



November 2024 Climate Summary



Heavy snowfall in Western Kansas, Photo Courtesy of Gannon Rush

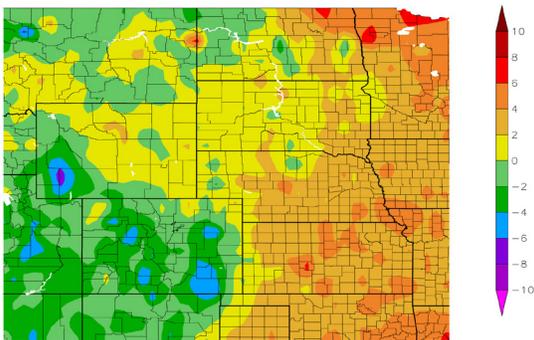
Regional Breakdown

The steady intensification of drought conditions across the High Plains was halted in November, with large portions of the region observing over 200 percent of their normal precipitation. However, Parts of Wyoming and the Dakotas were not as fortunate, missing out on the much-needed precipitation. Outside of Colorado, temperatures remained above normal at the end of the fall season.

Two major snowstorms impacted Colorado this month, one of which struck the state ahead of Thanksgiving. The first storm took place beginning on the 5th and ended early on the 9th. Travel was greatly hampered, with both I-70 and I-25 shut down. Roughly 1000 flights were canceled or delayed at Denver International due to the storm, while thousands of people were without power in the city. On the plains east of Denver, over 100 pronghorns were found dead after the heavy snow forced them onto roads. The equivalent liquid precipitation from this storm was over 3 inches (7.62 cm) in some areas, which translates to roughly 20 percent of their annual precipitation. A second storm just before Thanksgiving disrupted travel plans and caused havoc on I-70 in the mountains. Dozens of avalanches were reported across the state, including near popular locations such as Breckenridge.

Temperature and Precipitation Overview

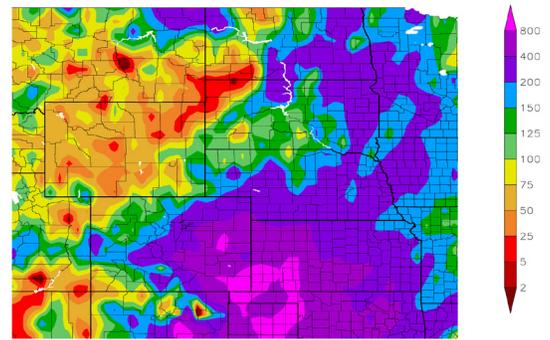
Departure from Normal Temperature (F)
11/1/2024 - 11/30/2024



Generated 12/20/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
11/1/2024 - 11/30/2024



Generated 12/20/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Departure from 1991-2020 normal temperature (left) and percent of normal precipitation (right) for November 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

After near-record levels of dryness this fall, November brought well above normal precipitation for much of the region. The majority of Kansas was above 200 percent of normal, while areas near Dodge City reached as high as 800 percent. Some areas in the western High Plains were nearly bone dry, with up to 0.10 inches (2.54 mm) of precipitation.

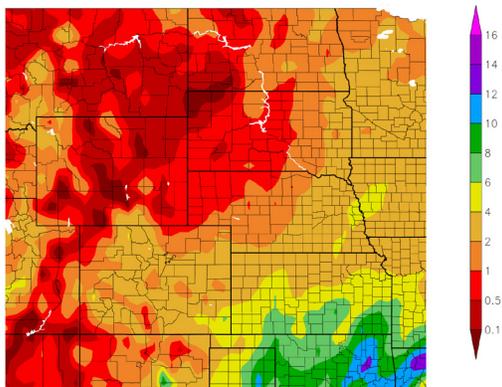
Kansas received generous amounts of precipitation this month, with multiple locations recording their wettest November. Notable long-term stations setting their record included Dodge City, Goodland, and Wichita. The southeastern part of the state had several locations observe more than 10 inches (25.4 cm) this month, with up to 6 inches (15.24 cm) falling on the 3rd. Pittsburg nearly set the statewide November precipitation record, with 11.80 inches (29.97 cm) of precipitation.

