



NATIONAL WEATHER SERVICE

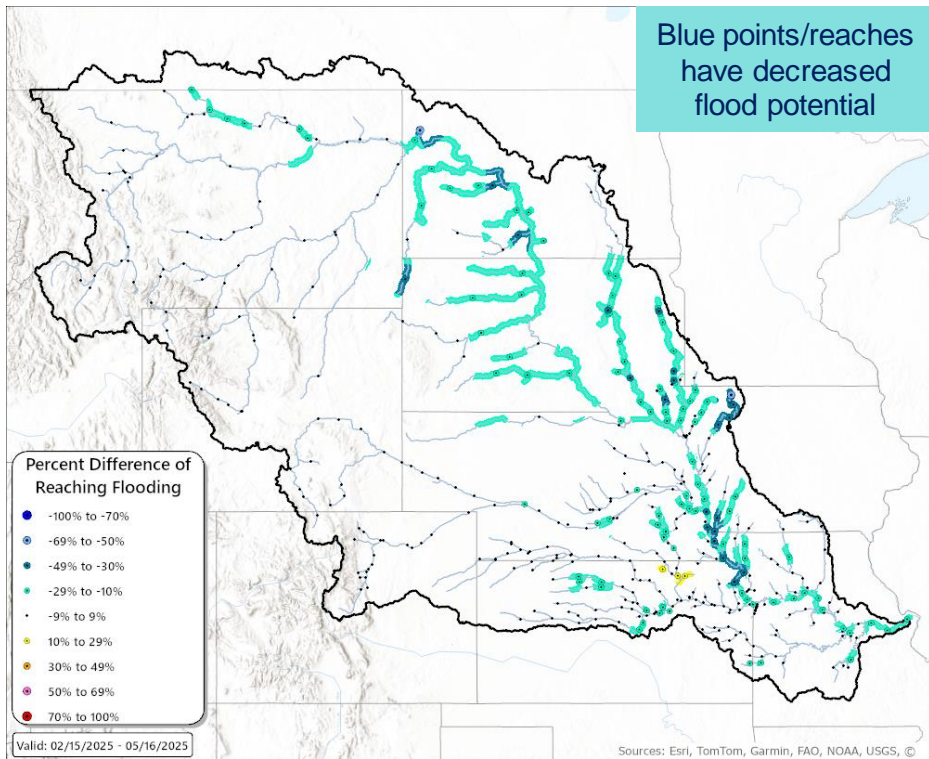
Building a Weather-Ready Nation

2025 Flood Potential Outlook Missouri River Basin

February 13, 2025

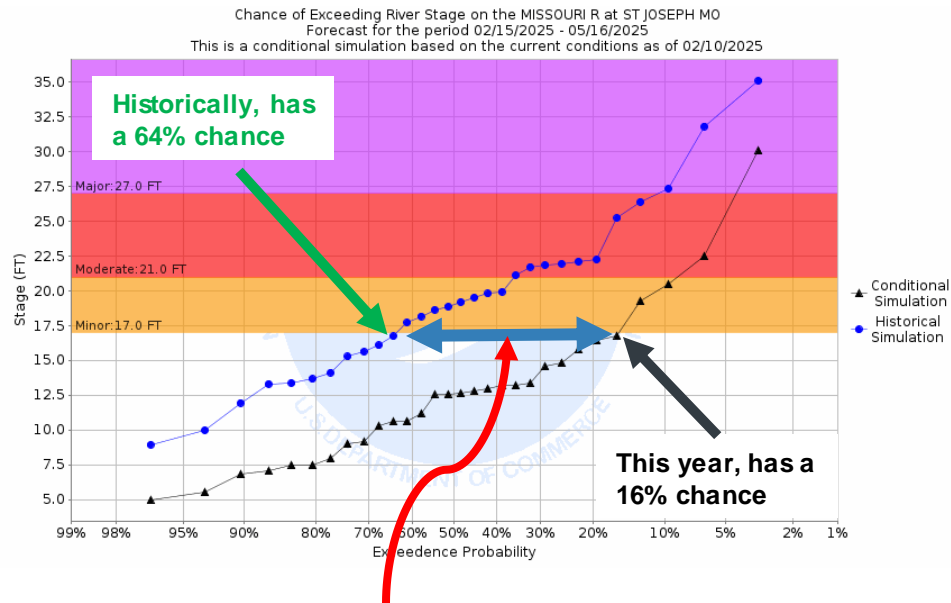
MISSOURI BASIN:

CHANCE OF REACHING FLOOD STAGE IN 2025 AS COMPARED TO HISTORICAL



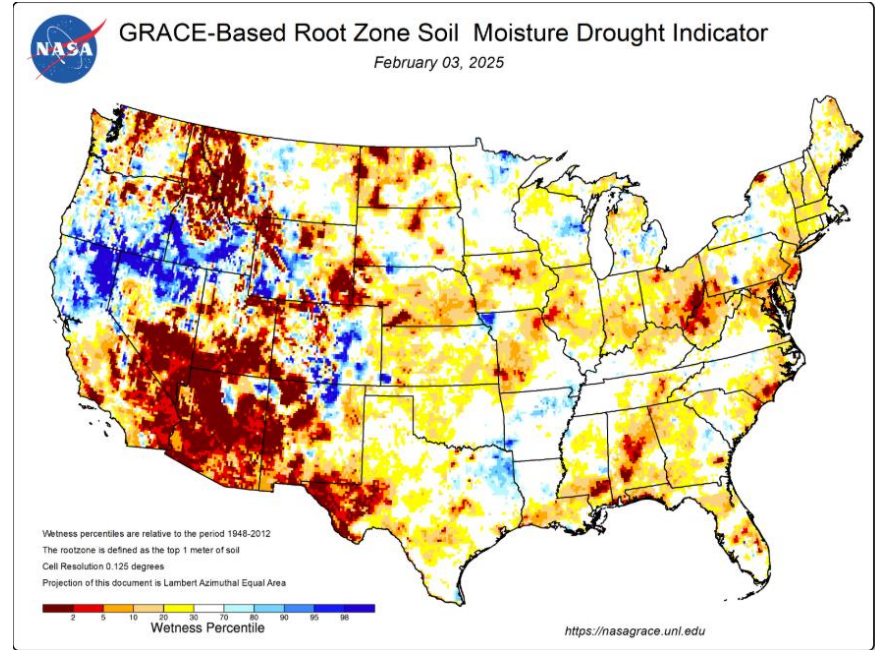
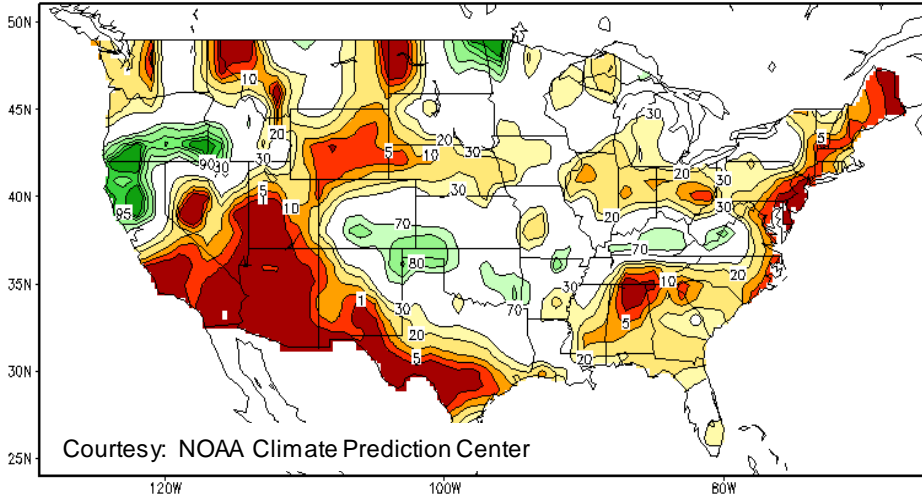
Ensemble Streamflow Prediction (ESP)
Percent Difference of Reaching Minor Flooding versus Historical Average

Many rivers in the eastern portion of the basin have a REDUCED flood potential this year.



