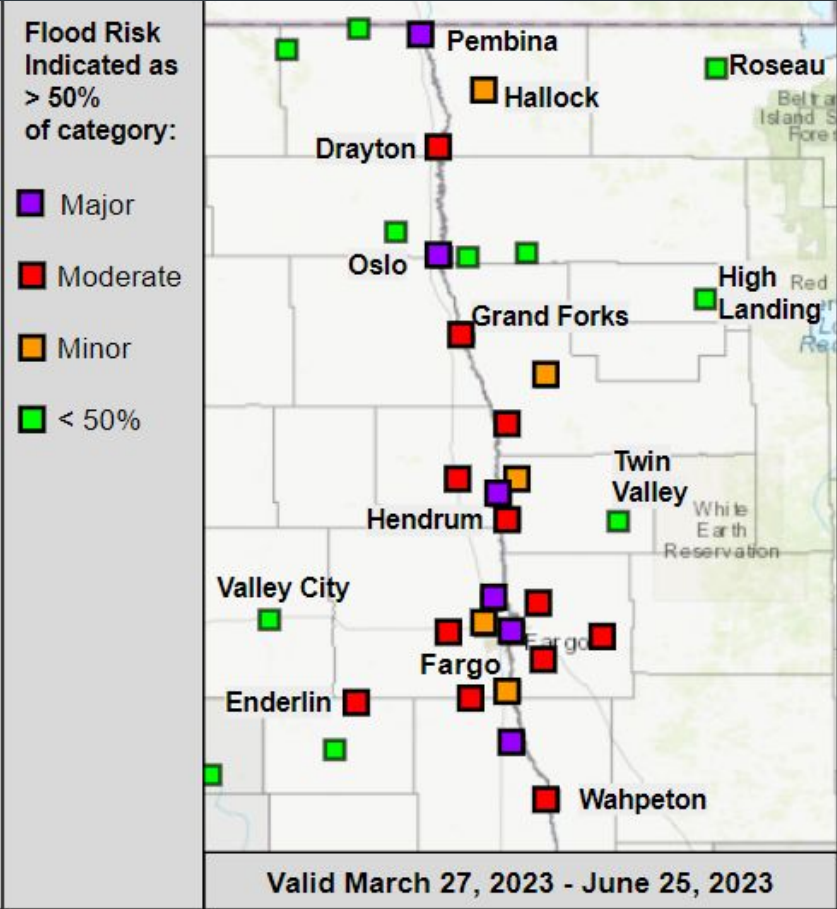


Key Message

- The risk for significant (moderate or higher) spring flooding remains across the area.
- It continues to remain generally above long-term historical averages for most of the Red River Basin.





Key Points

- The outlook probabilities issued on March 23rd remain valid and should be used for flood preparations.
- However with additional future snow/precipitation, the focus for preparedness operations may want to shift rightward on the graph (toward the lower probabilities and higher stage values).



