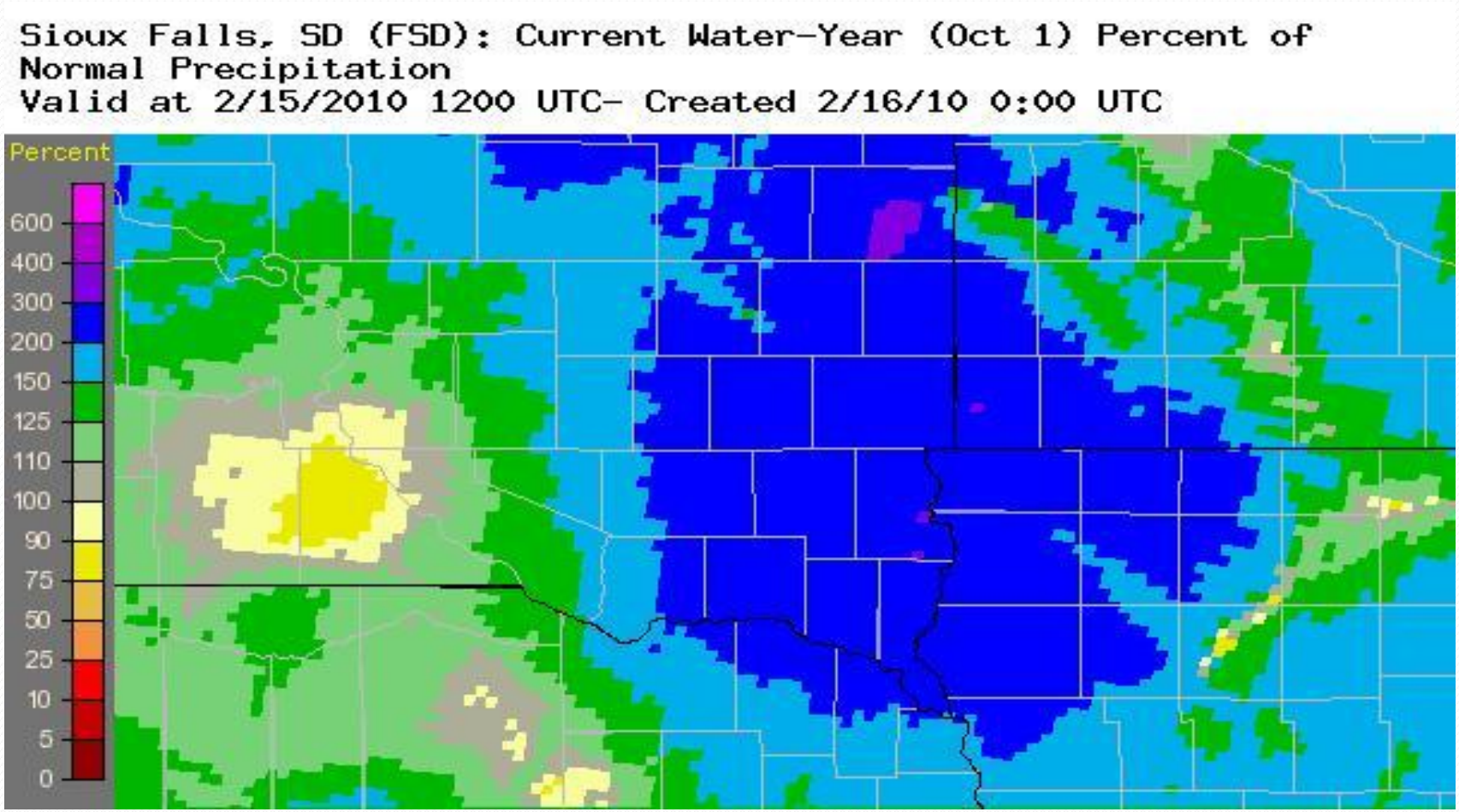
Spring Flood Outlook
National Weather Service
Sioux Falls, SD

2/19/2010



Total Precipitation from October 2009 through mid-February 2010 has been 150-300% of normal across almost the entire region.

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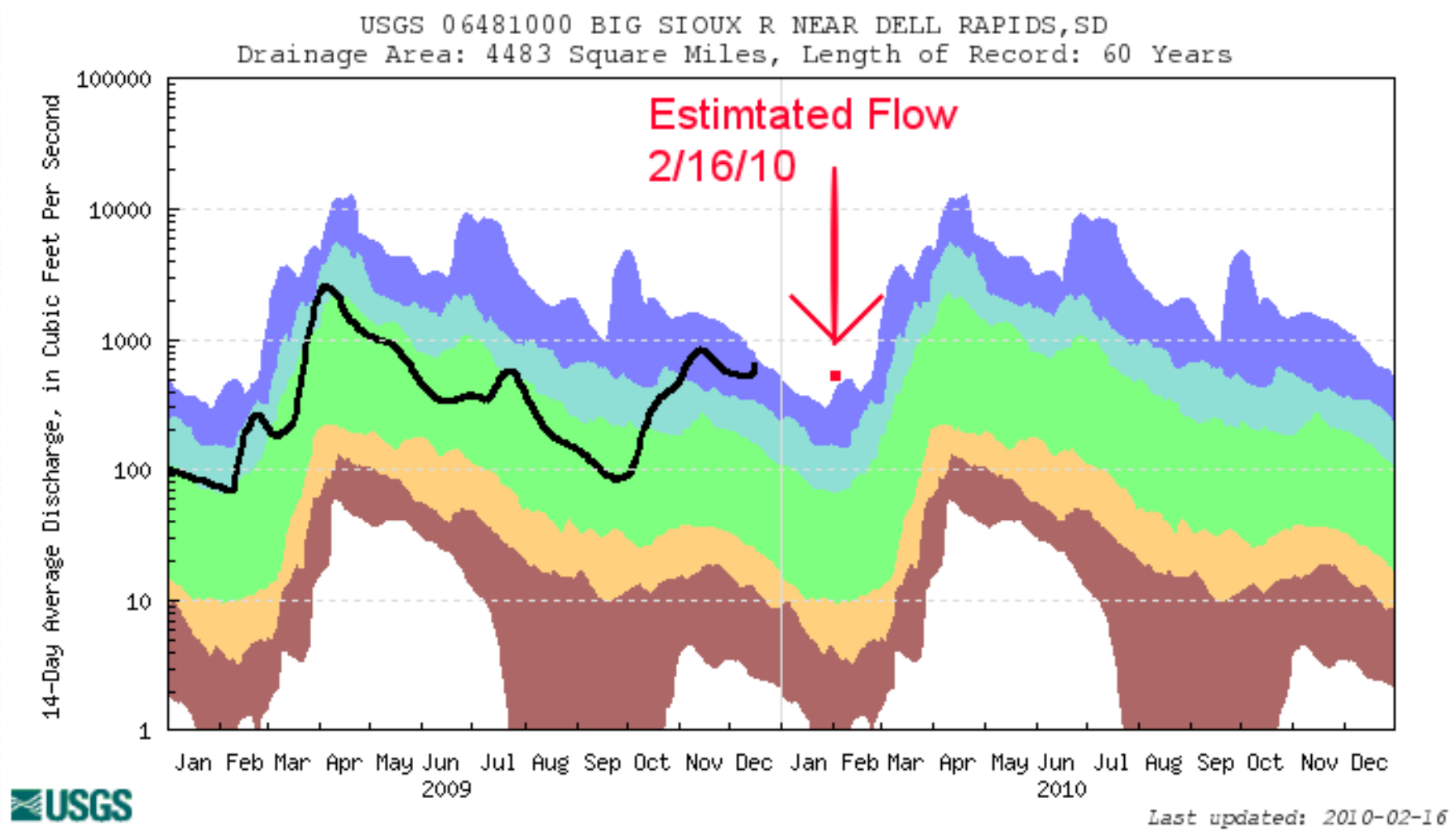
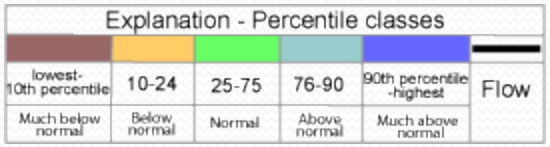


