



National Weather Service Spring Flood Outlook

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National Weather Service – Omaha, NE
February 13, 2020



Upfront Information



- There is an **above-normal risk** for spring flooding this year, this is due to the following factors:
 - Elevated soil moisture
 - Above-normal streamflows
- Flooding this spring will be largely dependent on the location and intensity of additional precipitation and thunderstorms.
- The next outlook is scheduled for February 27th.





Upfront Information



- The rivers of most concern are:
 - **Missouri River**
 - Below Sioux City to Omaha
 - There is increased risk of reaching flood stage.
 - Below the Platte River
 - There is a **high likelihood** of reaching minor flood stage.
 - There is an increased risk, greater than 50% chance, of reaching moderate flood stage.





Upfront Information



- Other rivers of concern are:
 - **Big Blue River**
 - **Wahoo Creek**
 - **Salt Creek (below Lincoln)**
 - **Shell Creek**
 - **N.F. Elkhorn River**
 - **Nishnabotna River (West and East)**





Spring Flood Outlook Factors

As of February 13th



Flood Risk Contribution Factor	Contribution to Flood Risk
Snowpack (in Nebraska and Iowa)	Below-Normal Risk
Soil Moisture	Much Above-Normal Risk
Frost Depth	Below-Normal Risk
Streamflow/Stream Levels	Above-Normal Risk
Precipitation Outlook	Normal Risk
Ice Jams (Platte/Loup/Elkhorn Rivers)	Below-Normal Risk

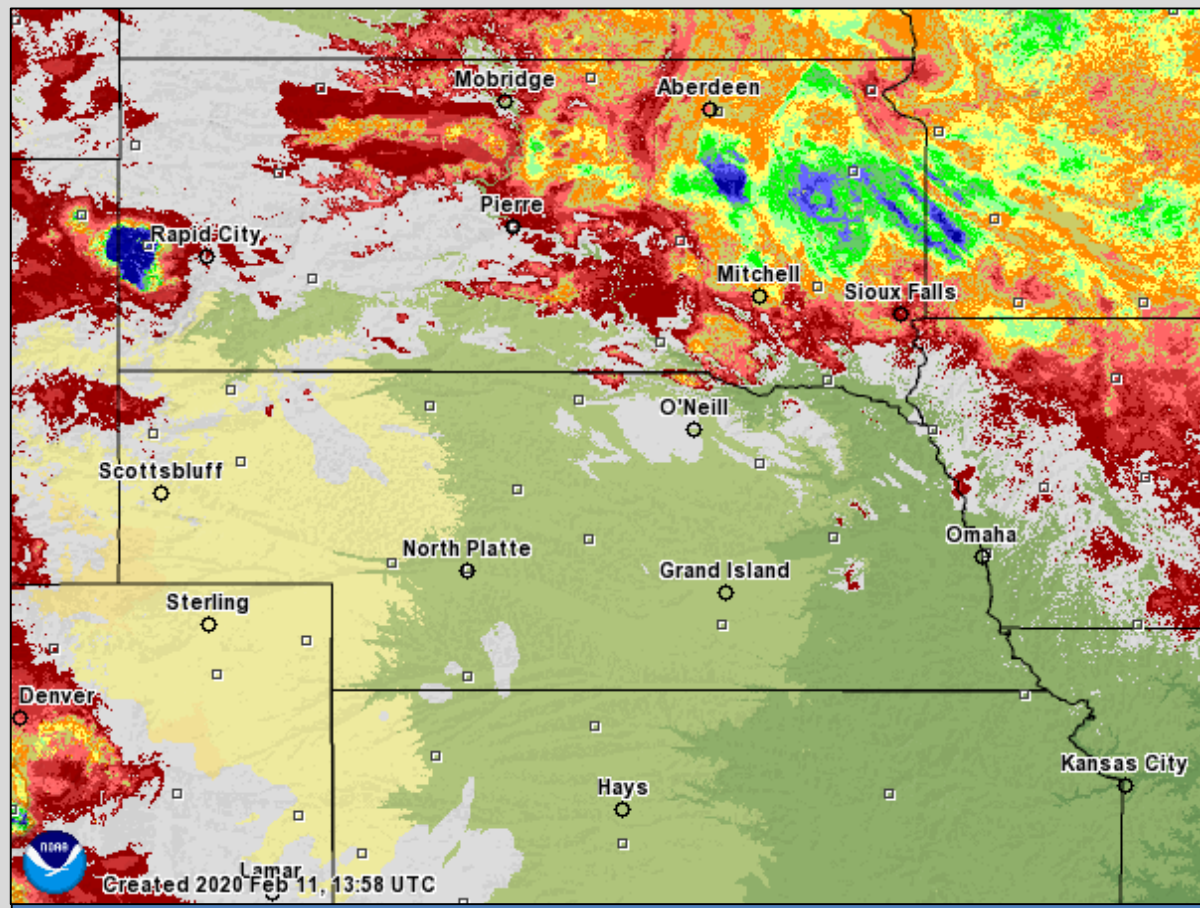
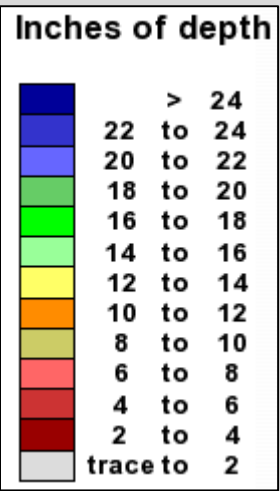




The following slides provide additional details for each flood risk factor and information on specific river basins.



Plains Snowpack



There is little to no snow left in Nebraska or Kansas. The brunt of the remaining Plains snow is in the Dakotas which will negatively impact the flood risk along the Missouri River.





