



2023 Spring Flood Outlook - Updated

March 9, 2023
3:42 PM

For the rivers and streams in northeastern SD, portions of central SD, and portions of west central MN

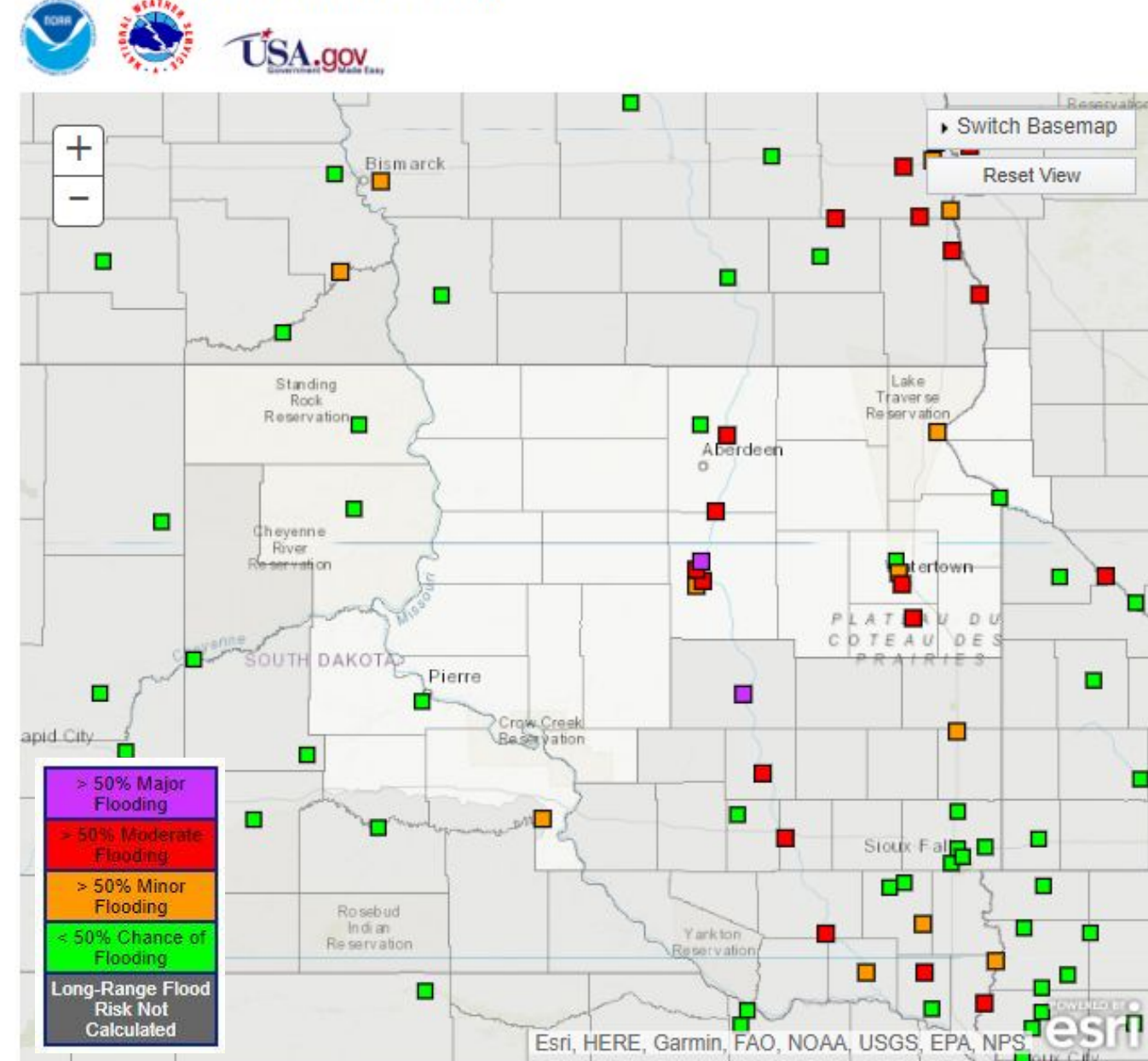
Key Messages

- The flood risk has increased slightly east of the Missouri River due to recent winter snow events.
 - ◆ Chances are above normal for moderate flooding at Columbia and Stratford, and above normal for major flooding at Ashton.
 - ◆ Chances are also above normal for minor to moderate flooding across the Big Sioux basin in Codington and Hamlin counties.
- Chances for minor, moderate, or major flooding west of the Missouri River is generally below normal.
- Antecedent drought conditions and low river levels allow for increased capacity of the river systems.
- The flood threat through this spring, both in location and severity, will largely be determined by future rain or snowfall.

Next Scheduled Briefing

- The next update will be March 23, 2023. However, real time information can be found at weather.gov/abr.