Streamflows heading into winter were much above normal. Current Streamflows are estimated to be at or close to all-time highs for this date.



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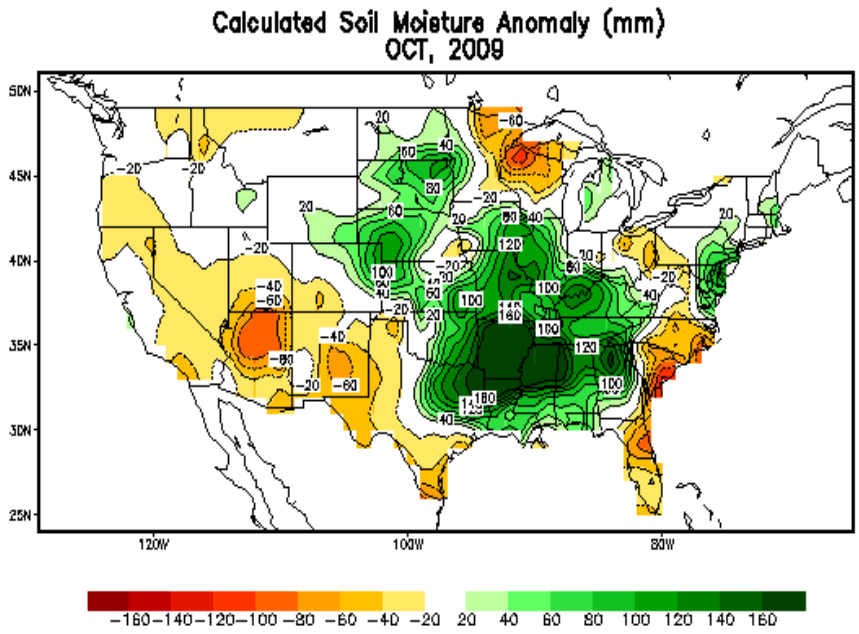

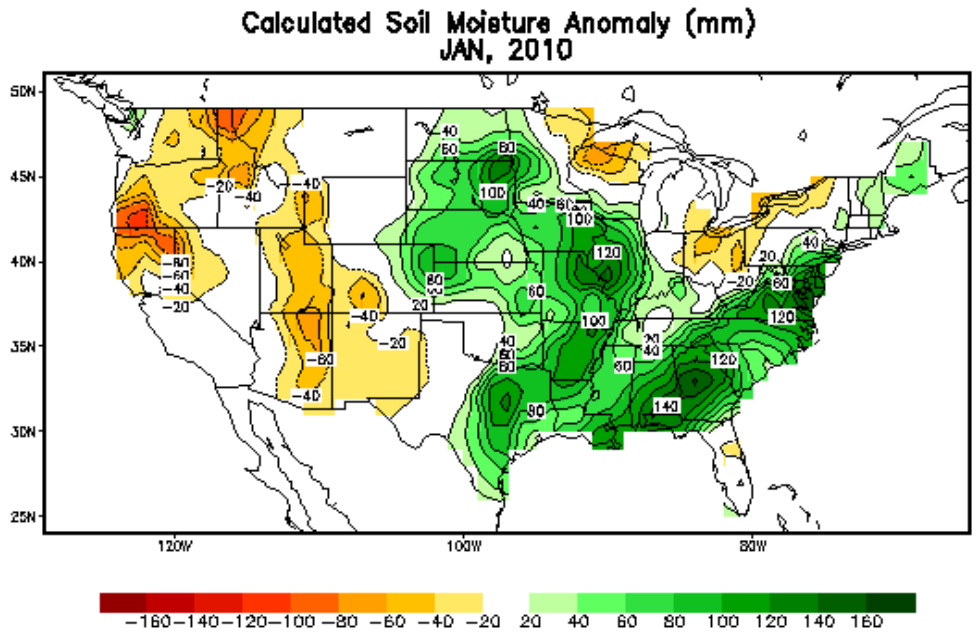

Soil Moisture anomalies have increased from +1 to +2 in early October 2009 to +3 to +4 inches at the end of January 2010. The James River basin and the northeastern part of South Dakota are showing the largest anomalies.

