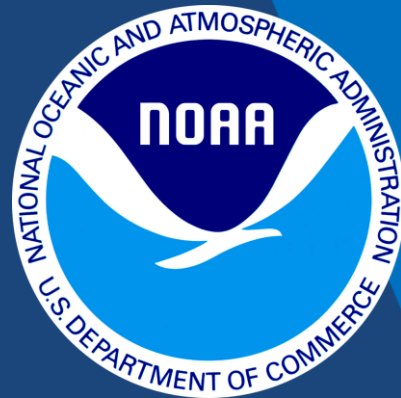


NOAA Climate Science and Services Monthly Climate Update



Ahira Sánchez-Lugo

Climatologist, NOAA National Centers for Environmental Information

Natalie Umphlett

PhD, regional climatologist, High Plains Regional Climate Center, University of Nebraska-Lincoln

Dan Collins

Meteorologist, NOAA Climate Prediction Center

National Oceanic and
Atmospheric Administration

April 2021

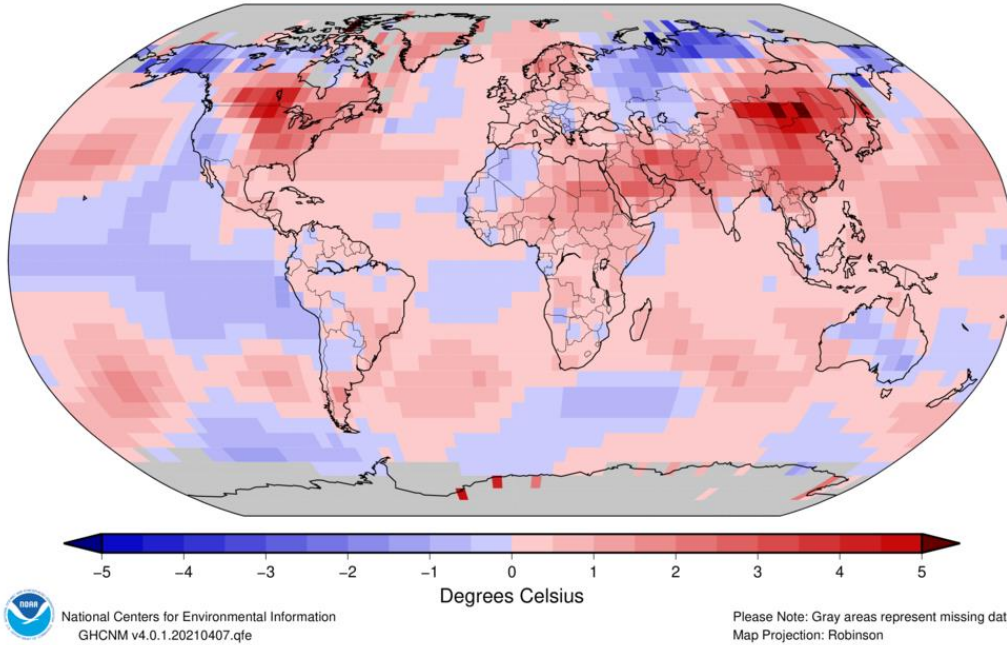




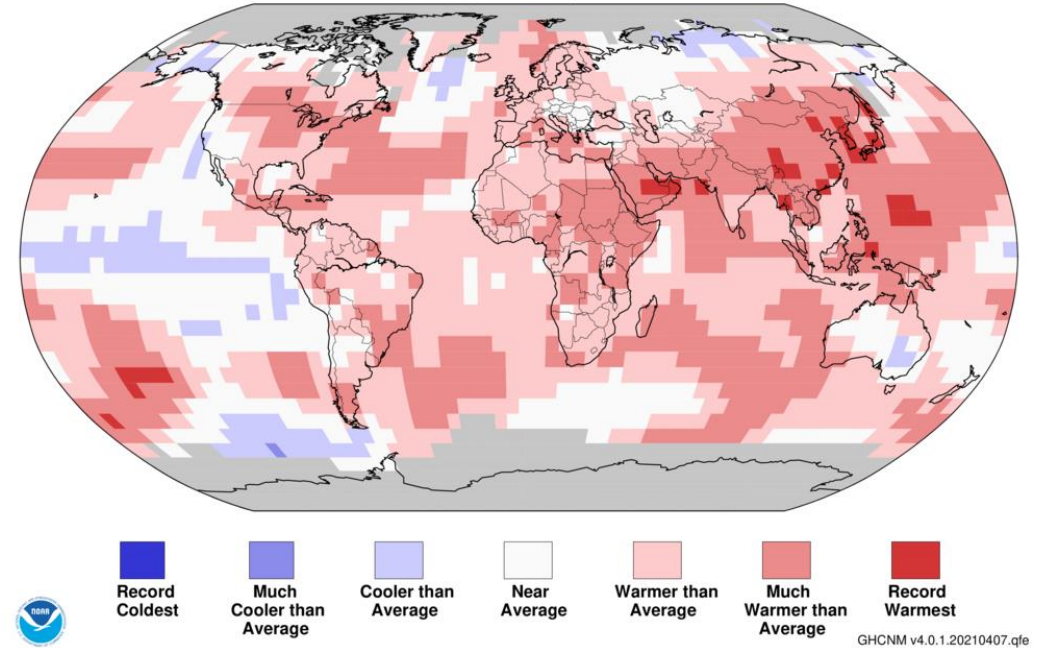
March 2021 Global Temperature

The global temperature record dates back to 1880 (142 years)

Land & Ocean Temperature Departure from Average Mar 2021
(with respect to a 1981–2010 base period)
Data Source: NOAAGlobalTemp v5.0.0–20210408



Land & Ocean Temperature Percentiles Mar 2021
NOAA's National Centers for Environmental Information
Data Source: NOAAGlobalTemp v5.0.0–20210408



