



Local Drought Update

July 2, 2023
8:58 AM

Worst Drought Conditions Expand

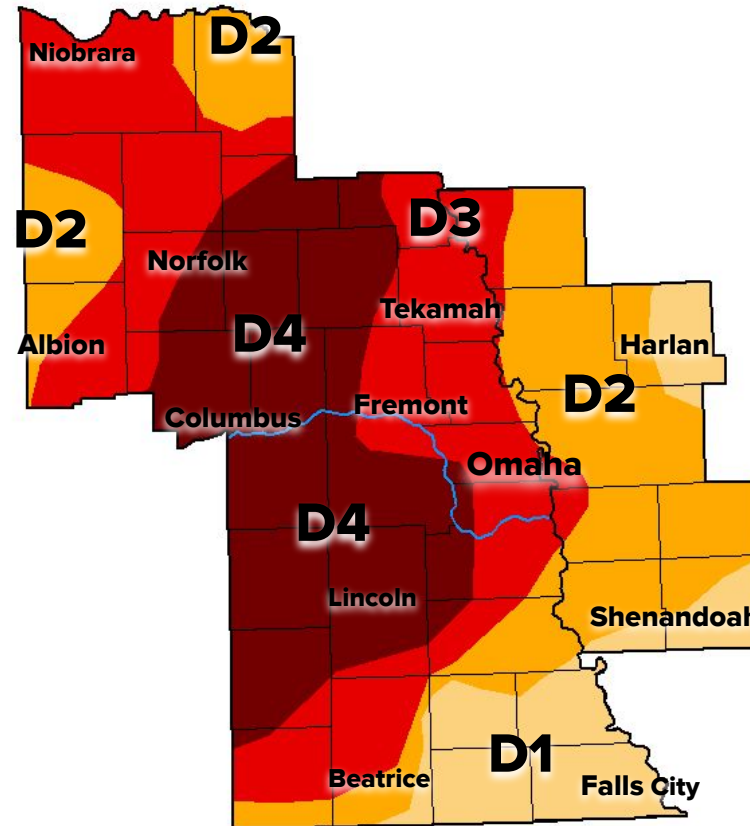
Key Messages This Week

- One category degradations were implemented in parts of southeastern Nebraska.
- Exceptional drought (D4) has found its way into Douglas and Sarpy counties and the Omaha metro.
- Significant rainfall this week may bring improvements to southeastern Nebraska's drought categories for next week.

Next Scheduled Briefing

- The US Drought Monitor is updated and released each Thursday morning and can be viewed at droughtmonitor.unl.edu.
- Expect this briefing packet to be updated by July 31st.

U.S. Drought Monitor Omaha/Valley, NE WFO



June 27, 2023
(Released Thursday, Jun. 29, 2023)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	87.92	60.74	28.44
Last Week 06-20-2023	0.00	100.00	98.07	86.45	57.56	24.37
3 Months Ago 03-28-2023	2.02	97.98	91.43	64.96	33.48	16.86
Start of Calendar Year 01-03-2023	0.00	100.00	99.29	77.57	47.08	24.75
Start of Water Year 09-27-2022	0.00	100.00	88.12	56.59	27.35	12.46
One Year Ago 06-28-2022	48.87	51.13	42.53	28.43	0.00	0.00

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 <https://droughtmonitor.unl.edu/About.aspx>

Author:

Curtis Riganti
National Drought Mitigation Center



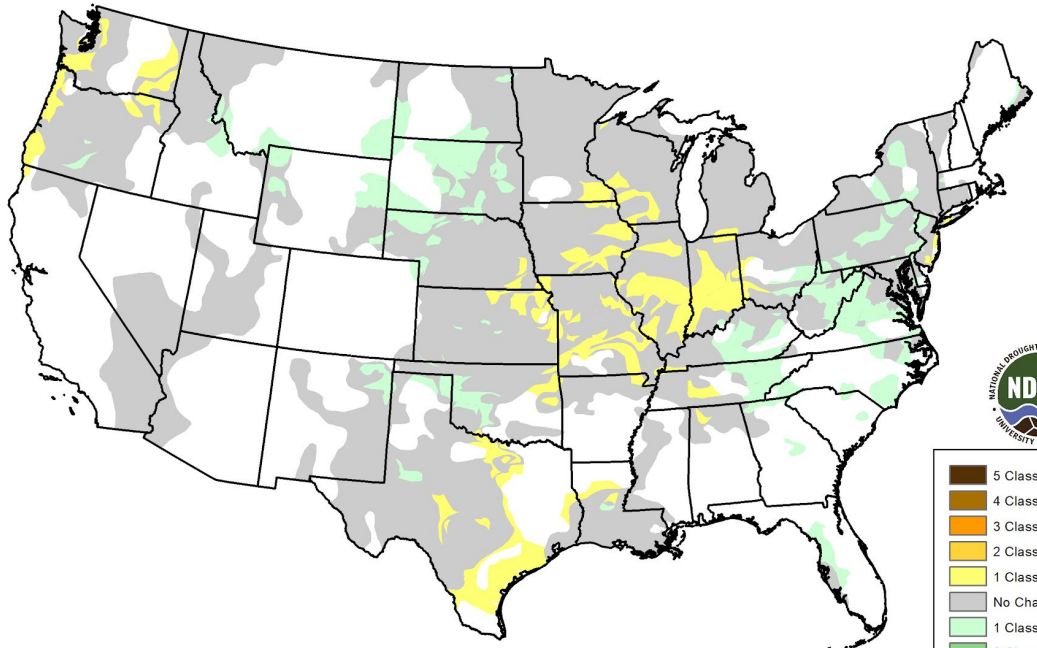
droughtmonitor.unl.edu



Change in Drought Status

July 2, 2023
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U.S. Drought Monitor Class Change - CONUS 1 Week



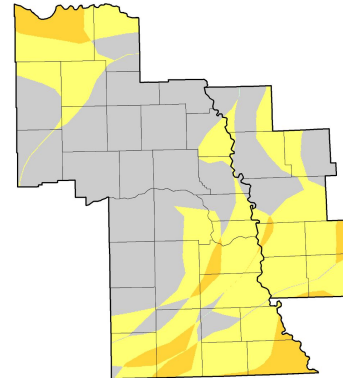
June 27, 2023
compared to
June 20, 2023

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

U.S. Drought Monitor Class Change - Omaha/Valley, NE WFO 4 Week



June 27, 2023
compared to
May 30, 2023

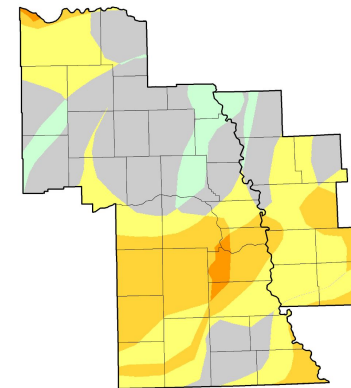
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- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement

4 Week Change

U.S. Drought Monitor Class Change - Omaha/Valley, NE WFO 12 Week



June 27, 2023
compared to
April 4, 2023

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

12 Week Change

Interactive Drought Monitor: droughtmonitor.unl.edu/CurrentMap.aspx

Drought Change Maps: droughtmonitor.unl.edu/Maps/ChangeMaps.aspx



Drought Category Definitions

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D0	Abnormally Dry	<u>Going into drought:</u> <ul style="list-style-type: none">• Short-term dryness slowing planting, growth of crops or pastures	<u>Coming out of drought:</u> <ul style="list-style-type: none">• Some lingering water deficits• Pastures or crops not fully recovered
D1	Moderate Drought	<ul style="list-style-type: none">• Some damage to crops, pastures• Streams, reservoirs, or wells low, some water shortages developing or imminent• Voluntary water-use restrictions requested	
D2	Severe Drought	<ul style="list-style-type: none">• Crop or pasture losses likely• Water shortages common• Water restrictions imposed	
D3	Extreme Drought	<ul style="list-style-type: none">• Major crop/pasture losses• Widespread water shortages or restrictions	
D4	Exceptional Drought	<ul style="list-style-type: none">• Exceptional and widespread crop/pasture losses• Shortages of water in reservoirs, streams, and wells creating water emergencies	