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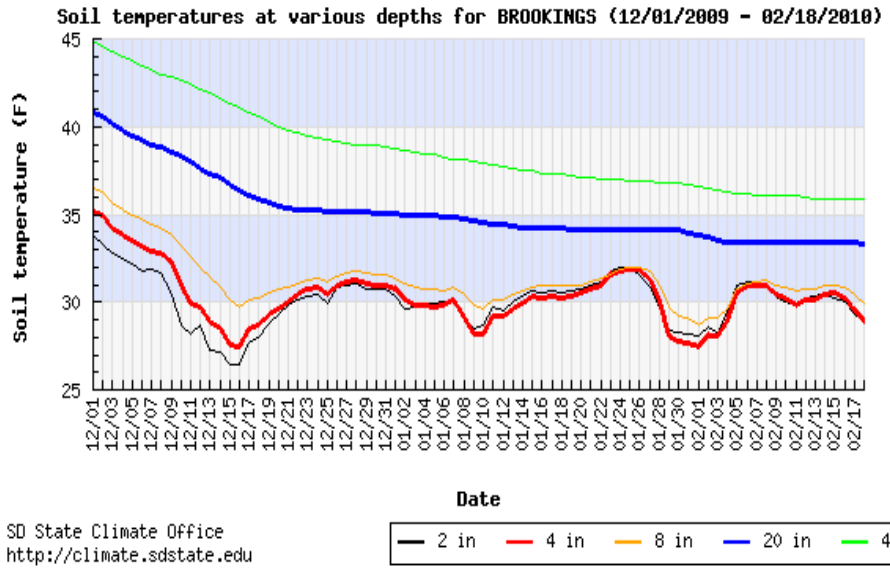

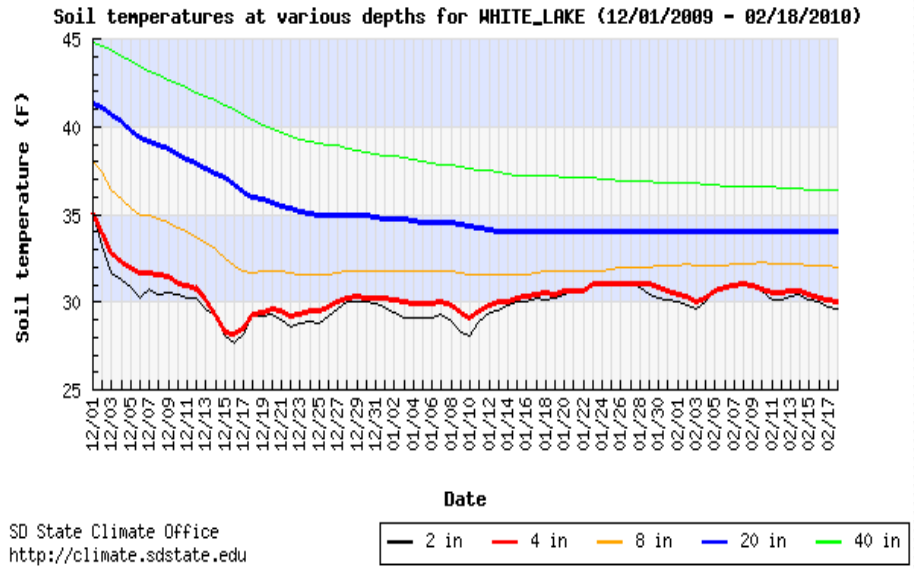

Frost depths in the soil are less than normal due to a blanketing snow cover that occurred in early December before the soils were able to freeze to significant depths.

In the images above, Brookings is showing frozen soils at 8”, but not at 20”. White Lake shows frozen soils at 4”, but not at 8”.

Having the soil less frozen than normal will help allow more snowmelt to soak in than normal, but this positive effect will be offset some by the above normal soil moisture.

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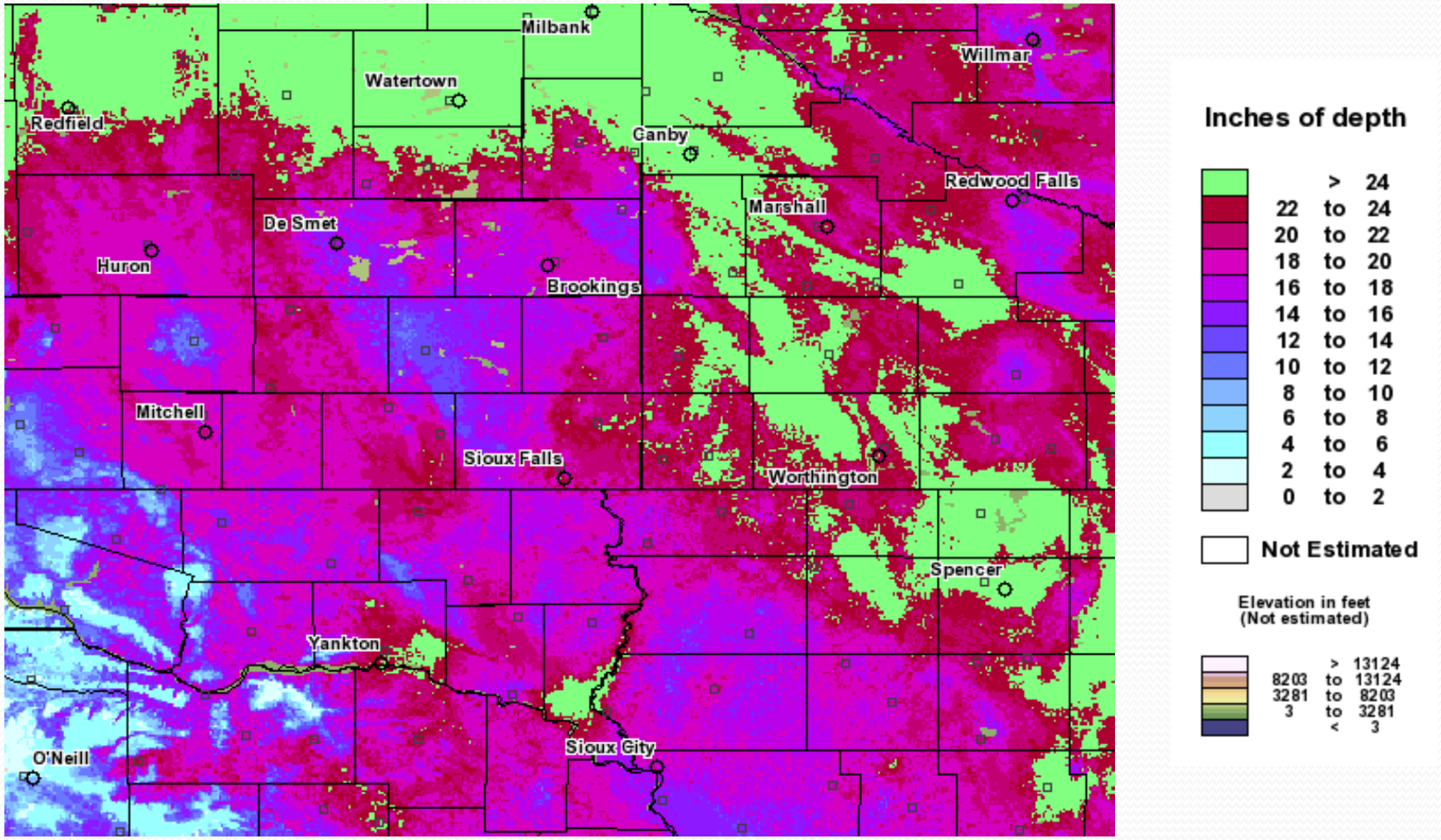