Long-Range River Flood Risk





Temperature and Precip Outlook

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Overview

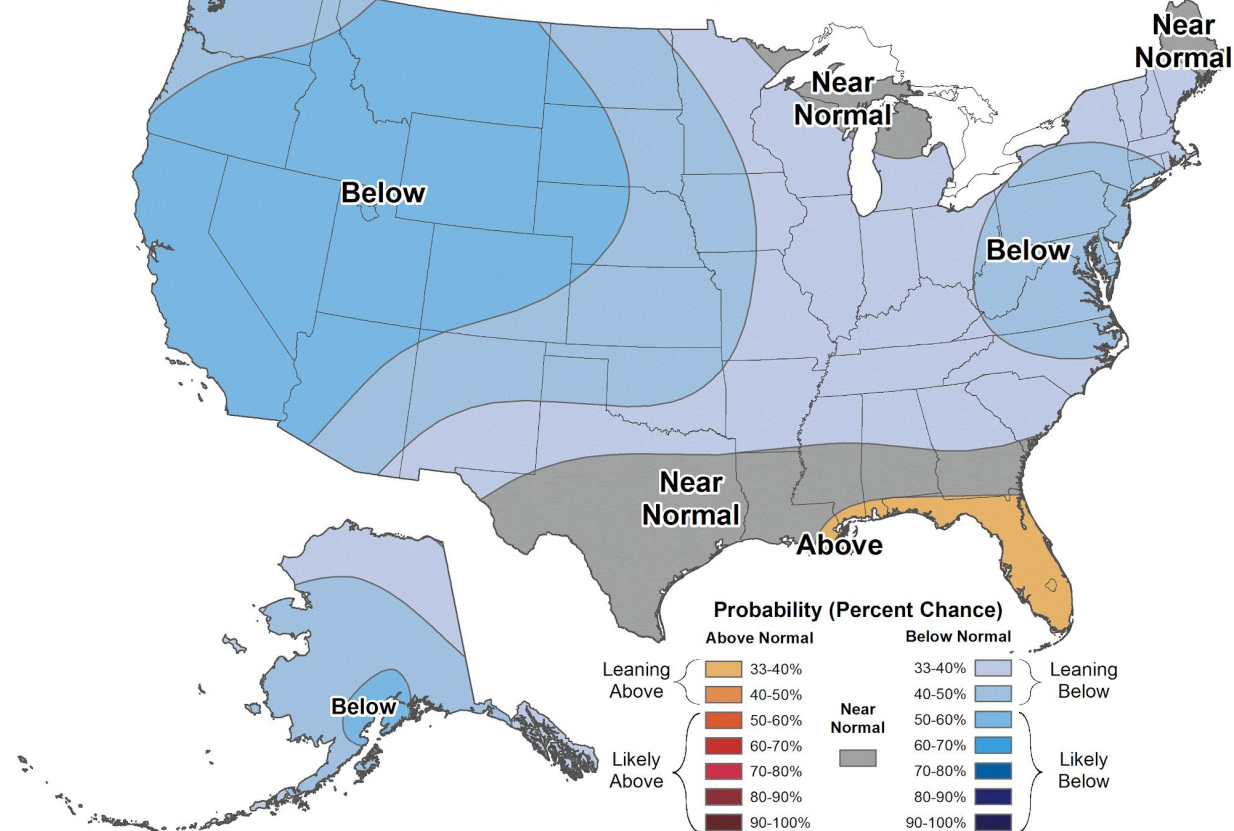
- The outlook for the next two weeks is for increased chances for below normal temperatures and near normal precipitation.
- The 90 day outlook for March through May shows equal chances for below, near, or above normal precipitation and temperatures.



