

MISSOURI RIVER BASIN WATER MANAGEMENT MONTHLY UPDATE

Participating Agencies

- National Oceanic and Atmospheric Administration
- National Weather Service
- U.S. Army Corps of Engineers

January 7, 2021, 2:00 p.m. CST

Next meeting: February 4, 2021



US Army Corps
of Engineers®



Weather / Climate Outlook

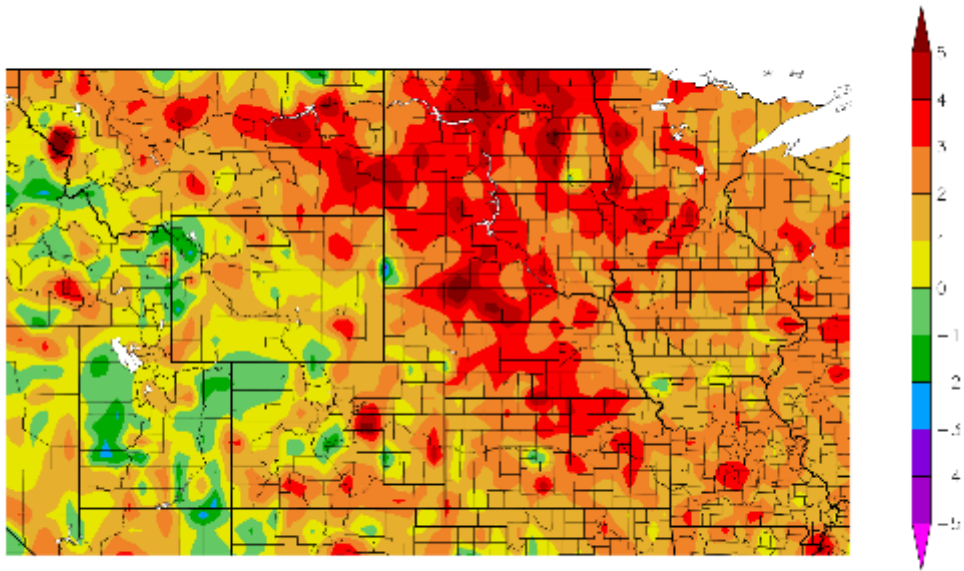
- * Mr. Doug Kluck
- * Climatologist, Central Region Climate Services Director
- * National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information (NCEI)
- * Kansas City, MO

Temperature & Precipitation

Last 90 Days: 10/8/20 – 1/5/21

- Temperature: above normal (warm fall)
- Precipitation: mainly below normal (dry fall) except MT

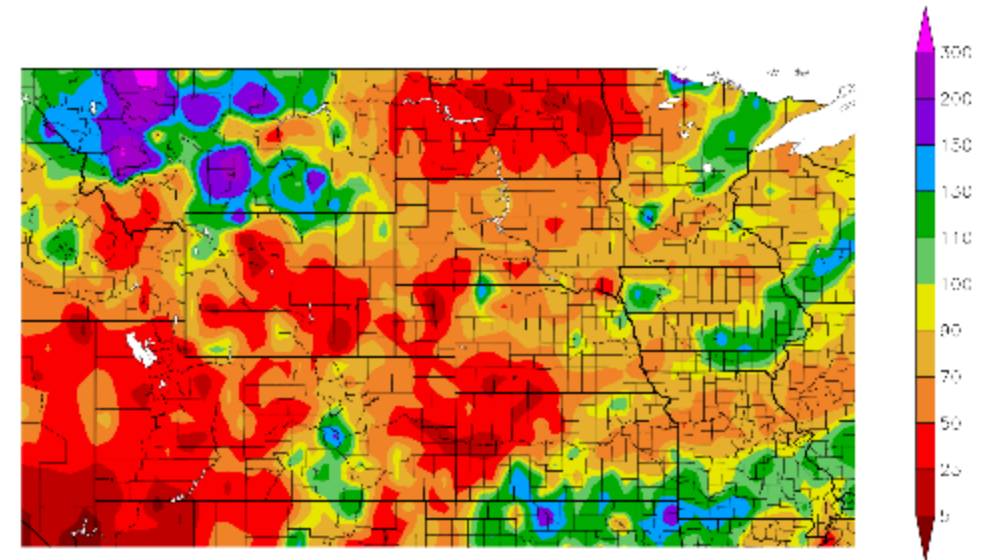
Departure from Normal Temperature (F)
10/8/2020 – 1/5/2021



Generated 1/5/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
10/8/2020 – 1/5/2021



Generated 1/6/2021 at HPRCC using provisional data.

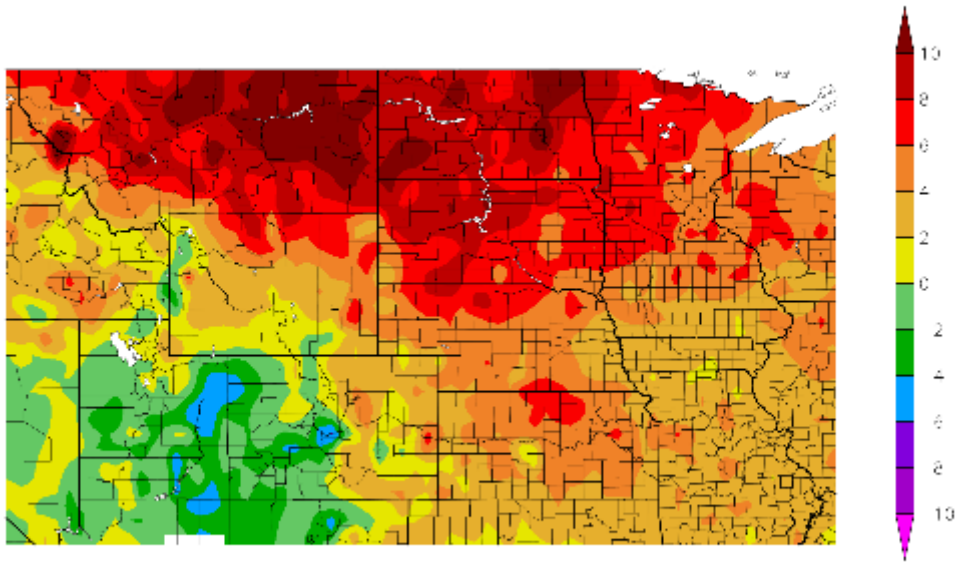
NOAA Regional Climate Centers

Temperature & Precipitation

Last 30 days: 12/7/20 – 1/5/21

- Temperature: well above normal
- Precipitation: mixed, leans dry

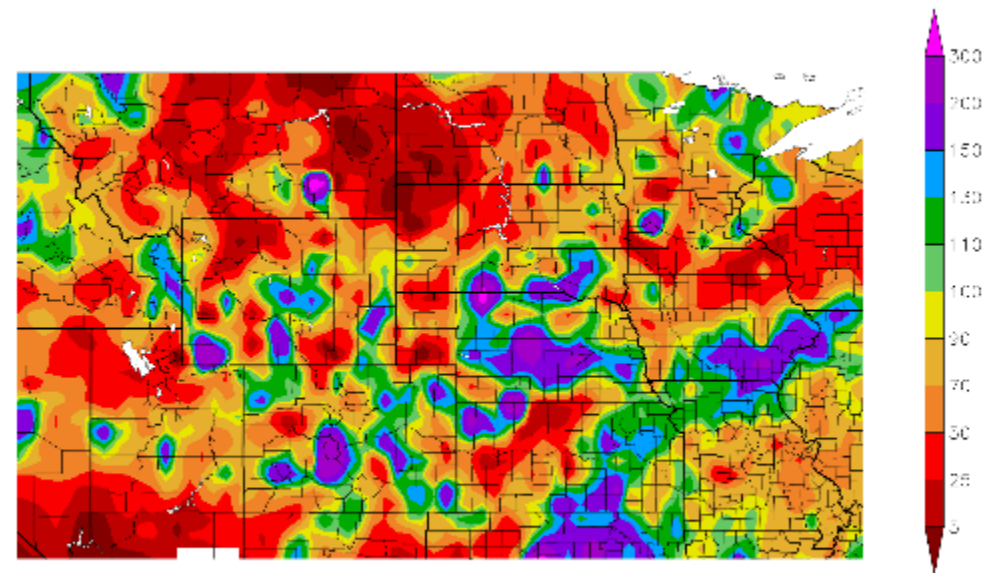
Departure from Normal Temperature (F)
12/7/2020 – 1/5/2021



Generated: 1/6/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

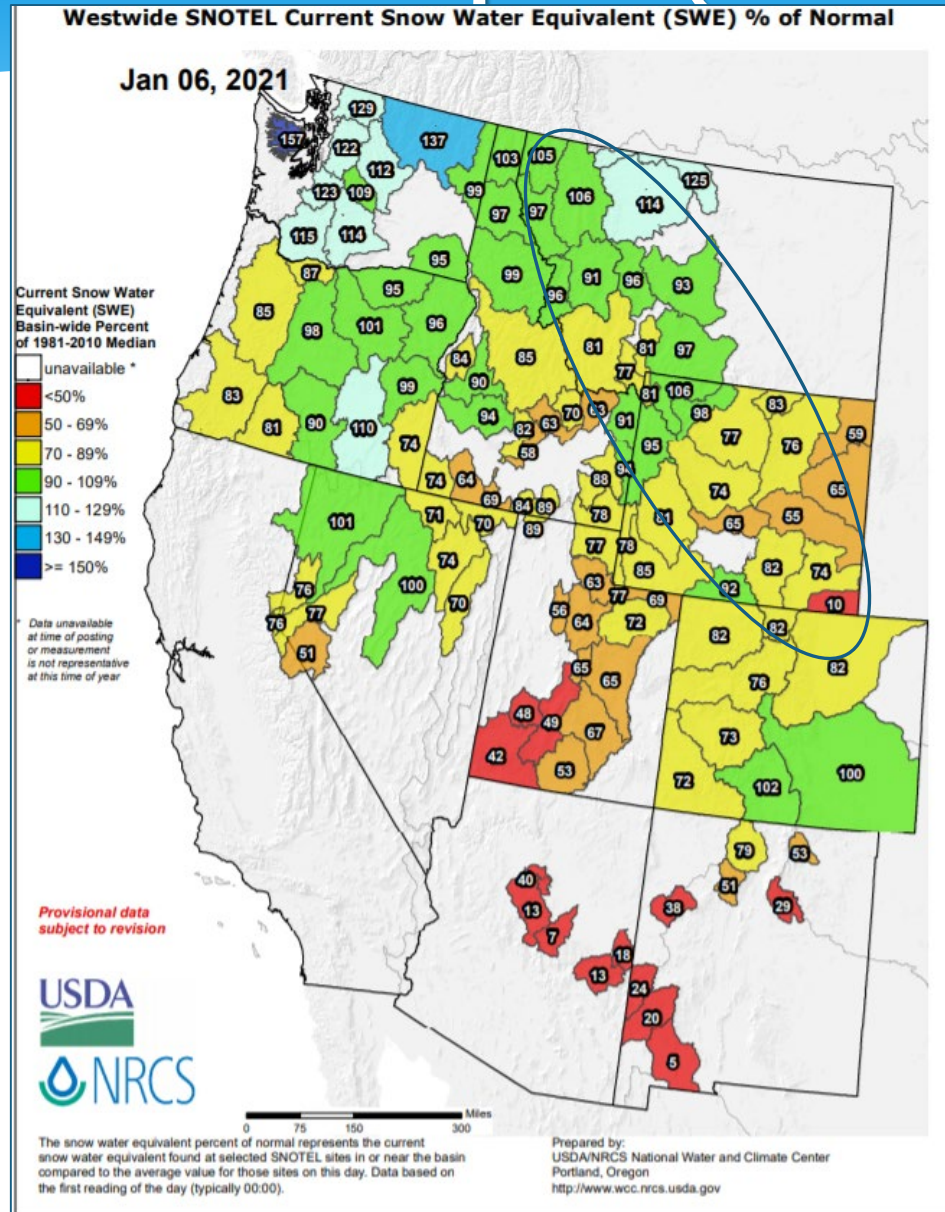
Percent of Normal Precipitation (%)
12/7/2020 – 1/5/2021



Generated: 1/6/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

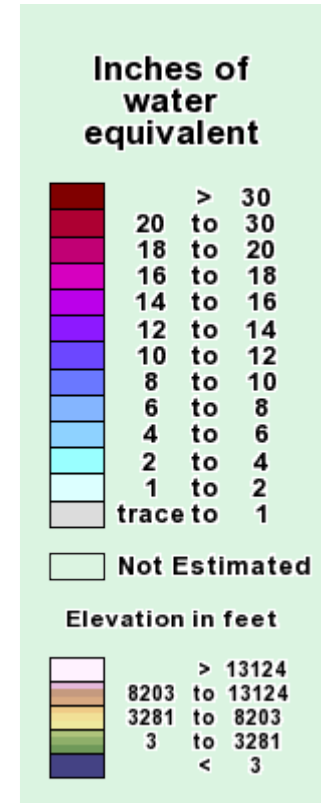
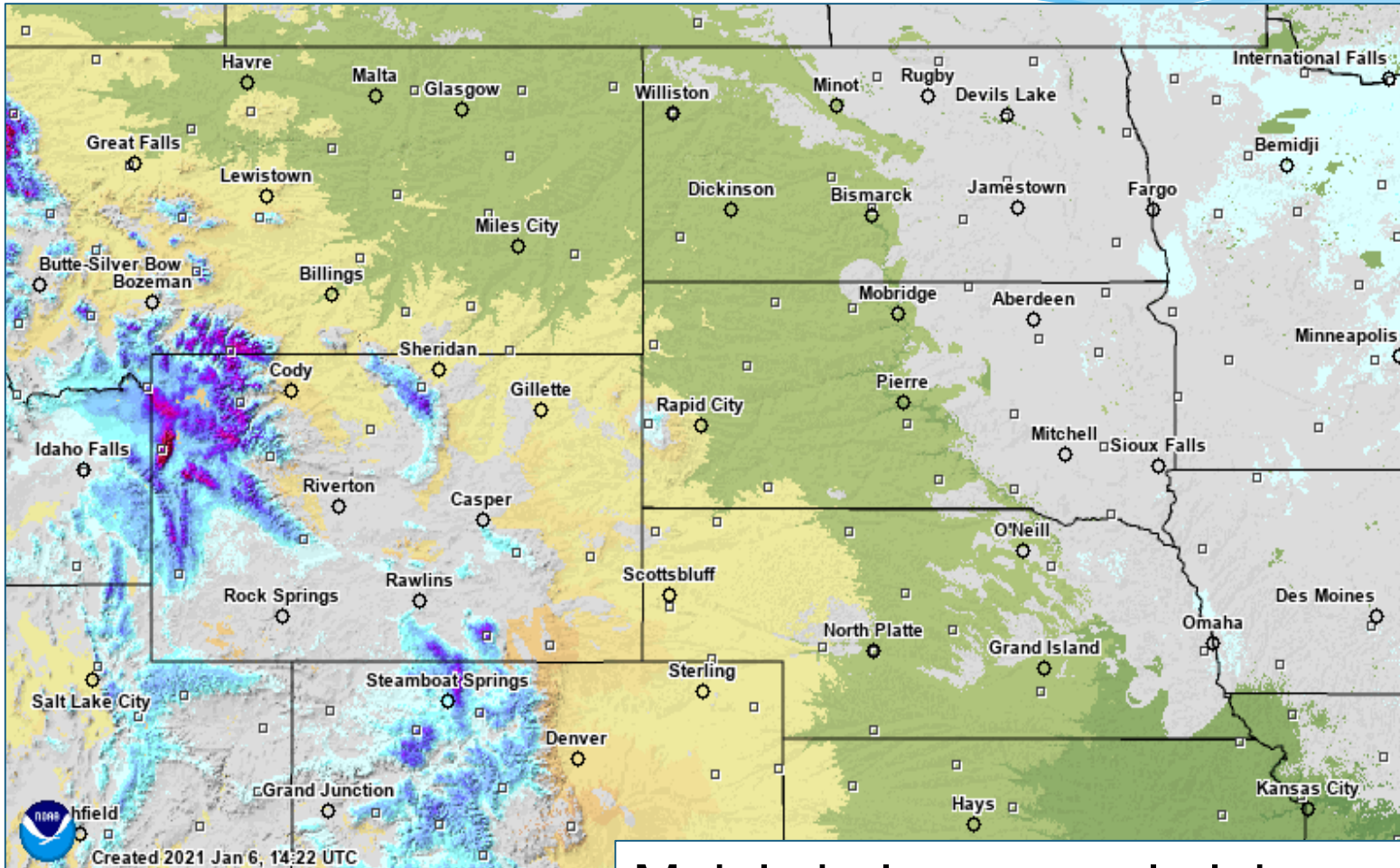
Mountain Snowpack (snow water equivalent % of normal)⁵



- * Near normal north to below normal south
- * Long way to go...

Plains Snowpack (January 6th, 2021)

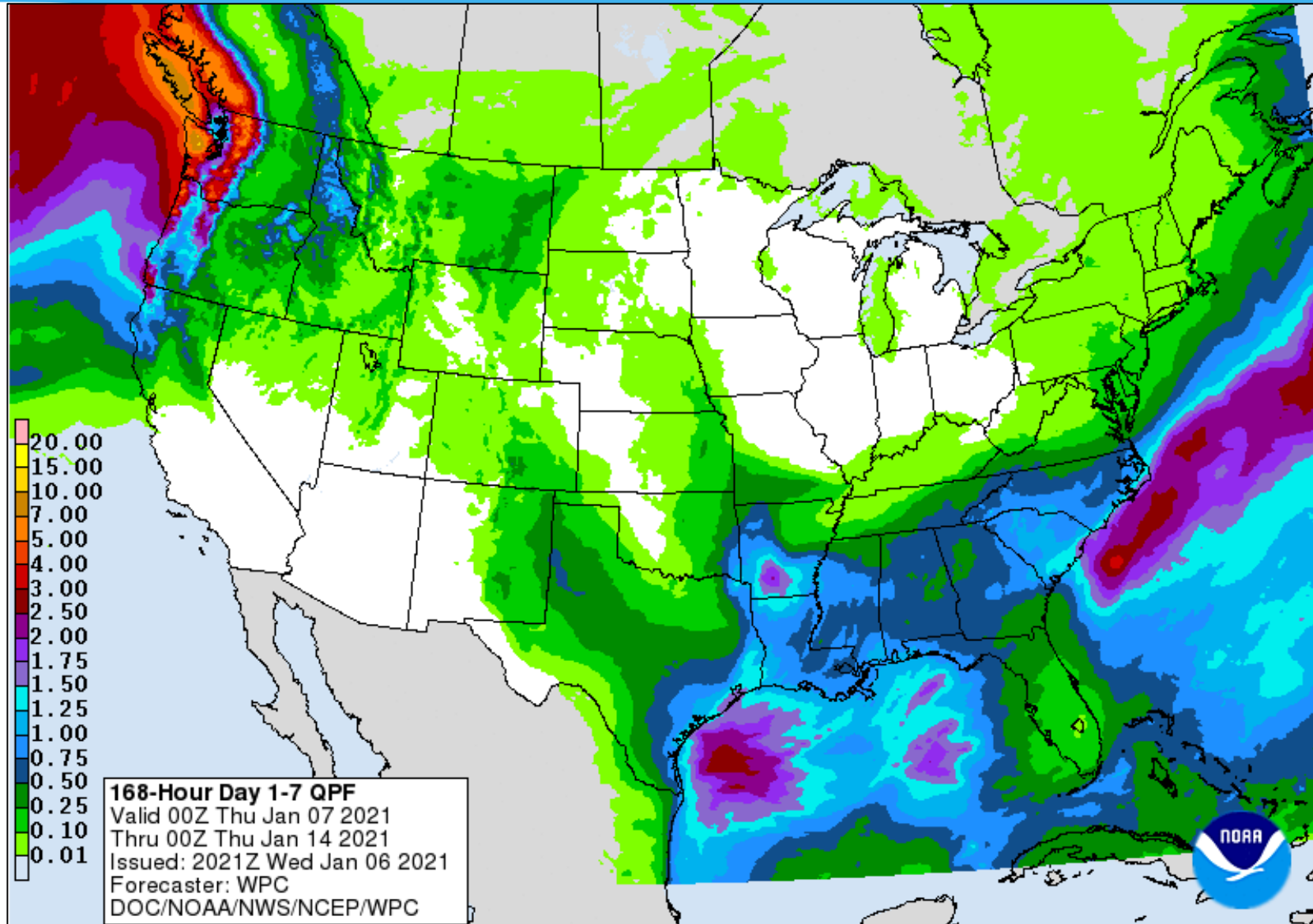
(snow water equivalent)



Mainly below normal plains snowpack

<http://www.nohrsc.noaa.gov>

Total Precipitation Outlook Through 1/14/20

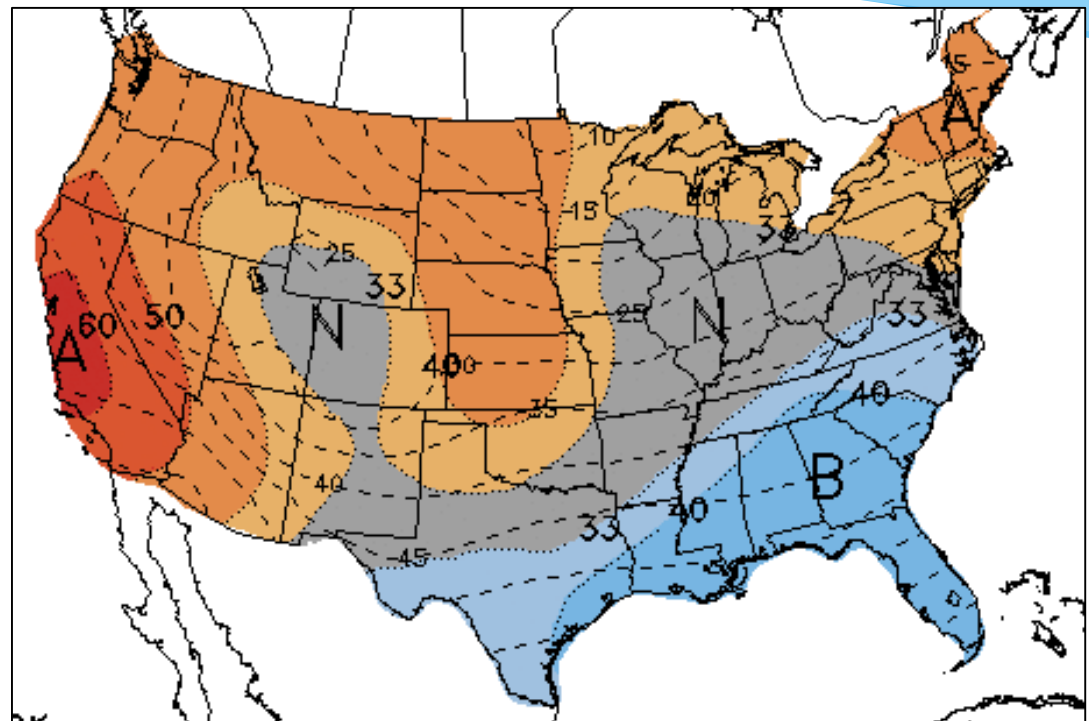




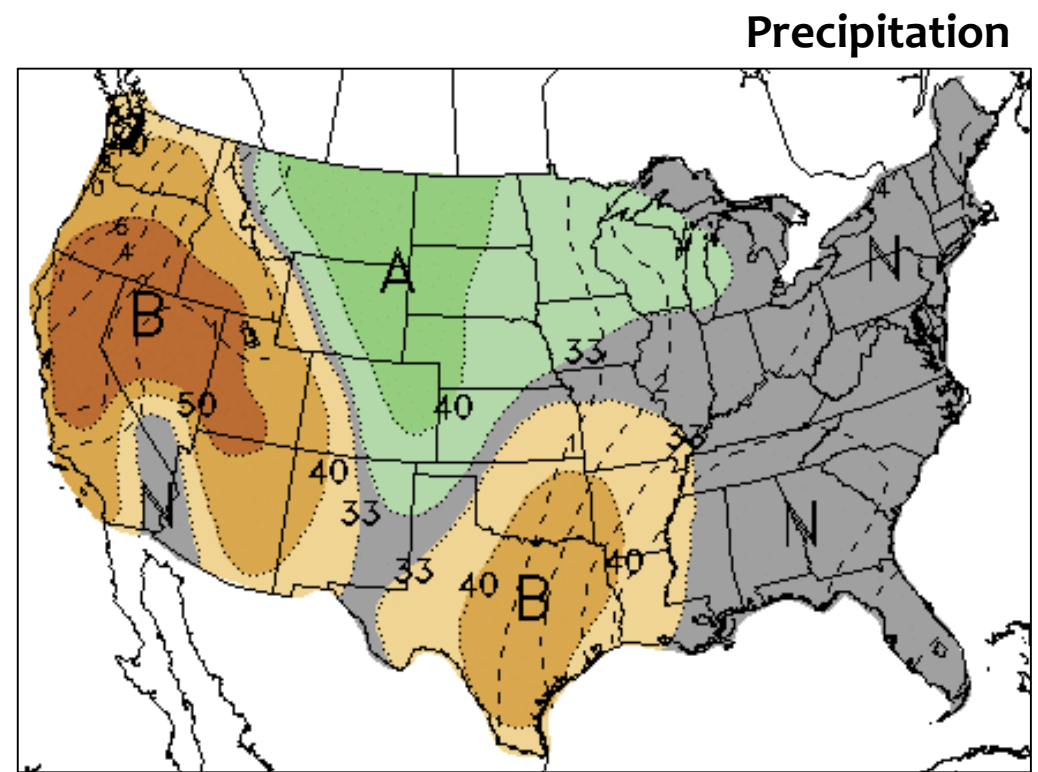
Week 2 Temperature & Precipitation Outlook

(1/14/21 – 1/20/21)

Temperatures lean warm
Precipitation leans above normal



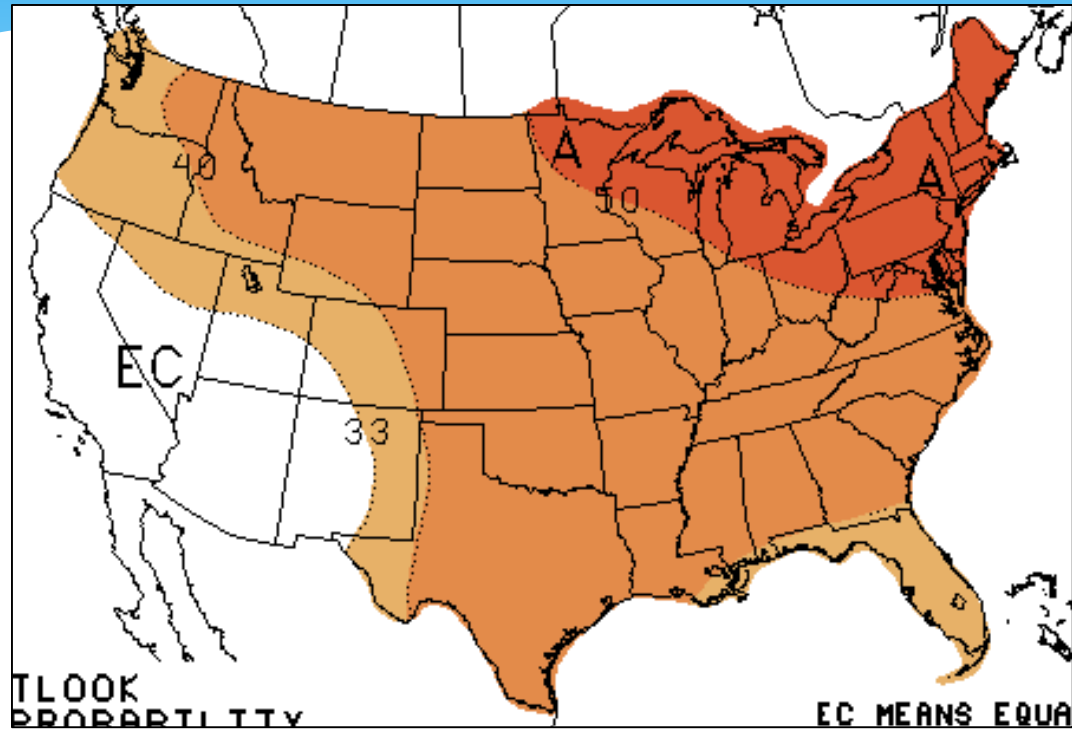
Temperature



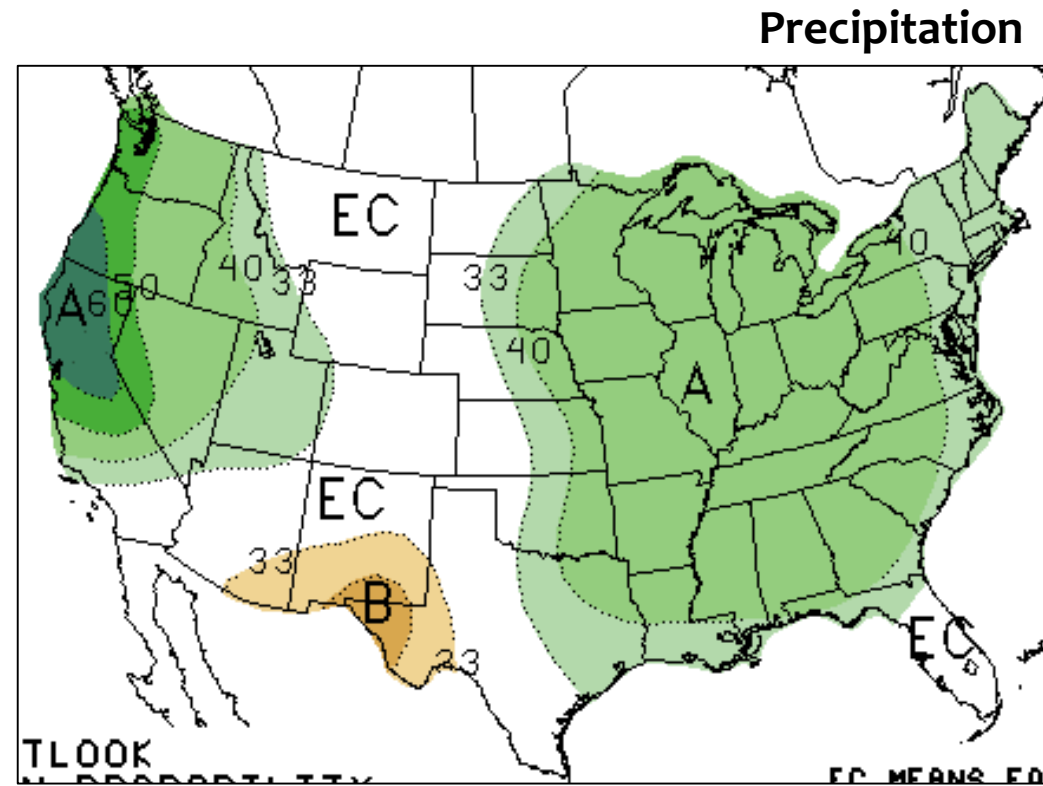
Precipitation

January 2021 Temperature & Precipitation Outlook

Temperature: lean warm
Precipitation: split, leans wet east basin

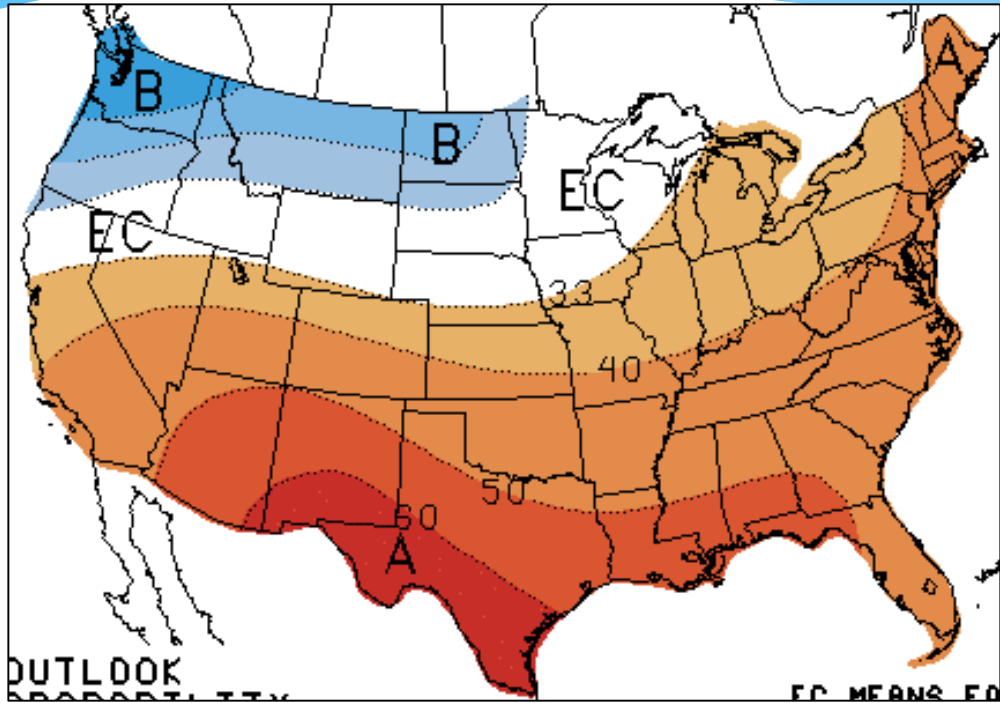


Temperature

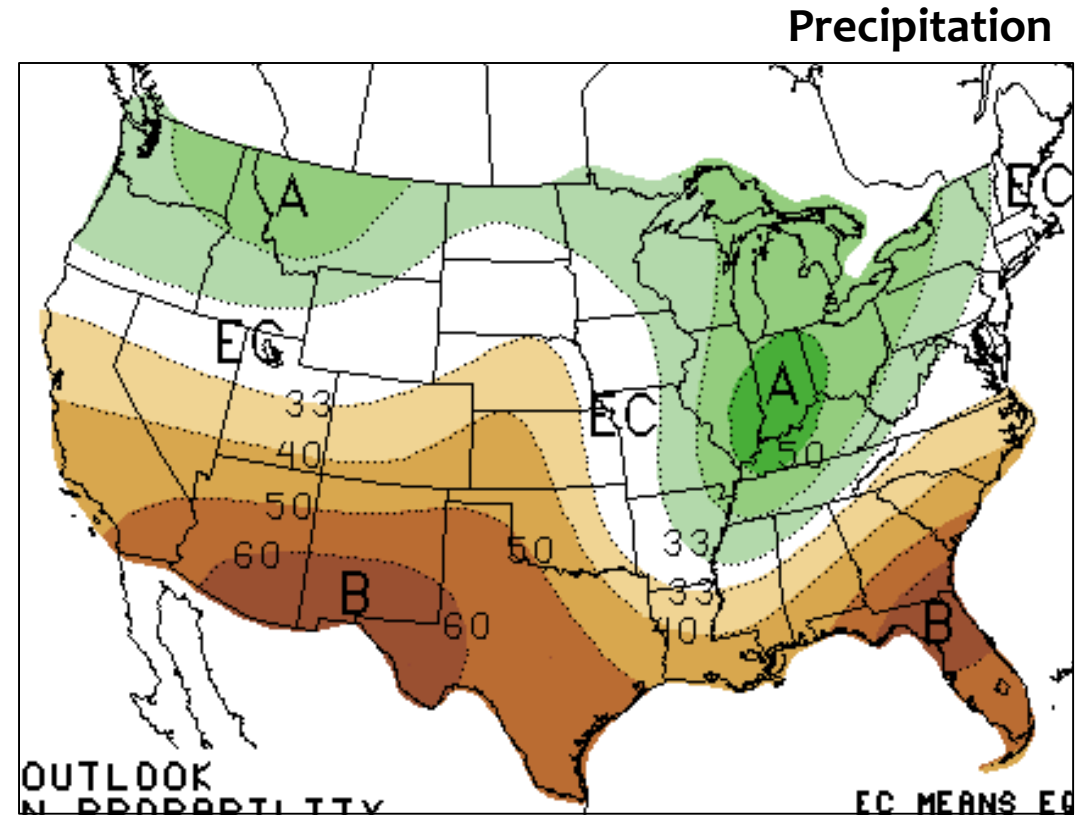


January-March 2021 Temperature & Precipitation Outlook

Temperature: lean cool north, warm south
 Precipitation: wet north, dry southwest



Temperature



Precipitation

Drought Update

U.S. Drought Monitor Missouri Basin RFC

December 29, 2020
(Released Thursday, Dec. 31, 2020)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.77	91.23	69.23	34.21	15.09	0.34
Last Week 12-22-2020	9.09	90.91	67.99	34.21	15.09	0.34
3 Months Ago 09-29-2020	11.52	88.48	51.83	22.52	5.58	0.00
Start of Calendar Year 12-31-2019	96.29	3.71	0.00	0.00	0.00	0.00
Start of Water Year 09-29-2020	11.52	88.48	51.83	22.52	5.58	0.00
One Year Ago 12-31-2019	96.29	3.71	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

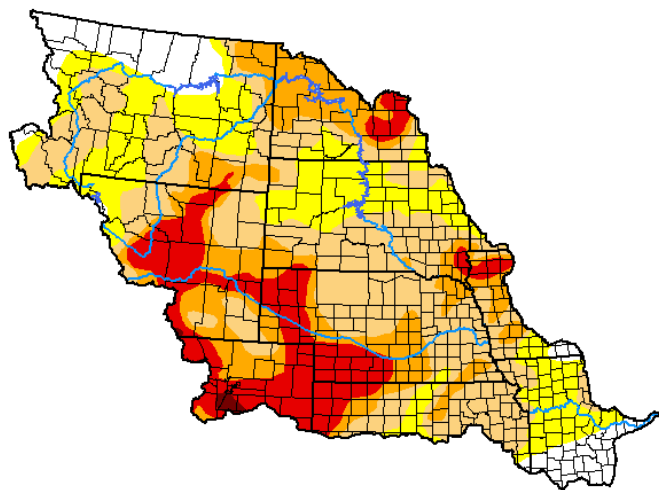
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Adam Hartman
NOAA/NWS/NCEP/CPC



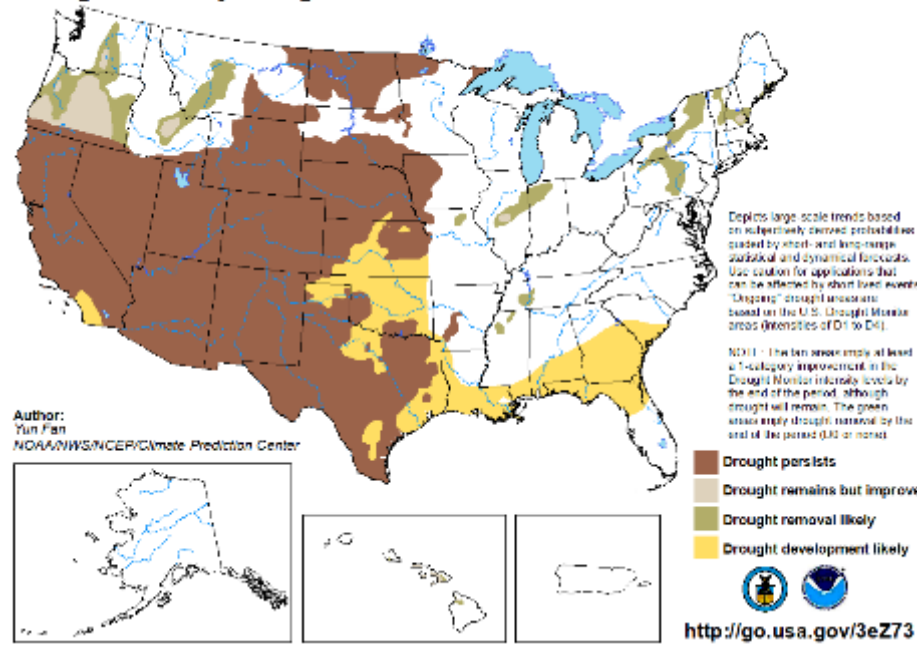
droughtmonitor.unl.edu



Dryness to continue

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

Valid for December 17, 2020 - March 31, 2021
Released December 17, 2020



<https://www.drought.gov/drought/>

<https://www.cpc.ncep.noaa.gov/>



Key Points

* **Current Conditions**

- * Current ENSO condition – **La Niña** (favors cool & wet north, dry & warm south)
- * Plains snowpack – mostly east basin, mostly below normal
- * Mountain snowpack mainly average (north) to below (south)

* **Outlook**

- * Short term:
 - * Temperatures warmer than normal
 - * Precipitation slightly favors above normal
- * Long term:
 - * Colder than normal more likely northwest and increased likelihood of above normal temperatures south
 - * Precipitation mainly enhanced northwest, drier more likely southwest

Next monthly North Central Climate Summary & Outlook Webinar, January 21, 2021

<https://attendee.gotowebinar.com/register/7528179497868100876>



Basin conditions / flood outlook

Kevin Low, P.E.

Hydrologist, Missouri Basin River Forecast Center
National Weather Service
Pleasant Hill, MO





MISSOURI BASIN RIVER FORECAST CENTER

Flood Potential Summary



**Mountain snowpack slightly below normal.
About 40% through the accumulation period.**

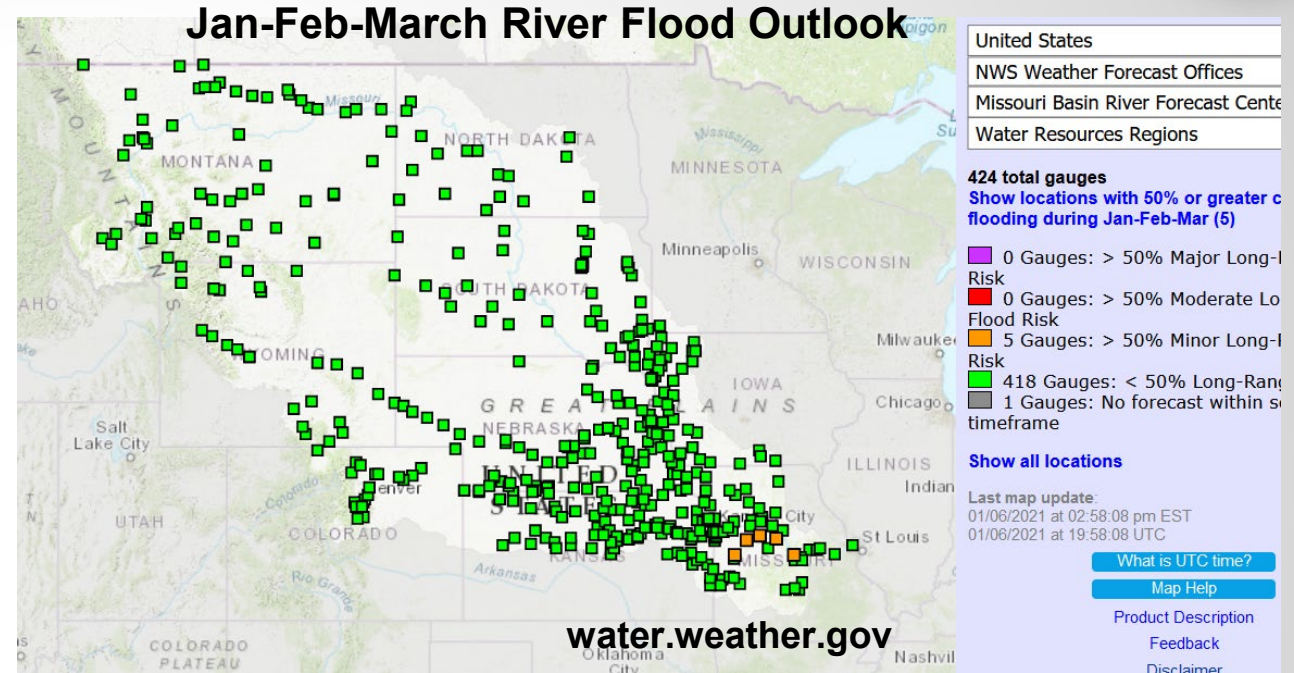
**Light plains snowpack in eastern portion of
the basin.**

Soils extremely dry.

**Between now and mid-March, tributary
flooding likely limited to the lower basin
(primarily State of Missouri).**

First official NWS Spring Flood Outlook issued 11 February.

<https://www.weather.gov/mbrfc/ensemble>



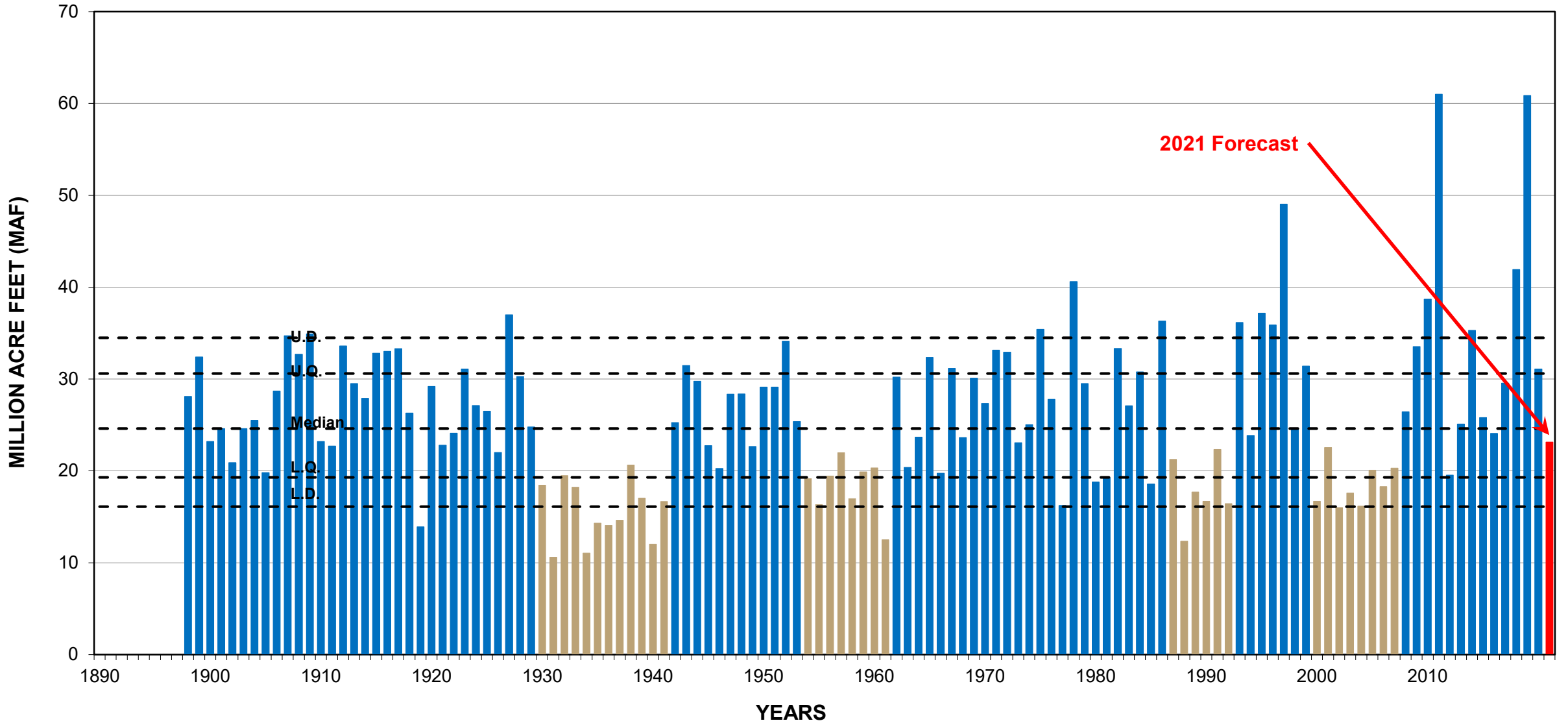


UPPER BASIN RUNOFF FOR 2021

Kevin Grode, P.E.
U.S. Army Corps of Engineers
Missouri River Basin Water Management

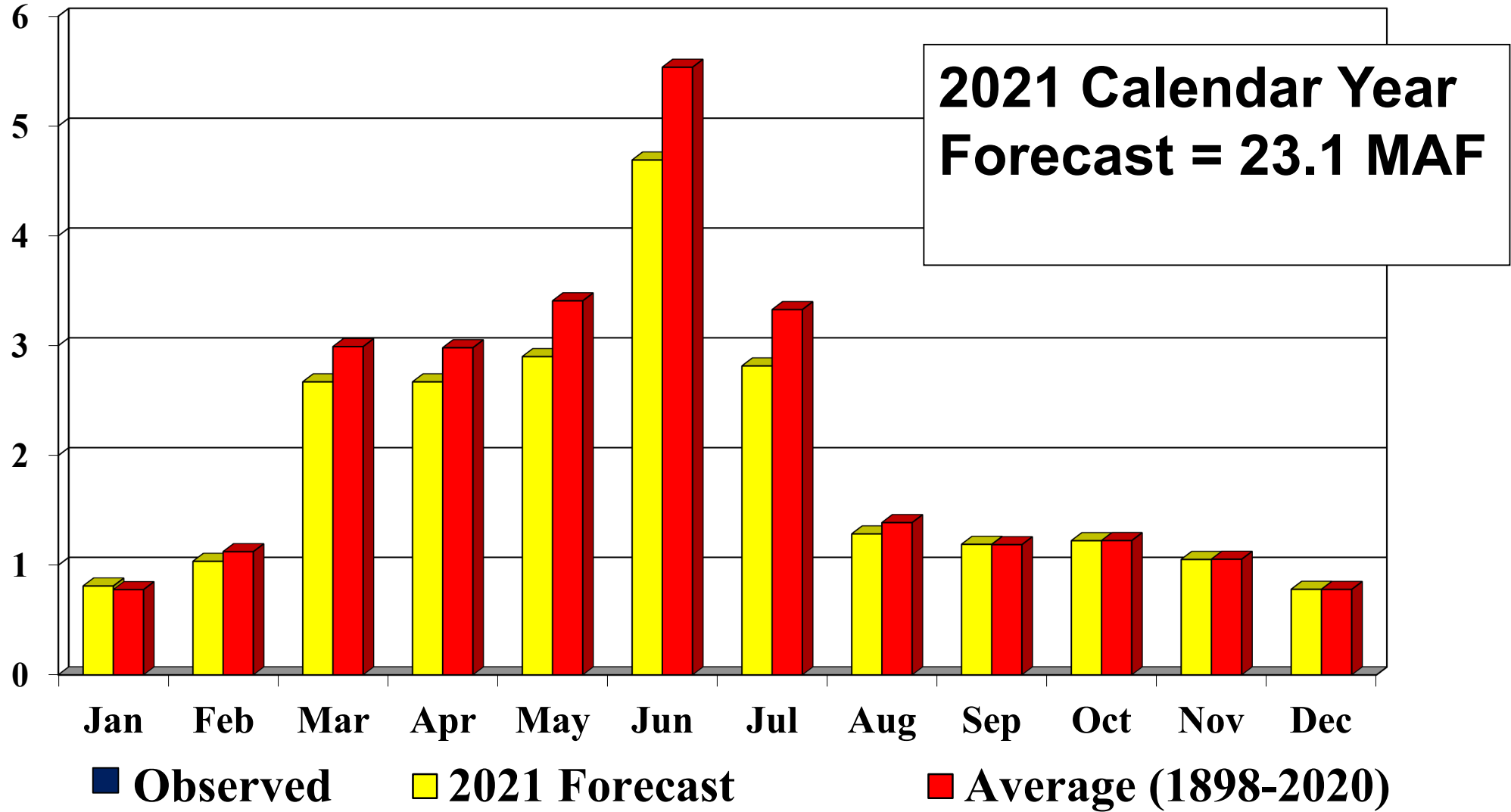


ANNUAL RUNOFF ABOVE SIOUX CITY, IA





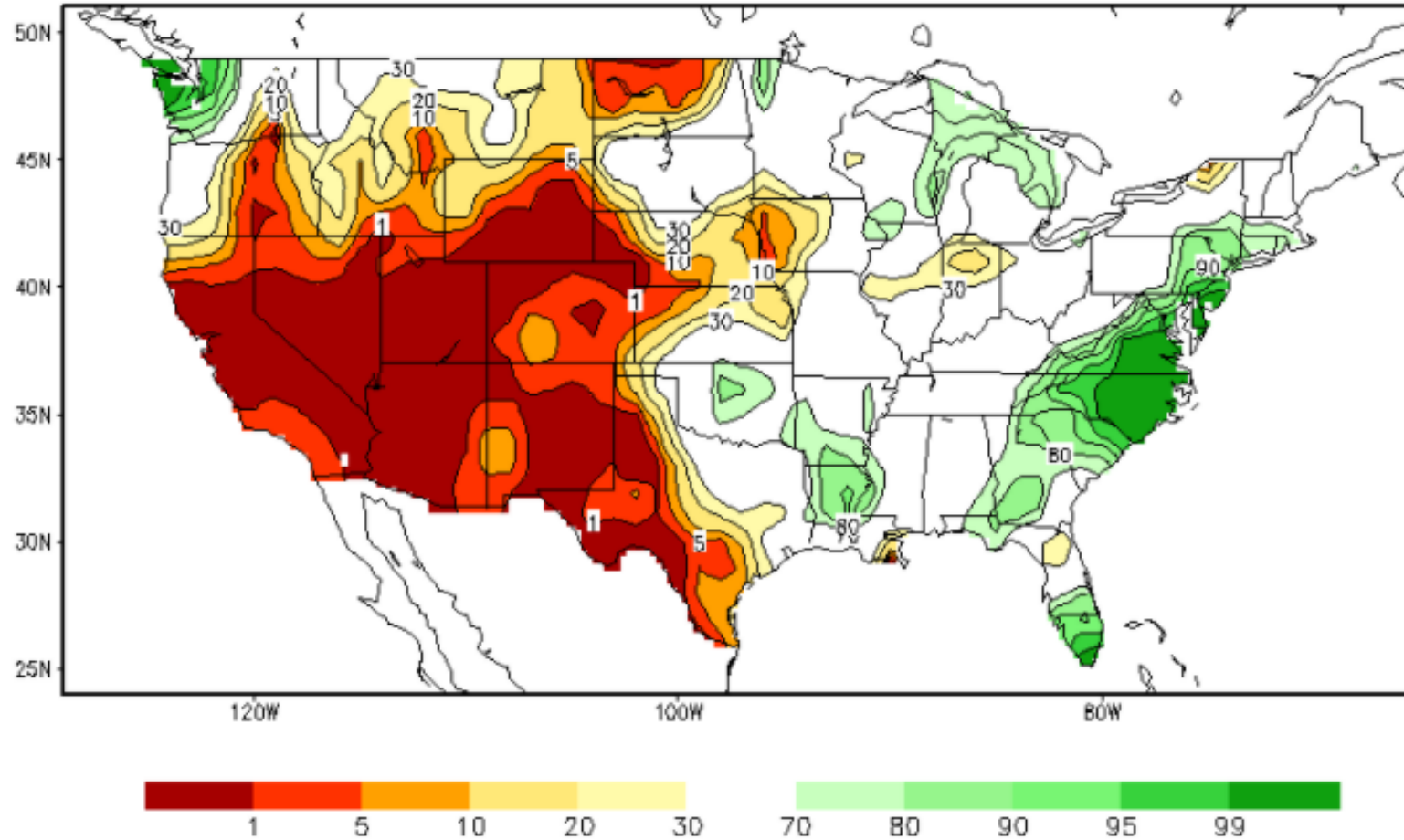
Missouri River Runoff above Sioux City, IA





Soil Moisture

Calculated Soil Moisture Ranking Percentile
JAN 06, 2021

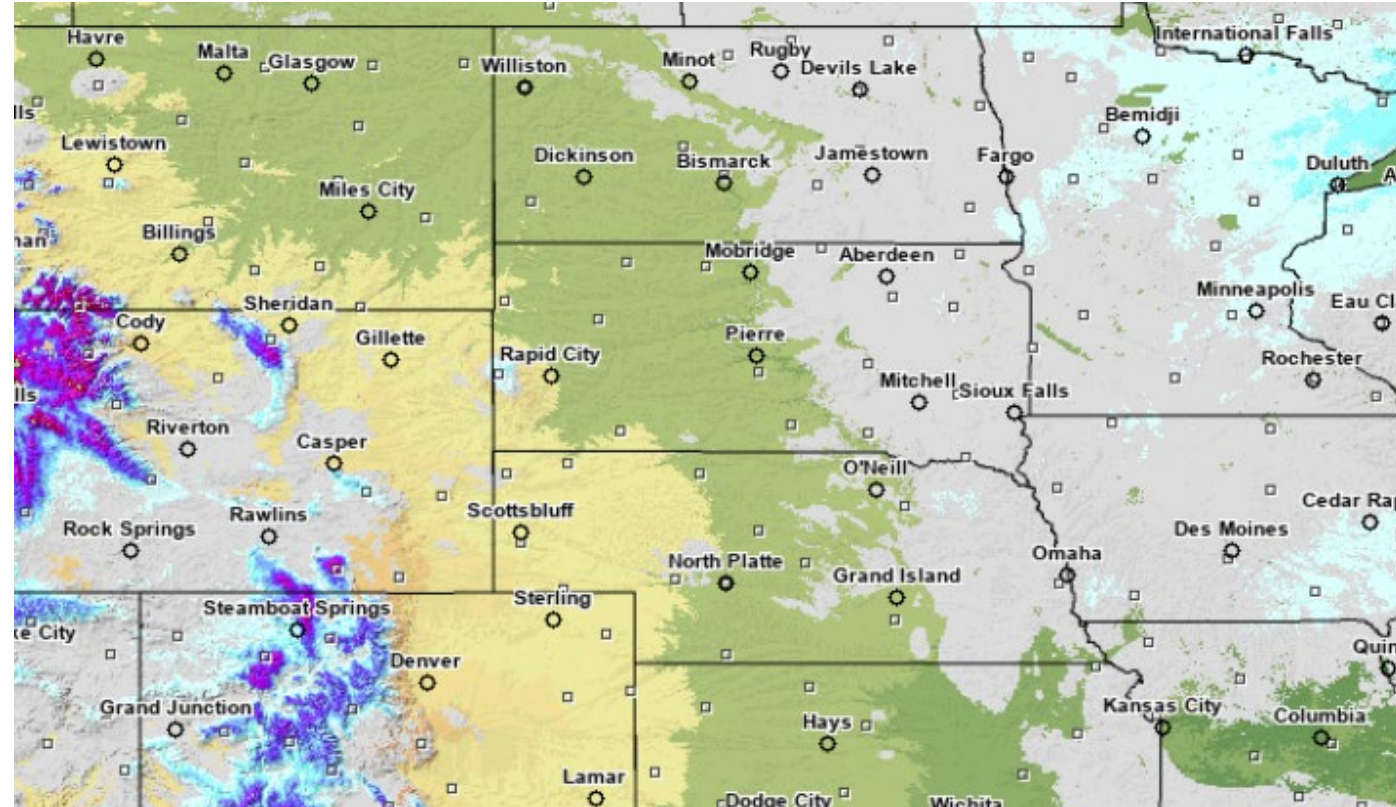
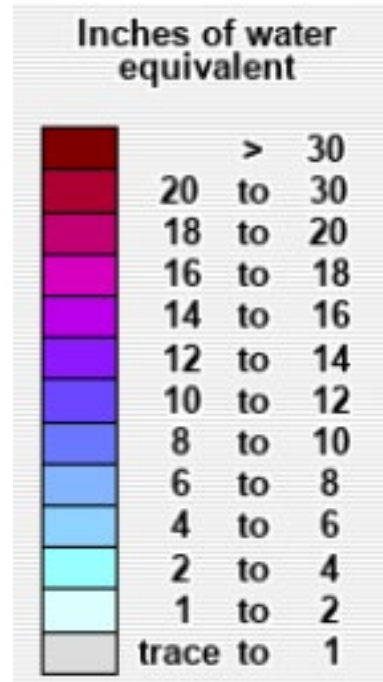


Source: NOAA Climate Prediction Center



MISSOURI RIVER BASIN

PLAINS SNOWPACK WATER CONTENT - JANUARY 7, 2021

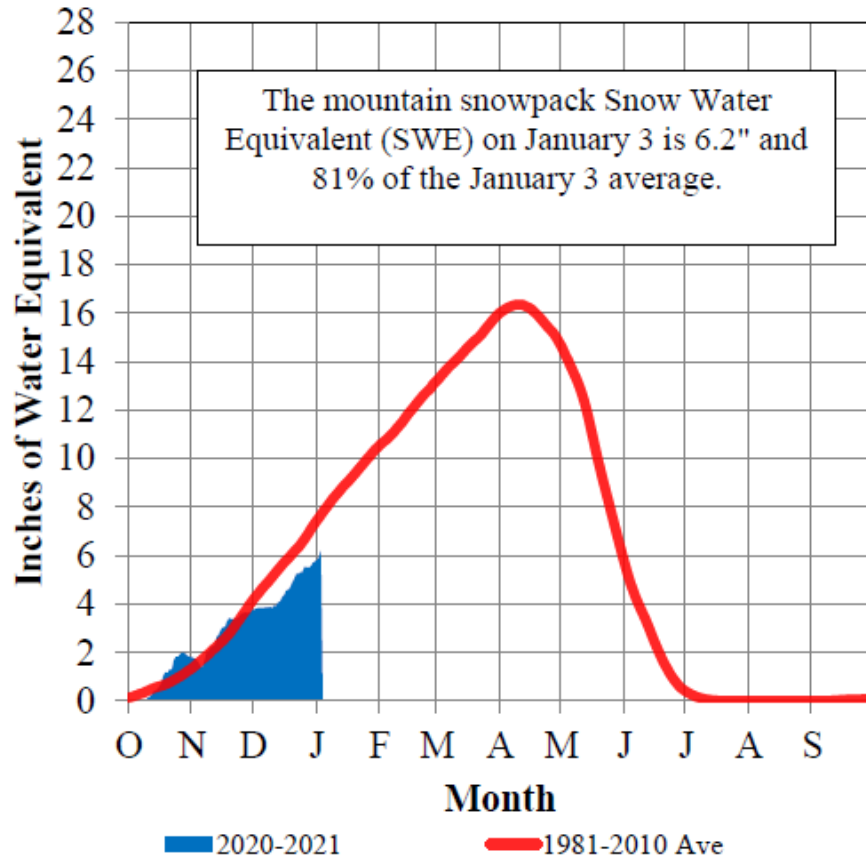


Source: NOAA-NOHRSC

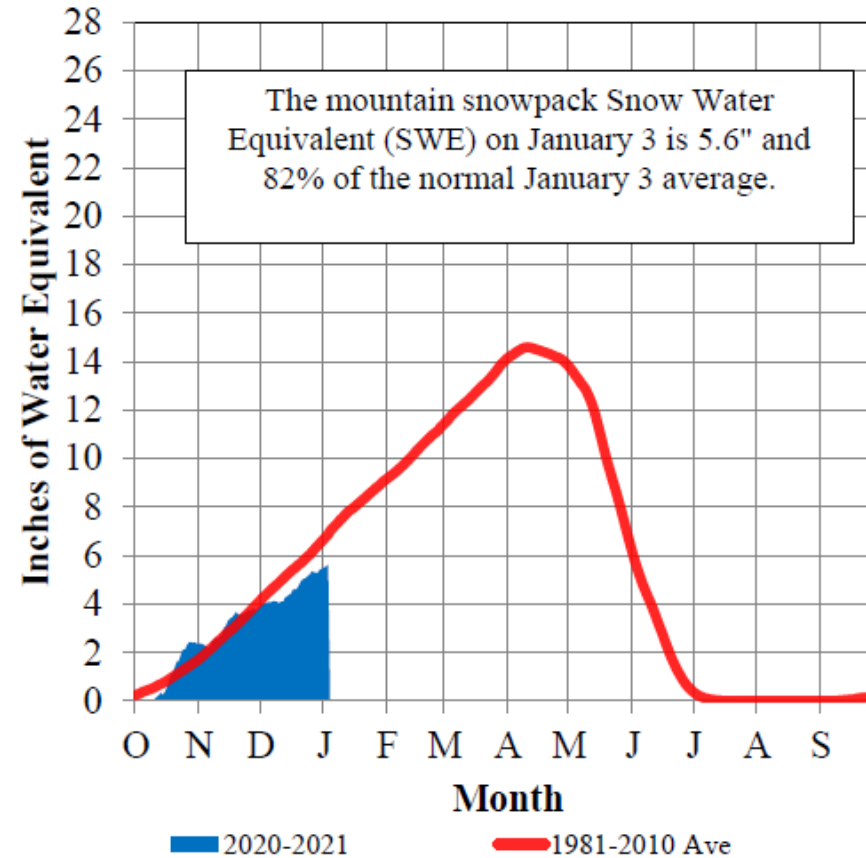


MISSOURI RIVER BASIN MOUNTAIN SNOWPACK - JANUARY 3, 2021

Total above Fort Peck



Total Fort Peck to Garrison



Source: USDA-NRCS

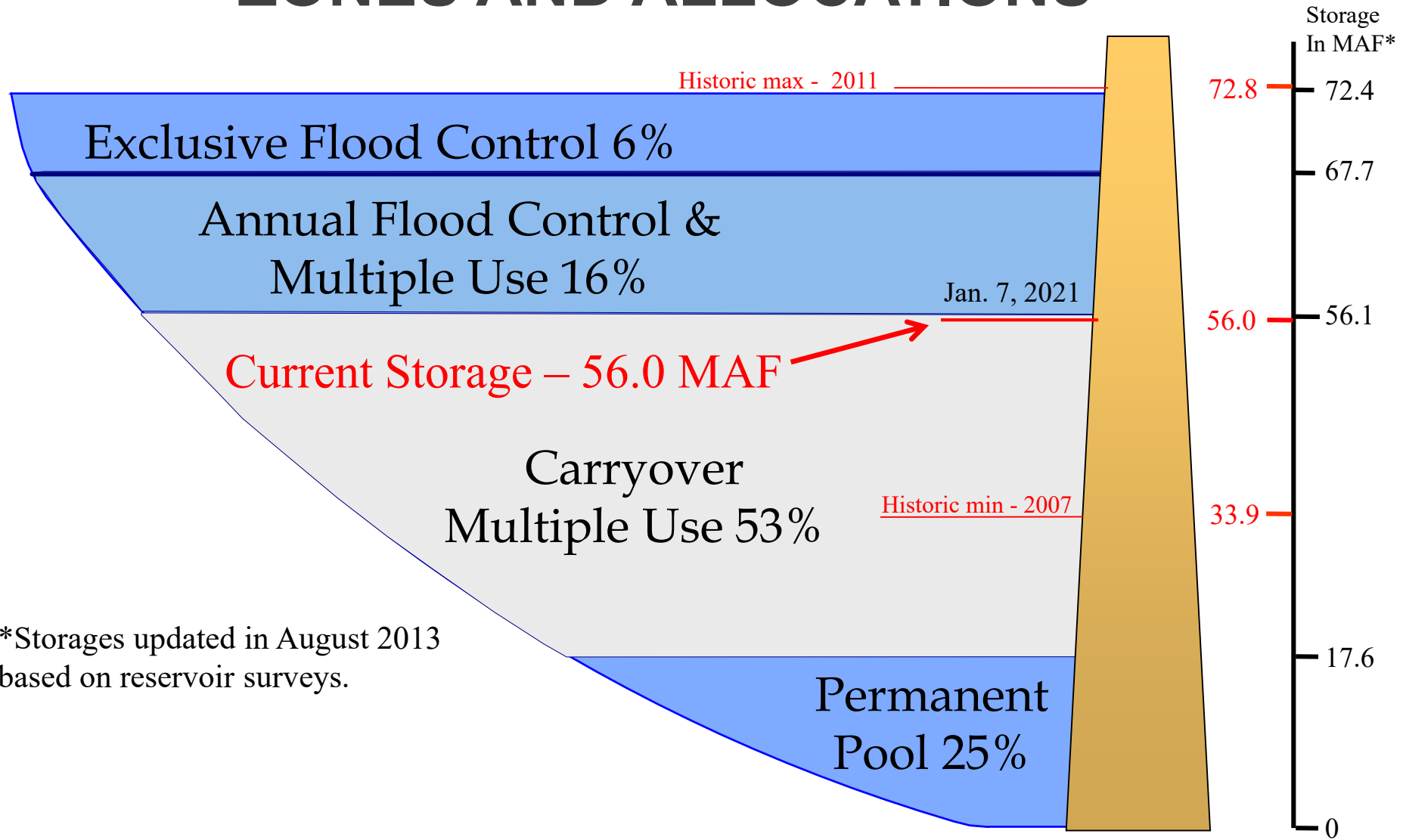


RESERVOIR SYSTEM REGULATION

Joel Knofczynski, P.E.
U.S. Army Corps of Engineers
Missouri River Basin Water Management