Current Snow Depths across most of the region are 15-20 inches, with areas of 20-30 inches.

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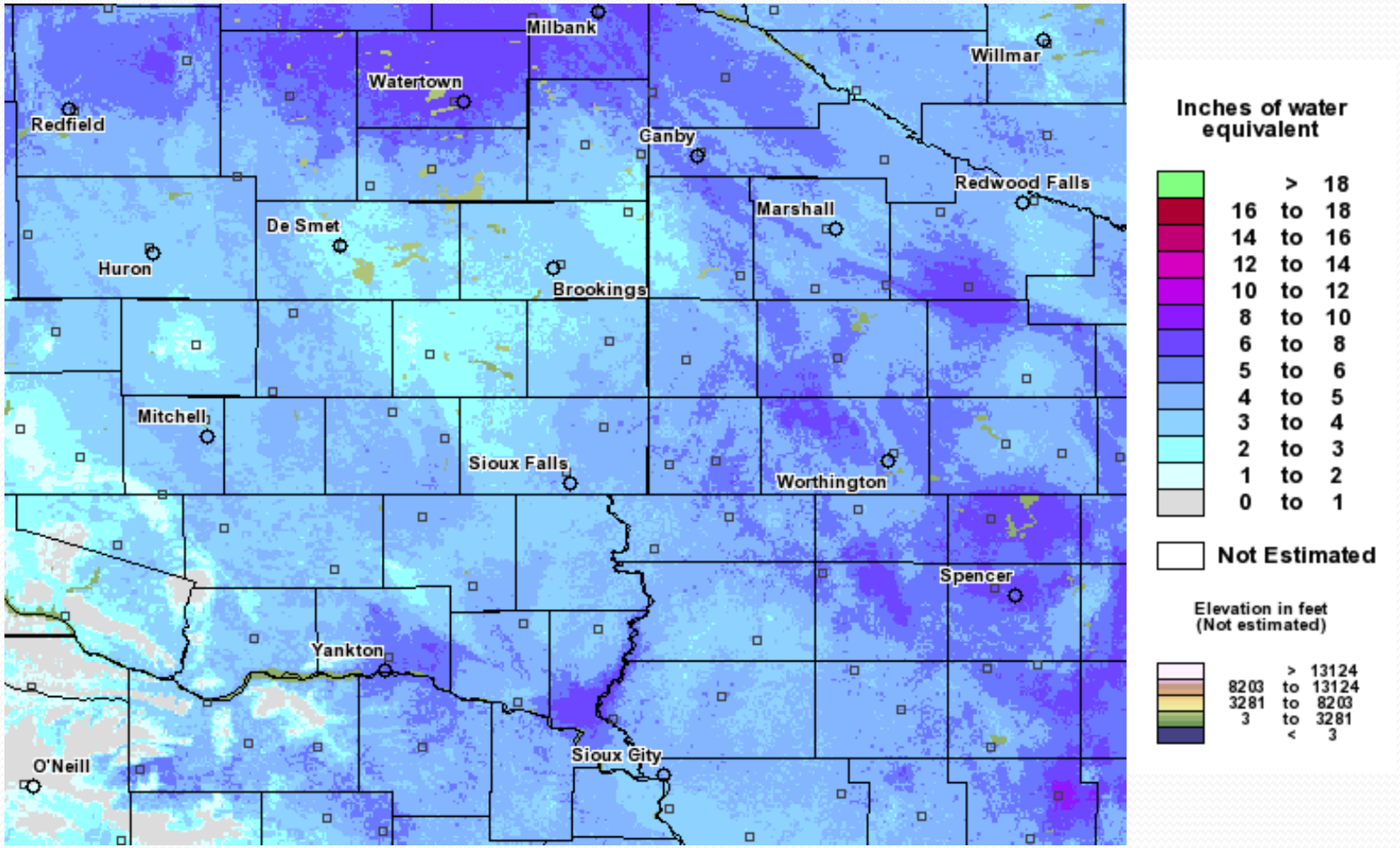

Current Water Content of the Snow Pack is 2-4 inches for most areas, with a few areas of 4-5 inches, and some 5-6+ inches around the Spirit Lake area.

