## Key Messages

➔ Even though there is snow pack across most of the area, due to ongoing drought conditions, the chances for minor, moderate, or major flooding across much of the region are generally below normal.

➔ The exception is on the James River near Ashton where the chances are above normal for minor flooding, and across the Big Sioux basin in Codington and Hamlin counties where the chances are above normal for minor to moderate flooding.

➔ 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 Thursday, March 9. However, real time information can be found at weather.gov/abr.

Long-Range River Flood Risk
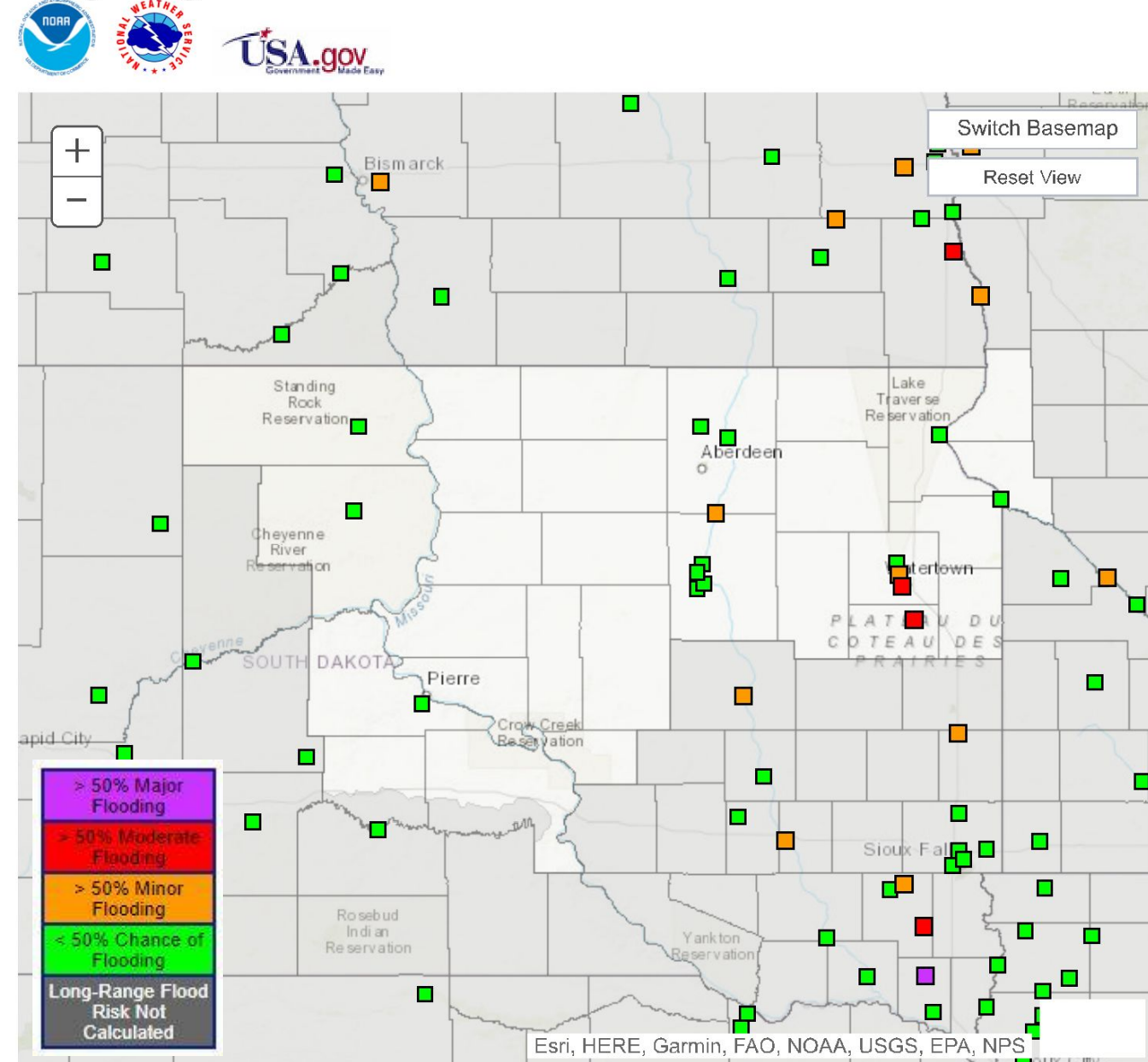
Overview

➔ The outlook for the next two weeks is for increased chances for near to below normal temperatures and above normal precipitation.