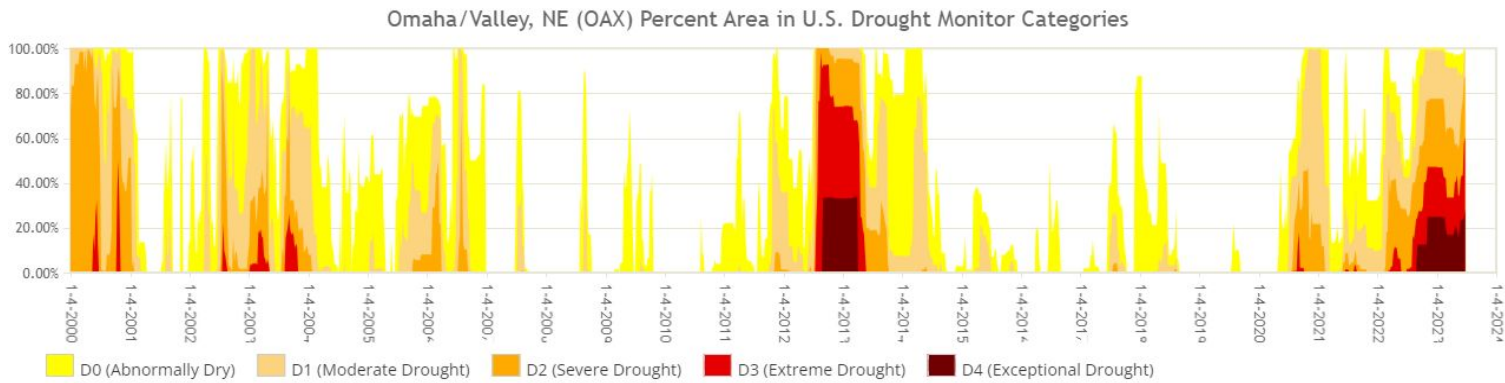


Change in Drought Status

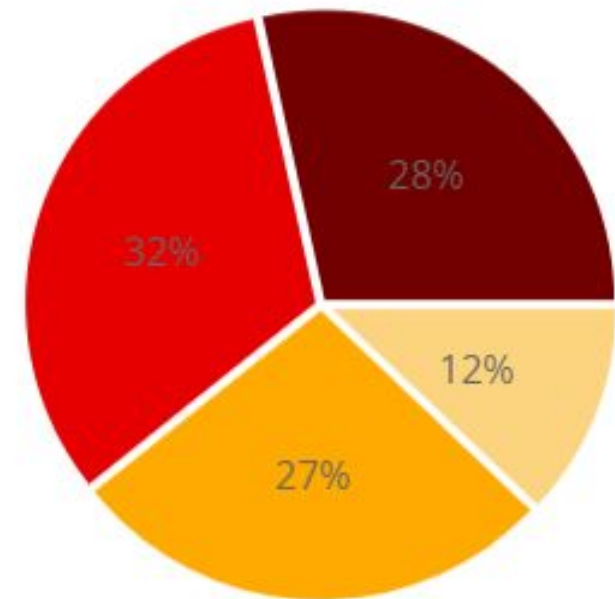
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Since January 2000

Areal Coverage of Drought by Date - NWS Omaha



Current Areal Coverage of Drought - NWS Omaha





Drought Impacts

July 2, 2023

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Drought Impacts

- The Elkhorn River's low levels have begun to impact **recreational activities**.
- **Groundwater levels** have declined in most of Nebraska following multiple years of below-average precipitation, University of Nebraska–Lincoln scientists found in a new statewide analysis. About three-quarters of wells observed across the state experienced groundwater level declines during 2021-22.
- Ag impacts include a **loss of crops**, limited topsoil moisture for germination, poor pasture conditions, early irrigation implementation and low stock ponds.
- Municipal **water restrictions** have been implemented in some areas.
- Tree health degradation has been recorded across the area.



Historical Precipitation Totals

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Percent of normal over the past 30 days: June 1 - June 30	Departure over past 30 days: June 1 - June 30	Precipitation over past 30 days: June 1 - June 30	Location	Year to Date Precipitation: January 1 - June 30	Year to Date Departure: January 1 - June 30	Percent of normal over year to date: January 1 - June 30
82%	-1.04"	3.33"	Norfolk, NE	8.29"	-6.38"	57%
57%	-1.92"	2.52"	Omaha, NE	9.85"	-5.91"	63%
101%	+0.05"	4.53"	Lincoln, NE	8.87"	-6.38"	58%
38%	-2.90"	1.74"	Tekamah, NE	7.35"	-7.00"	51%
73%	-1.28"	3.55"	Falls City, NE	14.58"	-2.13"	87%
65%	-1.88"	3.45"	(COOP) Clarinda, IA	14.64"	-3.78"	79%
74%	-0.98"	2.79"	(COOP) Albion, NE	10.26"	-3.32"	74%
43%	-2.62"	1.99"	(COOP) Beatrice, NE	6.77"	-9.08"	43%
26%	-3.45"	1.24"	(COOP) Columbus, NE	7.60"	-7.36"	51%
43%	-2.83"	2.12"	(COOP) Fremont, NE	9.76"	-6.01"	62%



Historical Precipitation Totals

July 2, 2023
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Longer Range Precip - Percent of Normal

30 Day Percent of Normal

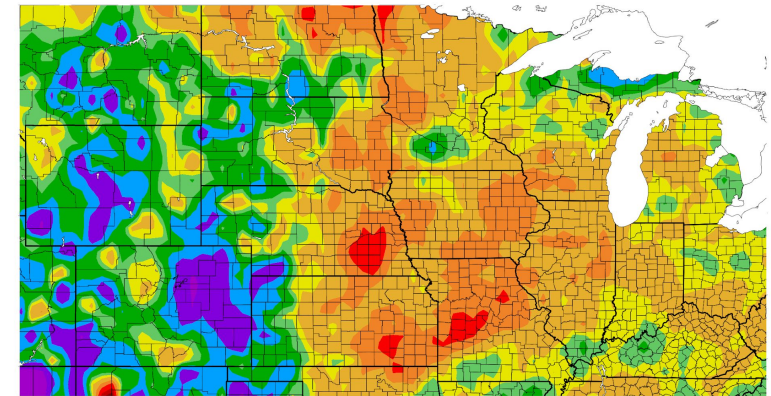
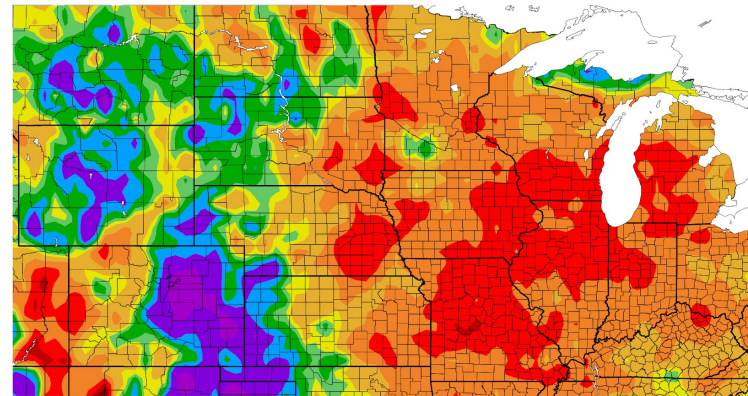
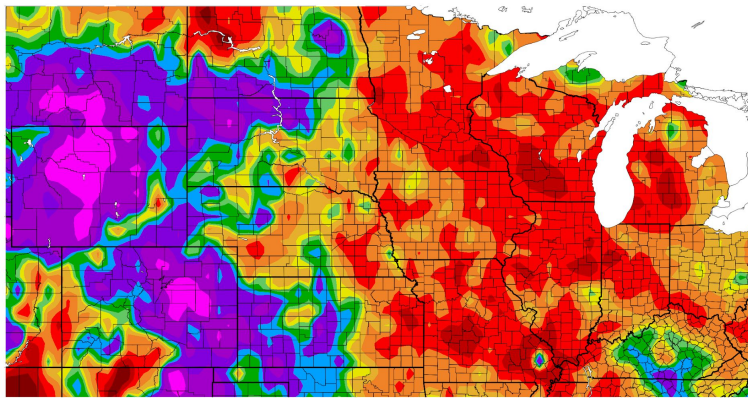
Percent of Normal Precipitation (%)
6/2/2023 - 7/1/2023

90 Day Percent of Normal

Percent of Normal Precipitation (%)
4/3/2023 - 7/1/2023

YTD Percent of Normal

Percent of Normal Precipitation (%)
1/1/2023 - 7/1/2023



Generated 7/2/2023 at HPRCC using provisional data. NOAA Regional Climate Centers

Generated 7/2/2023 at HPRCC using provisional data. NOAA Regional Climate Centers

Generated 7/2/2023 at HPRCC using provisional data. NOAA Regional Climate Centers

Highlights

- A tale of two halves... western Nebraska continues to enjoy a surplus of rain in 2023 while eastern Nebraska and Iowa have continued to dry.
- A vast majority of eastern Nebraska is currently below the 5th percentile for soil moisture climatology.

