch is currently in effect. For more information, visit [https://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/lanina/enso-evolution-status-fcsts-web.pdf](https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso-evolution-status-fcsts-web.pdf)

The National Weather Service’s long-range flood outlook indicates minimal chances of flooding along the Missouri River through March. According to the National Interagency Fire Center (NIFC), fire potential will be near normal through April.

The seasonal temperature and precipitation outlooks presented below combine the effects of long-term trends, soil moisture, and when applicable, the El Niño Southern Oscillation cycle (ENSO). To learn more about these outlooks, please visit <http://www.cpc.ncep.noaa.gov>.

## Temperature

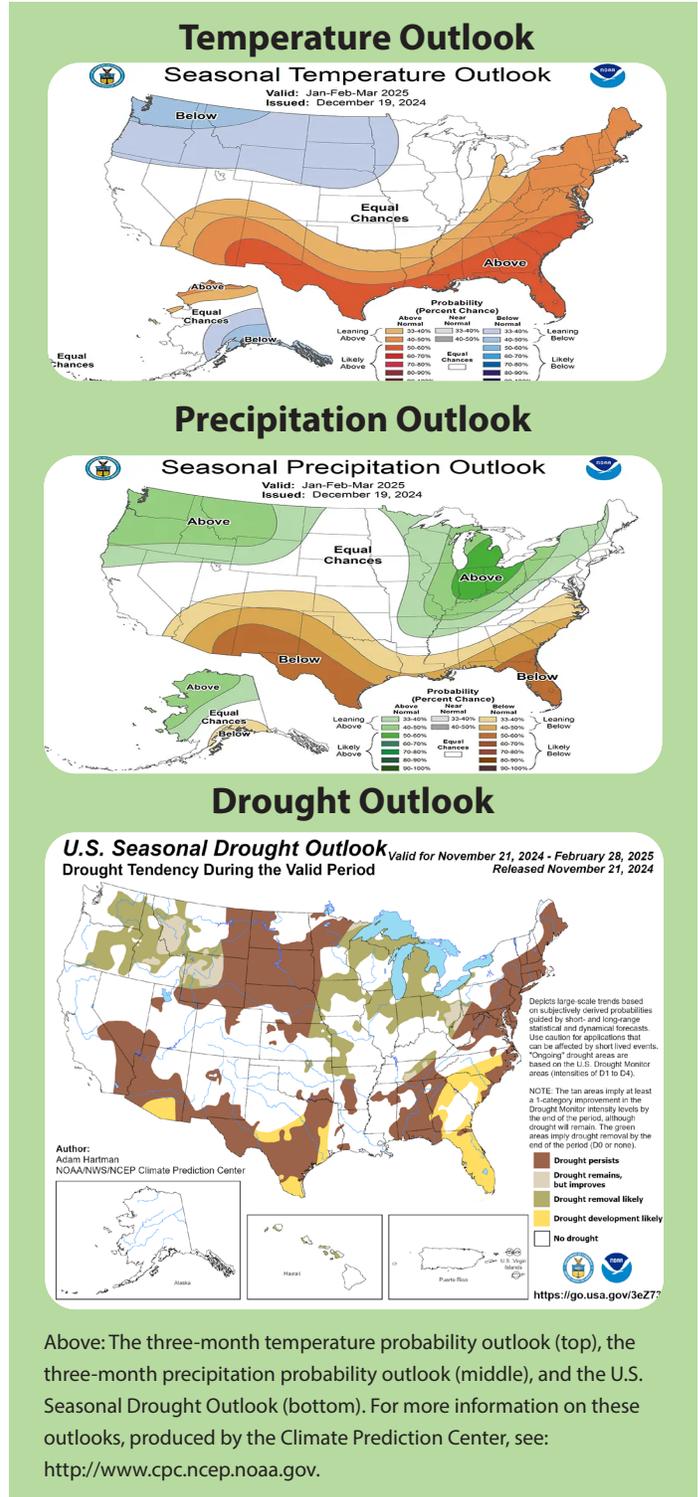
The three-month temperature outlook shows an increased chance of above-normal temperatures across the much of the southern and eastern United States, while below-normal temperatures are favored across the northern parts. Above-normal temperatures are possible in western Colorado and below-normal temperatures are favored in the Dakotas, Wyoming, and most of Nebraska.

## Precipitation

The outlook for the next three months indicates below-normal precipitation across the southern United States, while above-normal is possible in the northwest and Great Lakes. Below-normal precipitation is possible in Colorado and Kansas, while above-normal is possible in Wyoming.

