

# **2023 Spring Forecast & Flood Outlook**

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# Spring 2023 Flooding Outlook

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- Current conditions suggest slightly above normal risk for spring runoff flooding this year along the Mississippi.
  - Near normal river levels
  - Near normal soil moisture
  - Above normal snowpack in Upper Mississippi basin
  - Normal frost depths
  - Slight drought going into the winter months
- Things can change, we still have several weeks of winter.
- Continue to monitor the latest forecasts and communications from the National Weather Service.



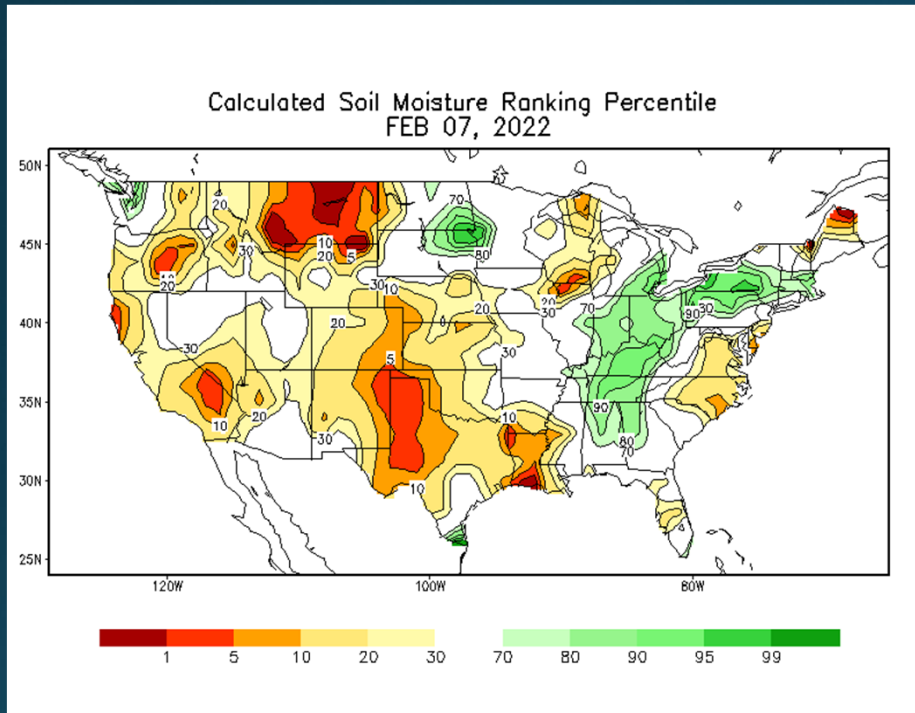


# Soil Moisture

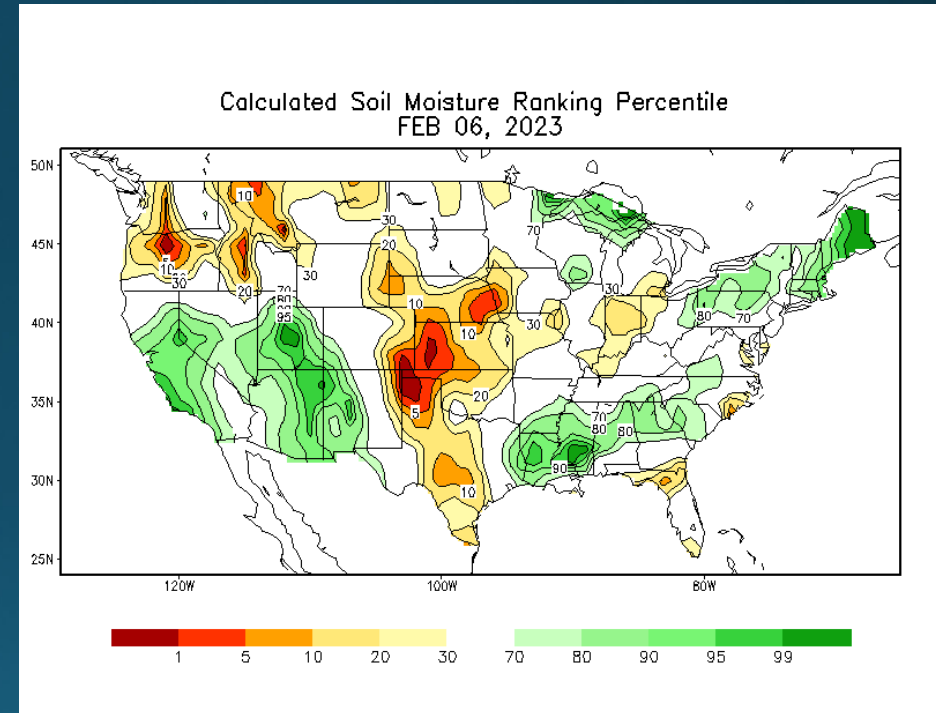
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Last Year



This Year



Soil moisture is similar: a bit higher across northern MN & southern WI.  
The ranking is near normal to slightly higher in some spots this year

What about frost depth?



# Frost Depth

## Frost Depth (inches)

In regions of the central U.S.