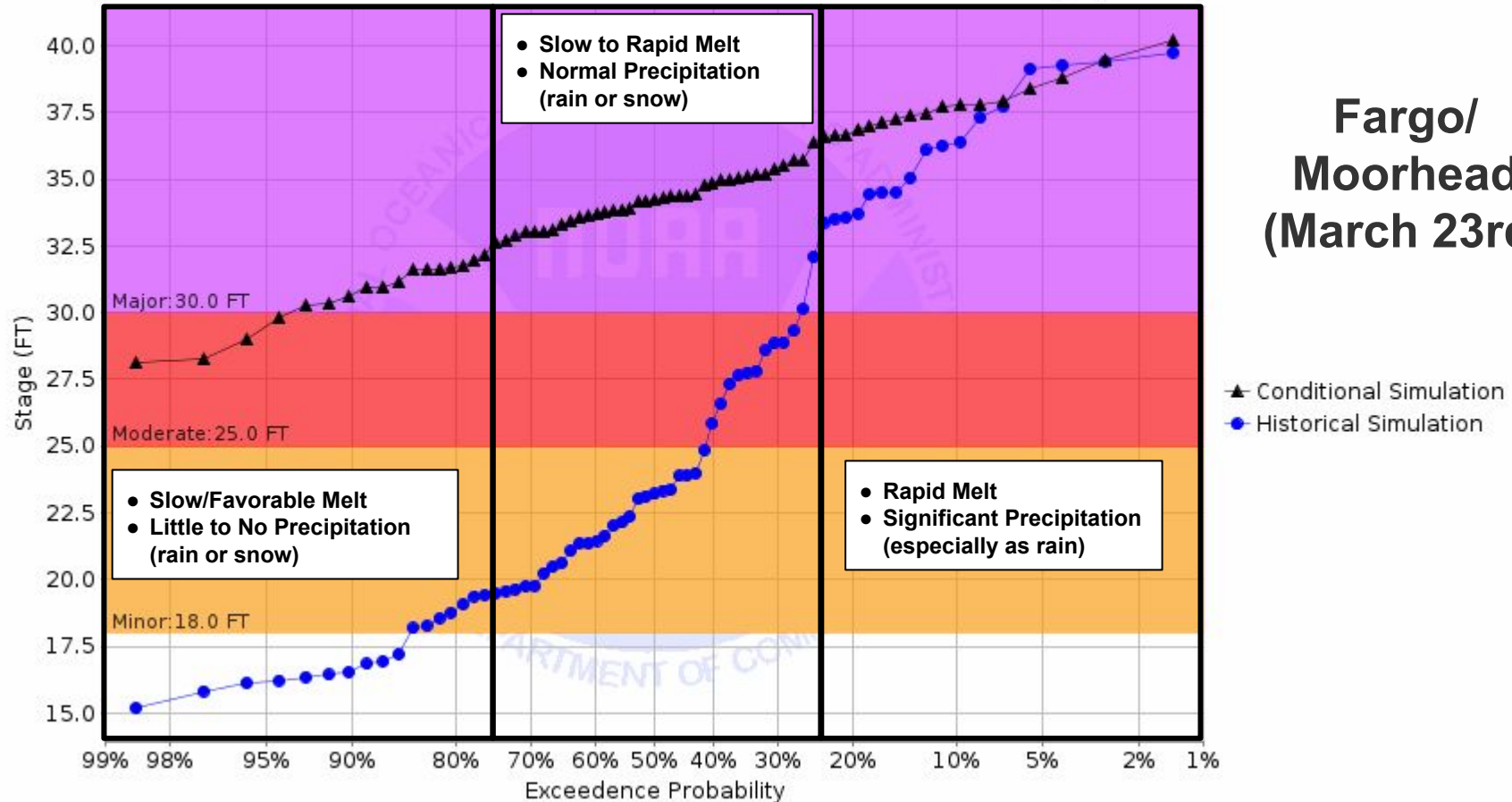
Snowmelt Outlook Discussion:

Winter temperatures and a lack of spring continues to be the main story across the region as March comes to an end. The temperature outlook over the next 14 days remains well below normal with only a few hours above freezing expected at most on any afternoon with Sunday being the warmest day of the period. Attention then turns to another round of snowfall with a large storm system on the horizon Tuesday and Wednesday next week. This system, and the cold air behind it, will delay the beginning of the melt. Based on these below normal temperatures, any snowmelt and runoff induced river rises are not expected to begin until April 10th or later.