➔ The 90 day outlook for March through May shows equal chances for below, near, or above normal precipitation and temperatures.
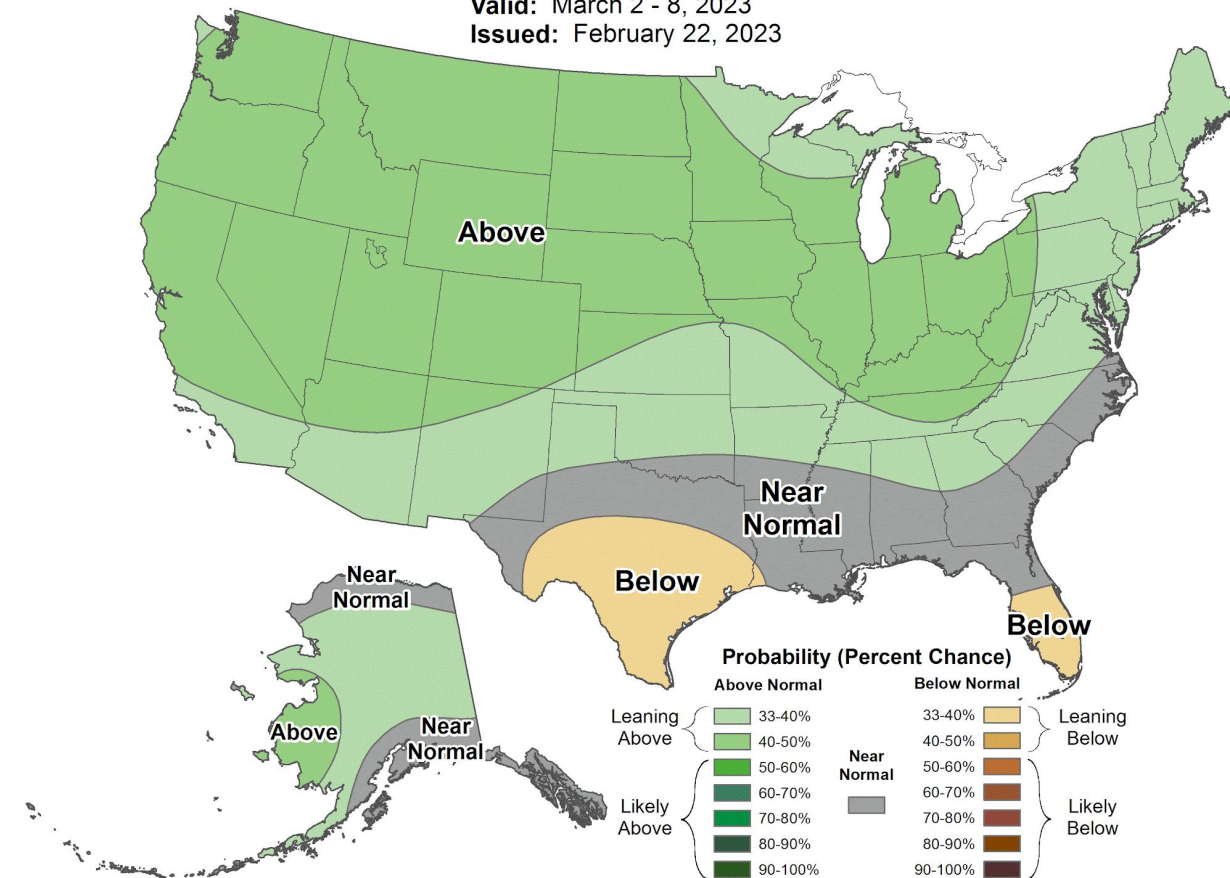

