

2019 Spring Flood Outlook

Lewis and Clark County

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National Weather Service

02/28/2019

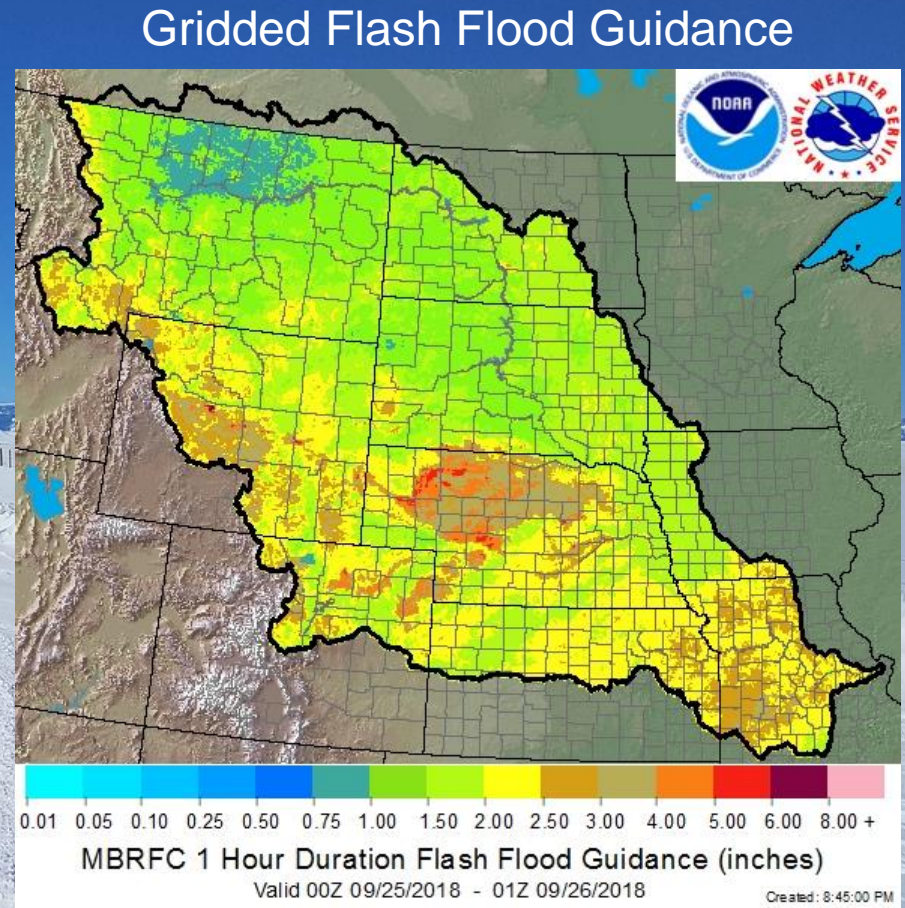
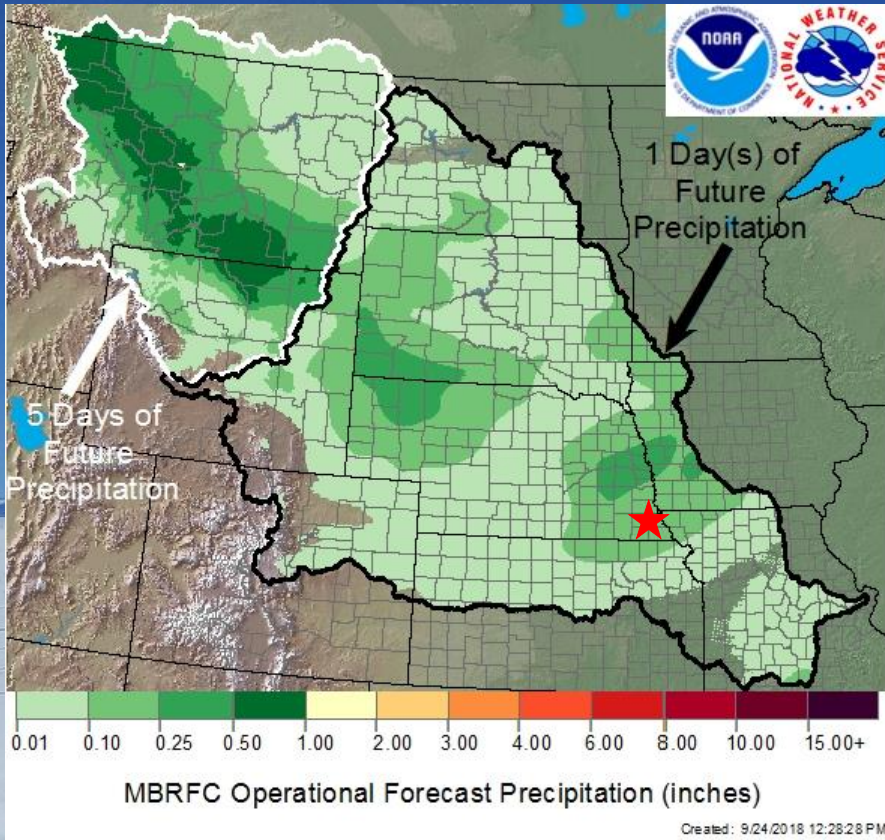


Building a Weather-Ready Nation



Predictive Services- Flooding

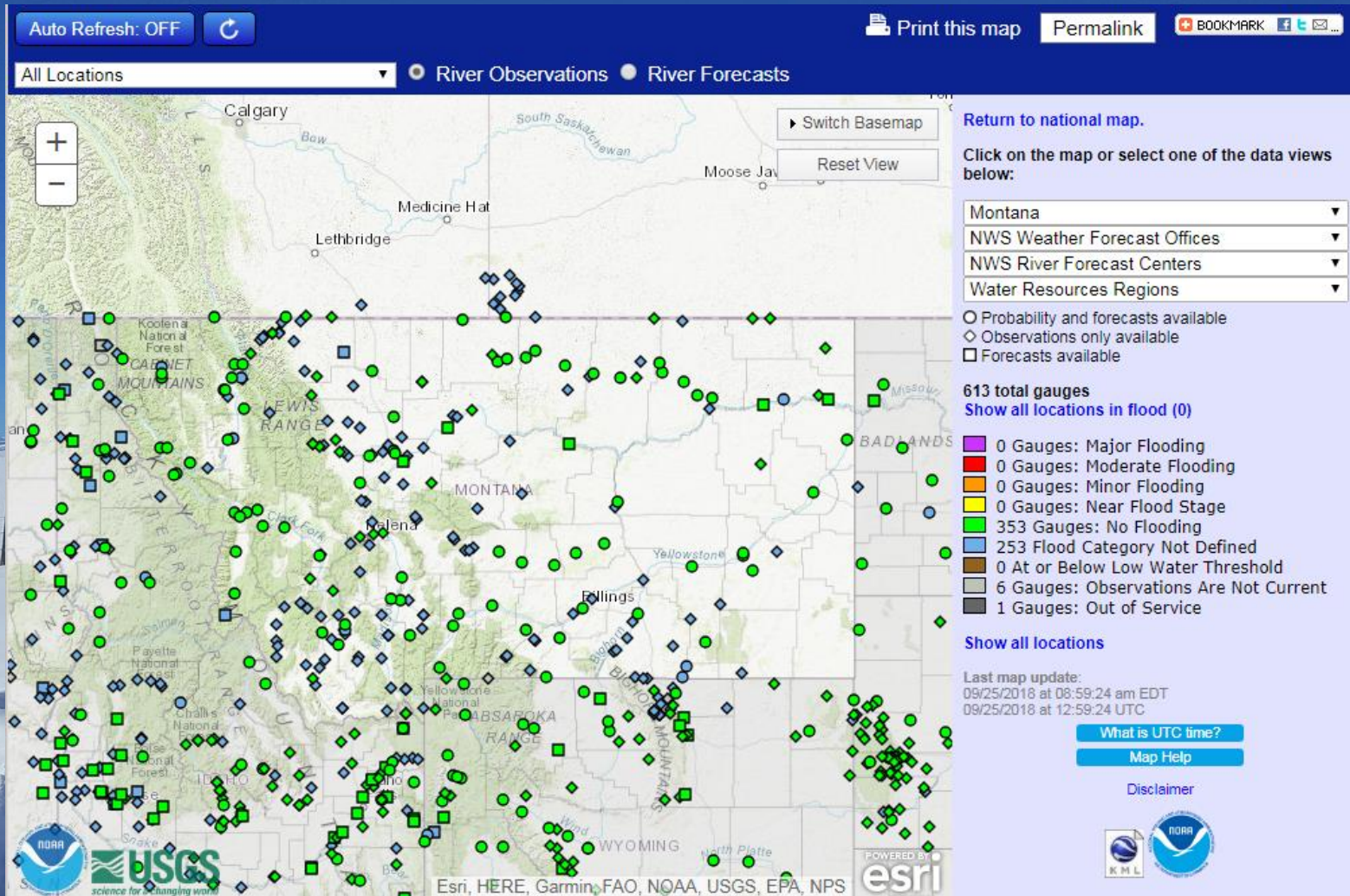
Missouri Basin River Forecast Center (MBRFCC)