February 7, 2023

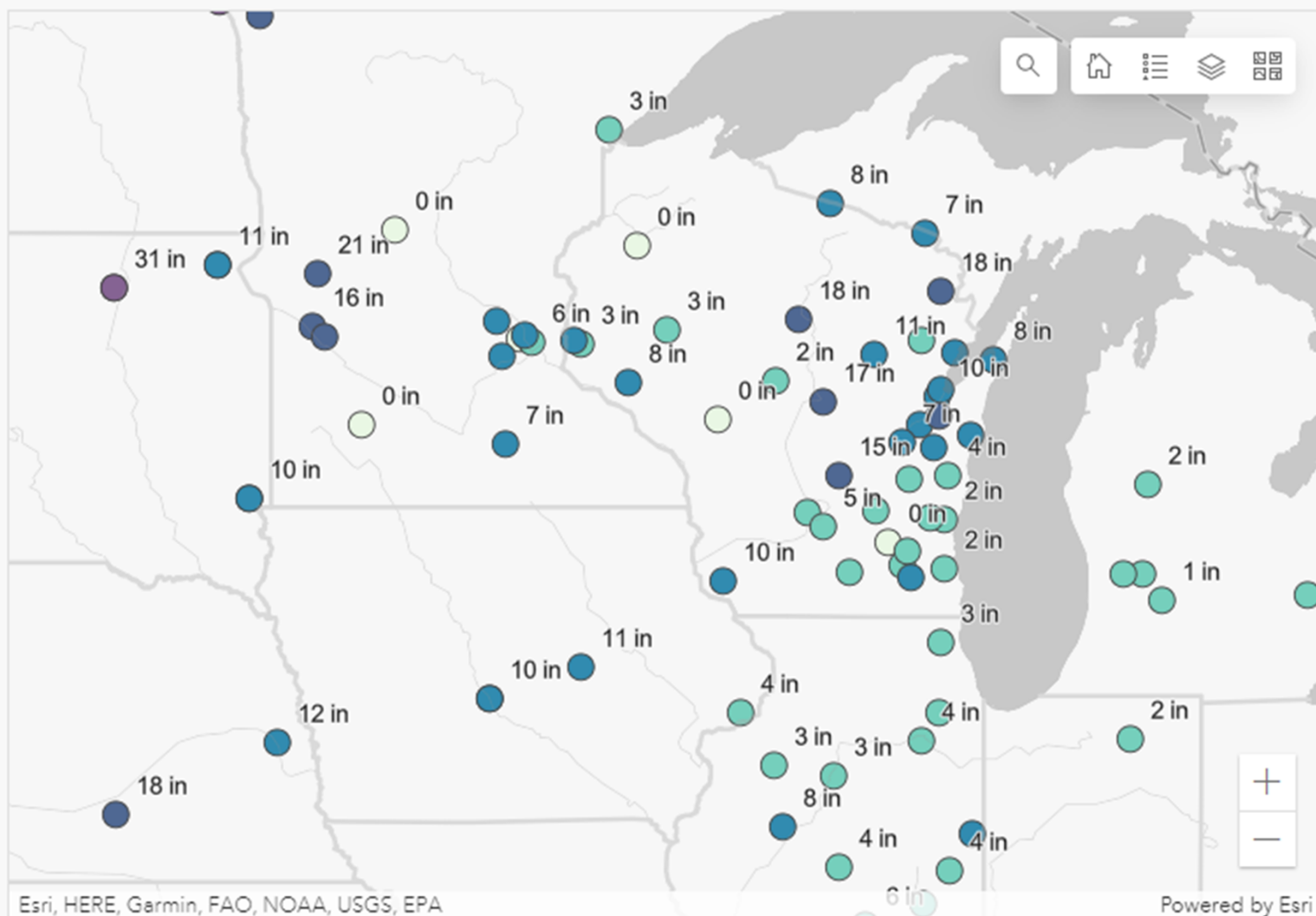
### About This Map

This map displays recent frost depth measurements in terms of inches below the soil surface. To view all frost depth sites in the NCRFC service area, beyond those that recently reported, turn on the "All NCRFC Frost Depth Sites" layer using the layer list button in the top right.

### Soil Frost Depth (Inches)

#### FrostDepth

- > 36" - 60"