## Drought

The U.S Seasonal Drought Outlook released on December 31st indicates that drought development improvements are possible in Kansas, Nebraska, and Wyoming.



Above: The three-month temperature probability outlook (top), the three-month precipitation probability outlook (middle), and the U.S. Seasonal Drought Outlook (bottom). For more information on these outlooks, produced by the Climate Prediction Center, see: <http://www.cpc.ncep.noaa.gov>.

## Station Summaries: By the Numbers

Colorado	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Akron Washington County Airport	51.6	24.4	38.0	8.7	65	12/22	10	12/31	0.02	-0.18	10
Alamosa San Luis Airport	45.4	5.5	25.4	7.3	57	12/29	-15	12/10	0.13	-0.21	38
Colorado Springs Municipal Airport	51.6	24.0	37.8	6.1	68	12/08	4	12/10	0.17	-0.06	74
Denver International Airport	53.7	25.1	39.4	8.2	68	12/20	11	12/10	0.04	-0.31	11
Grand Junction Walker Field Airport	46.8	25.5	36.2	7.8	52	12/23	18	12/10	0.29	-0.31	48
Pueblo Memorial Airport	54.4	20.2	37.3	5.6	70	12/22	5	12/10	0.16	-0.13	55

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	46.5	26.9	36.7	5.2	65	12/07	15	12/21	1.39	0.35	134
Dodge City Regional Airport	52.6	26.3	39.5	5.6	67	12/15	15	12/21	Trace	-0.96	0
Goodland Renner Field	52.5	23.7	38.1	7.3	73	12/22	13	12/13	0.04	-0.43	9
Topeka Municipal Airport	47.4	26.7	37.1	3.2	64	12/15	13	12/21	0.40	-1.09	27
Wichita Mid-Continent Airport	51.7	28.7	40.2	4.6	64	12/15	19	12/06	0.03	-1.19	2

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	50.1	17.5	33.8	8.1	64	12/21	5	12/20	0.41	0.10	132
Grand Island Airport	43.3	21.0	32.1	3.2	66	12/07	8	12/20	0.24	-0.60	29
Lincoln Municipal Airport	44.4	22.1	33.3	4.5	68	12/07	9	12/21	0.61	-0.57	52
Norfolk Karl Stefan Airfield	41.6	21.2	31.4	5.7	69	12/08	8	12/20	0.74	-0.10	88
North Platte Regional Airport	50.4	18.8	34.6	7.1	71	12/22	9	12/14	0.01	-0.44	2
Omaha Eppley Airport	40.8	23.0	31.9	3.2	62	12/08	9	12/05	0.80	-0.42	66
Valentine Miller Field	45.5	16.4	30.9	4.6	64	12/03	2	12/20	0.16	-0.27	37

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	31.5	12.4	21.9	4.0	51	12/08	-12	12/20	0.40	-0.20	67
Fargo International Airport	26.0	12.9	19.5	3.8	41	12/28	-12	12/12	0.63	-0.26	71
Grand Forks International Airport	25.5	11.6	18.5	5.7	44	12/07	-14	12/20	0.77	0.11	117
Theodore Roosevelt Airport	34.2	13.9	24.0	4.1	53	12/07	-7	12/19	0.05	-0.14	26
Williston International Airport	28.3	11.5	19.9	3.8	44	12/08	-6	12/20	0.80	0.17	127

All data are preliminary and subject to change. + indicates multiple dates, latest date listed. \* indicates some missing data for the period. \*\* indicates value is under evaluation. Data are retrieved through the Applied Climate Information System (ACIS) and are available online through the CLIMOD system. For more information please contact us: <http://www.hprcc.unl.edu/contact.php>.

# December 2024 Climate Summary

South Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Aberdeen Regional Airport	31.9	13.6	22.8	4.5	55	12/07	-4	12/20	0.20	-0.41	33
Huron Regional Airport	33.7	15.5	24.6	4.0	60	12/07	-5	12/20	0.78	0.12	118
Pierre Regional Airport	37.2	17.9	27.5	4.7	61	12/07	-2	12/20	0.76	0.12	119
Rapid City Regional Airport	46.0	18.6	32.3	6.7	69	12/07	2	12/02	0.46	0.11	131
Sioux Falls Joe Foss Field Airport	34.8	16.9	25.8	3.3	57	12/07	0	12/12	0.66	-0.17	80