Predictive Services- Flooding

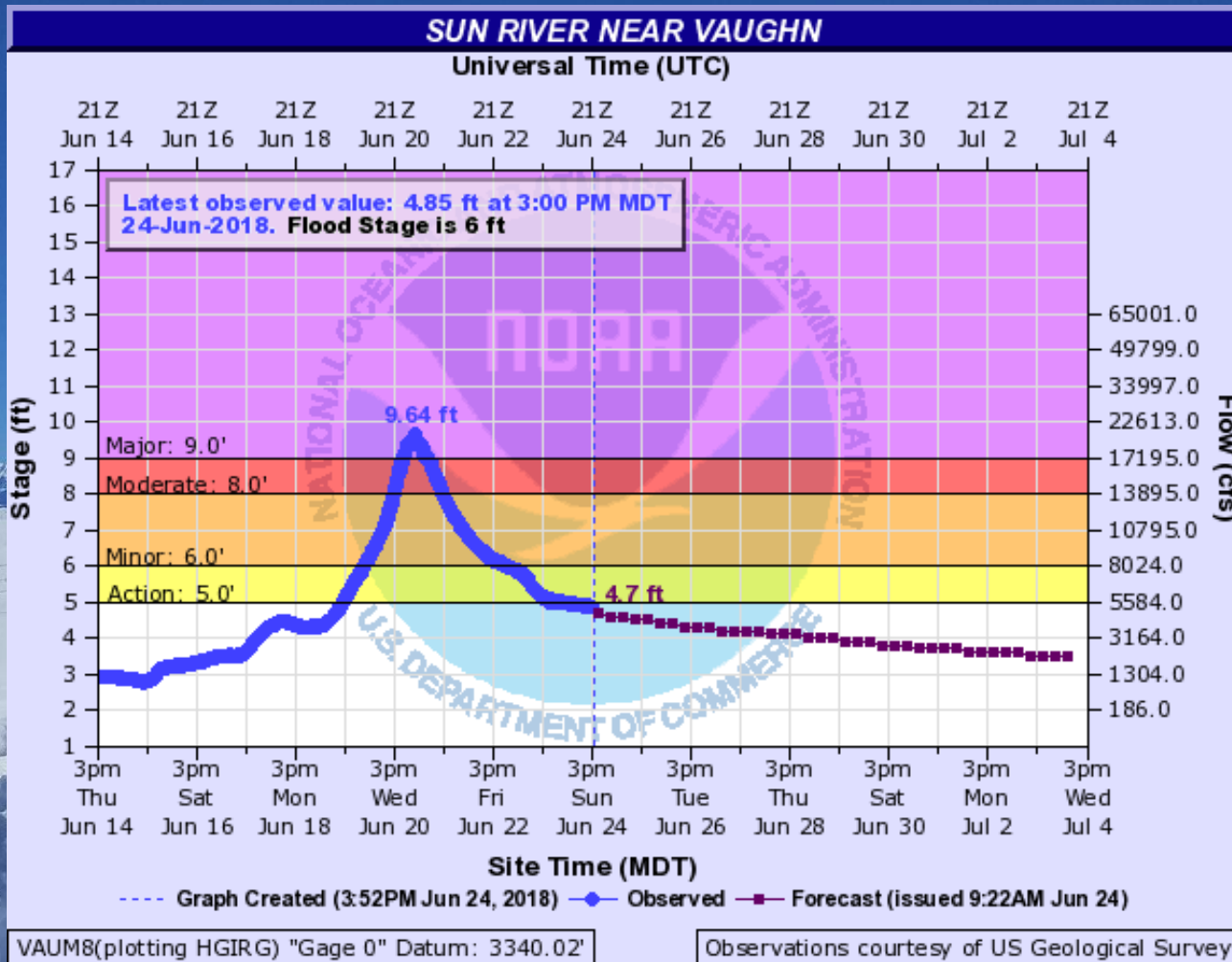
Deterministic River Forecasts





Predictive Services- Flooding

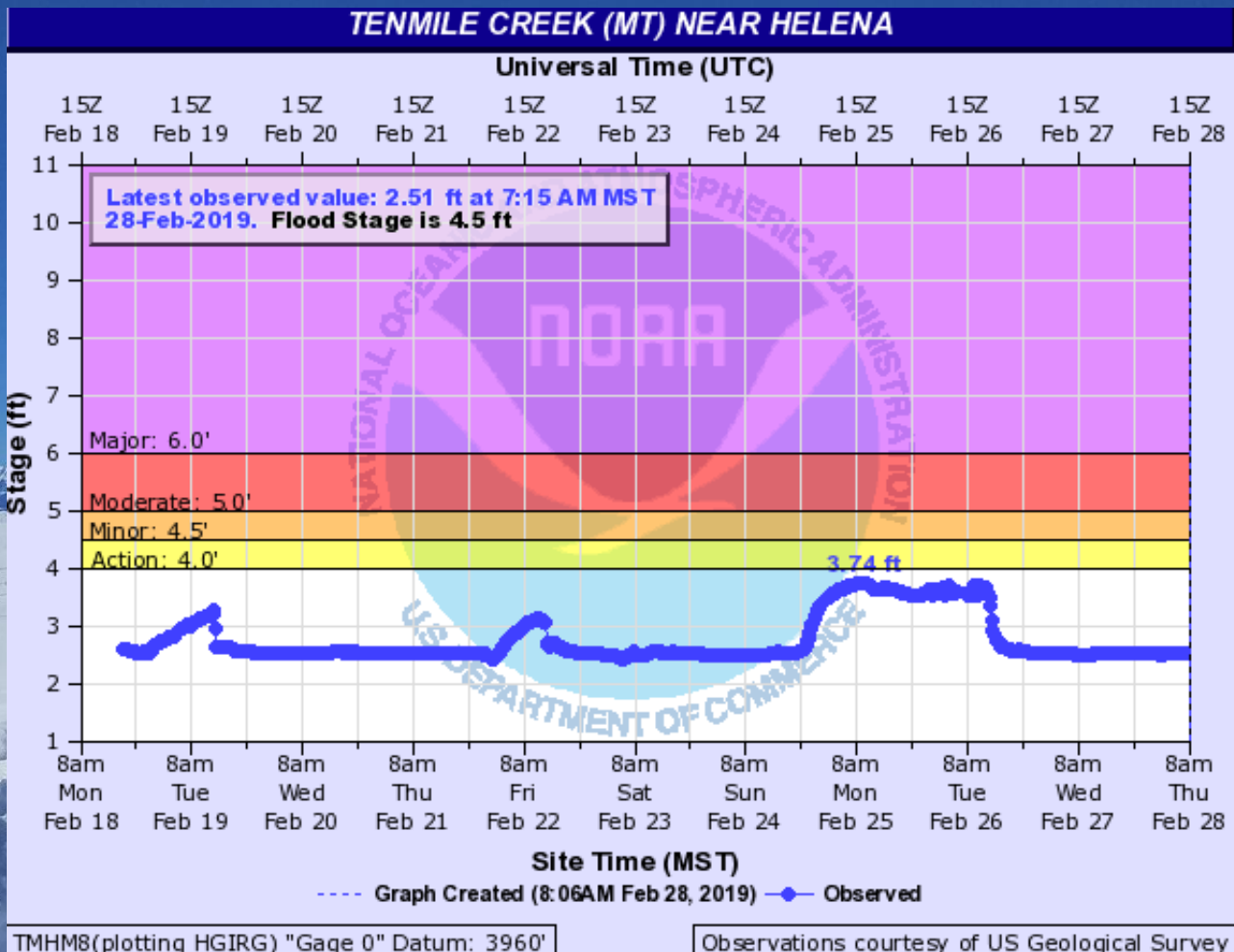
Deterministic River Forecasts





Predictive Services- Flooding

Deterministic River Forecasts





Predictive Services- Flooding

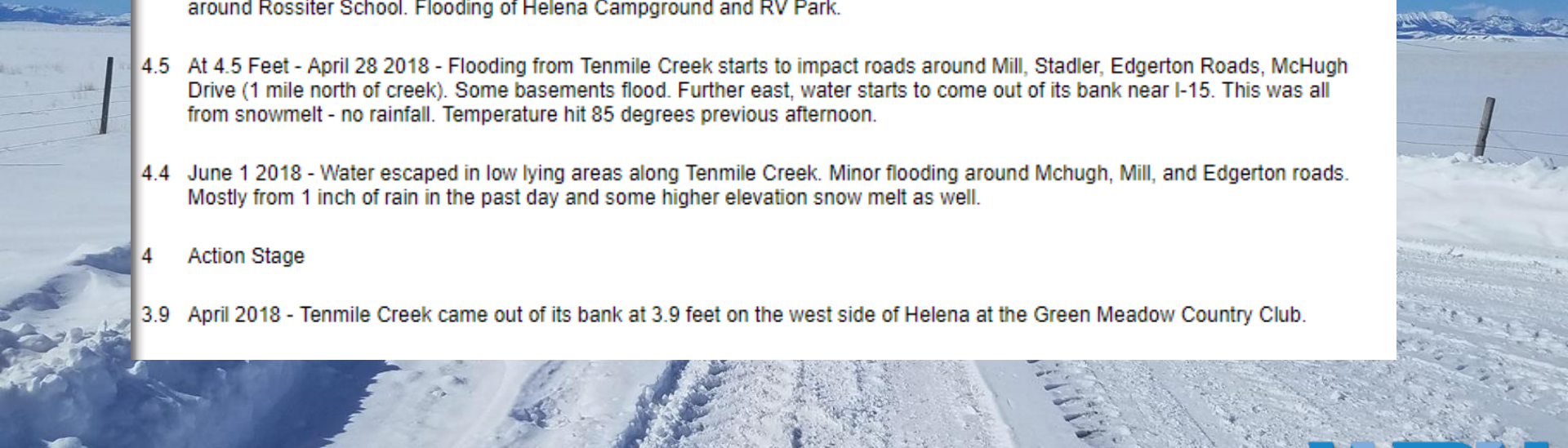
Impacts Catalog

Flood Impacts & Photos



If you notice any errors in the below information, please contact our Webmaster

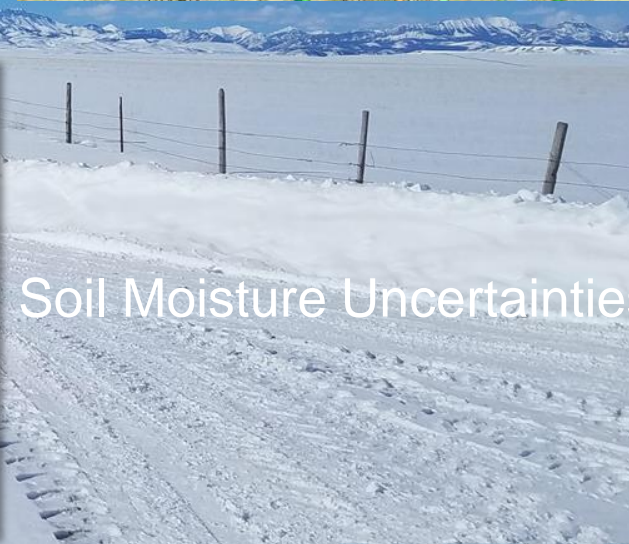
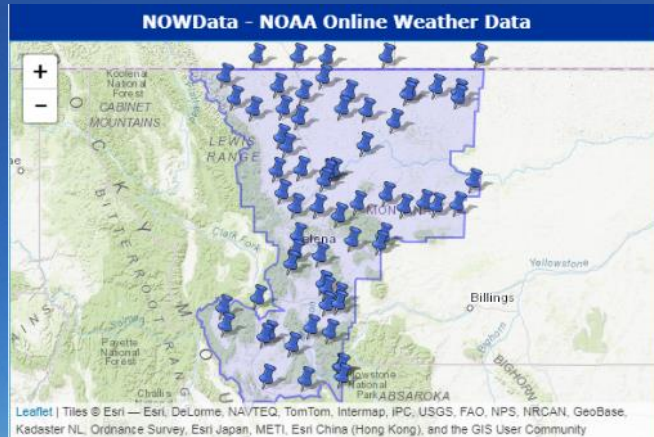
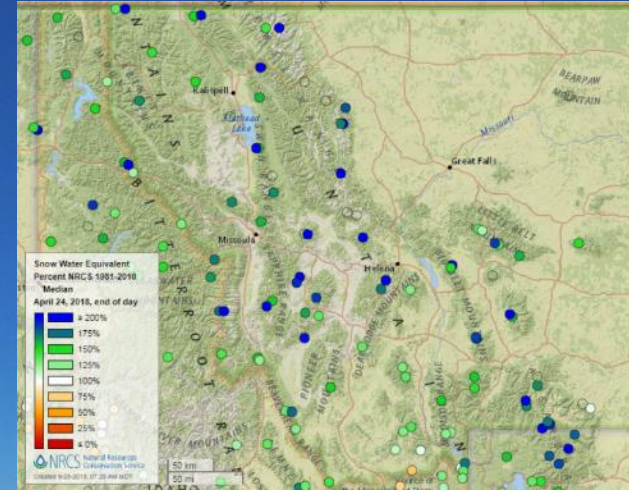
- 5.5 At 5.5 feet June 20 2018 - Flooding went out to Rossiter Elementary School. It took about 1 day for the water to get there. Parking lot on the north side of the school was filling with water. Some roads closed between Tenmile Creek and Sierra Road.
- 5 May 2018 - At 5.0 Feet, after several days of flooding, impacts increase around Sierra Road, (Over 2 miles away from Tenmile Creek.) Impacts increase significantly for each 0.1 inch of creek rise, as water runs downhill into the valley. Flooding as far north as 2 miles north of Sierra Rd on Montana Ave. Rainfall of 0.50 to 1.00 inches in the past 2 days as well. Pumps used by Rossiter School. Water transferred to trap club.
- 4.7 May 2018, At 4.7 feet flooding has spread out to Sierra Road. Sandbag the middle of Sierra Rd from MT Ave to I-15. Sandbag around Rossiter School. Flooding of Helena Campground and RV Park.
- 4.5 At 4.5 Feet - April 28 2018 - Flooding from Tenmile Creek starts to impact roads around Mill, Stadler, Edgerton Roads, McHugh Drive (1 mile north of creek). Some basements flood. Further east, water starts to come out of its bank near I-15. This was all from snowmelt - no rainfall. Temperature hit 85 degrees previous afternoon.
- 4.4 June 1 2018 - Water escaped in low lying areas along Tenmile Creek. Minor flooding around Mchugh, Mill, and Edgerton roads. Mostly from 1 inch of rain in the past day and some higher elevation snow melt as well.
- 4 Action Stage
- 3.9 April 2018 - Tenmile Creek came out of its bank at 3.9 feet on the west side of Helena at the Green Meadow Country Club.