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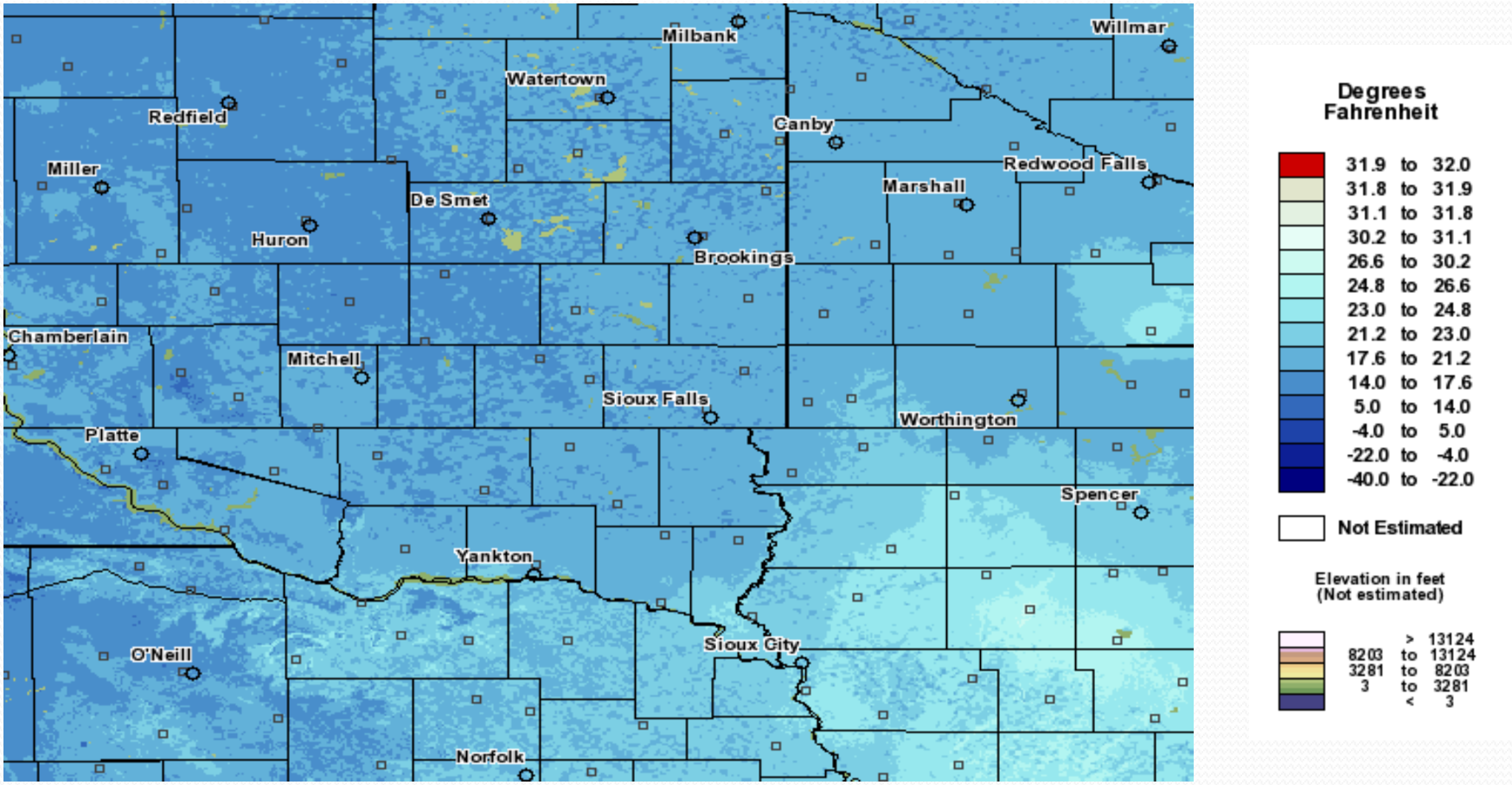

Snow pack temperature is averaging around 15-25 degrees. This will need to get to 30+ degrees before significant melting begins.

