

Feb 13th Update: Spring Flood Outlook – Elevated Threat

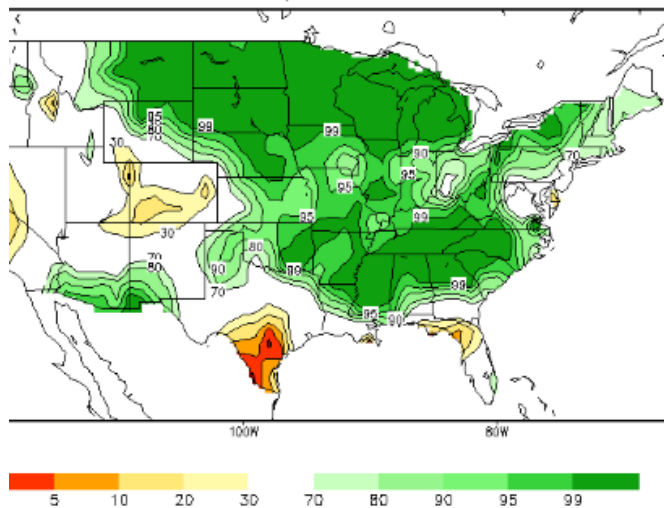
- Very little change in flood factors so far in February
- Current conditions suggest spring **flooding will be more likely** than in a typical year throughout the Upper Midwest, **but significant flooding is not certain.**
- Major factors to flood potential will be determined over the next six weeks.

What Do We Know So Far?

Soils are Extremely Wet

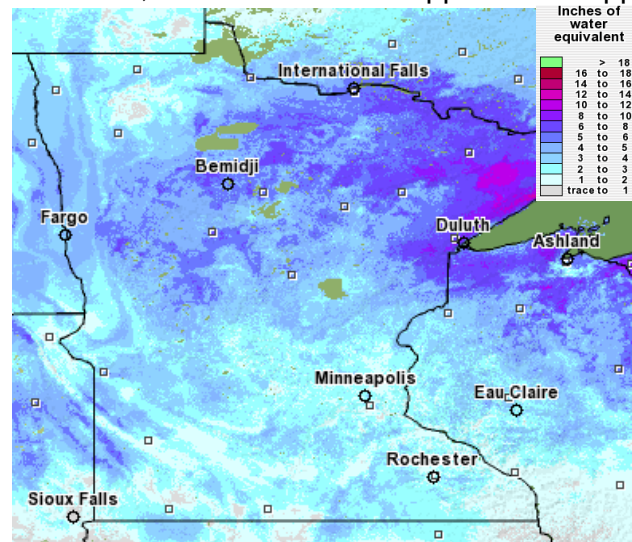
All of the Upper Midwest received nearly 150 to 200 percent more than normal rainfall last fall. This continued to supply soils with excess moisture as we froze the upper portion of the soil.

Calculated Soil Moisture Ranking Percentile
FEB 12, 2020



Streamflow is still High for Winter months; Snow Water Equivalent (SWE) is slightly above normal

SWE is a little above normal for mid February, which is on par with last year at this time (a little less in the Minnesota, a little more in the upper Mississippi).



What does this mean?

Early factors are primed for high runoff.

A lower snowpack would help reduce the flood threat, but a normal or high snowpack would increase the risk of major spring flooding. Much like last year, the type of melt we get will be a major factor. Recall that

we had a nearly ideal melt in spring 2019

(meaning mild days with cold nights for recovery, and a three-week period of no rain/snow in March).

Even a “normal” melt this season would result in significant flooding this time around.

Spring Flood Threat Checklist (as of mid February)