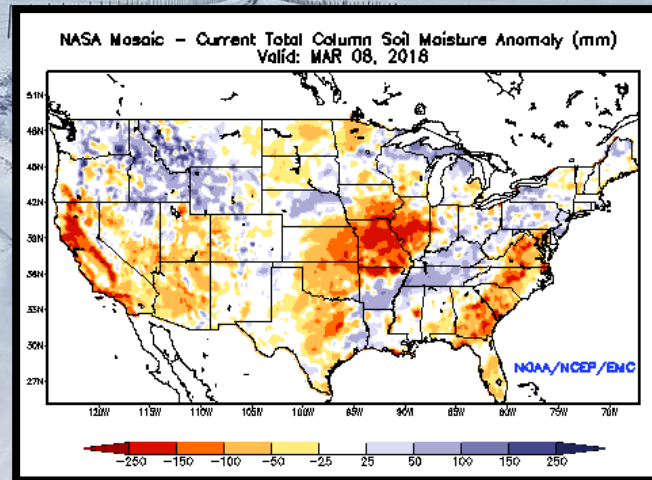


Flood Prediction Challenges

Sparse precipitation and snowpack data



Soil Moisture Uncertainties



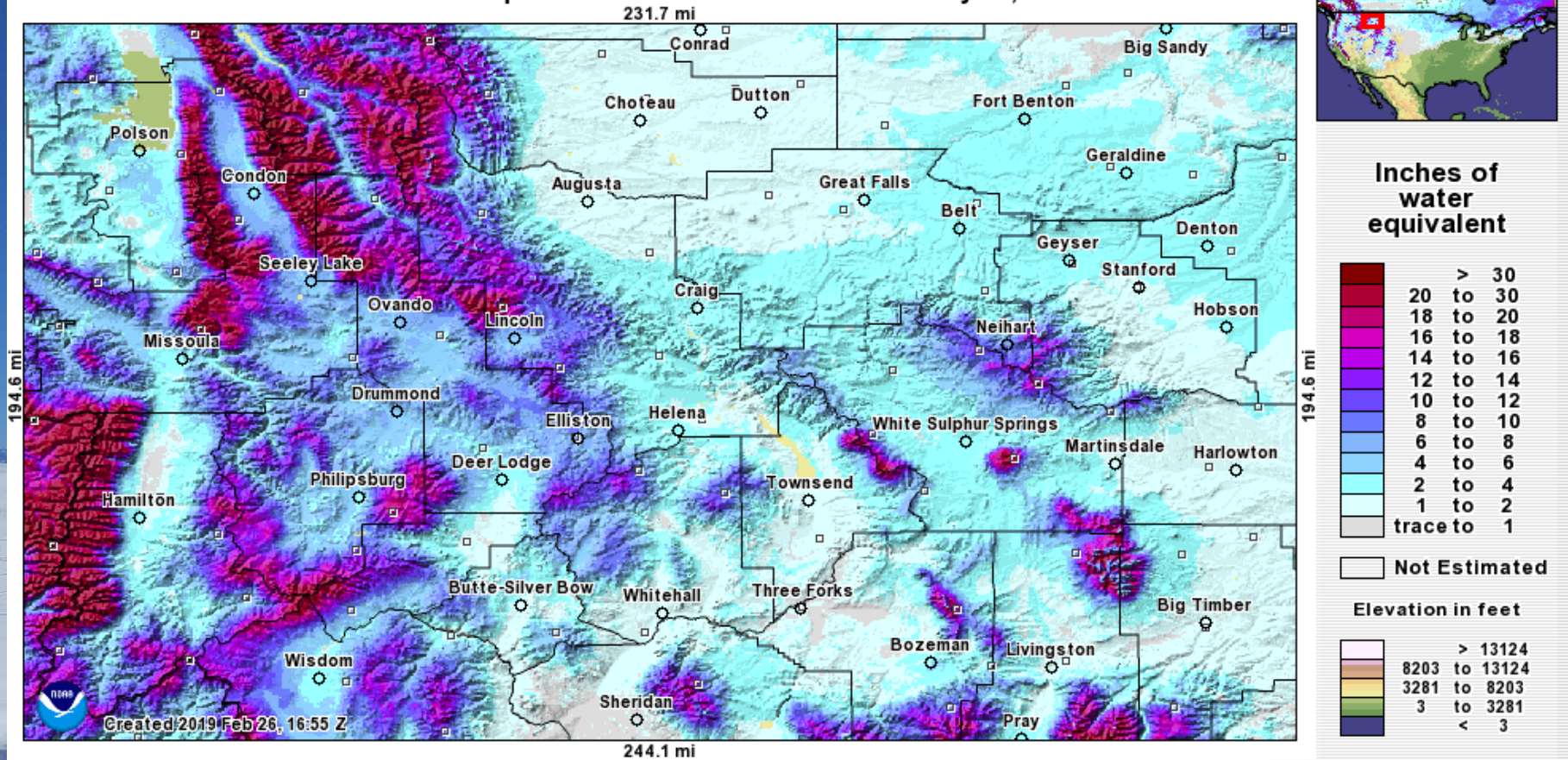
Ever-Changing River Geomorphology





Snow Water Equivalent

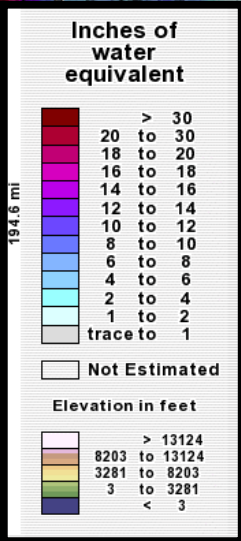
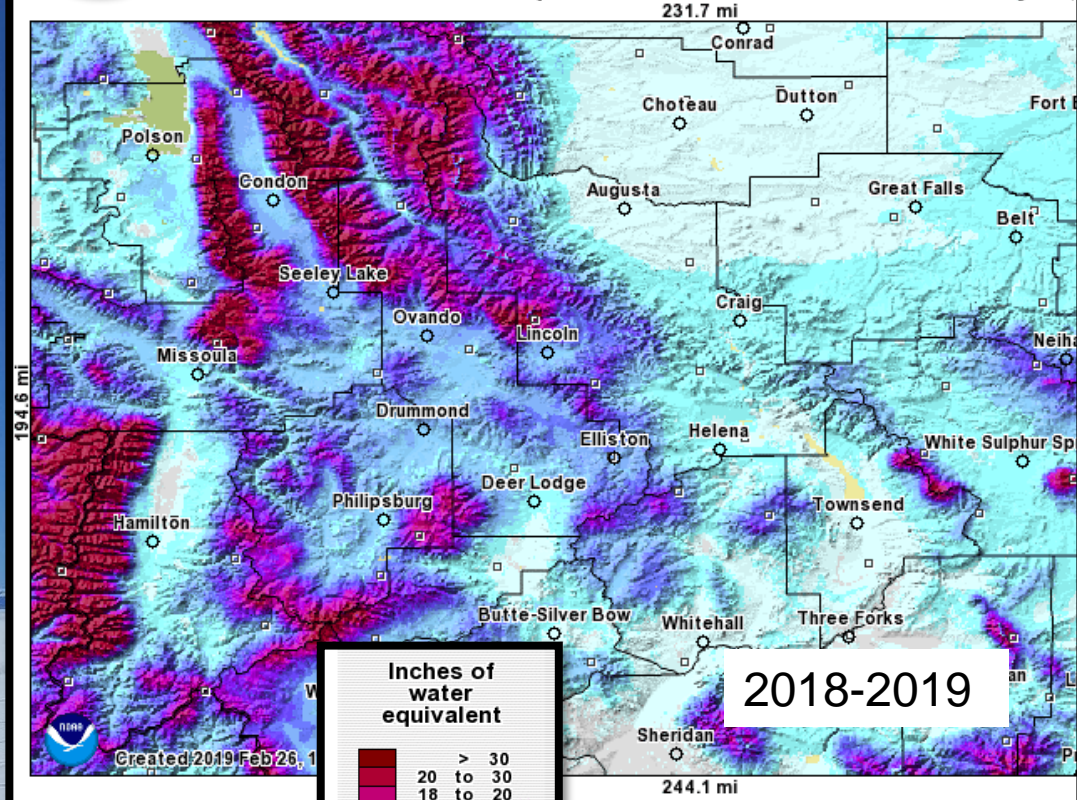
Modeled Snow Water Equivalent forecasted for 2019 February 26, 19:00 UTC