8-14 Day Temperature Outlook

Valid: March 2 - 8, 2023
Issued: February 22, 2023
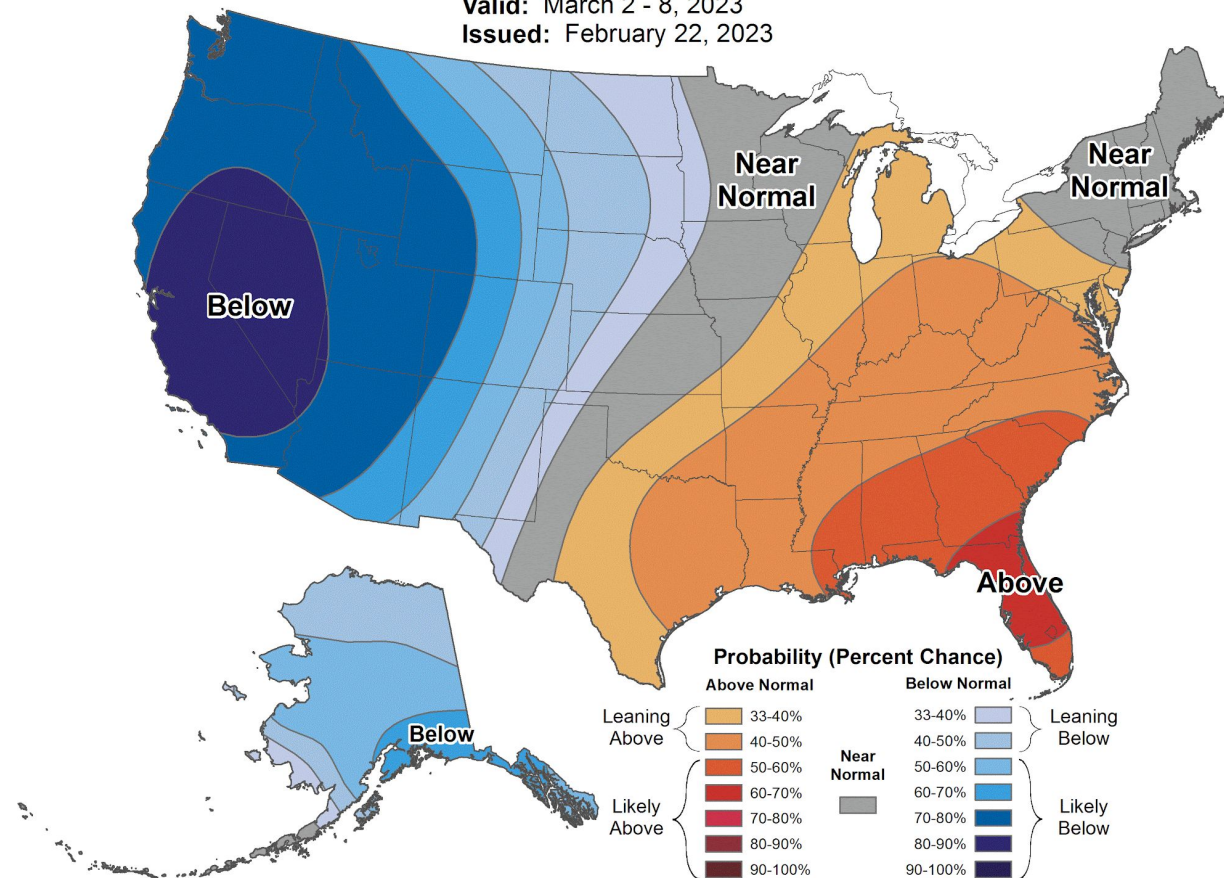
8-14 Day Precipitation Outlook