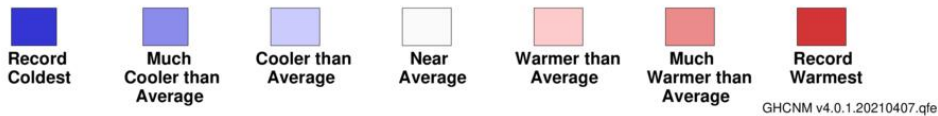
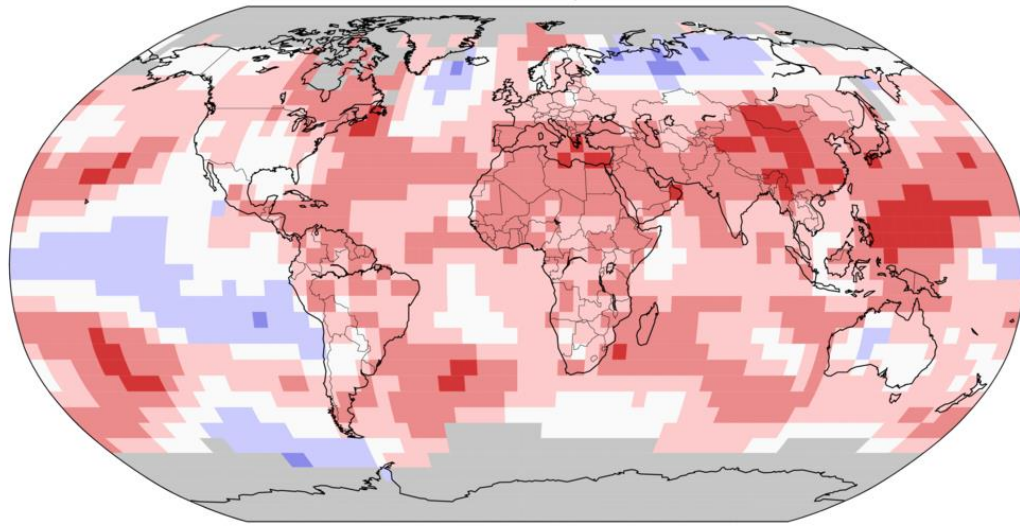
- **Global Land & Ocean:** +0.85°C / +1.53°F; the 8th warmest Mar on record.
- **Global Land:** +1.60°C / +2.88°F; 9th warmest Mar on record.
- **Global Ocean:** +0.57°C / +1.03°F; 9th warmest Mar on record.



January-March Global Temperature

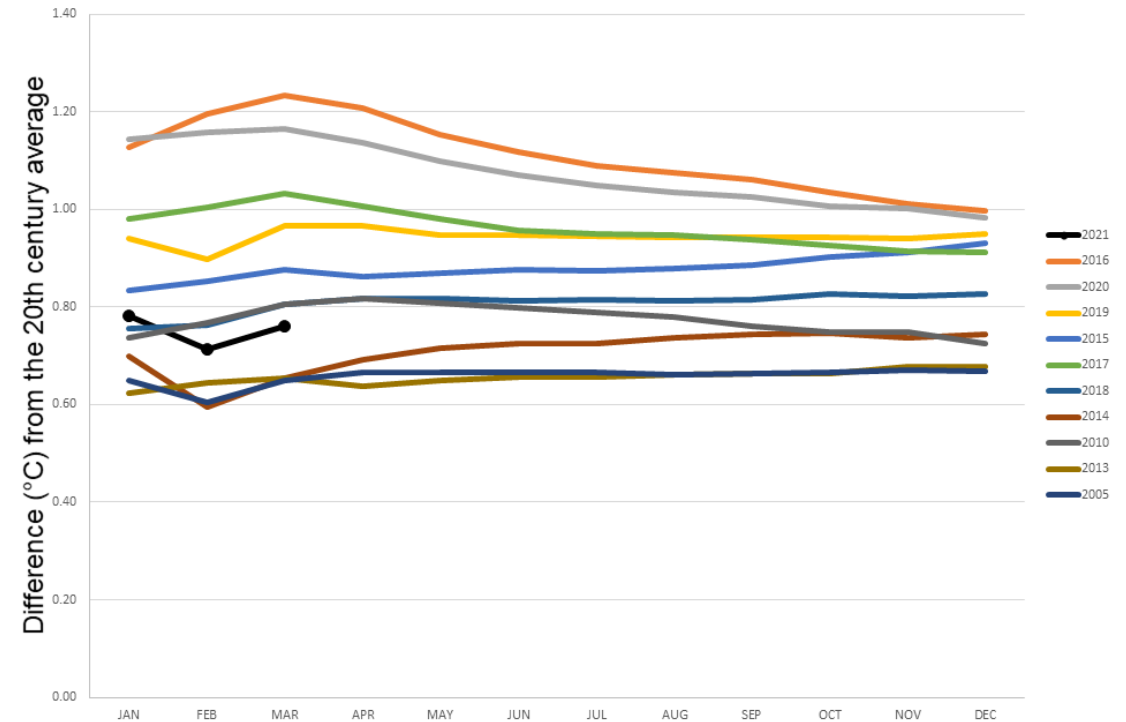
The global temperature record dates back to 1880 (142 years)

Land & Ocean Temperature Percentiles Jan-Mar 2021
NOAA's National Centers for Environmental Information
Data Source: NOAAGlobalTemp v5.0.0-20210408



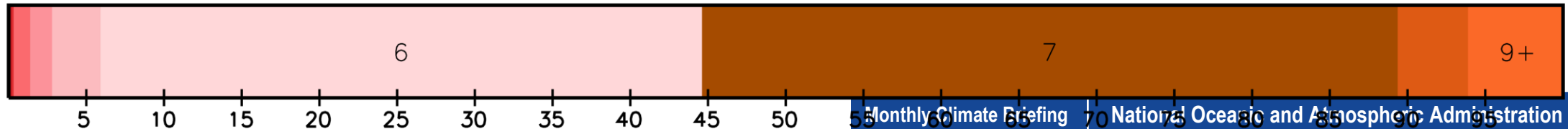
Year-to-Date Temperatures

for 2021 and the ten warmest years on record



- **Global Land & Ocean: +0.76°C / +1.37°F;** tied with 2007 as the 9th warmest Jan-Mar on record.