Parts of Nebraska were near record to record wettest this month. Lincoln and Omaha ranked third and seventh, respectively, after receiving over 3 inches (7.62 cm). Beatrice broke their previous record by over an inch (2.54 cm), with 4.50 inches (11.43 cm) falling this month. Other places in the state observing record precipitation this month were Minden and Mead.

A very early-season snowstorm in Colorado dumped record-breaking amounts of snow early in the month. Over two feet of snow (60.96 cm) fell in places across the state on the 7th, causing a multitude of problems. Several other snowstorms impacted parts of Colorado, including another one on the 27th that dropped over a foot (30.48 cm) in the mountains. At the end of the month, several stations near Mount Lindsey (east of Alamosa) recorded over 50 inches (1.35 m) of snow.

Regional Precipitation

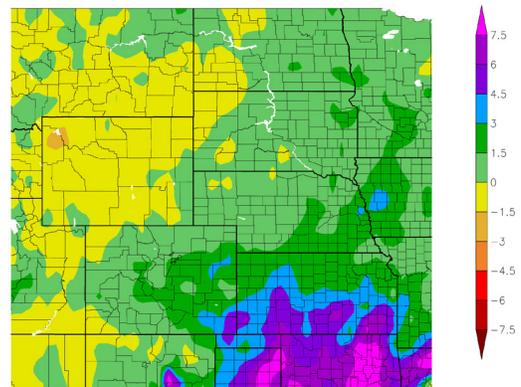
Precipitation (in)
11/1/2024 – 11/30/2024



Generated 12/20/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)
11/1/2024 – 11/30/2024



Generated 12/20/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Total precipitation in inches (left) and departure from normal precipitation in inches (right) for November 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

Temperatures began to cool off in Colorado and western Wyoming this month, but the rest of the region remained above normal. Parts of Kansas and Nebraska were up to 6 degrees F (3.3 degrees C) above normal, concluding a very warm fall for the High Plains.

While no records were broken this month, numerous stations recorded their warmest fall. Every state in the High Plains had at least one location surpass their record, with 110 broken in total. Wyoming led the way with 42 stations, however, no major locations such as Cheyenne or Sheridan were ranked. Colorado came in second, with 22 stations ranking their warmest temperature. This included Grand Junction, while Denver and Akron ranked in the top 5. South Dakota had 16 stations ranked warmest, including Sioux Falls and Mobridge. Dozens of stations across the High Plains fell just shy of the records set during the exceptionally hot fall of 1963.

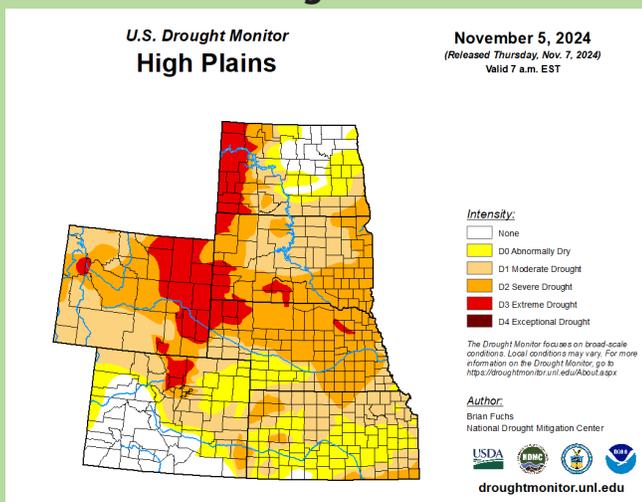
Drought Conditions

Heavy precipitation, particularly in Kansas and eastern Colorado, helped ease drought conditions this month. For the most part, only improvements were made in November. Overall, the region observed a decrease of over 9 percent in abnormally dry to exceptional drought conditions (D0 to D4).