MISSOURI BASIN: SOIL MOISTURE CONDITIONS

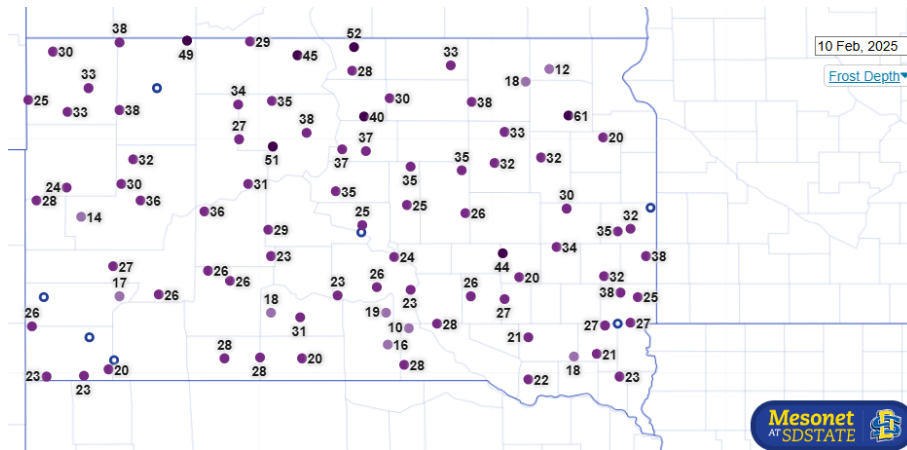
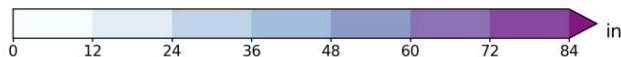
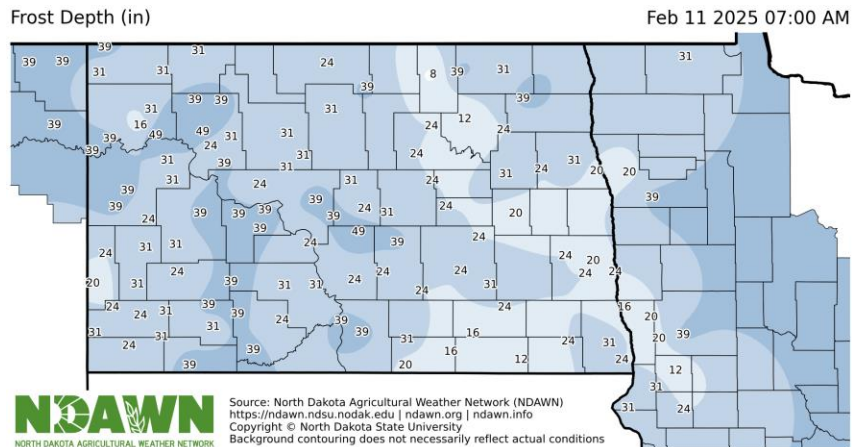
Calculated Soil Moisture Ranking Percentile
FEB 10, 2025



**Soils very dry over
much of the basin.**



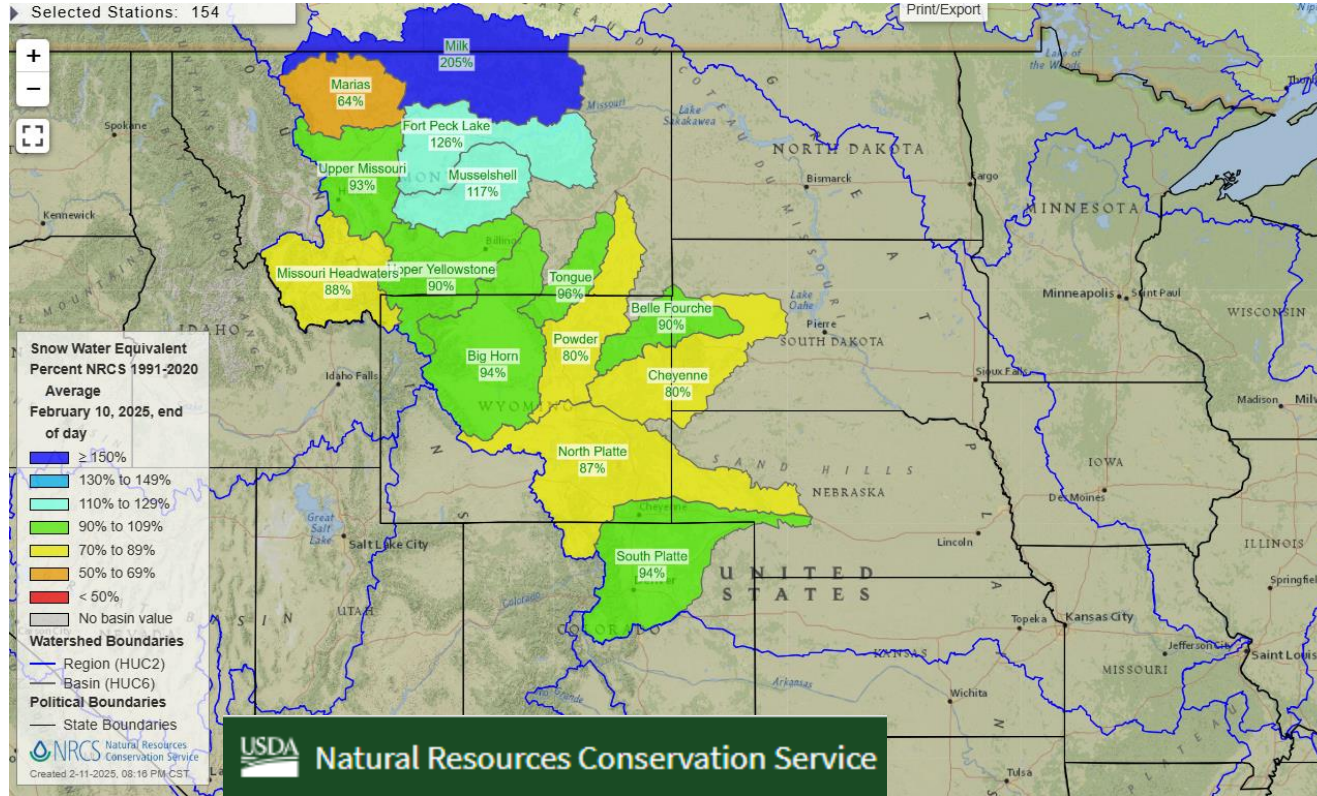
MISSOURI BASIN: FROST DEPTHS



Cold January, and little insulative plains snowpack, has led to development of significantly deep frost. Could lead to increased Spring runoff if snowmelt & rainfall cannot penetrate into the soil.

MISSOURI BASIN:

Mountain Snowpack As of 10 February 2025



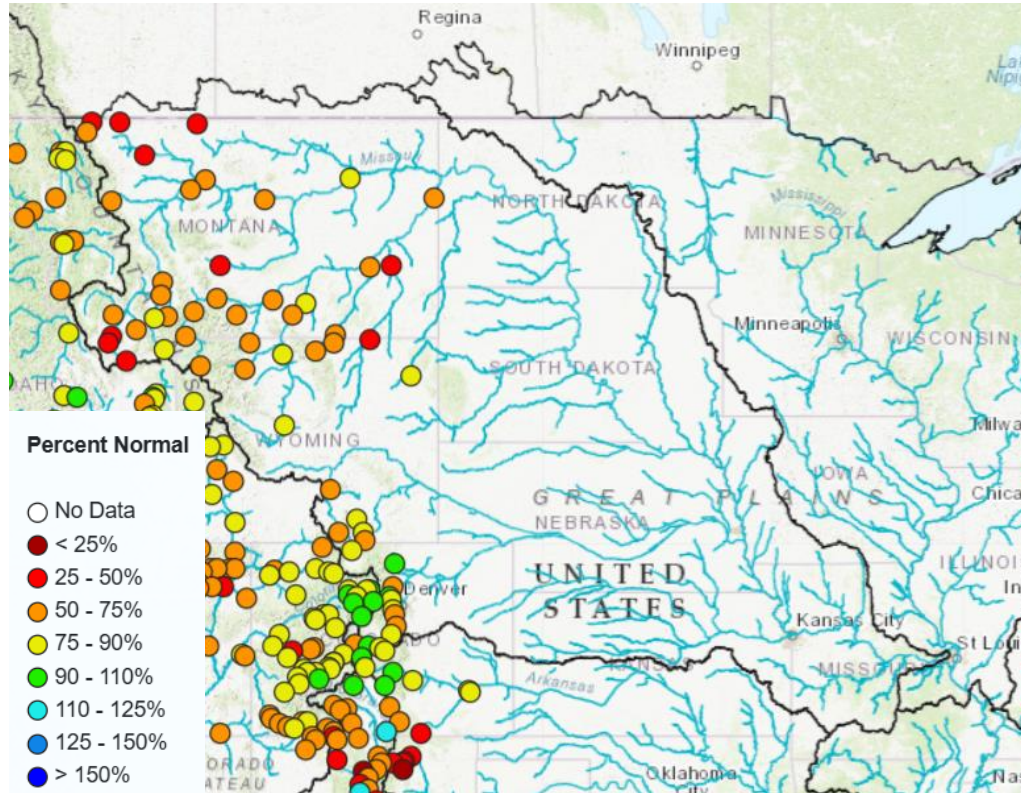
Mountain snowpack running just below average.

We are about 70% of the way thru the peak seasonal snow equivalent accumulating period.



MISSOURI BASIN:

Mountain Runoff Volume April-September Percent of Normal



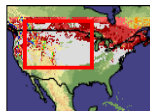
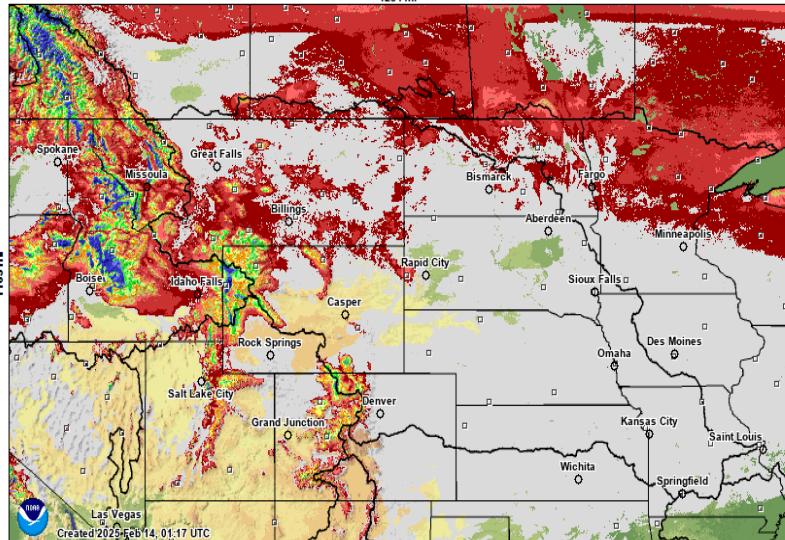
Mountain runoff volume projected to be below normal (per 01 Feb 2025 Outlook)

- **Upper Missouri above Ft. Peck: 75%**
- **Yellowstone: 66%**
- **North Platte: 70%**
- **South Platte: 66%**

