Climate Center Update

Colorado Water Conditions Monitoring Committee 7/23

Peter Goble
Colorado Climate Center

COLORADO CLIMATE CENTER

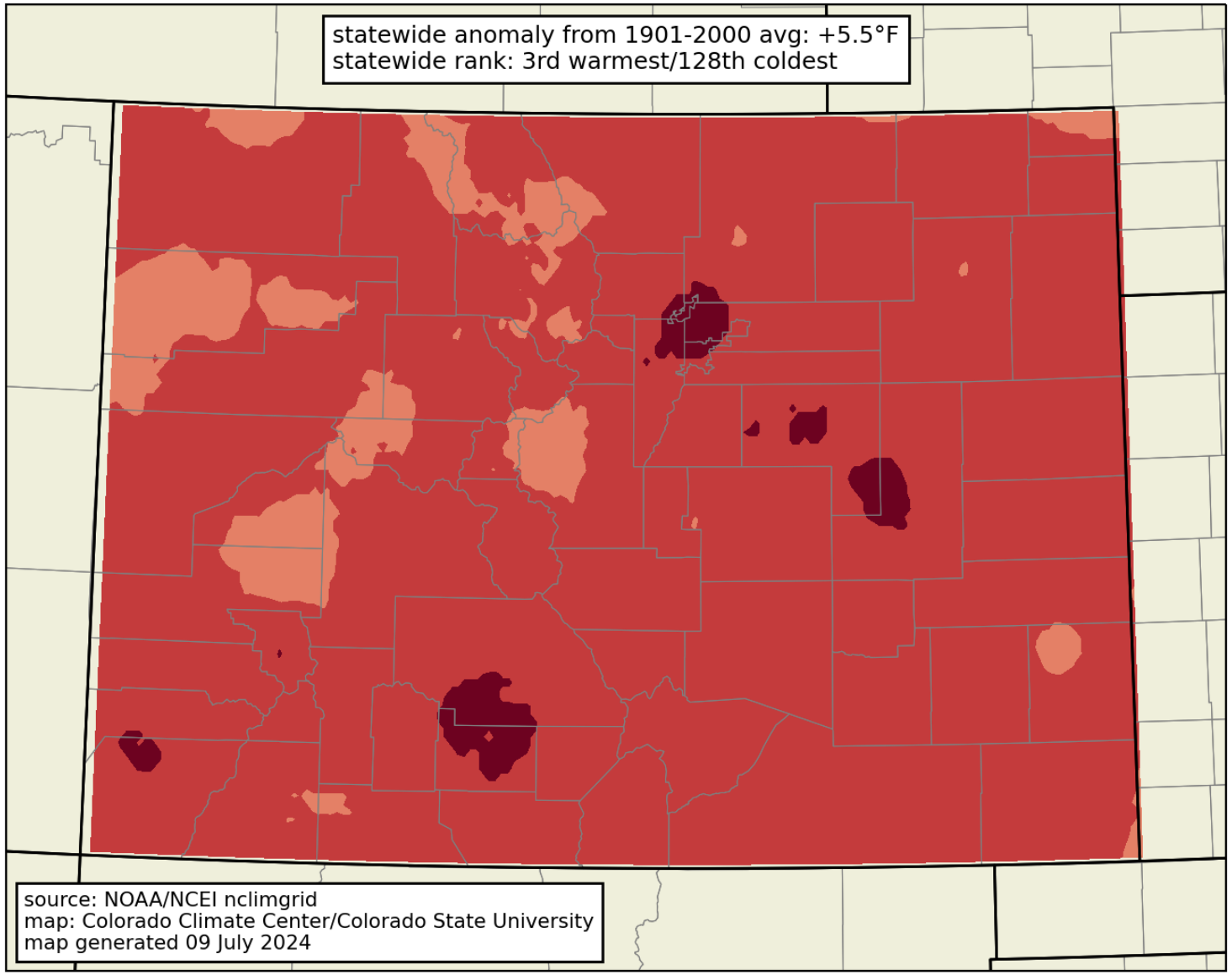
ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

Agenda

- Current seasonal climate conditions update
- Drought update
- Seasonal Forecast info (What will our transition into fall look like?)

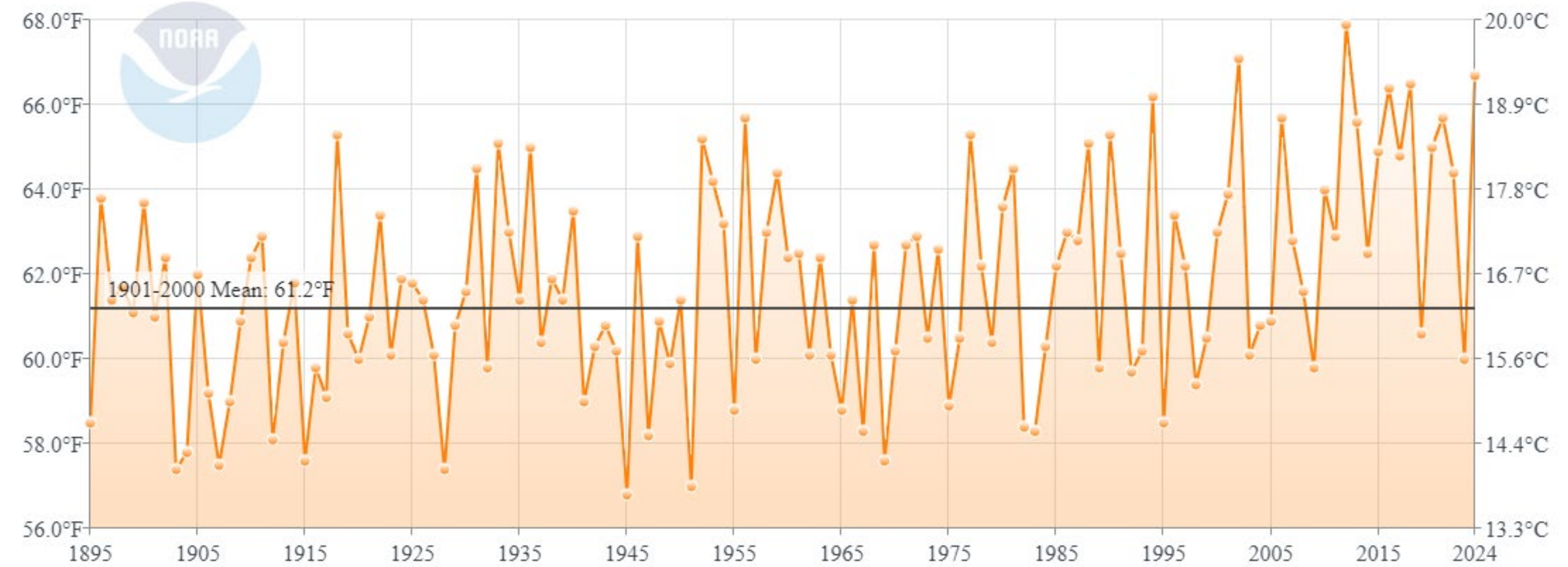

Colorado statewide average temperature and precipitation, April - June
warm & dry
warm & wet
cool & dry
cool & wet
normal TAVG: 53.2F
normal precip: 5.22"
avg temp (F)
accumulated precipitation (inches)
size of points proportional to precip,
color shows temp
normals are 1991-2020
Colorado Climate Center/CSU
Data source: NOAA/NCEI Climate at a Glance

average temperature rank: June 2024

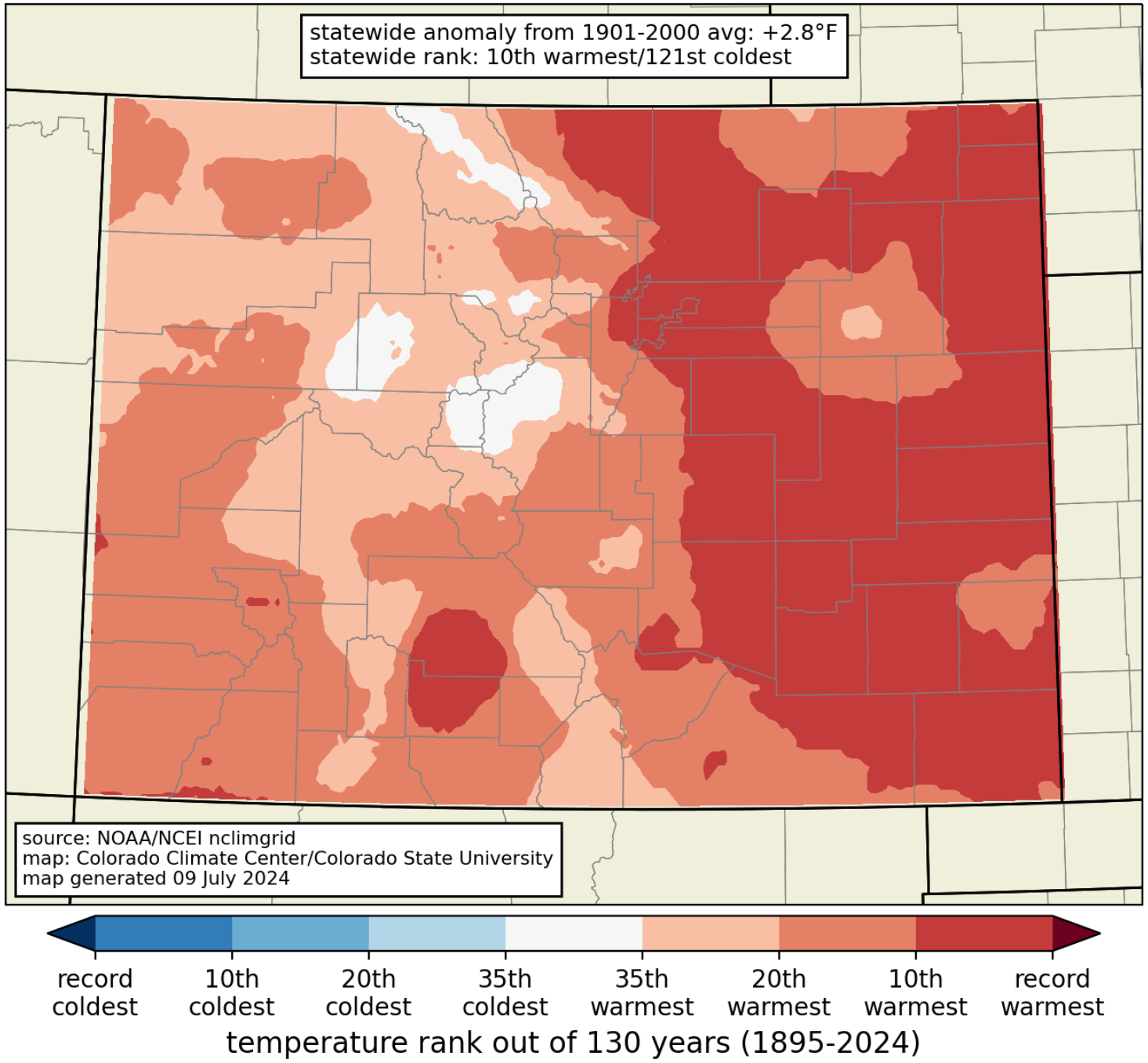


Colorado Average Temperature

June

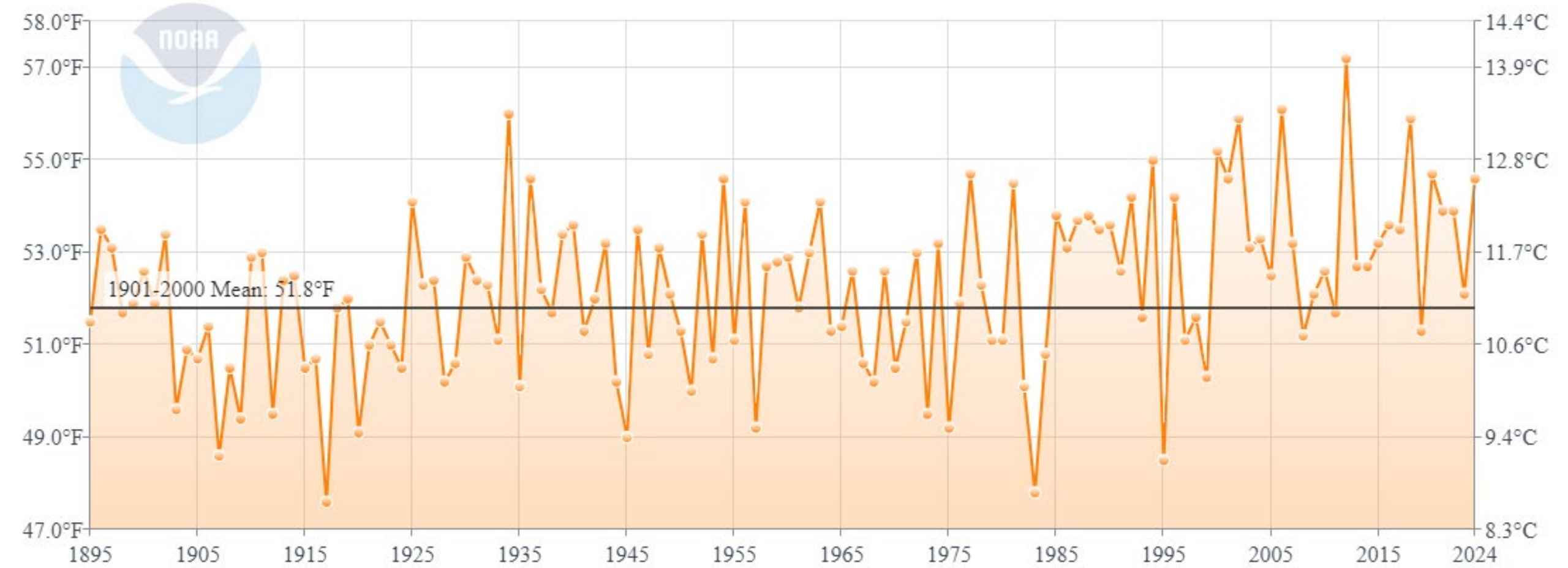


average temperature rank: 3 months ending June 2024 (Apr-Jun)