- > 24" - 36"
- > 12" - 24"
- > 6" - 12"
- > 0" - 6"
- 0"





# Frost depth compared to past years?

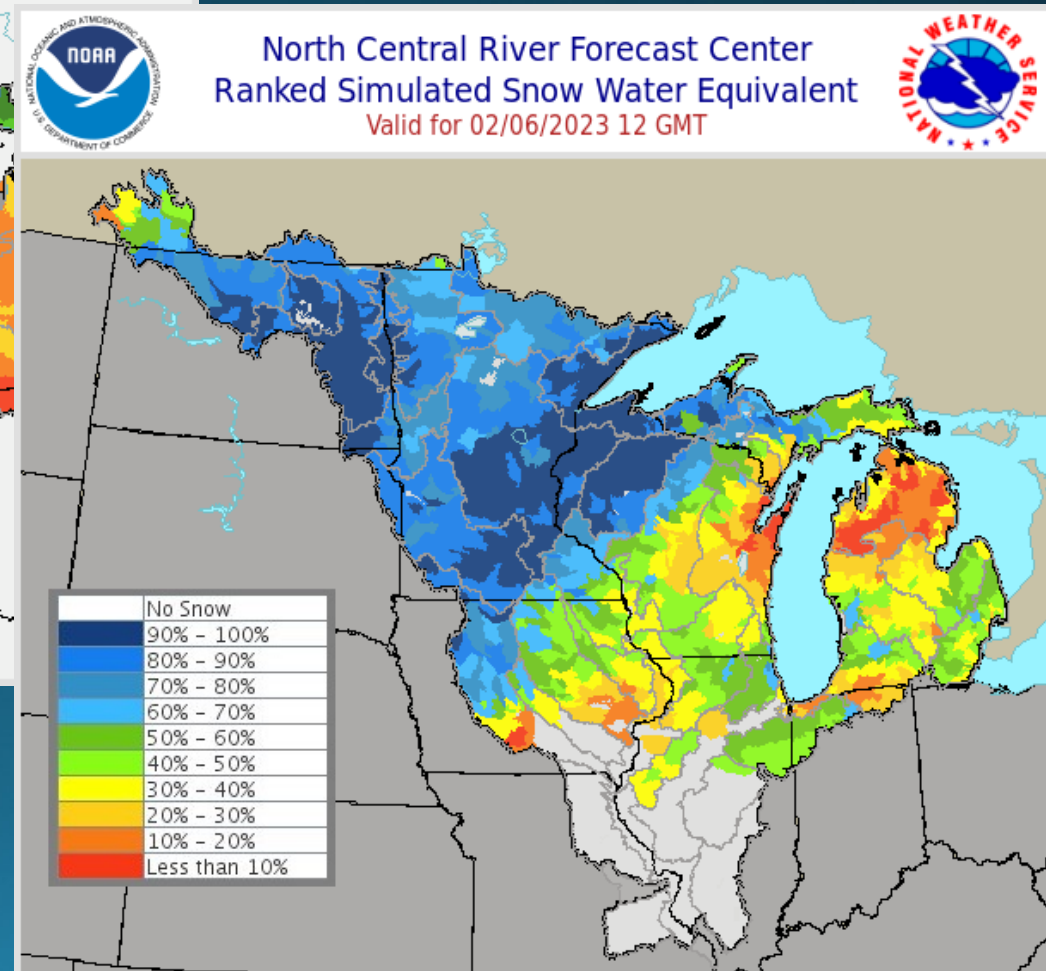
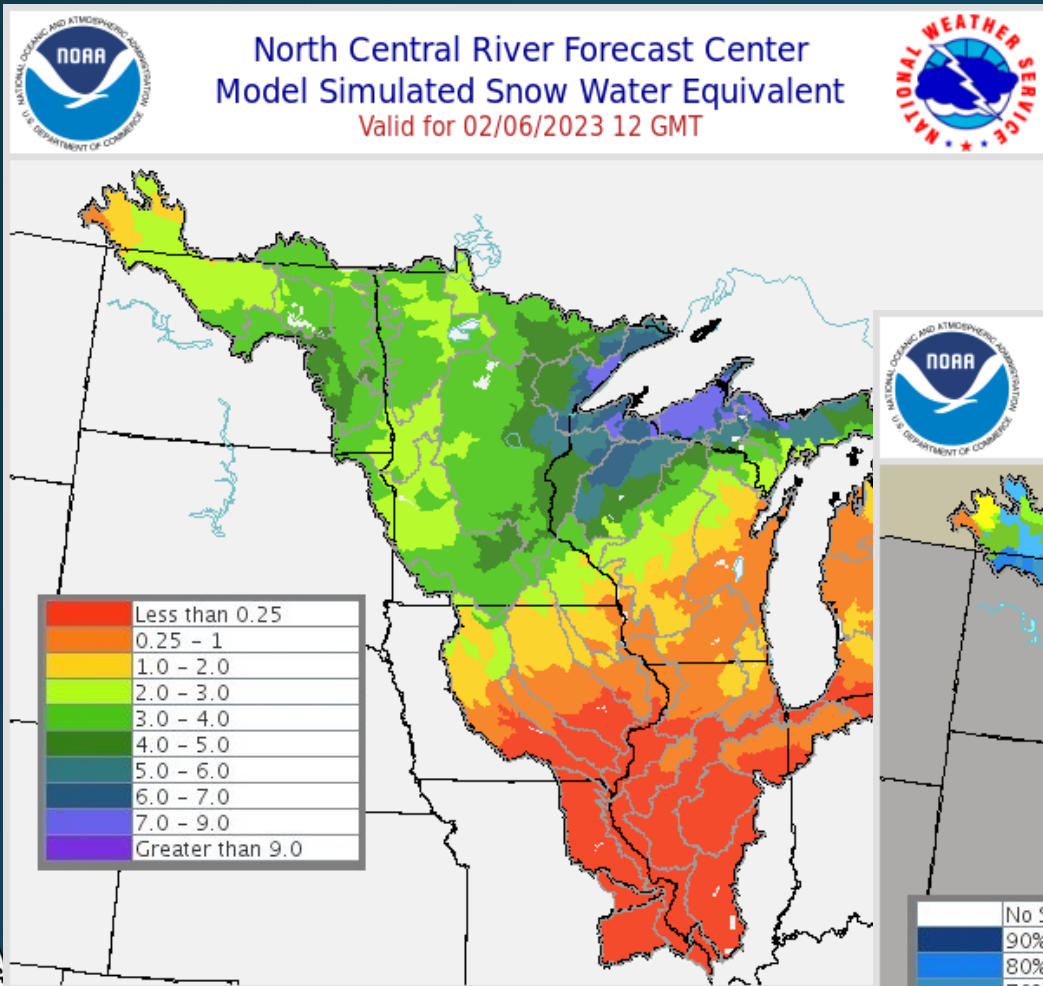
- Frost Depth at NWS La Crosse:
  - January 26, 2020 **17 inches**
  - January 26, 2021 **8 inches**
  - February 7, 2022 **12 inches**
  - February 3, 2023 **3 inches**
    - February 6<sup>th</sup>, 2023 **6 inches**