Chance of Exceeding River Stage at the North at Fargo WTP (FGON8)

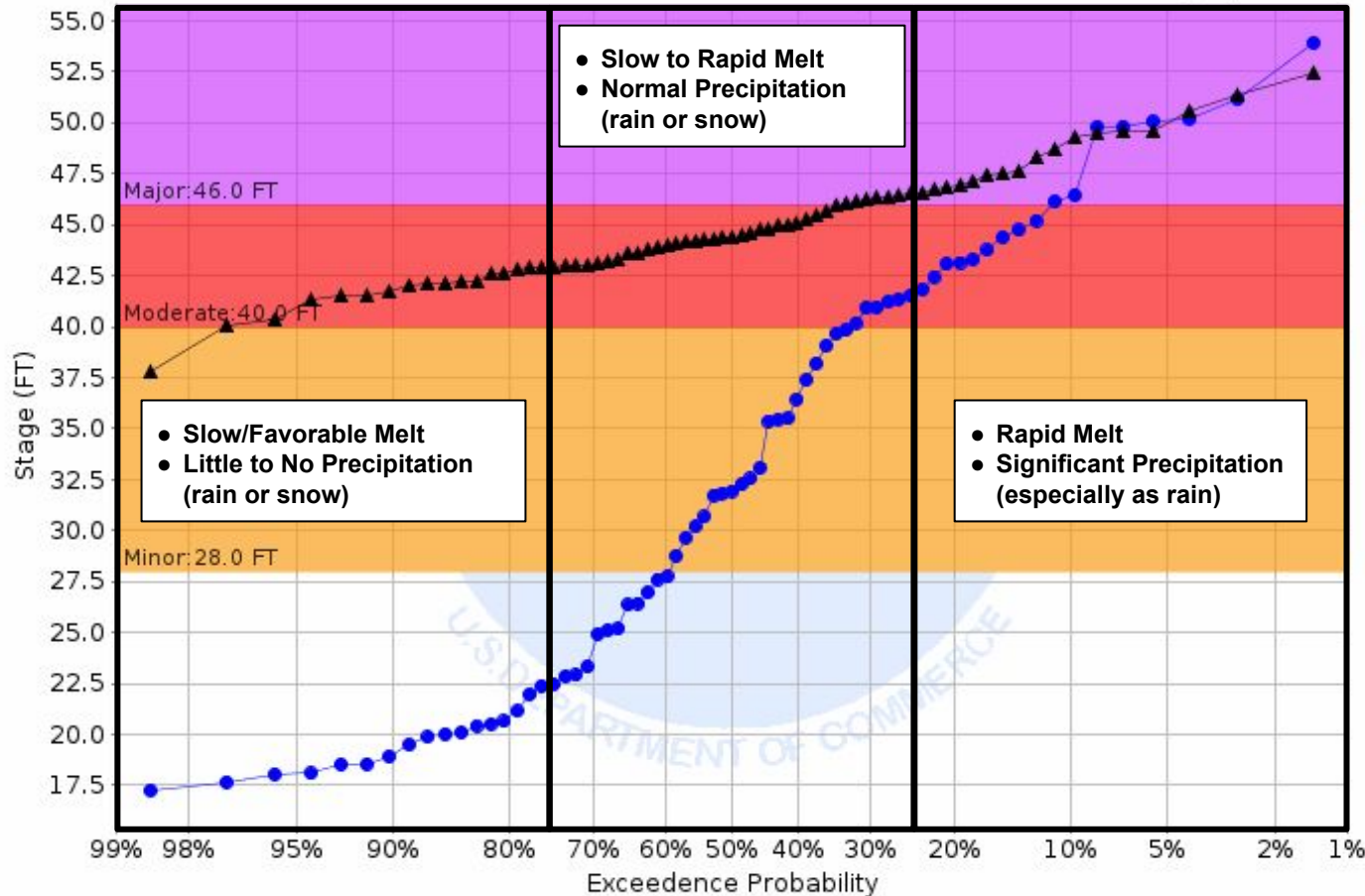
Forecast for the period 03/27/2023 - 06/25/2023