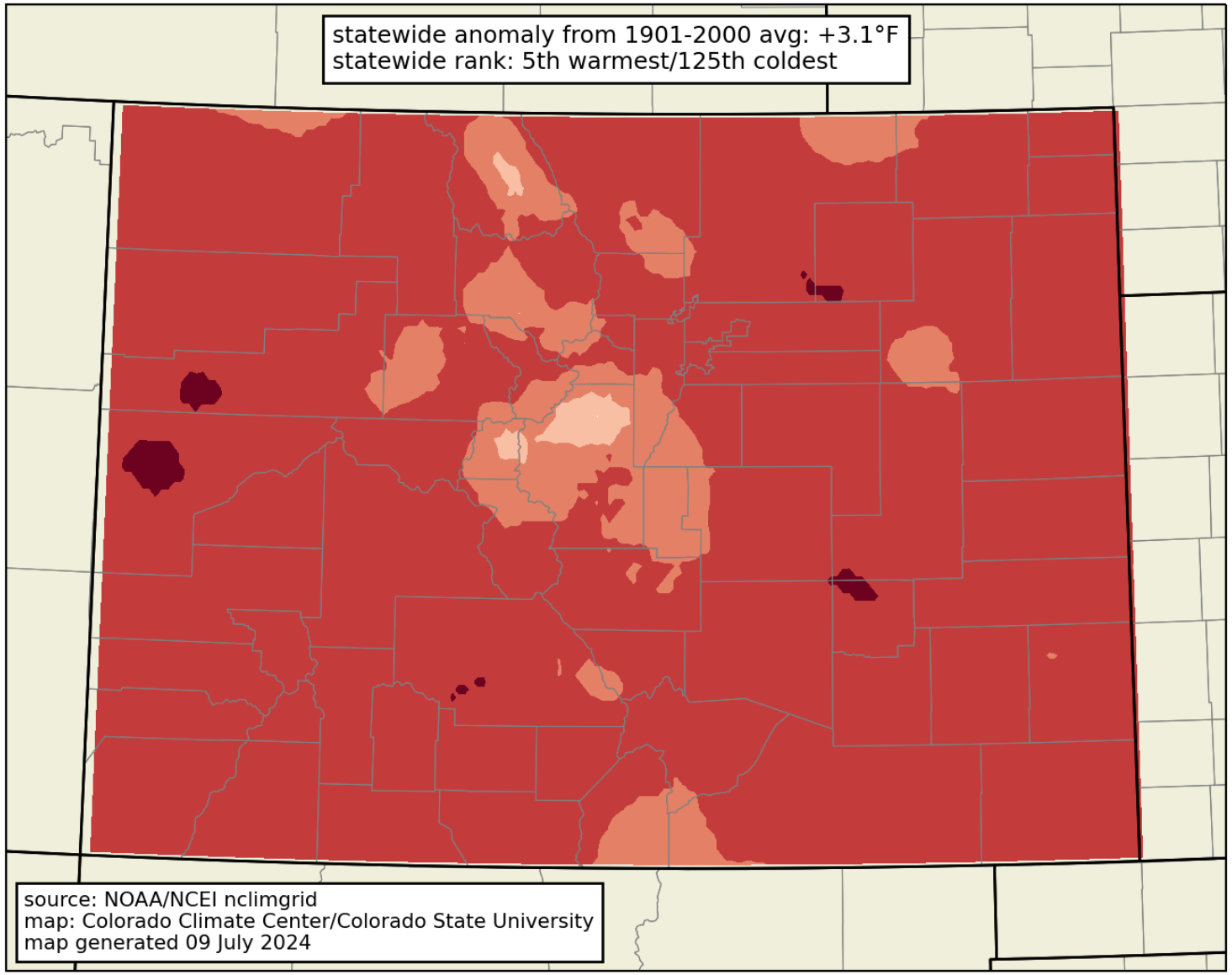


Colorado Average Temperature

April-June



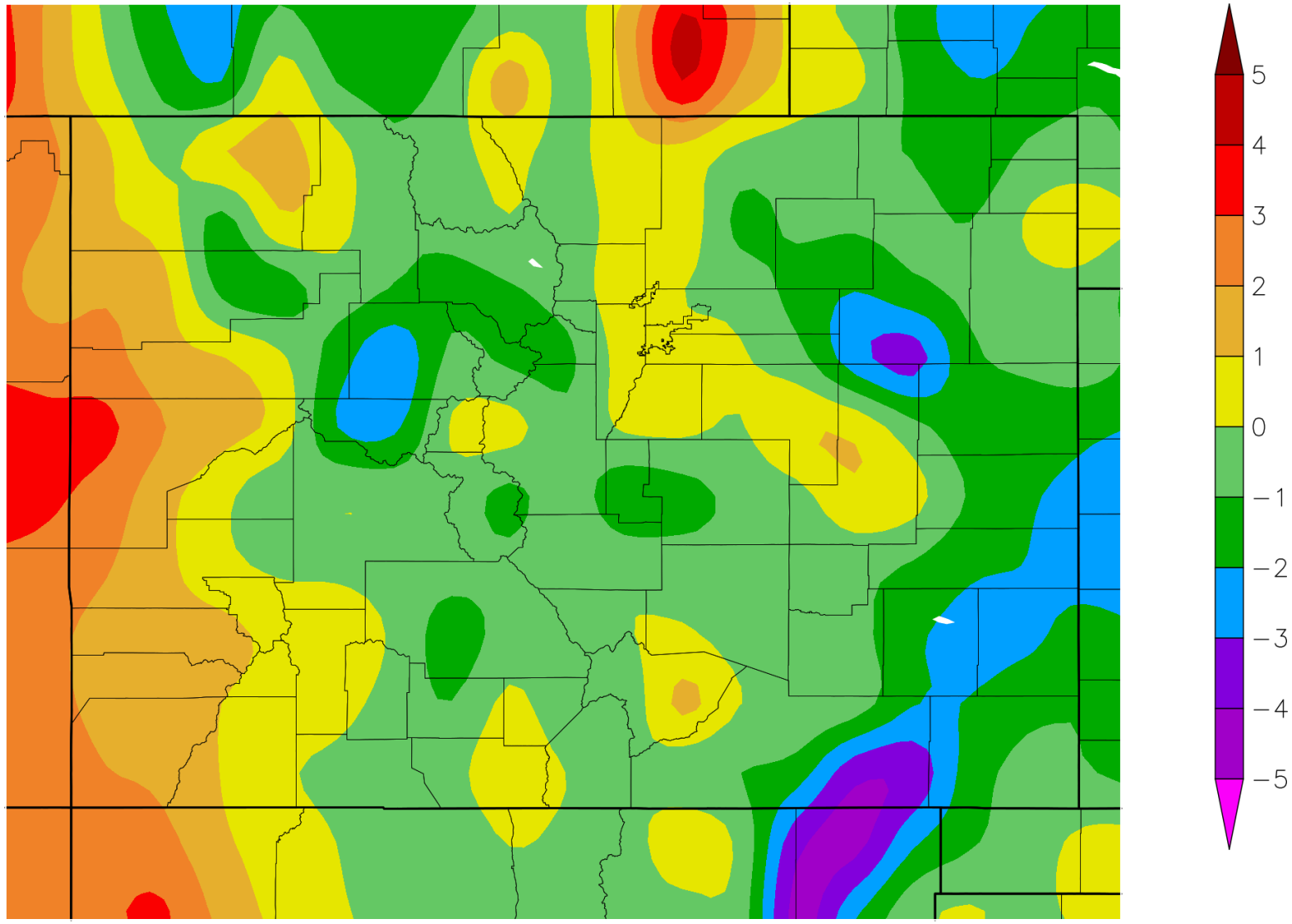
average temperature rank: 12 months ending June 2024 (Jul-Jun)



record coldest | 10th coldest | 20th coldest | 35th coldest | 35th warmest | 20th warmest | 10th warmest | record warmest

temperature rank out of 129 years (1896-2024)

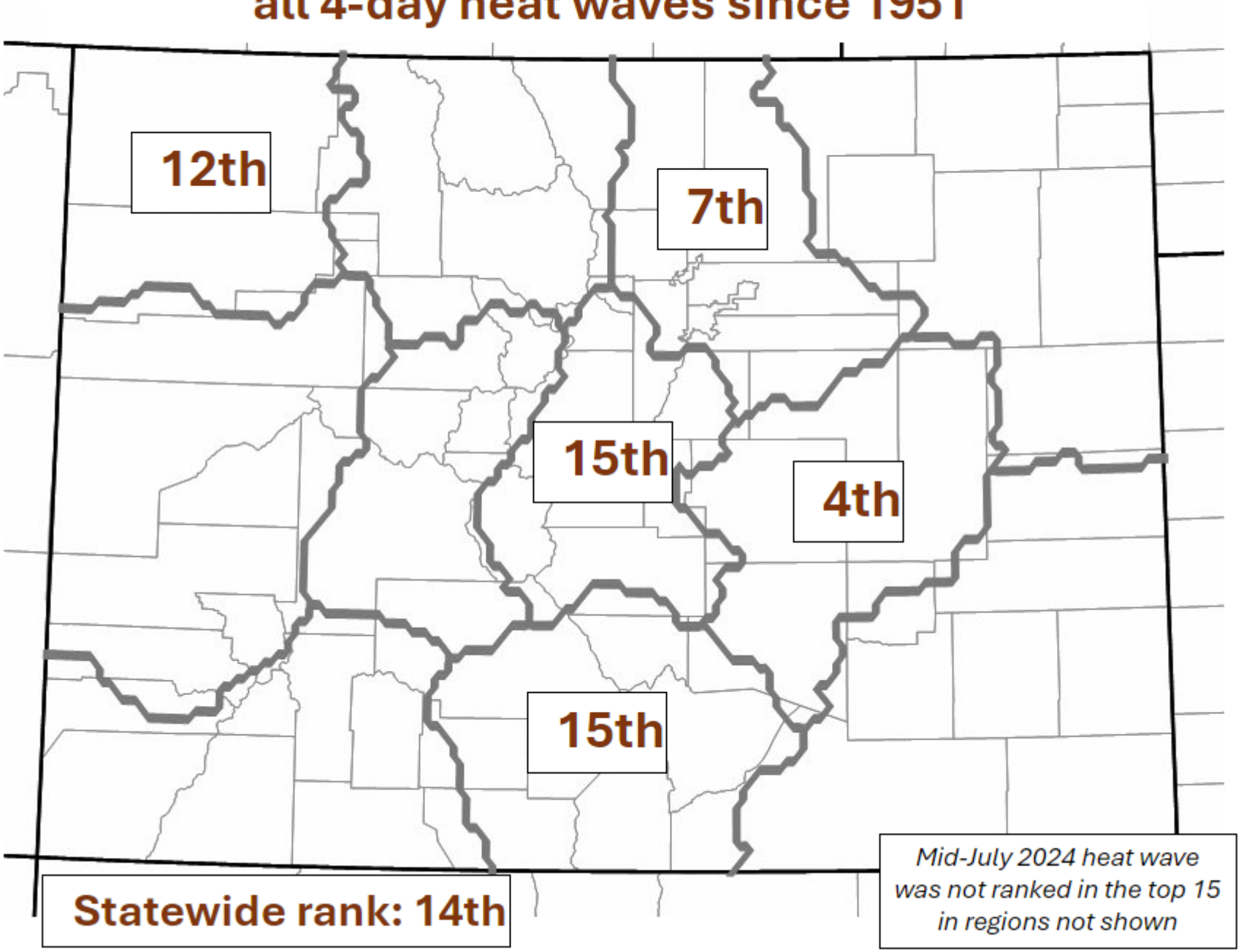
Departure from Normal Temperature (F)
7/1/2024 - 7/21/2024



Generated 7/22/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Ranking of the mid-July 2024 heat wave among all 4-day heat waves since 1951



Colorado statewide

	tavg	start	end
1	76.509	2012-06-24	2012-06-27
2	76.130	2005-07-20	2005-07-23
3	75.362	2003-07-16	2003-07-19
4	75.055	1990-06-29	1990-07-02
5	74.871	2003-07-24	2003-07-27
6	74.582	2001-07-05	2001-07-08
7	74.574	2021-06-15	2021-06-18
8	74.449	2006-07-16	2006-07-19
9	74.424	1954-07-11	1954-07-14
10	74.330	2018-07-20	2018-07-23
11	74.295	1989-07-06	1989-07-09
12	74.234	2003-07-12	2003-07-15
13	74.166	2022-07-17	2022-07-20
14	74.140	2024-07-13	2024-07-16
15	74.125	2002-06-30	2002-07-03

Pikes Peak region

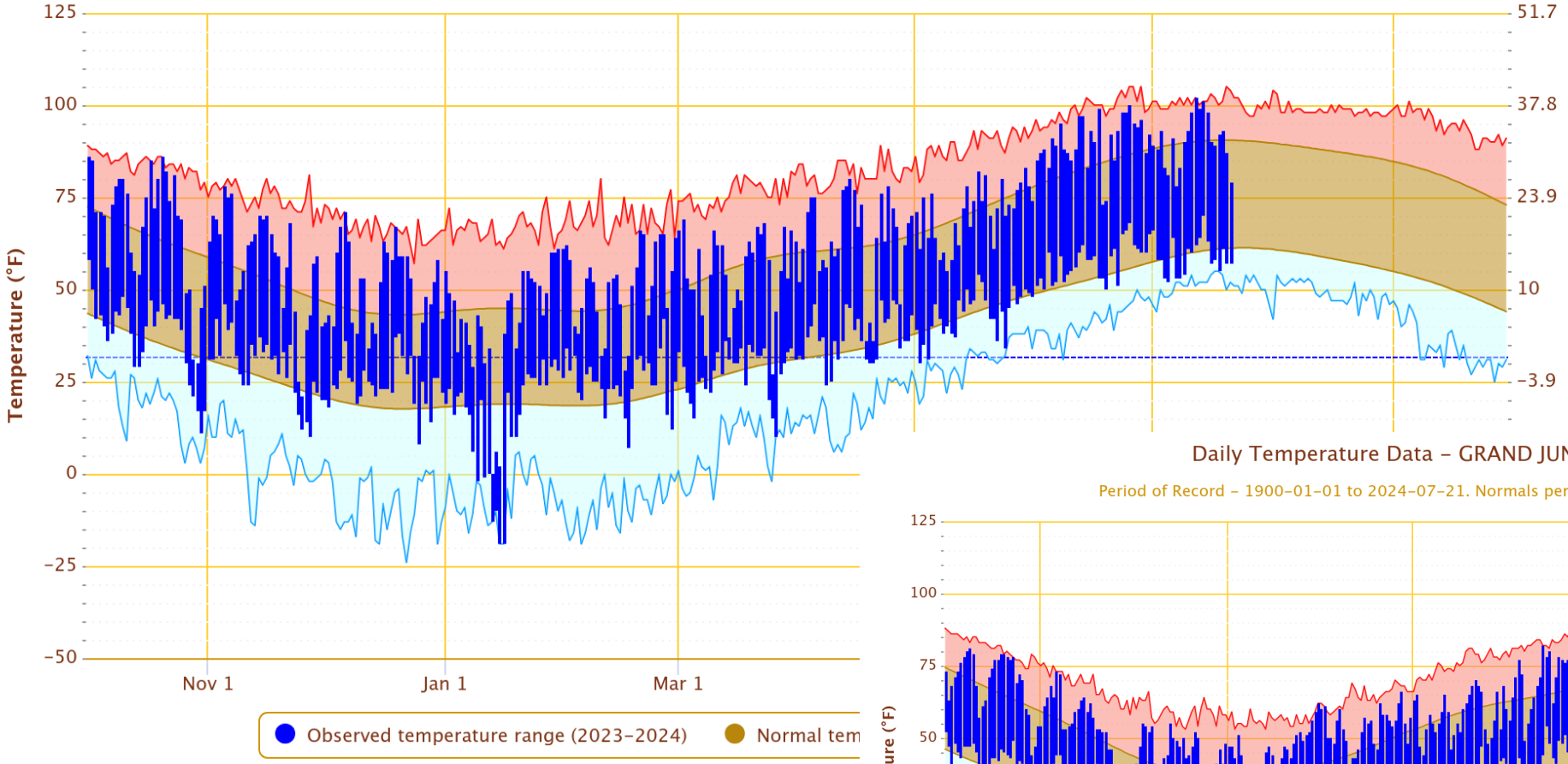
	tavg	start	end
1	82.390	2012-06-24	2012-06-27
2	81.407	2005-07-21	2005-07-24
3	81.255	1954-07-11	1954-07-14
4	80.178	2024-07-13	2024-07-16
5	80.032	2003-07-24	2003-07-27
6	79.904	2011-07-17	2011-07-20
7	79.714	1990-06-28	1990-07-01
8	79.545	1954-06-23	1954-06-26
9	79.512	2008-08-01	2008-08-04
10	79.419	2003-07-14	2003-07-17
11	79.387	2001-07-05	2001-07-08
12	79.350	2018-07-20	2018-07-23
13	79.241	2012-07-22	2012-07-25
14	79.236	2022-07-17	2022-07-20
15	79.201	2012-06-28	2012-07-01