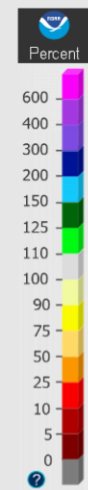
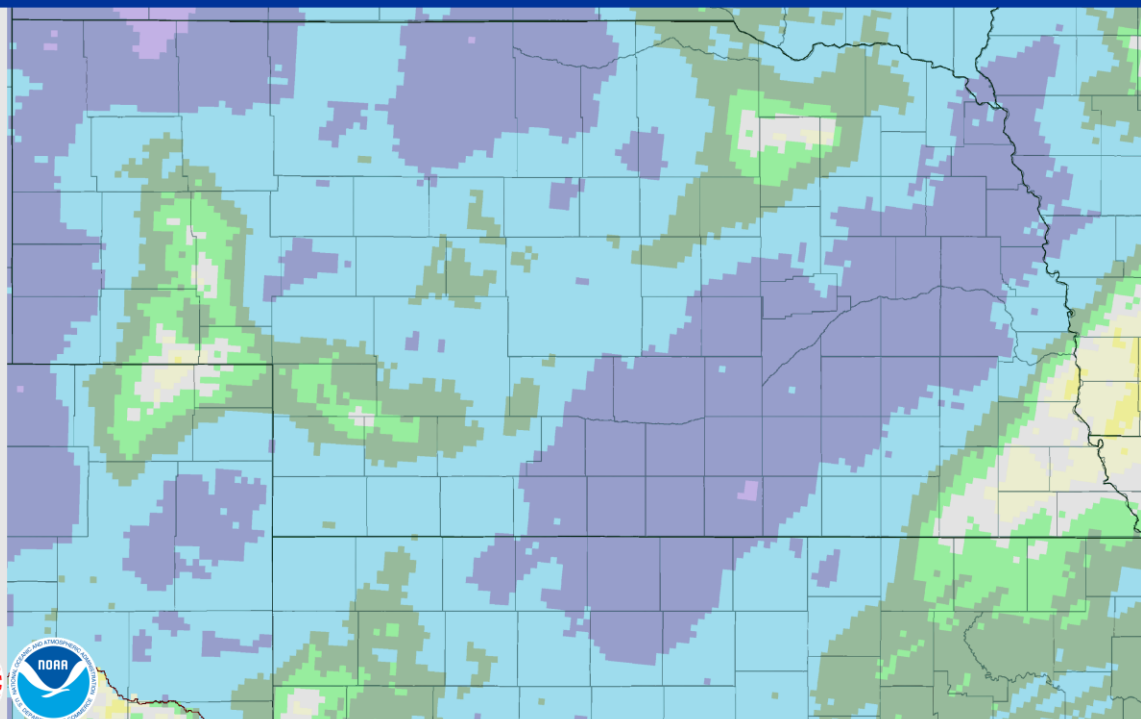
Winter Precipitation



February 11, 2020 90-Day Percent Precipitation

Created on: February 11, 2020 - 20:54 UTC

Valid on: February 11, 2020 12:00 UTC

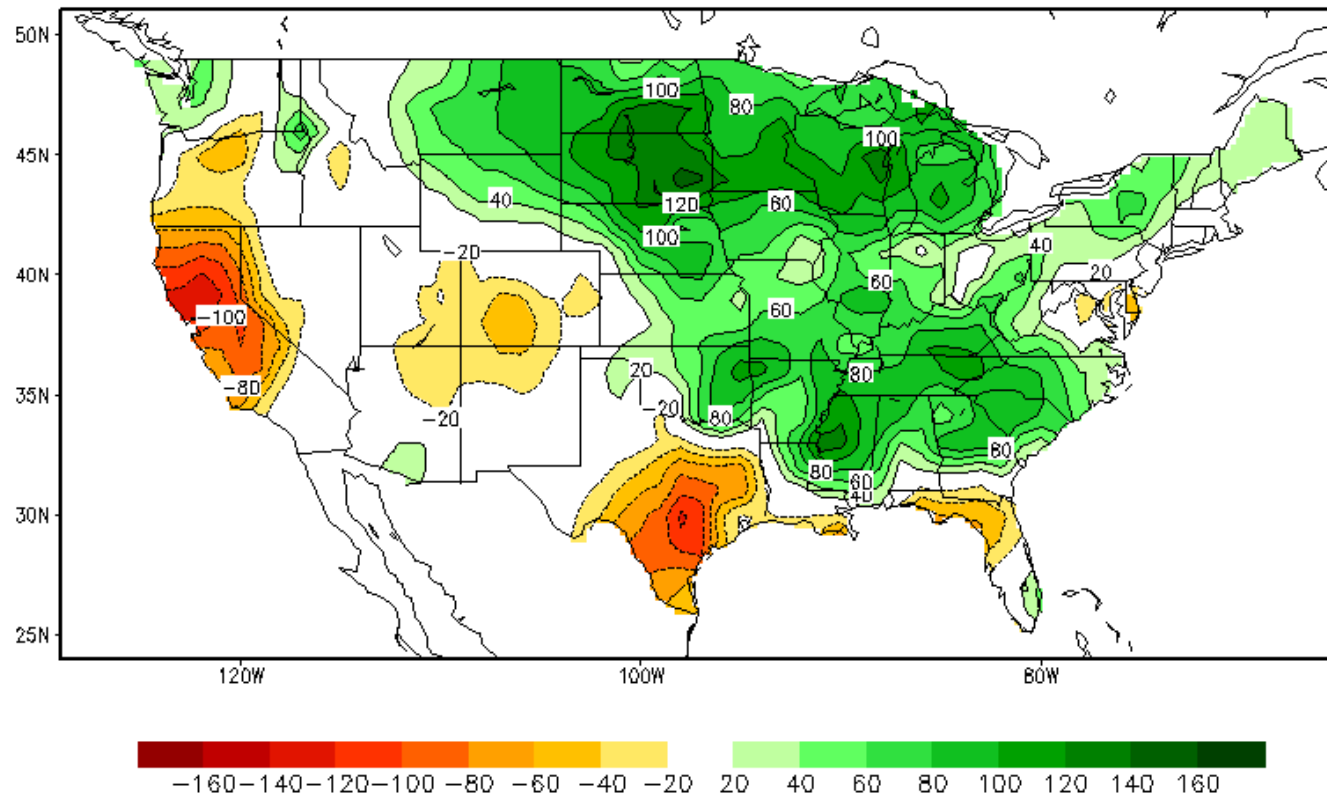


- Precipitation the past three months has been 150-200% above-normal in most areas!
- While the ground is not completely saturated, this past precipitation has led to an higher than normal soil moisture.