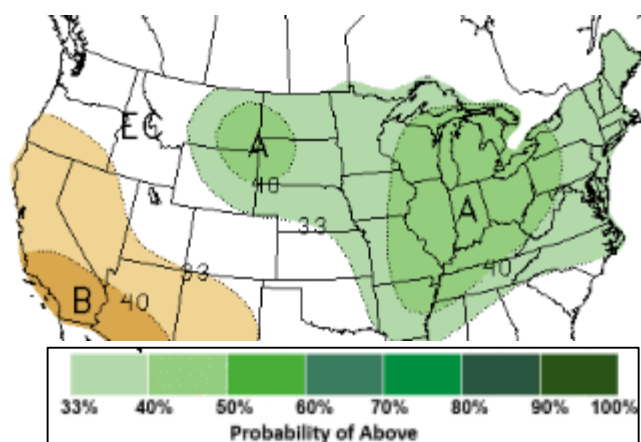
Threat	Impact to Potential Spring Flooding	Link to Image
High base river levels	Increased Threat	USGS WaterWatch
High soil moisture	Increased Threat	CPC Soil Moisture
Snowpack/Liquid Equivalent	TBD, but slightly elevated now.	Snow Analysis
Rate of Snowmelt	To Be Determined	24, 48, & 72 hr Snowmelt
Frost Depth*	So far, decreased threat	Frost Depth Map
Spring Precipitation	To Be Determined	Seven day Precip Forecast

* Frost depth is shallow (1-2 ft) so far this winter due to mild temperatures and early snow "blanket".

Spring 2020: *Precipitation Outlook*

Outlooks continue to favor near to above normal precipitation for the spring months. The indicators are fairly weak in the global pattern this winter (no strong El Niño or La Niña), so **confidence is not particularly high** this year. There is also no clear trend for longer range temperatures this spring.

Keep in mind...even a normal amount of precipitation at the wrong time this season would bring an elevated risk for flooding.



The Spring Outlook for Mar-May 2020 indicates slightly elevated chances for above normal precipitation.

Next Update Planned for late February

2020 Probabilistic Spring Flood Outlook Dates:
February 27, 2020
March 12, 2020

Potential Flooding Impacts For Spring 2020

- Widespread flooding affecting infrastructure is possible
- Including land adjacent to lakes and wetlands; also lowlands, agriculture, overland flooding.
- Moderate risk for breakup ice jams

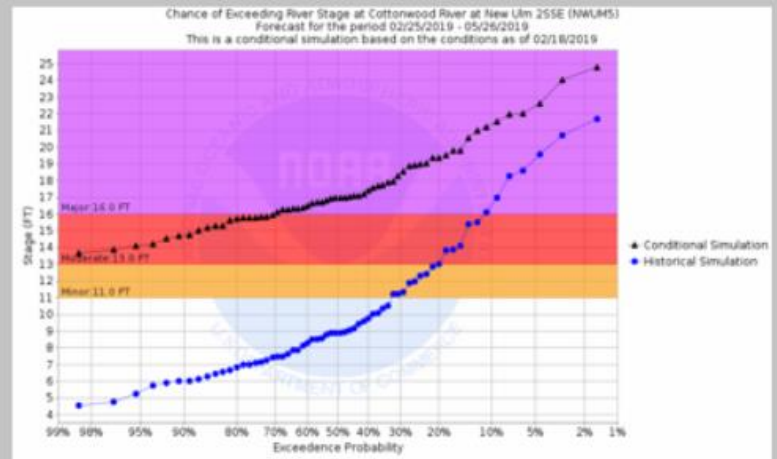
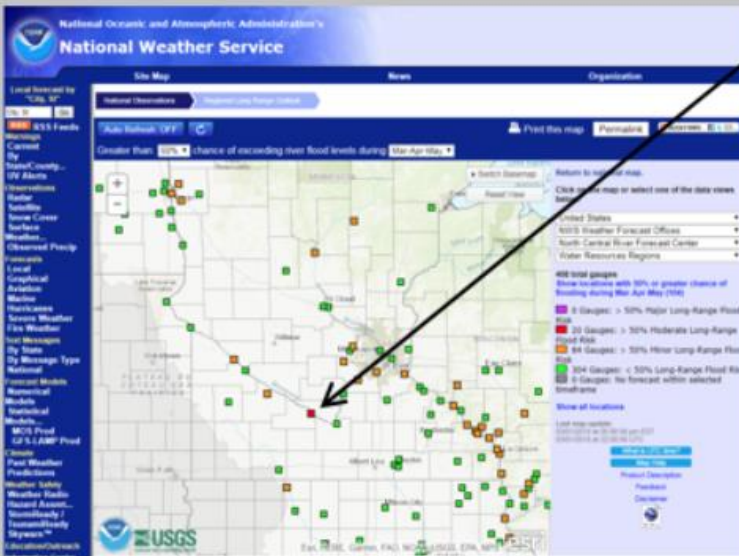
*The National Weather Service urges those who would be affected by flooding to **Prepare Now** and stay tuned to updates as we move through the winter into early spring.*