# Current Snowpack Water Content

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# This Week's Forecast – La Crosse

## Weekly Summary

	Tue Feb 7	Wed Feb 8	Thu Feb 9	Fri Feb 10	Sat Feb 11	Sun Feb 12	Mon Feb 13
Max Temp, °F	36	41	35	27	33	41	39
Min Temp, °F	21	21	20	11	11	25	25
Min Wind Chill, °F	19	15	17	6	4	16	20
Max Wind, mph	13	8	17	18	16	16	13
Min Wind, mph	5	3	3	10	7	7	7
Max Wind Gust, mph	24	14	26	28	23	23	18
Max Cloud Cover, %	80	82	93	81	23	80	75
Min Cloud Cover, %	2	9	79	25	7	18	59
Max Prob. of Precip., %	1	12	62	19	0	4	18
Max RH, %	88	100	100	81	84	88	92
Min RH, %	69	67	78	62	58	67	70
Max Dew Point, °F	30	32	29	22	22	30	29
Min Dew Point, °F	21	21	25	13	10	22	25



# This Week's Forecast – St. Cloud

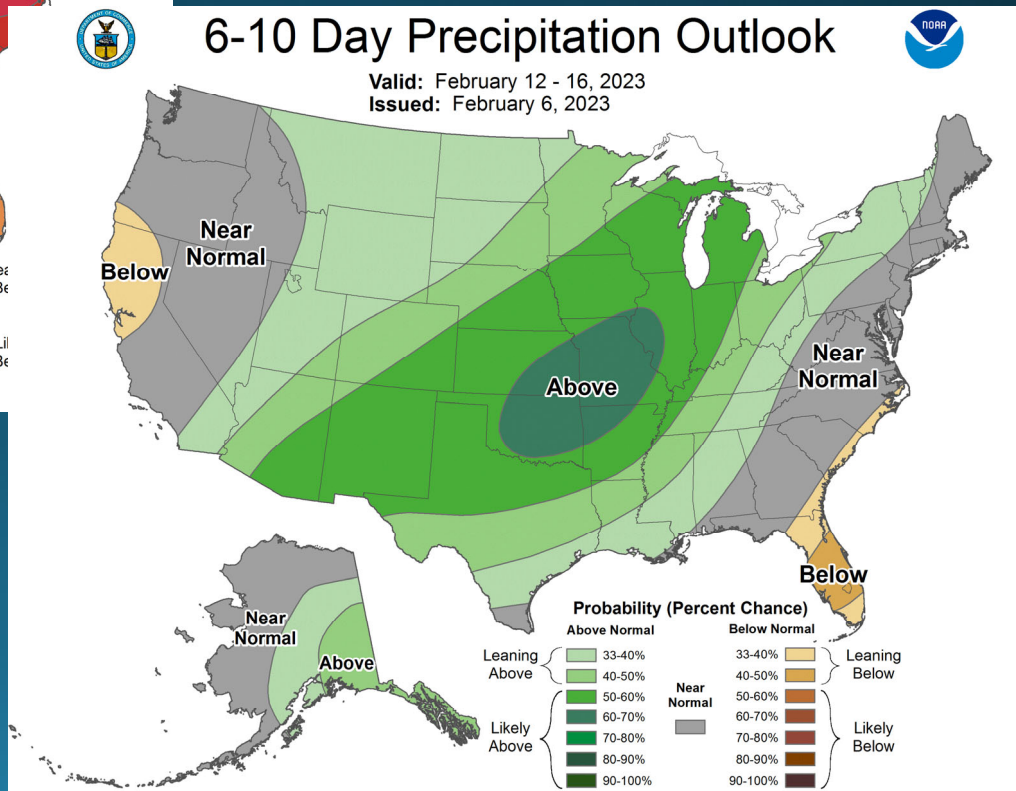
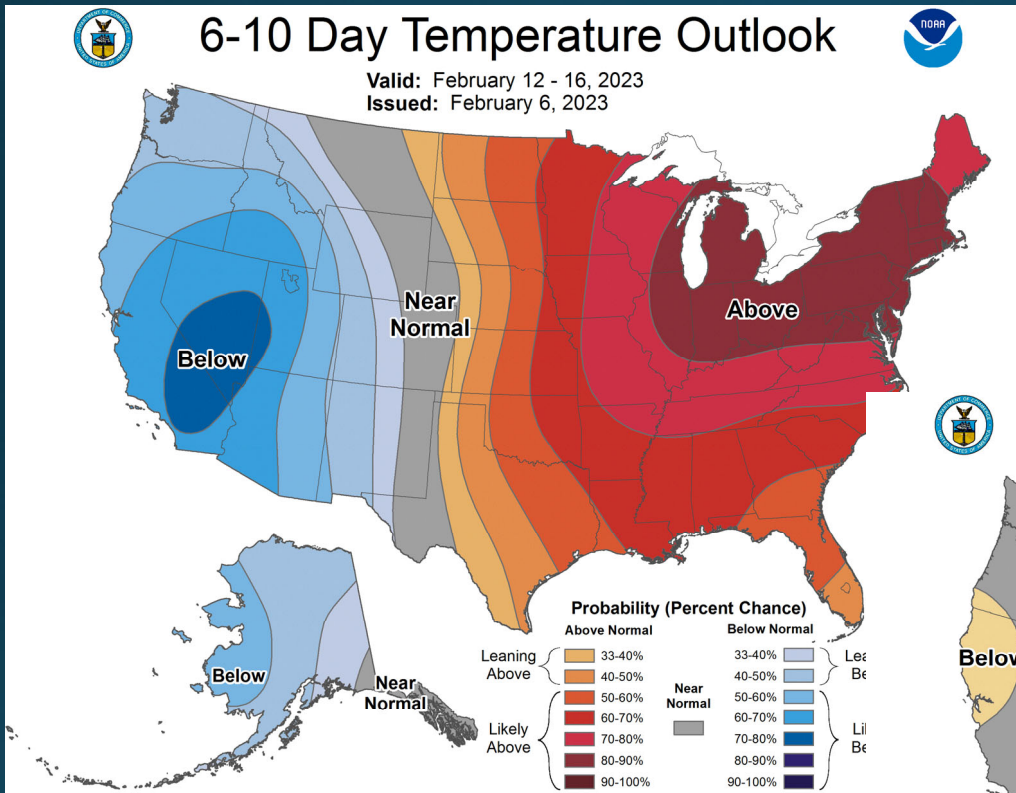
## Weekly Summary

	Tue Feb 7	Wed Feb 8	Thu Feb 9	Fri Feb 10	Sat Feb 11	Sun Feb 12	Mon Feb 13
Max Temp, °F	33	35	34	22	31	36	34
Min Temp, °F	19	19	9	6	6	21	21
Min Wind Chill, °F	12	11	1	-6	-2	13	16
Max Wind, mph	13	9	23	22	16	13	10
Min Wind, mph	5	5	5	6	6	7	8
Max Wind Gust, mph	20	13	36	32	24	18	16
Max Cloud Cover, %	40	52	90	60	34	78	75
Min Cloud Cover, %	0	11	57	8	13	33	33
Max Prob. of Precip., %	1	1	18	1	0	1	6
Max RH, %	92	96	96	84	87	92	92
Min RH, %	78	85	78	71	78	78	78
Max Dew Point, °F	27	30	28	14	23	28	27
Min Dew Point, °F	20	16	14	7	7	20	22