Northern Front Range

	tavg	start	end
1	82.421	2012-06-24	2012-06-27
2	81.253	2005-07-21	2005-07-24
3	79.294	1998-07-18	1998-07-21
4	79.291	1954-07-10	1954-07-13
5	79.261	2003-07-24	2003-07-27
6	79.110	2003-07-15	2003-07-18
7	79.105	2024-07-12	2024-07-15
8	78.795	2006-07-16	2006-07-19
9	78.710	1989-07-06	1989-07-09
10	78.677	1990-06-30	1990-07-03
11	78.588	2022-07-18	2022-07-21
12	78.511	2021-06-15	2021-06-18
13	78.466	2008-07-31	2008-08-03
14	78.350	1977-07-17	1977-07-20
15	78.142	2002-06-30	2002-07-03

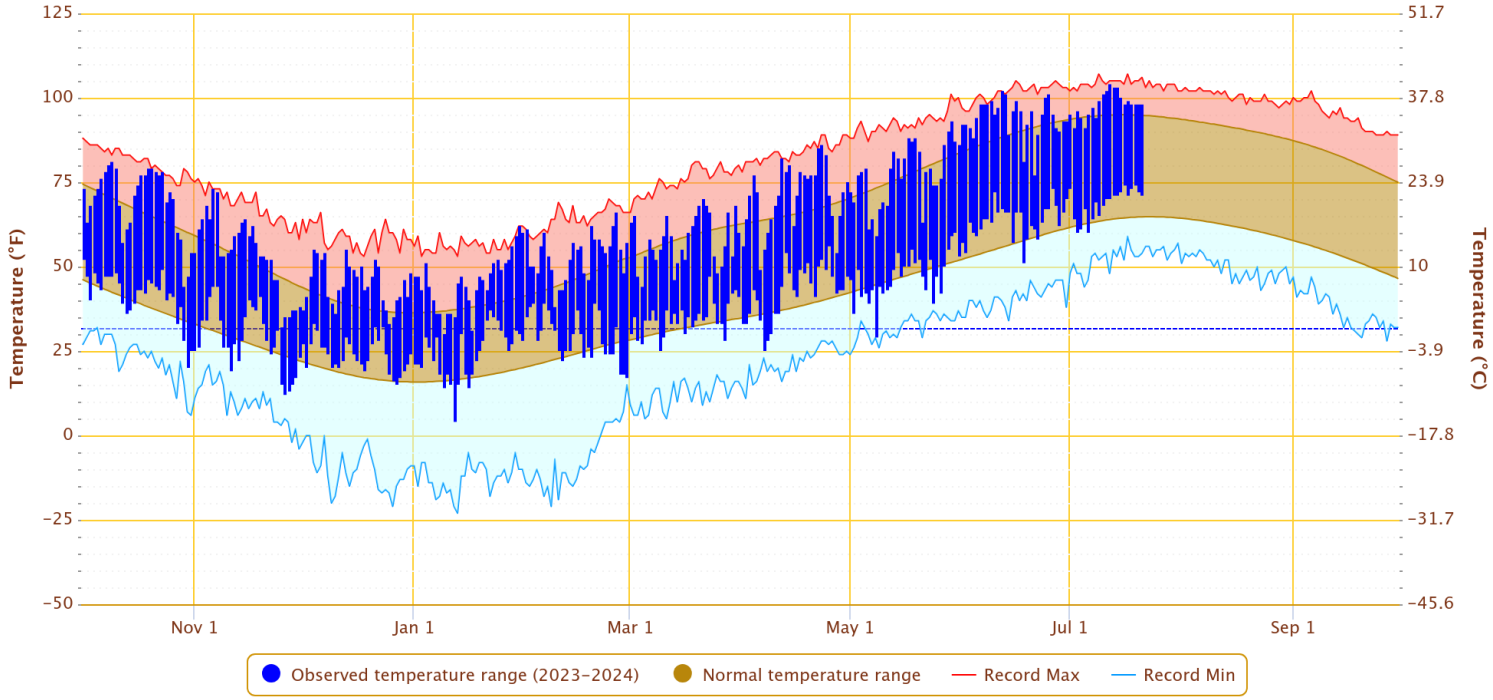
Daily Temperature Data - DENVER INTL AP, CO

Period of Record - 1994-07-20 to 2024-07-21. Normals period: 1991-2020. Click and drag to zoom chart.



Daily Temperature Data - GRAND JUNCTION WALKER FIELD, CO

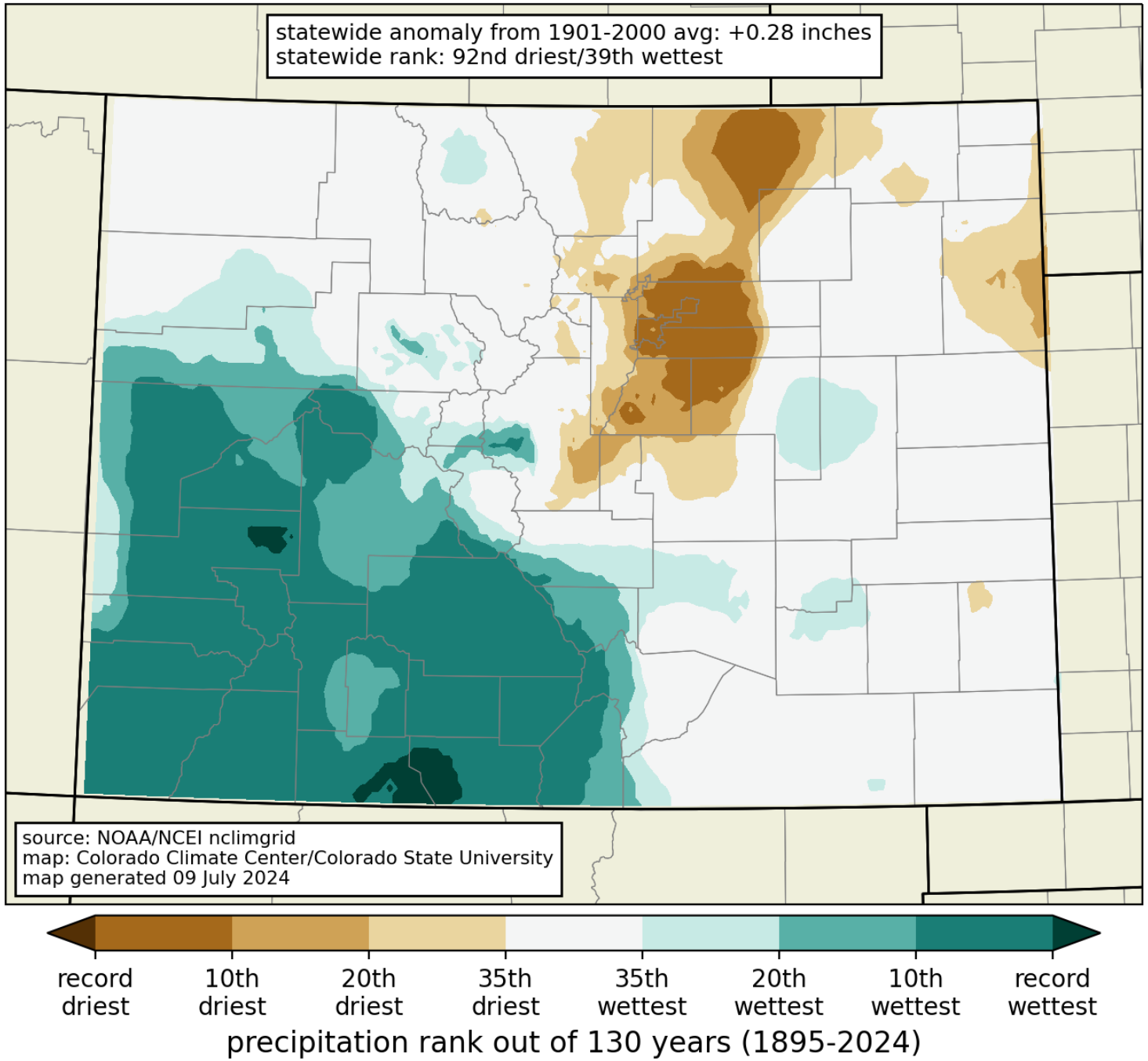
Period of Record - 1900-01-01 to 2024-07-21. Normals period: 1991-2020. Click and drag to zoom chart.