Soil Moisture

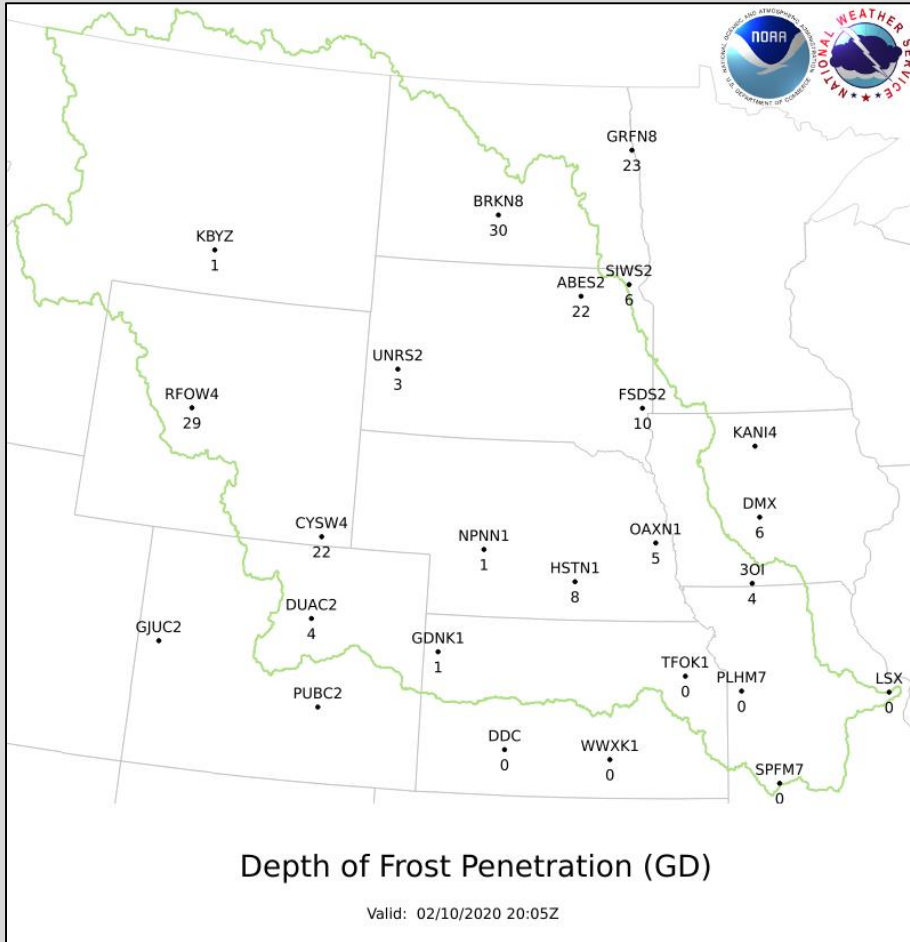
Soil moisture values are elevated for a large portion of Nebraska and western Iowa. Values are even higher into the Dakotas which further elevates the flood threat for the Missouri River.





Frost Depth

- Frost depths are near to below normal across the region.
 - Frost depth range from 4 to 10 inches across the area.



