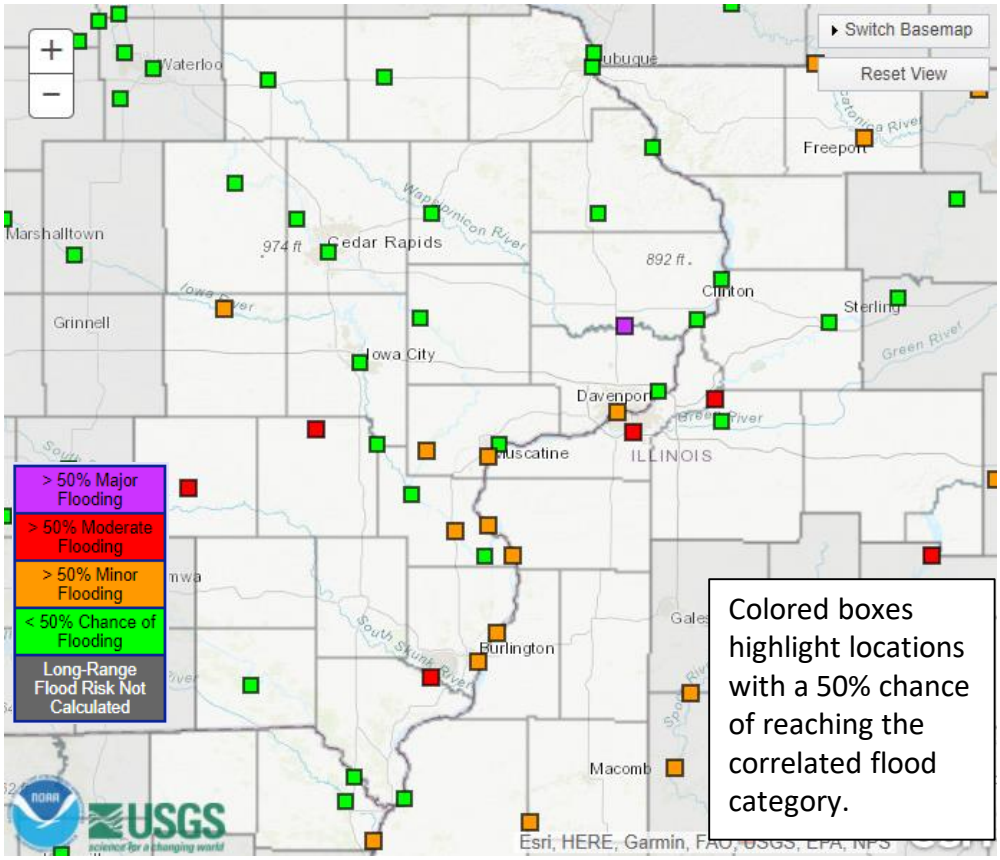
National Weather Service
Quad Cities, IA/IL

2021 Spring Flood Outlook

Thursday, February 11, 2021

Spring Flooding Potential:
Near to Localized Above Normal Risk



- **Local Snowpack is a primary driver to flood risk this Spring Season.**
- **Soils currently have capacity to infiltrate snowmelt of rainfall, to lessen the runoff into rivers.**

Key Points:

- **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 along with additional snowfall and spring rains will highly 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.**

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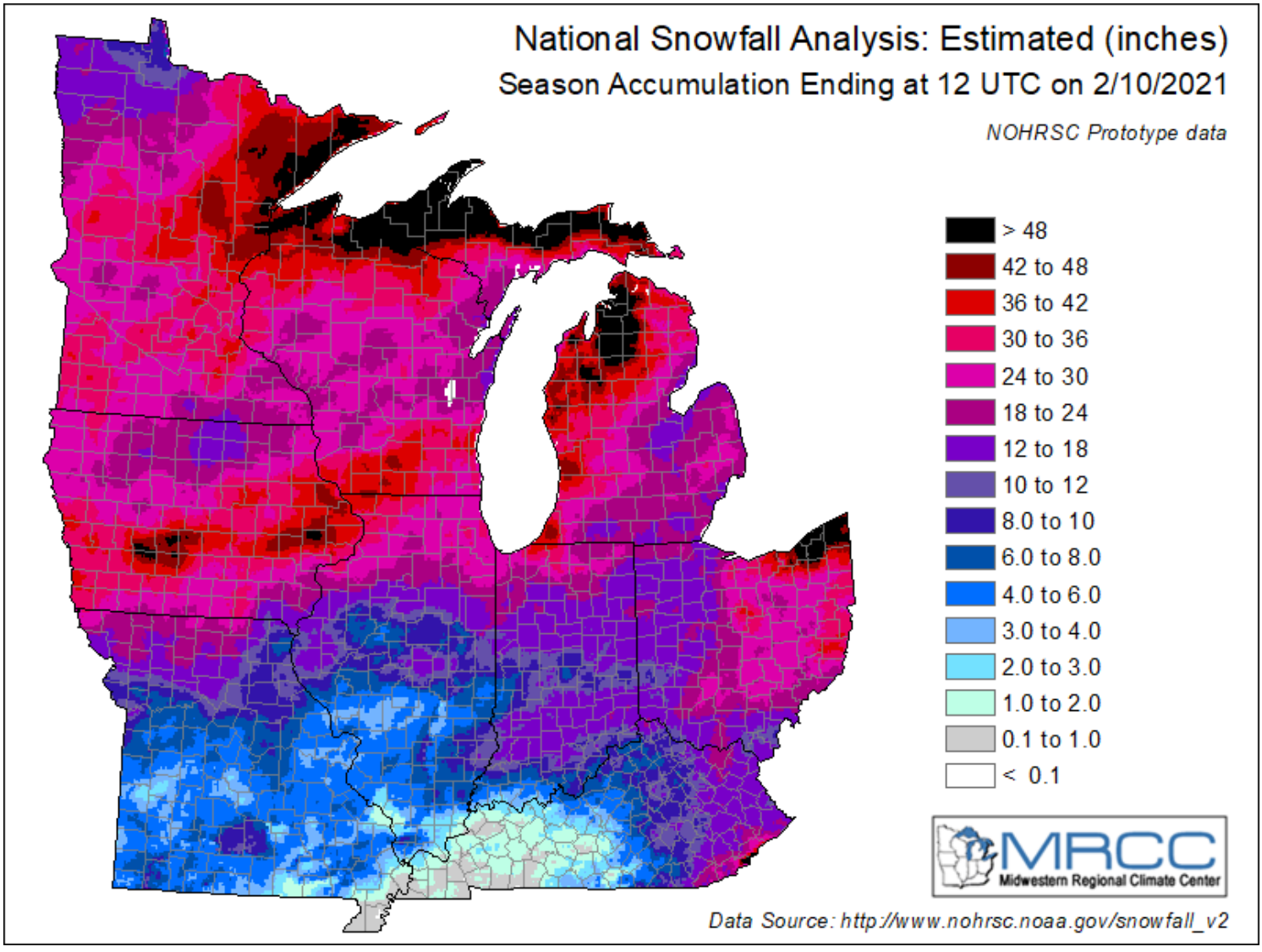
Factors Considered in this Outlook

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



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Seasonal Temperatures/Precipitation

Average Winter Temperatures:

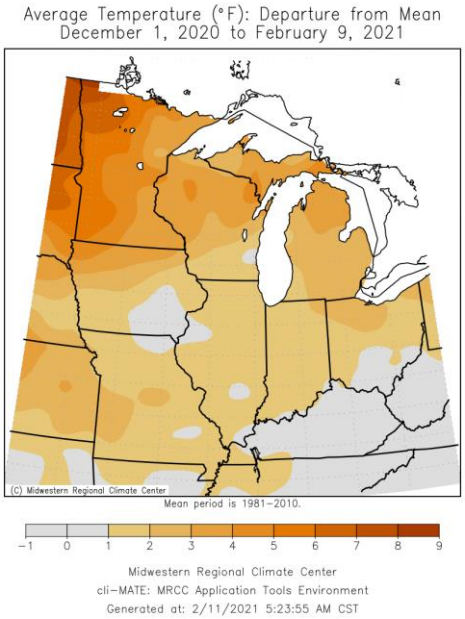
- Above normal temperatures this winter. Locally, averages have been 1-2 degrees above normal

Winter Precipitation:

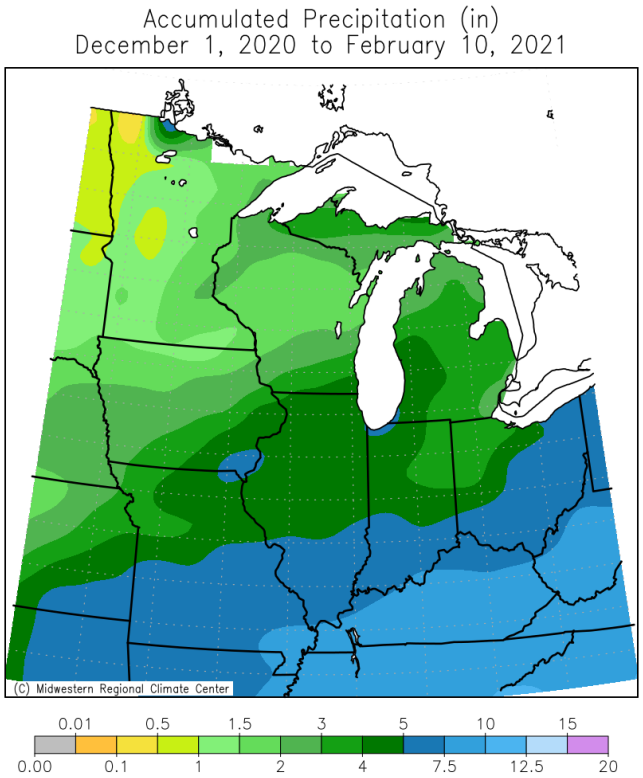
- Locally – Above normal
- Upstream (Mississippi River watershed) – Below normal

Average Temperature Departure from Normal

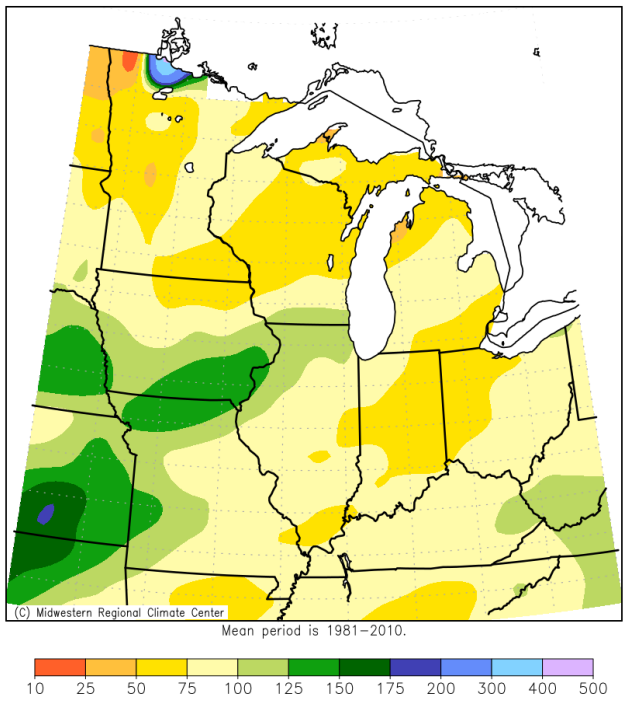
Dec 1, 2020 – Feb 9, 2021



Accumulated Precipitation



Accumulated Precipitation Percent of Mean



Images Courtesy of Midwest Regional Climate Center

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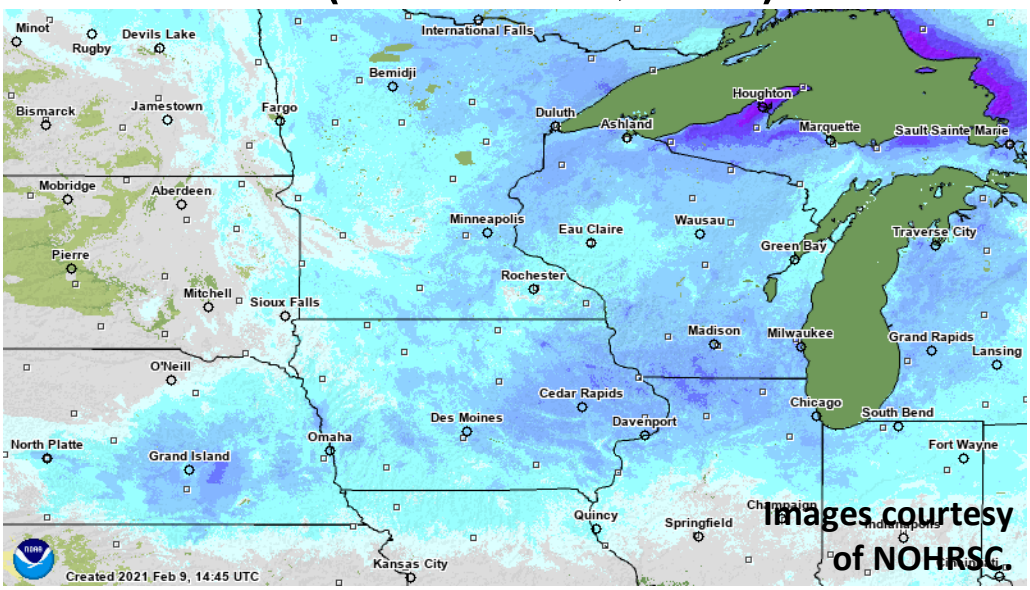
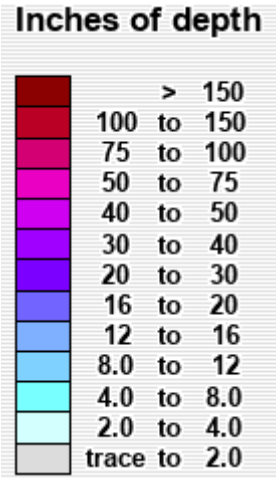
Snow Cover/Liquid Water Equivalent