8-14 Day Temperature Outlook



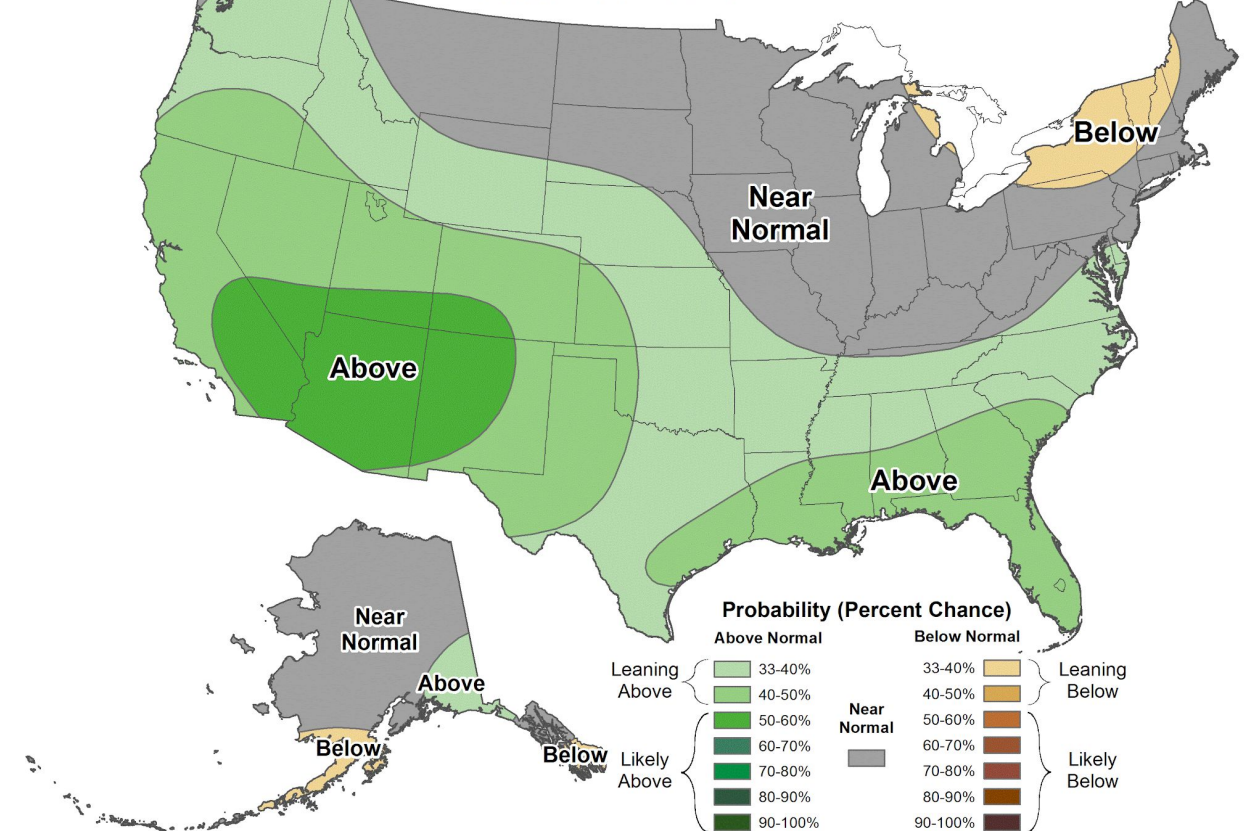
Valid: March 16 - 22, 2023
Issued: March 8, 2023



8-14 Day Precipitation Outlook



Valid: March 16 - 22, 2023
Issued: March 8, 2023



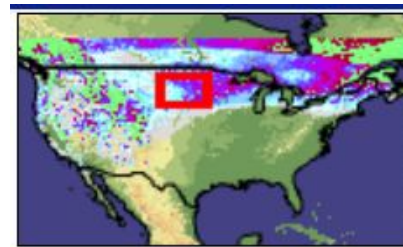


Current Snow Pack

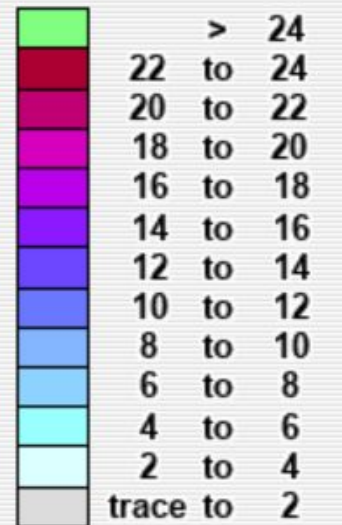
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Overview

- Snowpack is above normal
- West of the Missouri River current snow depth ranges from 4 to 8 inches
- From the Missouri River to the James River Valley current snow depth ranges from 8 to 15 inches
- East of the James River current snow depth ranges from 15 to 30 inches