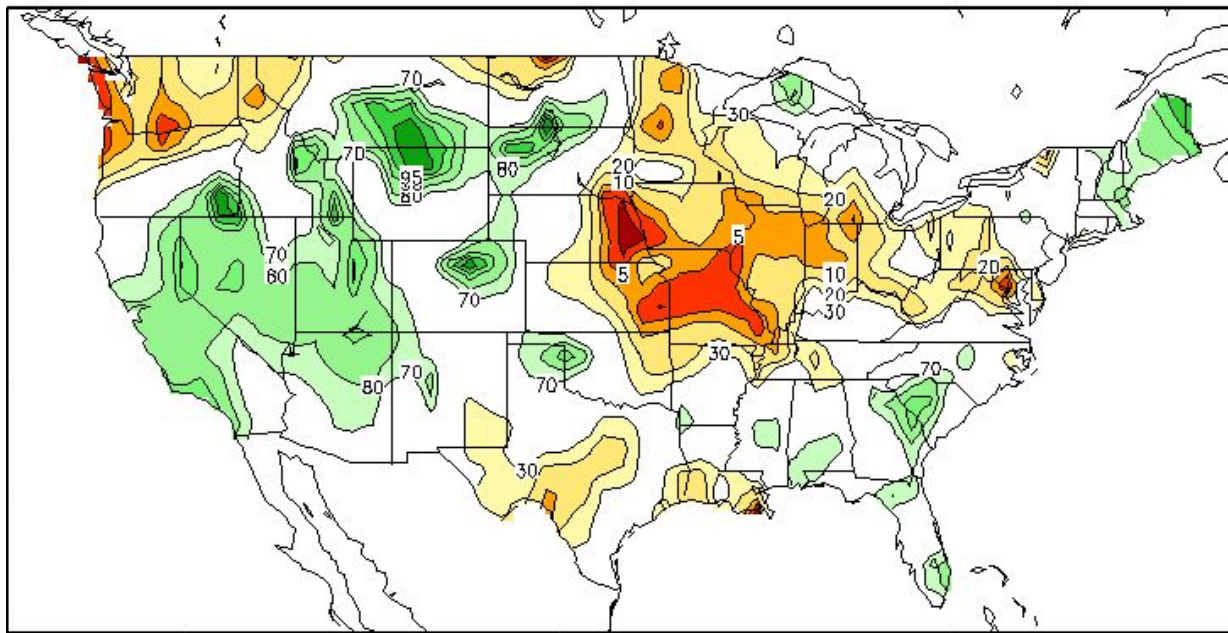
To Reproduce These Maps and For More Information, Visit the High Plains Regional Climate Center at: hprcc.unl.edu/maps.php?map=ACISClimateMaps



Current Soil Moisture Status

July 2, 2023
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Calculated Soil Moisture Ranking Percentile
JUL 01, 2023



Nebraska (Entire State)	As of June 25th	Very Short Moisture	Short Moisture	Adequate Moisture	Moisture Surplus
	Topsoil	30%	29%	39%	2%
	Subsoil	36%	34%	29%	1%

Southwest Iowa	As of June 26th	Very Short Moisture	Short Moisture	Adequate Moisture	Moisture Surplus
	Topsoil	53%	34%	13%	0%
	Subsoil	49%	37%	14%	0%

Additional Information

➔ Crop reports are issued weekly April through November and can be found at https://nass.usda.gov/Statistics_by_State/



Summary of Drought Impacts

July 2, 2023
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Agricultural Conditions

Rated Poor or Very Poor

Nebraska (Entire State) as of June 25th	
Pasture & Range	35%
Winter Wheat	30%
Oats	25%
Soybeans	20%
Corn	16%
Sorghum	9%
Dry Edible Bean	0%

Iowa (Entire State) as of June 26th	
Pasture & Range	35%
Hay	23%
Oats	9%
Soybeans	26%
Corn	12%

Agricultural Impacts

- Drought has lowered hay production in Nebraska, Kansas, Oklahoma, and Texas.
- Nebraska farmers are dealing with higher expenses and lower profits.
- The USDA now rates only half of the US corn crop as good or excellent. That's the lowest percentage since 1988.
- One farmer in southwest Iowa has started feeding hay to cattle. It's the first time in his life that he's fed hay to cattle in June.

For additional information on agriculture impacts may be viewed from the:

- [USDA National Agricultural Statistics Service](#)
- [Iowa](#)
- [Nebraska](#)