Valid: March 2 - 8, 2023
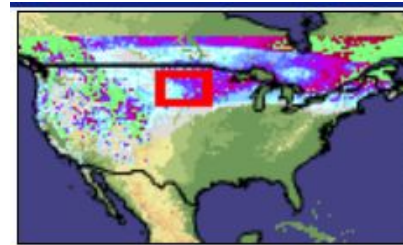**Issued:** February 22, 2023

Overview

➔ Snowpack is highly variable across the area

➔ Snow depth ranges from 4 to 8 inches west of the Missouri River, with isolated pockets of over 12 inches

➔ 8 to 20 inches of snowpack exists east of the Missouri River

➔ ***Note* Some of these values may be off due the recent ending of a major winter storm across the area for which we do not yet have data.**

Modeled Snow Depth

Inches of depth

	>	24
22 to		24
20 to		22
18 to		20
16 to		18
14 to		16
12 to		14
10 to		12
8 to		10
6 to		8
4 to		6
2 to		4
trace to		2

Not Estimated

Elevation in feet

	>	13124
8203 to		13124
3281 to		8203
3 to		3281
	<	3
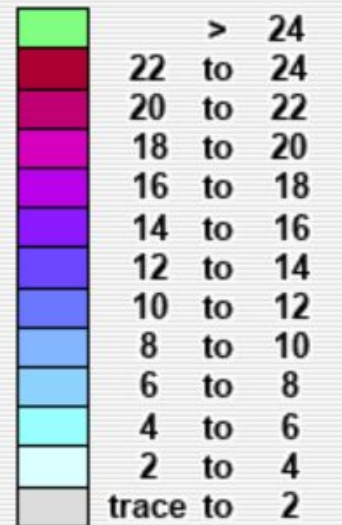
Overview

➔ 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 4 inches. Locally higher amounts in the Sisseton Hill and in southern Hyde and Hand counties.