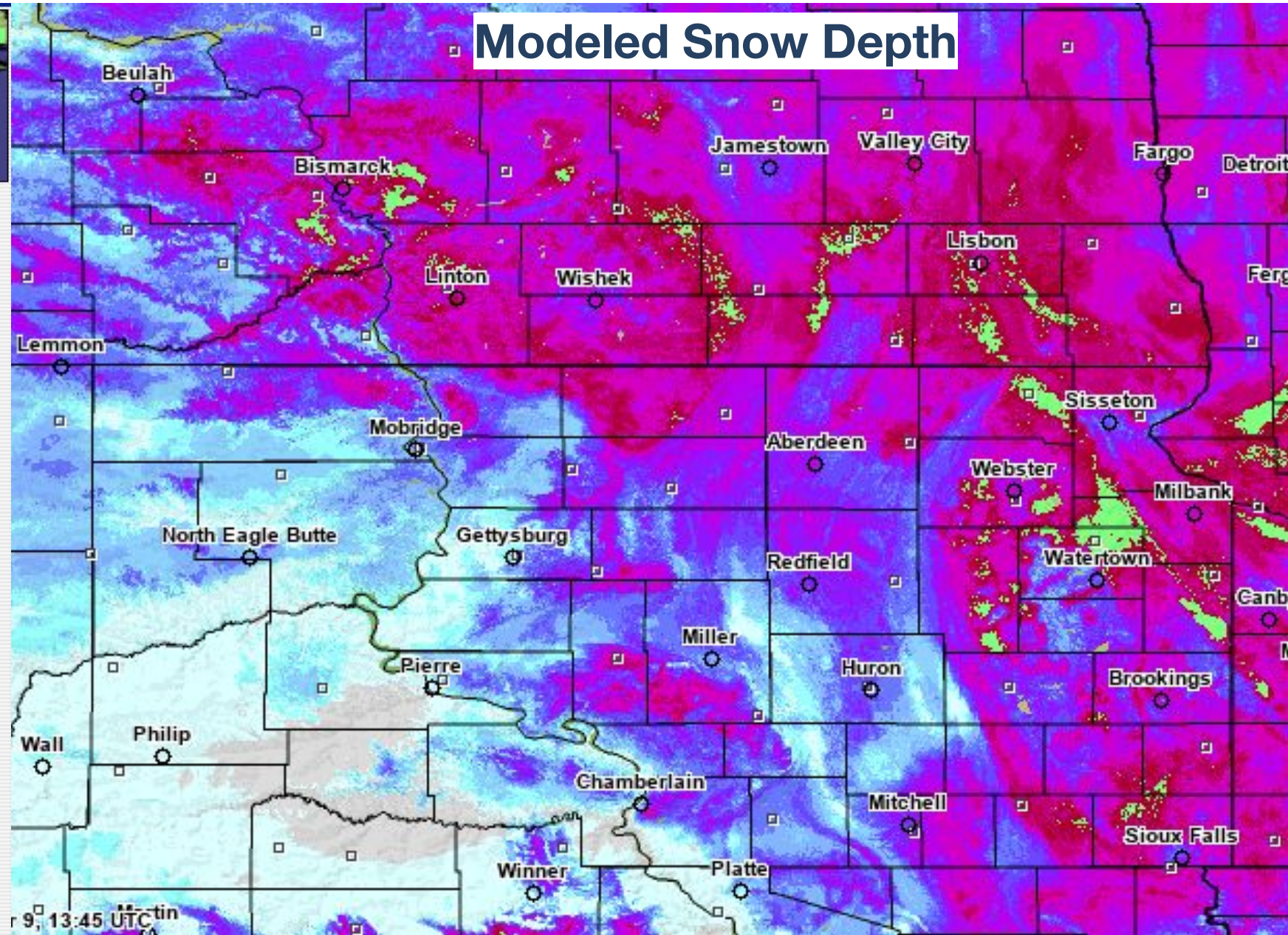


Inches of depth



[White Box] Not Estimated

Elevation in feet



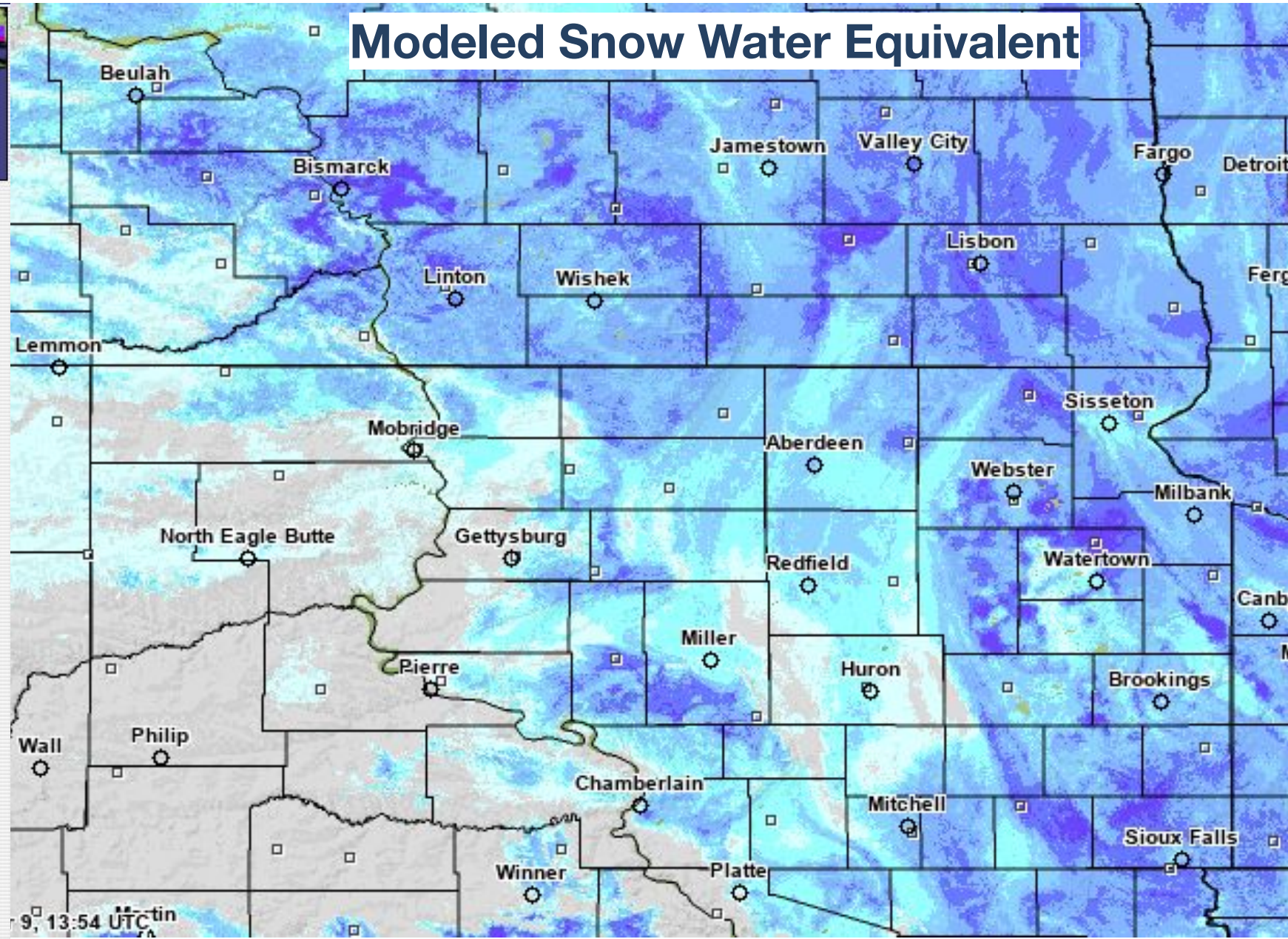
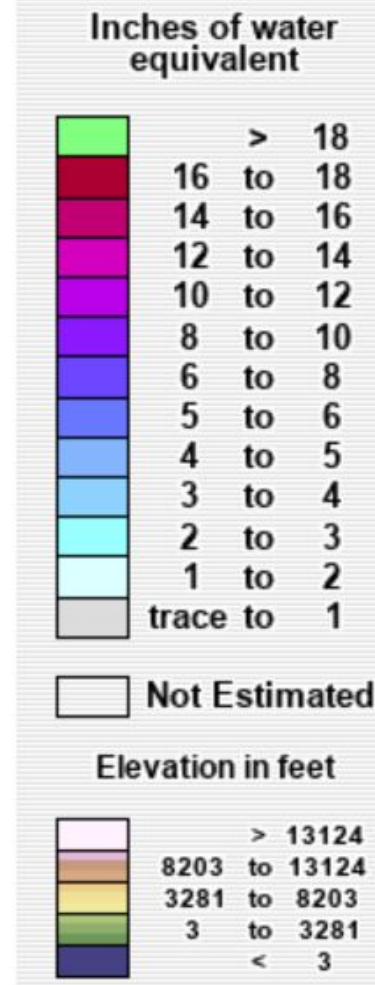
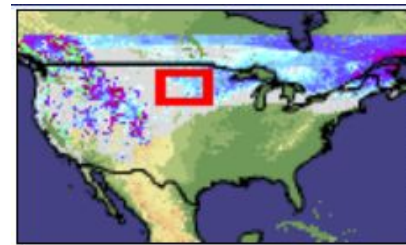


Current Snow Water Equivalent

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Overview

- Generally less than an inch of water equivalent exists along and west of the Missouri River, with locally higher amounts.
- East of the Missouri River snow water equivalent is highly variable but generally ranges from 2 to 6 inches.
 - ◆ Locally higher amounts in the Sisseton Hill and in southern Hyde and Hand counties.





