



January 2023 Climate Summary



Regional Breakdown

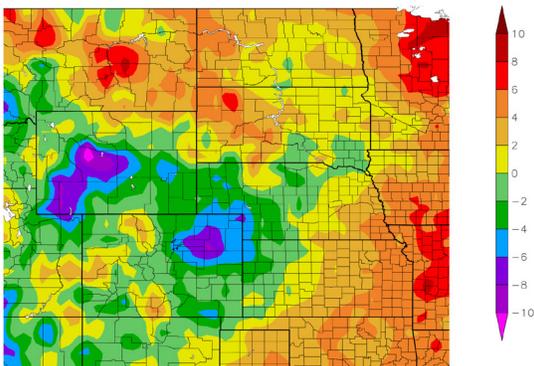
After below normal precipitation in the High Plains for most of 2022, the new year began with record-breaking wetness. Many locations in the central part of the region eclipsed or ranked in the top 10 for both precipitation and snowfall.

The winter of 2022-2023 has been very beneficial to parts of Wyoming, western Nebraska, eastern South Dakota, and northeastern Colorado. Valentine, Nebraska has already recorded their wettest and snowiest winter on record, with nearly 10 inches (25.4 cm) of snowfall and 1 inch (2.54 mm) of precipitation more than the previous record. While this wetness has impacted places affected by drought in 2022, the changes in drought conditions have been slow to improve due to the severity.

Strong winds once again reared their head, this time combining with the winter weather. Multiple times during the month, both I-80 and I-25 were closed in Wyoming due to high winds and winter storms, or a combination of both. Several large accidents took place during the month, with the largest being a 44-vehicle pileup on the 28th to the west of Laramie.

Temperature and Precipitation Overview

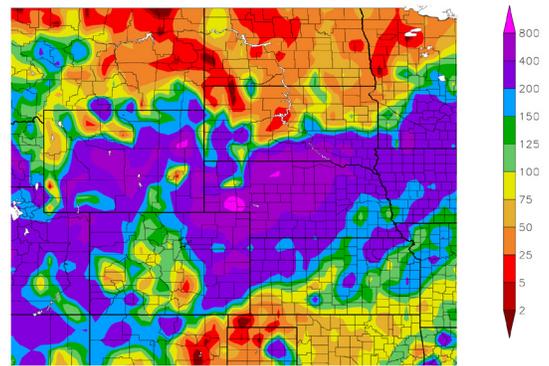
Departure from Normal Temperature (F)
1/1/2023 - 1/31/2023



Generated 2/6/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
1/1/2023 - 1/31/2023



Generated 2/1/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Departure from 1991-2020 normal temperature (left) and percent of normal precipitation (right) for January 2023 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 and Water Resources

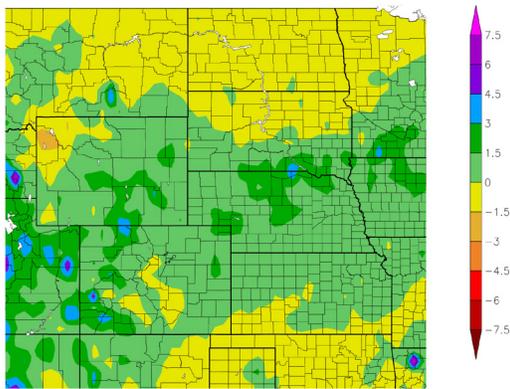
Several winter storms impacted the drought-stricken central part of the region this past month, leading to numerous precipitation records being broken. While many locations were above 200 percent of their normal precipitation, North Dakota and the northern portions of South Dakota missed out on this beneficial precipitation.

Records were not only broken but shattered in parts of Nebraska and Wyoming. In Nebraska, monthly precipitation records were eclipsed by nearly 0.50 inches (12.70 mm) in Scottsbluff and Valentine, while many other locations like North Platte and Grand Island ranked in the top 10. The state of Wyoming experienced the brunt of these storms, with Casper, Lander, Riverton, and Rawlins surpassing their record. On the opposite end of the spectrum, North Dakota missed out, and Grand Forks ranked in the top 10 driest (0.90 inches; 22.86 mm).