How to Read the Long Range Flood Risk Graphics – at https://water.weather.gov/ahps2/long_range.php?wfo=mpx

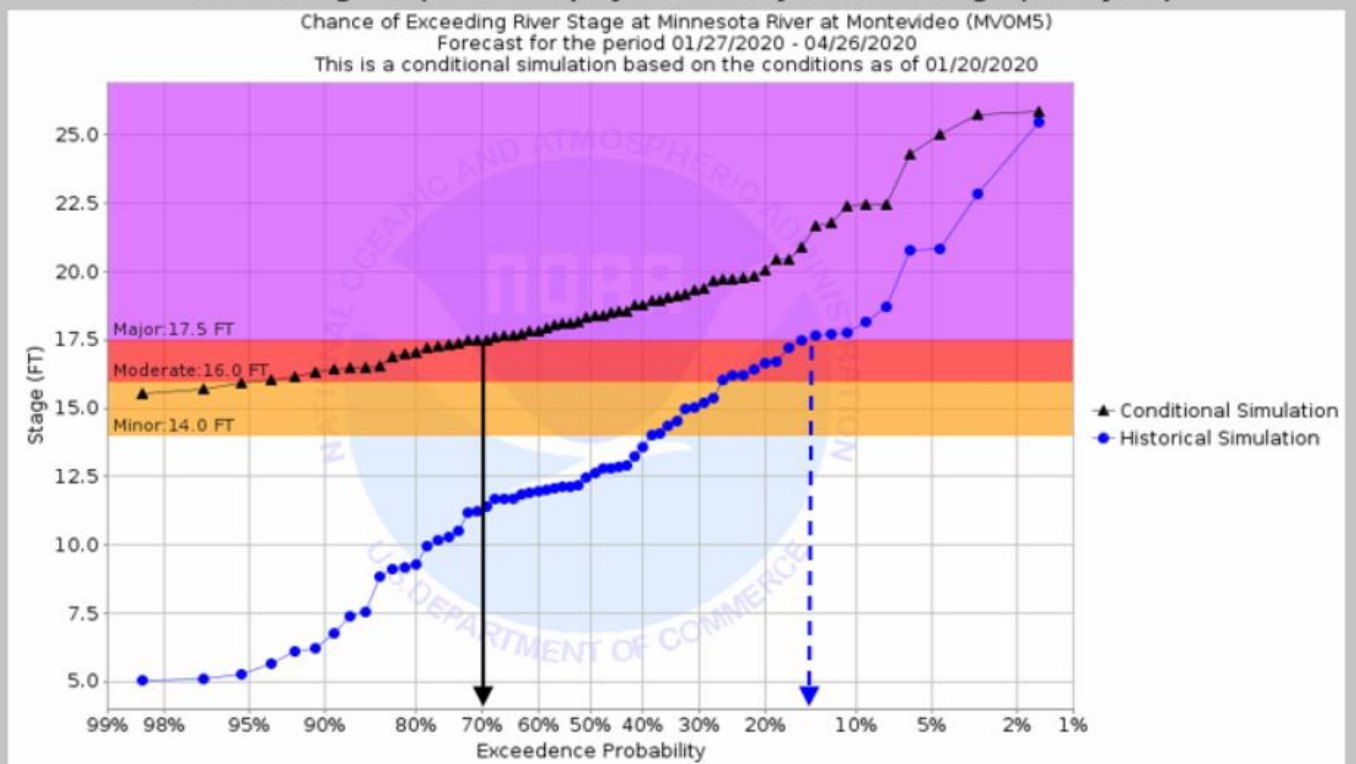
River forecasters run long range river models, including current soil moisture profiles, snow pack info, and 45-day model precipitation forecasts. The result is a graph of probability of reaching various stages .

Click a point in here -- hover over the "Probability Information" tab – and select the "...during Entire Period" graph. It will look something like this:



For Example, Look at the Minnesota River at Montevideo

Evaluating the probability of reach Major Flood Stage (17.5 feet)



Black Line represents the newest forecast – **Blue Line** represents historical average. Chance of reaching major flood stage (purple) this spring is about 70 percent, well above the 15% historical average.