Wyoming	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Casper Natrona County International AP	45.3	21.6	33.4	8.6	57	12/21	8	12/31	0.16	-0.45	26
Cheyenne Municipal Airport	47.7	23.5	35.6	6.9	61	12/21	10	12/31	0.05	-0.43	10
Lander Hunt Field Airport	45.7	20.0	32.9	11.3	59	12/03	10	12/31	0.04	-0.59	6
Laramie Regional Airport	45.0	19.4	32.2	10.7	56	12/21	4	12/31	0.02	-0.30	6
Rawlins Municipal Airport	41.1	21.4	31.2	9.1	55	12/21	7	12/31	0.15	-0.25	38
Sheridan County Airport	47.9	21.2	34.6	10.1	62	12/20	13	12/02	0.06	-0.48	11

## December 2024 Highlights

### Monthly Rankings

Temperature in degrees Fahrenheit, Precipitation in inches

Temperature	Temperature / Ranking	Record / Year	Period of Record
Rawlins, Wyoming	31.2 / 2nd Warmest	33.5 / 1980	1951-2024
Chadron, Nebraska	33.8 / 2nd Warmest (tied with 1979)	33.9 / 1957	1941-2024
Scottsbluff, Nebraska	36.2 / 3rd Warmest (tied with 1933)	37.0 / 1980	1893-2024
Casper, Wyoming	33.4 / 3rd Warmest	34.3 / 1980	1939-2024
Lander, Wyoming	32.9 / 3rd Warmest	34.3 / 1980	1891-2024
Goodland, Kansas	38.1 / 4th Warmest	39.6 / 1933	1895-2024
Colorado Springs, Colorado	37.8 / 4th Warmest	41.0 / 1933	1894-2024
Grand Junction, Colorado	36.2 / 4th Warmest	40.1 / 1980	1893-2024
Precipitation	Precipitation / Ranking	Record / Year	Period of Record
McCook, Nebraska	0.0 / Driest (tied with 1928 and 1922)		1894-2024
Scottsbluff, Nebraska	Trace / Driest (tied with 2002+)		1893-2024
Dodge City, Kansas	Trace / 2nd Driest (tied with 2021+)	0.0 / 1889	1874-2024
North Platte, Nebraska	0.01 / 2nd Driest (tied with 1998+)	Trace / 2002+	1874-2024
Wichita, Kansas	0.03 / 3rd Driest (2017+)	0.01 / 2021	1888-2024

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# About the High Plains Regional Climate Center

The High Plains Regional Climate Center (HPRCC) is one of six NOAA Regional Climate Centers (RCCs) that has been providing timely climate data and information to the public for cost effective decision-making since 1987. The HPRCC primarily serves the six-state region of Colorado, Kansas, Nebraska, North Dakota, South Dakota, and Wyoming, but has also served people from all across the country and even throughout the world. HPRCC operates under a three-tiered structure of climate services and works closely with other organizations on the local, regional, and national levels. HPRCC staff engage with a wide range of stakeholders including K-20 education, the public, media, private industry, research, and state/tribal/federal entities, among others.

Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to alleviate the burden of climate information management for people who use climate information to make management decisions.

HPRCC is involved in the ongoing development and management of ACIS. In the spring of 2014, the RCCs released a new website for ACIS. This new and improved website not only contains descriptions of ACIS and the sources of data found within, but also features real-world examples of how RCCs and external groups are using ACIS for their particular climate data needs. In addition to these examples, there is extensive documentation and tutorials on how ACIS can be used and accessed by external clients using Web Services. For more information see: <http://rcc-acis.org>.



## Additional Summary Information for the High Plains

### Missouri River Basin Quarterly Climate Impacts and Outlook

The screenshot shows the cover page of a report titled "Missouri River Basin Quarterly Climate Impacts and Outlook" for September-October 2014. It includes sections for "National - Significant Events for September - November 2014", "Regional - Climate Overview for September - November 2014", "Drought Co-Occurrence", and "3 Month Precipitation and Temperature Outlooks".

For more information:  
<https://www.drought.gov/drought/dews/missouri-river-basin/reports-assessments-and-outlooks>

### Midwest and Great Plains Monthly Climate and Drought Webinar

The screenshot shows a video player for a webinar titled "20141120 Monthly Climate and Drought Webinar". The main content is a "Forecast Precipitation Amounts (7 day)" map of the Midwest and Great Plains regions, with a play button overlay.

To sign up for future webinars:  
<https://www.drought.gov/drought/calendar/webinars>

For an archive:  
[www.hprcc.unl.edu/webinars.php](http://www.hprcc.unl.edu/webinars.php)

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