This is a conditional simulation based on the conditions as of 03/20/2023



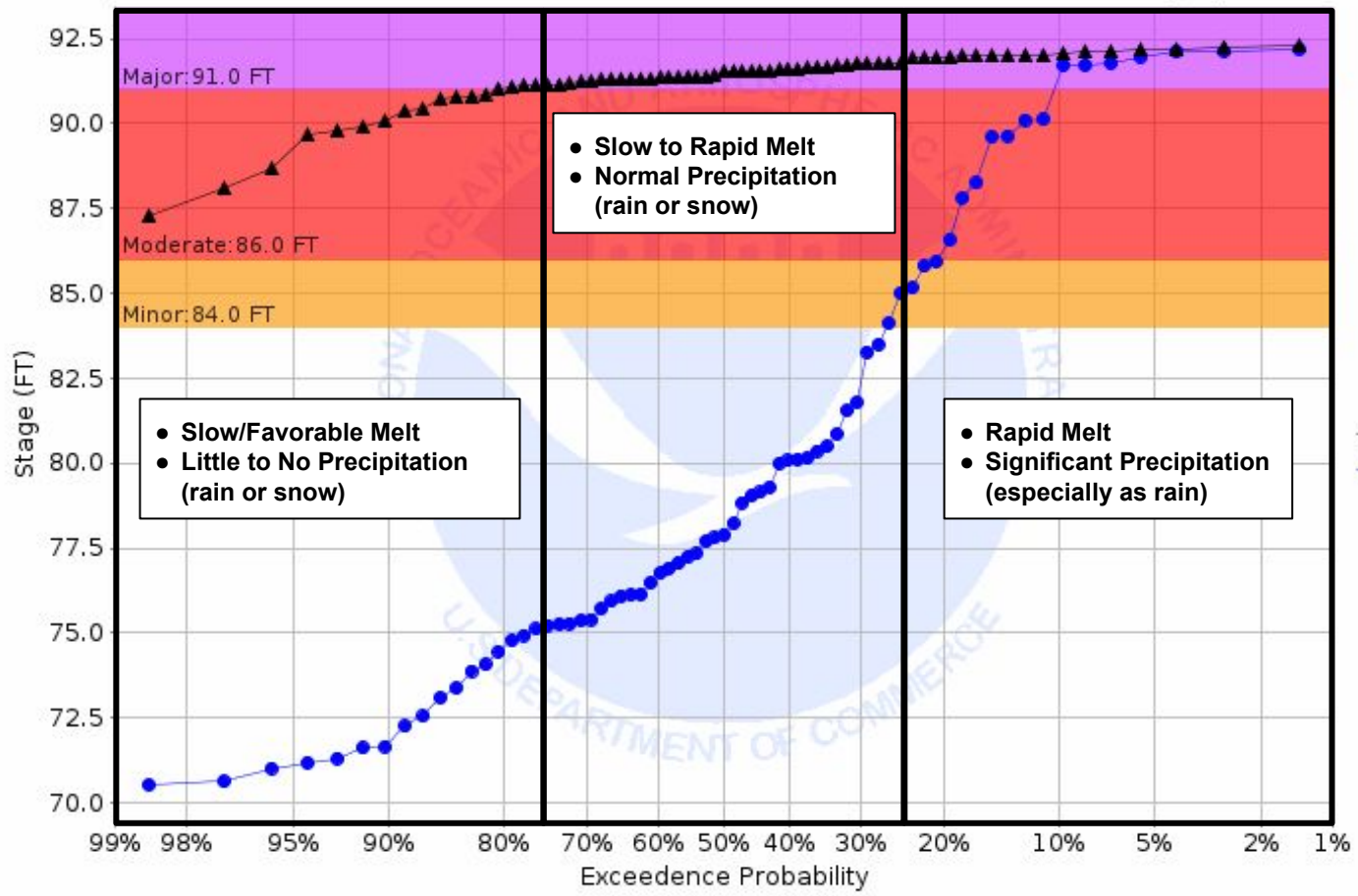
Fargo/ Moorhead (March 23rd)





Grand Forks/ East Grand Forks (March 23rd)