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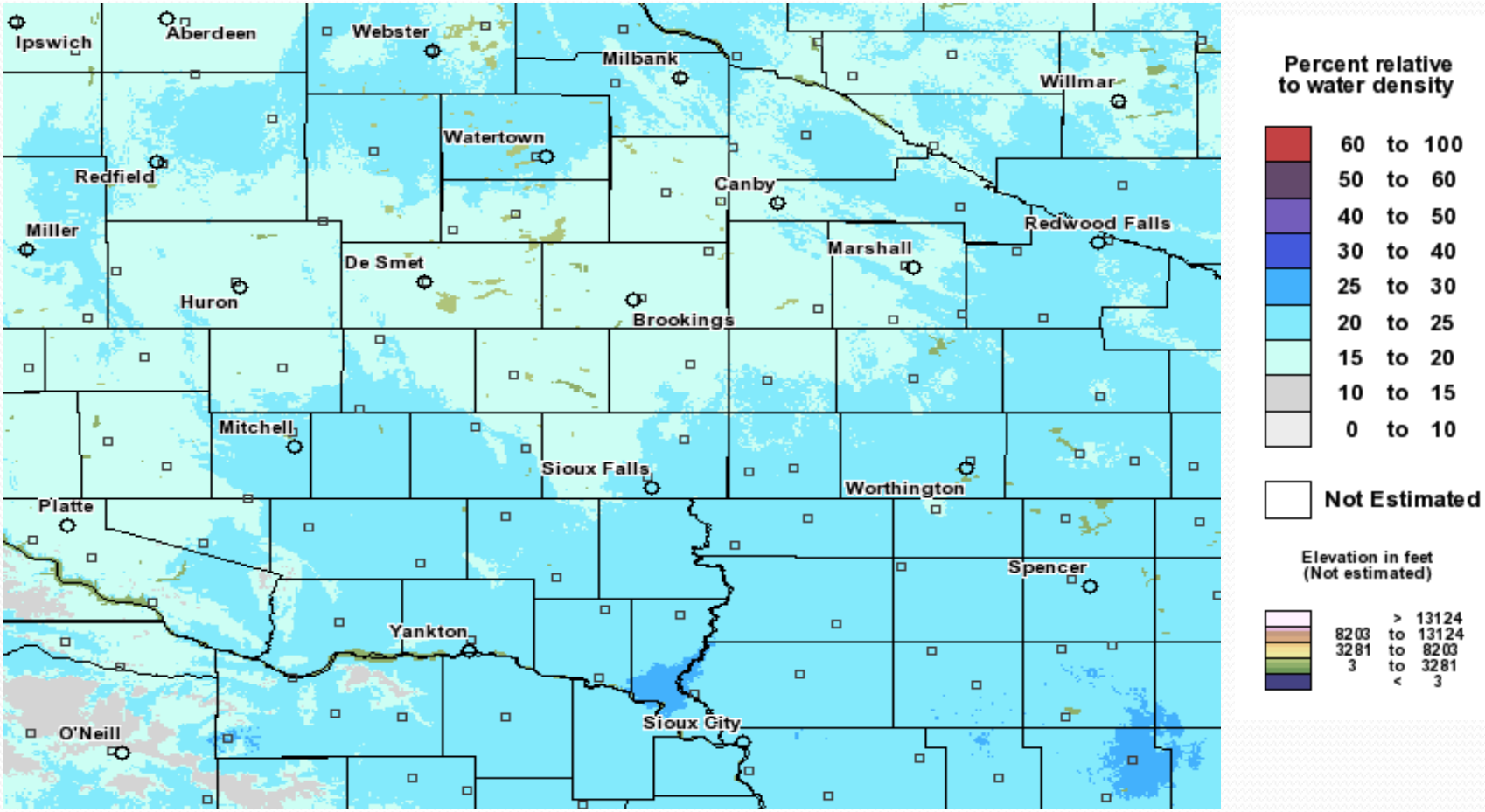
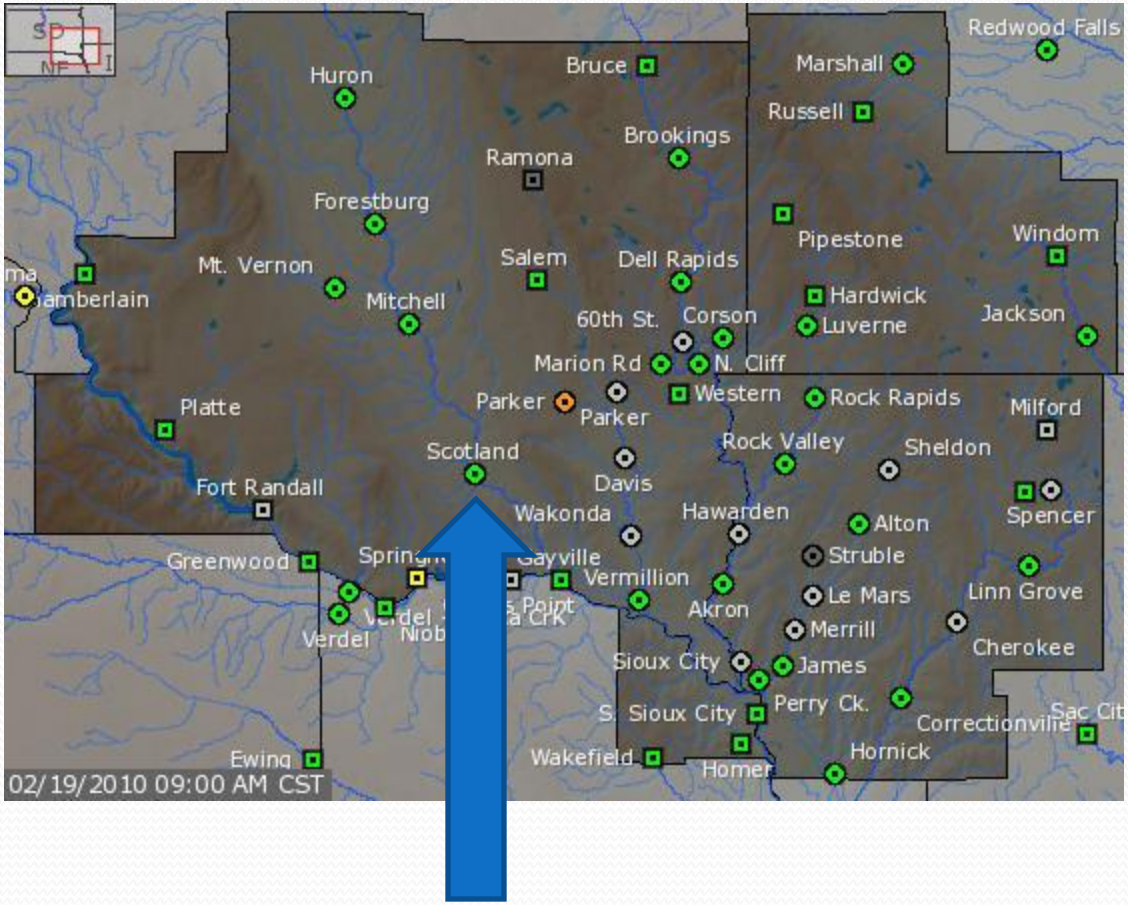


Snow pack density is averaging around 15-25%. This will need to get to 40% + before significant runoff will begin.