➔ ***Note* Some of these values may be off due the recent ending of a major winter storm across the area for which we do not yet have data.**
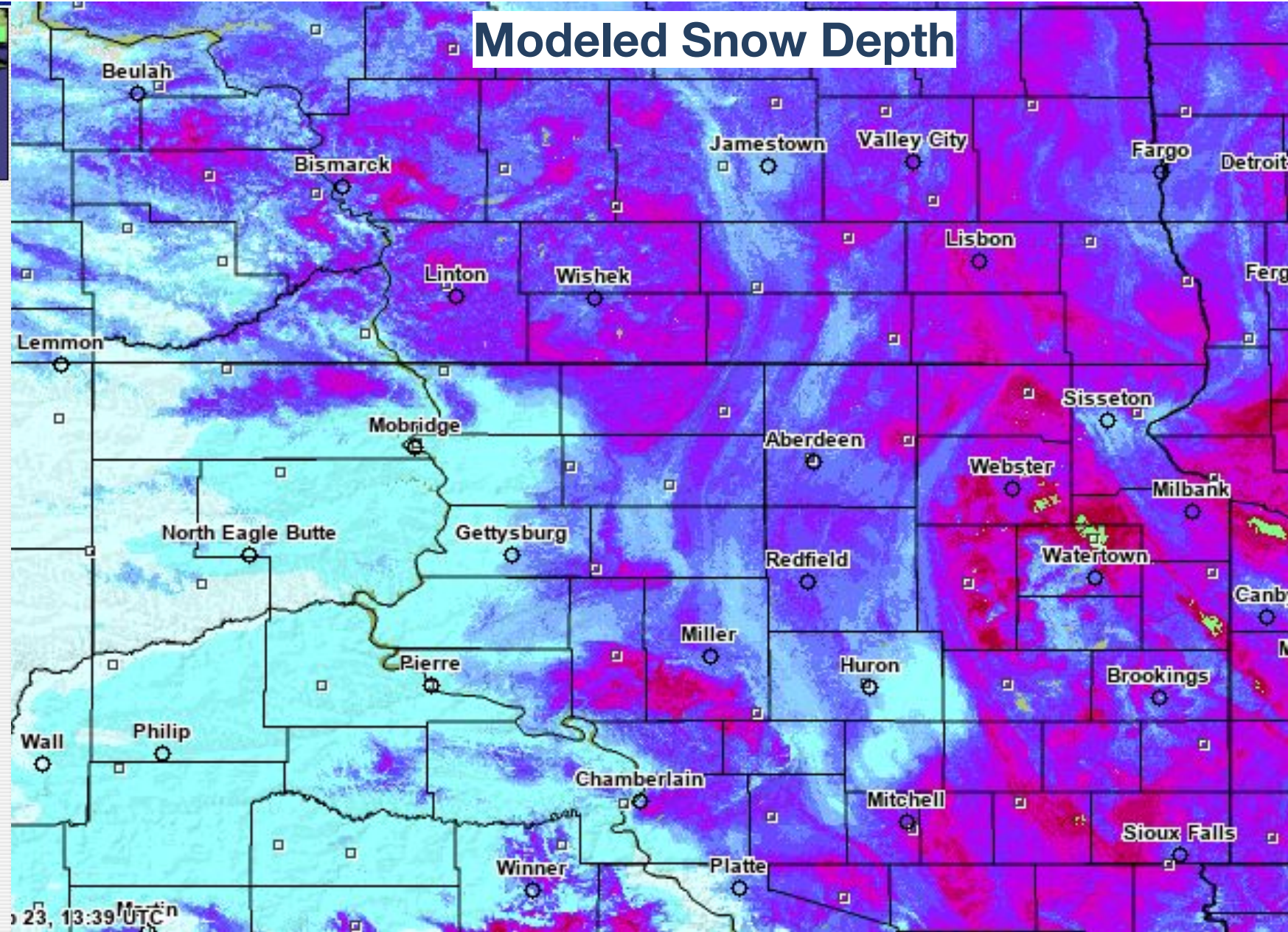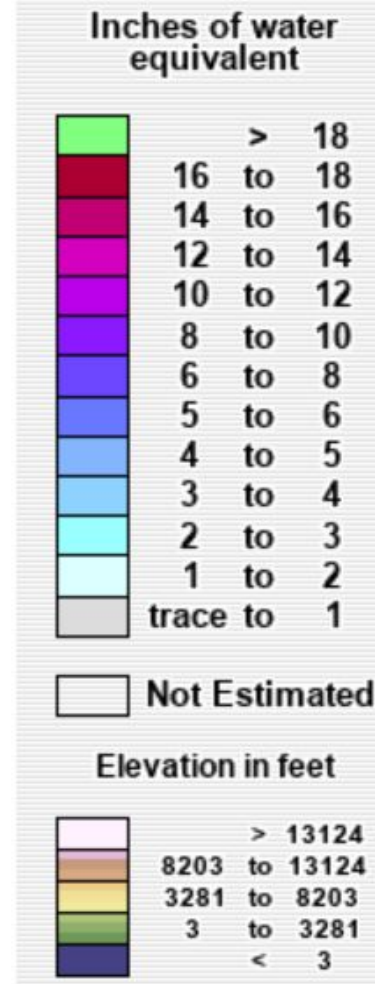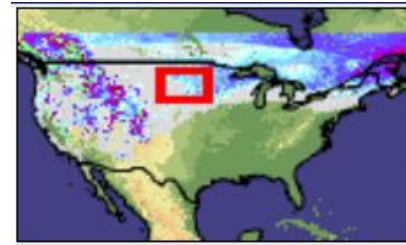

Modeled Snow Water Equivalent

Inches of water equivalent

	>		18
16	to		18
14	to		16
12	to		14
10	to		12
8	to		10
6	to		8
5	to		6
4	to		5
3	to		4
2	to		3
1	to		2
trace	to		1