Chance of Exceeding River Stage at Harwood River at Harwood (HWDN8)
 Forecast for the period 03/27/2023 - 06/25/2023
 This is a conditional simulation based on the conditions as of 03/20/2023



Harwood (March 23rd)



Valid March 27, 2023 - June 25, 2023

RED RIVER MAINSTEM	95%	90%	75%	50%	25%	10%	5%
Wahpeton	11.9	12.1	13.1	14.3	15.3	16.4	16.8
Hickson	27.5	28.1	30.4	32.6	34.0	35.4	36.3
Fargo	29.5	30.7	32.7	34.2	36.4	37.8	38.6
Halstad	32.5	33.7	35.7	38.2	39.5	39.9	40.2
Grand Forks	41.0	41.8	42.9	44.4	46.5	49.2	50.0
Oslo	35.0	35.3	35.7	36.3	37.3	38.4	38.7
Drayton	38.6	39.5	40.1	40.8	41.8	42.9	43.5
Pembina	45.6	46.8	47.7	49.6	50.9	52.3	52.8
NORTH DAKOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
Wild Rice River							
Abercrombie	15.7	16.1	17.5	19.2	21.8	24.0	25.0
Sheyenne River							
Valley City	11.6	12.0	12.6	13.3	14.3	18.0	19.5
Lisbon	12.0	12.6	13.2	13.9	15.2	18.5	20.1
Kindred	16.8	17.2	18.3	19.6	20.5	21.2	21.2
West Fargo Diversion	16.5	17.2	17.6	19.3	21.3	21.3	21.3
Harwood	89.3	90.1	91.1	91.5	91.8	92.1	92.2
Maple River							
Enderlin	11.4	11.6	12.3	12.9	13.2	13.8	14.2
Mapleton	21.0	21.6	22.0	22.4	22.8	23.2	23.7
Goose River							
Hillsboro	9.8	11.6	13.0	13.9	14.4	15.1	15.6
Forest River							
Minto	4.3	4.6	5.2	5.7	6.5	7.1	7.2
Pembina River							
Walhalla	5.4	5.7	6.2	6.9	8.3	10.4	11.3
Neche	9.1	9.8	11.3	12.7	16.7	19.6	20.5

March 23rd

Legend:
 Below Flood Stage
 Minor
 Moderate
 Major
 Flood of Record





Valid March 27, 2023 - June 25, 2023

MINNESOTA TRIBUTARIES	95%	90%	75%	50%	25%	10%	5%
South Fork Buffalo River							
Sabin	14.0	14.4	14.8	15.3	15.8	16.4	16.8
Buffalo River							
Hawley	8.2	8.7	9.1	9.8	10.3	10.8	11.2
Dilworth	19.3	19.8	20.6	21.6	22.5	23.3	23.9
Wild Rice River							
Twin Valley	6.8	7.2	7.8	8.9	9.6	11.0	11.9
Hendrum	26.7	28.1	29.1	30.5	31.7	32.5	33.1
Marsh River							
Shelly	10.9	12.4	13.5	15.1	17.3	19.5	20.2
Sand Hill River							
Climax	19.9	20.7	22.7	24.9	28.3	30.7	32.1
Red Lake River							
High Landing	7.0	7.3	8.3	9.3	9.5	11.4	11.8
Crookston	13.8	14.2	15.7	17.9	20.1	22.4	23.5
Snake River							
Above Warren	63.4	63.7	64.1	64.9	65.7	67.3	68.1
Alvarado	100.1	100.8	102.0	103.5	105.6	108.1	108.6
Two Rivers River							
Hallock	800.3	800.6	802.0	804.1	807.1	808.3	809.0
Roseau River							
Roseau	8.0	8.5	9.3	10.6	13.2	15.6	17.0

March 23rd

Legend:
 Below Flood Stage
 Minor
 Moderate
 Major
 Flood of Record