Location	Depth (in.)
Hastings, NE	8
Valley, NE	5
Sioux Falls, SD	10

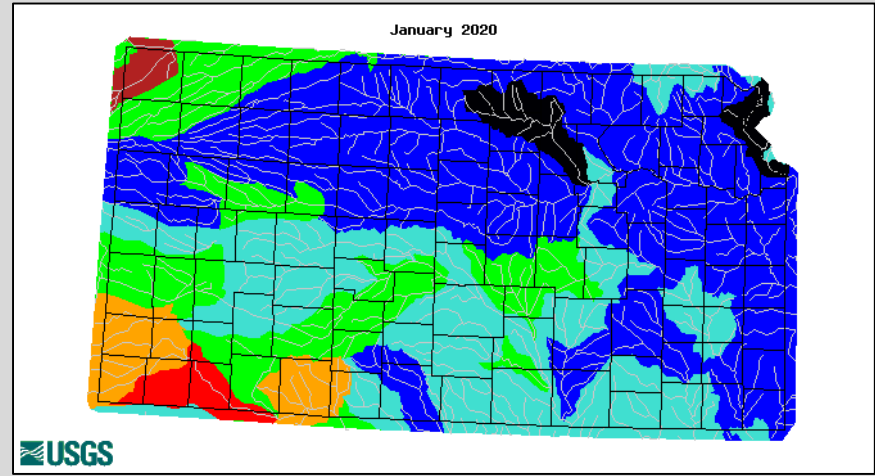
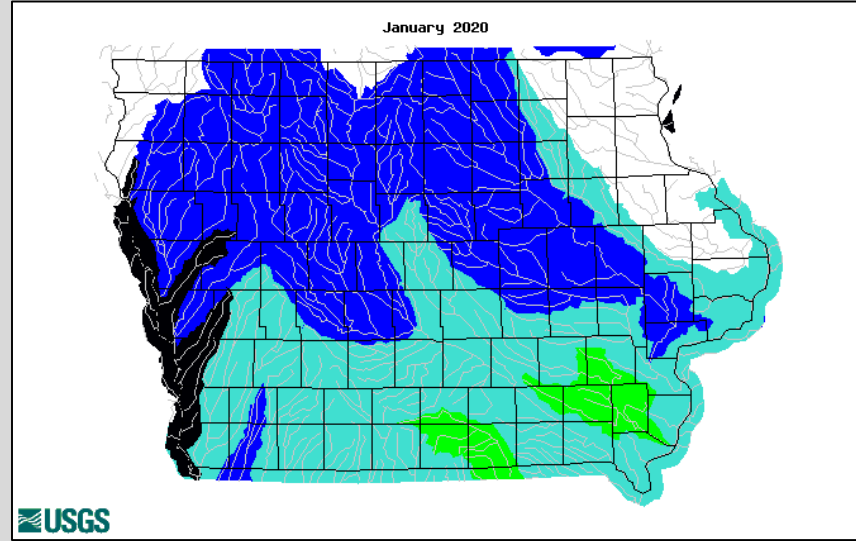
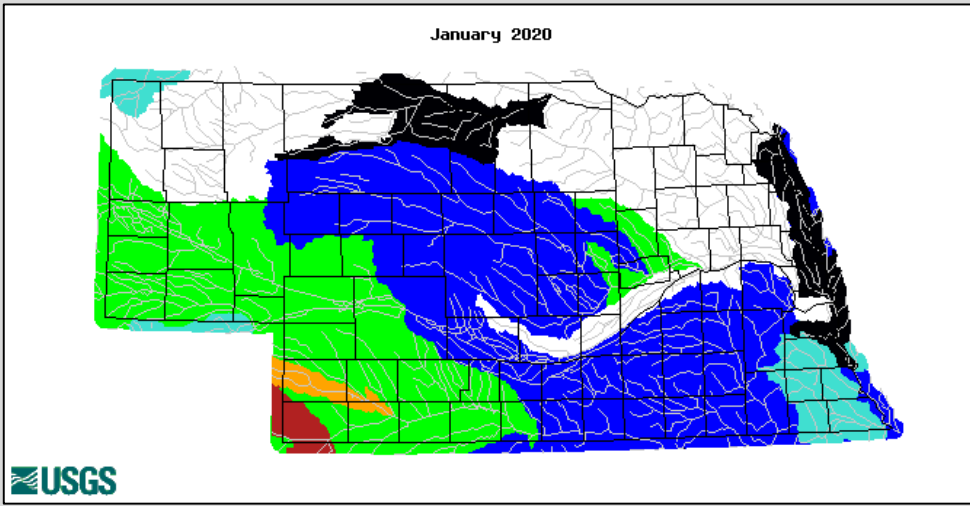




Current Streamflow



According to the USGS, river levels are much above-normal.