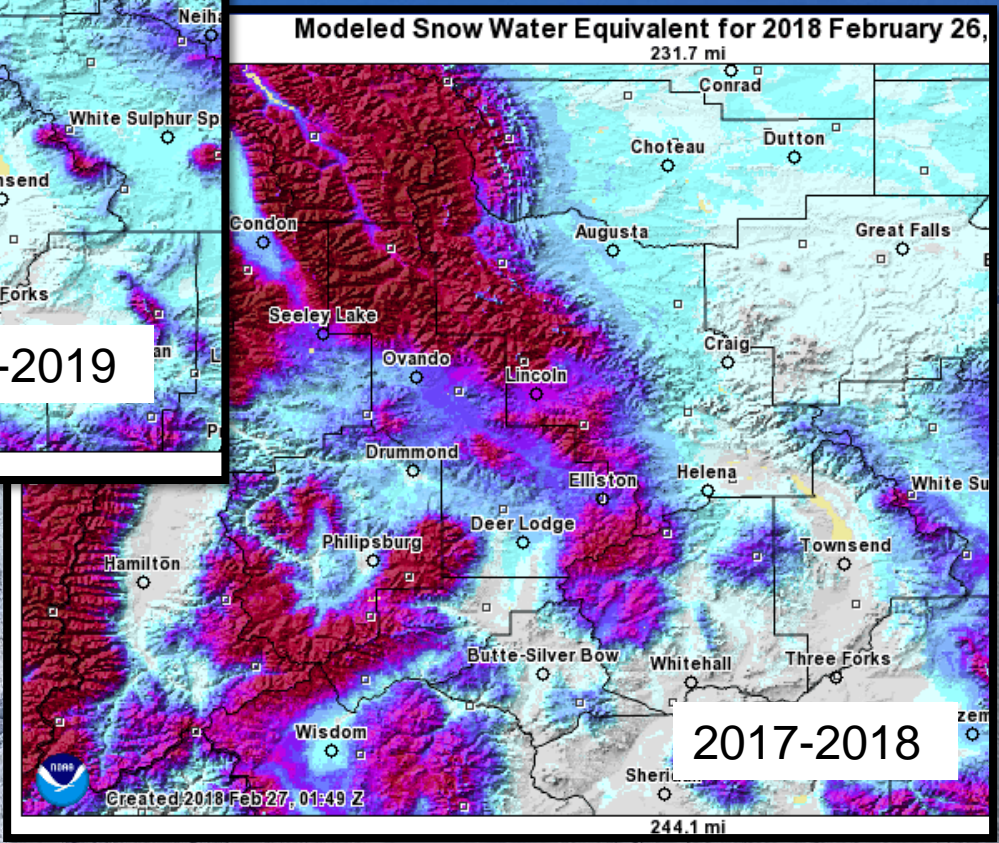


Snow Water Equivalent

Modeled Snow Water Equivalent forecasted for 2019 February 26,



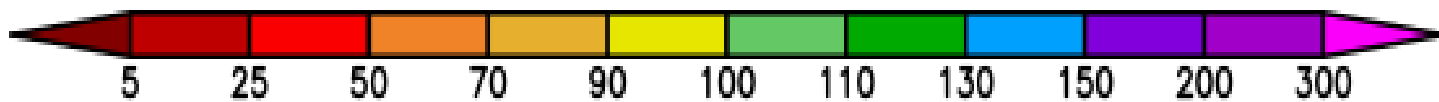
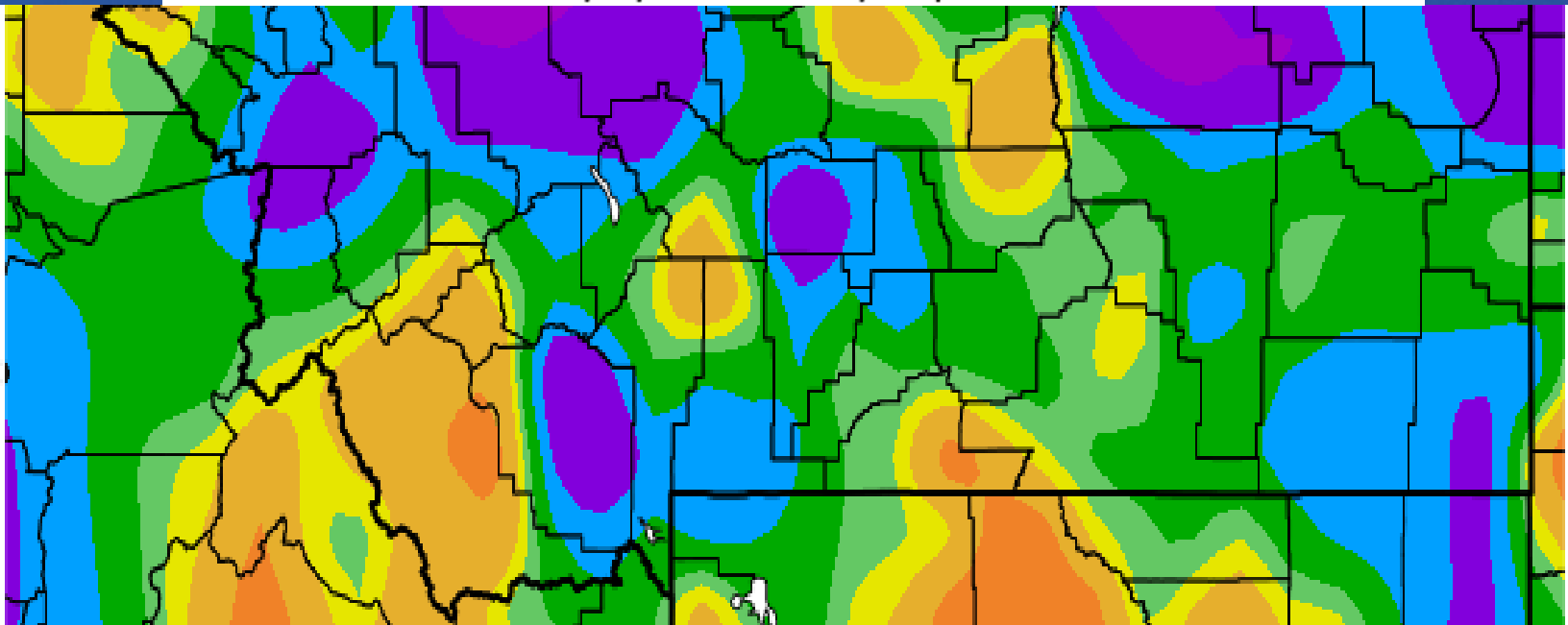
Modeled Snow Water Equivalent for 2018 February 26,





Precipitation Percent of Normal

Percent of Normal Precipitation (%)
10/1/2018 - 2/25/2019



Generated 2/26/2019 at HPRCC using provisional data.