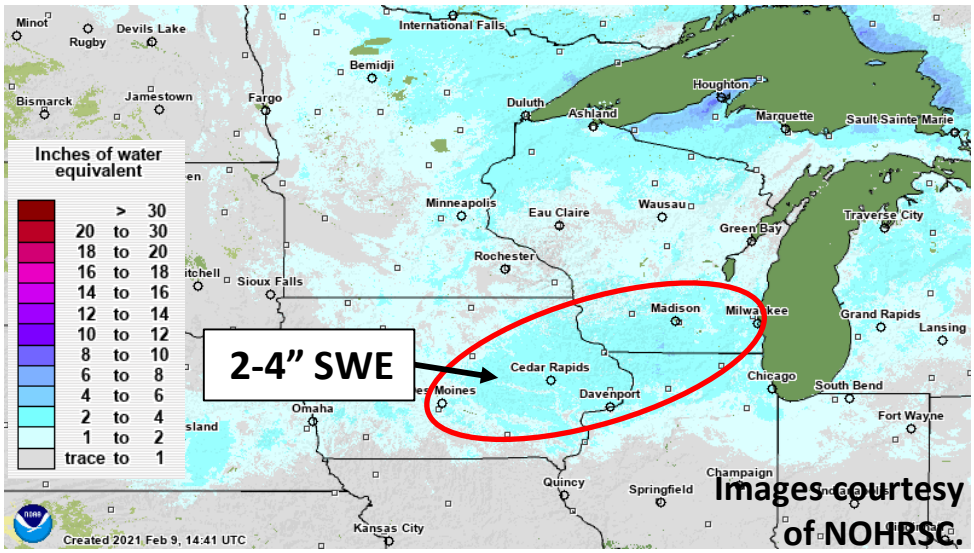
Snow Cover (as of Feb 9, 2021)

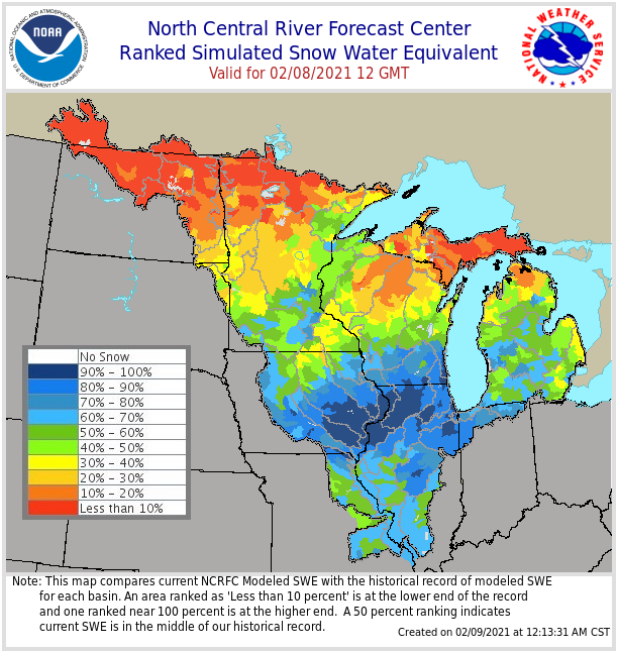




Snow Water Equivalent (SWE) as of Feb 9, 2021:

- Widespread SWE of 1-4". Deepest snowpack has 2-4" of SWE
- Areas upstream of the local area have below normal amounts of SWE





Contribution to flood potential:

- Snowpack is the primary driver for flood risk this season, but alone has a limited potential for flooding. The severity will depend on the rate of the snowmelt combined with additional precipitation this Spring.

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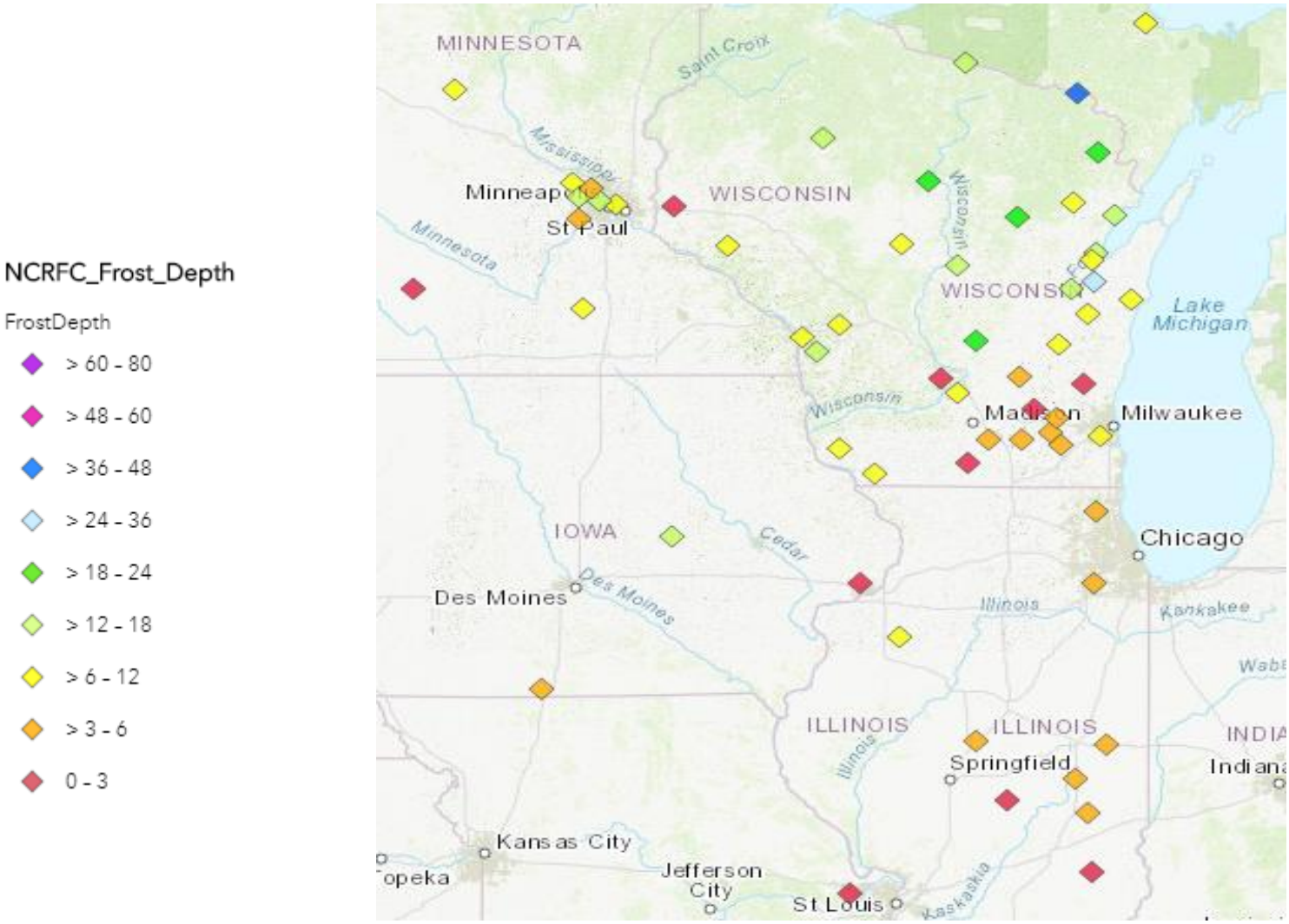
Frost Depth