Very likely that 2021 will be a top 10 year



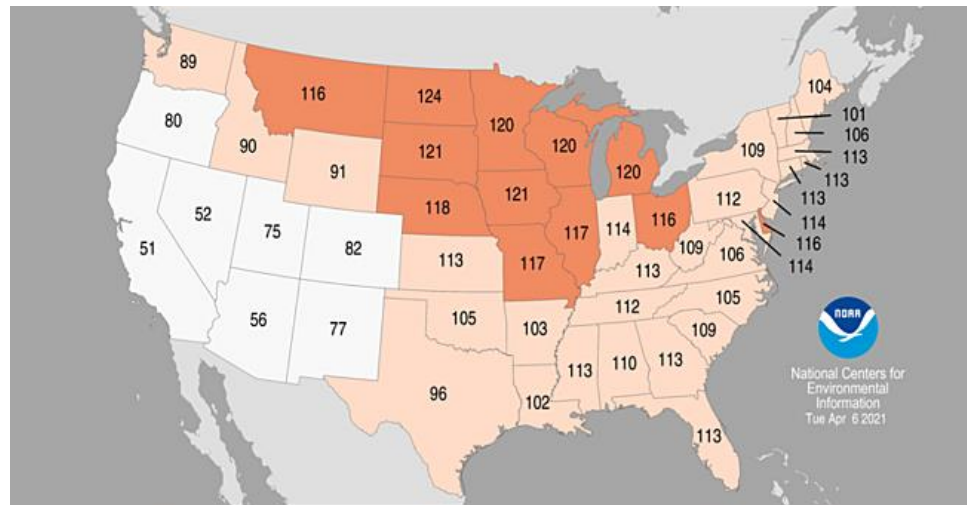


Contiguous U.S. March 2021

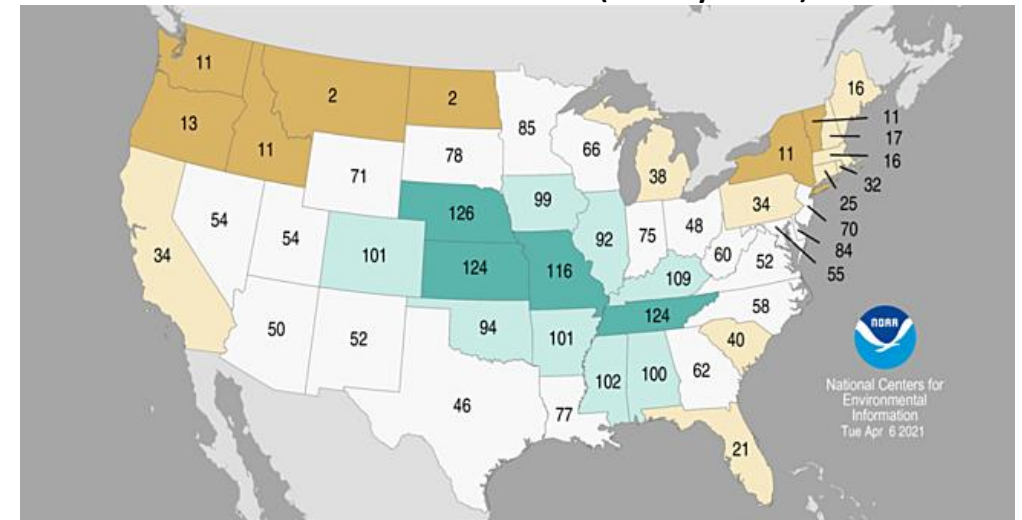
Temperature: 45.5°F, +4.0°F, tied with 1945 as the 14th warmest March

Precipitation: 2.45”, 0.06” below average, “near average”

Temperature Percentiles March 2021
Period: 1895-2021 (127 years)



Precipitation Percentiles March 2021
Period: 1895-2021 (127 years)



- Above-average temperatures were observed from the Northwest to the Great Lakes to the Gulf of Mexico and into the Northeast.
- 7 states had a top 10 warm March.
- No state had a statewide March temperature that was below average.

- Above-average precipitation was observed from the central U.S. to the Tennessee Valley and Gulf Coast in March. Below-average precipitation occurred across the Northwest, northern Plains, Northeast, as well as portions of the Southeast, Deep South and West.

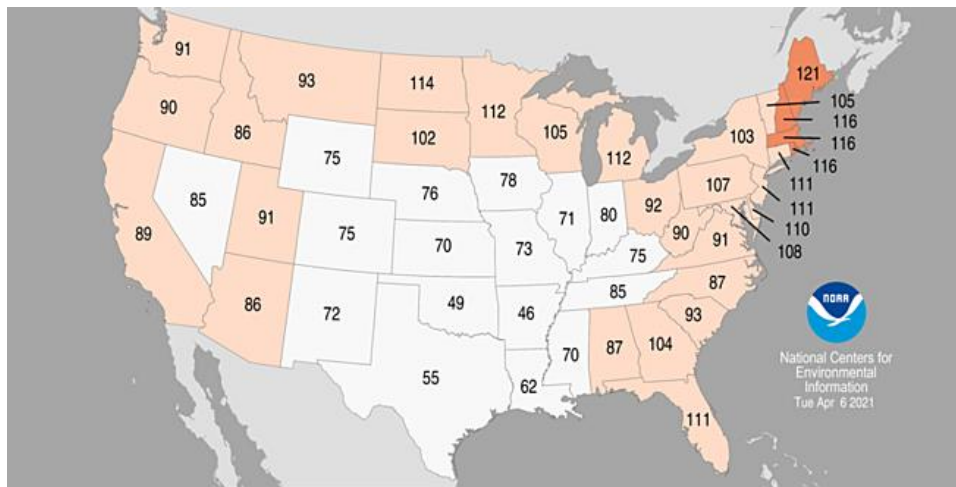


Contiguous U.S. January-March 2021

Temperature: 36.9°F, +1.8°F, 33rd warmest

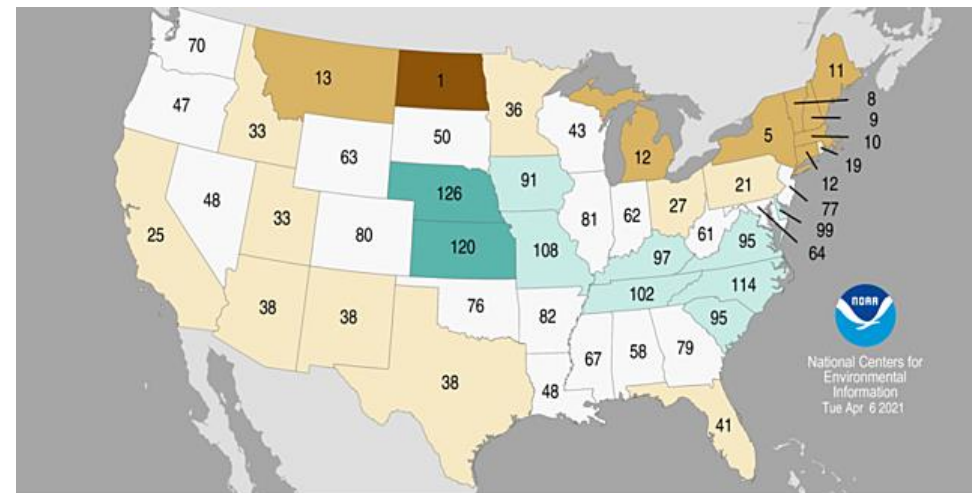
Precipitation: 6.55", -0.41", driest since 2015

Temperature Percentiles Jan-Mar 2021
Period: 1895–2021 (127 years)



- Above-average temperatures were present across the Northern Tier and Northeast as well as portions of the West and Southeast.
- No state had a statewide Jan-March temperature that was below average.

Precipitation Percentiles Jan-Mar 2021
Period: 1895–2021(127 years)



- Above-average precipitation stretched from the central Plains to the East Coast during January-March.
- Below-average precipitation were present across parts of the Northern Tier, the Northeast, the West, South and Southeast.