Not Estimated

Elevation in feet

	>		13124
8203	to		13124
3281	to		8203
3	to		3281
	<		3
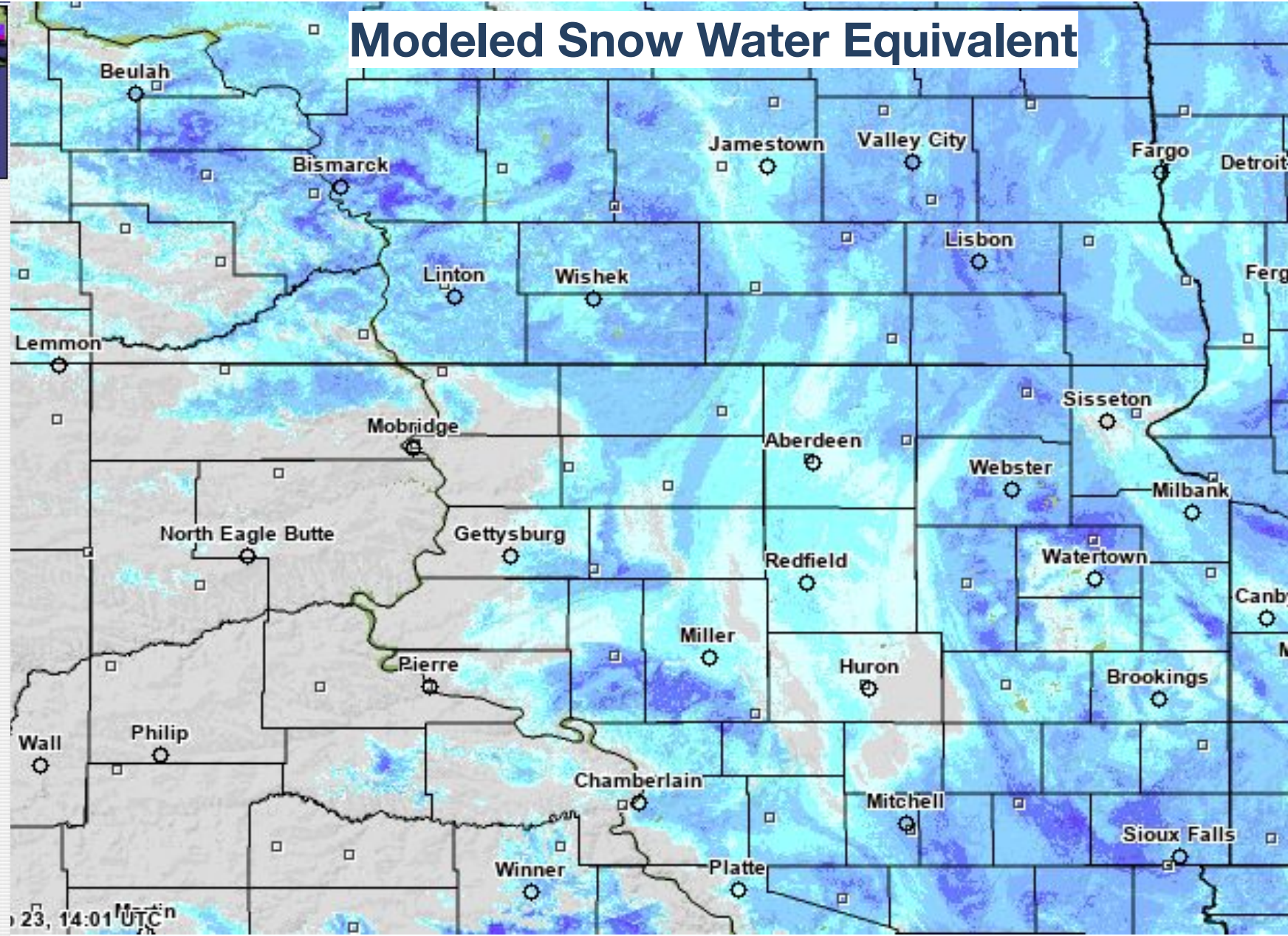
Overview