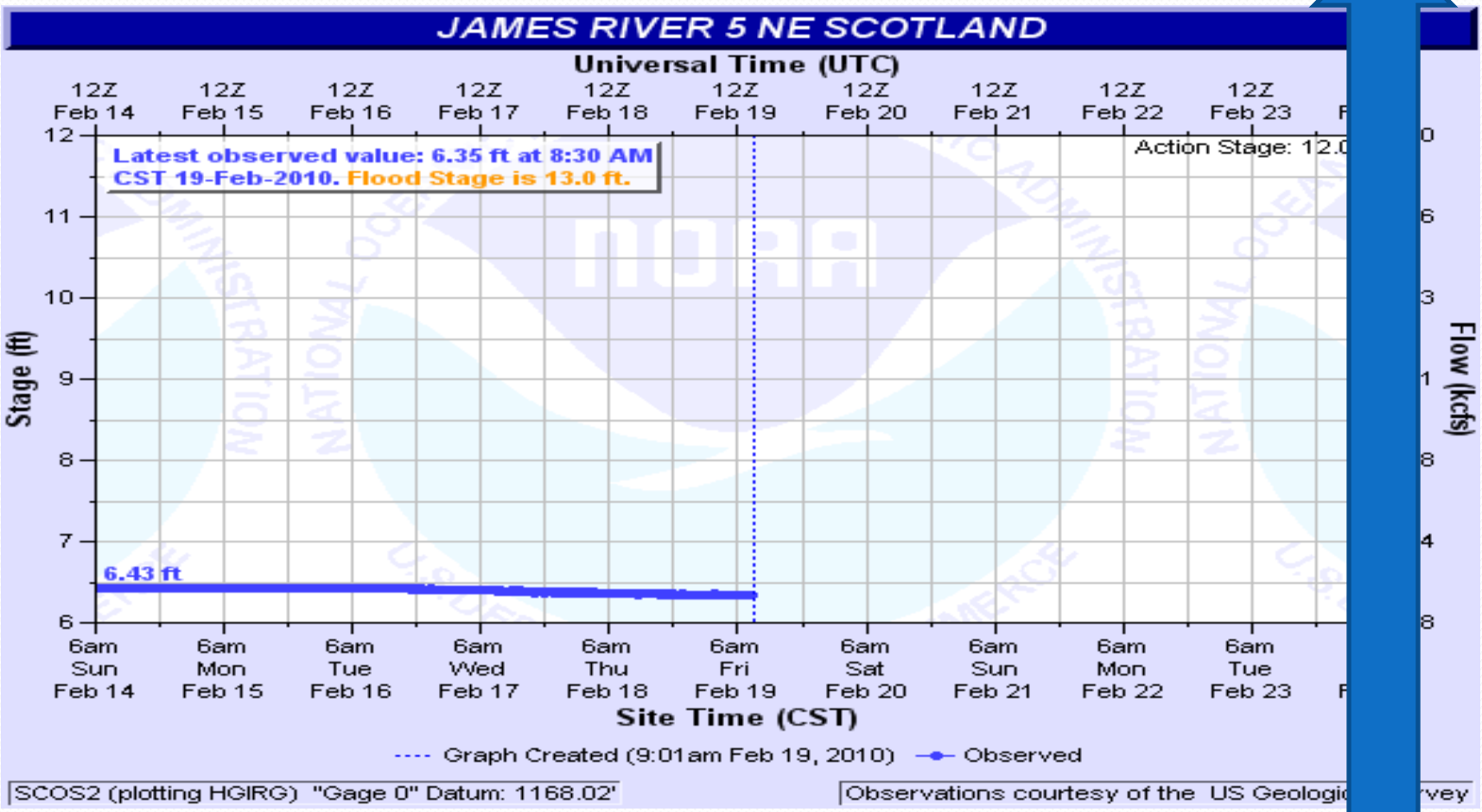
LINK

Accessing and interpreting the AHPS probabilistic outlooks

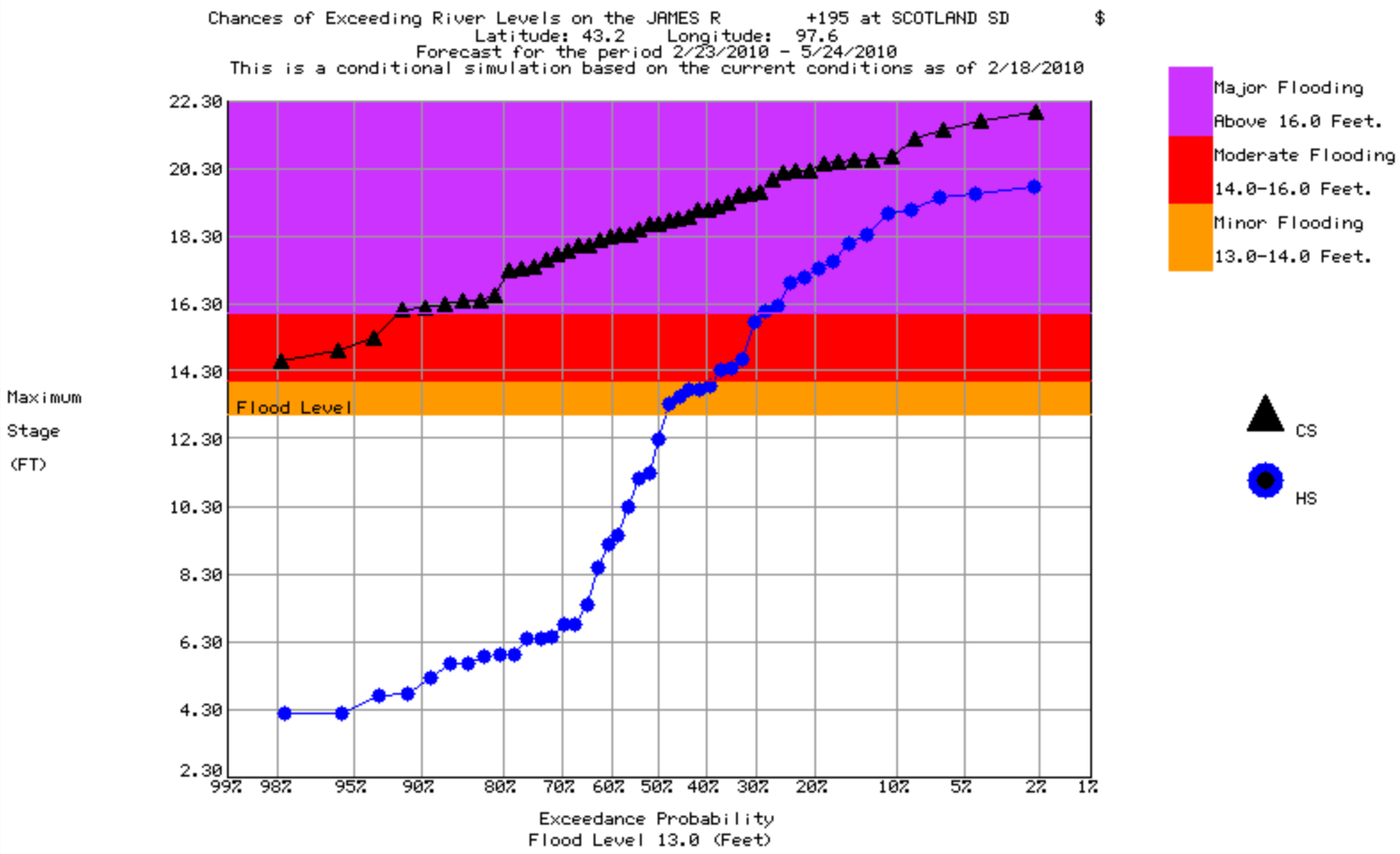


From the NWS Sioux Falls Hydrology Page, click on one of the river gage icons

Chance of Exceeding Levels During Entire Period

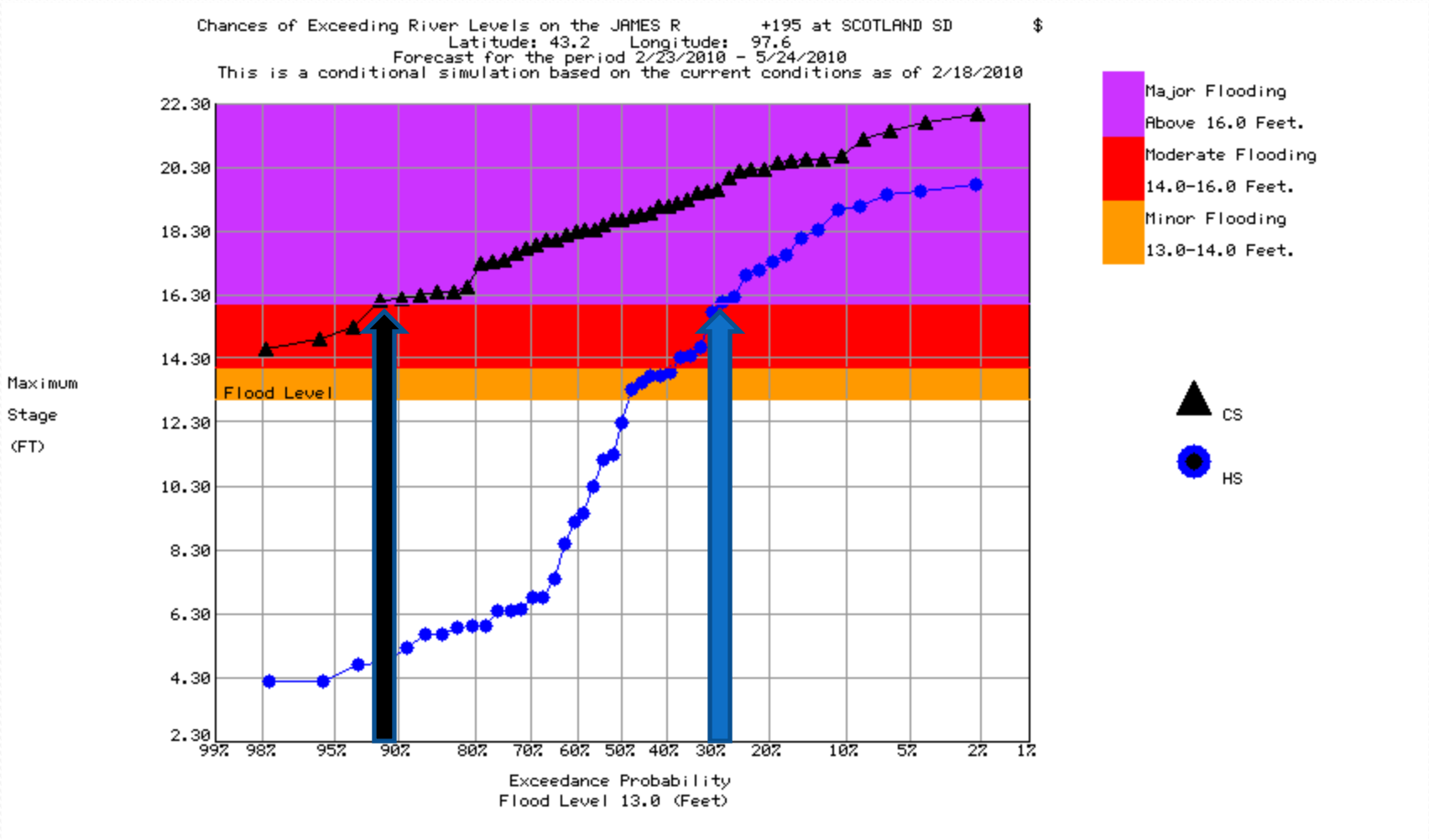


This brings up the current observed stages. To see the probabilistic outlook, click on the top-right tab.



The BLUE line (HS) is the Historical Simulation. This shows the chances of hitting different stages based only on the historically observed data.

The BLACK line (CS) is the conditional simulation. This shows the chances of hitting different stages based on the current conditions.



For the James River near Scotland SD, there is normally about a 30% chance of hitting MAJOR flood stage. Based on the current conditions, there is about a 92% of hitting MAJOR flood stage.

Summary of Outlooks

Outlook Locations	Categorical Flood Stages (ft)	Probability of Minor	Probability of Moderate	Probability of Major
Brookings Big Sioux River	9/10/12	> 98%	> 98%	73%
Dell Rapids Big Sioux River	12/14/15	97%	56%	22%
SF 60th St. North Big Sioux River	12/14/16	86%	48%	12%
SF N. Cliff Ave. Big Sioux River	16/18/31	88%	69%	< 2%
SF Marion Rd. Skunk Creek	12/15/17	22%	3%	2%
Corson Split Rock Creek	8/11/14	83%	45%	17%

Summary of Outlooks