As of January 31st, the mountain snowpack is in great shape. Most basins are near normal, with several reporting well above normal snowpack. The only basins slightly below normal are the South Platte in Wyoming and the Arkansas in Colorado. The several rounds of winter storms this month greatly improved the drought situation, with runoff likely to be in good shape this spring.

Regional Precipitation

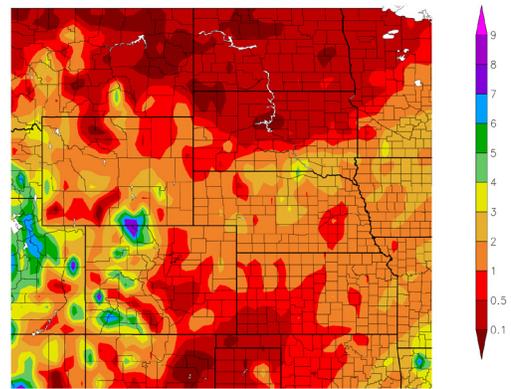
Departure from Normal Precipitation (in)
1/1/2023 – 1/31/2023



Generated 2/6/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Precipitation (in)
1/1/2023 – 1/31/2023



Generated 2/6/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Above: Total precipitation in inches (left) and departure from normal precipitation in inches (right) for January 2023. 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 varied across the region, with areas ranging from 8 degrees F (4.4 degrees C) below normal to 6 degrees F (3.3 degrees C) above normal. Despite the wide fluctuation in temperature, no major locations ranked in the top 10.

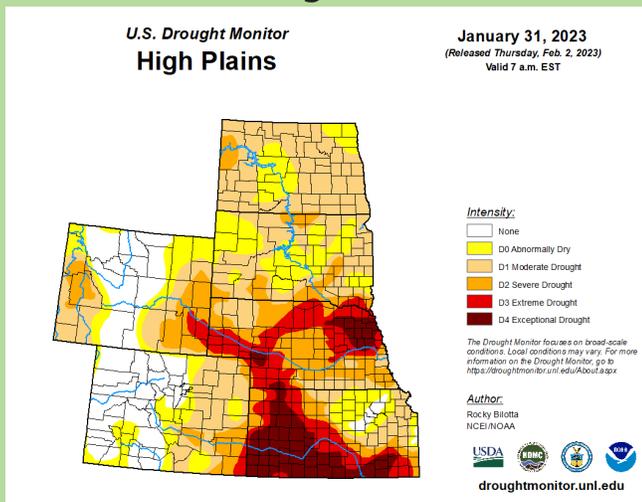
Despite the overall lack of monthly records broken in the region, it was not a quiet month. Like December, January started with warmer temperatures while cooler temperatures dominated at the end. Temperatures reached 74 degrees F (23.3 degrees C) on the 2nd in Chante, Kansas. Not only were the temperatures well above normal, but they also lingered throughout the month. Ten days in Chanute were over 60 degrees F (15.6 degrees C) which tied for the second most in the month of January. The end of the month brought bitter temperatures throughout the region. Temperatures reached below -40 degrees F (-40 degrees C) in the mountainous parts of Colorado and Wyoming.

Drought Conditions

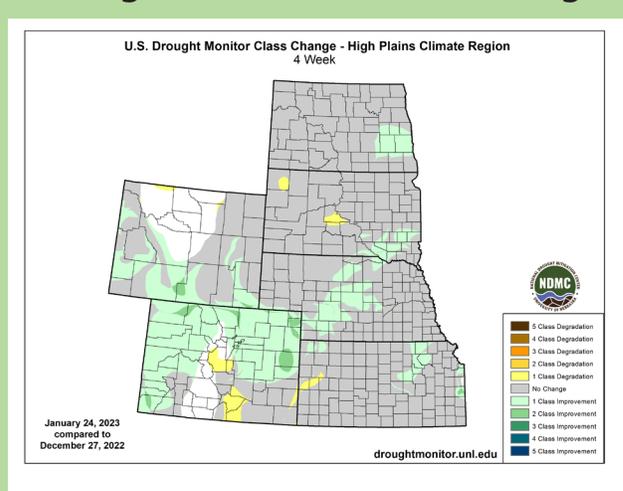
After back-to-back months of above normal precipitation, drought conditions have started to finally improve. Some areas in the Dakotas and along the southern Front Range of the Rockies missed out on the much-needed precipitation, with conditions deteriorating as a result. Overall, there was a 3 percent decrease in D0 to D4 (abnormally dry to exceptional drought conditions).