# Weather Outlook 6 to 10 Days

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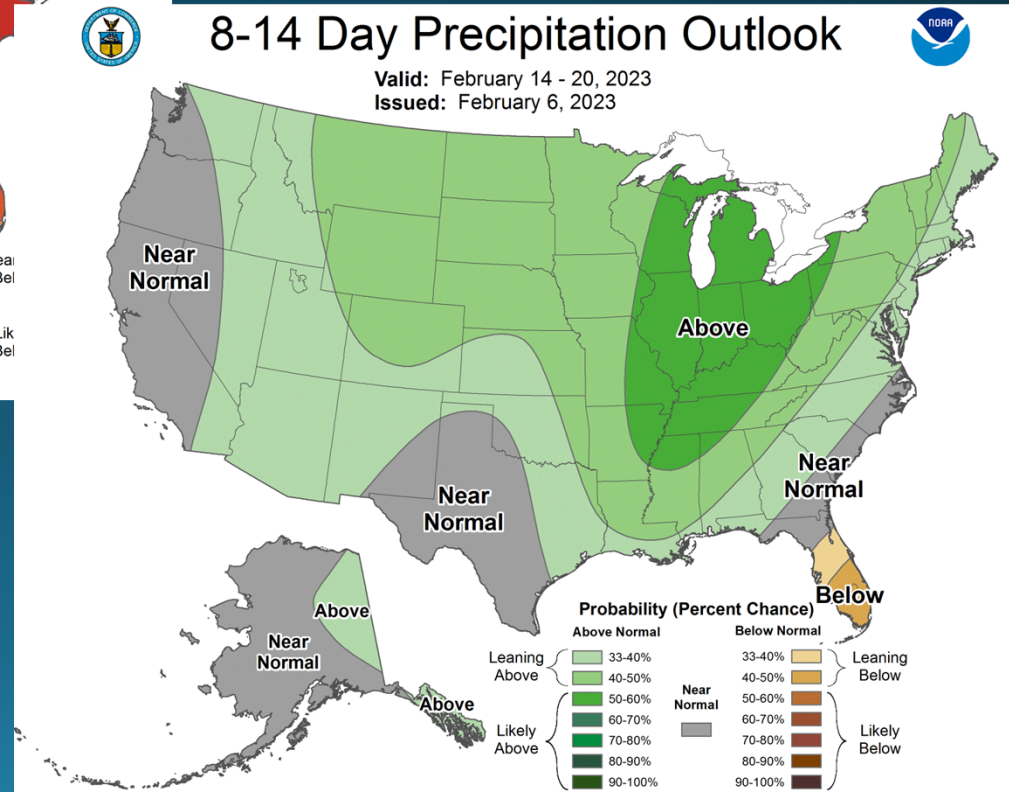
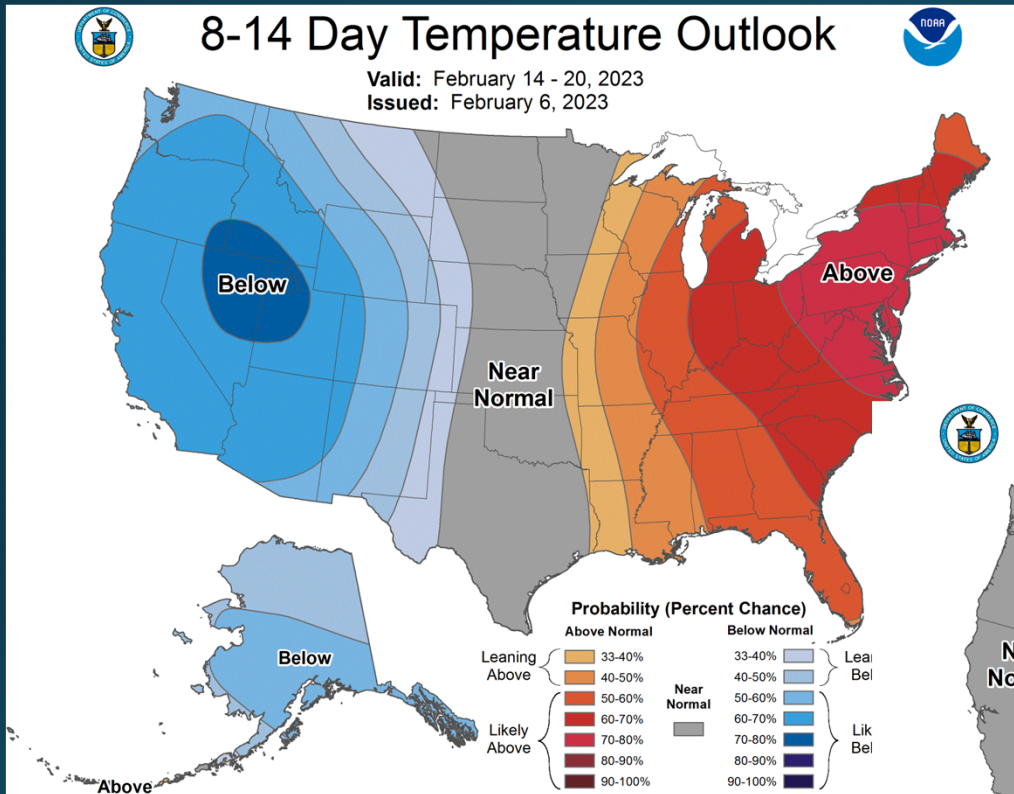
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# Weather Outlook 10 to 14 Days

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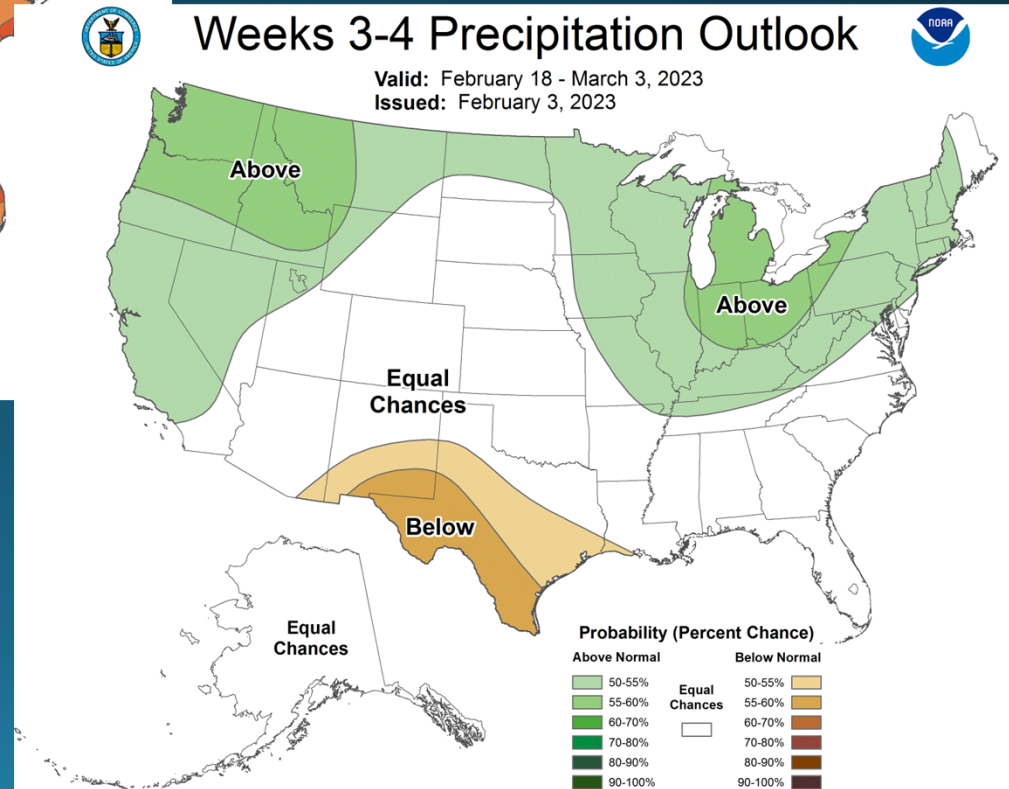
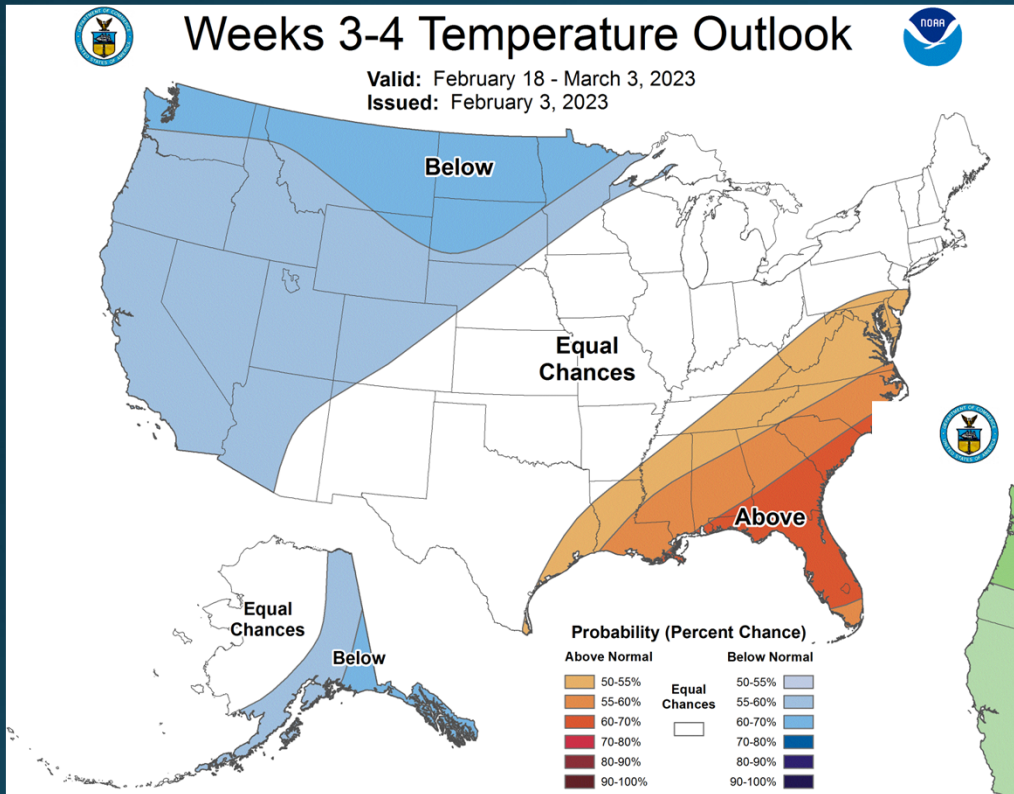