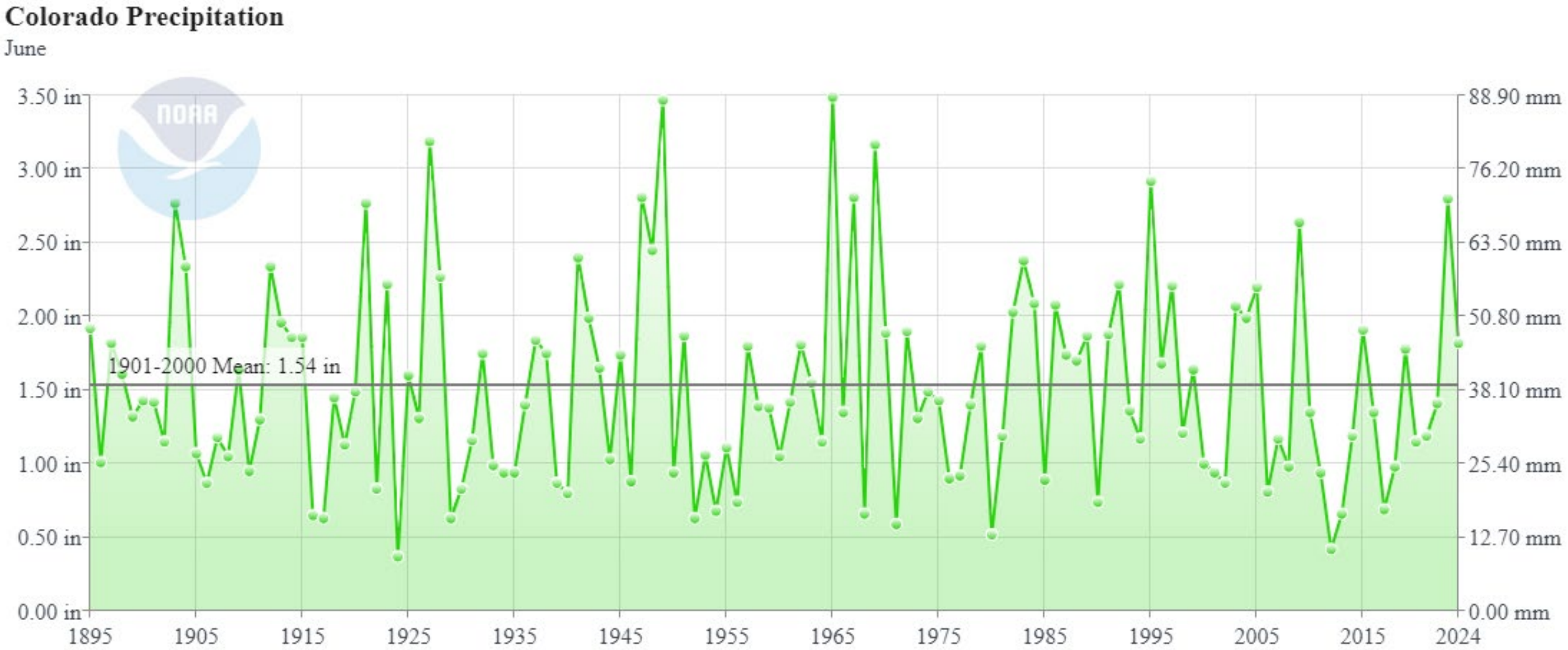


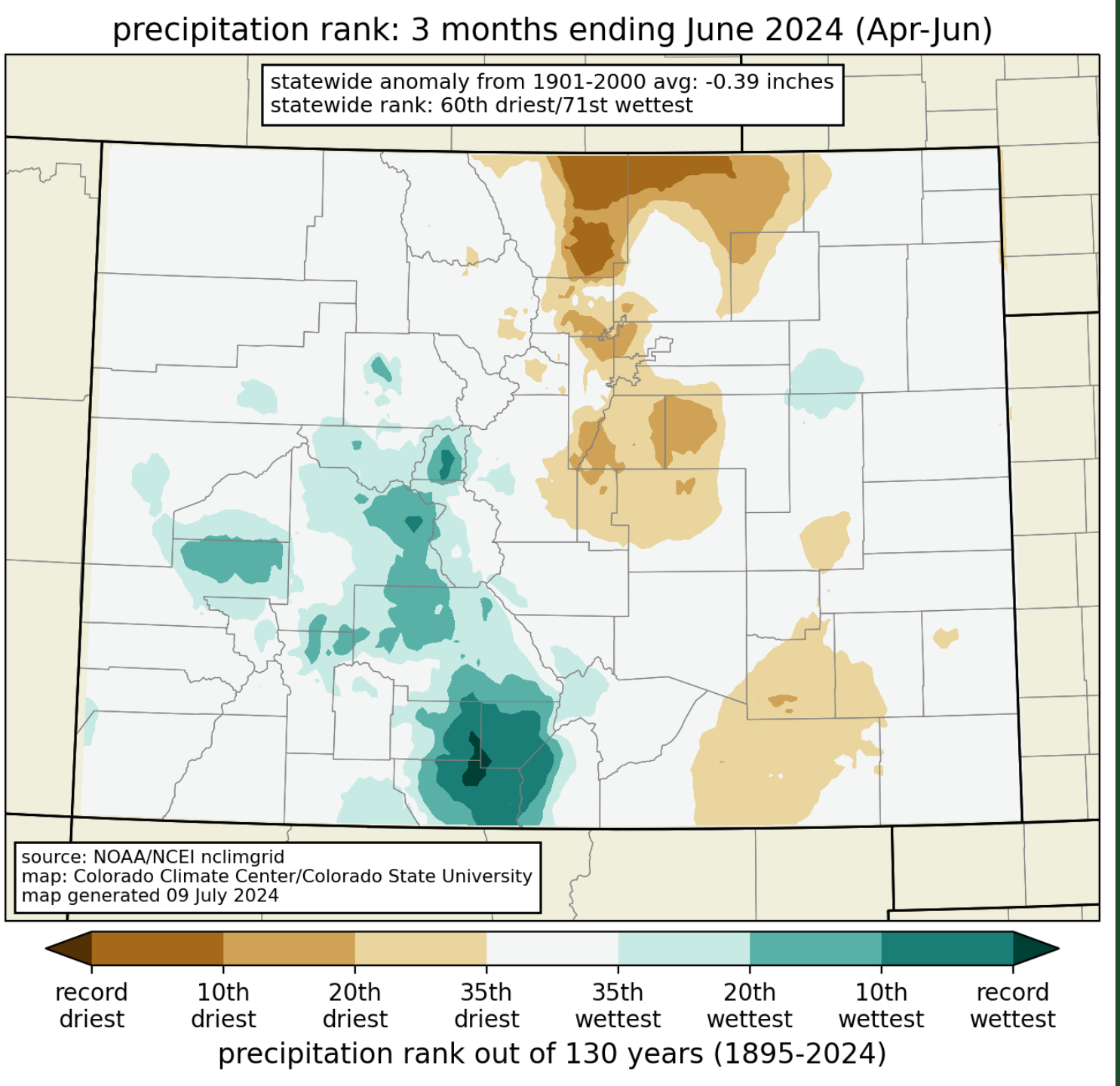
Powered by ACIS

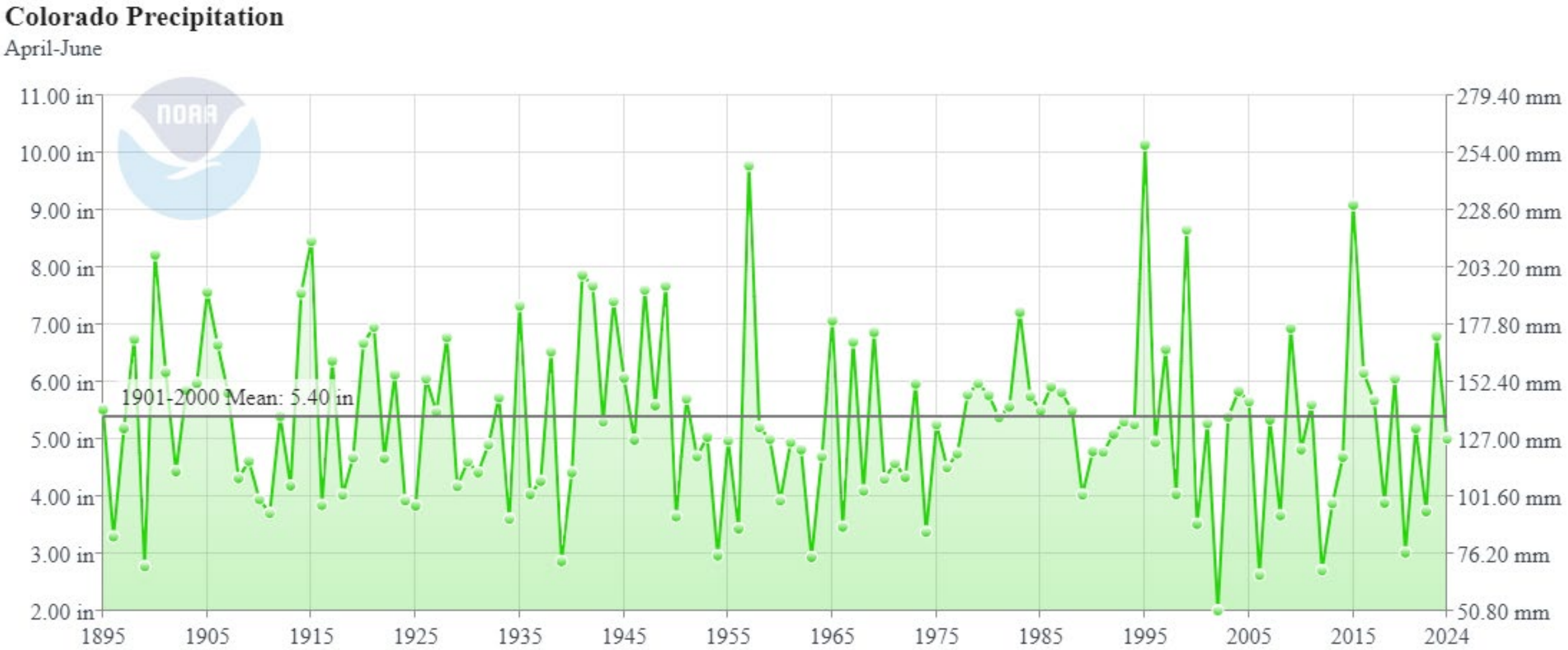
COLORADO CLIMATE CENTER

precipitation rank: June 2024

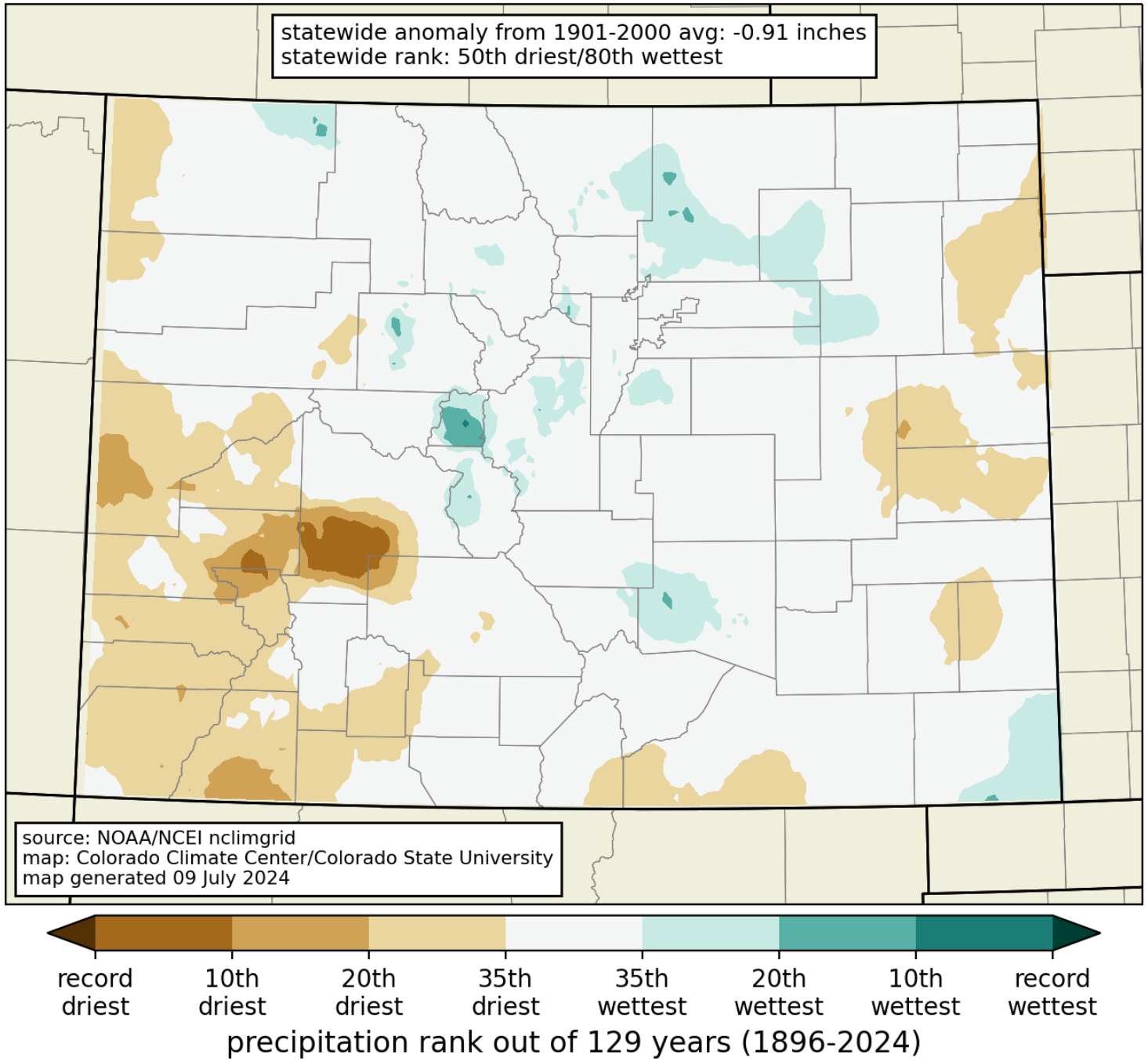



Colorado Precipitation
June
3.50 in
3.00 in
2.50 in
2.00 in
1.50 in
1.00 in
0.50 in
0.00 in
88.90 mm
76.20 mm
63.50 mm
50.80 mm
38.10 mm
25.40 mm
12.70 mm
0.00 mm
1901-2000 Mean: 1.54 in
1895
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
2015
2024


precipitation rank: 3 months ending June 2024 (Apr-Jun)
statewide anomaly from 1901-2000 avg: -0.39 inches
statewide rank: 60th driest/71st wettest
source: NOAA/NCEI nclimgrid
map: Colorado Climate Center/Colorado State University
map generated 09 July 2024
record driest
10th driest
20th driest
35th driest
35th wettest
20th wettest
10th wettest
record wettest
precipitation rank out of 130 years (1895-2024)


Colorado Precipitation
April-June
11.00 in
10.00 in
9.00 in
8.00 in
7.00 in
6.00 in
5.00 in
4.00 in
3.00 in
2.00 in
279.40 mm
254.00 mm
228.60 mm
203.20 mm
177.80 mm
152.40 mm
127.00 mm
101.60 mm
76.20 mm
50.80 mm
1901-2000 Mean: 5.40 in
1895
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
2015
2024

precipitation rank: 12 months ending June 2024 (Jul-Jun)

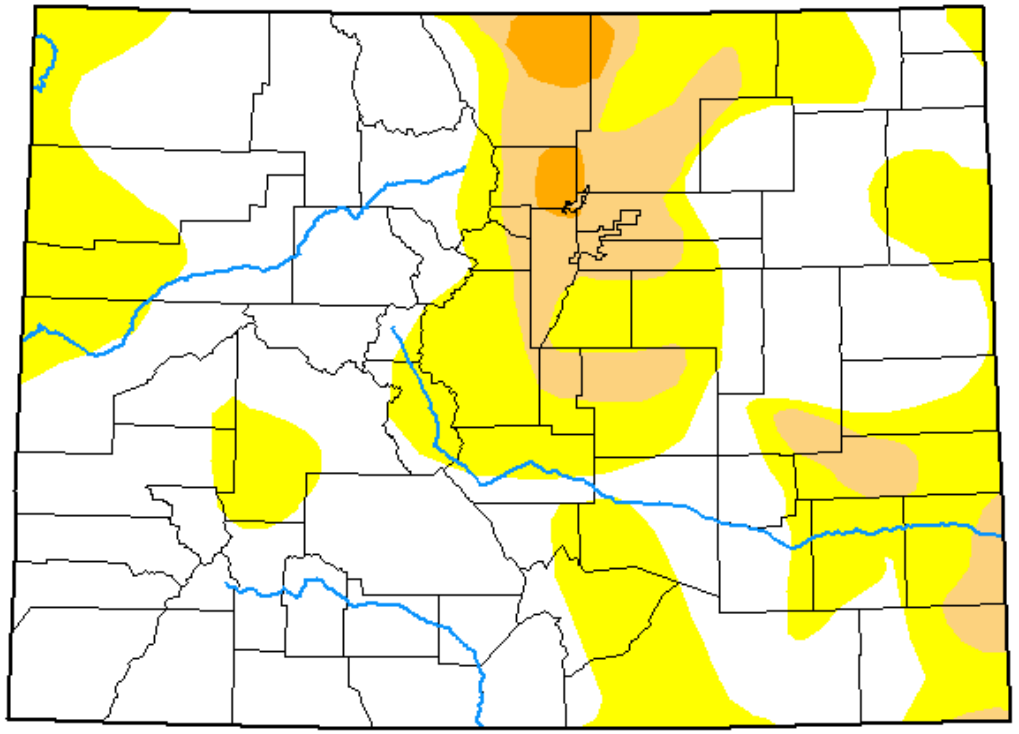


Drought Update

- Development of short-term drought in north-central Colorado
- Yo-yo-ing drought conditions in southeastern Colorado

U.S. Drought Monitor

Colorado



July 16, 2024

(Released Thursday, Jul. 18, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.68	40.32	9.75	1.32	0.00	0.00
Last Week *07-09-2024*	71.26	28.74	5.32	1.27	0.00	0.00
3 Months Ago *04-16-2024*	57.31	42.69	2.77	0.00	0.00	0.00
Start of Calendar Year *01-02-2024*	34.65	65.35	29.59	8.85	2.05	0.00
Start of Water Year *09-26-2023*	65.71	34.29	17.43	2.77	0.00	0.00
One Year Ago *07-18-2023*	79.95	20.05	0.00	0.00	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

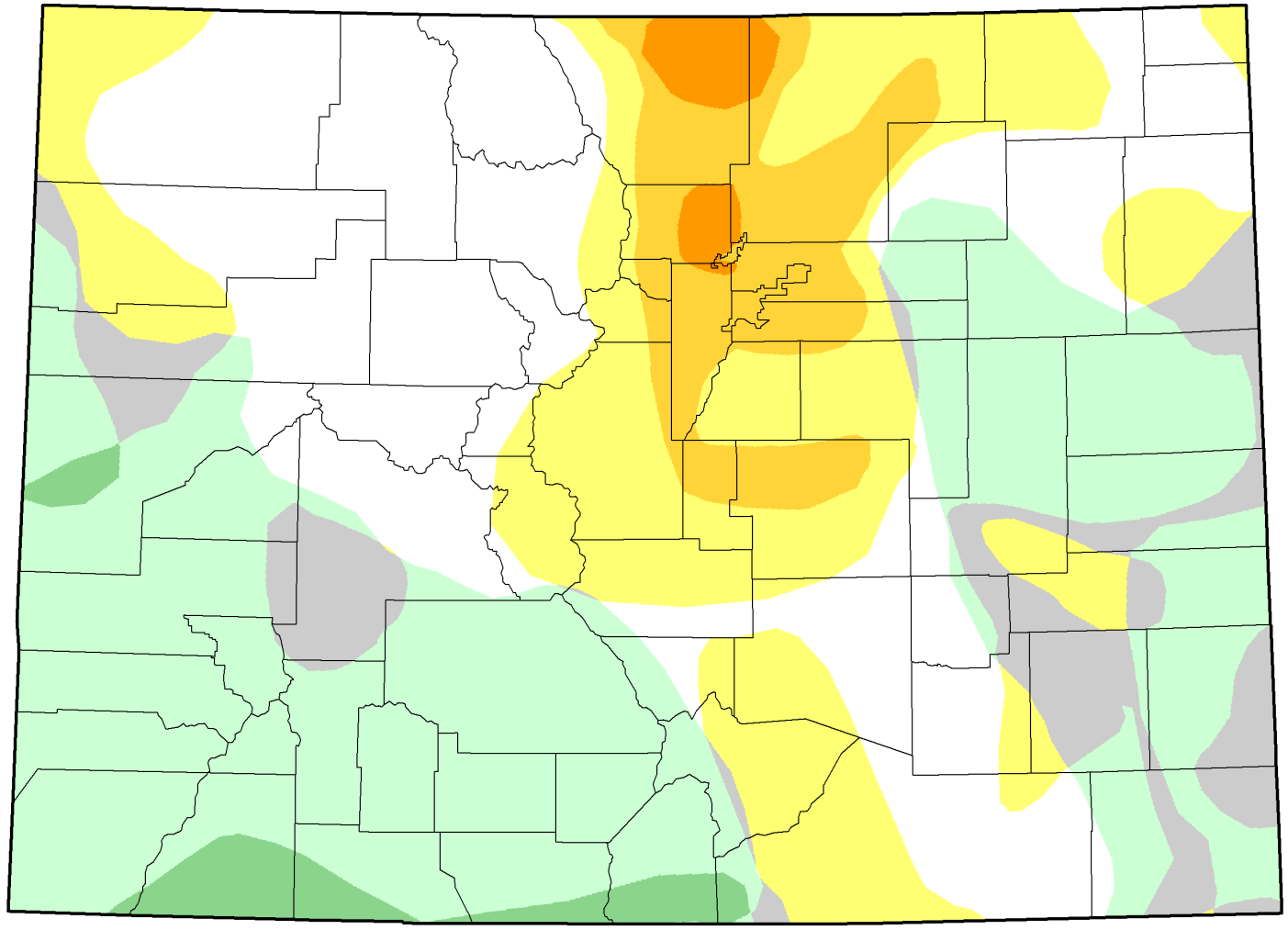
Author:

Brian Fuchs
National Drought Mitigation Center

droughtmonitor.unl.edu

U.S. Drought Monitor Class Change - Colorado

12 Week



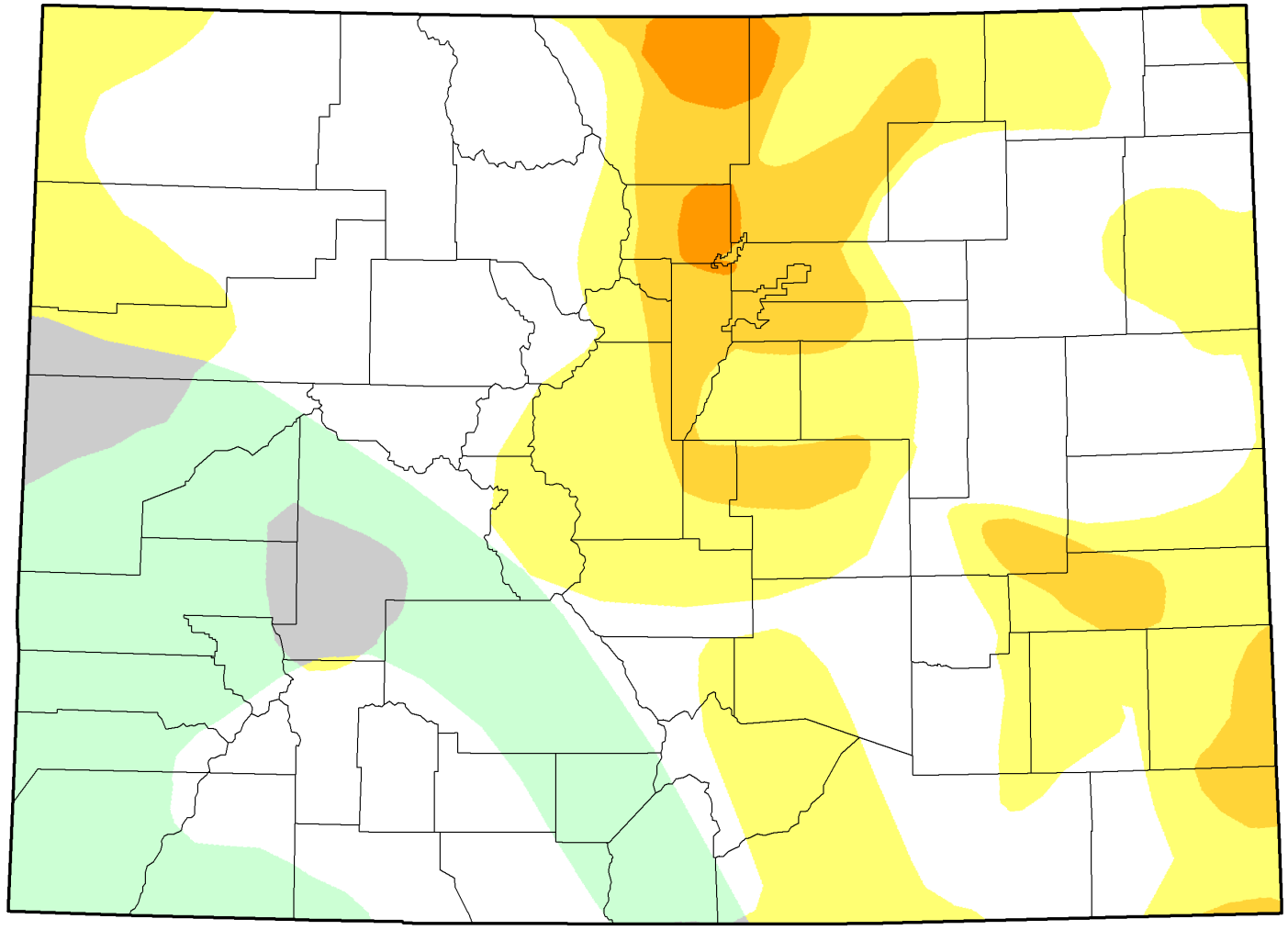
July 16, 2024
compared to
April 23, 2024

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 - Colorado

52 Week

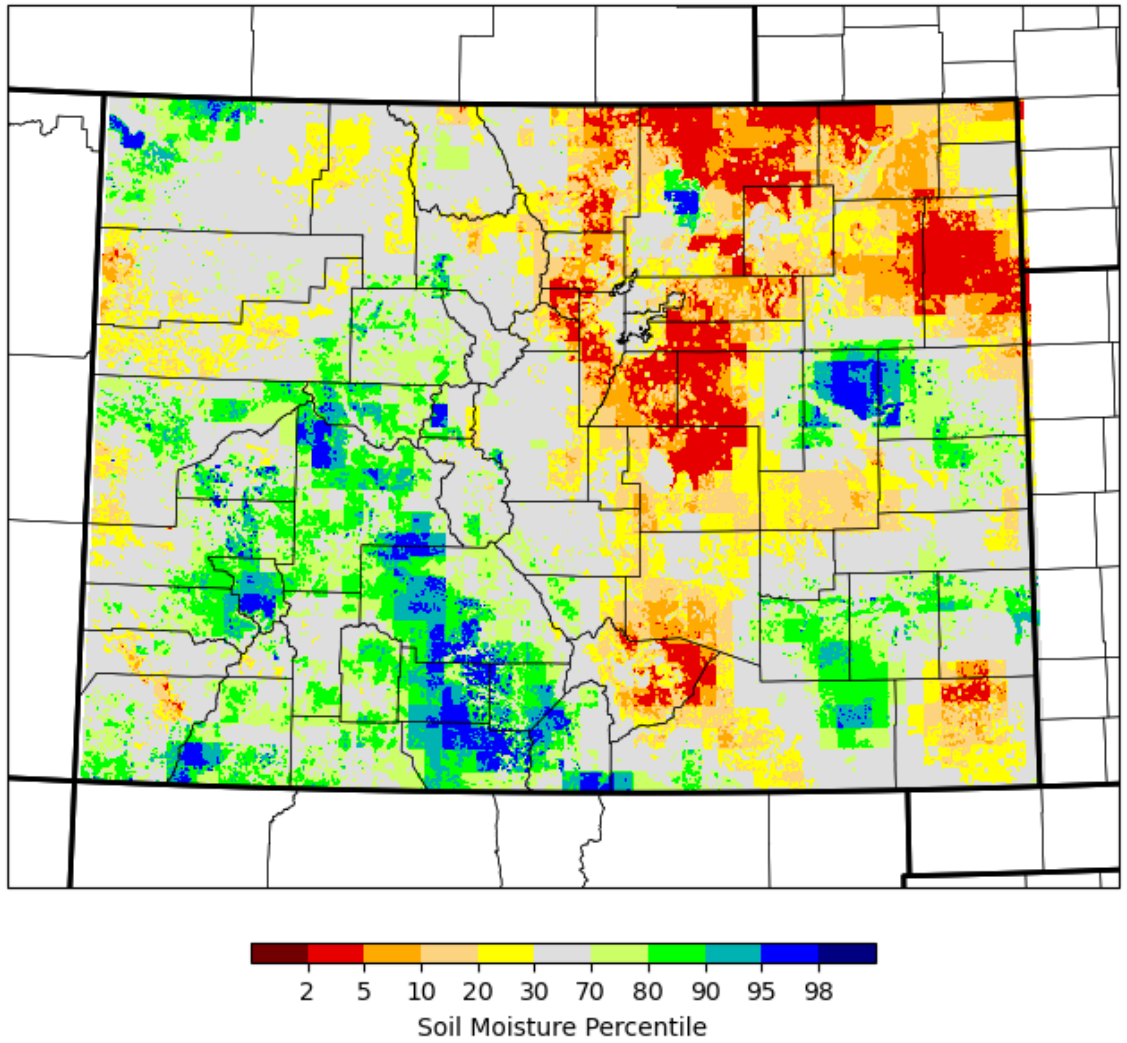


July 16, 2024
compared to
July 18, 2023

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

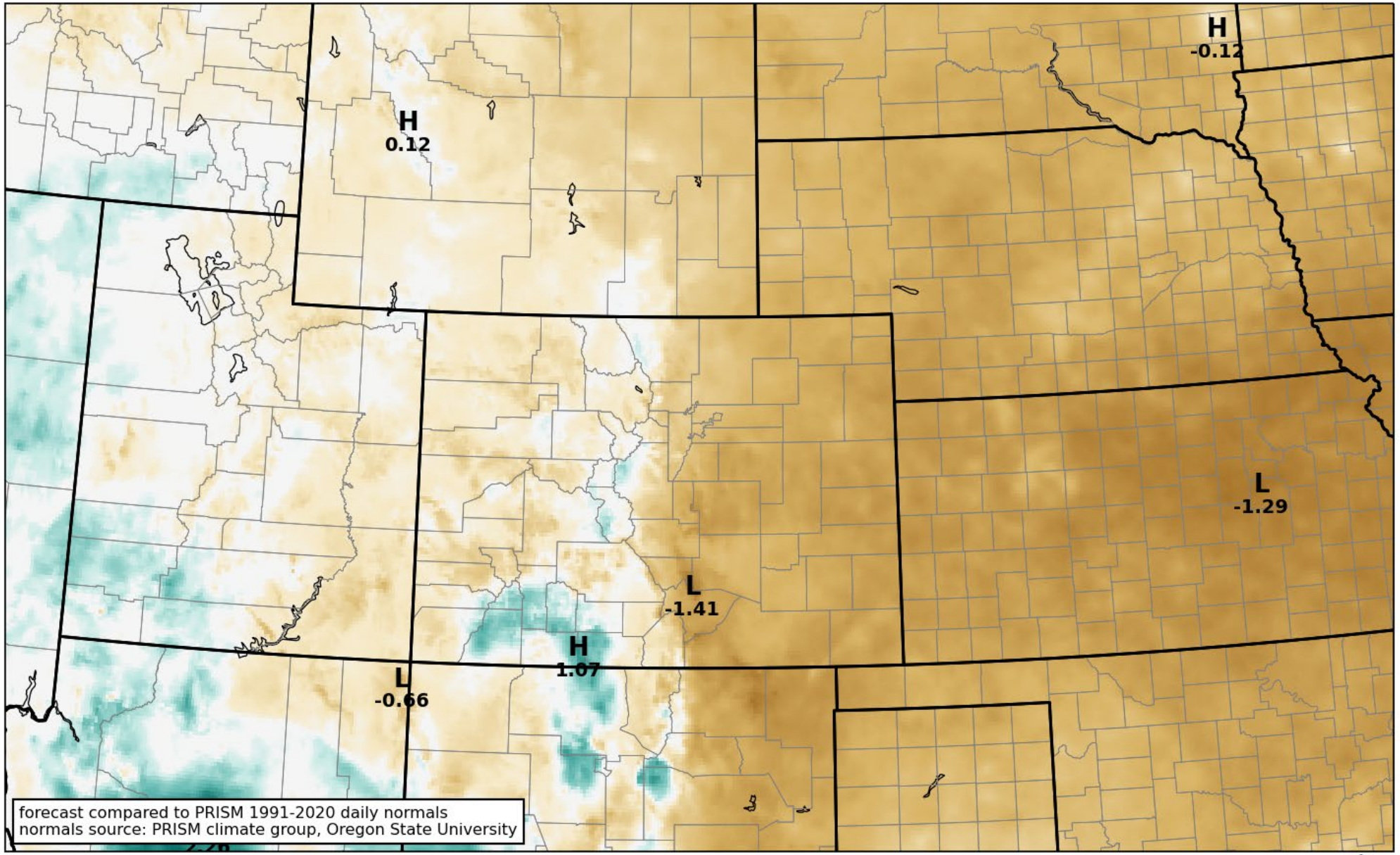
Soil Moisture Percentiles (0-1m) 07/18/2024