Frozen ground

- Frost depths are less than normal



Images courtesy of the NWS NCRFC

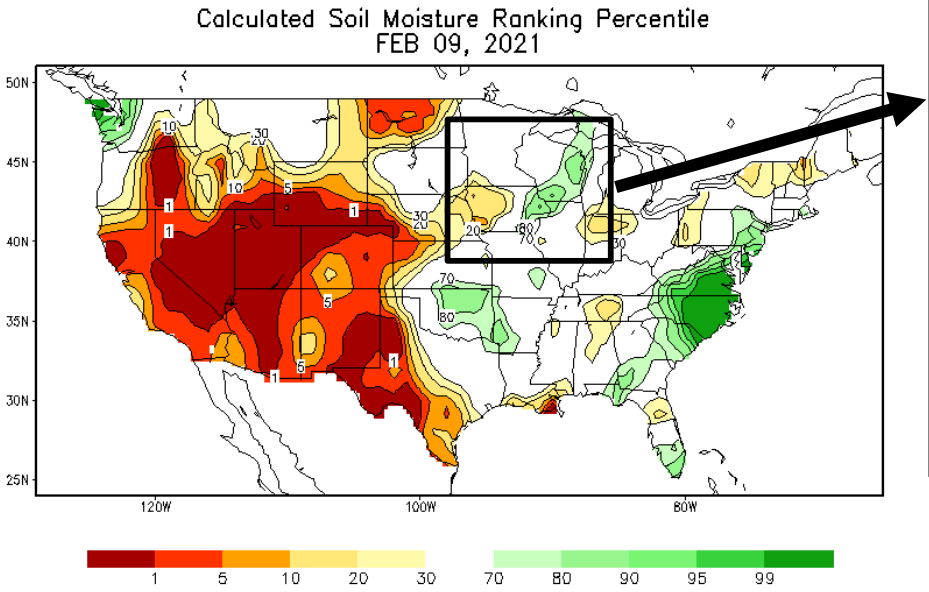
Contribution to flood potential:

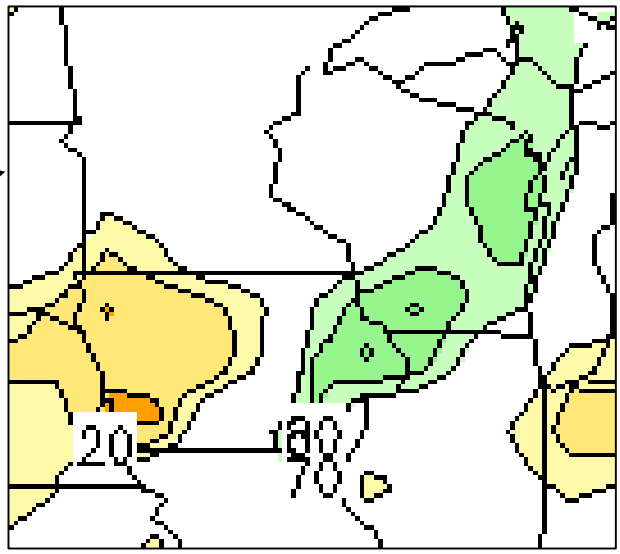
- Shallow frost has potential to thaw early in the season, allowing snowmelt and rain to infiltrate into the ground, limiting runoff into rivers.

Soil Moisture/Drought

Dryer Soils → No Areas under Drought Conditions:

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





Images courtesy of the NWS Climate Prediction Center

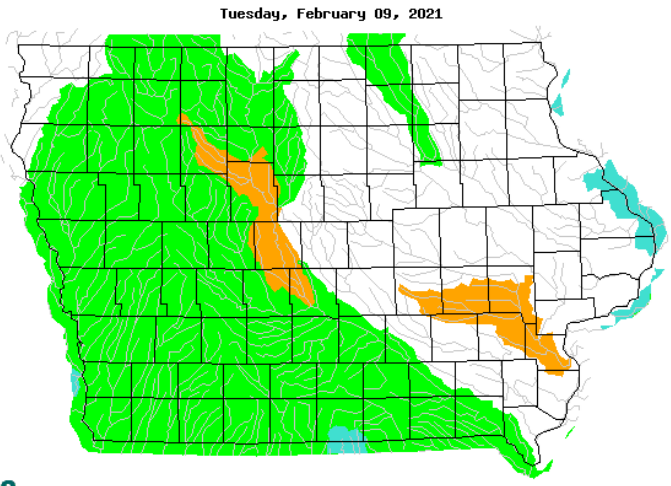
Contribution to flood potential:

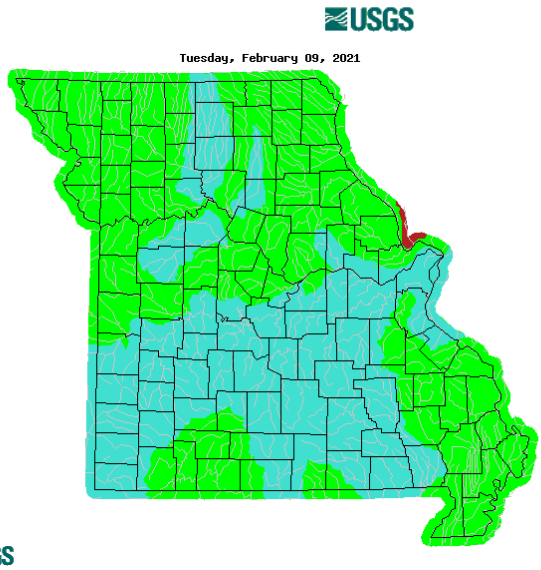
- With the relatively dry soils, any snowmelt or rainfall will infiltrate into the ground. Some areas are starting to trend towards more saturation, which can lead to a lesser amount of infiltration.

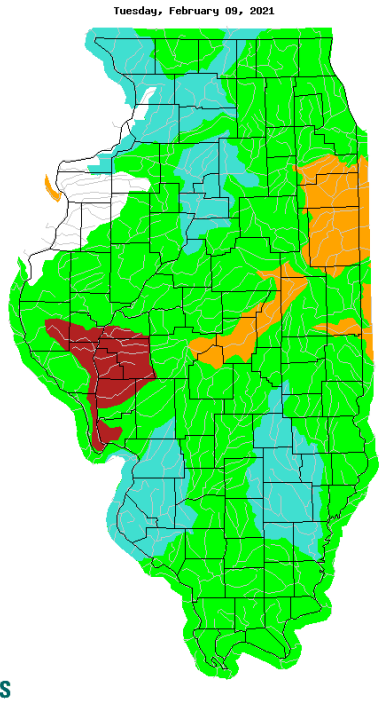
Streamflows

Streamflows are generally near normal across IA, IL, and MO, while there are a few watersheds observing below normal streamflows. Cold weather will continue, which will lead to increased ice development on area rivers and river icing concerns.

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







Images courtesy of the USGS.