# Weather Outlook 3 to 4 Weeks

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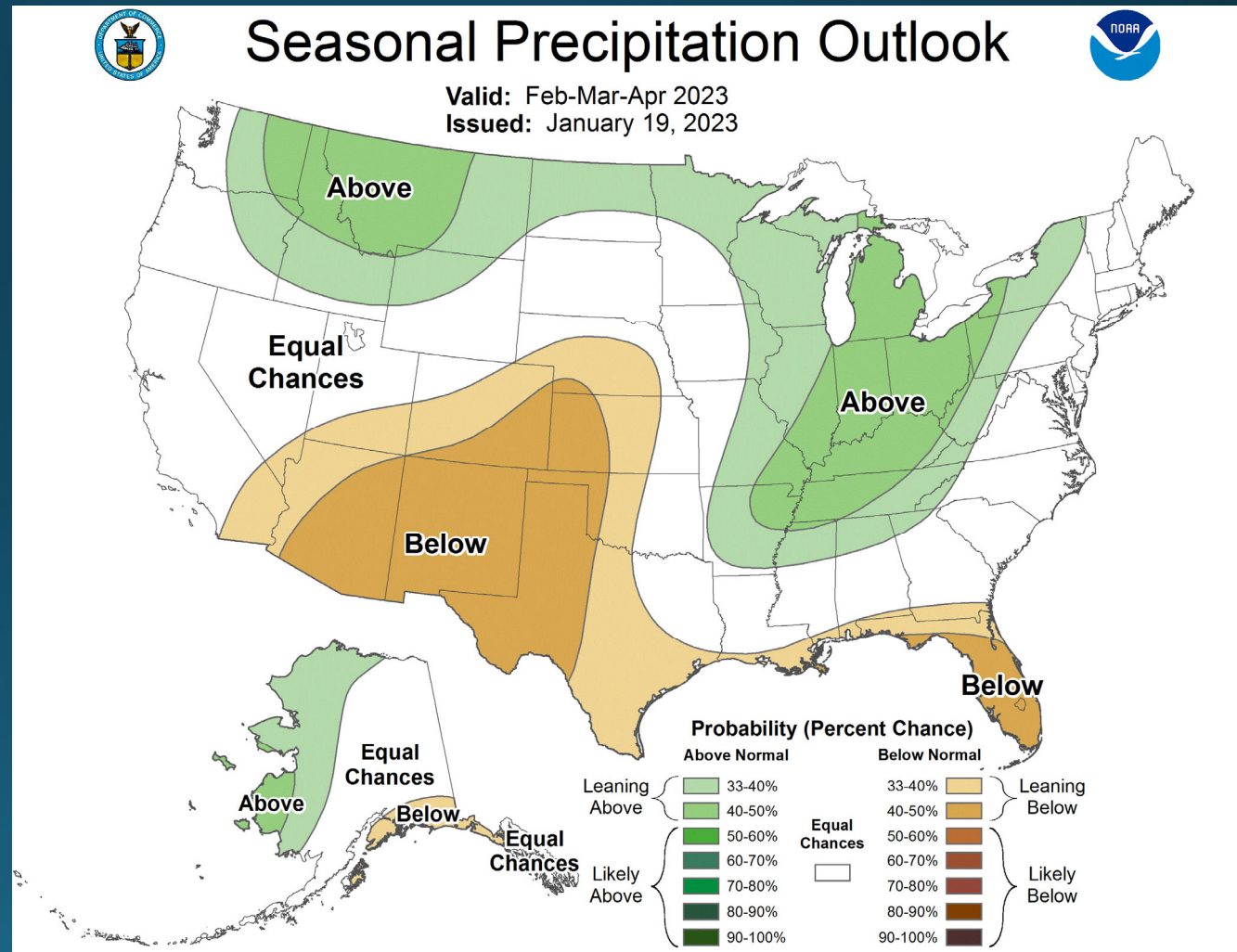
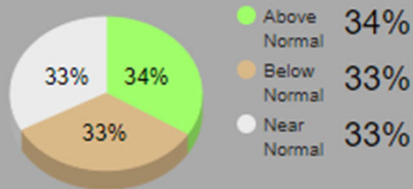
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# Precipitation Outlook Through April