Outlook Locations	Categorical Flood Stages (ft)	Probability of Minor	Probability of Moderate	Probability of Major
Rock Rapids Rock River	13/16/19	82%	32%	11%
Rock Valley Rock River	16/17/19	14%	13%	3%
Hawarden Big Sioux River	15/20/23	> 98%	68%	32%
Akron Big Sioux River	16/18/20	> 98%	> 98%	80%
Alton Floyd River	12/16/18	90%	42%	12%
Le Mars Floyd River	20/21/24	71%	53%	3%

Summary of Outlooks

Outlook Locations	Categorical Flood Stages (ft)	Probability of Minor	Probability of Moderate	Probability of Major
Spencer Little Sioux River	10/14/16	> 98%	69%	13%
Linn Grove Little Sioux River	18/19.5/21	> 98%	89%	57%
Cherokee Little Sioux River	17/21/24	94%	52%	10%
Correctionville Little Sioux River	19/20/21	63%	< 2%	< 2%
Hornick West Fork Ditch	20/22/27	82%	62%	14%

Summary of Outlooks

Outlook Locations	Categorical Flood Stages (ft)	Probability of Minor	Probability of Moderate	Probability of Major
Huron James River	11/13/15	> 98%	> 98%	92%
Forestburg James River	12/14/16	> 98%	97%	75%
Mitchell James River	17/20/22	> 98%	> 98%	80%
Scotland James River	13/14/16	> 98%	> 98%	92%
Davis Vermillion River	11/13/15	> 98%	80%	20%
Wakonda Vermillion River	14/15.5/17	> 98%	> 98%	84%

To see the latest text outlook for all of the river forecast points in the area, follow this link.

The next updated flood outlook is scheduled to be issued on Friday, March 5.

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