Although North Dakota missed out on the precipitation this past month, drought conditions improved after the near-record snowfall in December. The state experienced a 12 percent reduction in D2 (severe drought) in response, however, nearly 80 percent of the state is still engulfed in D1 (moderate drought). Wyoming greatly benefited this month, with an 11 percent reduction in D0-D4 in the state. Elsewhere in the region, other improvements and degradation were observed. According to the Climate Prediction Center’s U.S. Monthly Drought Outlook for January, drought conditions will improve in southeastern Kansas.

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/>.

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Climate Outlooks

According to the Climate Prediction Center, La Niña conditions are likely to weaken and transition into ENSO-neutral this spring. A La Niña advisory 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 elevated chances of Minor Flooding in the eastern parts of Kansas, Nebraska, and South Dakota through the end of April. According to the National Interagency Fire Center (NIFC), fire potential will be limited across the region through May.

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

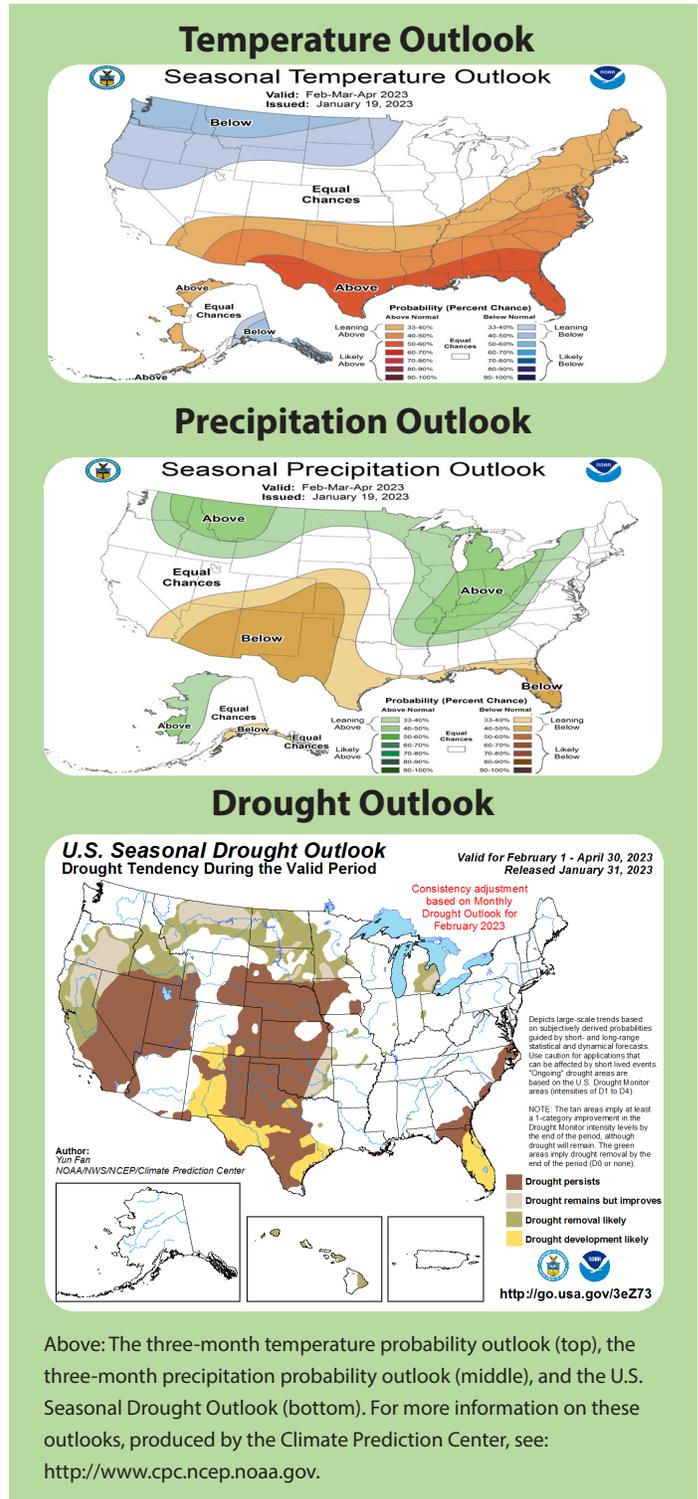
The three-month temperature outlook shows an increased chance of below-normal temperatures across the northern United States, while above-normal temperatures are favored for the southern and northeastern states. Increased chances of below-normal temperatures are present in the Dakotas and the northern portion of Wyoming.

Precipitation

The outlook for the next three months indicates below-normal precipitation across the southwestern parts of the United States and above-normal chances across the northwestern and midwestern portions. Above-normal precipitation is slightly favored in North Dakota and northwestern Wyoming. Drought-stricken Colorado, Kansas, and Nebraska all are slightly favored for below normal precipitation.

Drought

The U.S Seasonal Drought Outlook released on January 31st indicates that improvements to drought conditions will continue in the Dakotas, while deteriorating in southern Colorado.



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	30.3	14.2	22.3	-6.8	51	1/14	-10	1/29	0.47	0.30	276
Alamosa San Luis Airport	38.2	4.2	21.2	4.4	53	1/14	-12	1/26	0.39	0.07	122
Colorado Springs Municipal Airport	42.0	20.2	31.1	-0.6	67	1/14	-2	1/30	0.40	0.11	138
Denver International Airport	34.3	15.7	25.0	-6.7	59	1/14	-10	1/30	1.25	0.87	329
Grand Junction Walker Field Airport	39.4	26.0	32.7	5.0	52	1/10	8	1/31	0.79	0.18	130
Pueblo Memorial Airport	45.9	14.5	30.2	-1.7	67	1/14	-12	1/31	0.17	-0.12	59

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	40.1	23.3	31.7	2.9	61	1/9	5	1/31	1.18	0.51	176
Dodge City Regional Airport	45.5	20.9	33.2	0.2	70	1/15	4	1/31	0.57	-0.03	95
Goodland Renner Field	34.2	16.2	25.2	-5.0	54	1/13	-6	1/31	0.87	0.55	272
Topeka Municipal Airport	44.4	24.2	34.3	4.1	62	1/1	8	1/31	1.15	0.26	129
Wichita Mid-Continent Airport	47.6	25.5	36.6	3.4	63	1/16	7	1/31	1.25	0.40	147

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	33.0	13.2	23.1	-2.4	47	1/14	-18	1/30	1.31	1.16	873
Grand Island Airport	35.0	19.7	27.4	1.5	53	1/10	0	1/29	1.49	0.88	244
Lincoln Municipal Airport	37.1	20.0	28.5	3.5	56	1/10	2	1/31	1.32	0.59	181
Norfolk Karl Stefan Airfield	31.6	15.4	23.5	1.2	44	1/10	-8	1/30	1.58	0.97	259
North Platte Regional Airport	33.5	12.5	23.0	-3.3	43	1/27	-11	1/31	1.87	1.48	479
Omaha Eppley Airport	34.1	19.5	26.8	2.4	50	1/9	0	1/30	1.22	0.47	163
Valentine Miller Field	30.6	11.4	21.0	-3.5	48	1/14	-16	1/30	2.36	2.04	738

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	23.0	4.2	13.6	0.8	38	1/26	-20	1/30	0.20	-0.28	42
Fargo International Airport	17.9	3.5	10.7	1.5	35	1/27	-22	1/30	0.23	-0.48	32
Grand Forks International Airport	17.6	1.0	9.3	3.0	36	1/26	-25	1/30	0.12	-0.37	24
Theodore Roosevelt Airport	26.5	10.5	18.5	2.1	40	1/13	-17	1/30	T	-	-
Williston International Airport	22.2	8.2	15.2	3.6	38	1/14	-21	1/30	0.20	-0.36	36

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>.