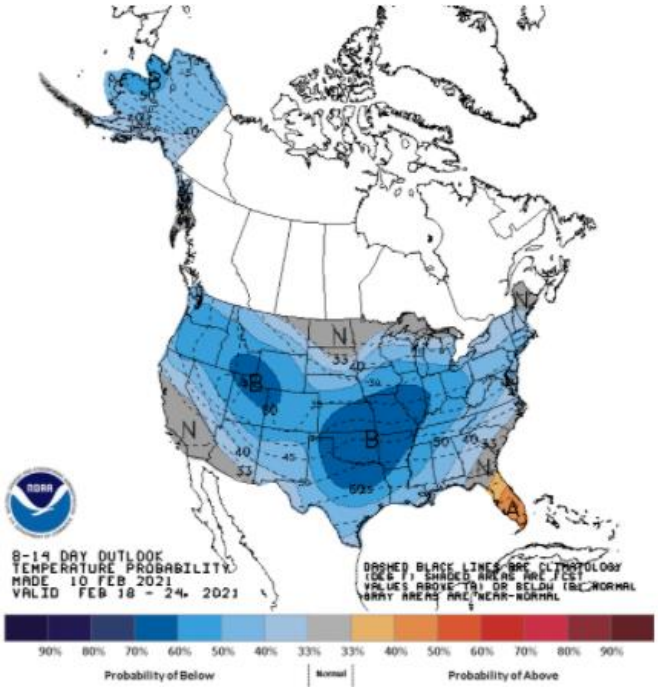
Contribution to flood potential:

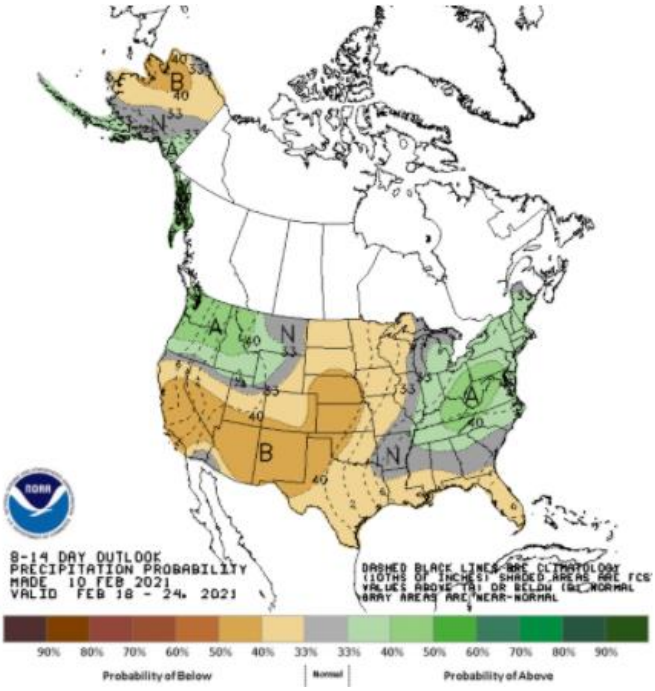
- Rivers at near or below normal levels indicate there is capacity in the river for runoff from snowmelt water and spring rains.

Weather Outlooks

Week 2 Temperature and Precipitation Outlooks (2/18-2/24):

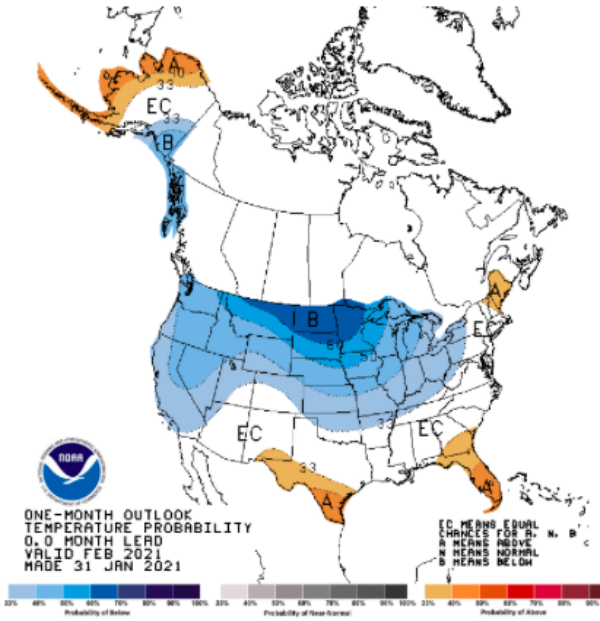
- Below normal Temperatures & near normal Precip favored

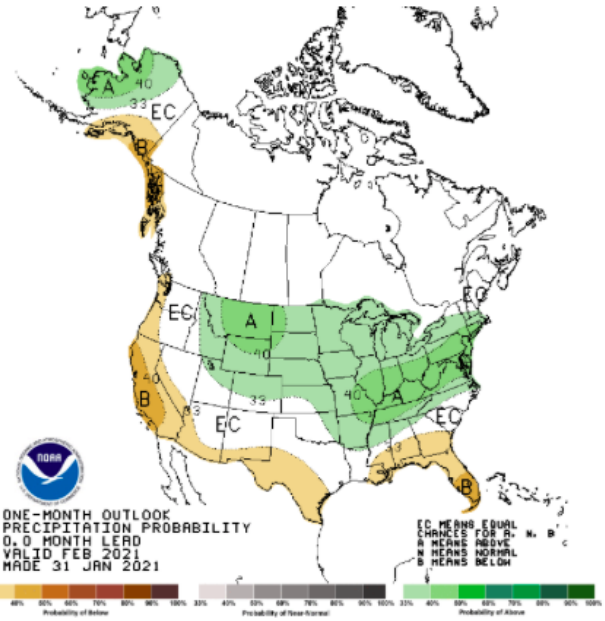




March Outlook:

- Below normal temperatures are slightly favored.
- Above normal Precip is slightly favored, heading into March, with wetter weather southeast of the region.





Images courtesy of the NWS Climate Prediction Center

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Flood Potential Overview by Watershed