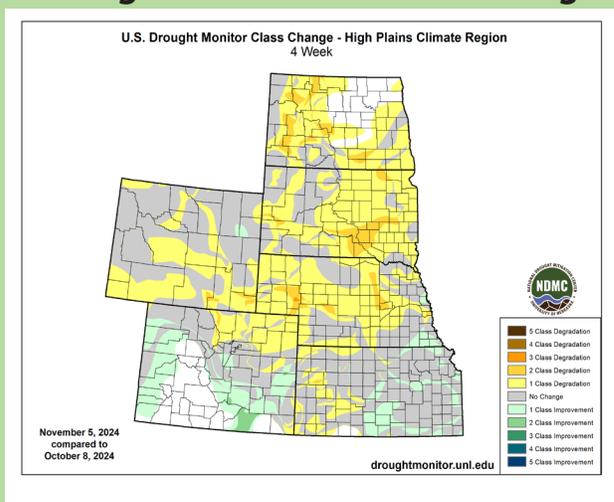
Kansas benefitted greatly from the precipitation, with up to 3 categories of improvement this month. Extreme drought (D3) and severe drought (D2) were eliminated, while moderate drought (D1) was reduced by nearly 46 percent in the state. Soil moisture and winter wheat have also responded positively to the influx of moisture.

Colorado also experienced widespread improvements this month. Drought conditions across the eastern part of the state were significantly reduced, with only D0 remaining. The pocket of D3 near Fort Collins remains but has shrunk significantly.

U.S. Drought Monitor



Drought Monitor 1-Month Change



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

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

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.

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 November 30th indicates that drought improvements are possible in Kansas, Nebraska, and Wyoming.

Temperature Outlook
Seasonal Temperature Outlook
Valid: Dec-Jan-Feb 2024-25
Issued: November 21, 2024

Precipitation Outlook
Seasonal Precipitation Outlook
Valid: Dec-Jan-Feb 2024-25
Issued: November 21, 2024

Drought Outlook
U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for November 21, 2024 - February 28, 2025
Released November 21, 2024

Despite large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. *Optimal drought areas are based on the U.S. Drought Monitor areas (intensity of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author: Adam Hartman
NOAA/NWS/NCEP Climate Prediction Center

<https://go.usa.gov/3eZ7>

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	49.3	25.8	37.6	-0.7	65	11/22	17	11/20+	1.14	0.72	271
Alamosa San Luis Airport	44.9	13.8	29.4	-0.9	61	11/02	3	11/30	0.71	0.34	192
Colorado Springs Municipal Airport	49.0	26.1	37.6	-1.9	71	11/23	14	11/29	1.78	1.41	481
Denver International Airport	49.7	26.6	38.2	-1.2	71	11/23	13	11/28	1.98	1.34	309
Grand Junction Walker Field Airport	50.8	29.2	40.0	0.4	68	11/15	21	11/20+	1.52	0.91	249
Pueblo Memorial Airport	52.6	24.2	38.4	-2.1	70	11/24	13	11/29	2.51	2.04	534

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	56.0	37.1	46.6	4.5	70	11/15	16	11/29	2.85	1.69	246
Dodge City Regional Airport	58.0	35.4	46.7	3.0	73	11/01	19	11/28	6.38	5.58	798
Goodland Renner Field	54.6	28.4	41.5	1.9	67	11/10	17	11/28	3.35	2.81	620
Topeka Municipal Airport	58.3	38.2	48.3	4.1	69	11/03+	18	11/29	4.30	2.52	242
Wichita Mid-Continent Airport	59.1	39.6	49.3	3.5	70	11/01+	21	11/26	6.99	5.63	514