➔ 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
FEB 22, 2023
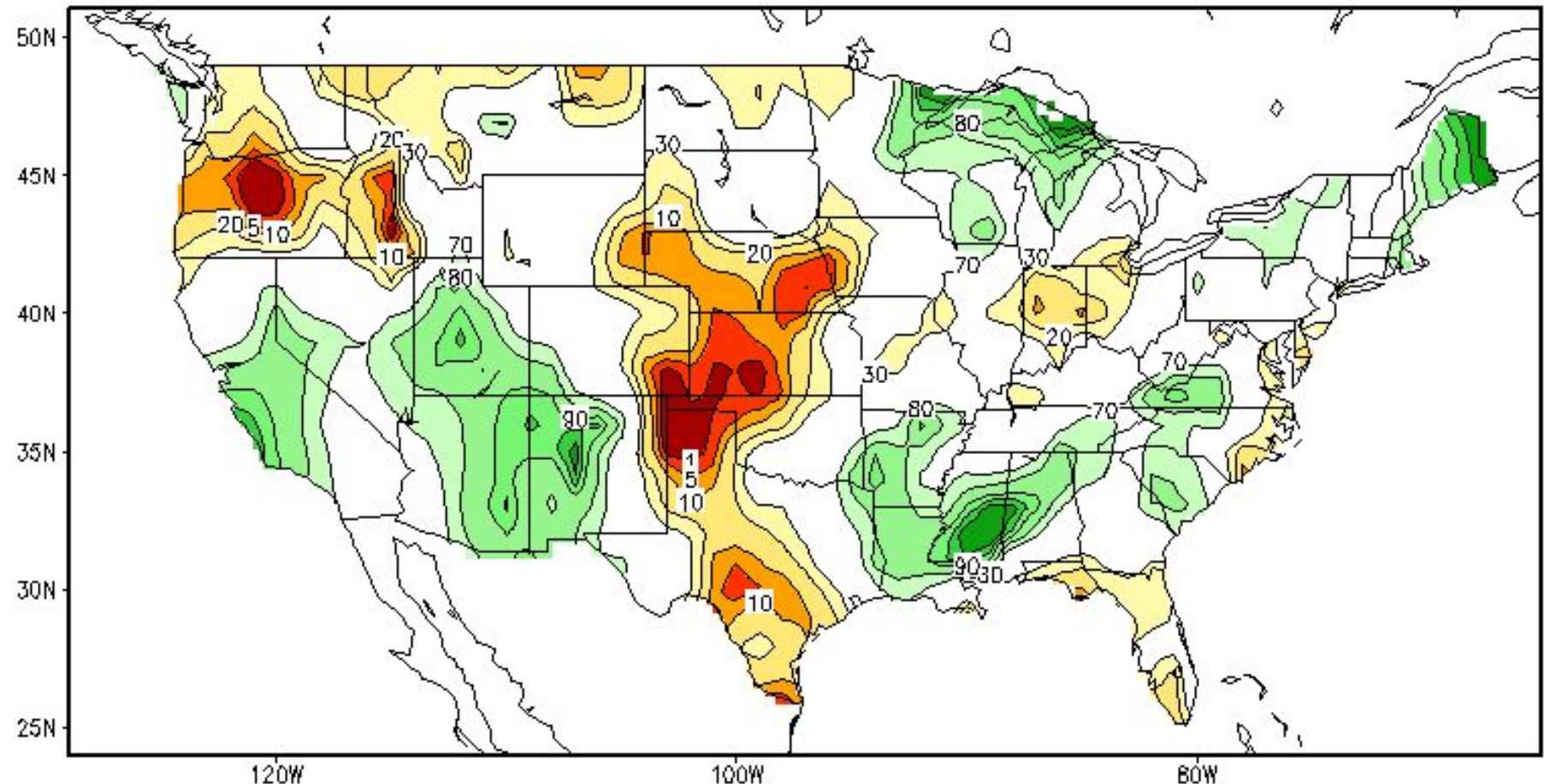
Overview