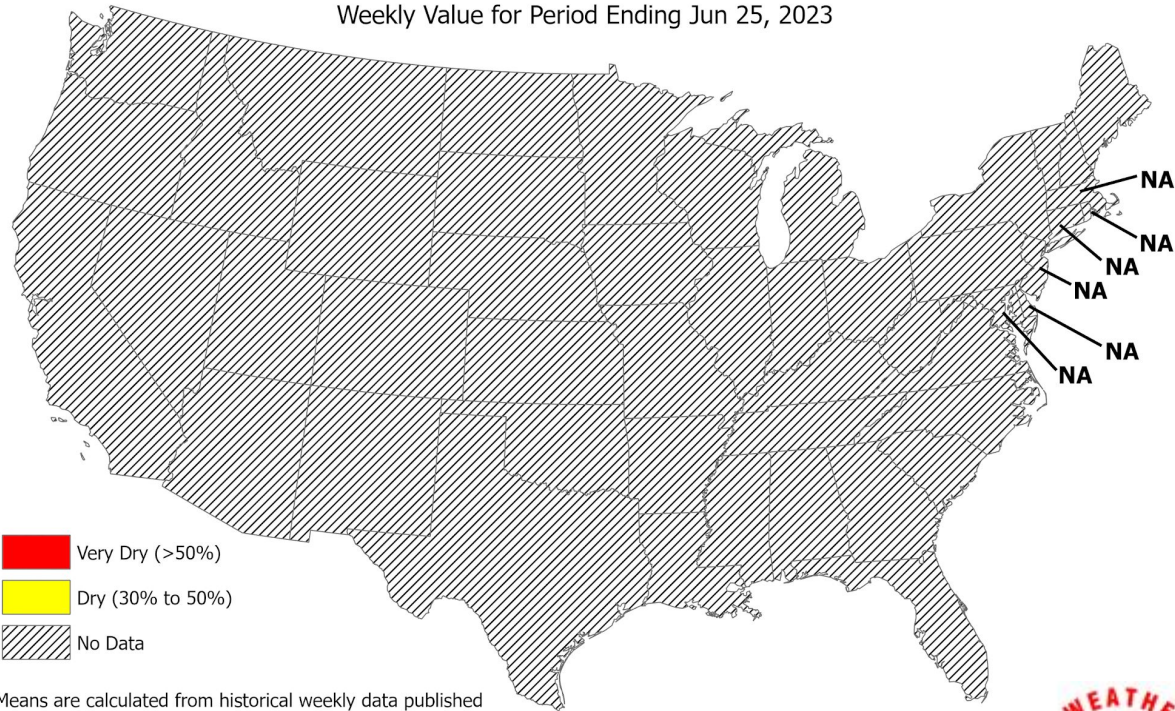


USDA Topsoil Moisture Rankings

July 2, 2023
8:58 AM

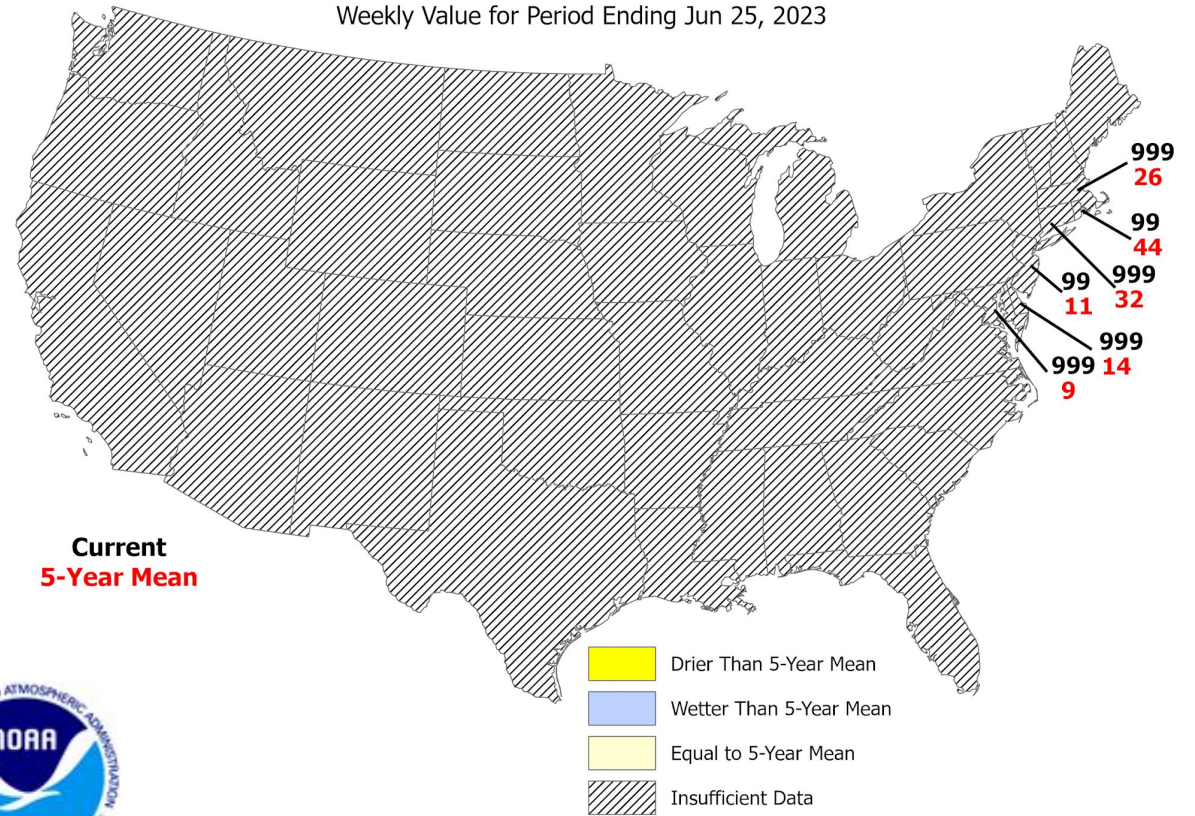
USDA Topsoil Moisture by Short-Very Short

Percent of State Area
Weekly Value for Period Ending Jun 25, 2023



USDA Topsoil Moisture by Short-Very Short

Current Vs. 5-Year Mean
Weekly Value for Period Ending Jun 25, 2023



Means are calculated from historical weekly data published by USDA/NASS using the closest date to the equivalent date for this year.

Results are based on the short and very short percentages of topsoil moisture (upper 6 inches) reported by the USDA. Reports are based on subjective observations.



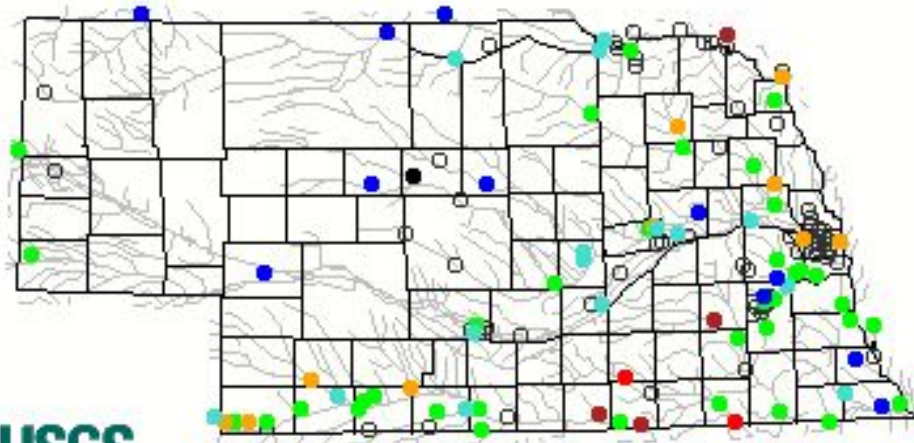


Current Hydrology Conditions

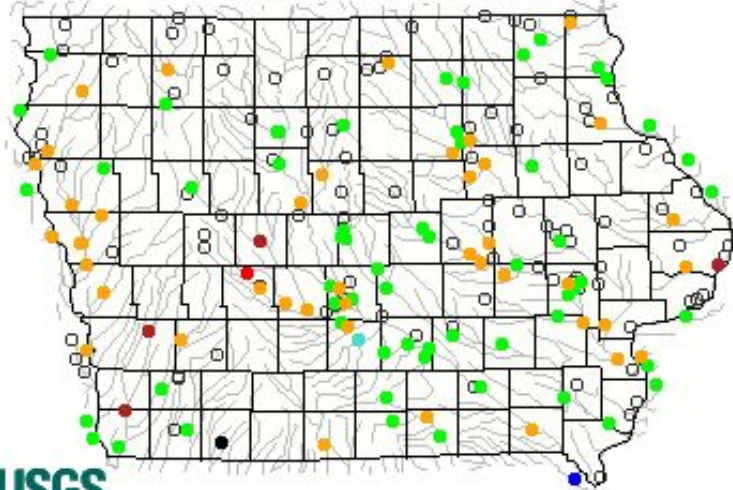
July 2, 2023
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Map of Real-Time Streamflow Compared to Historical Streamflow for the Day

Sunday, July 02, 2023 10:30ET



Sunday, July 02, 2023 10:30ET



Percentile Classes		
	Low	
	<10	Much Below Normal
	10-24	Below Normal
	25-75	Normal
	76-90	Above Normal
	>90	Much Above Normal
High		
Not Ranked		

Overview

- While most of the area's drought continues to expand and hydrologic conditions deteriorate, the Platte River has been running normal to above normal in some locations due to snow melt from the Rockies and heavy rain in western Nebraska.
- Repeated rain this week has improved flows between Omaha and Lincoln.

More Information

- Hourly and forecast river stages out to 90 days can be found at the National Weather Service's (NWS) Advanced Hydrologic Prediction Service (AHPS) web page: water.weather.gov/ahps2/index.php?wfo=oax
- Additional Current stream and river stages may be viewed at the following USGS Web Site: waterwatch.usgs.gov