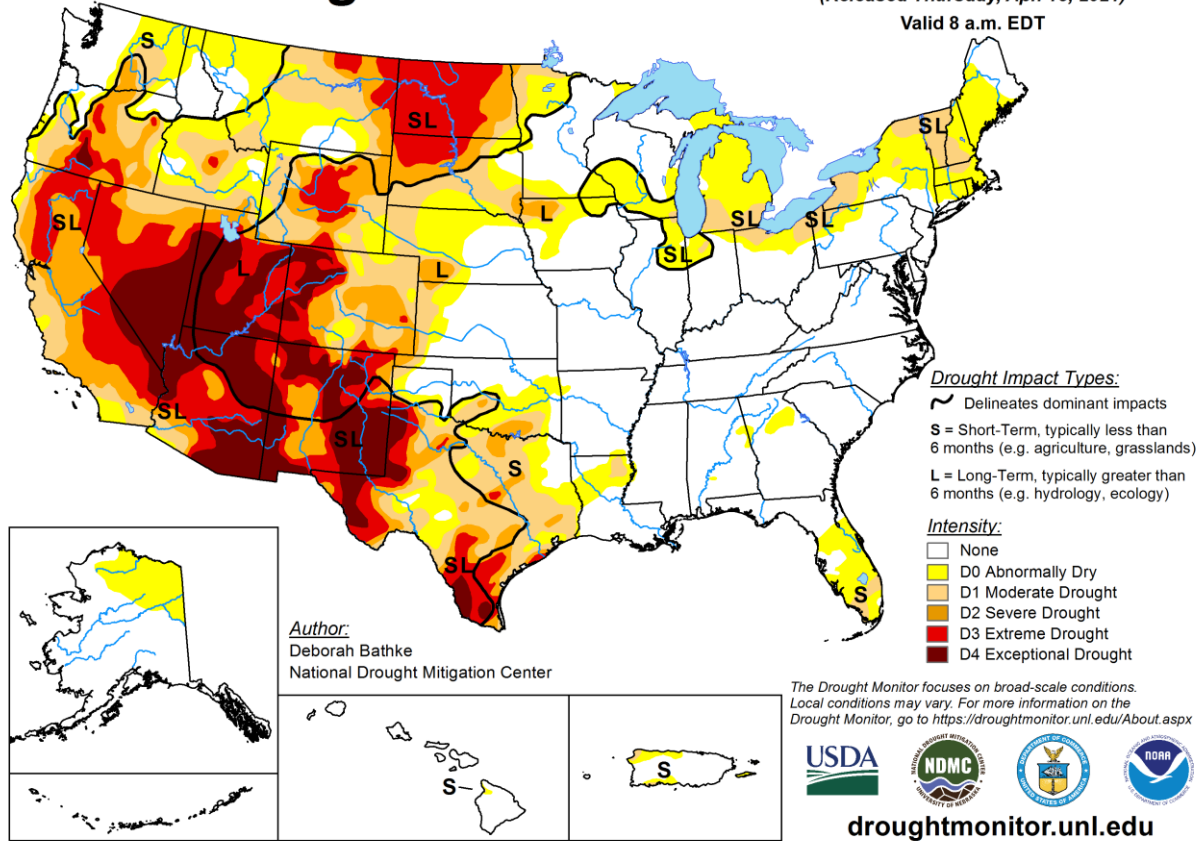


Current U.S. Drought

38% of Contiguous U.S. in Drought
(↑1 percentage points since mid-March)

U.S. Drought Monitor

April 13, 2021
(Released Thursday, Apr. 15, 2021)
Valid 8 a.m. EDT

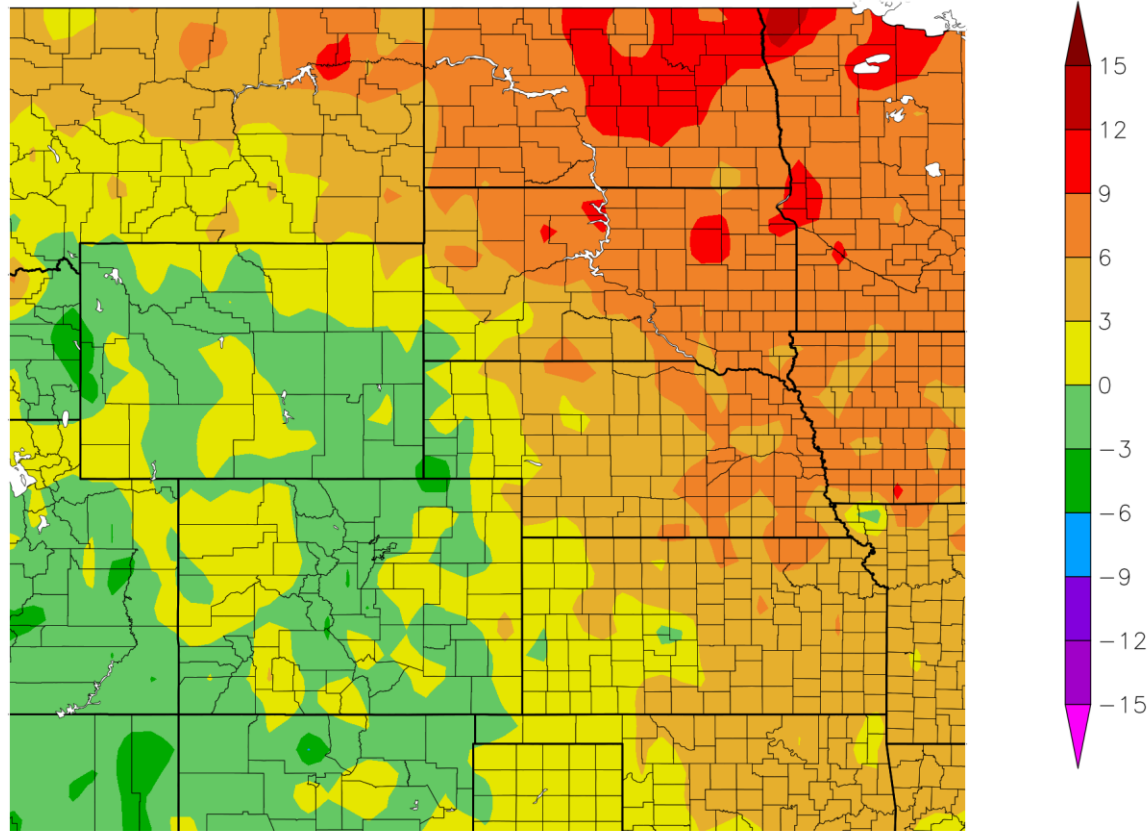


- Improvement
Parts of the Midwest and central Plains
- Degradation
Parts of the West, Upper Midwest, Texas, Oklahoma, and the Northeast
- Outside CONUS
No significant changes across PR and HI. Some improvements across northwestern Alaska.