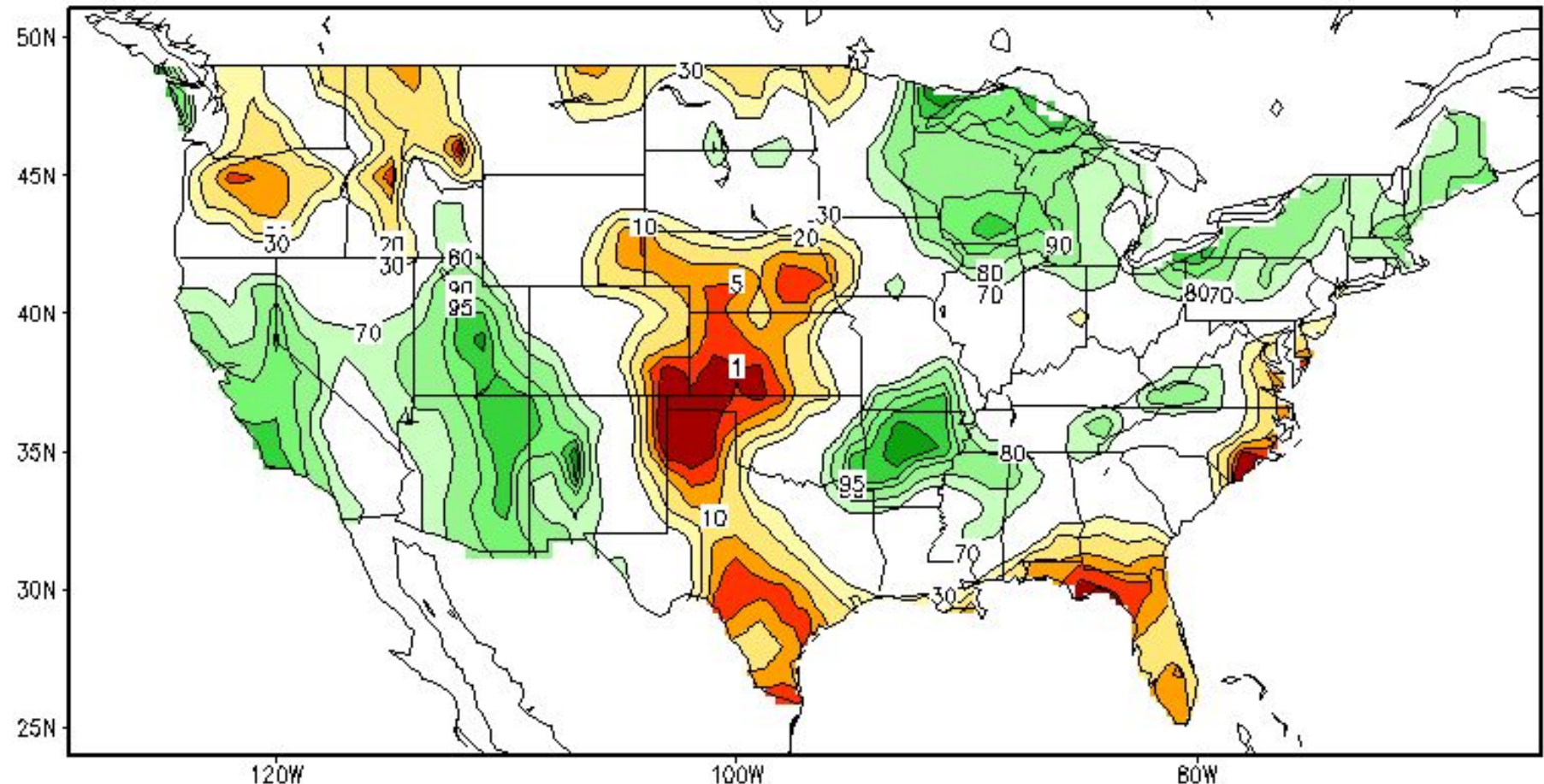
Current Soil Conditions

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Overview

- Soil moisture is near to below normal across the entire area.
- Frost depths are generally in the 1 to 3 foot range across the area.
- The entire region is in Abnormally Dry to Moderate drought conditions, with a portion of far north central South Dakota in Severe drought conditions.