Spring/Summer Outlook

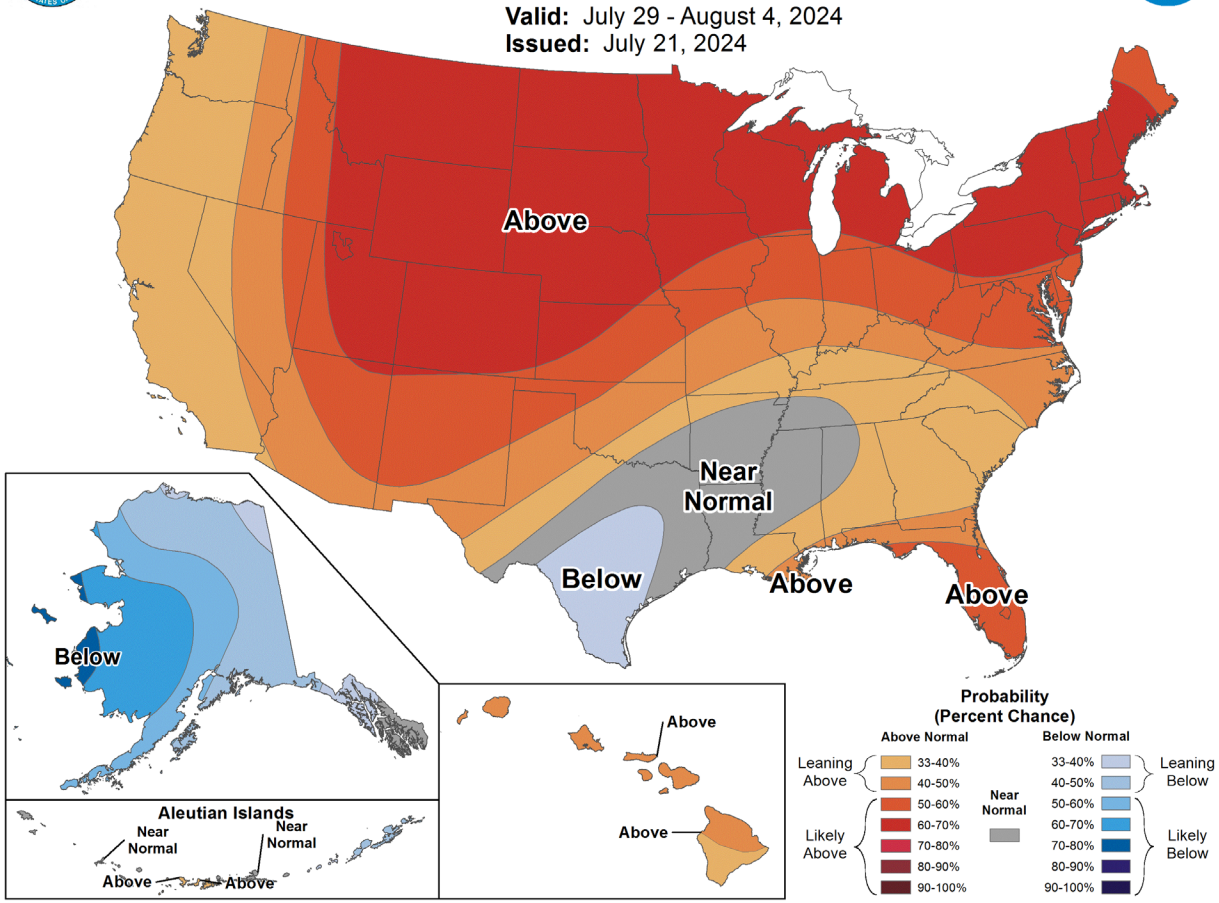
NOAA Weather Prediction Center
7-day precip forecast departure from average

forecast issued 1200 UTC Mon 22 Jul 2024
precipitation in 168 hrs ending 1200 UTC Mon 29 Jul 2024



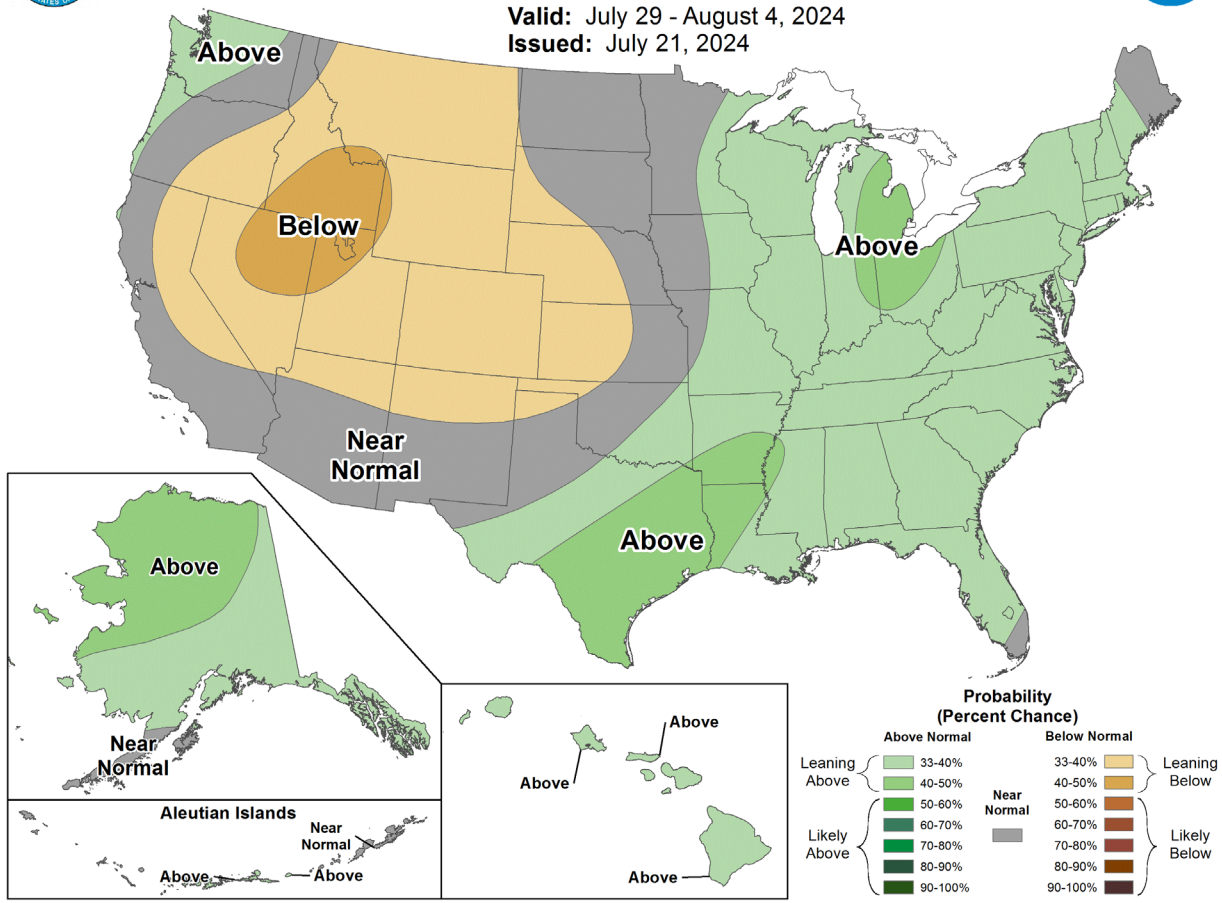
8-14 Day Temperature Outlook

Valid: July 29 - August 4, 2024
Issued: July 21, 2024

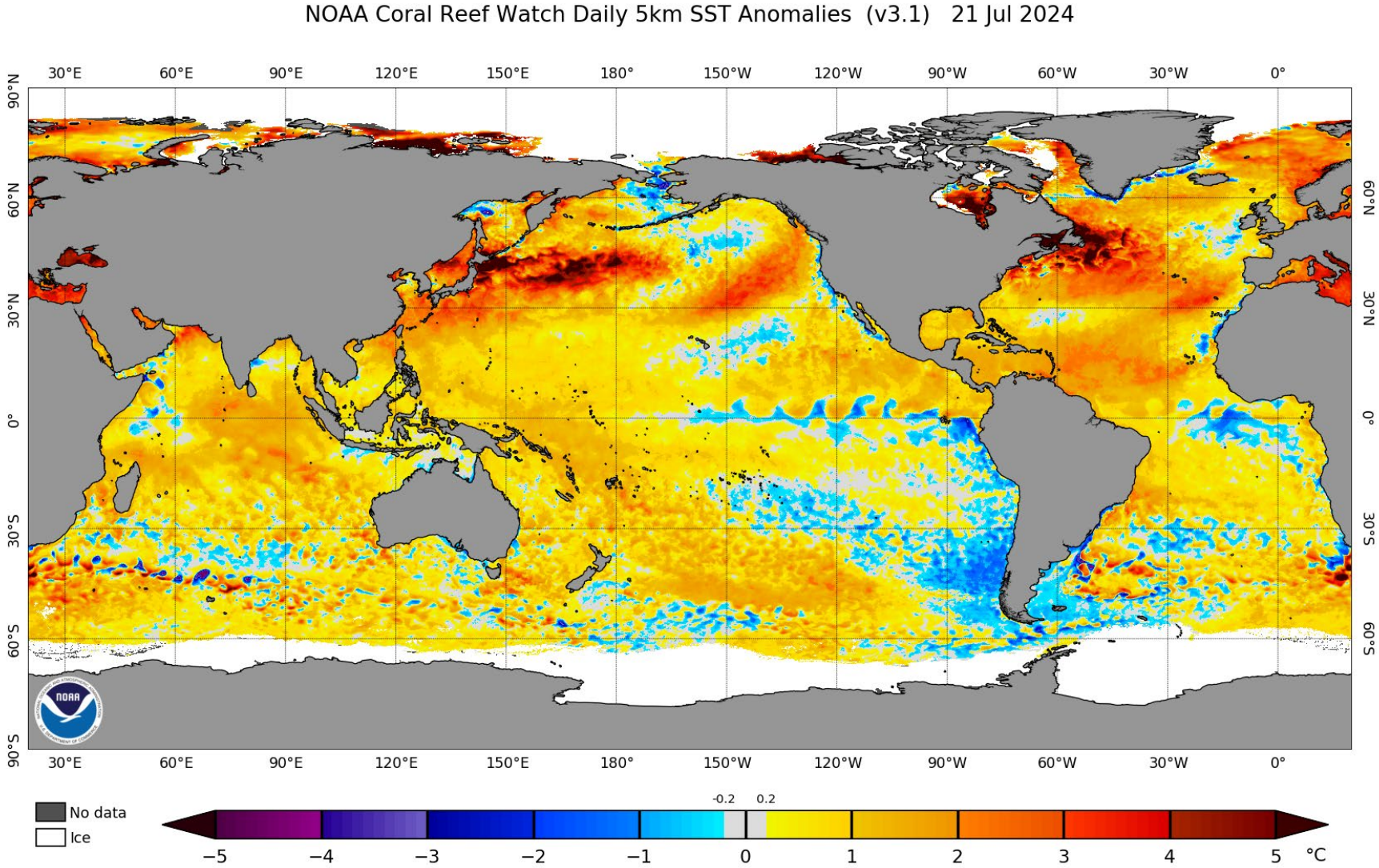


8-14 Day Precipitation Outlook

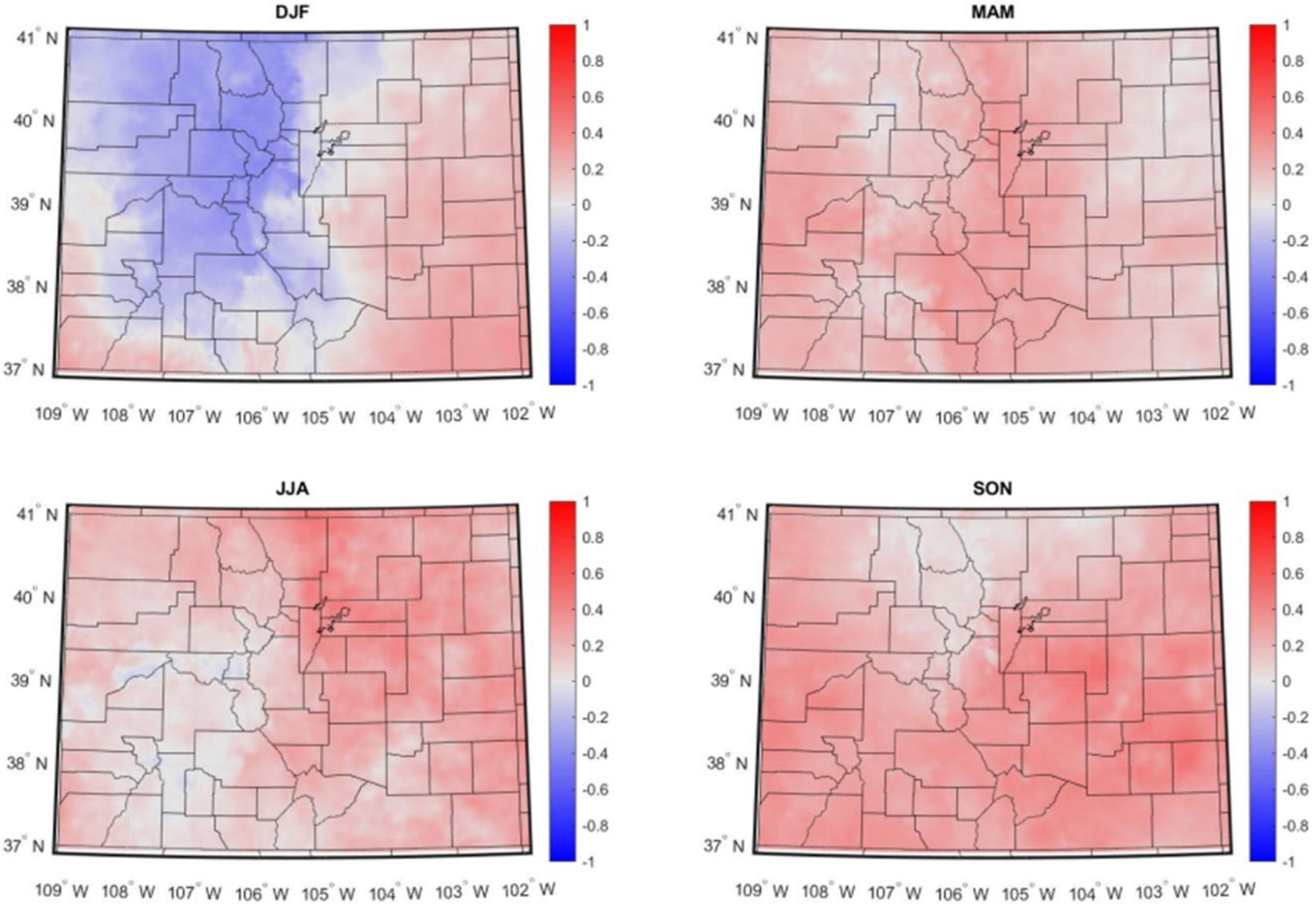
Valid: July 29 - August 4, 2024
Issued: July 21, 2024