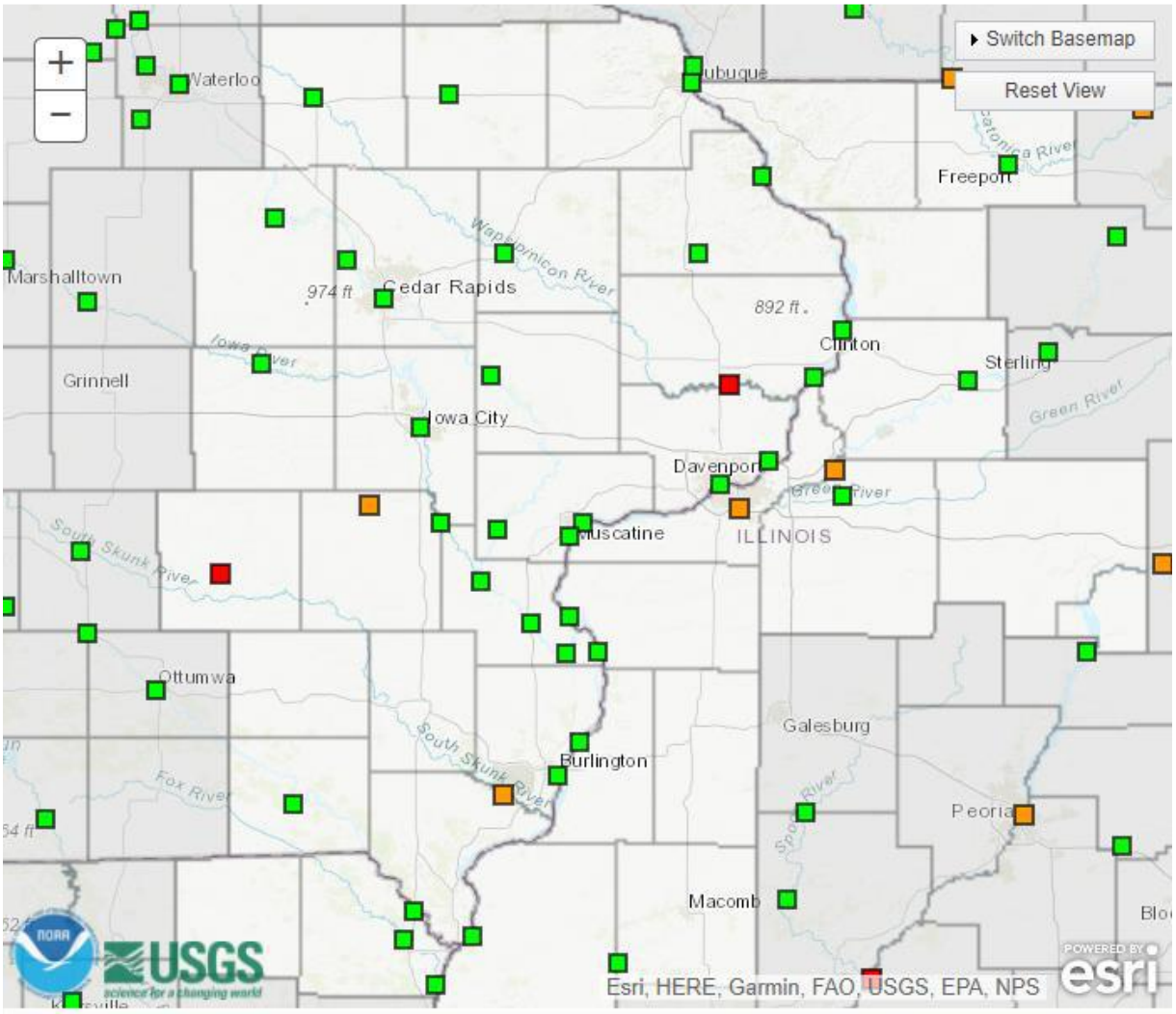
- Mississippi River – Near Normal
  (Slightly above normal for Minor Flooding downstream of the Quad Cities)
- La Moine River – Above Normal
- Pecatonica River – Above Normal
- Rock River – Above Normal
- Maquoketa River – Near Normal
- Wapsipinicon River – Near Normal
  (lower portion of the river – Above Normal)
- Skunk and North Skunk Rivers – Above Normal
- Fox River (MO) – Above Normal
- Cedar River – Near Normal
- English River – Above Normal
- Iowa River – Near Normal
  (lower portion of the river - Above Normal)

Note: the flood potential indicates probabilities to reach flood stage. The category of flooding will depend on rate of snowmelt and additional spring precipitation.

Forecasts & Outlooks: High Probabilities

Locations with high chances for flooding:

- Greater than 75% chance to reach the labeled flood stage



> 95% Major Flooding
> 95% Moderate Flooding
> 95% Minor Flooding
< 95% Chance of Flooding
Long-Range Flood Risk Not Calculated

- There risk for widespread flooding is not currently high, but there are a couple of locations with a higher risk to experience flooding. These locations are indicated on the map and include portions of the Rock River, Wapsipinicon River, English River, and Skunk and North Skunk Rivers

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.**

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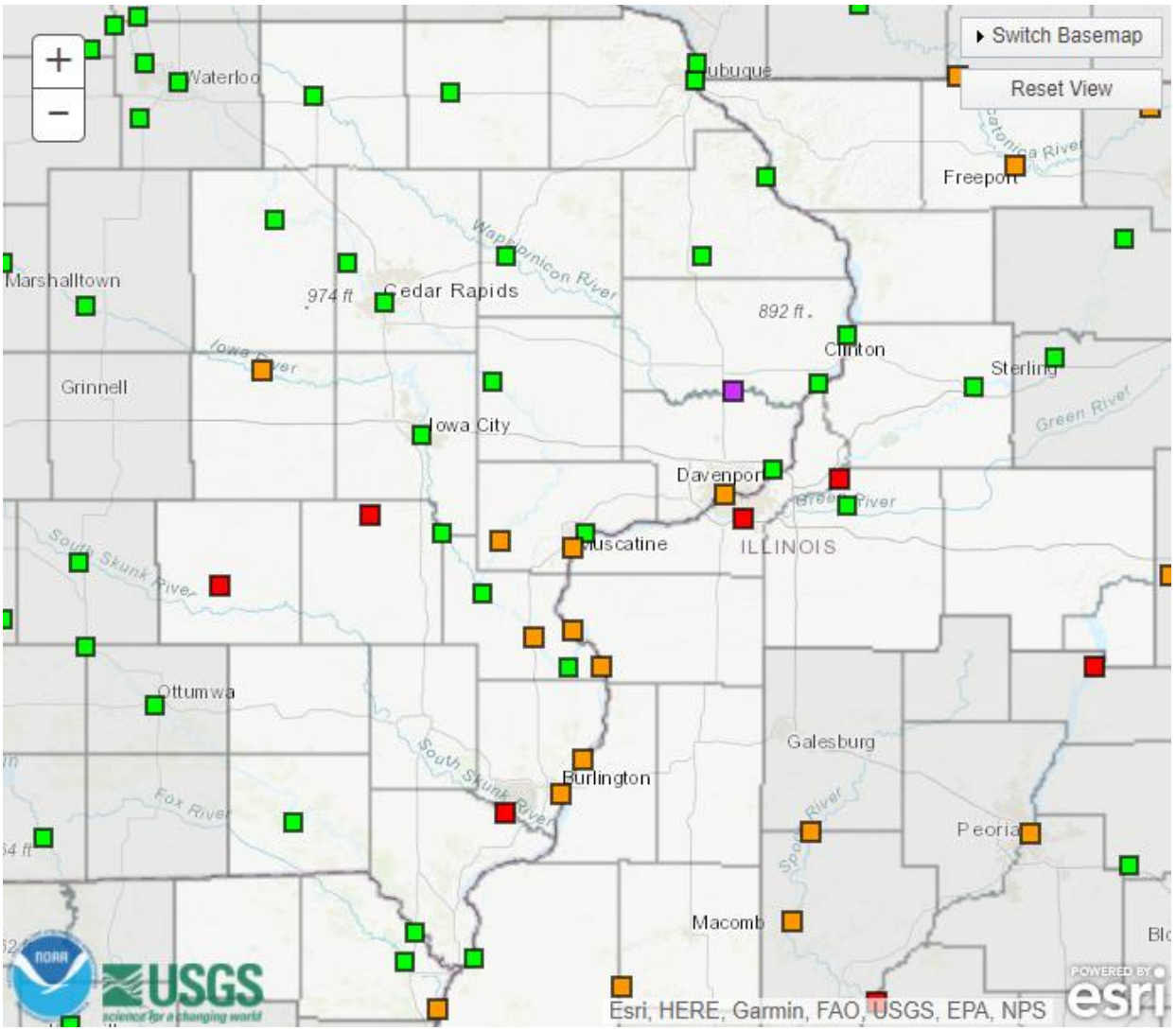
Forecasts & Outlooks: 50% Chance

Locations with chances for flooding:

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



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

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

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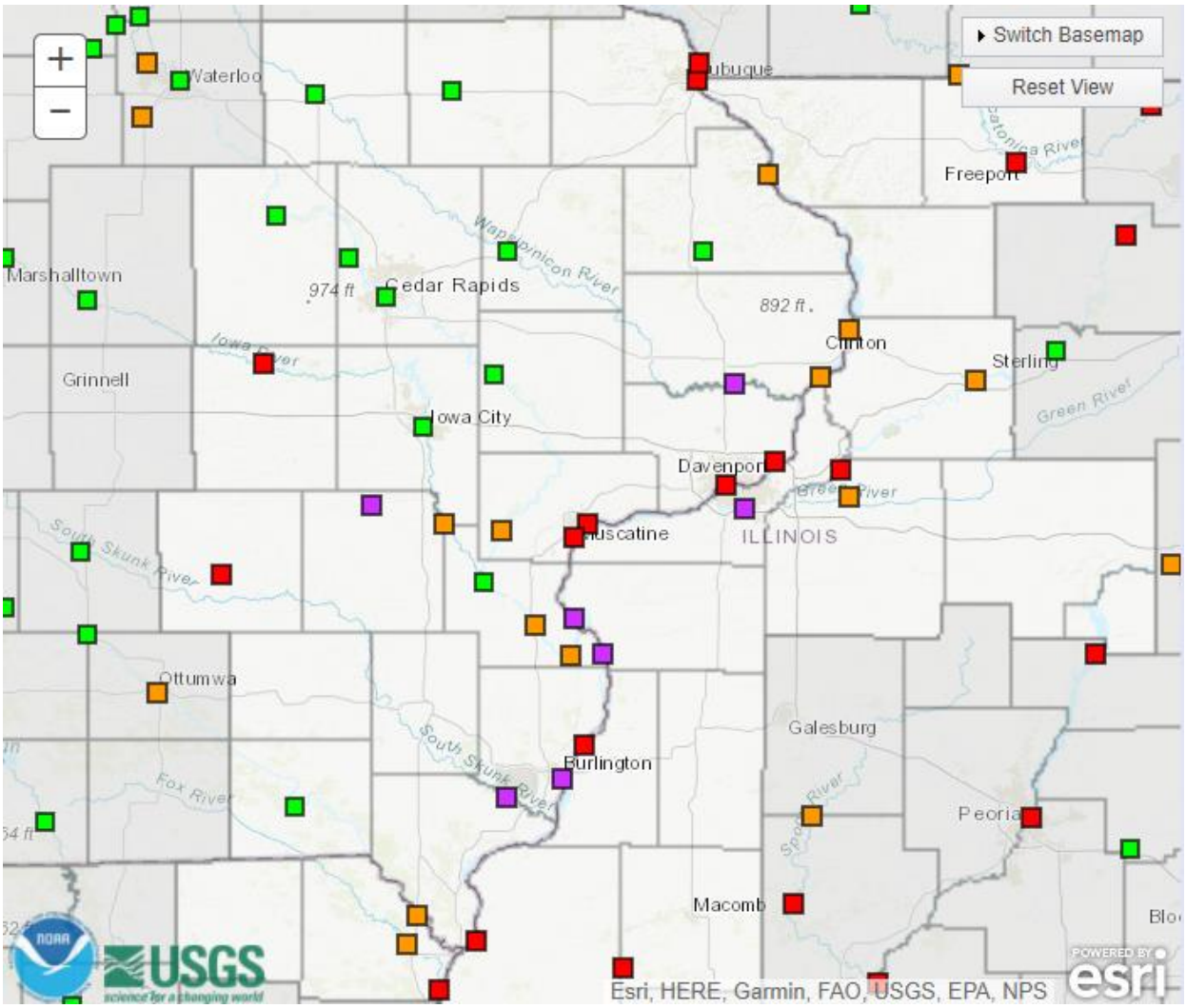
Forecasts and Outlooks: Lower Probabilities

Locations with chances for flooding:

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



> 25% Major Flooding
> 25% Moderate Flooding
> 25% Minor Flooding
< 25% Chance of Flooding
Long-Range Flood Risk Not Calculated

- 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.

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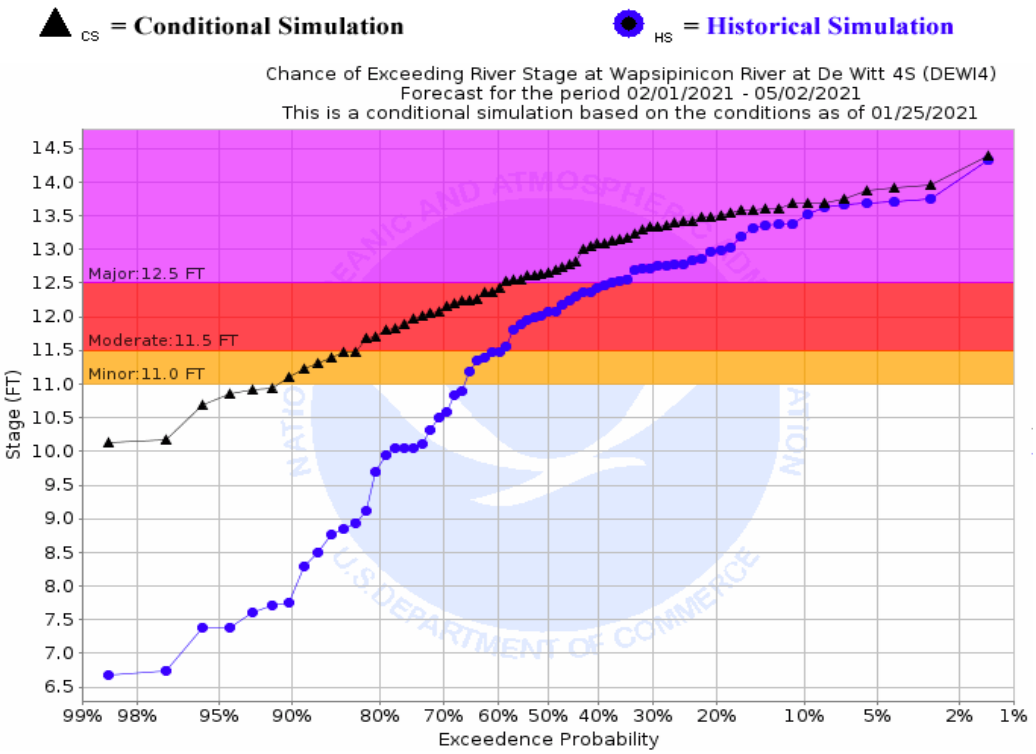
How far outside of normal is the flood risk?