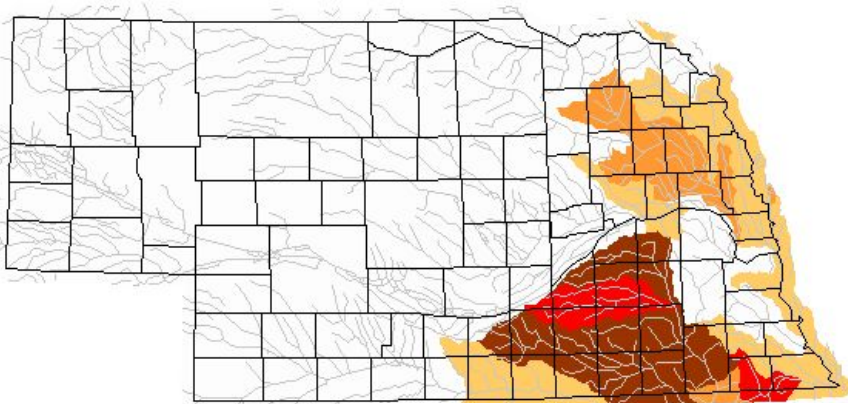
Current Hydrology Conditions

July 2, 2023

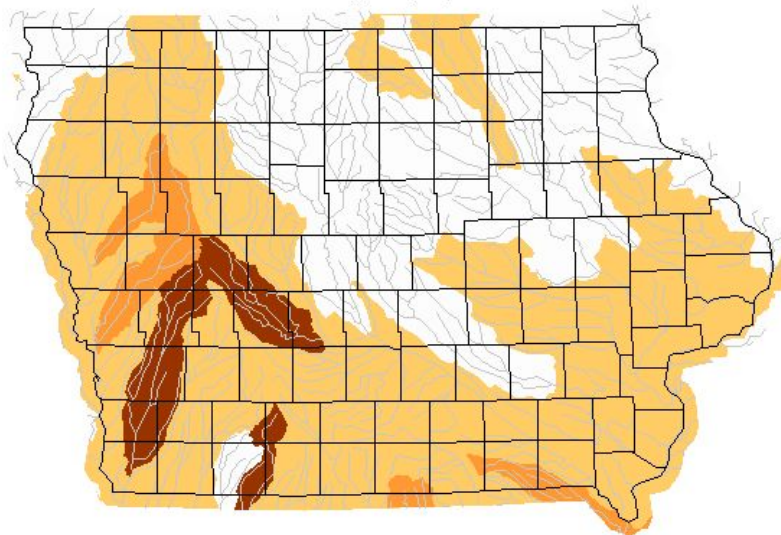
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Map of Below Normal 7 Day Average Stream Flow Compared to Historical Streamflow for the Day

Saturday, July 01, 2023



Saturday, July 01, 2023



Key: Percentile Classes			
Low	≤ 5	6 - 9	10 - 24
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below Normal Stream Flow

More Information

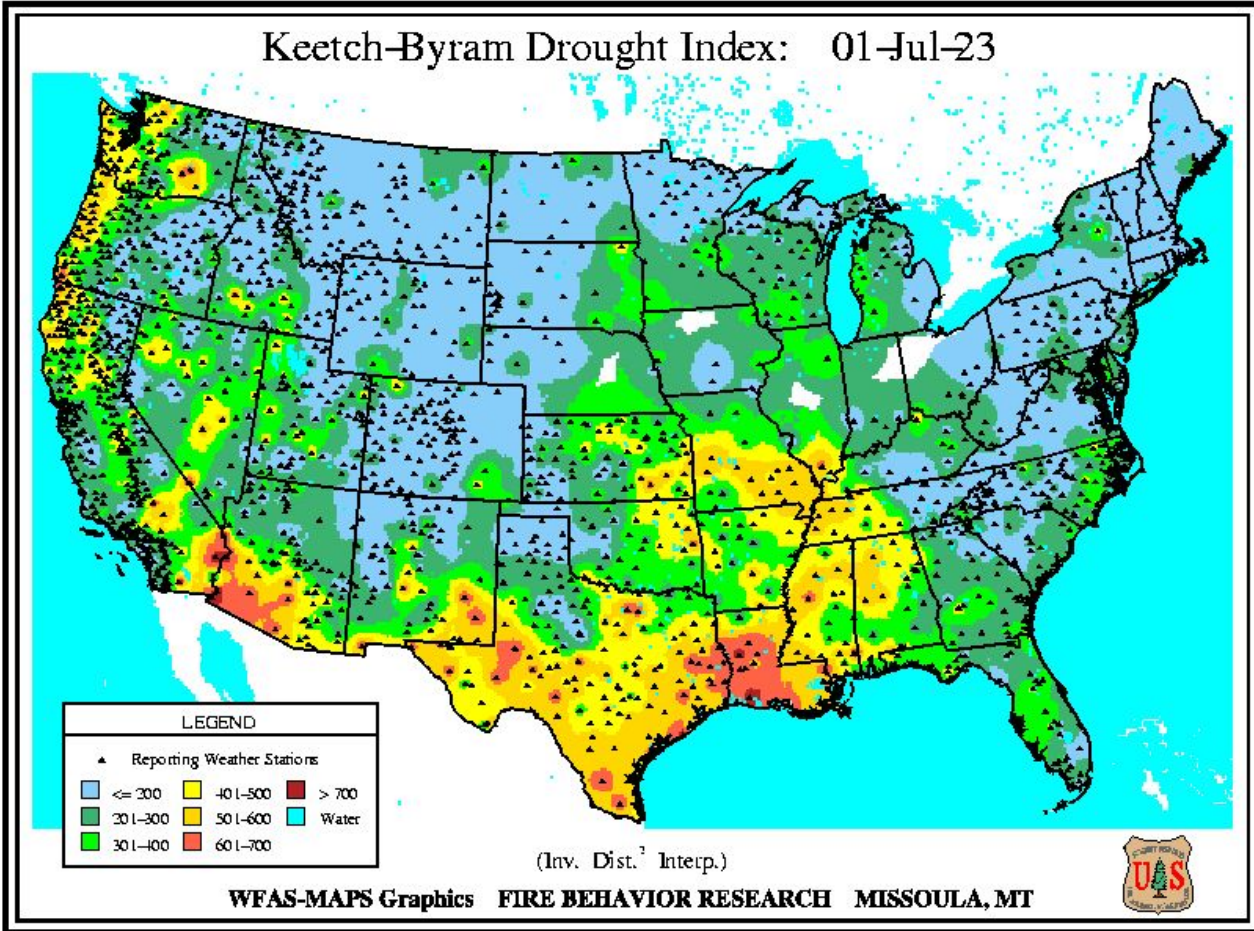
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Current Fire Weather Conditions

July 2, 2023
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Fire Danger has Dropped Quickly



Keetch-Byram Drought Index (KBDI)	
KBDI Value	Description of Fire Potential
0 to 200	Low - Wet with little danger of fire initiation
201 to 400	Moderate - Drying occurring with some fire danger
401 to 600	High - Ground cover dry and will burn readily
601 to 800	Extreme - Dead and live fuels will burn readily

Highlights

- Nebraska and especially Kansas act as the bullseye for extreme drought conditions across the US.
- The greenup has basically ended the wildfire season across Iowa and Nebraska.

Local Burn Bans:

- None

KBDI and Dead Fuel Moisture data can be found through the

[Wildland Fire Assessment System \(WFAS\)](#)