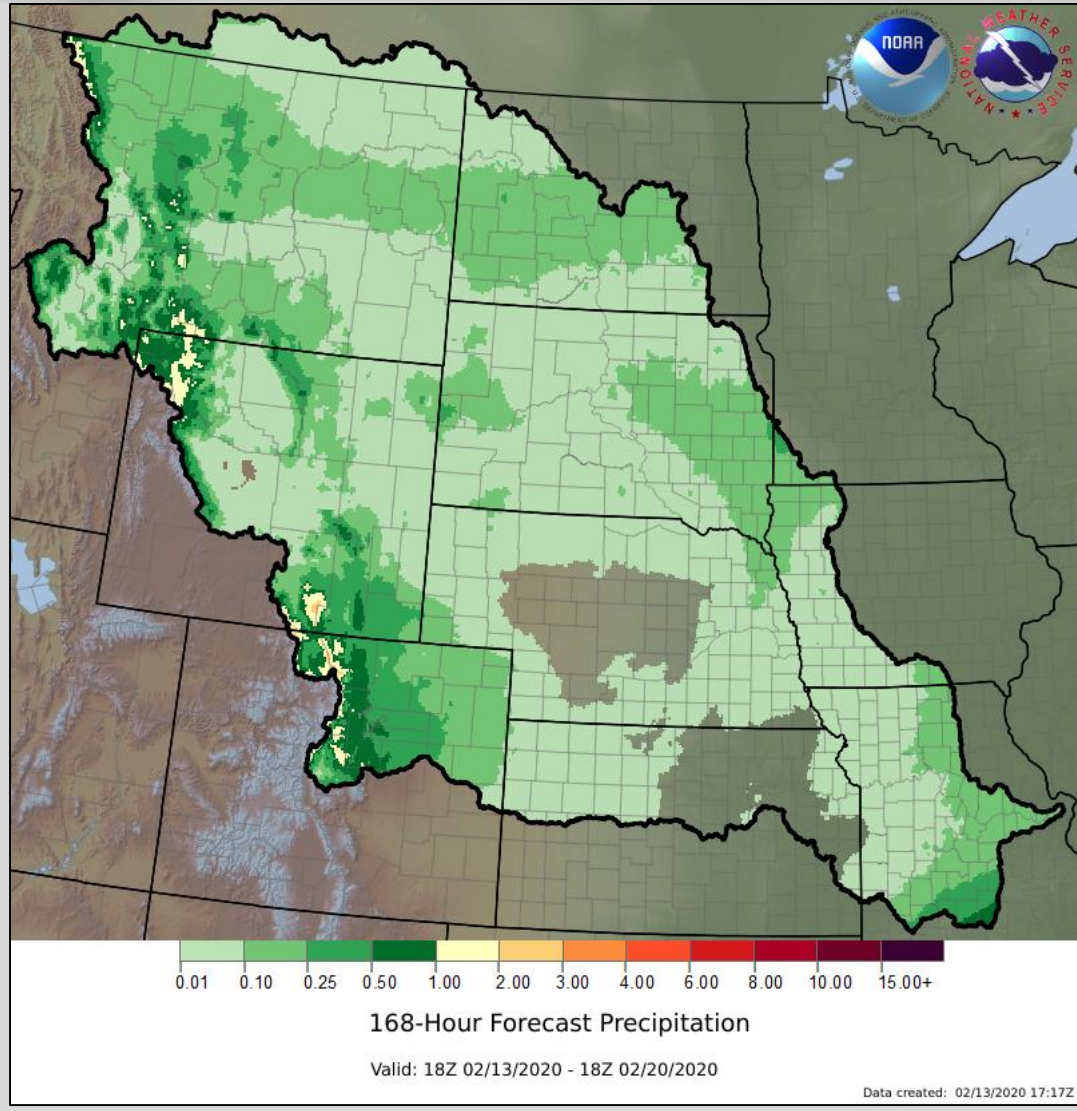
Explanation - Percentile classes

Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		





Precipitation over the next 7 days



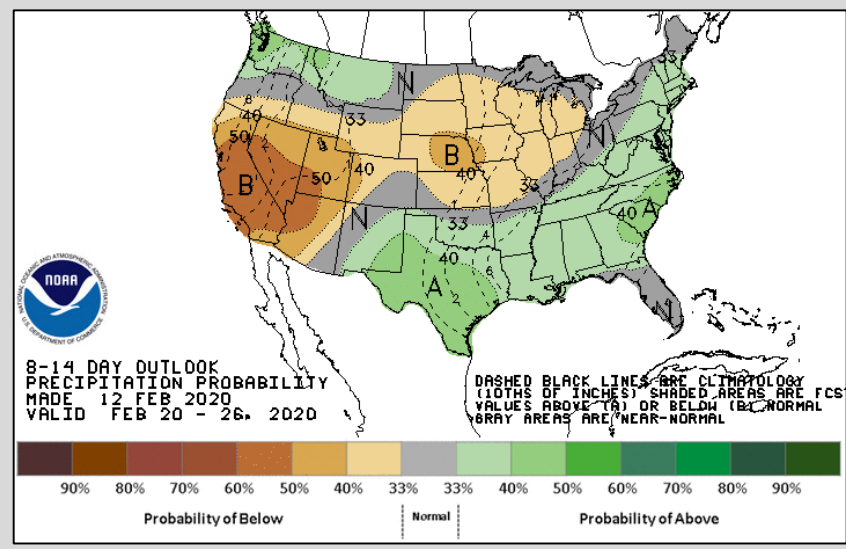
- We are watching for a potential winter storm around the 18th and 19th of February in the Plains.
- This storm has the potential to add liquid to the snowpack in the Dakotas.





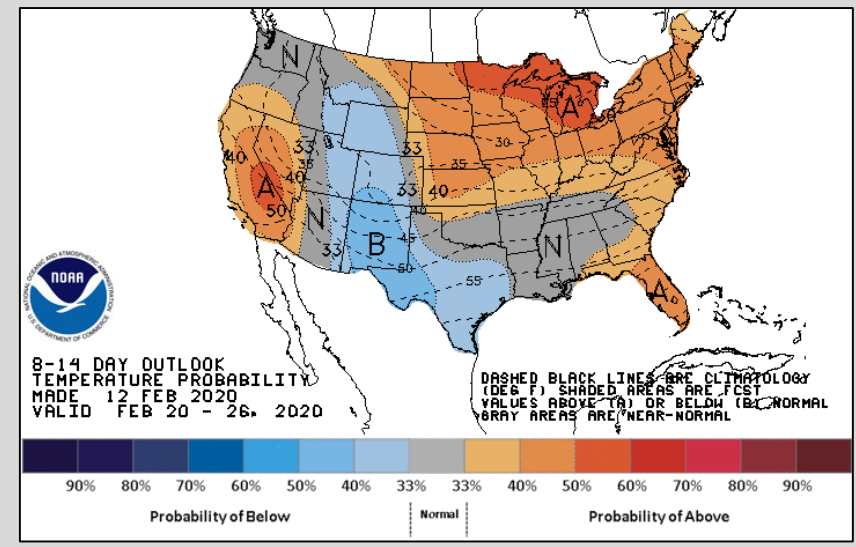
Weather Outlook

8-14 Day Outlook



Precipitation will be below-normal

Temperatures will be above-normal





Ice Jam Threat



Most rivers in Nebraska and Iowa have little to no river ice.

The only exception is the Elkhorn River near Scribner where an ongoing ice jam continues to impact Highway 275.





Missouri River Flood Risk



As of February 13th

Missouri River	Spring Flood Risk
Sioux City to Decatur	Normal
Blair to Omaha	Above-Normal
Plattsmouth to Rulo	Much Above-Normal

Below the Platte River confluence, it is a near certainty the river will exceed flood stage. Furthermore, through the spring and early summer there is a greater than 50% chance these areas will exceed moderate flood stage. Further upstream, the chance is much less due to less tributary inflow.





Levee Status

As of February 13th



Several levees along the Missouri River have breaches from last year. The latest status of levee repairs along the Missouri River is available at the link below.