➔ 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

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: 02/27/2023 - 05/28/2023
                                     :    Current and Historical
                                     :     Chances of Exceeding
                                     :       Flood Categories
                                     :      as a Percentage (%)
                      Categorical    :
                      Flood Stages (FT) :   Minor      Moderate      Major
Location              Minor    Mod    Major :  CS   HS    CS   HS    CS   HS
--------              -----   -----  ----- : ---  ---   ---  ---   ---  ---
:Elm River
Westport              14.0    16.0   19.0 :  11   28    9    22   <5    9
:James River
Columbia              13.0    16.0   18.0 :  44   55    34   45   25   33
Stratford             14.0    17.0   18.5 :  63   58    31   43   16   29
Ashton                13.0    14.0   16.0 :  46   53    42   52   34   44
Redfield              20.0    22.0   25.0 :  21   42    19   41   17   39
:Snake Creek
Ashton                11.5    13.0   16.0 :  28   48    19   39   15   34
:Turtle Creek
Redfield               7.0    10.0   15.0 :  38   51    18   45   13   30
:Big Sioux River
Watertown 10NW        10.0    11.0   12.0 :  40   18    9    <5   <5   <5
Watertown Conifer      9.0    10.0   12.0 :  79   33    48   25    6   <5
Watertown Broadwy     10.5    11.0   13.5 :  83   34    76   33    6   <5
Castlewood             9.0    11.0   16.0 :  91   36    53   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   19    <5   16   <5   11
:Bad River
Fort Pierre           21.0    25.0   27.0 :   8    9    5    5    <5   <5
:Little Minnesota
Peever                17.0    22.0   24.0 :  18   26    <5   <5   <5   <5
:Minnesota River
Big Stone Lake       971.5   973.0  975.0 :  <5    6    <5   <5   <5   <5
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National Weather Service
Aberdeen, SD

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...

                          Chance of Exceeding Stages
                             at Specific Locations
                          Valid Period:
Location          95%    90%    75%    50%    25%    10%     5%
--------        ------ ------ ------ ------ ------ ------ ------
:Elm River
Westport          5.6    5.8    6.4    7.5   10.3   15.1   17.7
:James River
Columbia          8.4    8.5   10.8   12.4   18.0   18.6   19.3
Stratford         9.9   10.6   12.6   15.4   17.7   19.2   20.2
Ashton            6.1    7.3    8.5   12.0   18.0   23.7   28.2
Redfield          5.7    7.4    8.6   12.0   16.7   31.7   33.2
:Snake Creek
Ashton            5.7    6.6    7.0    9.3   12.0   21.8   23.6
:Turtle Creek
Redfield          3.4    4.1    5.0    6.5    8.5   17.0   17.3
:Big Sioux River
Watertown 10NW    7.8    8.2    8.8    9.5   10.4   10.9   11.4
Watertown Conifer 7.8    8.4    9.1   10.0   10.9   11.5   12.3
Watertown Broadwy 9.4   10.2   11.0   12.2   13.0   13.3   13.9
Castlewood        8.5    9.1   10.0   11.2   12.0   12.5   13.0
:Grand River
Little Eagle      5.8    6.3    6.9    8.2    9.2   11.0   11.8
:Moreau River
White Horse       6.4    6.5    7.0    8.8    9.8   11.9   14.0
:Bad River
Fort Pierre       6.7    7.6    8.4   10.9   15.5   19.5   25.4
:Little Minnesota
Peever           13.2   13.5   14.2   15.3   16.3   18.9   19.6
:Minnesota River
Big Stone Lake   968.0  968.0  968.0  968.2  968.7  970.3  971.3
```

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...

                             Chance of Falling Below Stages
                                  at Specific Locations
                             Valid Period:
LOCATION             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               3.6     3.6     3.5     3.5     3.5     3.5     3.5
Redfield             3.4     3.4     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 Broadwy    4.5     4.5     4.5     4.5     4.5     4.5     4.5
Castlewood           3.9     3.9     3.9     3.9     3.9     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          2.6     2.6     2.6     2.6     2.6     2.6     2.5
:Bad River
Fort Pierre          0.5     0.5     0.5     0.5     0.5     0.5     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.

weather.gov