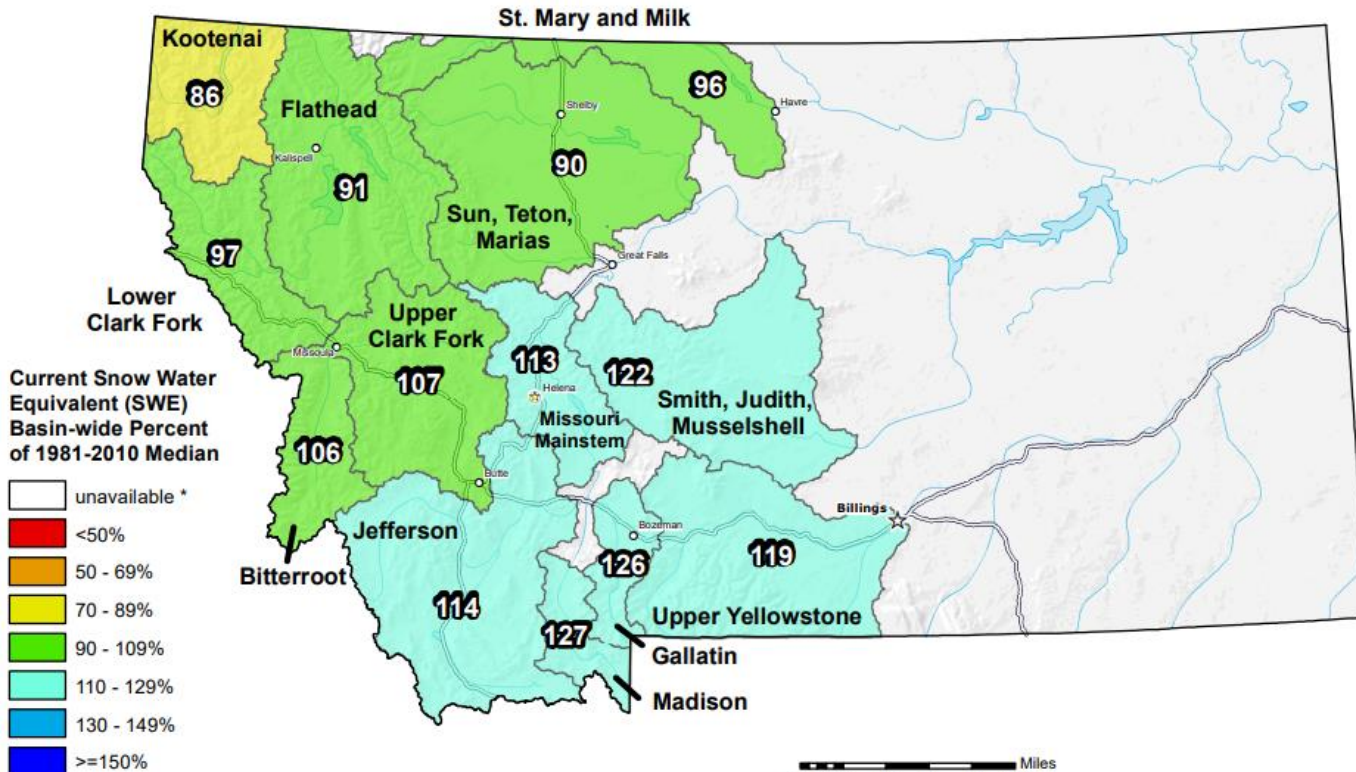
NOAA Regional Climate Centers



Snow Water Equivalent

Montana SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 28, 2019



Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

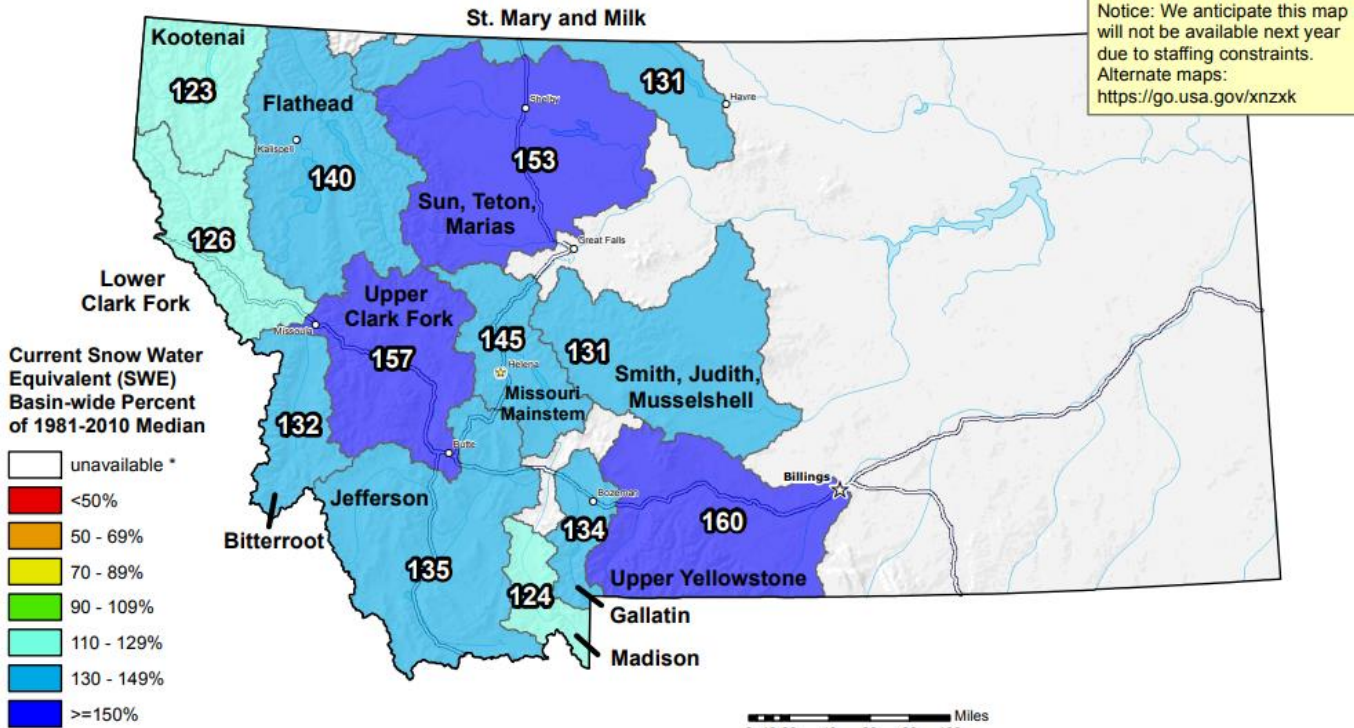




Snow Water Equivalent

Montana SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 15, 2018