<https://www.nwo.usace.army.mil/Omaha-District-System-Restoration-Team/>



Building a Weather-Ready Nation



Missouri River Streamflows



As of February 13th

Location	Current Streamflow	Long-term mean	Percent above normal
Decatur	42,100	17,100	246%
Omaha	45,100	19,600	230%
Nebraska City	59,600	26,400	226%
Rulo	61,200	28,100	218%

Along the Missouri River flows are well above-normal. The Corps of Engineers has stated they plan to continue above-normal [releases at Gavins Point](#) through the winter



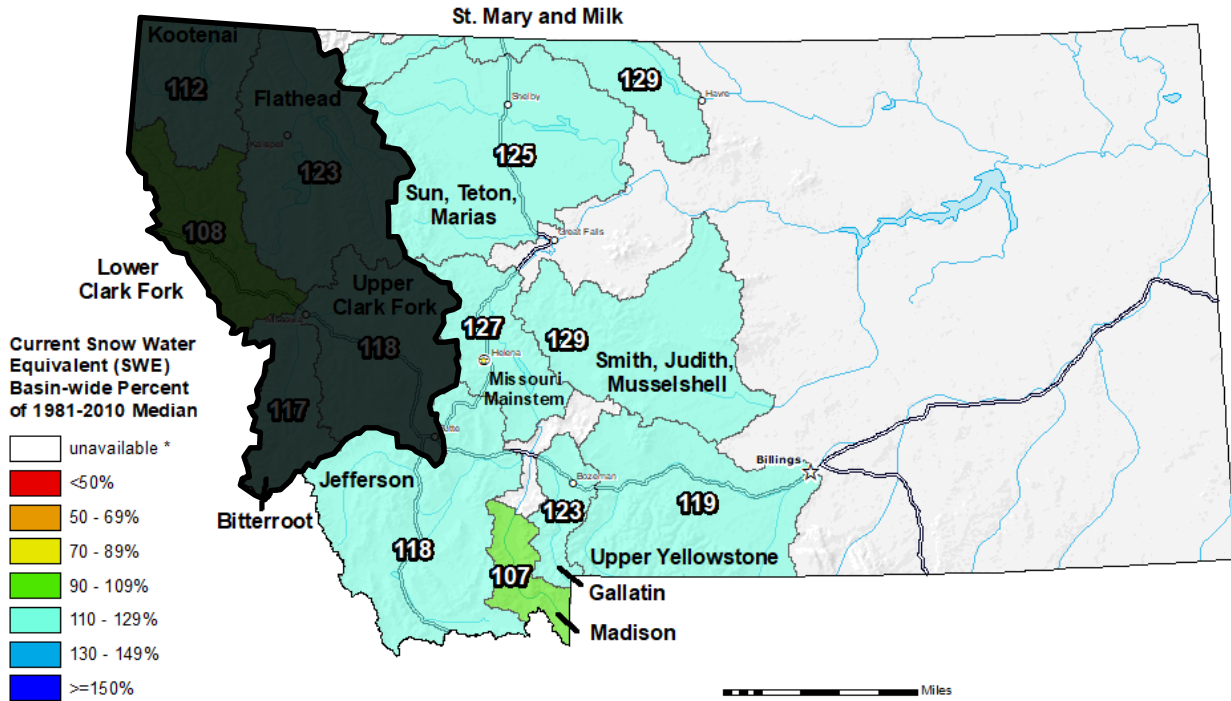


Mountain Snowpack (Missouri River)



Montana SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 13, 2020



* Data unavailable at time of posting or measurement is not representative at this time of year



*Provisional Data
Subject to Revision*

The snow water equivalent p
snow water equivalent found
compared to the average val
the first reading of the day (ty

The mountain snowpack is trending above average so far this winter. Typically the mountain snowpack peaks in mid-April.





Reservoir Status



- By late January 2020, system storage reached 56.1 MAF, the base of the Annual Flood Control and Multiple Use Zone.
- This means that all stored flood waters from 2019 have been evacuated.
- The Gavins Point winter release is being kept higher than normal, at 35,000 cfs, through the winter.





Platte River Flood Risk



As of February 13th

Platte River	Spring Flood Risk
Kearney to Columbus	Normal
Columbus to Missouri River	Above-Normal

The flood risk from Columbus downstream is for open-water flooding as the ice jam threat has been greatly diminished this year and very little ice remains.

Thus far, mountain snowpack for the Platte River is trending above-normal.

Areas where levee breaches remain are especially vulnerable this year given the higher than normal river levels. Levee repair status updates are available via the link below.

<https://www.nwo.usace.army.mil/Omaha-District-System-Restoration-Team/>



Building a Weather-Ready Nation



Wyoming Mountain Snowpack (Platte River)



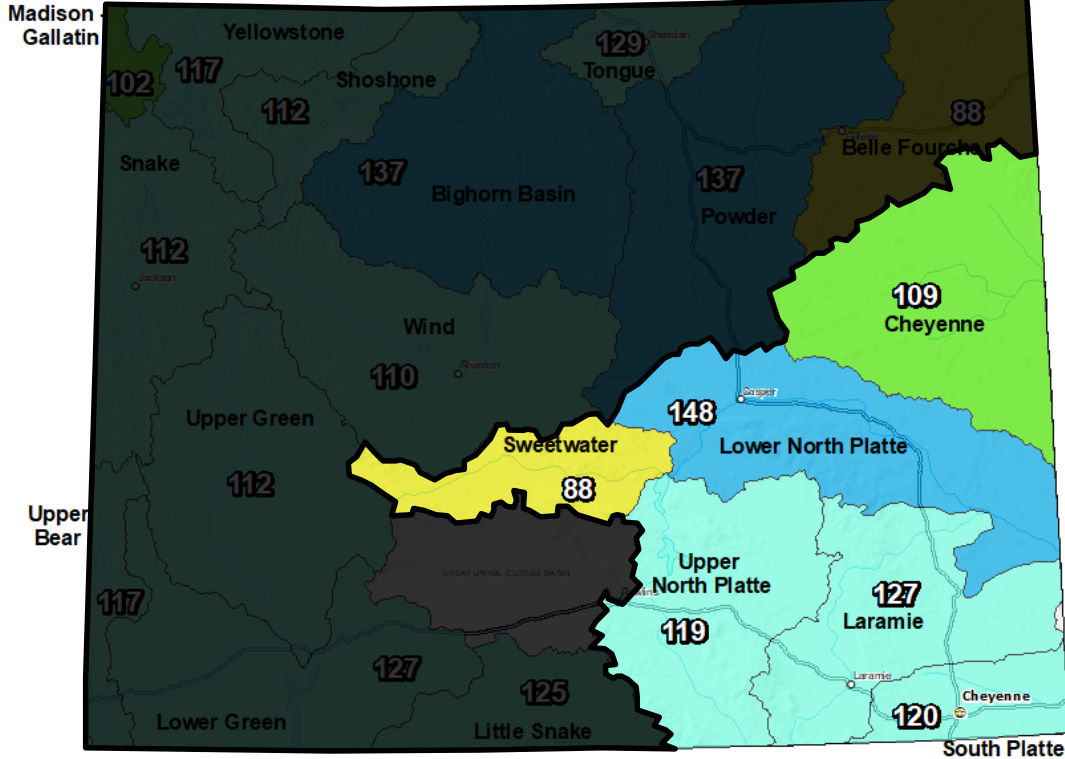
Wyoming SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 13, 2020