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

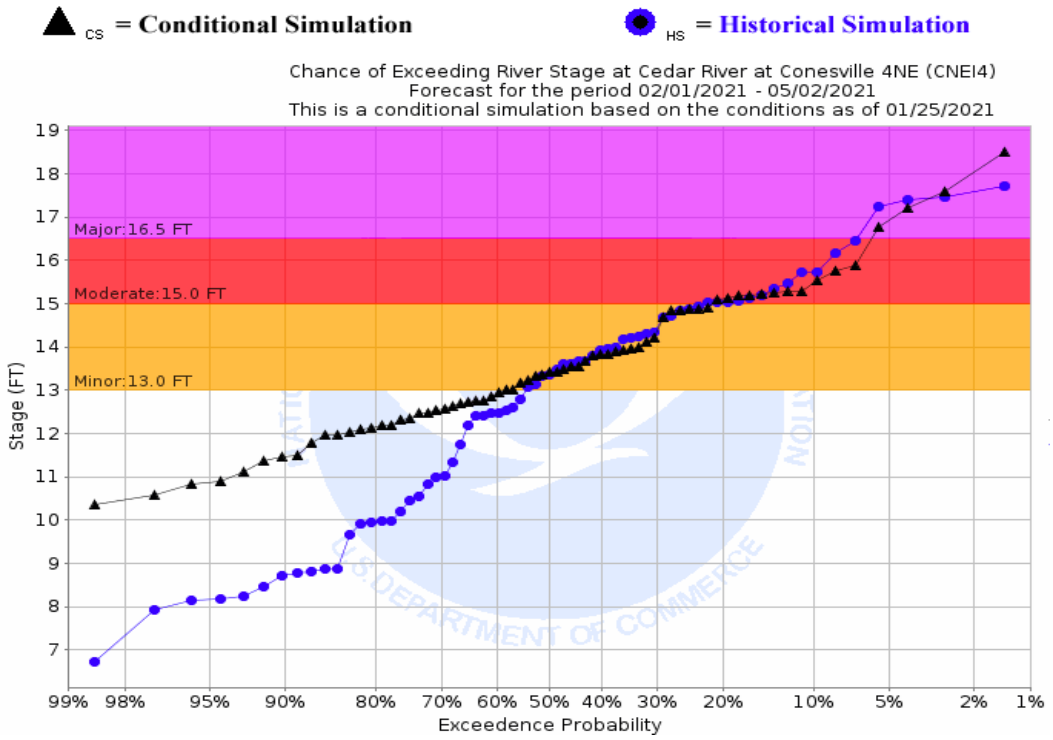
Conditional Simulation
Historical Simulation

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



This graphic shows the probability of the Wapsipinicon River at DeWitt reaching Major Flood stage (12.5 ft) this year is roughly around 60%. In a normal year, this gage has a 35% probability of reaching 12.5 ft.

Example of lower risk locations - most local rivers: Conesville, IA (CNEI4)



For the Cedar River at Conesville, the risk for reaching Major Flood Stage (16.5 ft) this year is 6%. In a normal year, this gage has an 8% probability of reaching 16.5 ft. This location also has a near normal chance for reaching Moderate Flood Stage (about 20%).

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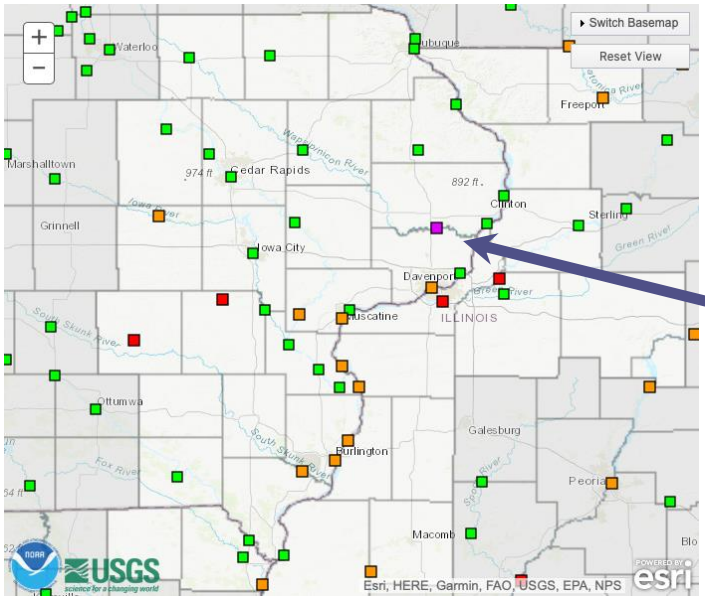
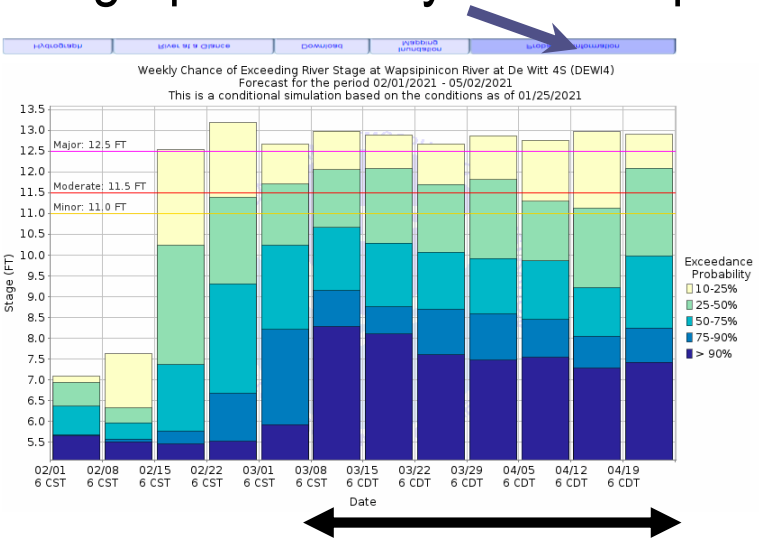
Probabilistic Outlook Information

Where to find the information:

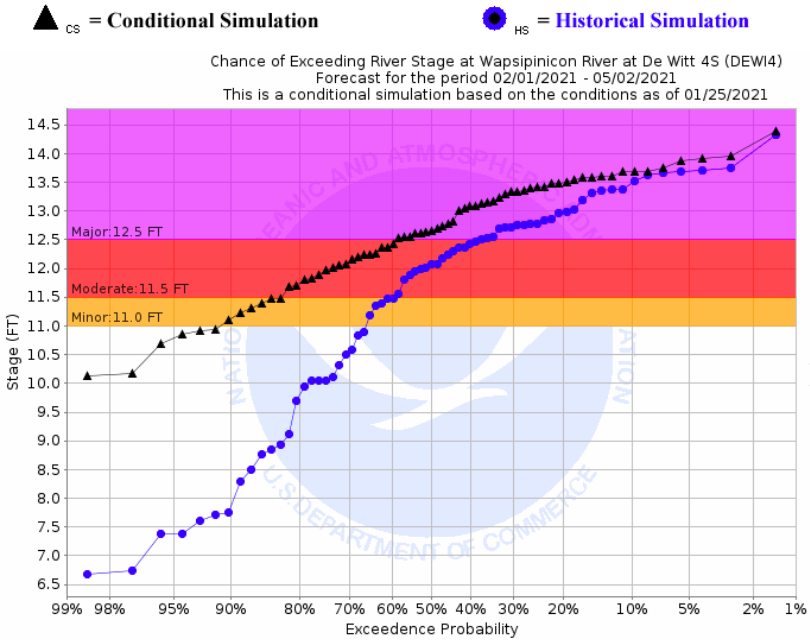
- https://water.weather.gov/ahps2/long_range.php?wfo=dvn
- To see the graphs, choose a location from the map.



- 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.



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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
- Probailistic 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
February 25, 2021
March 11, 2021

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National Weather Service
Quad Cities, IA/IL

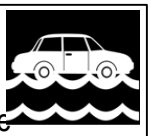
2021 Spring Flood Outlook

Thursday, February 11, 2021

Bottom Line:

- **Snowpack and water equivalent in the snowpack is well above normal across portions of Iowa into northern Illinois, while areas upstream through the rest of the Upper Mississippi River watershed are averaging below normal snowpack and water equivalent in the snowpack.**
- **Warm temperatures through January followed by a deep snowpack has insulated the ground, keeping frost depths shallow**
- **Near to below normal soil moisture over much of the area 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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Building a Weather-Ready Nation

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