Notice: We anticipate this map will not be available next year due to staffing constraints. Alternate maps: <https://go.usa.gov/xnzxk>

* Data unavailable at time of posting or measurement is not representative at this time of year.



Provisional Data
Subject to Revision

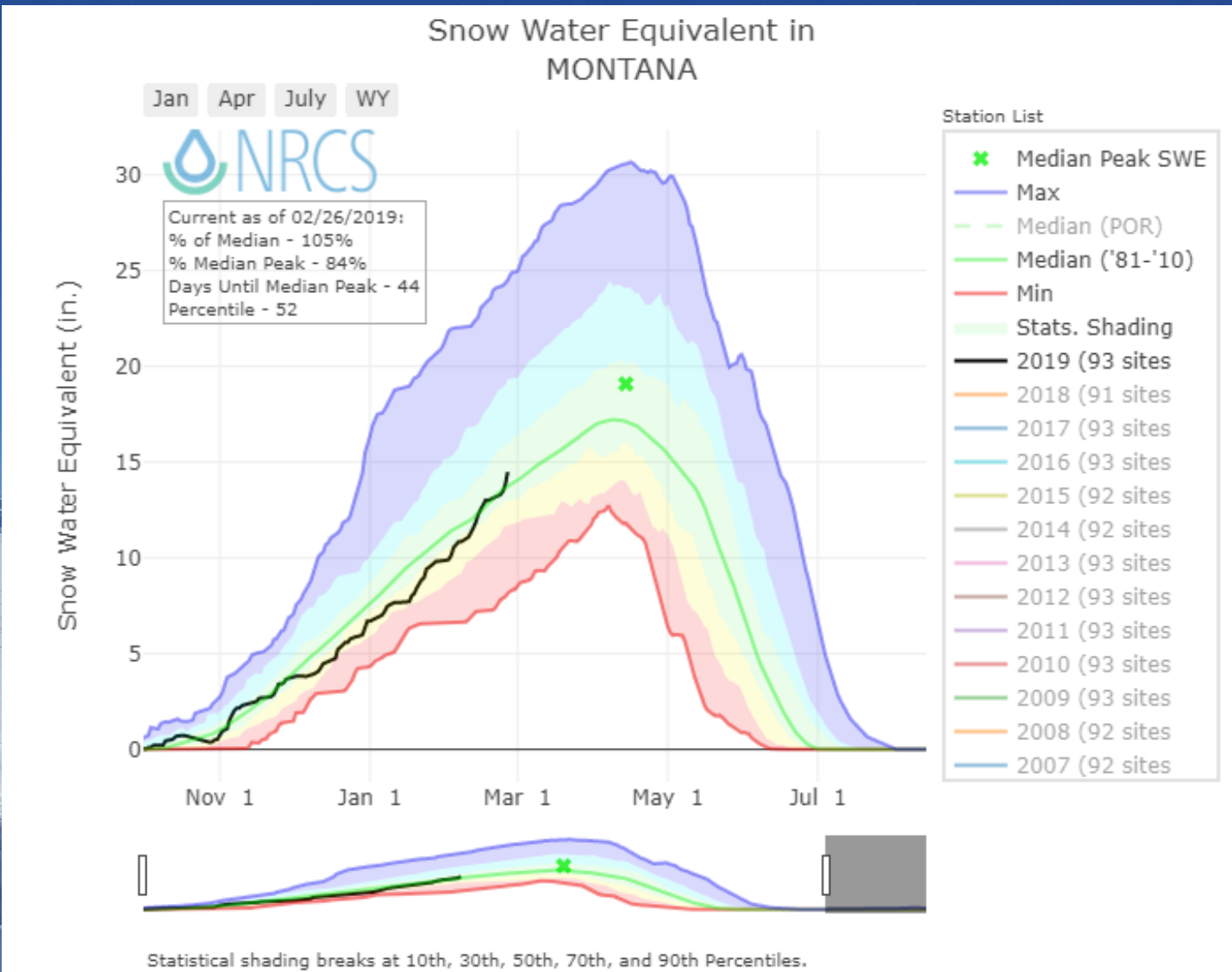
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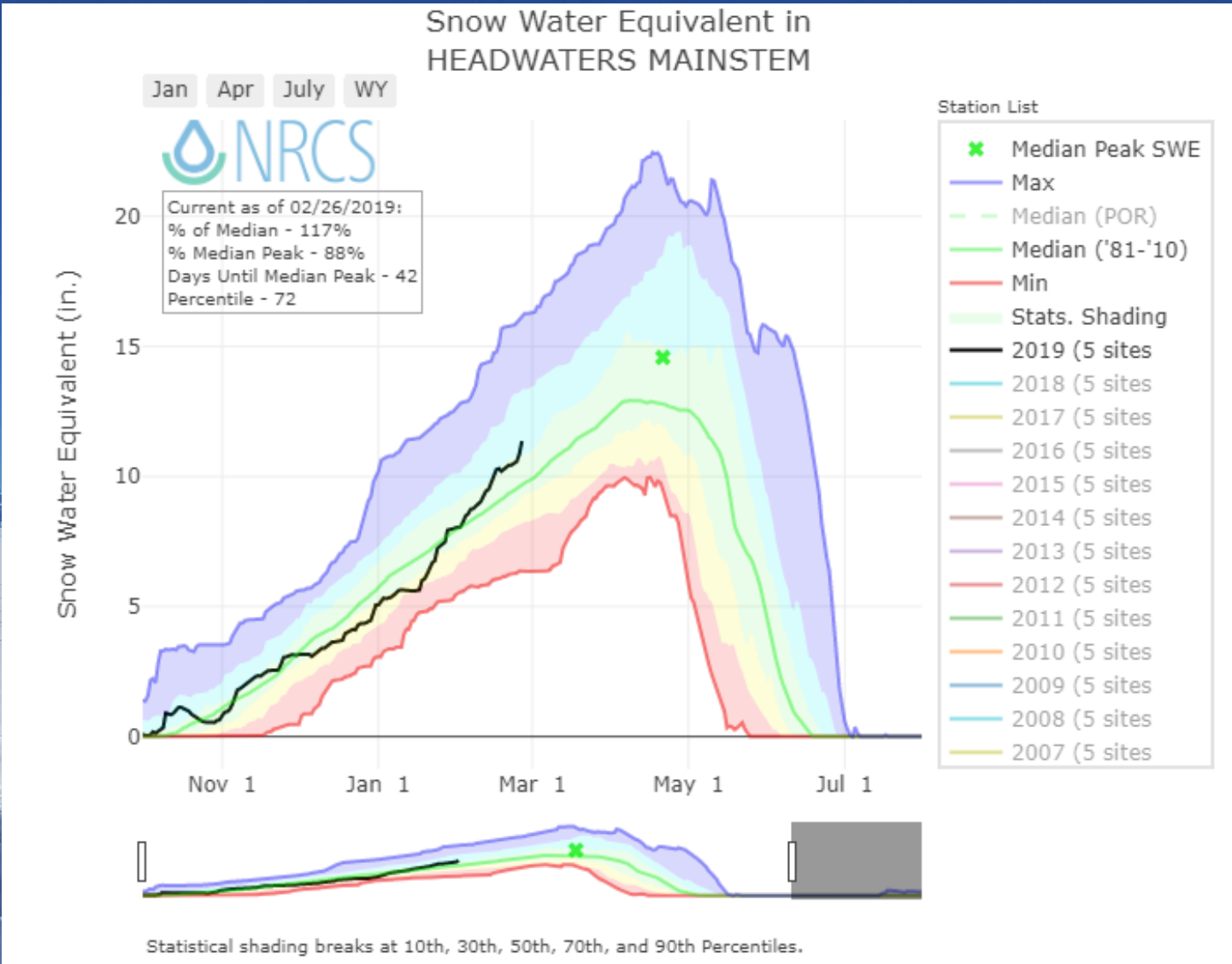