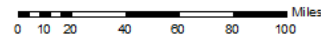
Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

*Provisional Data
Subject to Revision*



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

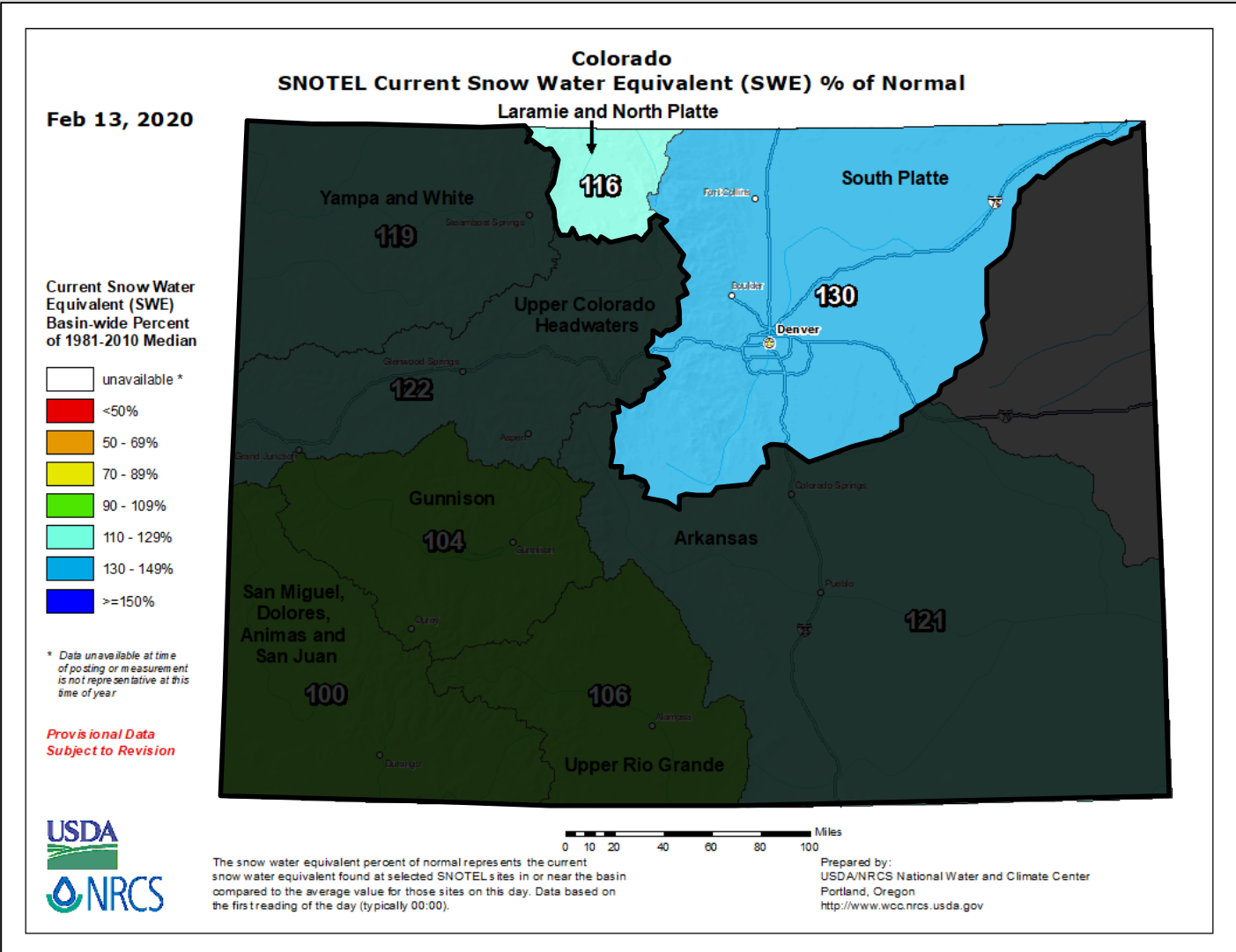


Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>





Colorado Mountain Snowpack (Platte River)





Loup River Flood Risk

As of February 13th



Loup River	Spring Flood Risk
Genoa to Columbus	Normal

The river is mostly ice free, leading to a low, to near zero, threat for ice jams this year along the Loup River.





Elkhorn River Flood Risk



As of February 13th

Elkhorn River	Spring Flood Risk
Neligh to the Platte River	Normal

As of February 13th, and ice jam remains in place near Scribner. Elsewhere along the Elkhorn River, very little ice remains leading to a near zero threat for ice jams this spring.





Salt Creek Flood Risk

As of February 13th



Salt Creek	Spring Flood Risk
Roca to the Platte River	Slightly Above-Normal

The primary flood threat along Salt Creek are areas near and below the confluence with Wahoo Creek, near Ashland.





Big Blue River Flood Risk

As of February 13th



Big Blue River	Spring Flood Risk
Surprise to Barneston	Above-Normal

The elevated river threat can be attributed mostly to above-normal soil moisture across the basin.