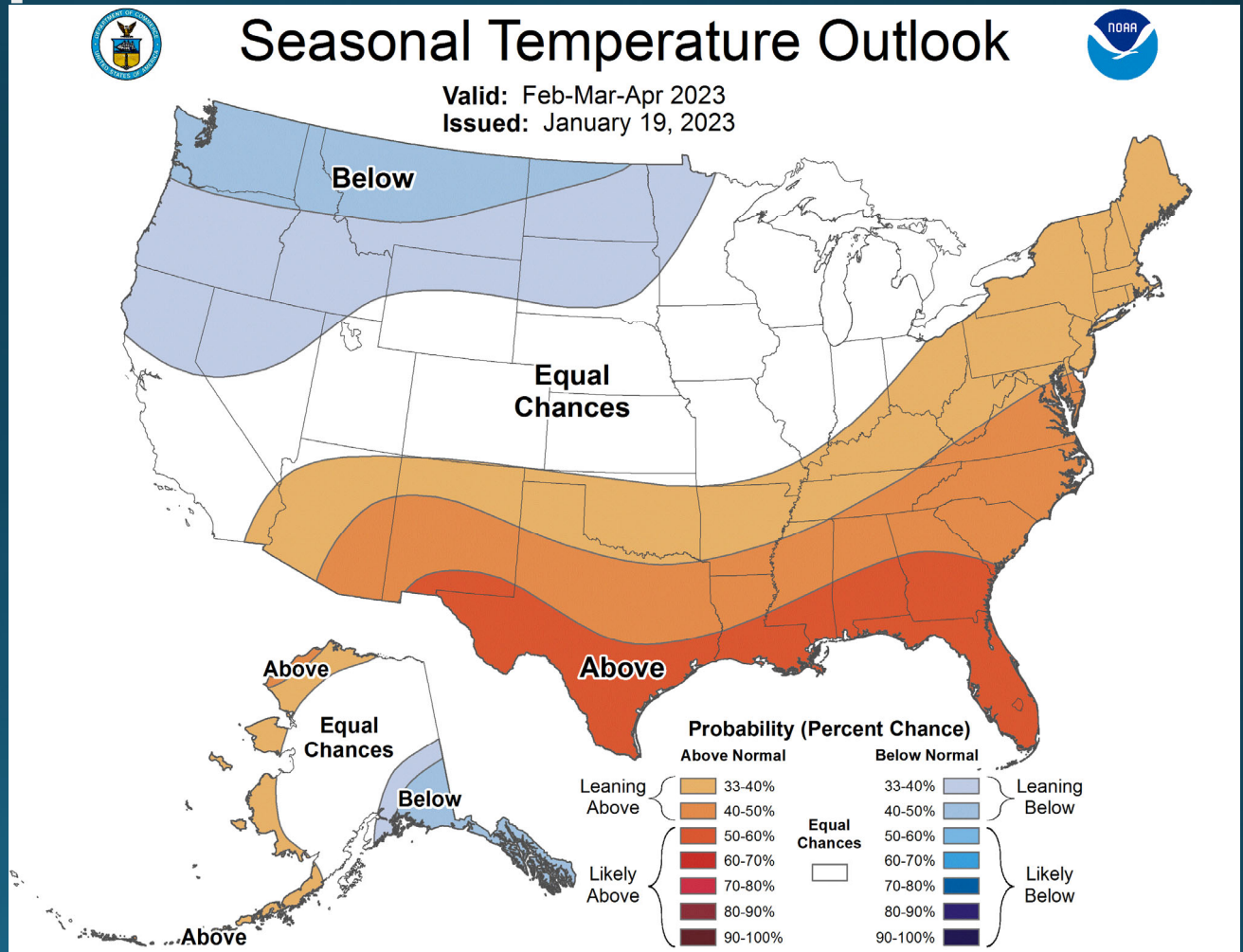
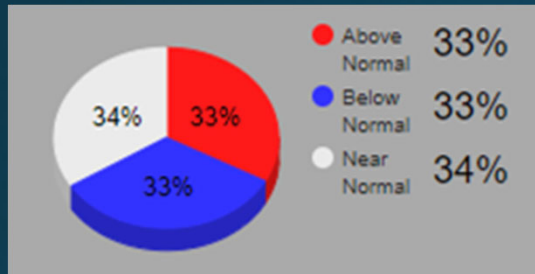
## Breakdown for La Crosse, WI