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	50.9	21.5	36.2	0.8	67	11/14	0	11/25	0.50	0.10	125
Grand Island Airport	51.9	30.7	41.3	1.7	67	11/15	14	11/29+	2.88	1.78	262
Lincoln Municipal Airport	54.6	32.8	43.7	3.9	71	11/03	12	11/29	3.85	2.55	296
Norfolk Karl Stefan Airfield	51.9	30.6	41.2	4.4	68	11/15	8	11/29	2.04	0.82	167
North Platte Regional Airport	54.1	25.3	39.7	2.7	71	11/14	12	11/28+	1.39	0.90	284
Omaha Eppley Airport	51.6	34.1	42.9	2.7	70	11/03	11	11/29	3.63	2.18	250
Valentine Miller Field	49.3	23.6	36.5	0.3	68	11/14	6	11/28+	0.94	0.37	165

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	40.6	20.8	30.7	0.8	60	11/10	-6	11/30	1.37	0.68	199
Fargo International Airport	38.3	25.5	31.9	2.4	55	11/08+	-8	11/30	2.29	1.32	236
Grand Forks International Airport	39.2	24.7	32.0	5.3	55	11/07	-6	11/30	1.55	0.63	168
Theodore Roosevelt Airport	40.2	18.9	29.6	-0.7	63	11/09	0	11/26+	0.32	-0.15	68
Williston International Airport	36.0	18.6	27.3	-0.5	59	11/09	-12	11/29	1.12	0.45	167

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>.

November 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	43.7	22.9	33.3	2.4	61	11/15	-4	11/30	1.65	0.91	223
Huron Regional Airport	45.6	24.7	35.2	2.1	64	11/15	2	11/30	1.32	0.50	161
Pierre Regional Airport	46.0	24.1	35.1	1.0	64	11/10	2	11/28+	0.76	-0.01	99
Rapid City Regional Airport	48.3	23.8	36.0	1.4	69	11/14	7	11/26	0.59	0.12	126
Sioux Falls Joe Foss Field Airport	47.1	28.2	37.7	2.9	63	11/02+	4	11/30	2.11	0.89	173

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	45.7	23.6	34.7	0.7	62	11/11+	3	11/24	0.39	-0.25	61
Cheyenne Municipal Airport	48.2	24.4	36.3	0.2	63	11/11+	12	11/07	0.56	-0.05	92
Lander Hunt Field Airport	44.8	21.2	33.0	0.9	60	11/11	13	11/19+	0.32	-0.46	41
Laramie Regional Airport	45.0	20.7	32.9	2.7	61	11/23	3	11/07	0.40	-0.02	95
Rawlins Municipal Airport	42.7	22.8	32.8	1.5	58	11/15	8	11/07	0.33	-0.14	70
Sheridan County Airport	46.7	20.4	33.9	0.6	65	11/10	2	11/25	0.42	-0.34	55

November 2024 Highlights

Monthly Rankings

Temperature in degrees Fahrenheit, Precipitation in inches

Temperature	Temperature / Ranking	Record / Year	Period of Record
Mobridge, South Dakota	53.7 / Warmest	53.2 / 2016	1911-2024
Sioux Falls, South Dakota	54.1 / Warmest	53.8 / 1963	1893-2024
Grand Junction, Colorado	58.5 / Warmest	58.4 / 1963	1893-2024
Norfolk, Nebraska	56.4 / Warmest	55.9 / 2015	1893-2024
Sisseton, South Dakota	51.8 / 2nd Warmest	53.5 / 1963	1931-2024
Rapid City, South Dakota	53.7 / 2nd Warmest	55.2 / 1963	1942-2024
Grand Forks, North Dakota	49.8 / 2nd Warmest	50.3 / 1963	1893-2024
Lander, Wyoming	50.1 / 2nd Warmest	51.1 / 1963	1891-2024
McCook, Nebraska	57.5 / 2nd Warmest	59.9 / 1963	1894-2024
Goodland, Kansas	57.2 / 2nd Warmest	57.3 / 1939	1895-2024

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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 in the center.

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

For an archive:
www.hprcc.unl.edu/webinars.php

Author Information

For questions, comments, or suggestions, please contact:
Gannon Rush
711 Hardin Hall, 3310 Holdrege Street
Lincoln, NE 68583-0997
402-472-8968
<https://hprcc.unl.edu/contact.php>