Flood Risk for Iowa Rivers



As of February 13th

Spring Flood Risk	
Maple River	Normal
Little Sioux River	Normal
Soldier River	Normal
West Nishnabotna – Hancock	Normal
West Nishnabotna – Randolph	Normal
East Nishnabotna – Red Oak	Slightly Above-Normal
Nishnabotna - Hamburg	Normal
Nodaway River - Clarinda	Normal





Flood Risk for other Nebraska Rivers



As of February 13th

Spring Flood Risk	
Ponca Creek	Slightly Above-Normal
Niobrara River	Normal
North Fork Elkhorn River	Much Above-Normal
Shell Creek	Normal
Logan Creek	Normal
Maple Creek	Normal
Wahoo Creek	Normal

The elevated river threat areas can be attributed mostly to above-normal soil moisture across the basin.





Flood Risk for other Nebraska Rivers



As of February 13th

Spring Flood Risk	
Lincoln Creek	Much Above-Normal
West Fork Big Blue River	Normal
Turkey Creek	Above-Normal
Little Blue River	Normal
Weeping Water Creek	Normal
Little Nemaha River	Normal
North Fork Big Nemaha	Normal

The elevated river threat areas can be attributed mostly to above-normal soil moisture across the basin.



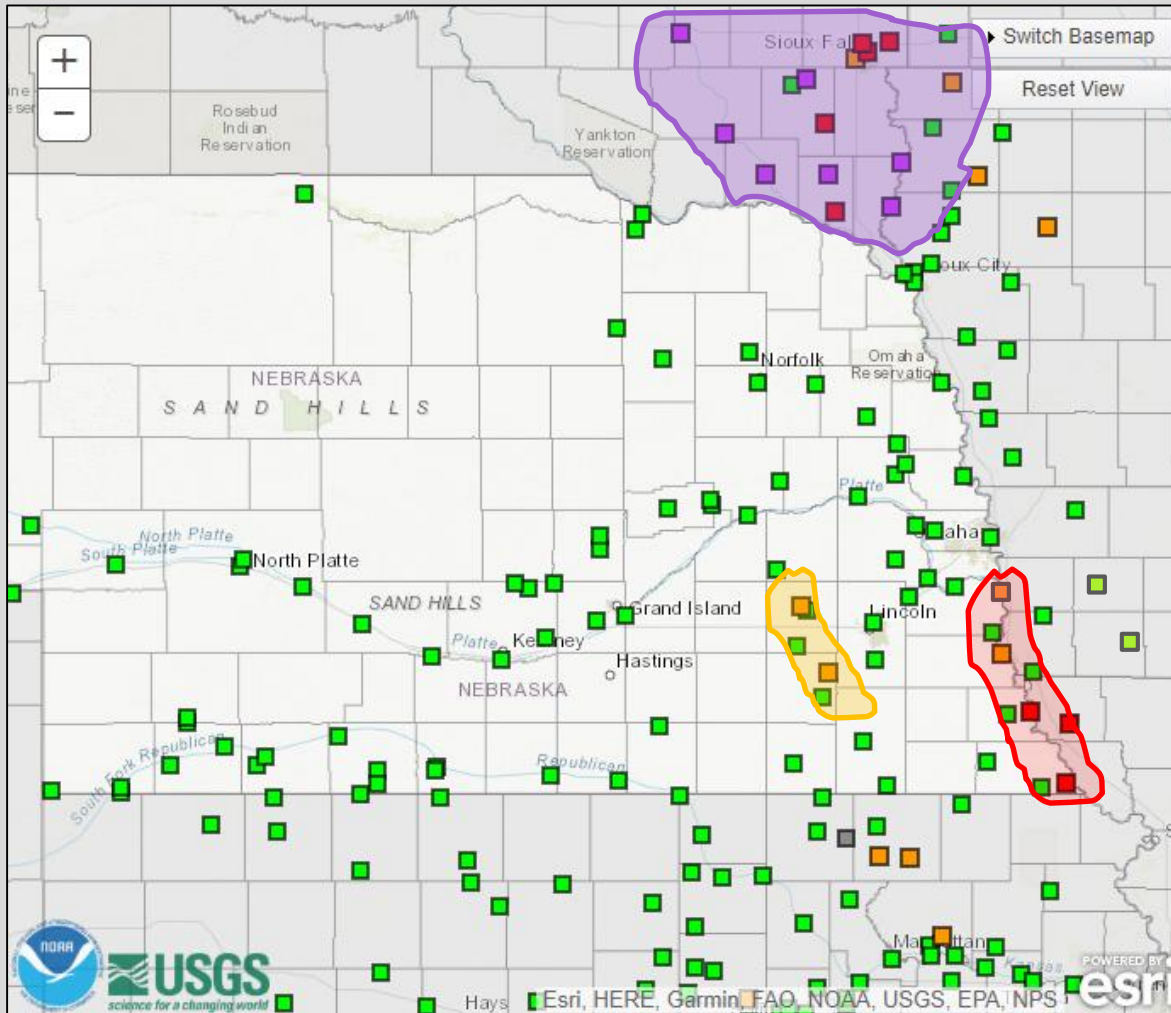


Nebraska Flood Outlook

February through early May 2020



Across Nebraska, the flood threat is generally confined to the eastern third.



Orange: Increased chance for minor flooding

Red: Increased chance for moderate flooding

Purple: Increased chance for major flooding





Summary



- **Overall flood risk this spring:**
 - There is an above-normal risk for flooding this spring, especially along the Missouri River.
 - Flooding this spring will be largely dependent on the location and intensity of additional precipitation and thunderstorms.
 - The main contributors to this threat are high soil moisture and elevated river levels from 2019.





National Weather Service Spring Flood Outlook



For questions & additional information:



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