Three Category Precipitation Outlook  
Normal Precipitation: **6.52**



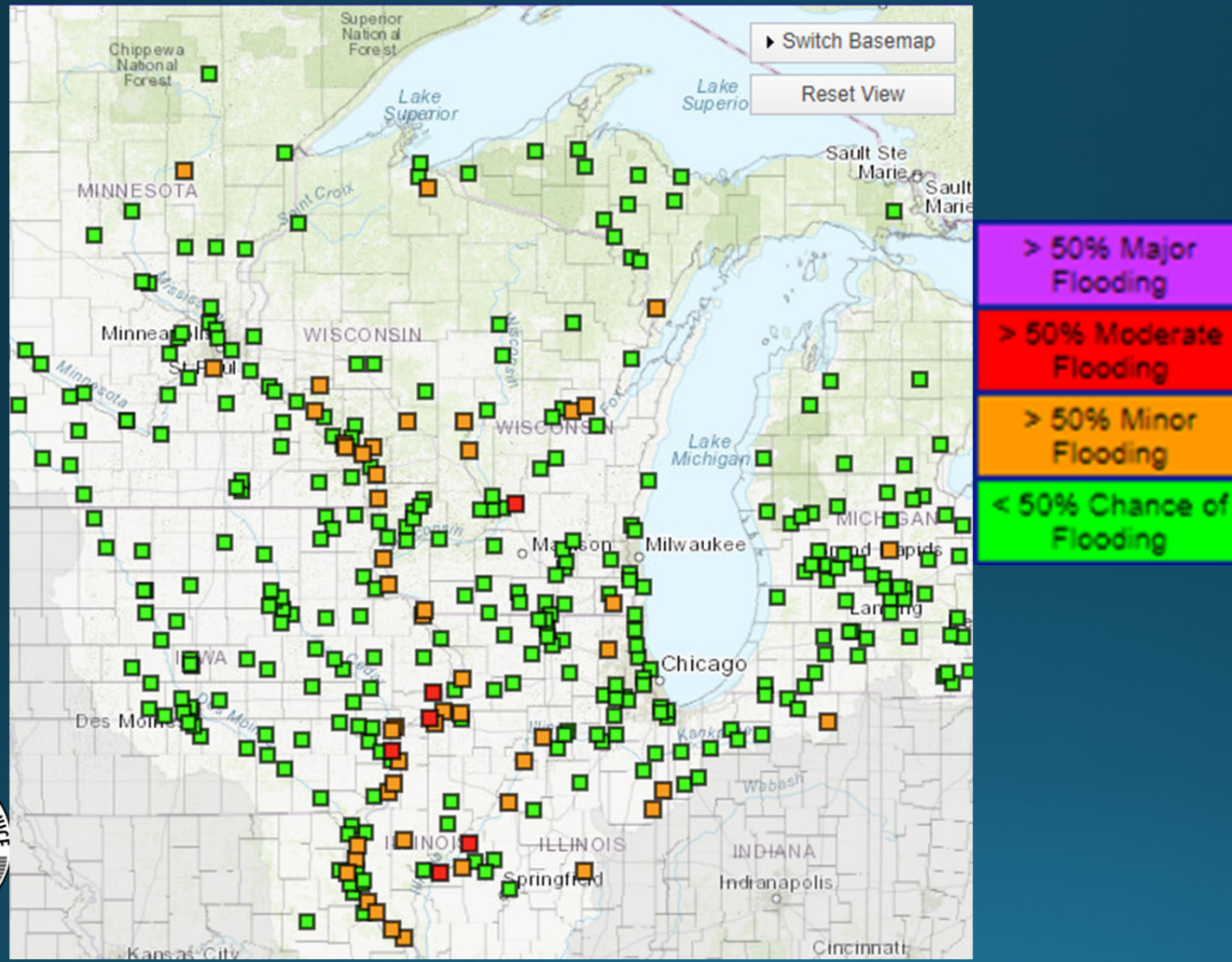
# Temperatures Outlook Through April

## Breakdown for La Crosse, WI





# Long-Range Flood Risk



Long range outlook based on conditions on 1-23-2023.

> 50% chance of  
Chance of Flooding  
along the Mississippi

**First Spring Flood  
Outlook: 2/09/2023**

**Second Spring Flood  
Outlook: 2/23/2023**

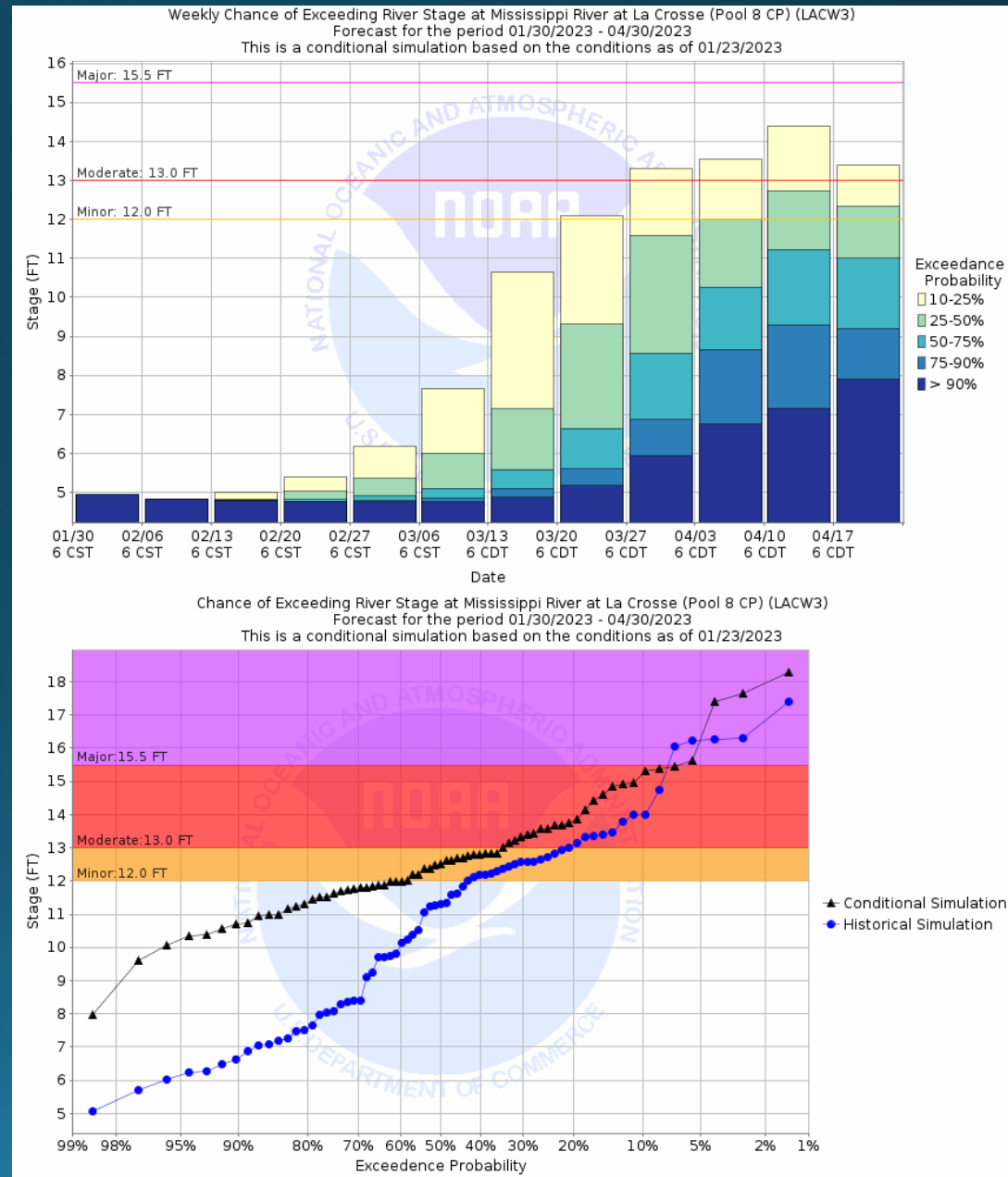
**Third Spring Flood  
Outlook: 3/09/2023**

# Spring Flood Outlook Dates

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- 1<sup>st</sup> issuance: February 9<sup>th</sup>
- 2<sup>nd</sup> issuance: February 22<sup>th</sup>
- 3<sup>rd</sup> issuance: March 9<sup>th</sup>



# Summary

- Overall slightly above-normal chances for flooding this Spring along the Mississippi River
- Above normal snow and precipitation.
- Near normal streamflow & soil moisture.
- Near to below normal frost depths
- Future precipitation and temperatures this spring will be key on whether the flood risk changes.
  - Rainfall on top of melting snow will greatly increase chance for flooding
  - A slow snowmelt with little additional precipitation will greatly decrease chance for flooding

Potential Spring Flooding Factors	Impact to Potential Spring Flooding
River Levels	Normal Levels
Soil Moisture	Near Normal
Winter Precipitation	Near to above Normal
Snowpack/Liquid Equivalent	Above Normal
Rate of Snowmelt	Unknown
Frost Depth	Normal to below normal levels
Additional Spring Precipitation	Unknown





Thank You  
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