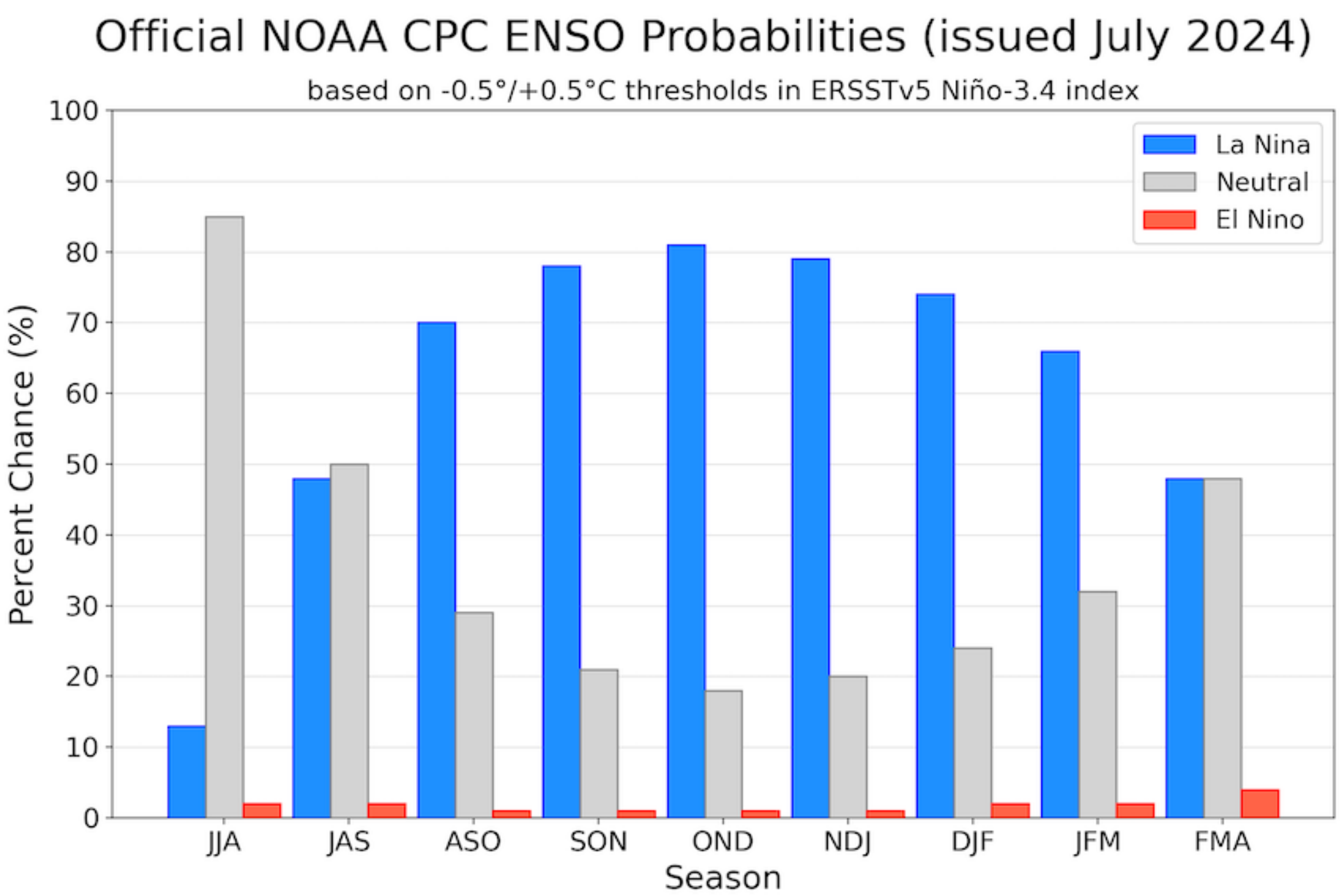
Beyond the Forecast (El Niño/La Niña)



Correlation Between ENSO ONI and Seasonal Precipitation in Colorado (1951-2020)

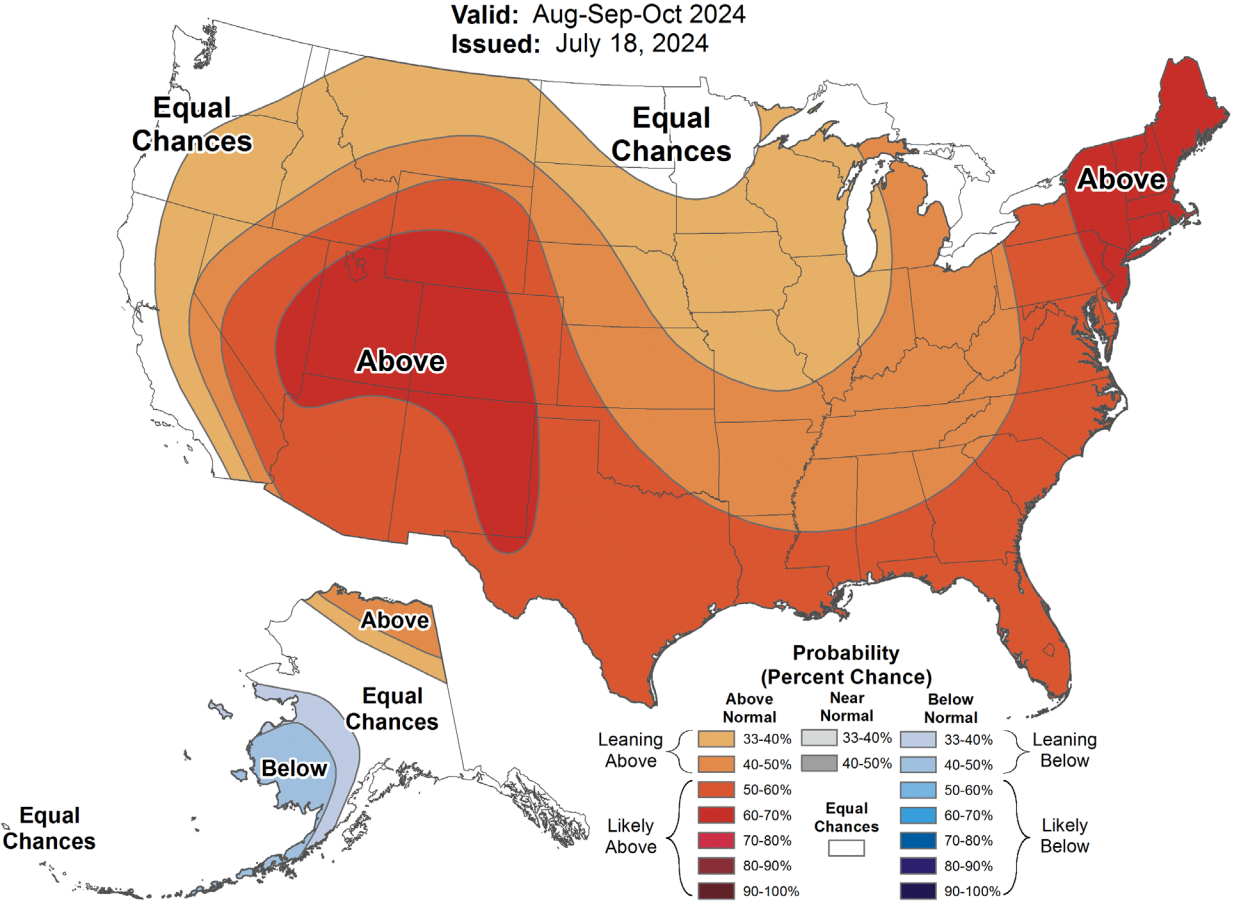


Blue = La Niña wetter Red = El Niño wetter


Official NOAA CPC ENSO Probabilities (issued July 2024)
based on -0.5°/+0.5°C thresholds in ERSSTv5 Niño-3.4 index
La Nina
Neutral
El Nino
Percent Chance (%)
100
90
80
70
60
50
40
30
20
10
0
JJA
JAS
ASO
SON
OND
NDJ
DJF
JFM
FMA
Season