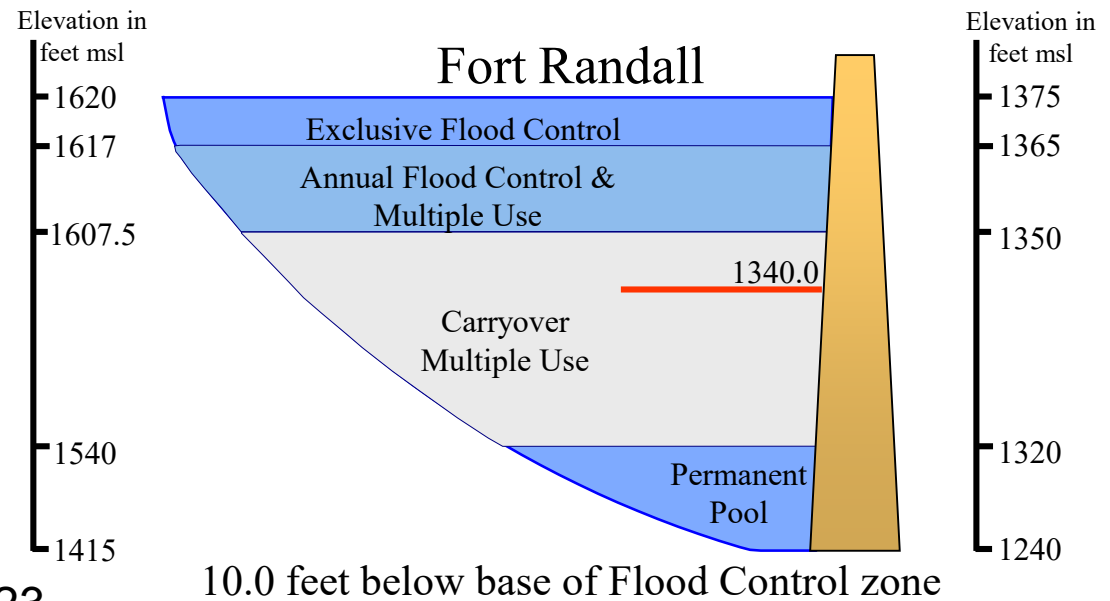
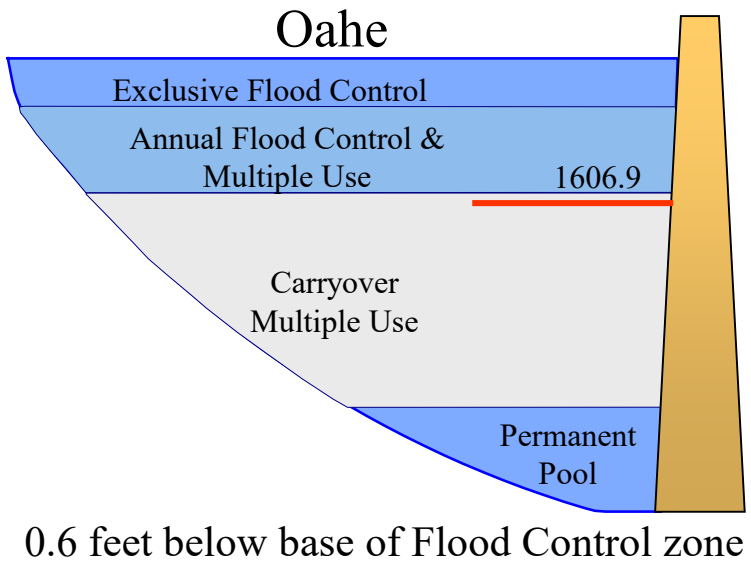
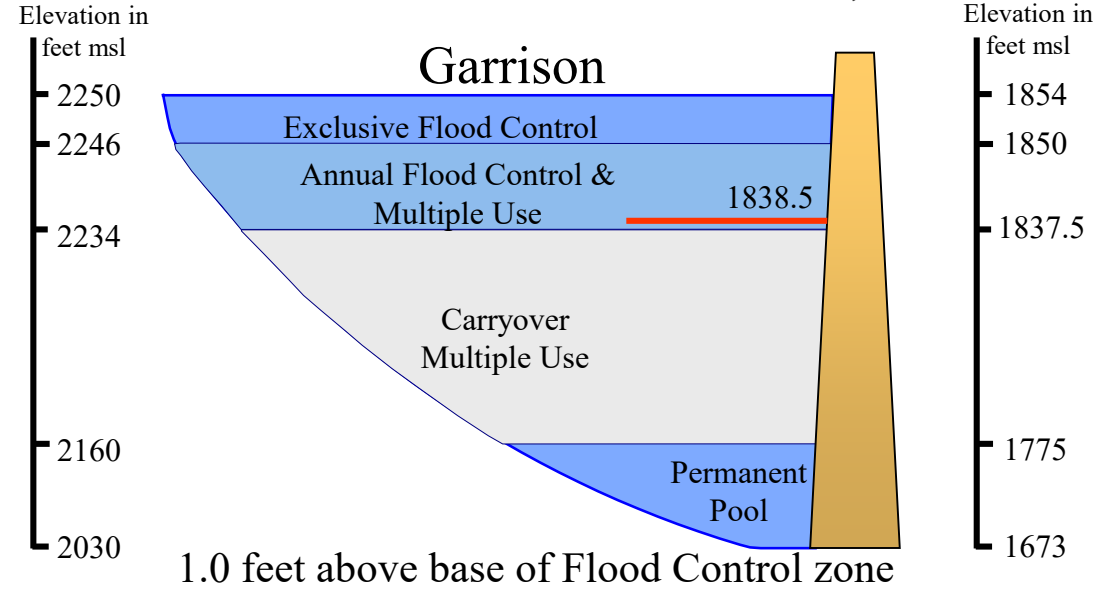
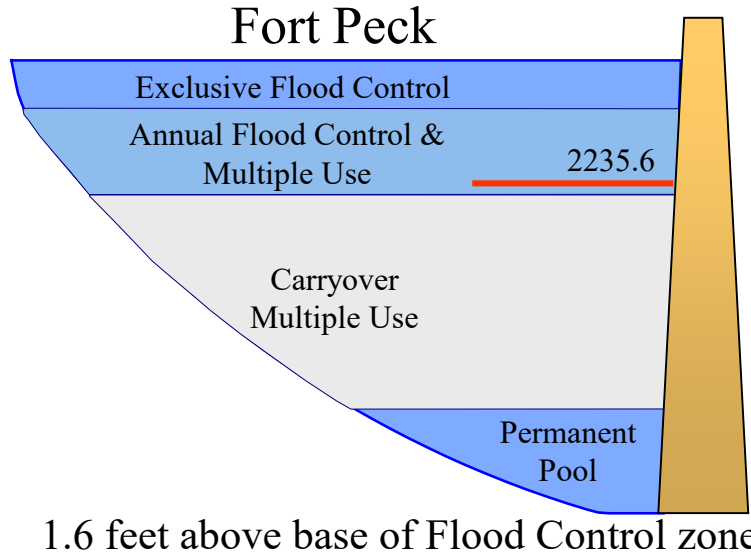
MISSOURI RIVER MAINSTEM SYSTEM STORAGE ZONES AND ALLOCATIONS



*Storages updated in August 2013 based on reservoir surveys.



CURRENT RESERVOIR LEVELS – JANUARY 7, 2021





KEY POINTS



- All flood storage space is available to start 2021 runoff season (16.3 MAF)
- Full service flow support for season (Basic Condition)
- Full navigation season.
- Annual power production of 9.7B kWh.
- (average is 9.4B kWh)

Missouri River Basin – Update – 05 January 2021

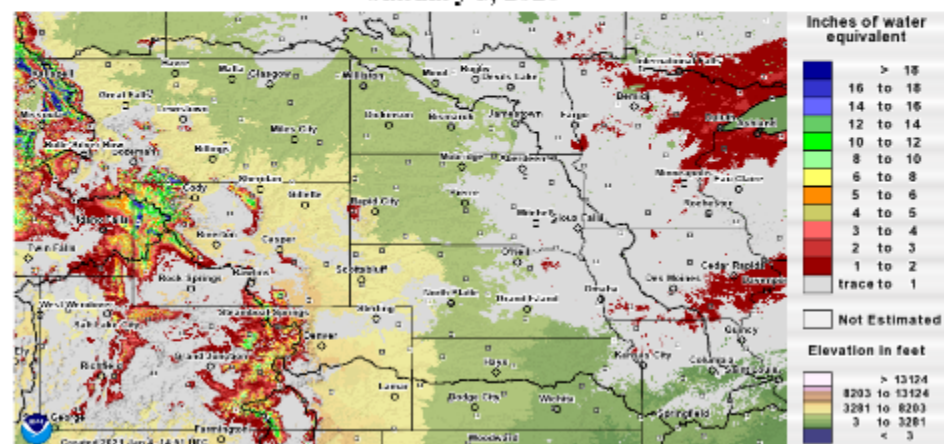
Mainstem Reservoir Status:

- ❖ All stored flood waters from the 2020 runoff season have been evacuated.
- ❖ System storage is 56.0 MAF. All 16.3 MAF of flood control storage is available for the 2021 runoff season.
- ❖ Mountain snowpack is below average in both reaches (lower right quadrant).
- ❖ There is some plains snowpack (upper right quadrant) in eastern ND, SD, and NE. There is little to no plains snowpack in the upper basin west of the Missouri River.
- ❖ The 2021 calendar year runoff forecast for the Missouri River above Sioux City, IA ([click here](#)) is 23.1 MAF (90% of average).
- ❖ Gavins Point releases are at the winter release rate of 17,000 cfs.
- ❖ Refer to the 3-Week Forecast ([click here](#)) for the most up-to-date System information – pool levels, inflows and releases.
- ❖ The schedule and forecasted Missouri River flows and stages can be found here:

[Click Here](#) for Missouri River releases, flows & stages

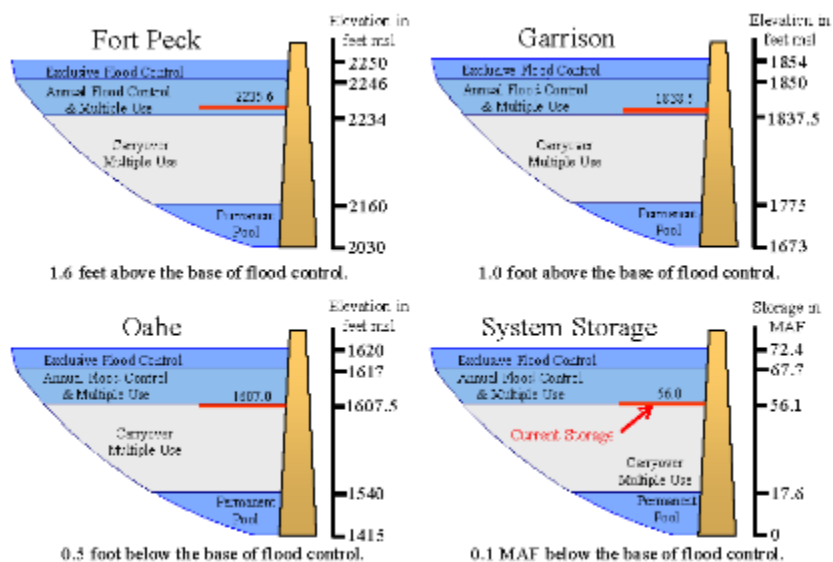
Plains Snowpack

January 5, 2020



*Source: <https://www.noahsc.noaa.gov>

Current Reservoir Levels

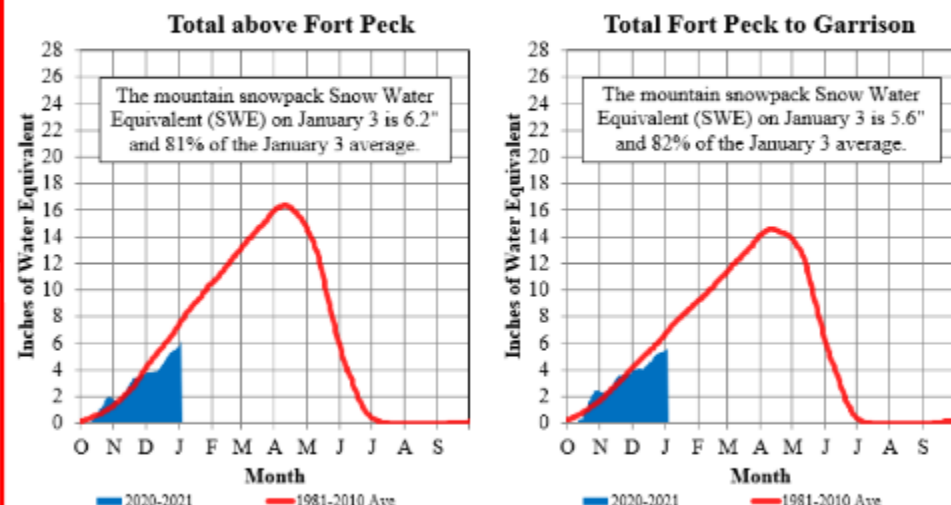


[Click Here](#) for Latest 3-Week Forecast

[Click Here](#) for Comparison Plots

Mountain Snowpack

January 3, 2020





KANSAS CITY DISTRICT OMAHA DISTRICT

Levee Updates



NEXT UPDATE

Thursday, February 4, 2021
1:00 pm CST



CONTACT INFORMATION

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