Overview of Conditions in the High Plains

Departure from Normal Temperature (F)
3/1/2021 – 3/31/2021



Warmth across Northern and Central Plains

- 2012 remains warmest March for many states in the region (and the country)

Spring leaf out mixed

Local Example

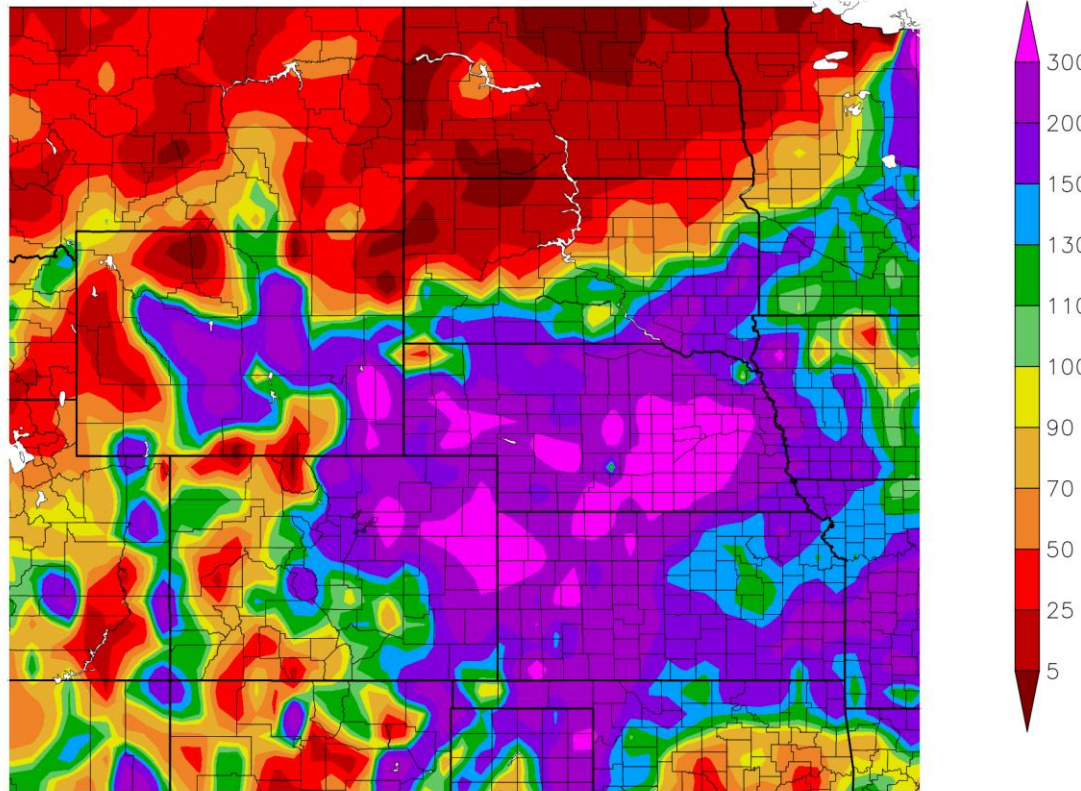
Aberdeen, SD

- 5th warmest March on record
- 40.0 degrees F



Overview of Conditions in the High Plains

Percent of Normal Precipitation (%)
3/1/2021 – 3/31/2021



Dichotomy between the Northern and Central Plains

Local Examples

Goodland, KS

- Wettest March on record
- 4.03 inches

Denver, CO

- Snowiest March on record
- 34.0 inches

Dickinson, ND

- Driest March on record
- 0.03 inches

Generated 4/4/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers



Mid-Month Storm

Heavy Precipitation Event

2.0-4.0 feet of snow

- Parts of Colorado and Wyoming

2.00-6.00 inches of rain

- Parts of Kansas and Nebraska

Cheyenne, WY

- Snowiest day on record
- 22.7 inches (March 14)

Grand Island, NE

- Wettest/second wettest March days
- 2.75 inches (March 14) / 2.56 inches (March 13)



Holmes Lake, Lincoln, NE; March 31, 2021
Credit: Natalie Umphlett



Drought Conditions

U.S. Drought Monitor High Plains

March 30, 2021
(Released Thursday, Apr. 1, 2021)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.86	81.14	63.81	40.67	17.89	2.99
Last Week 03-23-2021	18.14	81.86	63.87	40.76	14.10	3.09
3 Months Ago 12-29-2020	3.82	96.18	82.46	50.36	27.09	5.71
Start of Calendar Year 12-29-2020	3.82	96.18	82.46	50.36	27.09	5.71
Start of Water Year 09-29-2020	6.73	93.27	62.11	36.56	16.16	0.54
One Year Ago 03-31-2020	82.13	17.87	10.65	0.99	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu

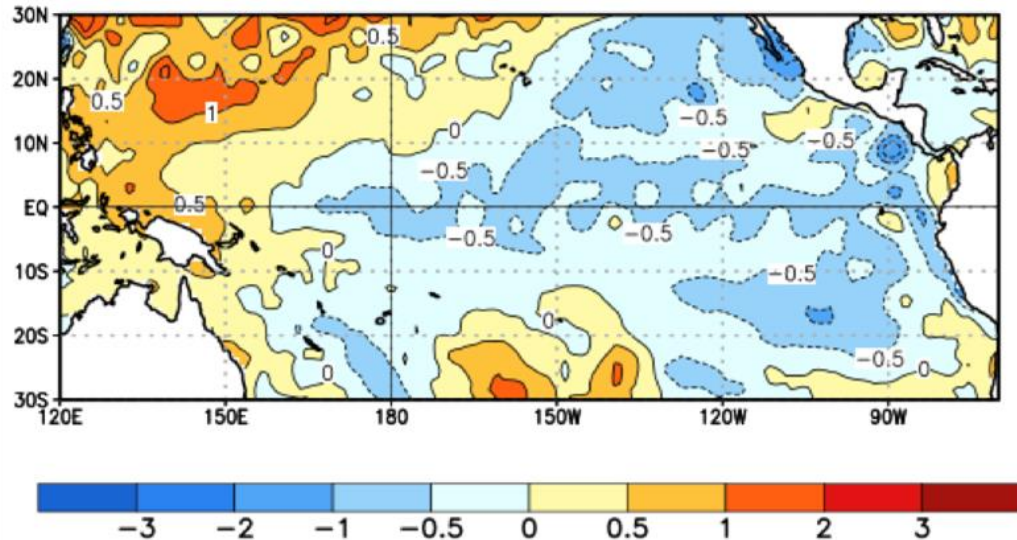
By the end of March, approximately 64% of the High Plains region was in drought (D1-D4).

- Improvement
Colorado, Kansas, Nebraska, Wyoming, parts of South Dakota
- Degradation
North Dakota, parts of South Dakota



Sea Surface Temperatures and ENSO

Average SST Anomalies
14 MAR 2021 – 10 APR 2021

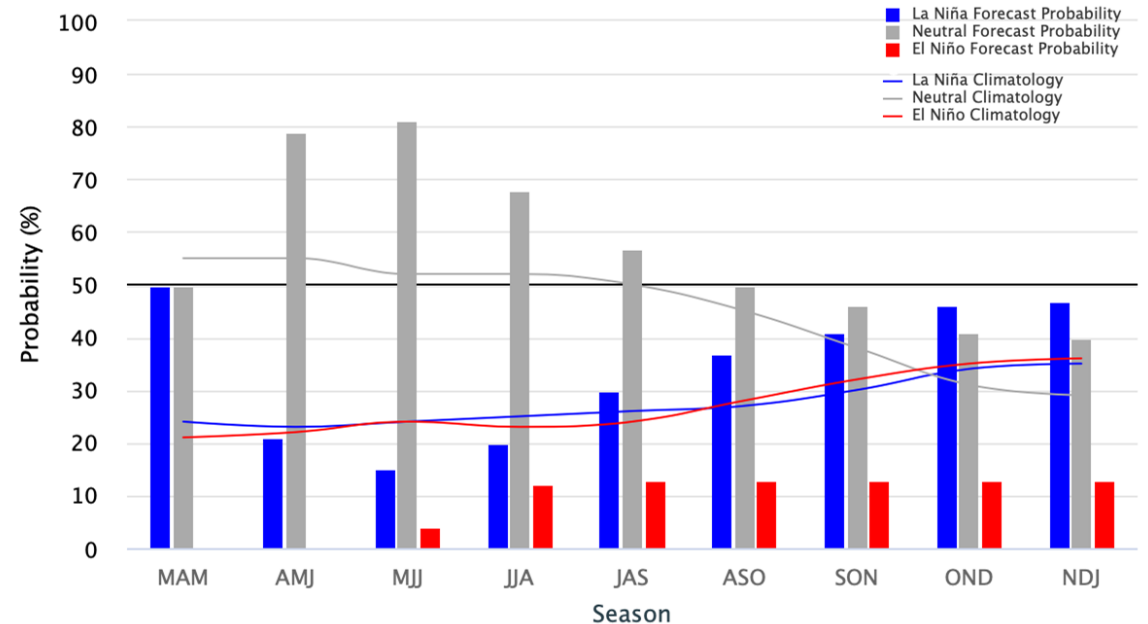


• Sea surface temperatures

- Slightly below normal sea surface temperatures continue across the central and eastern Pacific Ocean near the equator
- The oceanic and atmospheric observations reflect weakening La Nina conditions
- Easterly trade winds are slightly stronger than normal and precipitation over the central Pacific is less than normal

Early-April 2021 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5 °C to 0.5 °C



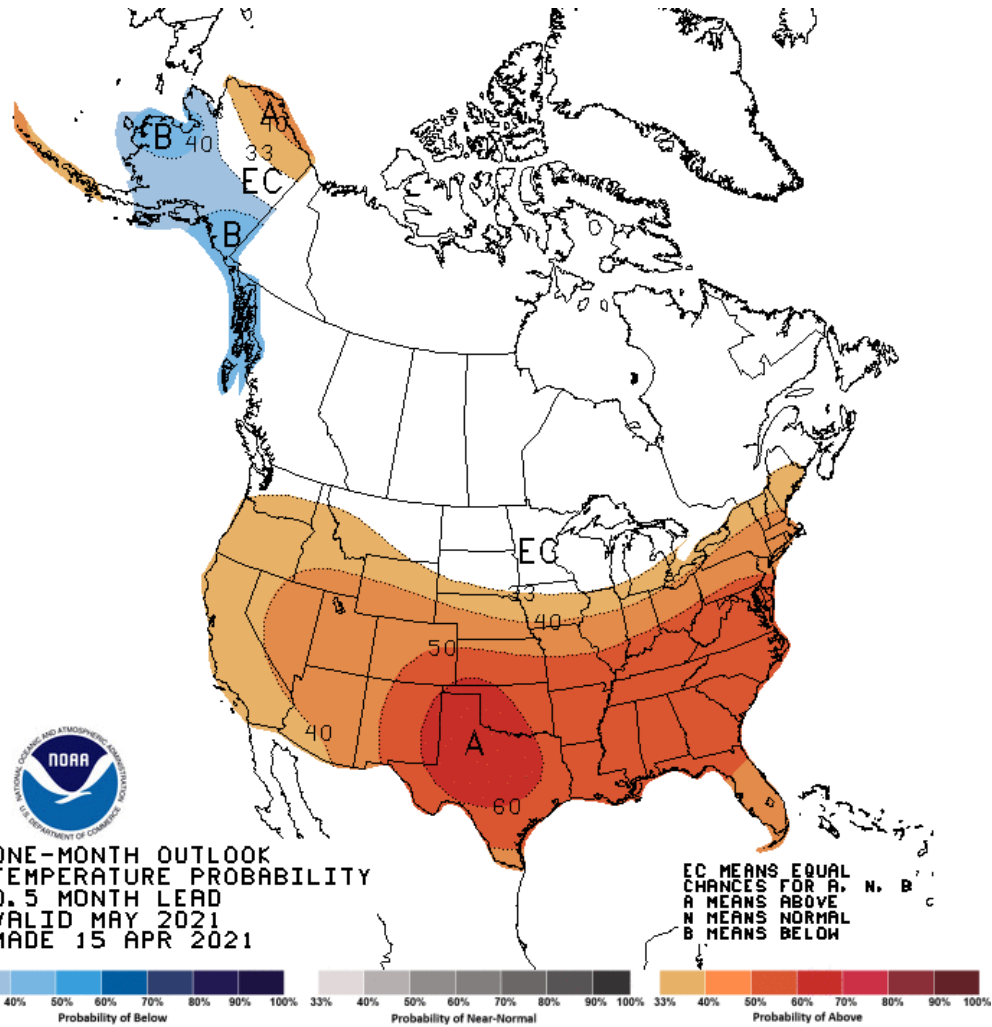
• ENSO forecast

- La Nina is likely to transition to ENSO neutral conditions in the May through July period (greater than 80 percent chance)
- Chances for a return to La Nina conditions increase by autumn, with a relatively small chance of El Nino this year

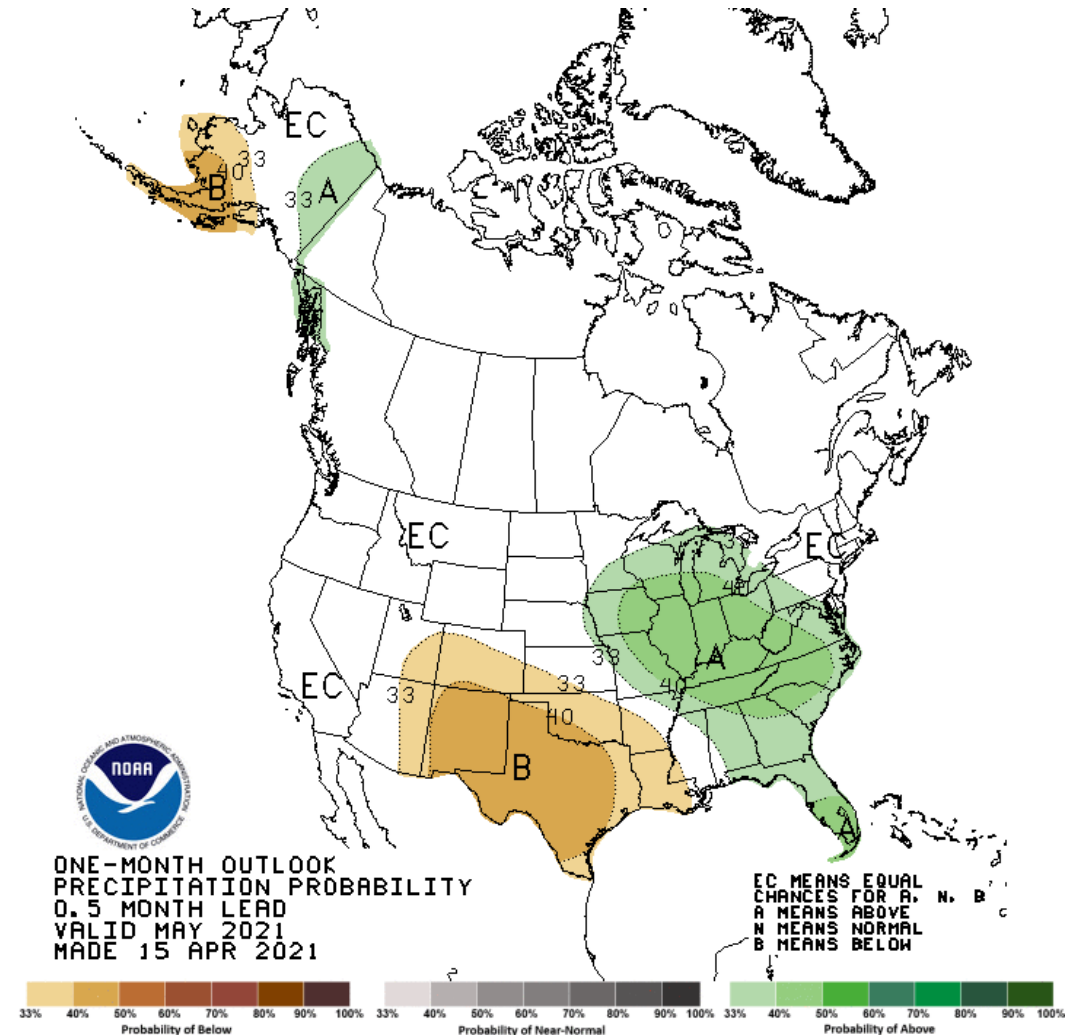


Monthly Forecast (May)

May Average Temperature Probability



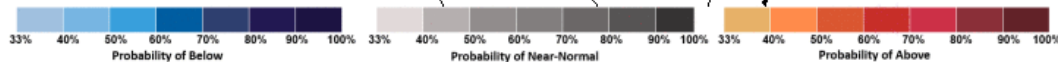
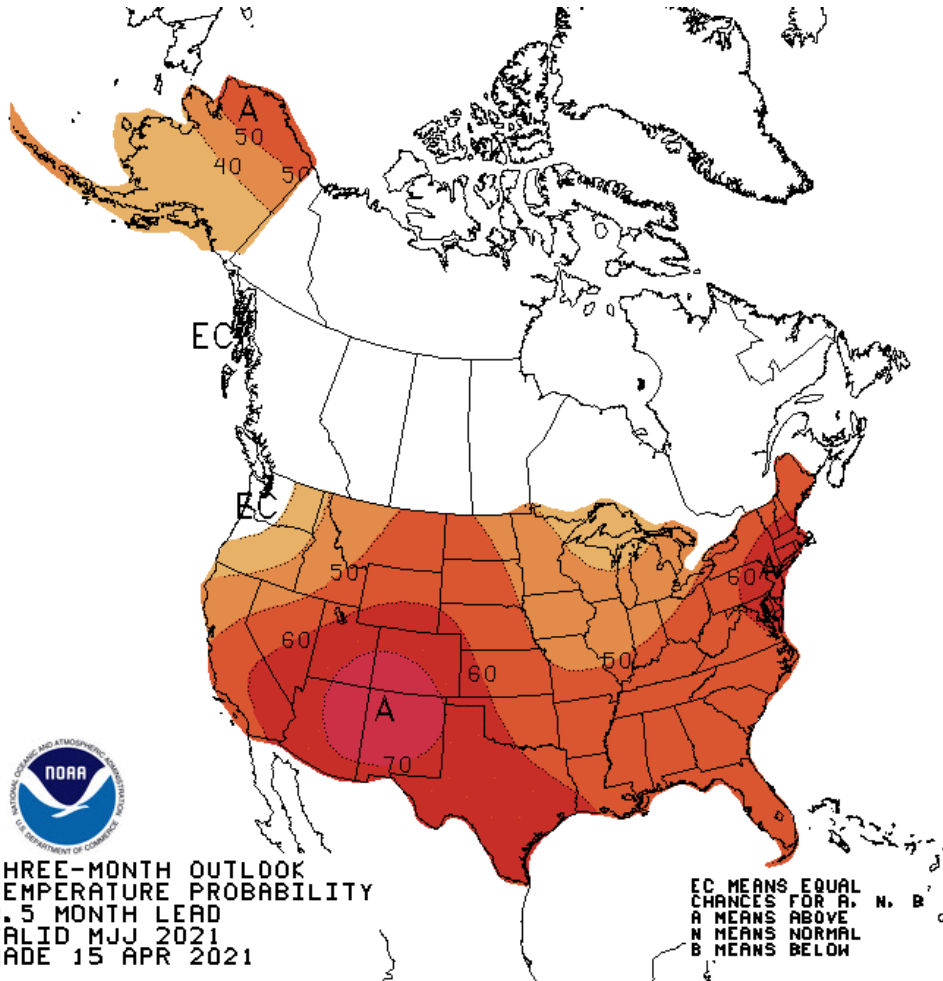
May Total Precipitation Probability



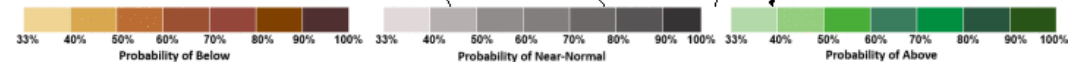
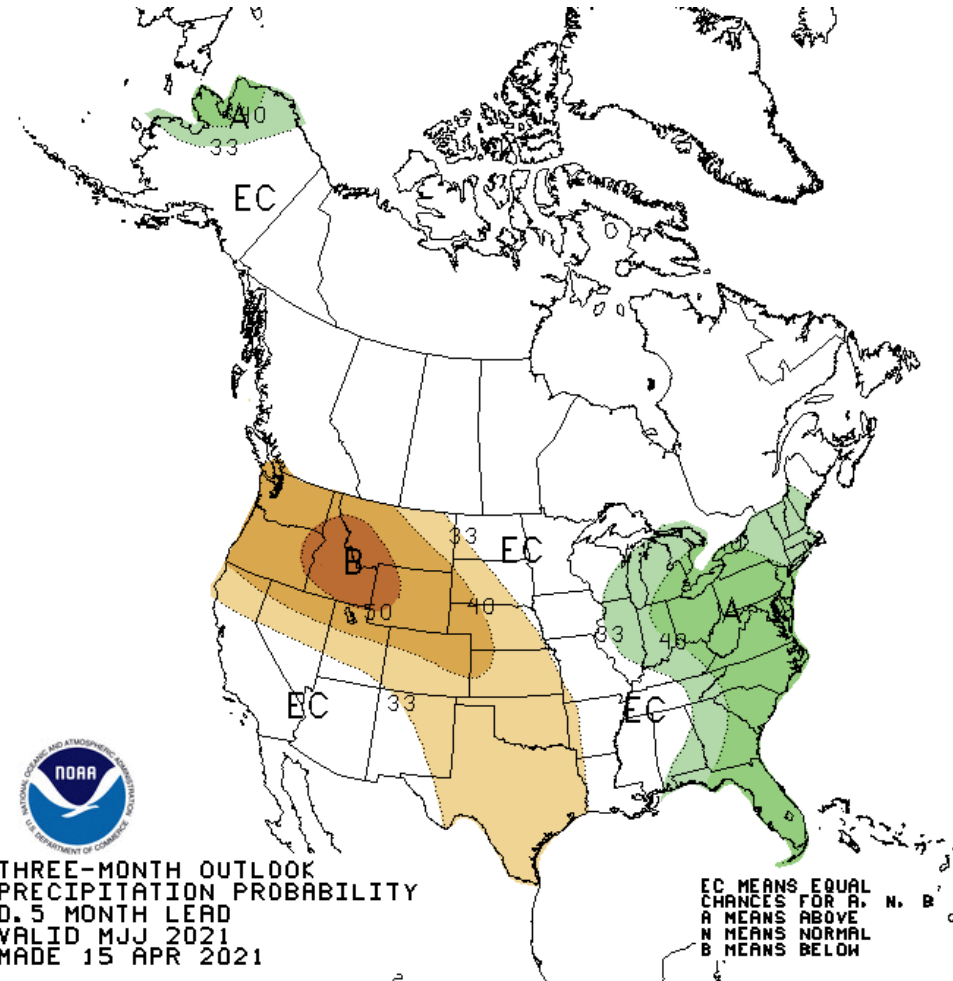


Three-month Forecast (May, June, July)

May-Jun-Jul Average Temperature Probability



May-Jun-Jul Total Precipitation Probability

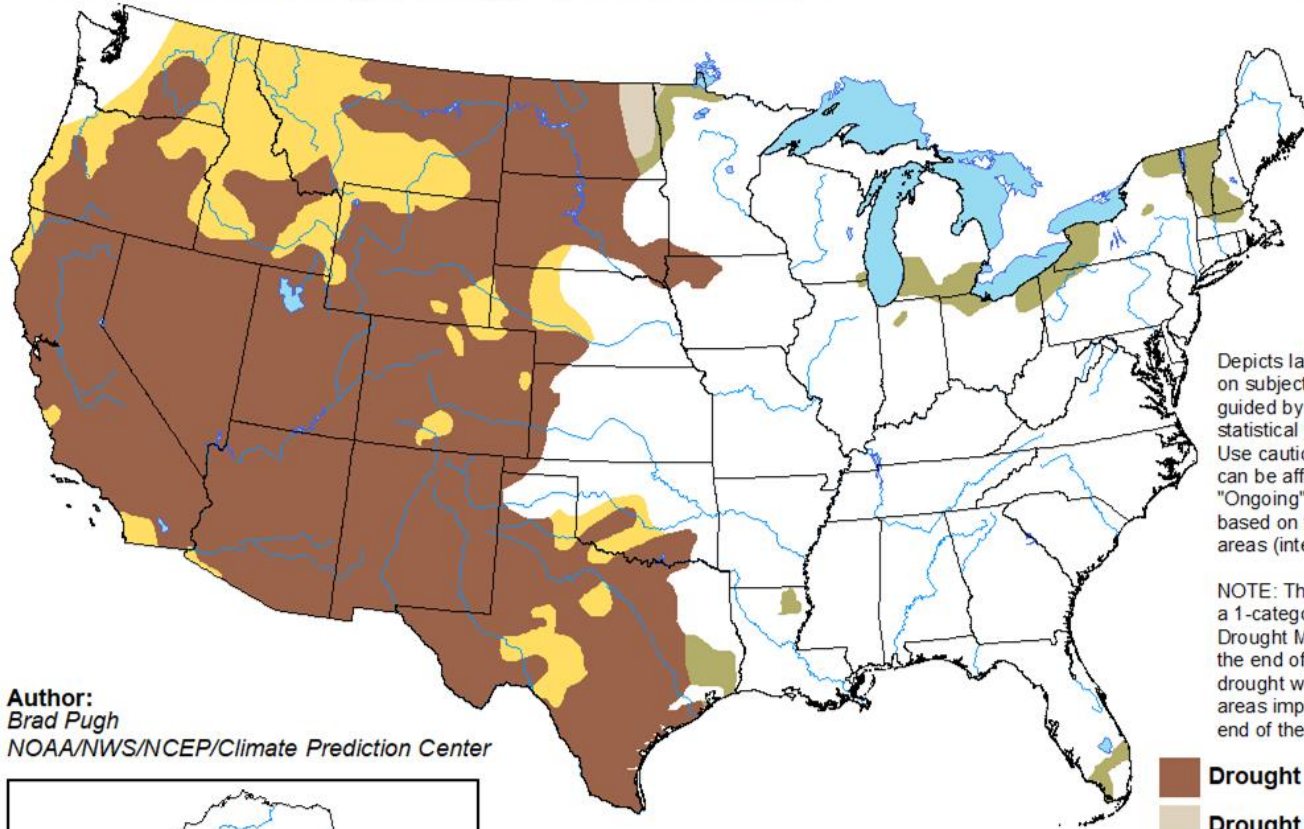




U.S. Drought Outlook

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




Valid for April 15 - July 31, 2021
Released April 15



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).

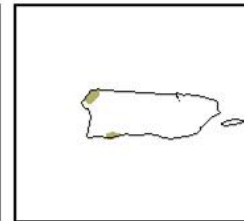
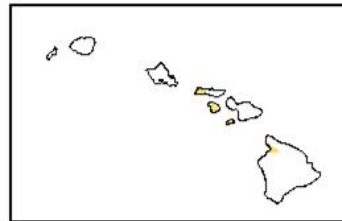
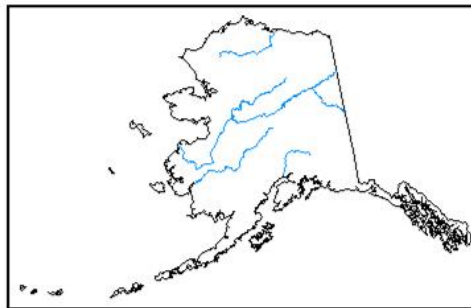
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

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



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





For More Information



TODAY'S PRESENTATION:

- <http://www.ncdc.noaa.gov/sotc/briefings>

NOAA's National Centers for Environmental Information: www.ncdc.noaa.gov

- Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- Dates for upcoming reports: <http://www.ncdc.noaa.gov/monitoring-references/dyk/monthly-releases>

NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

High Plains Regional Climate Center: <https://hprcc.unl.edu/>

U.S. Drought Monitor: www.drought.gov

Climate Portal: www.climate.gov

NOAA Media Contacts: john.jones-bateman@noaa.gov, 301-713-9604 (NOAA/NESDIS PAO)