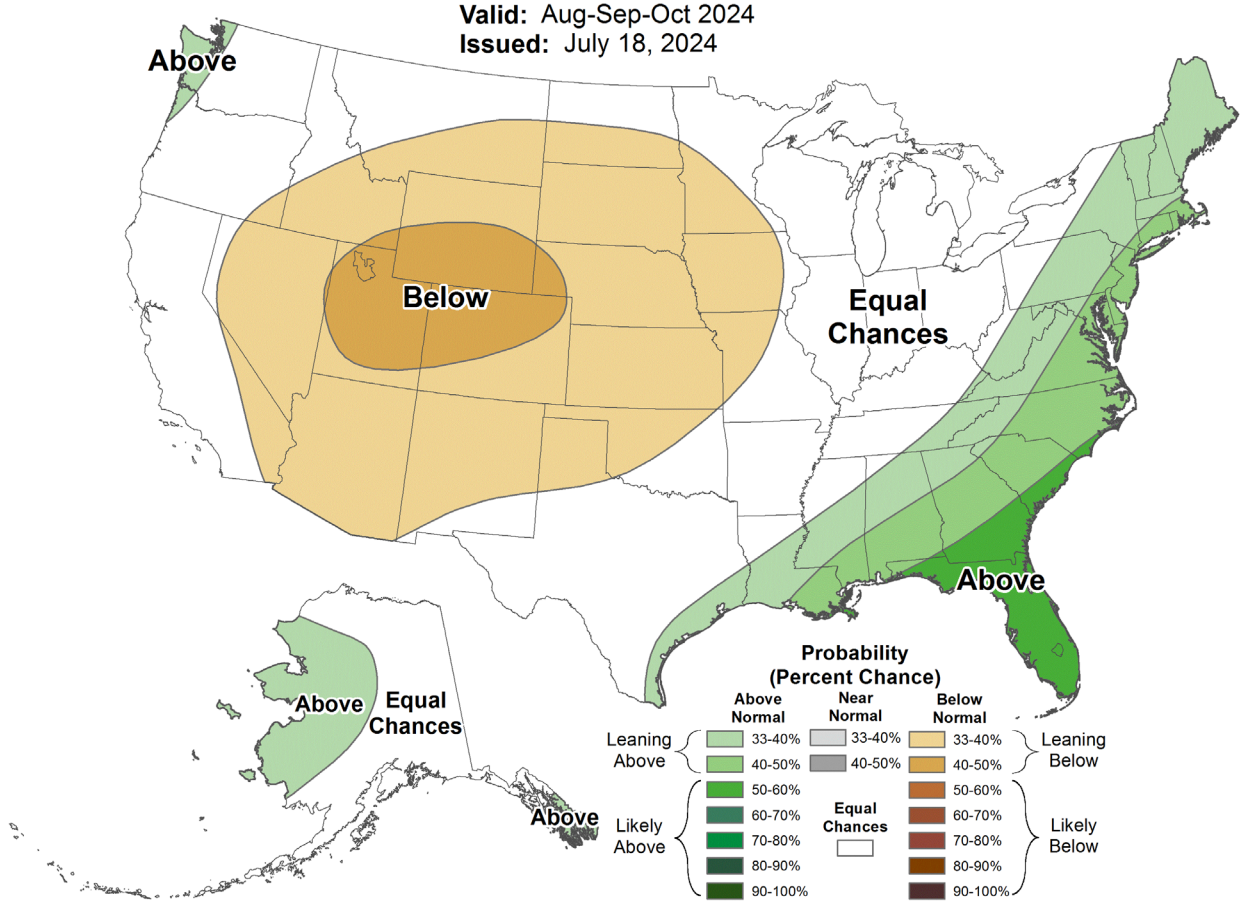
Seasonal Temperature Outlook

Valid: Aug-Sep-Oct 2024
Issued: July 18, 2024



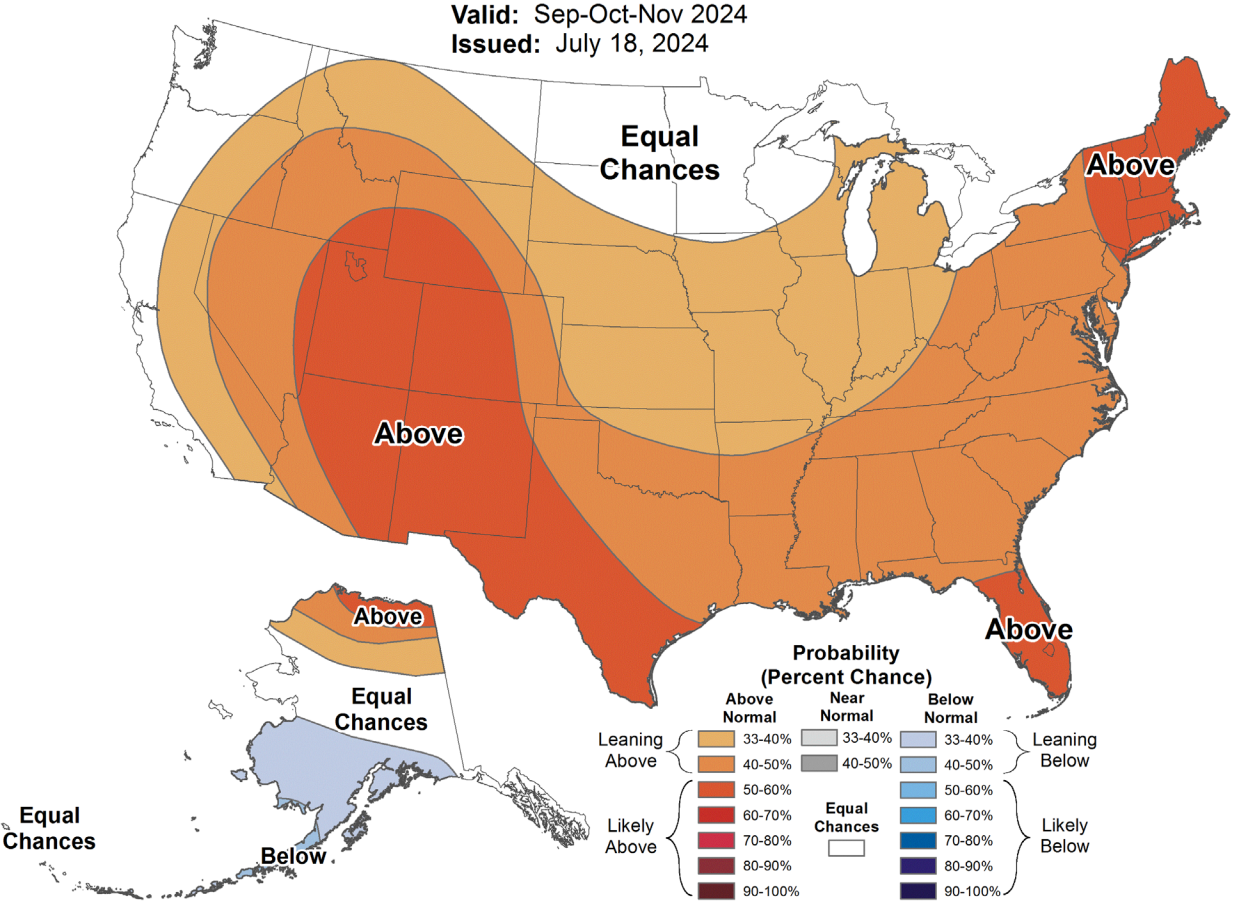
Seasonal Precipitation Outlook

Valid: Aug-Sep-Oct 2024
Issued: July 18, 2024



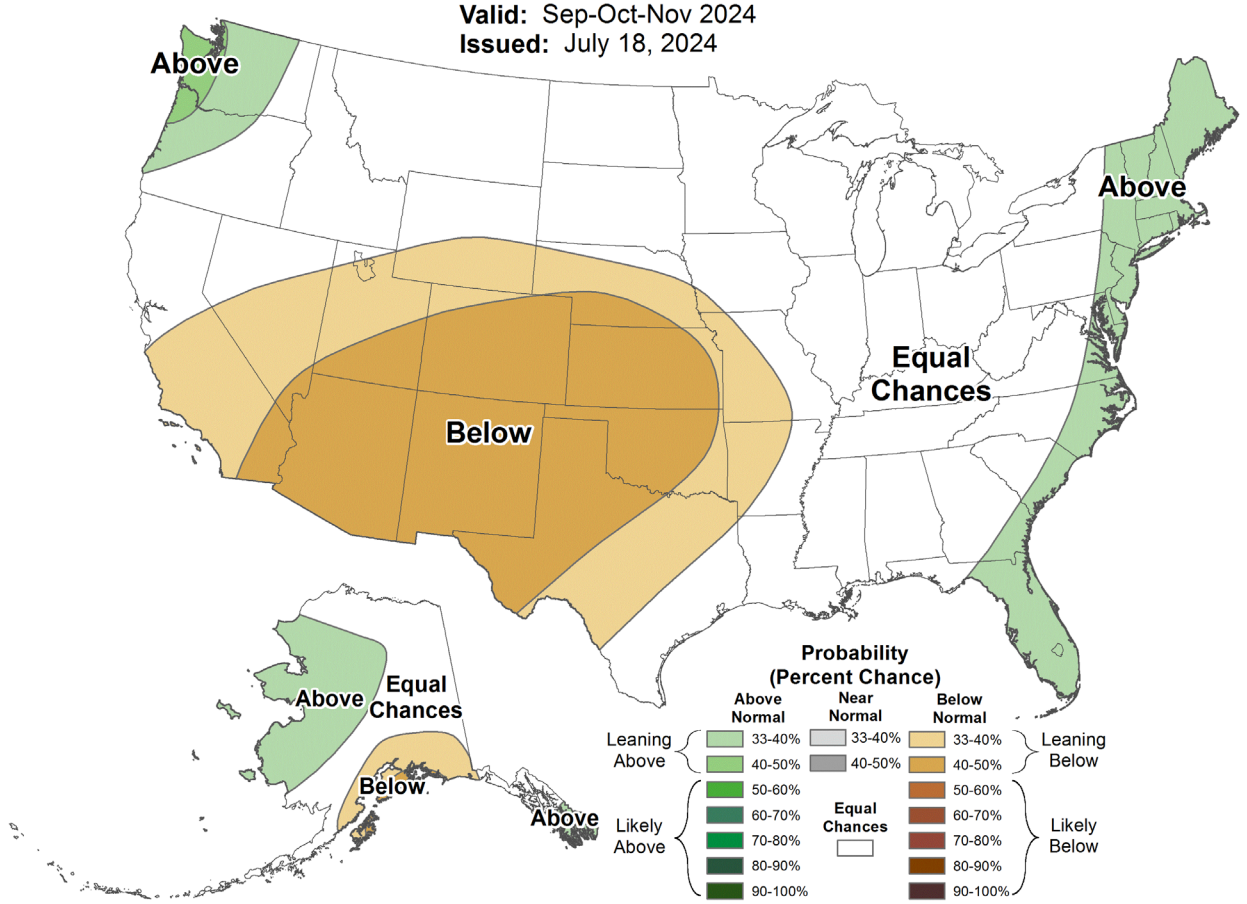
Seasonal Temperature Outlook

Valid: Sep-Oct-Nov 2024
Issued: July 18, 2024



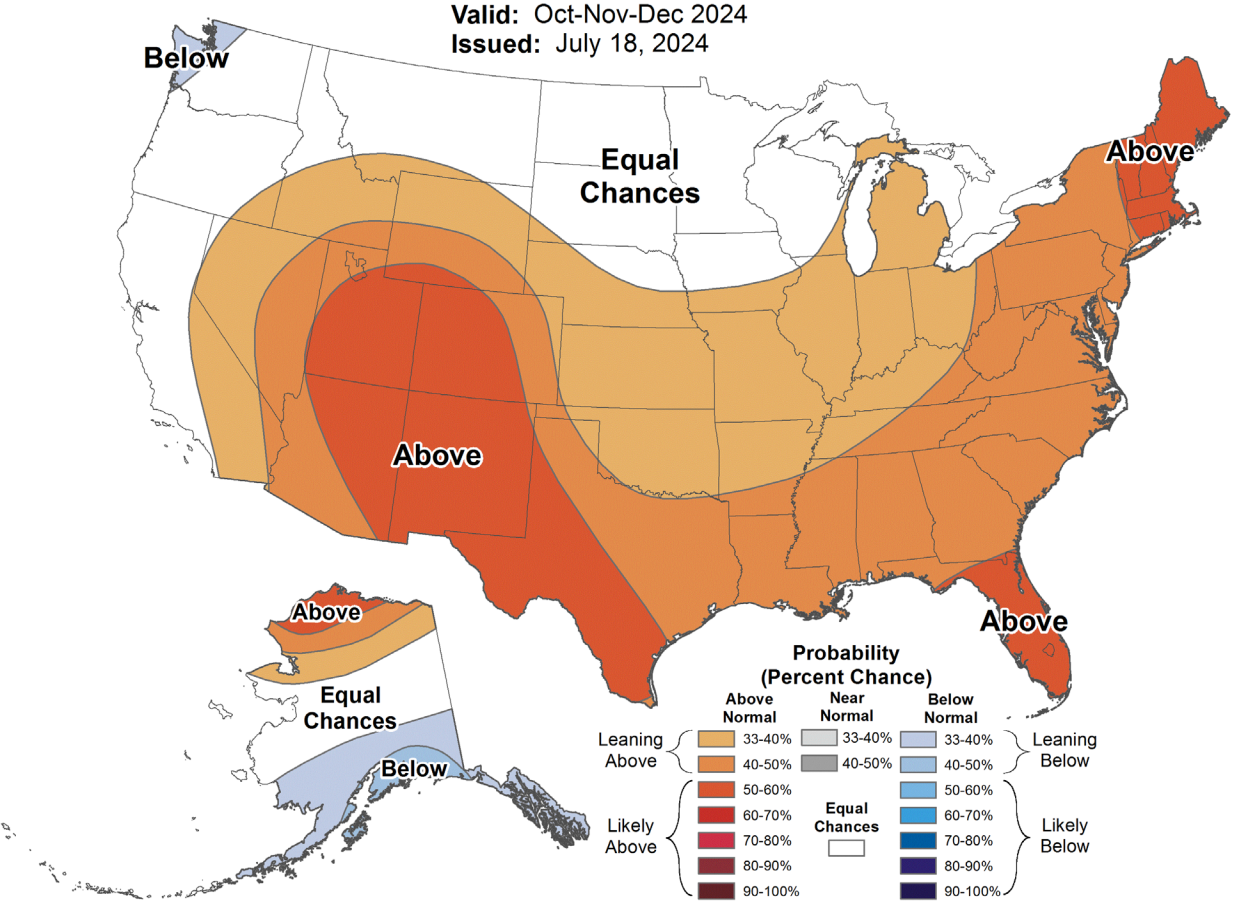
Seasonal Precipitation Outlook

Valid: Sep-Oct-Nov 2024
Issued: July 18, 2024



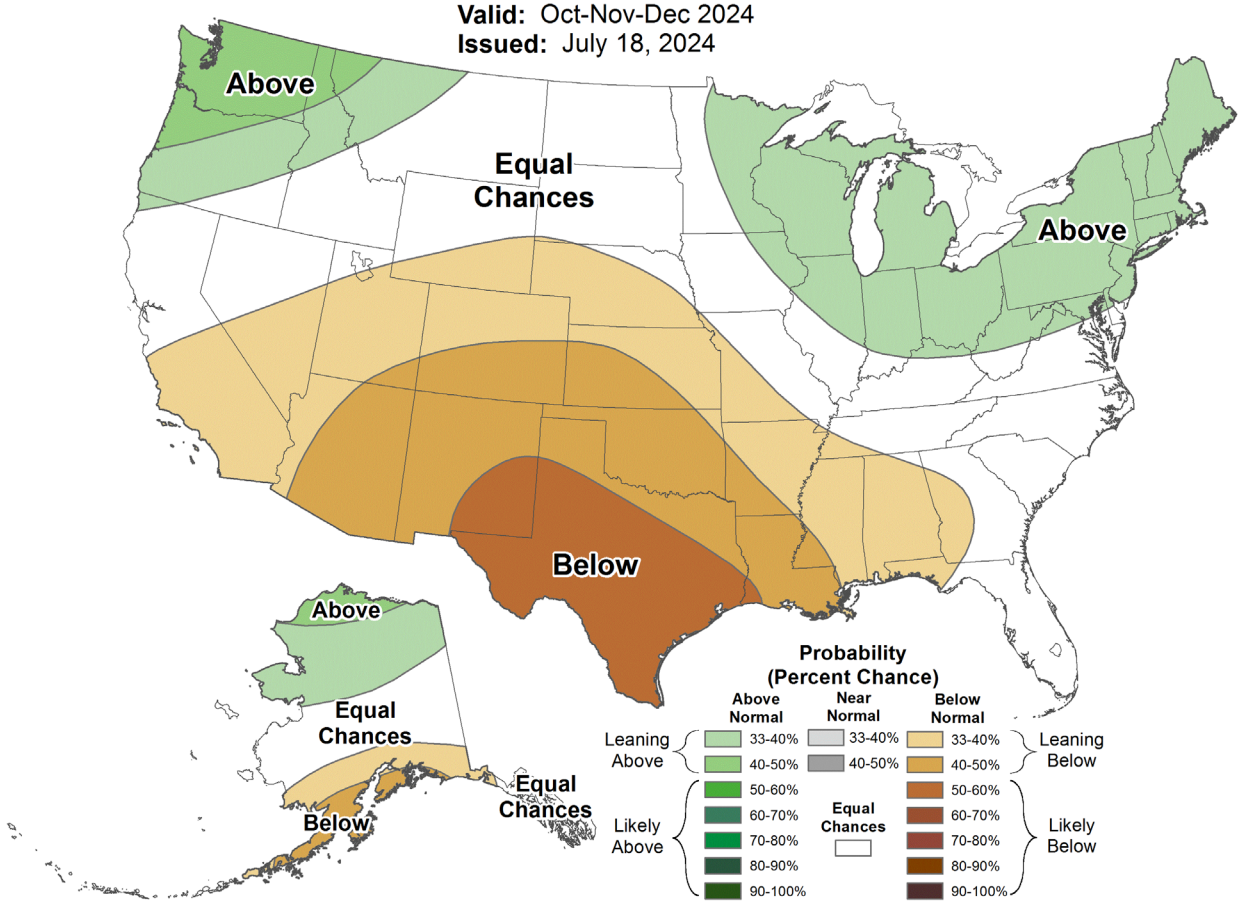
Seasonal Temperature Outlook

Valid: Oct-Nov-Dec 2024
Issued: July 18, 2024

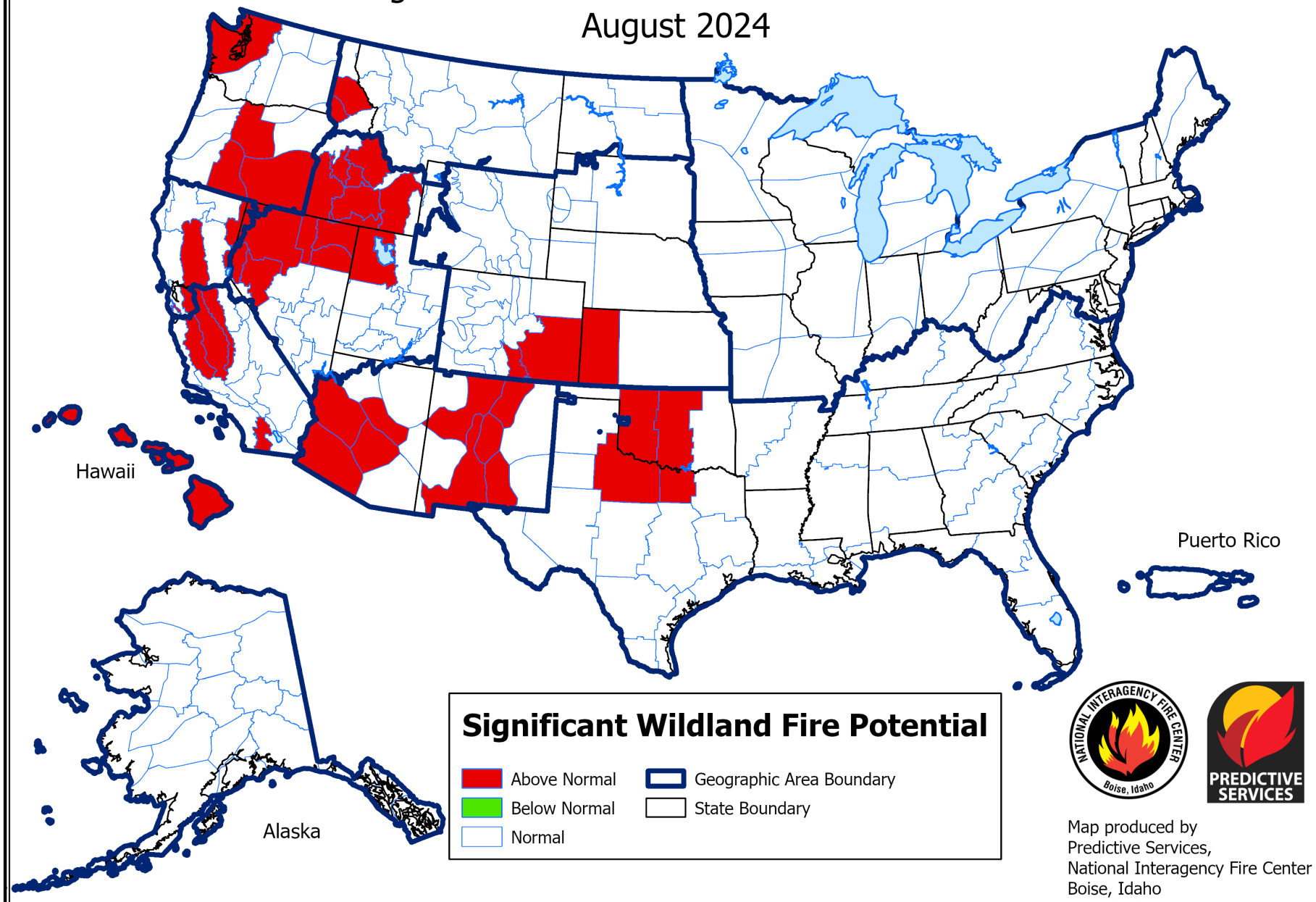


Seasonal Precipitation Outlook

Valid: Oct-Nov-Dec 2024
Issued: July 18, 2024



Significant Wildland Fire Potential Outlook
August 2024



Significant Wildland Fire Potential

- Above Normal
- Below Normal
- Normal
- Geographic Area Boundary
- State Boundary

Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur.
Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions.
Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued July 1, 2024
Next issuance August 1, 2024

Takeaways

- Summer has been warmer than normal so far. We experienced a top 10 heat wave event across much of the state last week
- Moisture in recent months has been mixed. Unlike 2023, conditions have been much drier than normal on the northern Front Range, but wetter than normal in portions of the southern and central Rockies. We see areas of short-term drought development with relatively healthy long-term water supplies
- Seasonal forecast models suggest we are more likely than normal to endure a warm/dry summer; long-term positive moisture anomalies have left our water supplies in better than normal shape
- These models are based on 1. Shift to La Niña. 2. Climate change. 3. Dynamical models showing a weaker monsoon this year
- The fire season has been relatively benign within our state's borders so far, but there is an increased probability of greater than normal wildfire activity in the second half of summer due to warmer than normal temperatures and a dry seasonal forecast

Colorado Climate Center (Contact Us)

Thanks, and let's keep in touch!

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Russ Schumacher – russ.schumacher@colostate.edu

Viewing this, and previous WATF Briefings:

http://climate.colostate.edu/ccc_archive.html

Thank you

ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY