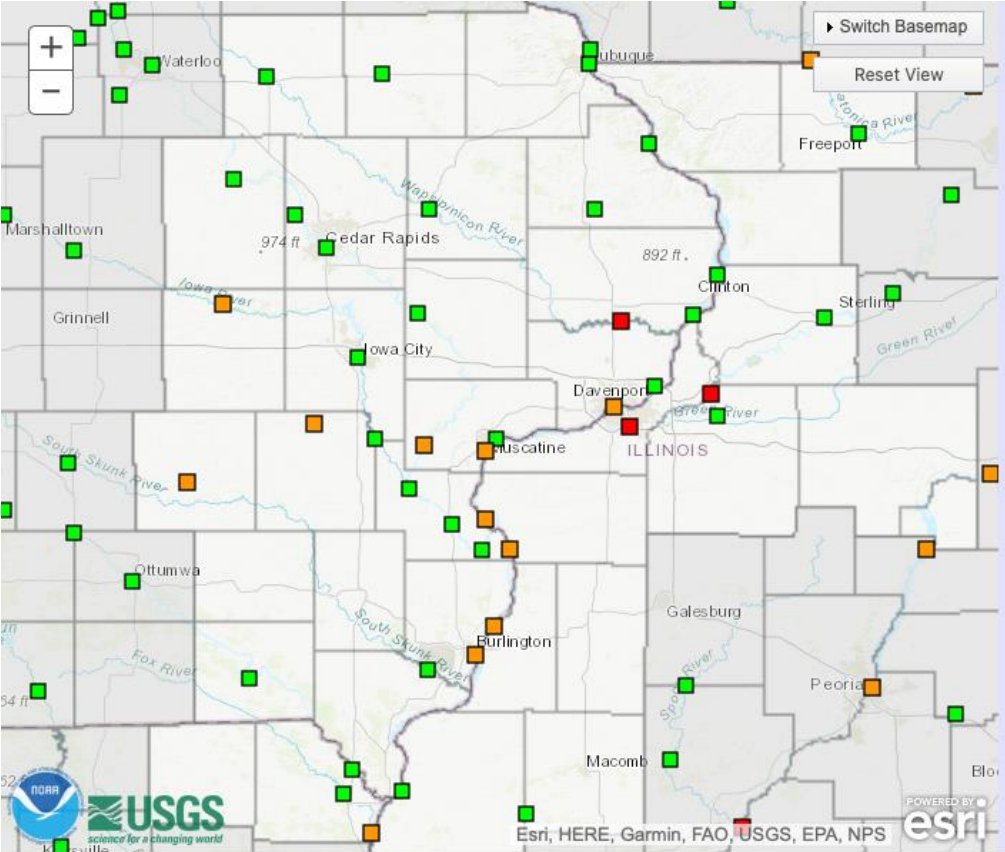




Spring Flooding Potential: *Near to Localized Above Normal Risk*



Mississippi River:
Near Normal
(higher risk downstream
of the Quad Cities)

Tributary Rivers:
Near to Elevated Risk

- > 50% Major Flooding
- > 50% Moderate Flooding
- > 50% Minor Flooding
- < 50% Chance of Flooding
- Long-Range Flood Risk Not Calculated

Colored boxes highlight locations with a 50% chance of reaching the correlated flood category.

Key Points:

- Flood risk this season is lower than previous years, with the highest risk for widespread Minor Flooding.
- **Relatively slow snowmelt has started and will continue to with near/above normal temperatures. Local river rises are possible.**
- **Local Rivers:** Risk for *Flooding is Above Normal* where the majority of the watershed has a deep snowpack.
- **Mississippi River:** Risk for Minor *Flooding is Above Normal* downstream of the Quad Cities
- The rate of the snowmelt, additional snowfall, and heavy spring rains will influence the severity of flooding that occurs this spring.

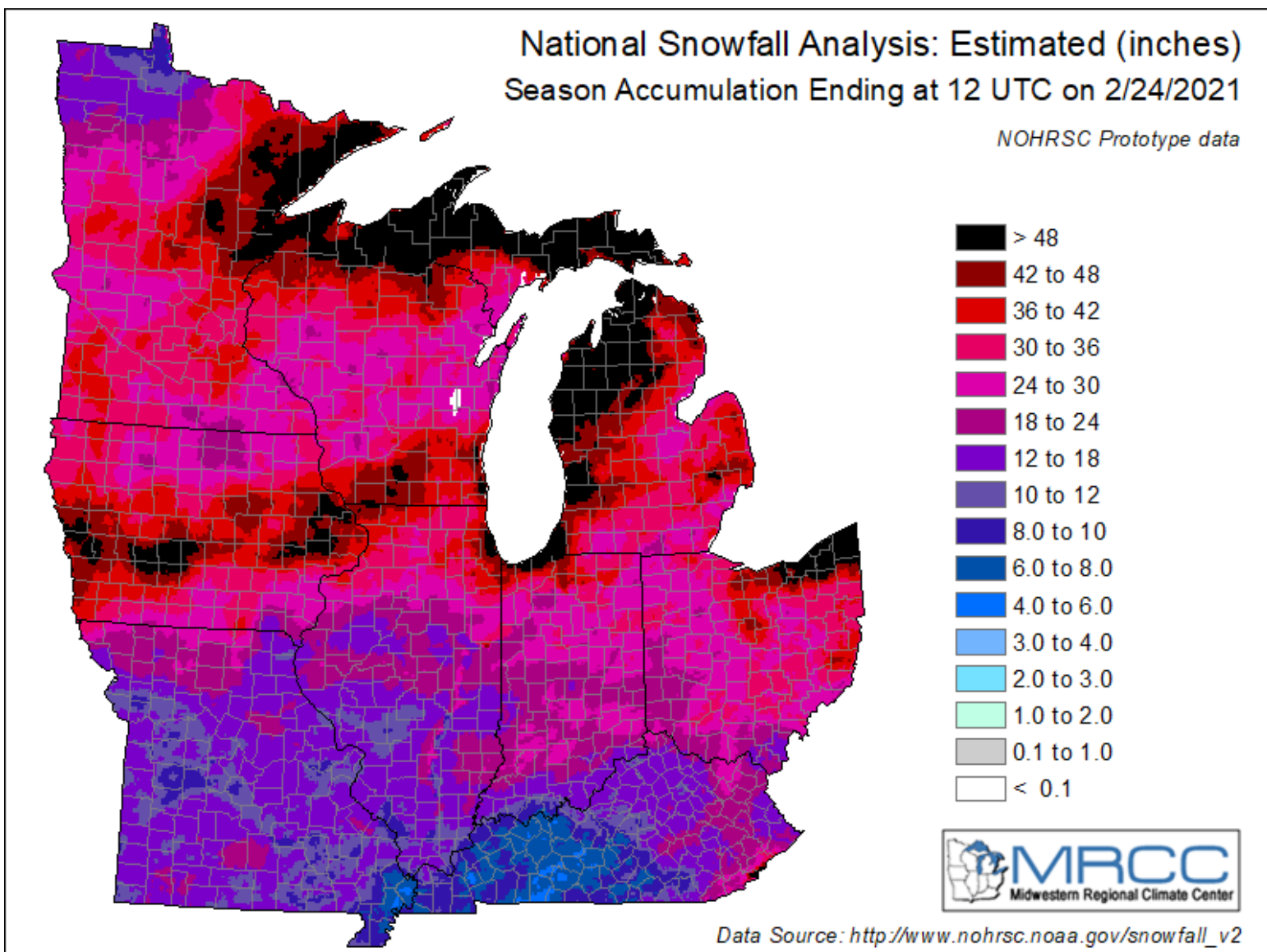
Note: **Low-Moderate confidence on rises to near or above minor flood stage on local rivers. Low confidence on peak severity of any flooding that occurs.**

Click to go to the Flood Outlook Webpage



Factors Considered in this Outlook

- Seasonal Temperatures and Precipitation
- Snow Cover/Liquid Water Equivalent
- Frost Depth
- Soil Moisture
- Current River Streamflows
- Weather Forecasts & Outlooks





Seasonal Temperatures/Precipitation

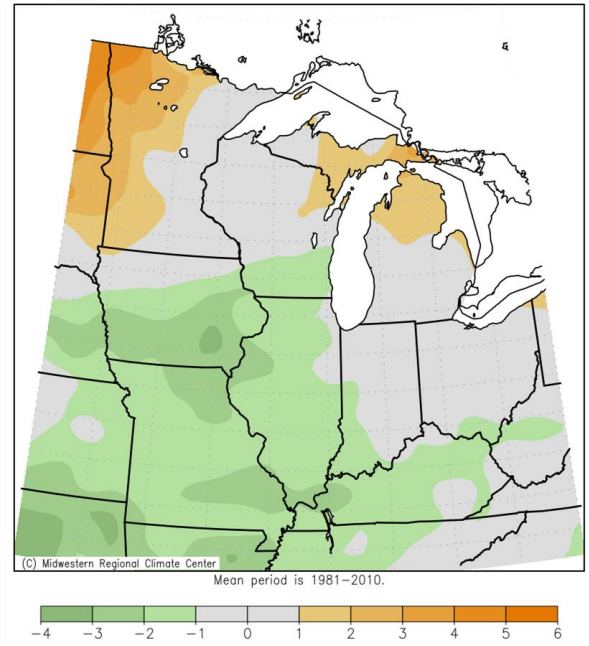
Average Winter Temperatures:

- Below normal temperatures this winter. Locally, averages have been 1-3 degrees below normal

Winter Precipitation:

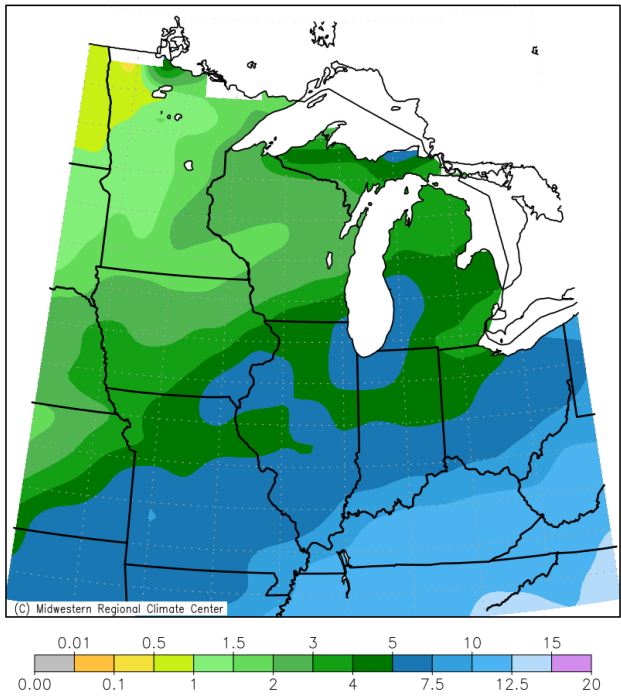
- Locally – Above normal
- Upstream (Mississippi River watershed) – Below normal

Average Temperature Departure from Normal Dec 1, 2020 – Feb 24, 2021



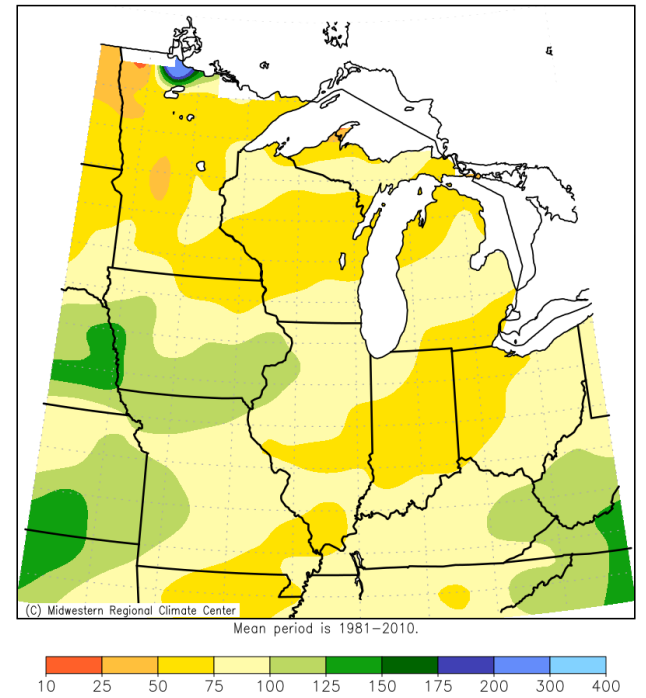
Accumulated Precipitation

Accumulated Precipitation (in)
December 1, 2020 to February 25, 2021



Accumulated Precipitation Percent of Mean

Accumulated Precipitation: Percent of Mean
December 1, 2020 to February 25, 2021



Images Courtesy of Midwest Regional Climate Center

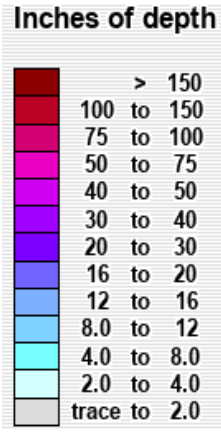
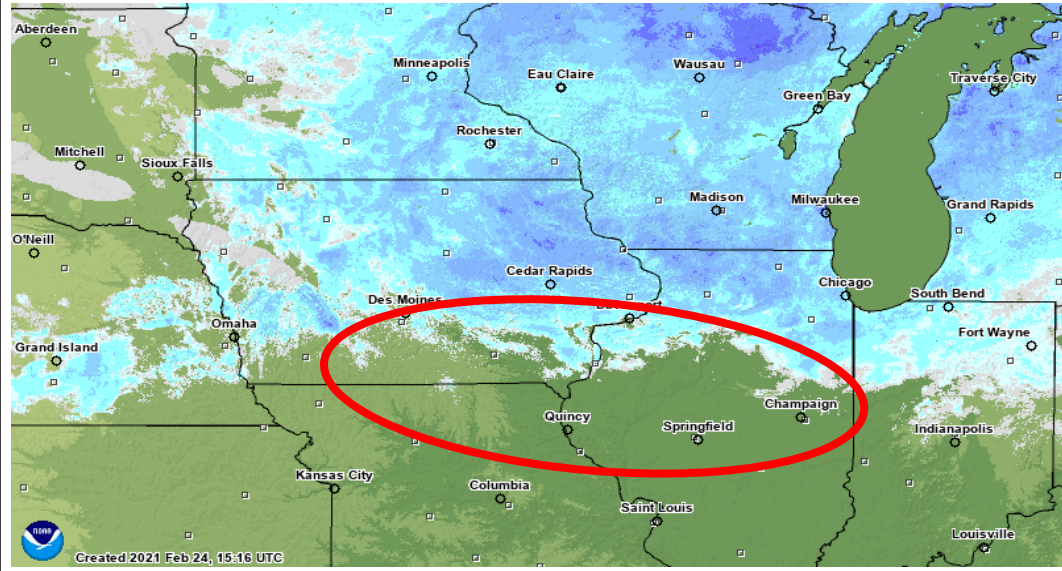
[Click to go to the Flood Outlook Webpage](#)



Snow Cover/Liquid Water Equivalent

Snow Cover (as of Feb 25, 2021)

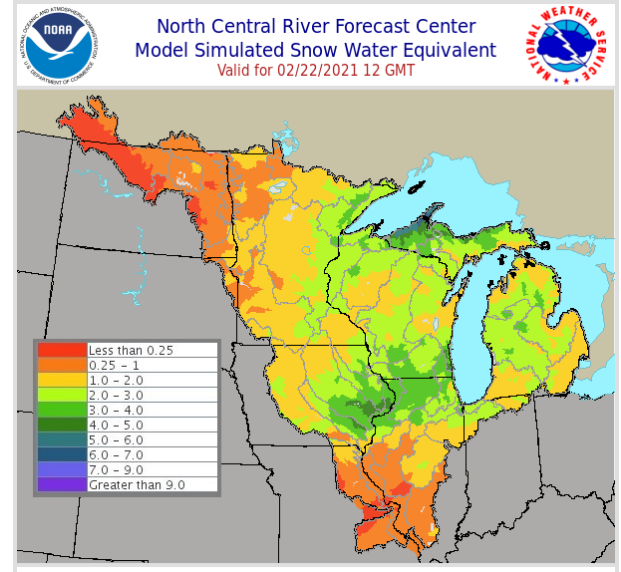
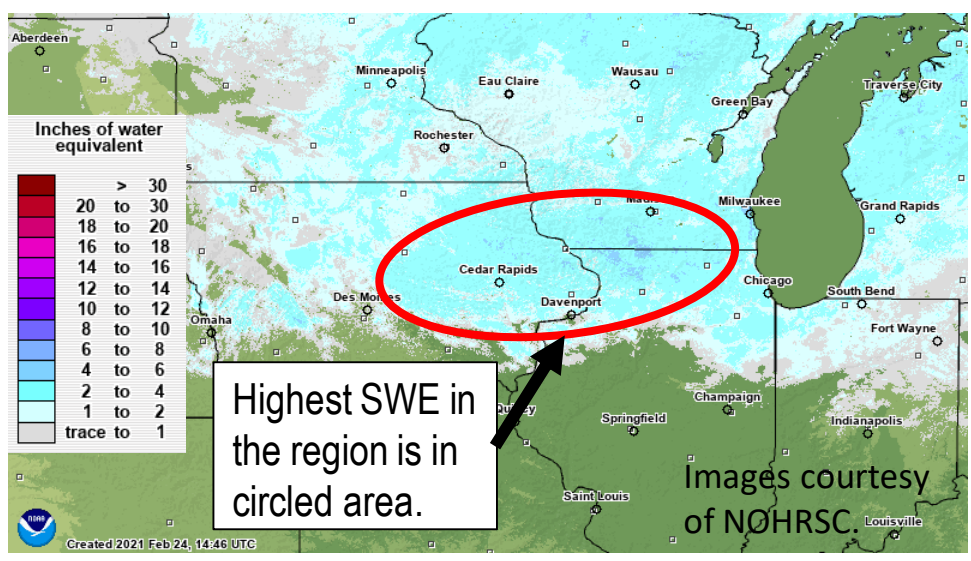
Circled area has had substantial melting in the past week. Rivers in these areas have responded, with generally within bank rises.



Images courtesy of NOHRSC.

Snow Water Equivalent (SWE) as of Feb 25, 2021:

- Widespread SWE of 1-4". Deepest snowpack has 2-4" of SWE
- The Mississippi River basin on average: near or below normal SWE



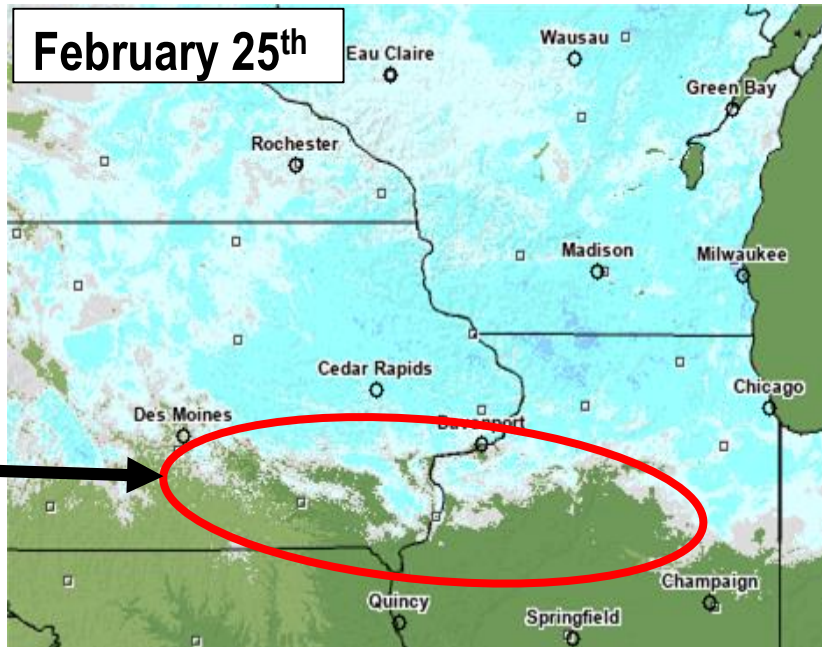
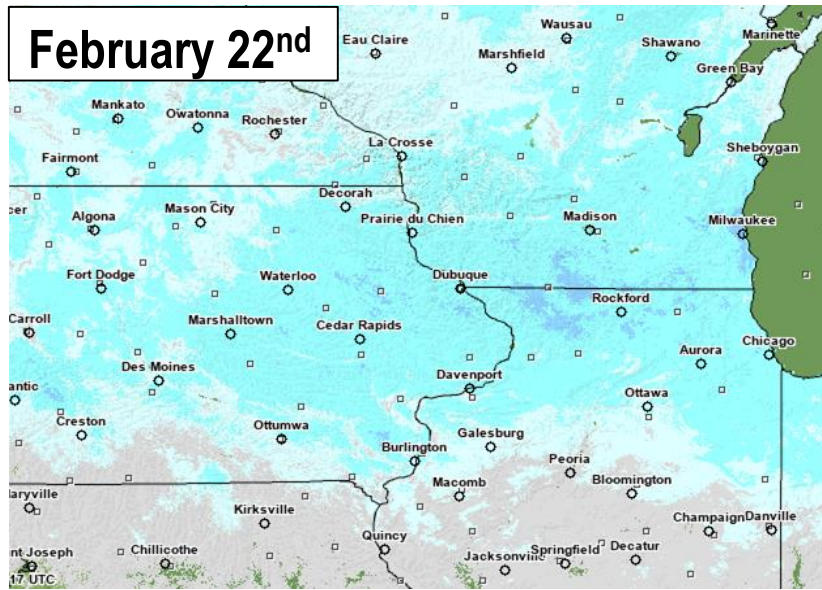
Contribution to flood potential:

- Snowmelt alone has a limited potential for flooding. The severity will depend on the rate of the snowmelt this Spring. Warmer temperatures have begun snowmelt in the last week.

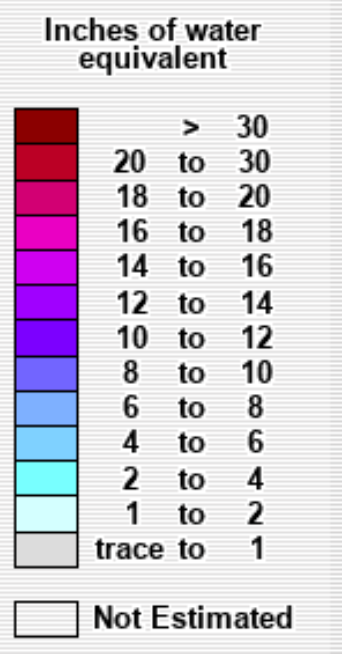


Snow Water Equivalent Changes This Week

SWE Change from February 22nd to February 25th



Highest change in SWE is in circled area.



Images courtesy of NOHRSC.

Contribution to flood potential:

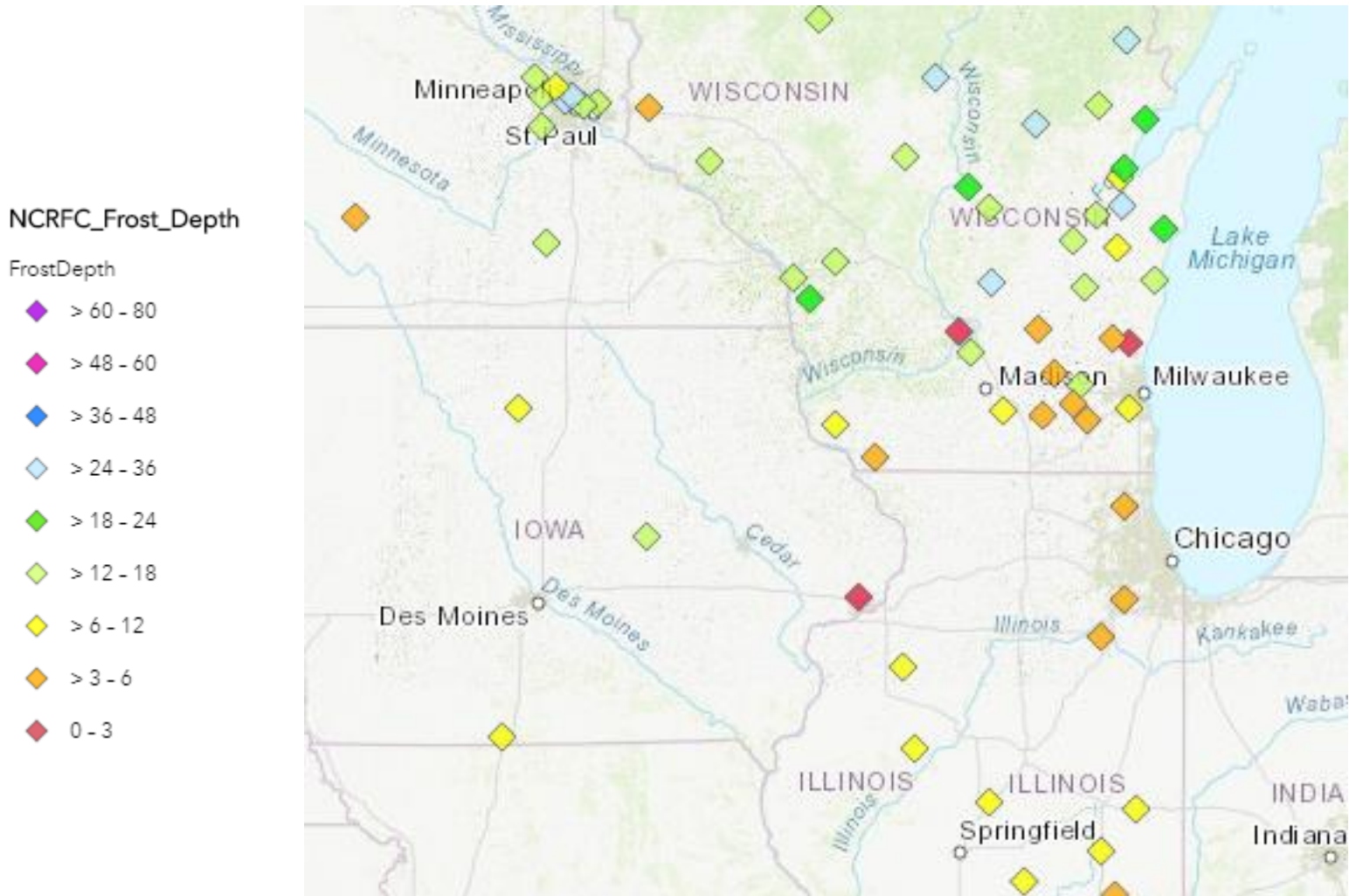
- In just two days of above freezing temperatures, a large change in SWE can be seen as we lose snowpack. This will continue as temperatures stay mild, which can lead to some jumps in the rivers.
- Where snowmelt has left watersheds without snowpack, flood risk has been reduced.



Frost Depth

Frozen ground

- Frost depths are less than normal



Contribution to flood potential:

Images courtesy of the NWS NCRFC

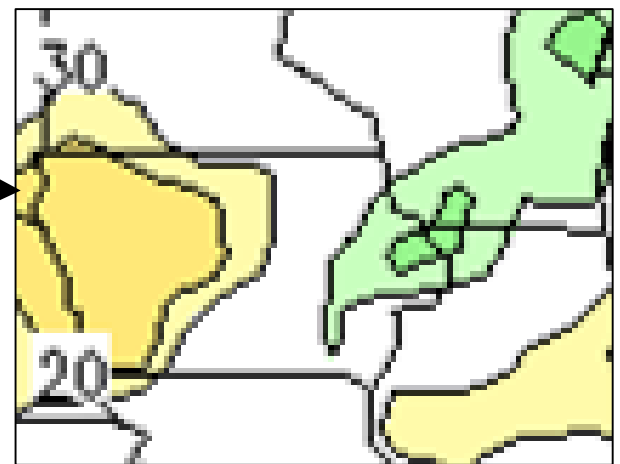
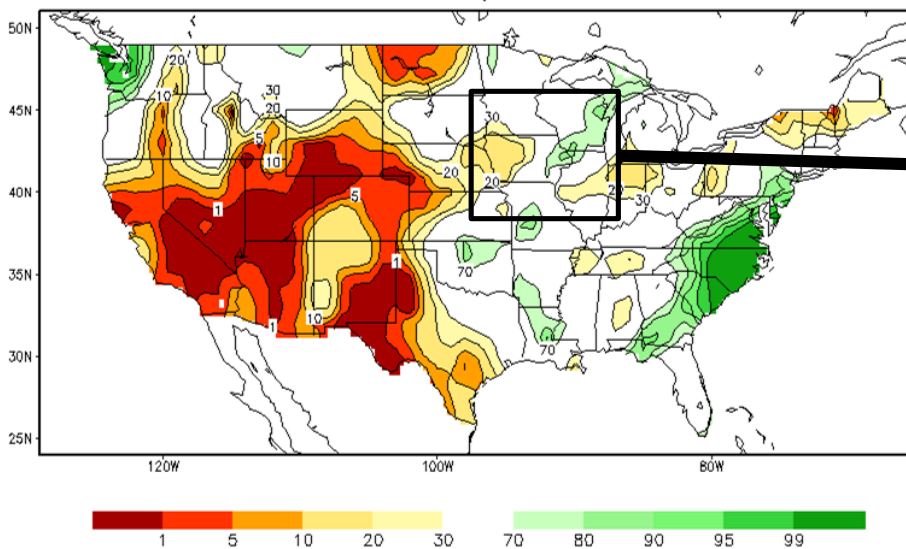
- Shallow frost (less than 1 foot for much of the local area) has potential to thaw early in the season, allowing snowmelt and rain to infiltrate into the ground, limiting runoff.

Soil Moisture/Drought

Dryer Soils, but No Local Areas under Drought Conditions:

- Near to slightly above normal soil moisture locally
- Regionally, soil moisture is drier than normal

Calculated Soil Moisture Ranking Percentile
FEB 24, 2021



Images courtesy of the NWS Climate Prediction Center

Contribution to flood potential:

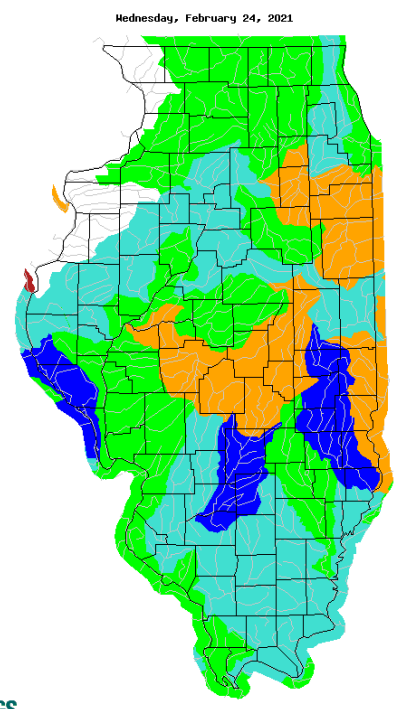
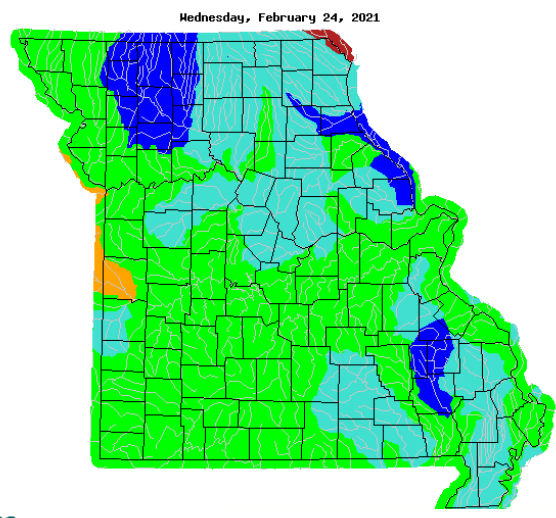
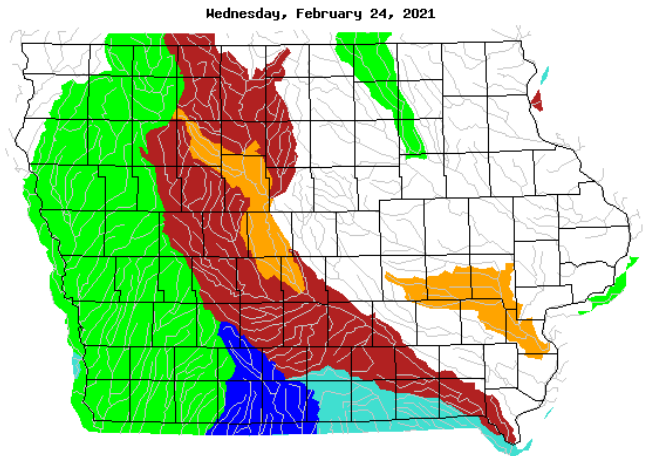
- With the relatively dry soils, snowmelt or rainfall will have some capacity to infiltrate into the ground. Some areas are starting to trend towards more saturation, due to increased snowmelt lately, which can lead to a lesser amount of infiltration.



Streamflows

Streamflows are generally near normal across IA, IL, and MO, while there are a few watersheds observing below normal streamflows. Near normal to slightly above normal temperatures are expected, which can inhibit further ice development on the rivers at this time.

Note: White colored basins are where streamflow measurements have been turned off due to the stream being ice affected



Images courtesy of the USGS.

Contribution to flood potential:

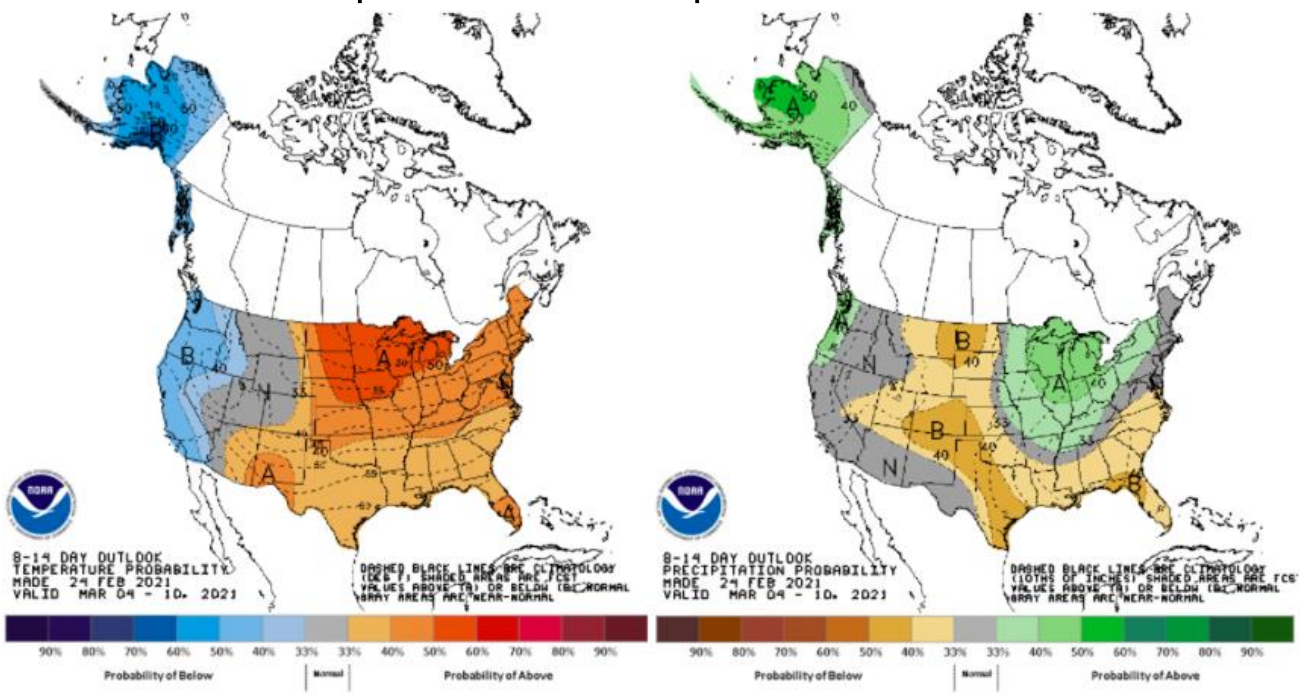
- Rivers at near or below normal levels indicate there is capacity in the rivers for runoff from snowmelt water and spring rains.



Weather Outlooks

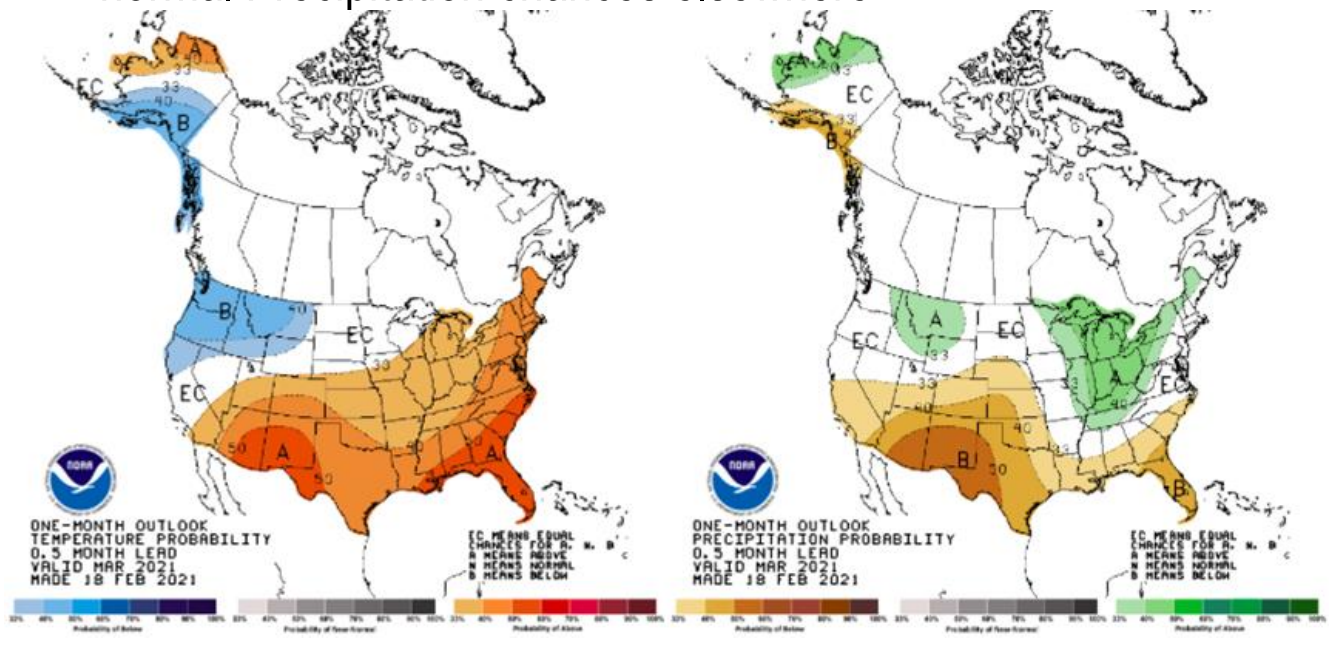
Week 2 Temperature and Precipitation Outlooks (3/4-3/10):

- Above normal Temperatures & Precipitation favored



March Outlook:

- Above normal temperatures are slightly favored.
- Above normal Precipitation is slightly favored across Illinois, with near normal Precipitation chances elsewhere



Images courtesy of the NWS Climate Prediction Center



Flood Potential by Basin

- Mississippi River – Near Normal
 - Slightly above normal for Minor Flooding downstream of the Quad Cities
- La Moine River – Near Normal
- Peconica River – Above Normal
- Rock River – Above Normal
- Maquoketa River – Near Normal
- Wapsipinicon River – Near Normal (lower portion is Above Normal)
- Skunk and North Skunk Rivers – Above Normal
- Fox River (MO) – Near Normal
- Cedar River – Near Normal
- English River – Above Normal
- Iowa River (above Coralville Res) – Near Normal
- Iowa River (below Coralville Res) – Above Normal
- **Category of flooding will depend on rate of snowmelt and additional spring precipitation.**

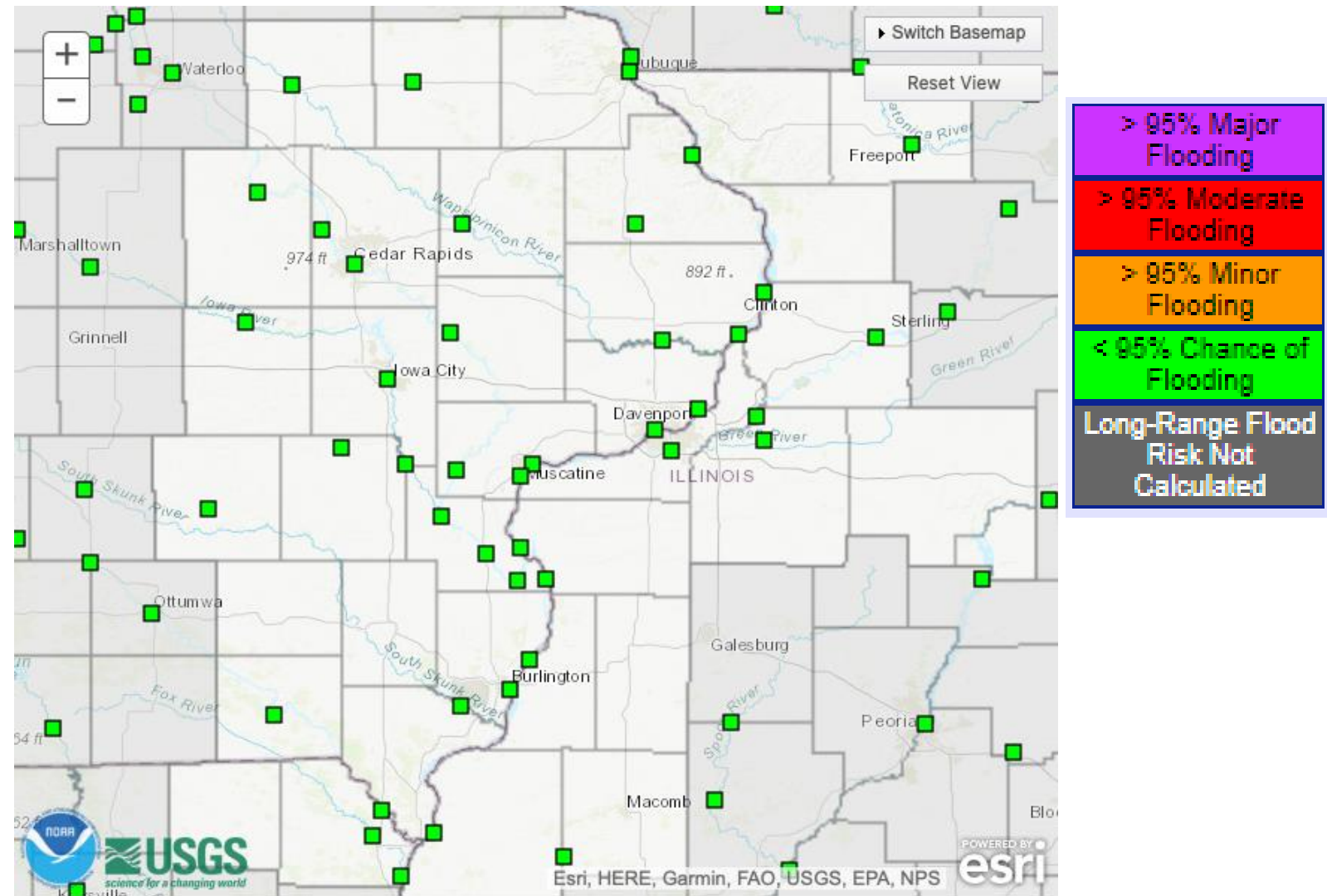
Higher chances for more widespread Minor levels to be reached.



Forecasts & Outlooks: High Probabilities

Locations with high chances for flooding:

- Greater than 95% chance to reach the labeled flood stage



- High-end chances (>95%) are low all around at the moment. With continued snow melt and spring precipitation, these chances may fluctuate on future outlooks.

Note: **Low-Moderate confidence on rises to near or above Minor Flood stage on local rivers. Low confidence on peak severity of any flooding that occurs.**

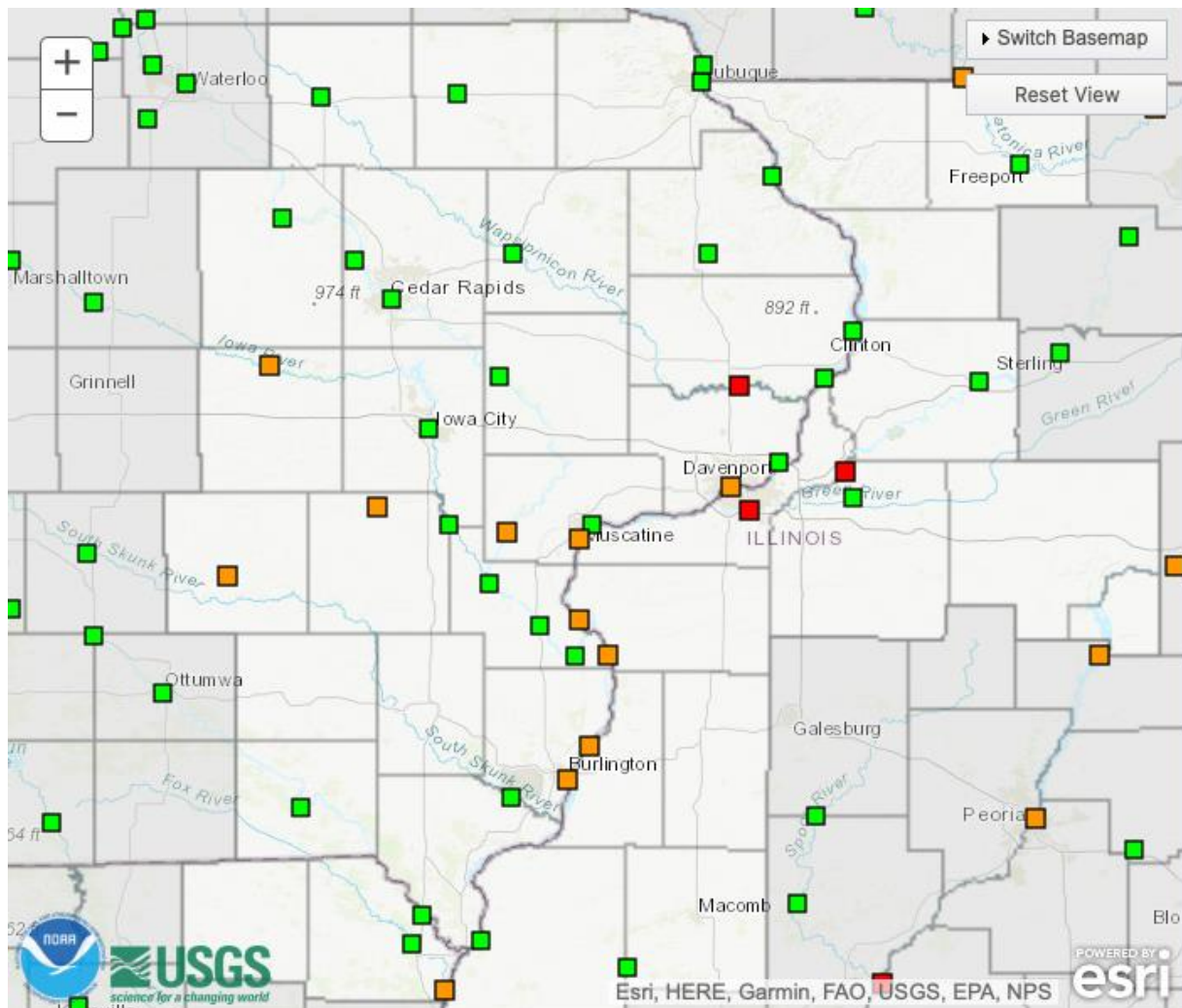
Click to go to the Flood Outlook Webpage



Forecasts & Outlooks: 50% Chance

Locations with chances for flooding:

- Around a 50% chance to reach the labeled flood stage



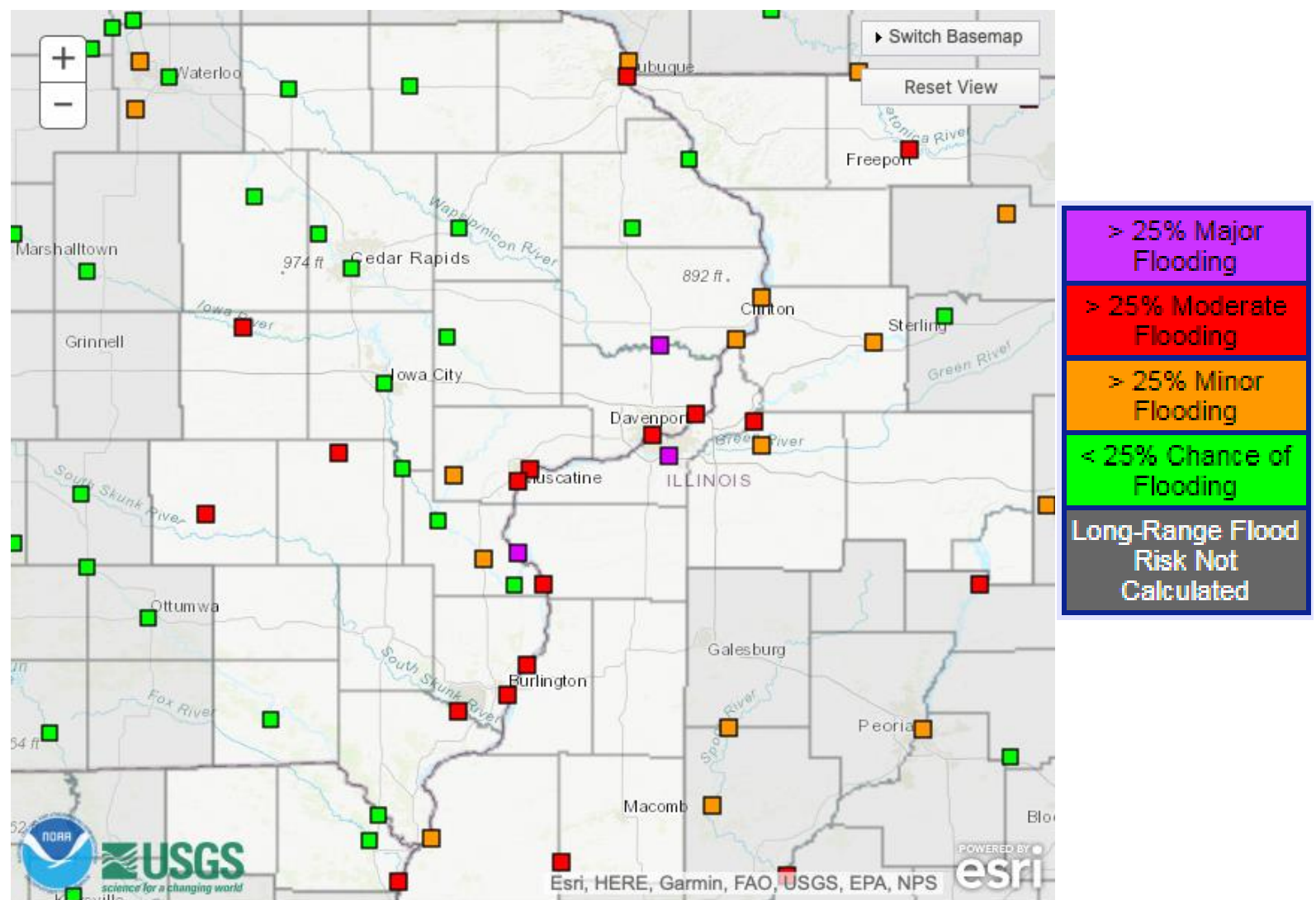
- The Mississippi River will have a 50% chance for reaching minor flood stage, generally near and downstream of the Quad Cities.
- A number of the local rivers have a 50% probability to reach minor and moderate flooding. The lower Rock, lower Wapsipinicon, English North Skunk and Skunk Rivers also have an above normal chance of reaching higher categorical flooding.



Forecasts and Outlooks: Lower Probabilities

Locations with chances for flooding:

- Around a 25% chance to reach the labeled flood stage



- This graphic shows that the many rivers in the local area have at least a small (25%) chance of reaching flood stage, with several showing at least a low probability of rising to moderate or major flood levels.



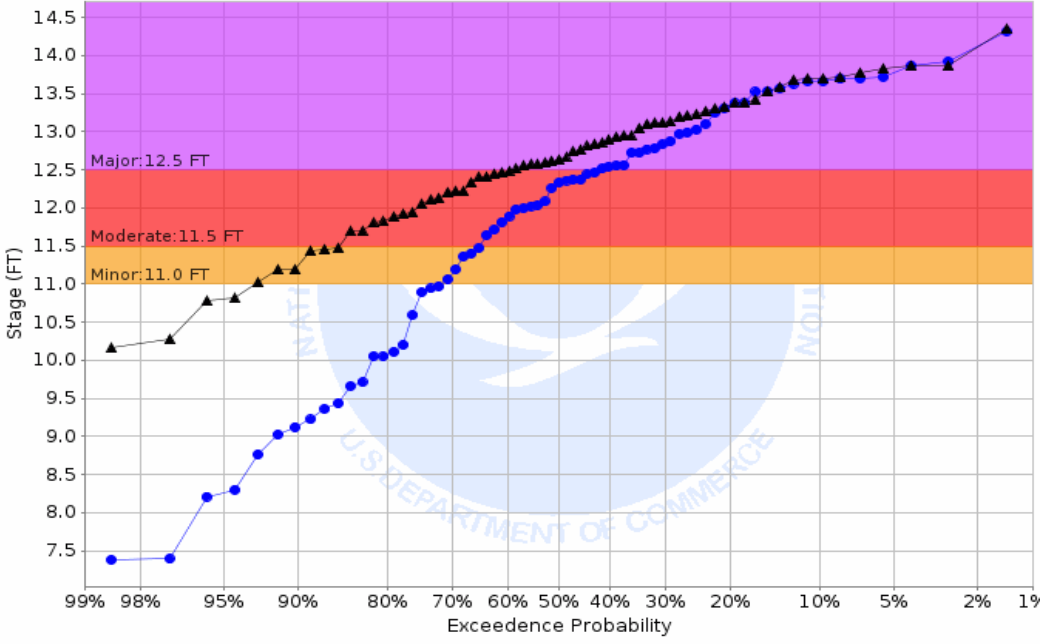
How far outside of normal is the flood risk?

Closer the lines are together the closer to normal the flood threat is.

▲ Conditional Simulation
● Historical Simulation

Example of higher risk Wapsipinicon River locations: DeWitt, IA (DEWI4)

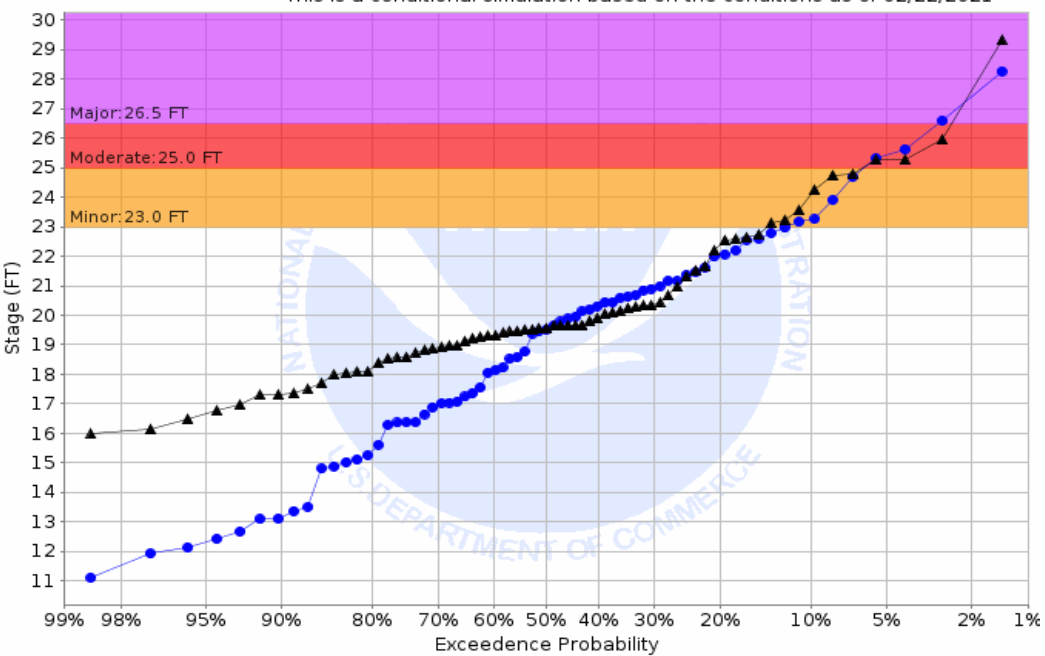
Chance of Exceeding River Stage at Wapsipinicon River at De Witt 4S (DEWI4)
Forecast for the period 03/01/2021 - 05/30/2021
This is a conditional simulation based on the conditions as of 02/22/2021



This graphic shows the probability of the Wapsipinicon River at DeWitt reaching Major Flood stage (12.5 ft) this year is roughly around 59%. In a normal year, this gage has a 42% Of reaching 12.5 ft.

Example of lower risk locations - most local rivers: Columbus Junction, IA (CJT14)

Chance of Exceeding River Stage at Iowa River at Columbus Junction (CJT14)
Forecast for the period 03/01/2021 - 05/30/2021
This is a conditional simulation based on the conditions as of 02/22/2021



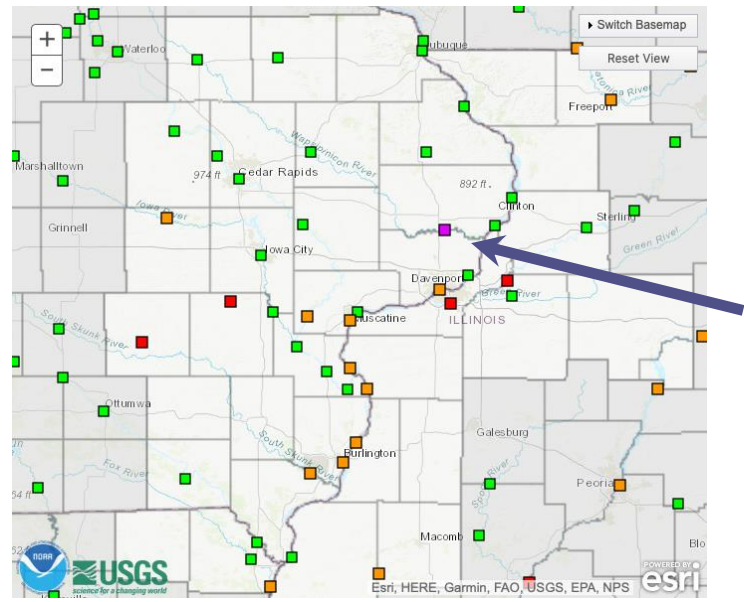
For the Iowa River at Columbus Junction, the risk for reaching Major Flood Stage (26.5 ft) this year is 3%. In a normal year, this gage has an 3% of reaching 26.5 ft. There is also a near normal chance for Moderate Flood Stage, 25.0 ft (about 6%).



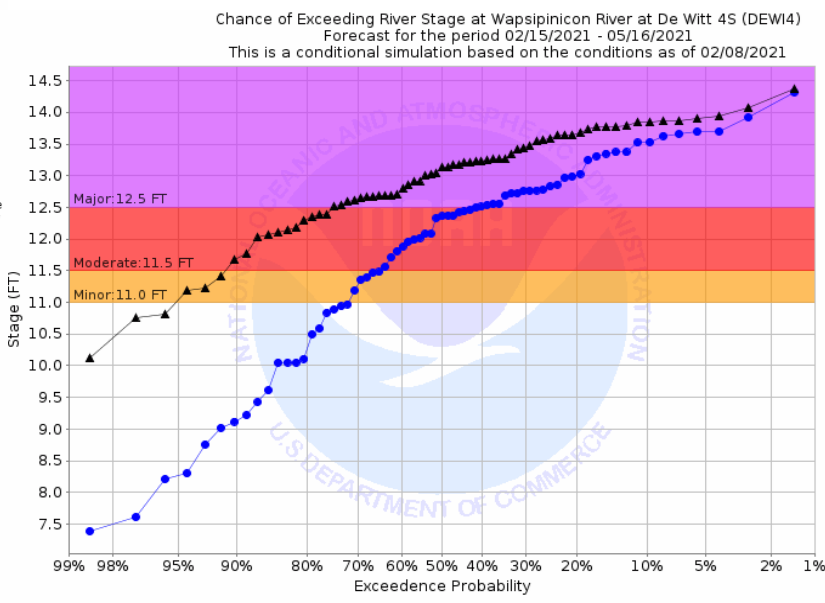
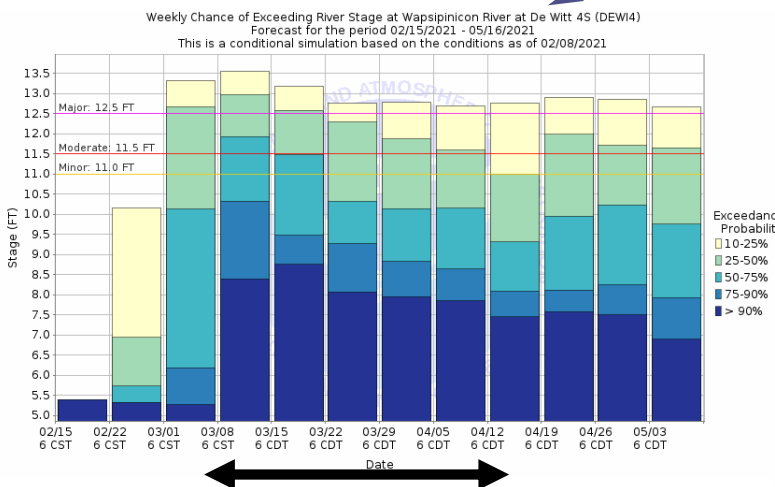
Probabilistic Outlook Information

Where to find the information:

- https://water.weather.gov/ahps2/long_range.php?wfo=dvn
- To see the graphs, choose a location from the map.



- Choosing the Probability Information Tab will get you to the graphical analysis of the probabilities.



This graph shows the most likely timing of high river levels. For the Wapsipinicon River, this would indicate probabilities are highest through late March and much of April.

Click to go to the Flood Outlook Webpage



Information Sources

- Quad Cities WFO Forecast Discussions (technical weather and hydrology discussion)
forecast.weather.gov/product.php?site=DVN&issuedby=DVN&product=AFD
- Advanced Hydrological Prediction Service (AHPS) –
water.weather.gov/ahps
- North Central River Forecast Center – www.weather.gov/ncrfc
- Probabilistic Information -
https://water.weather.gov/ahps2/long_range.php?wfo=dvn
- Midwest Regional Climate Center (MRCC) –
<http://mrcc.isws.illinois.edu/>
- US Geological Survey (USGS) WaterWatch page –
<http://waterwatch.usgs.gov>
- National Operational Hydrologic Remote Sensing Center (NOHRSC) – www.nohrsc.noaa.gov
- NOAA Climate Prediction Center – www.cpc.ncep.noaa.gov
- NOAA Weather Prediction Center – www.wpc.ncep.noaa.gov
- US Drought Monitor – droughtmonitor.unl.edu

The Spring Flood Outlook will be updated

March 11, 2021



Bottom Line:

- Some rivers have had a slight lowering in flood risk in the past 2. However, little has changed since the initial outlook.
- Some rivers do have an above normal risk for flooding, but the threat is highest for Minor Flooding. Overall, the flood risk is less than in the previous 2 years.
- Snowpack and water equivalent in the snowpack are well above normal across portions of eastern Iowa and into northern Illinois. Areas upstream, through the remainder of the Upper Mississippi River watershed are averaging below normal snowpack and snow water equivalent.
- Near to below normal soil moisture and shallow frost depth over much of the region will reduce the flood risk as well as reduce the risk for long term flooding.
- While watersheds in the area with a deep snowpack will see an increased risk for flooding, the degree of flooding will depend on the rate of snowmelt, in combination with additional spring precipitation.

Flood Quick Facts and Preparedness:

Quick facts you should know about flooding:

- Flooding can be caused by heavy rain, rapid snow melt, coastal storms, storm surge, waterway overflow, ice jamming, levee overtopping, dam failure, or from wastewater systems.
- Flooding has occurred in every U.S. state and territory.
- It only takes 6 inches of fast-moving water to knock you off your feet.
- A car can be moved in as little as 2 feet of water.
- 90% of all U.S. natural disasters declared by the President involve flooding.

Preparedness:

Know your risk: Are you in a flood-prone area? Know your zone: www.fema.gov/flood-zones

- You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead!
- A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare!*
- A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!*

Never drive into flood waters! Turn around, don't drown!



Find out more information at: www.weather.gov/dvn/2021_springfloodoutlook

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