



# July 2022 Climate Summary



Silage Harvest in Kansas, Photo Courtesy of Gannon Rush

## Hot and Dry Conditions Continue into July

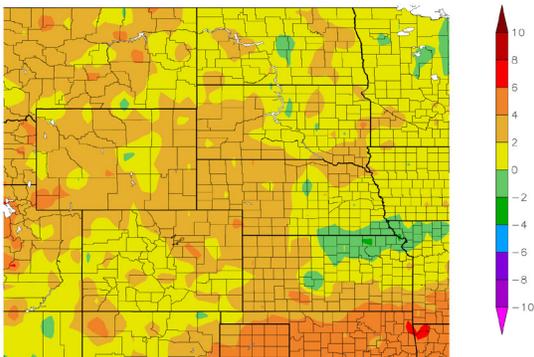
The hot and dry conditions that started at the end of June carried over into July. Temperatures were well above normal for much of the month before finally cooling off. While precipitation was spotty, the amounts were plentiful in areas that received it.

The ongoing drought has taken its toll on agricultural conditions, particularly in Kansas and Nebraska. Corn was rated 33 percent and 22 percent poor to very poor, respectively. Farmers in western Kansas have started filing for crop insurance due to poor expected yields. Sorghum is a fairly drought-resistant crop, however, over 30 percent is rated poor to very poor in both states. Pasture and range conditions are also struggling, with over 30 percent rated very poor in both states. With a lack of feed, there has been a surge in cattle sell-offs.

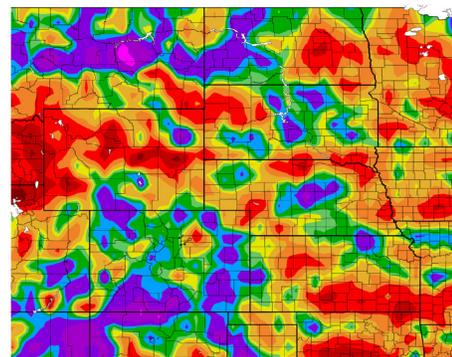
Temperatures this month were excruciatingly hot, with several locations in the southern part of the region breaking all-time average temperature records. The following stations all have data going back to the 1800s. In Colorado, Castle Rock and Fort Collins surpassed their records on the 19th, while Fort Morgan did so on the 2nd. Scottsbluff, Nebraska broke its record on the 18th and Dodge City had an average temperature of 94.5 degrees (34.7 degrees C) on the 15th to tie the record.

## Temperature and Precipitation Overview

Departure from Normal Temperature (F)  
7/1/2022 - 7/31/2022



Percent of Normal Precipitation (%)  
7/1/2022 - 7/31/2022



Above: Departure from 1991-2020 normal temperature (left) and percent of normal precipitation (right) for July 2022 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: <http://hprcc.unl.edu/maps/current>.

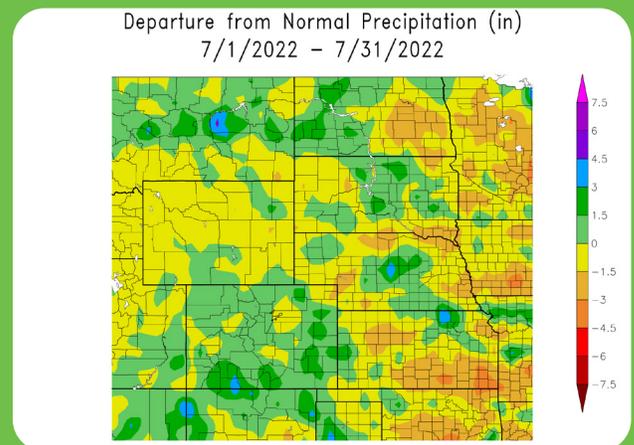
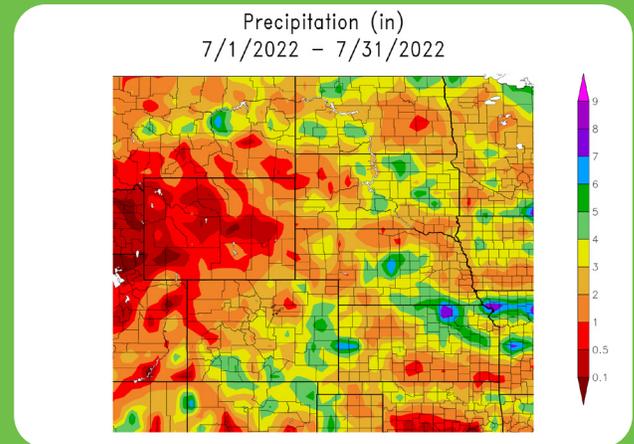
## Precipitation

Precipitation across the region was sporadic this month, however, locations that did receive rainfall in July were well above-normal. Drought-afflicted areas such as southwestern Nebraska and western Kansas continued to be below normal.

Precipitation was plentiful in the northern parts of the region, with several locations ranking in the top 10 wettest Julys. Huron, South Dakota, received 6.52 inches (16.56 cm) ranking 2nd wettest, while Dickinson, North Dakota, recorded 4.39 inches (11.15 cm) to place 4th. The southwest monsoon brought much-needed precipitation, with 5.35 inches (13.59 cm) observed in Colorado Springs, Colorado, to rank 5th wettest.

It was a relatively quiet month for severe storms for the region, aside from another derecho in South Dakota on the 5th of July. Much of the precipitation in Huron occurred from this storm, with 5 inches (12.7 cm) reported by a nearby CoCoRaHS observer. Notable impacts included a 99 mph (159 km/h) wind gust near Howard and the presence of ominous green skies over Sioux Falls.

### Regional Precipitation



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for July 2022. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

## Streamflow Update

Streamflow throughout the region was generally in good shape. Heavy precipitation led conditions in northeastern South Dakota and eastern North Dakota to have much above normal streamflow with some flooding expected. Conditions in southwestern Nebraska and western Kansas continued to be much below normal. Annual runoff above Sioux City is 80% percent of normal due to the long-term effects of drought.

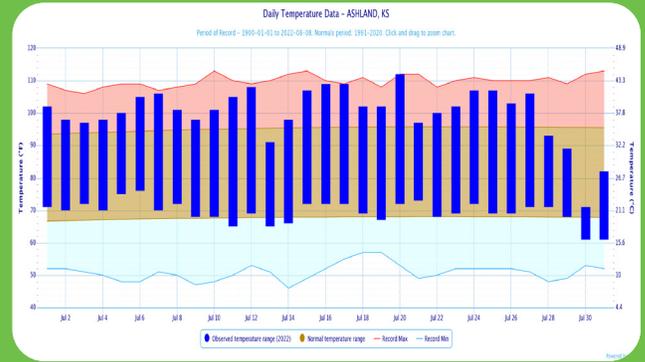
## Temperatures

The trend of above-normal temperatures continued into July. Much of the region experienced temperatures 2 to 4 degrees F (1.1 and 2.2 degrees C) above normal. Temperatures were scorching hot throughout most of July, with relief finally coming towards the end of the month.

Once again, western Kansas experienced the warmest temperatures throughout the region. Many days were well above 100 degrees (56 degrees C), with a station near Ashland recording 20 days above 100 degrees F. In central South Dakota, temperatures reached an incredible 114 degrees F (63 degrees C) on the 18th.

Along the front range of the Rockies, Denver recorded its 2nd warmest July and the 2nd warmest month on record. The average temperature in July was 78 degrees F (43 degrees C). Nearby Cheyenne, Wyoming, observed their 4th warmest July on record with an average temperature of 73.4 degrees F (40.8 degrees C). This also ranked as the 4th warmest month on record.

### Station Spotlight: Ashland, Kansas

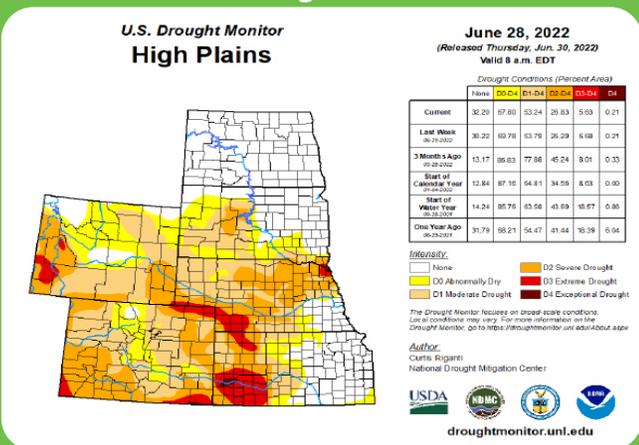


Above: Daily temperatures for July 2022, along with extremes and normals values in Ashland, Kansas.

## Drought Conditions

Warm and dry conditions throughout much of the month led to the intensification of drought conditions in the southern part of the region. Overall, there was a 3 percent increase in moderate to exceptional (D1-D4) drought in July. North Dakota continues to remain drought-free.

### U.S. Drought Monitor



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/>.

Numerous days of extreme heat and a lack of precipitation led to a significant increase in drought conditions across western Kansas. Most notably, D4 increased 7 percent by the end of July. At the end of July, 25 percent of the state is experiencing extreme to exceptional (D3-D4) drought. Nebraska and Wyoming also experienced intensification, with D3 conditions increasing 5 and 3 percent, respectively. Drought conditions did improve in the southwestern parts of Colorado, however, they deteriorated along the Front Range. Elsewhere in the region, other improvements and degradation were observed. According to the Climate Prediction Center's U.S. Monthly Drought Outlook for August, drought improvement is likely across much of Colorado, western Kansas, and southern Wyoming, while development is likely in eastern Nebraska.

# July 2022 Climate Summary

## Climate Outlooks

According to the Climate Prediction Center, La Niña conditions are likely to continue through the end of the year. 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](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 through July indicates a high chance of Major Flooding in northeastern South Dakota through September. According to the National Interagency Fire Center (NIFC), fire potential will be limited to western Nebraska, western South Dakota, and eastern Wyoming through November.

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 majority of the United States. Equal chances of above-, below-, and near-normal are present in North Dakota and northern South Dakota, otherwise above-normal temperatures are favored.

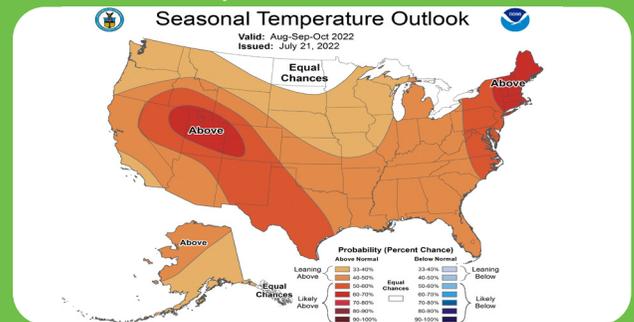
### Precipitation

The outlook for the next three months indicates below-normal precipitation across central parts of the United States. Across the High Plains there are equal chances of above-, below-, and near-normal precipitation in North Dakota. The rest of the region has increased chances of below-normal precipitation.

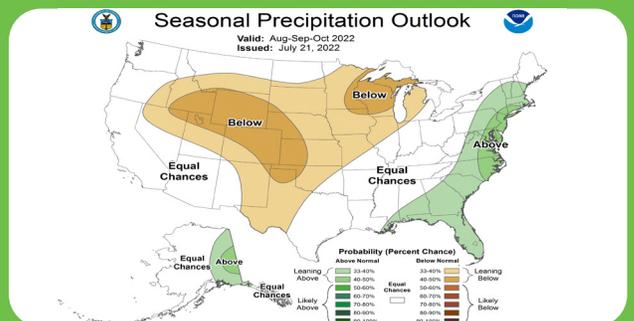
### Drought

The U.S. Seasonal Drought Outlook released on June 30th indicates drought conditions are expected to improve in Colorado and southern Wyoming. Opposite of this, development is likely in parts of South Dakota, Nebraska, and Kansas.

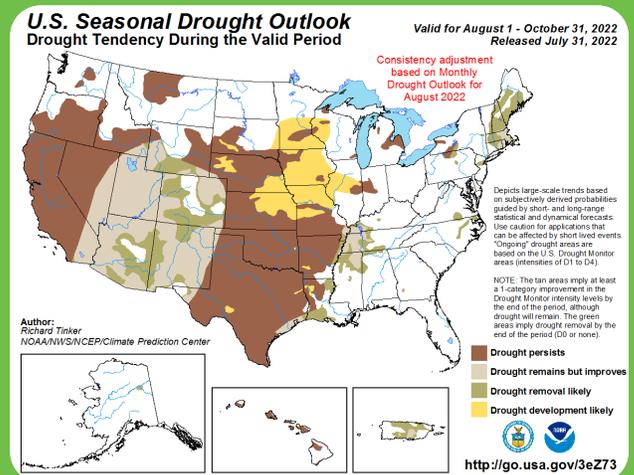
## Temperature Outlook



## Precipitation Outlook



## Drought Outlook



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	92.6	62.0	77.3	2.8	104	07/18	56	07/27	4.34	1.56	156
Alamosa San Luis Airport	83.4	50.5	66.9	1.6	91	07/18	44	07/13	1.62	0.58	156
Colorado Springs Municipal Airport	89.3	60.0	74.7	2.3	100	07/23	54	07/13	5.35	2.23	171
Denver International Airport	93.5	62.6	78.0	2.9	101	07/10	53	07/01	0.99	-1.15	46
Grand Junction Walker Field Airport	95.5	67.0	81.3	2.1	103	07/22	58	07/29	0.93	0.34	158
Pueblo Memorial Airport	96.6	62.8	79.7	2.5	108	07/23	55	07/13	2.12	0.23	112

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	90.6	69.2	79.9	1.0	105	07/23	58	07/30	4.05	-0.1	98
Dodge City Regional Airport	98.3	69.7	84.0	3.9	109	07/19	59	07/30	3.70	0.62	120
Goodland Renner Field	93.9	64.3	79.1	3.0	107	07/23	59	07/30	2.88	-0.2	94
Topeka Municipal Airport	91.9	70.5	81.2	1.4	103	07/23	59	07/30	2.61	-1.38	65
Wichita Mid-Continent Airport	96.2	71.5	83.9	2.4	107	07/19	65	07/13	1.05	-2.93	26

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	95.5	60.5	78.0	2.7	111	07/18	51	07/20	1.93	-0.06	97
Grand Island Airport	89.5	66.4	77.9	0.9	103	07/23	58	07/12	4.62	1.11	132
Lincoln Municipal Airport	89.7	66.7	78.2	0.1	102	07/23	54	07/29	2.57	-0.68	79
Norfolk Karl Stefan Airfield	89.9	65.2	77.5	2.7	101	07/23	50	07/29	2.05	-0.93	69
North Platte Regional Airport	93.7	64.0	78.9	3.3	107	07/14	55	07/12	4.03	0.85	127
Omaha Eppley Airport	88.8	67.6	78.2	0.1	100	07/23	55	07/29	2.73	-0.82	77
Valentine Miller Field	93.0	62.1	77.5	1.8	108	07/18	51	07/12	1.32	-1.5	47

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	86.6	61.1	73.9	2.6	101	07/17	49	07/29	3.77	0.70	12
Fargo International Airport	82.9	60.6	71.8	1.1	94	07/18	49	07/25	3.05	-0.02	99
Grand Forks International Airport	82.8	59.2	71.0	2.1	94	07/18	49	07/02	4.59	1.07	130
Theodore Roosevelt Airport	84.7	57.7	71.2	1.8	99	07/18	49	07/22	4.39	1.84	172
Williston International Airport	84.5	59.2	71.9	1.5	101	07/17	52	07/24	1.99	-0.49	80

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>.

# July 2022 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	86.2	62.7	74.5	2.2	96	07/18	48	07/29	3.75	0.66	121
Huron Regional Airport	86.1	63.8	74.9	1.2	96	07/18	50	07/29	6.52	3.69	230
Pierre Regional Airport	89.2	62.4	75.8	0.9	108	07/18	50	07/29	3.09	0.7	129
Rapid City Regional Airport	90.2	59.2	74.7	2.3	105	07/18	50	07/29	4.03	1.75	177
Sioux Falls Joe Foss Field Airport	87.7	66.4	77.1	2.7	98	07/10	53	07/29	2.40	-0.85	74

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	92.3	52.8	72.5	1.5	99	07/13	43	07/01	0.31	-0.88	26
Cheyenne Municipal Airport	87.8	59.0	73.4	3.3	99	07/18	52	07/02	1.81	-0.30	86
Lander Hunt Field Airport	91.0	58.7	74.9	3.4	100	07/17	51	07/02	0.38	-0.21	64
Laramie Regional Airport	83.5	51.6	67.6	2.8	91	07/18	47	07/29	0.96	-0.38	72
Rawlins Municipal Airport	88.7	53.2	71.0	3.1	95	07/09	43	07/01	0.46	-0.26	64
Sheridan County Airport	92.7	55.1	73.9	3.2	104	07/18	48	07/01	0.37	-0.7	35

## July 2022 Highlights

### Monthly Rankings

Temperature in degrees Fahrenheit, Precipitation in inches

Precipitation	Precipitation / Ranking	Record / Year	Period of Record
Huron, South Dakota	6.52 / 2nd Wettest	6.69 / 1993	1881-2022
Dickinson, North Dakota	4.39 / 4th Wettest	5.65 / 1997	1938-2022
Colorado Springs, Colorado	5.35 / 5th Wettest (tied with 1921)	6.59 / 1939	1894-2022
Temperature	Temperature / Ranking	Record / Year	Period of Record
Denver, Colorado	78.0 / 2nd Warmest	78.9 / 2012	1872-2022
Cheyenne, Wyoming	73.4 / 4th Warmest	75.1 / 2003	1871-2022
Scottsbluff, Nebraska	78.5 / 5th Warmest	79.7 / 2012+	1893-2022
Laramie, Wyoming	67.6 / 5th Warmest	67.8 / 2012+	1948-2022
Akron, Colorado	77.3 / 5th Warmest (tied with 2017+)	78.9 / 2012	1937-2022
Rawlins, Wyoming	71.0 / 6th Warmest	72.6 / 2021	1951-2022
Lander, Wyoming	74.9 / 6th Warmest (tied with 2002)	75.9 / 2006 & 2003	1891-2022
Colorado Springs, Colorado	74.7 / 7th Warmest	75.8 / 2003	1894-2022
Alamosa, Colorado	66.9 / 8th Warmest	68.4 / 2011	1906-2022
Grand Junction, Colorado	81.3 / 8th Warmest (tied with 1994+)	84.1 / 2003	1893-2022
Dodge City, Kansas	84.0 / 8th Warmest (tied with 2012+)	87.3 / 1934	1874-2022
Pueblo, Colorado	79.7 / 10th Warmest	81.2 / 2003	1888-2022
Sisseton, South Dakota	75.7 / 10th Warmest (tied with 1935)	80.6 / 1936	1931-2022

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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

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

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)

## 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>