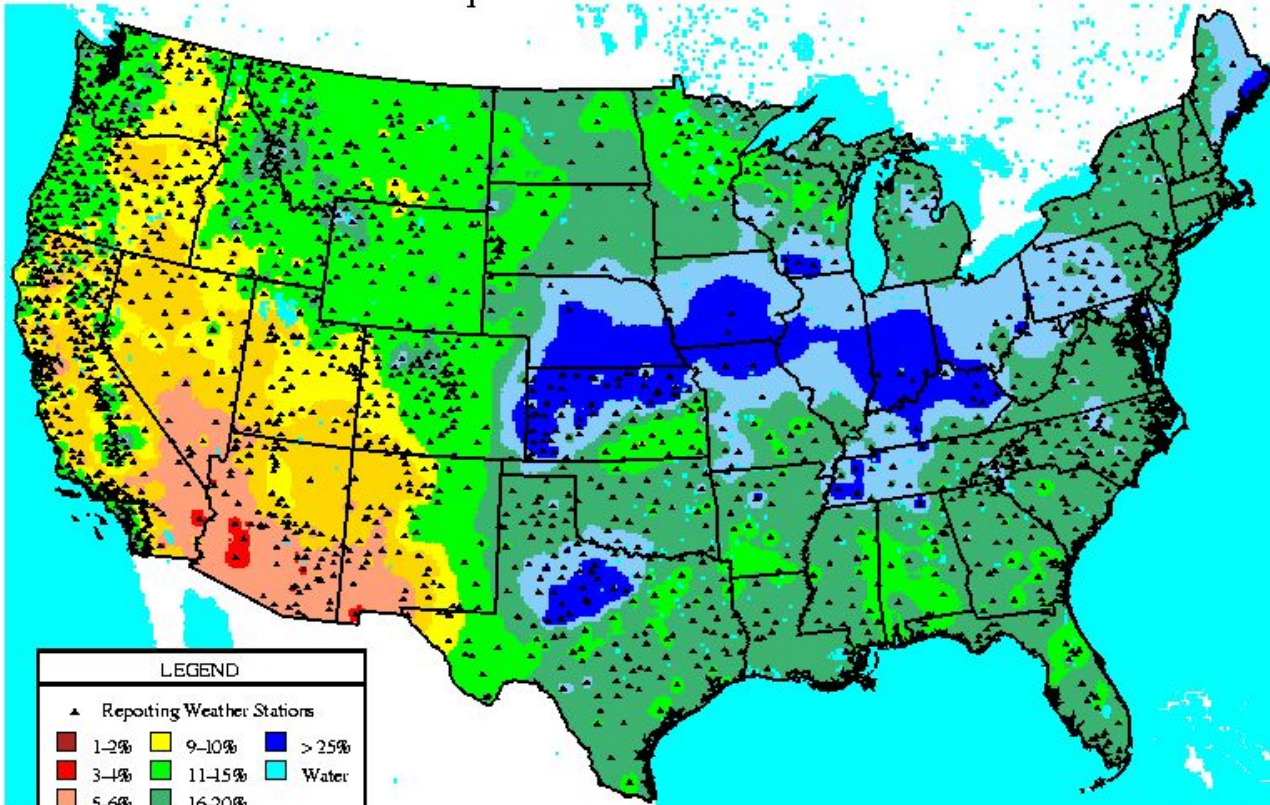


Current Fire Weather Conditions

July 2, 2023
8:58 AM

10 Hour Dead Fuel Moisture Values & Palmer Drought Severity Index

Obs. or Computed 10-Hour FM: 01-Jul-23



LEGEND

▲ Reporting Weather Stations

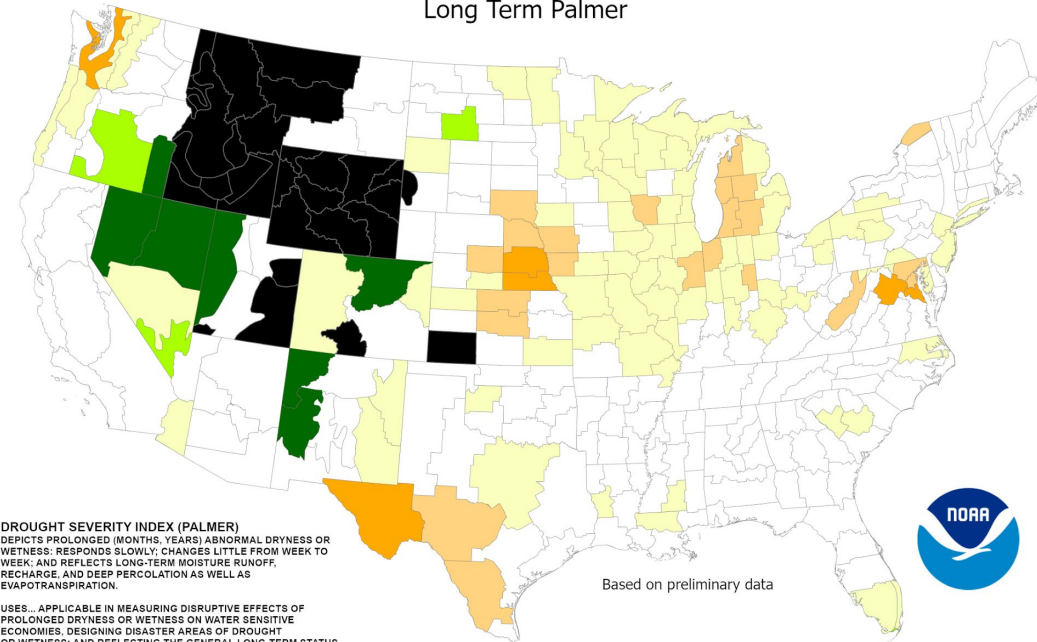
1-2%	9-10%	> 25%
3-4%	11-15%	Water
5-6%	16-20%	
7-8%	21-25%	

(Inv. Dist.³ Interp.)

WFAS-MAPS Graphics FIRE BEHAVIOR RESEARCH MISSOULA, MT



Drought Severity Index by Division
Weekly Value for Period Ending Jun 24, 2023
Long Term Palmer



DROUGHT SEVERITY INDEX (PALMER)
DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS; RESPONDS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION AS WELL AS EVAPOTRANSPIRATION.

USES... APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES; DESIGNING DISASTER AREAS OF DROUGHT OR WETNESS; AND REFLECTING THE GENERAL LONG-TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS AND STREAMS.

LIMITATIONS... IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).

- -4.0 or less (Extreme Drought)
- +2.0 to +2.9 (Unusual Moist Spell)
- -3.0 to -3.9 (Severe Drought)
- +3.0 to +3.9 (Very Moist Spell)
- -2.0 to -2.9 (Moderate Drought)
- +4.0 and above (Extremely Moist)
- -1.9 to +1.9 (Near Normal)
- Missing/Incomplete

Based on preliminary data



Palmer Drought Severity Index and Dead Fuel Moisture data can be found through the: [Wildland Fire Assessment System \(WFAS\)](#)



Upcoming Precipitation Potential

July 2, 2023

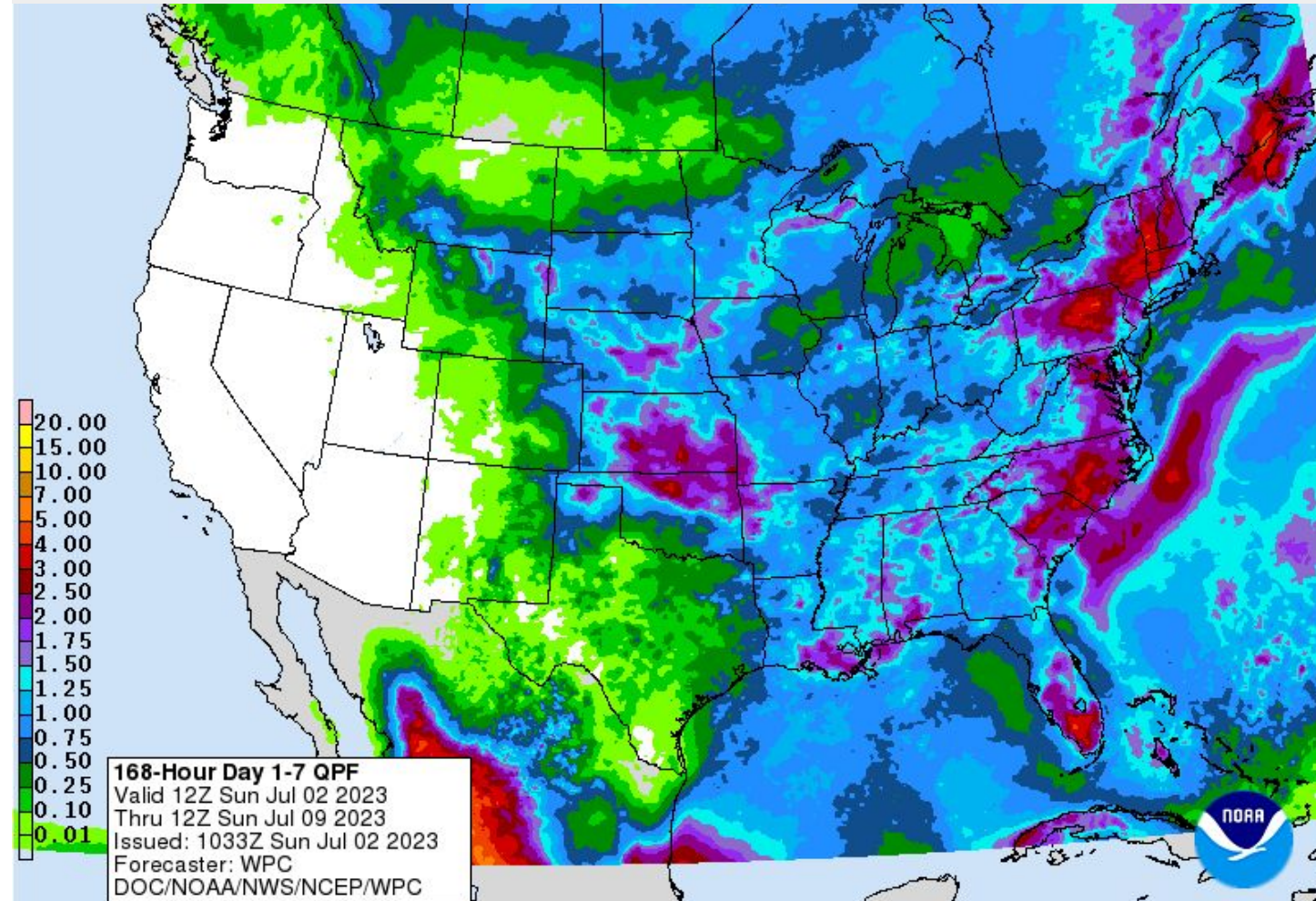
8:58 AM

For More Information Visit: wpc.ncep.noaa.gov

Highlights

- Eastern Nebraska averages near 1.0" of moisture per week in early July.
- Significant rain was recorded since June 27th, the date of the most recent drought monitor.
- July 4th and 5th bring a chance of a significant rain event across the area.
- Longer range forecasts suggest a chance of wetter than normal conditions. See the next two pages for more information.

Potential Precipitation Through Upcoming 7 Days



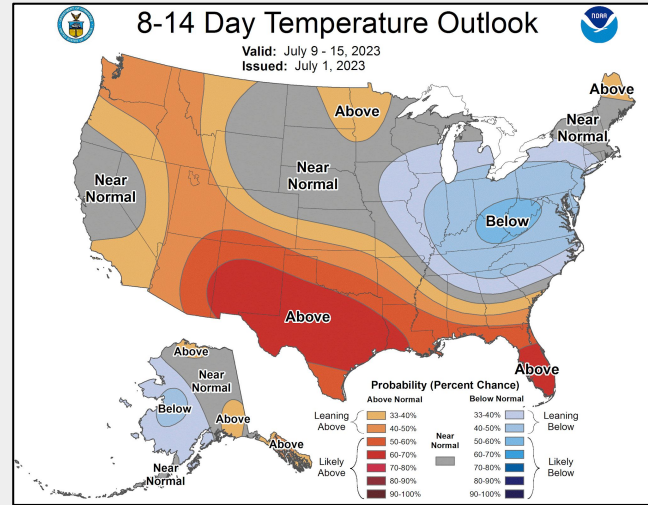
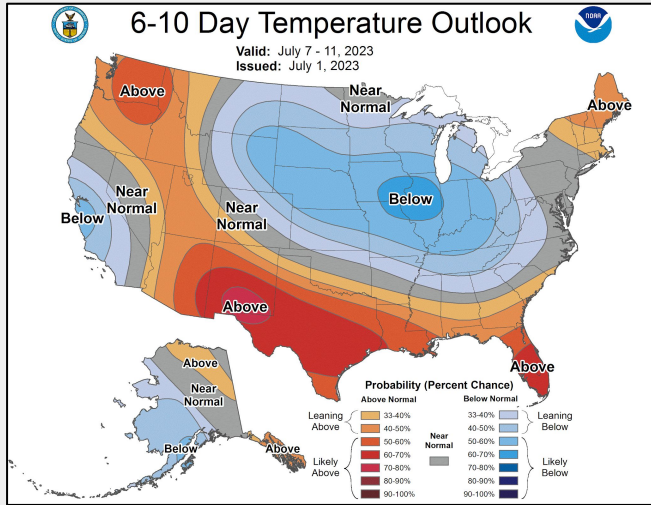


Short Term Climate Outlook

July 2, 2023
8:58 AM

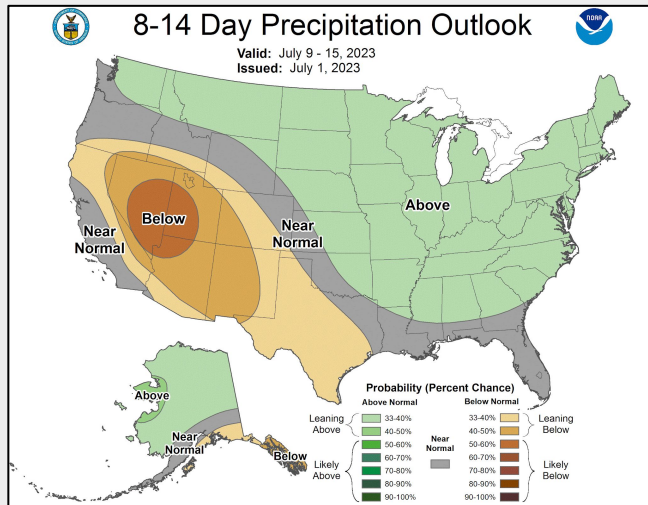
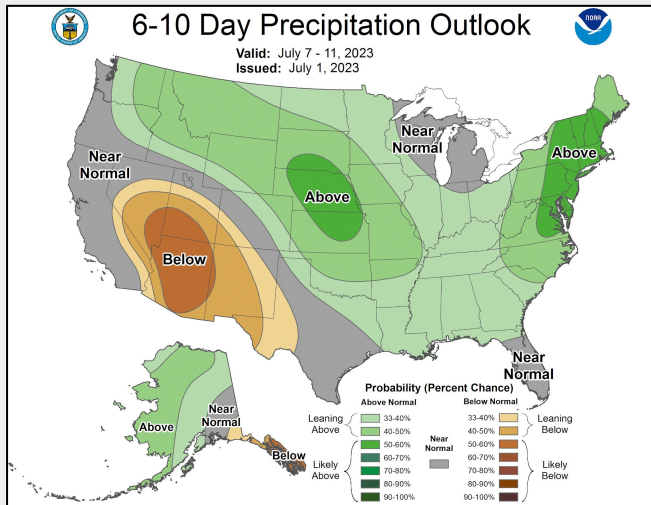
For More Information Visit: cpc.ncep.noaa.gov

Temperature



Temperature

Precipitation



Precipitation

Highlights

- Warm and dry conditions in the mid-Missouri Valley dominated most of May and June.
- The last few days of June and the first of July have brought a welcomed change of pace.
- Troughing across the east-central U.S. will bring regular opportunities for rain and cooler temperatures over the next two weeks.



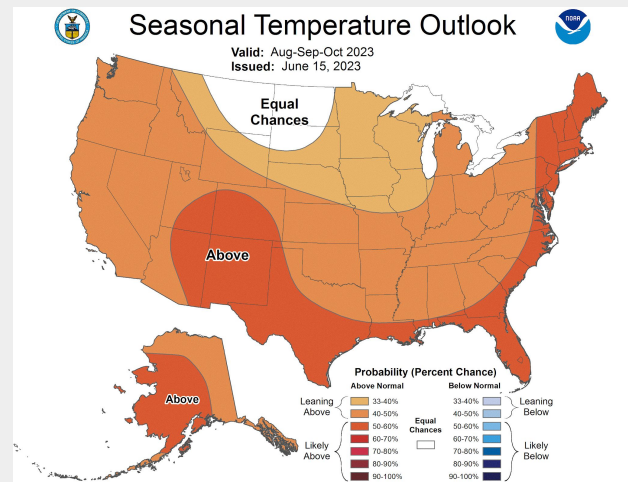
Long Range Climate Outlook

July 2, 2023
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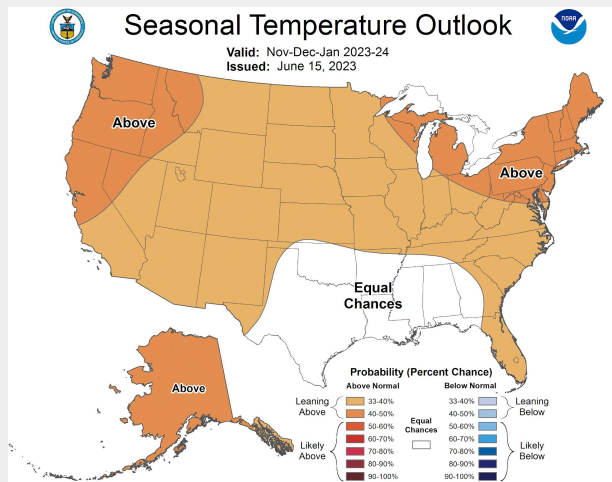
For More Information Visit: cpc.ncep.noaa.gov

Temperature

Temperature



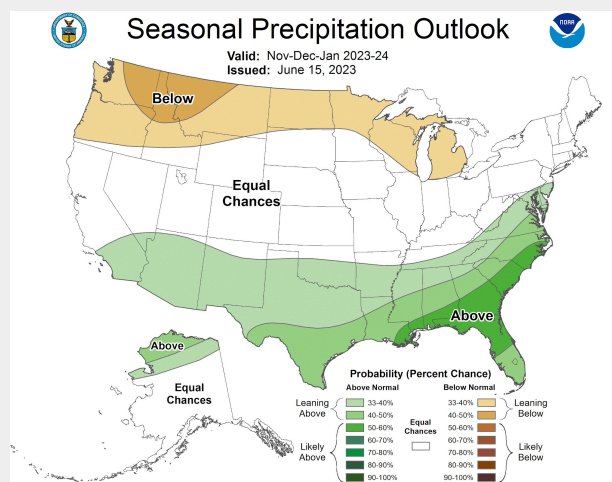
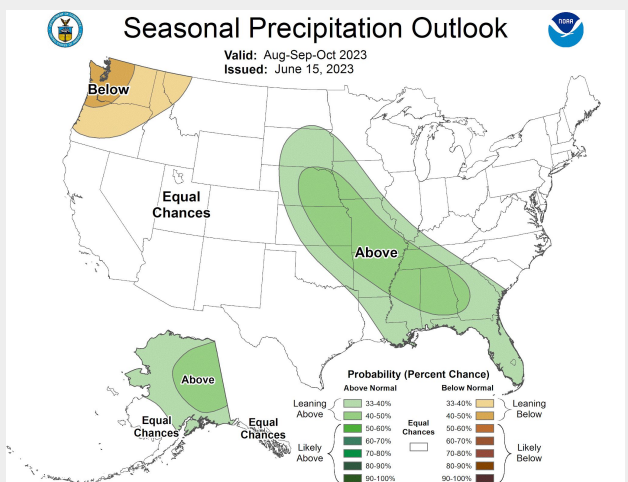
Early Fall 2023



Early Winter 2023

Precipitation

Precipitation



Highlights

- The summer outlook is heavily influenced by the ending of La Nina and the expected development of El Nino.
- Much of the country can expect to experience above normal temperatures this summer.
- To increase optimism in putting a dent in the drought, the seasonal outlook for August - October shows our chances lean towards a wetter than normal period.
- El Nino tends to bring its strongest impacts in winter. The summer impact is limited, but it can reduce the number of severe storms in Nebraska and Iowa.



Seasonal Drought Outlook

July 2, 2023
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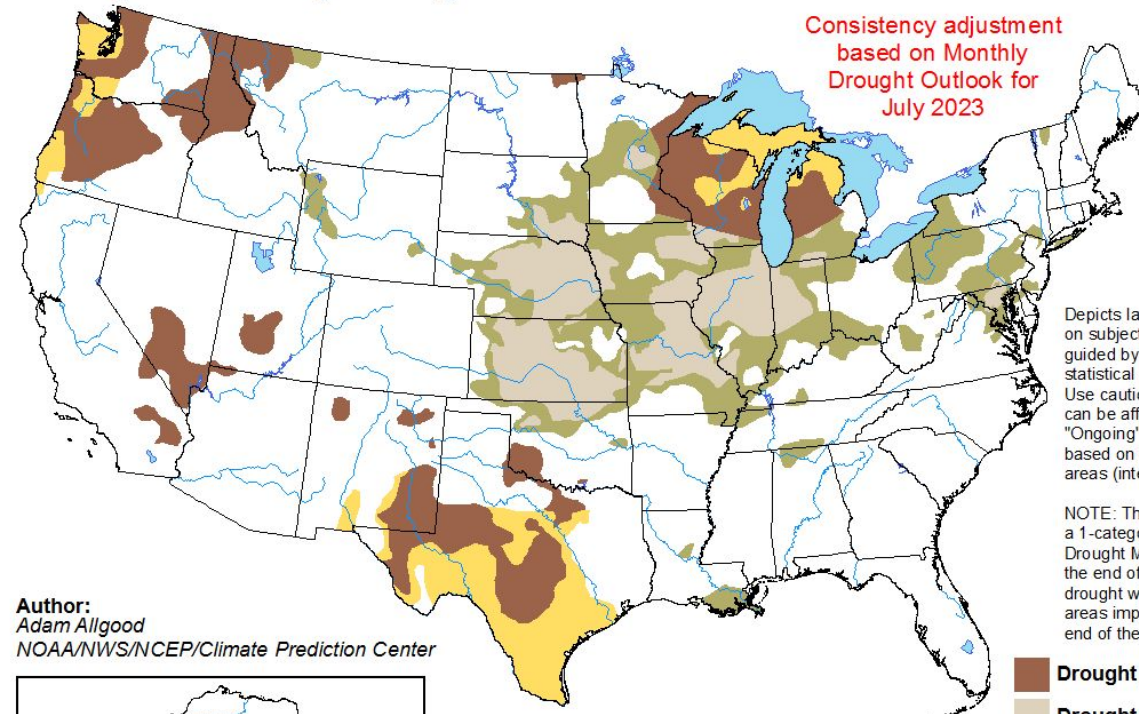
For More Information Visit: cpc.ncep.noaa.gov/products/expert_assessment

Highlights

- Over the course of the summer, drought conditions are expected to improve but persist over most of the Northern Plains and parts of this immediate area.
- The spotty nature of summer thunderstorms can mean that some locations may receive a bounty of precipitation while an area just down the highway remain woefully dry.

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

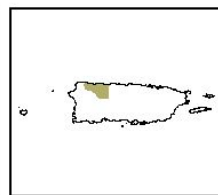
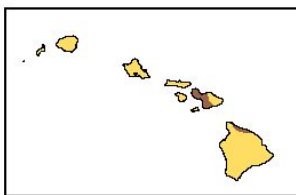
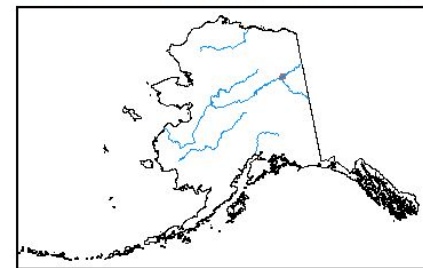
Valid for July 1 - September 30, 2023
Released June 30, 2023



Depicts 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. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities 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 Allgood
NOAA/NWS/NCEP/Climate Prediction Center



- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>



Questions, Comments, and Resources

July 2, 2023
8:58 AM

Contact Information

If you have questions or comments about this information, please contact:

National Weather Service

David Pearson - Senior Service Hydrologist

Taylor Nicolaisen - Meteorologist, Drought Focal Point

Van DeWald - Lead Meteorologist, Drought Focal Point

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Van.DeWald@noaa.gov

Acknowledgments:

The drought monitor is a multi-agency effort involving NOAA's National Weather Service and National Climatic Data Center, the USDA, state and regional center climatologists and the National Drought Mitigation Center. Information for this statement has been gathered from NWS and FAA observation sites, cooperative and volunteer observations, USDAFS, the USDA and USGS.

Additional Resources

National Weather Service Omaha: weather.gov/Omaha

Climate Prediction Center Drought: cpc.ncep.noaa.gov/products/Drought/

US Drought Monitor: droughtmonitor.unl.edu/

National Drought Mitigation Center: <https://drought.unl.edu/>

National Water Dashboard: dashboard.waterdata.usgs.gov/app/nwd/

National Integrated Drought Information System: drought.gov

Current Drought Conditions: drought.gov/current-conditions

Past Drought: drought.gov/historical-information

USGS Water Watch: waterwatch.usgs.gov

US Army Corps of Engineers (USACE): usace.army.mil

High Plains Regional Climate Center (HRPCC): hprcc.unl.edu

Iowa State Climatologist: Justin Glisan, Ph.D. (515) 281-8981

iowaagriculture.gov/climatology-bureau

Nebraska State Climatologist: Martha Durr, Ph.D. (402) 472-6711

nsco.unl.edu

USDA Crop Information: nass.usda.gov/index.asp

Drought Impact Reporter: droughtreporter.unl.edu/map