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South Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Aberdeen Regional Airport	22.5	5.2	13.8	1.0	38	1/27	-24	1/30	0.34	-0.21	62
Huron Regional Airport	23.8	8.6	16.2	0.2	37	1/27	-15	1/30	0.44	-0.14	76
Pierre Regional Airport	29.1	12.7	20.9	1.8	44	1/9	-11	1/30	0.35	-0.10	78
Rapid City Regional Airport	38.0	15.1	26.5	2.2	64	1/14	-24	1/30	0.73	0.42	235
Sioux Falls Joe Foss Field Airport	26.2	9.4	17.8	-0.1	39	1/27	-13	1/31	1.90	1.30	317

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	27.4	14.3	20.9	-4.2	39	1/15	-21	1/30	1.99	1.50	406
Cheyenne Municipal Airport	33.9	17.4	25.6	-3.6	56	1/14	-9	1/29	1.82	1.47	520
Lander Hunt Field Airport	22.1	4.7	13.4	-7.9	36	1/26	-31	1/31	2.55	2.04	500
Laramie Regional Airport	29.1	9.3	19.2	-2.7	49	1/14	-26	1/31	0.40	0.12	143
Rawlins Municipal Airport	26.0	13.6	19.8	-2.5	41	1/13	-20	1/30	3.12	2.70	743
Sheridan County Airport	37.1	16.3	26.7	2.7	52	1/14	-27	1/30	1.09	0.48	179

January 2023 Highlights

Monthly Rankings

Temperature in degrees Fahrenheit, Precipitation in inches

Precipitation	Precipitation/ Ranking	Record / Year	Period of Record
Scottsbluff, Nebraska	1.57 / Wettest	1.26 / 1978	1893-2023
Valentine, Nebraska	2.36 / Wettest	1.74 / 1944	1889-2023
Casper, Wyoming	1.99 / Wettest	1.42 / 1987	1939-2023
Lander, Wyoming	2.55 / Wettest	2.06 / 1910	1891-2023
Rawlins, Wyoming	2.60 / Wettest	1.90 / 1980	1951-2023
North Platte, Nebraska	1.87 / 3rd Wettest	2.33 / 1879	1874-2022
Cheyenne, Wyoming	1.82 / 4th Wettest	2.78 / 1949	1871-2023
Sioux Falls, South Dakota	1.90 / 4th Wettest	2.23 / 1922	1893-2023
Snowfall	Snowfall/ Ranking	Record / Year	Period of Record
Scottsbluff, Nebraska	23.9 / Snowiest	23.7 / 1949	1893-2023
North Platte, Nebraska	22.6 / Snowiest	21.2 / 1949	1874-2023
Valentine, Nebraska	28.3 / Snowiest	18.3 / 1929	1889-2023
Lander, Wyoming	36.2 / Snowiest	26.5 / 1962	1891-2023
Sioux Falls, South Dakota	21.4 / 2nd Snowiest	22.2 / 1929	1893-2023
Cheyenne, Wyoming	20.3 / 2nd Snowiest (tied with 1891)	35.5 / 1980	1883-2023
Casper, Wyoming	37.0 / 2nd Snowiest	39.3 / 1949	1939-2023

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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 features a map of the basin, a table of contents, and several sections of text and graphics. Key sections include "National - Significant Events for September - November 2014", "Regional - Impacts for September - November 2014", "Regional - Climate Overview for September - November 2014", "Drought Co-Occurrence", "3 Month Precipitation and Temperature Outlooks", and "Soil Moisture Conditions".

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 map titled "Forecast Precipitation Amounts (7 day)" showing precipitation forecasts for the Midwest and Great Plains regions. The map uses a color scale from blue (low) to red (high). A play button is visible in the center of the map.

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

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

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