Calculated Soil Moisture Ranking Percentile
MAR 08, 2023





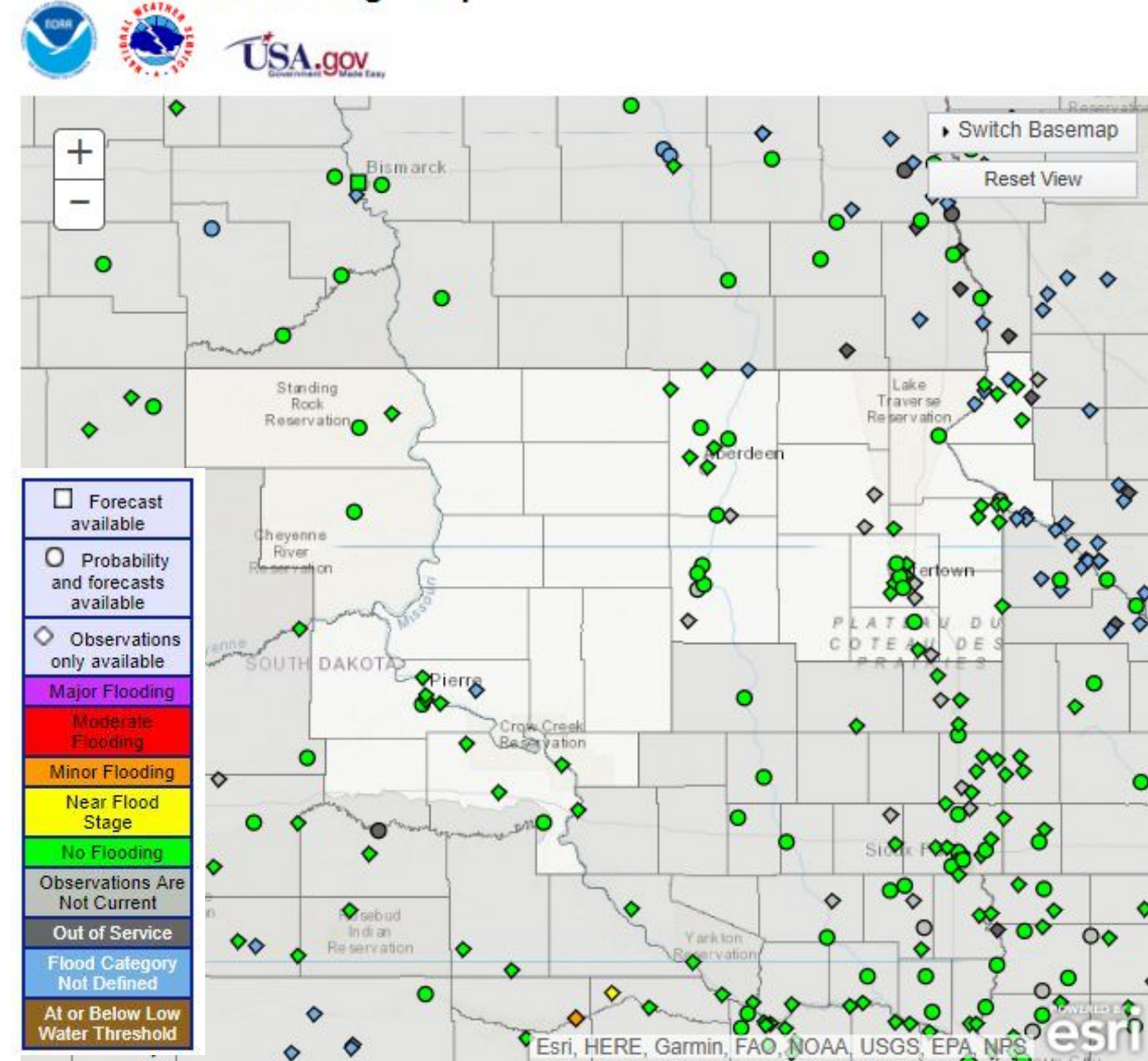
Current River Conditions

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Overview

- All of the rivers in the area are iced over.
- River levels and flows are generally running near to below normal across the region.
- The threat for break-up ice jams appears low at this time. Any potential ice jam flooding will be determined by how fast the ice melts and how much additional flow can get into the rivers to raise and break up the existing ice cover before it melts.

AHPS Observed Gauge Map





Probabilistic Outlooks

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Probabilities for minor...moderate and major flooding

Overview

- In Table 1 to the right, the current (CS) and historical (HS) or normal probabilities of exceeding minor, moderate, and major flood stages are listed for the valid time period.
- CS values indicate the probability of reaching a flood category based on current conditions.
- HS values indicate the probability of reaching a flood category based on historical or normal conditions.
- When the value of CS is more than HS, the probability of exceeding that level is higher than normal. When the value of CS is less than HS, the probability of exceeding that level is lower than normal.

...Table 1--Probabilities for minor...moderate and major flooding...
Valid Period:
Valid Period: 03/13/2023 - 06/11/2023

Location	Categorical Flood Stages (FT)			Current and Historical Chances of Exceeding Flood Categories as a Percentage (%)					
	Minor	Mod	Major	Minor CS	Minor HS	Moderate CS	Moderate HS	Major CS	Major HS
:Elm River Westport	14.0	16.0	19.0	26	28	17	22	9	9
:James River Columbia	13.0	16.0	18.0	>98	55	67	40	37	28
Stratford	14.0	17.0	18.5	>98	58	80	40	40	29
Ashton	13.0	14.0	16.0	>98	58	92	47	82	43
Redfield	20.0	22.0	25.0	85	45	56	44	38	42
:Snake Creek Ashton	11.5	13.0	16.0	93	52	90	43	47	34
:Turtle Creek Redfield	7.0	10.0	15.0	84	54	35	46	18	33
:Big Sioux River Watertown 10NW	10.0	11.0	12.0	14	18	<5	<5	<5	<5
Watertown Conifer	9.0	10.0	12.0	95	33	26	25	<5	<5
Watertown Broadway	10.5	11.0	13.5	>98	34	95	33	<5	<5
Castlewood	9.0	11.0	16.0	>98	39	51	28	<5	<5
:Grand River Little Eagle	15.0	17.0	21.0	<5	27	<5	17	<5	6
:Moreau River White Horse	21.0	23.0	25.0	<5	22	<5	17	<5	11
:Bad River Fort Pierre	21.0	25.0	27.0	19	12	6	5	<5	<5
:Little Minnesota Peever	17.0	22.0	24.0	53	26	<5	<5	<5	<5
:Minnesota River Big Stone Lake	971.5	973.0	975.0	11	6	<5	<5	<5	<5