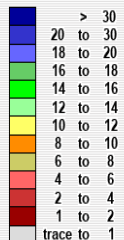
MISSOURI BASIN: Plains Snowpack

Modeled Snow Water Equivalent for 2025 February 13, 14:00 UTC

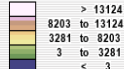
1254 mi



Inches of water equivalent

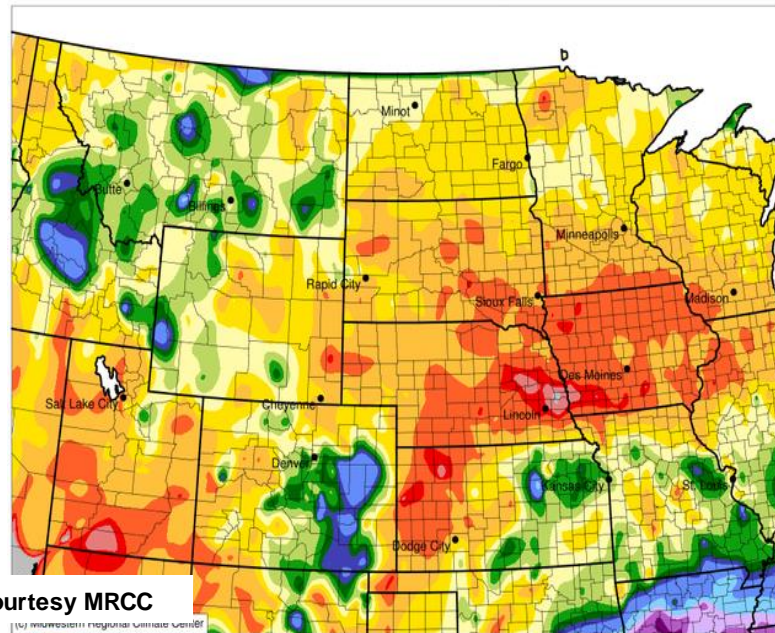


Elevation in feet



Accumulated Snowfall: Percent of 1991-2020 Normals

October 01, 2024 to February 09, 2025



Courtesy MRCC

11/1/2025 11:11:11 AM CST



2 5 10 25 50 75 100 125 150 175 200 300 400 500 750

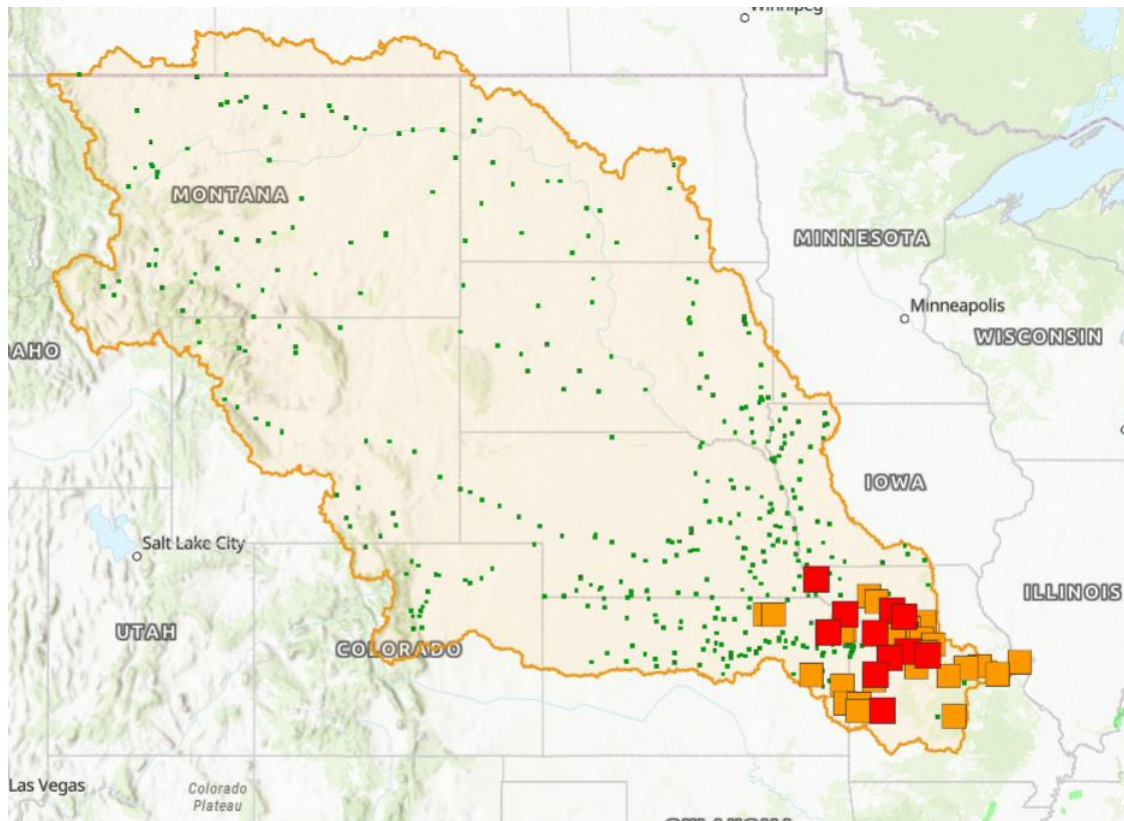
Plains snowpack is widespread, but is very shallow. Gray areas have only 1 inch of water, or less, in the snowpack.



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MISSOURI BASIN:

Locations Expected to Flood Thru Mid-May



50% ▾ or greater chance of exceeding river flood levels:

0 > Major



11 > Moderate



27 > Minor



391 <= No Flooding



0 Unavailable



Between now and mid-May (i.e. the next 3 months), flooding should be limited to only the lower portion of the basin (indicated by oranges and red squares). This is typical; Springtime flooding in the lower basin is driven by thunderstorm activity.



MISSOURI BASIN:

Flood Potential Outlook: Summary Points

- **Overall, spring flood risk is normal to lower-than-normal.**
- Mountain snowpack is slightly below normal this year. We still have roughly 30% of snow accumulating period remaining.
- Plains snowpack widespread, but very shallow.
- Impressive frost depths in the Dakotas, but is the ground like concrete? (because the soils are so dry, perhaps some percolation of runoff can still occur)
- Ice jam break-up flooding risk is low. **Where river ice remains, risk for break-up ice jamming remains.**
- **Flood Potential mountains:** No flooding currently expected.
- **Flood Potential northern plains:** No flooding currently expected.
- **Flood Potential lower basin:** Episodic minor-to-moderate level flooding likely in the lower portion of the basin (eastern KS, MO) due to Spring-time thunderstorm activity.
- **Flood Potential Missouri River mainstem:** Minor flooding likely downstream of KC, again due to thunderstorm activity.