Probabilistic Outlooks

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Exceedance Probabilities

Overview

→ In Table 2 to the right, the 95 through 5 percent columns indicate the probability of exceeding the listed stage levels (FT) for the valid time period.

...Table 2--Exceedance Probabilities...

Location	Chance of Exceeding Stages at Specific Locations						
	Valid Period:						
	95%	90%	75%	50%	25%	10%	5%
:Elm River							
Westport	9.1	9.4	9.8	12.1	14.0	18.6	21.4
:James River							
Columbia	13.8	14.0	15.6	17.6	18.5	19.2	19.7
Stratford	16.6	16.7	17.1	18.2	18.7	19.5	20.7
Ashton	13.2	14.9	16.4	18.2	21.7	23.6	30.8
Redfield	12.2	18.9	21.2	22.3	28.6	31.6	34.3
:Snake Creek							
Ashton	10.7	13.1	15.1	15.9	17.8	21.1	26.9
:Turtle Creek							
Redfield	6.0	6.6	7.7	9.4	11.1	17.2	18.0
:Big Sioux River							
Watertown 10NW	8.7	9.0	9.1	9.3	9.6	10.2	10.4
Watertown Conifer	9.1	9.4	9.6	9.8	10.0	10.8	11.1
Watertown Broadway	11.0	11.4	11.6	12.0	12.3	12.9	13.1
Castlewood	10.0	10.4	10.7	11.0	11.3	12.1	12.3
:Grand River							
Little Eagle	6.7	7.3	8.4	9.3	9.8	11.5	12.0
:Moreau River							
White Horse	8.2	8.5	9.5	10.8	12.7	14.2	17.1
:Bad River							
Fort Pierre	6.3	6.8	8.9	12.0	19.2	23.0	25.8
:Little Minnesota							
Peever	15.1	15.6	16.4	17.1	18.0	20.1	21.4
:Minnesota River							
Big Stone Lake	968.2	968.2	968.4	968.9	969.7	971.9	972.6

In Table 3 below...the 95 through 5 percent columns indicate the probability of falling below the listed stage levels (FT) for the valid time period.



Probabilistic Outlooks

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Non-Exceedance Probabilities

Overview

→ In Table 3 to the right, the 95 through 5 percent columns indicate the probability of falling below the listed stage levels (FT) for the valid time period.

...Table 3--Nonexceedance Probabilities...

LOCATION	Chance of Falling Below Stages at Specific Locations						
	Valid Period:						
	95%	90%	75%	50%	25%	10%	5%
:Elm River Westport	4.0	4.0	4.0	4.0	4.0	4.0	4.0
:James River Columbia	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Stratford	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Ashton	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Redfield	3.3	3.3	3.3	3.3	3.3	3.3	3.3
:Snake Creek Ashton	2.8	2.8	2.8	2.8	2.8	2.8	2.8
:Turtle Creek Redfield	3.0	3.0	3.0	3.0	3.0	3.0	3.0
:Big Sioux River Watertown 10NW	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Watertown Conifer	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Watertown Broadway	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Castlewood	3.9	3.8	3.8	3.8	3.8	3.8	3.8
:Grand River Little Eagle	2.4	2.4	2.4	2.4	2.4	2.4	2.4
:Moreau River White Horse	2.5	2.5	2.5	2.5	2.5	2.5	2.4
:Bad River Fort Pierre	0.6	0.6	0.6	0.6	0.6	0.6	0.5
:Little Minnesota Peever	10.1	10.1	10.1	9.8	9.8	9.8	9.8
:Minnesota River Big Stone Lake	967.2	967.2	967.2	967.2	967.2	967.2	967.2



More Information

These long-range probabilistic outlooks contain forecast values that are calculated using multiple season scenarios from 30 or more years of climatological data, including current conditions of the river, soil moisture, snow cover, and 30 to 90 day long-range outlooks of temperature and precipitation. By providing a range of probabilities, the level of risk associated with long-range planning decisions can be determined.

These probabilistic forecasts are part of the National Weather Service advanced hydrologic prediction service.

Visit our website weather.gov/abr or water.weather.gov/ahps2/long_range.php?wfo=ABR for more weather and water information.



What Does WEATHER-READY look like?

During FLOODS
Motorists who never drive around barricades or through flooded roads.

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