Snow Water Equivalent





Snow Water Equivalent

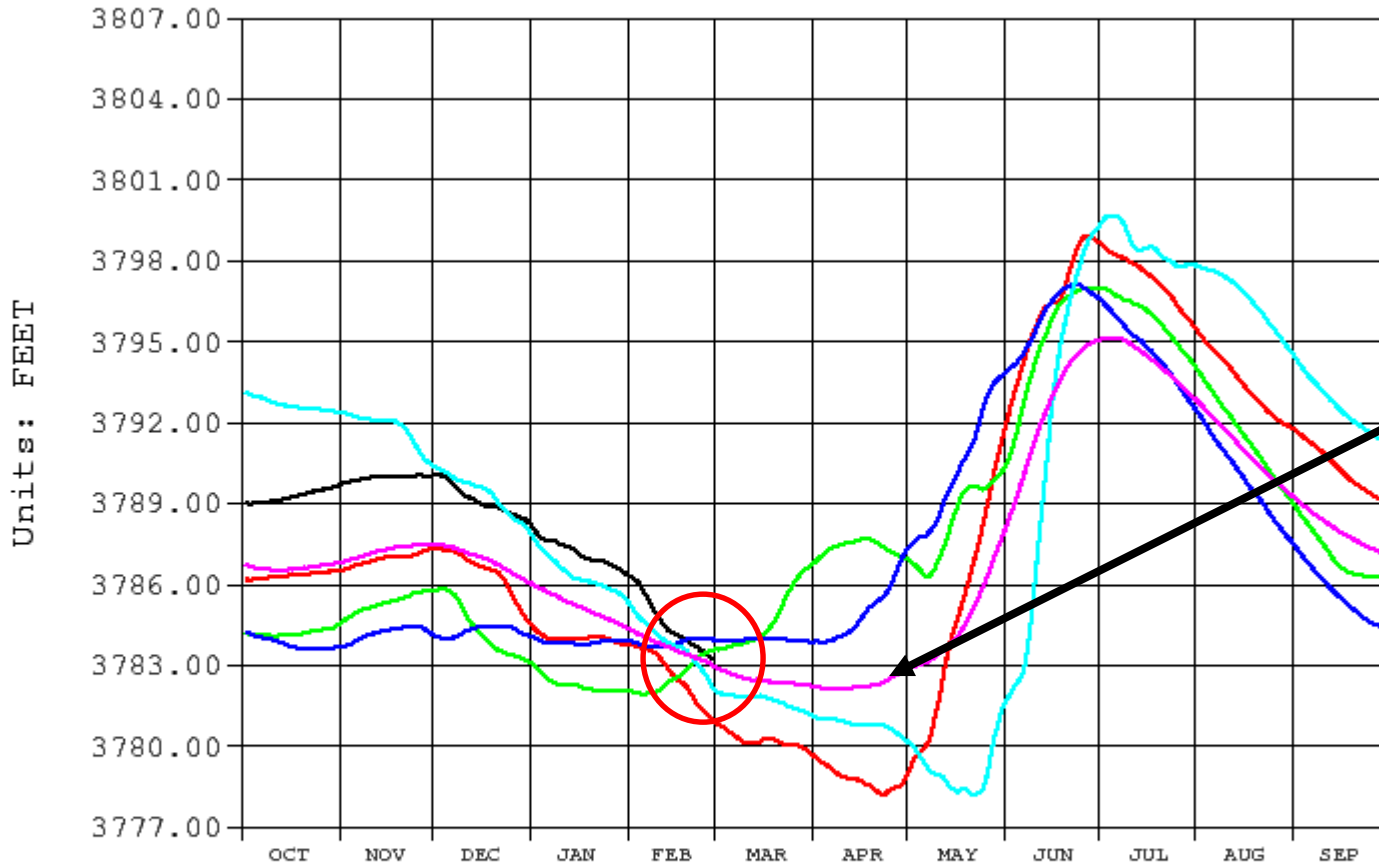




Canyon Ferry Reservoir

Archive Data From 1-OCT Through 30-SEP

Plotted 02/28/2019 08:21 (Provisional Data Subject to Revision)



CFR Canyon Ferry Lake, Missouri River near Helena, MT
FB Reservoir Forebay Elevation (feet)
FB30AVG Last 30 Years Average Elevation (feet)

2019 2018 2017
2016 2011
2019

Average



Flooding Concerns

Two main waves of flooding risk:

- **March – April – (May?)**
 - Lowland flooding from snowmelt
 - Ice jams
 - Rain on snow
- **April – May – June**
 - Flooding due to mountain snowmelt and runoff
 - Flooding due to heavy rainfall





Flooding Concerns

Best Case

- Gradual Warmup
 - Slow, gentle melting
- Minor Impacts
 - Mostly rural roads and fields
 - Ponding water in urban areas from clogged drainages



Worst Case

- Rapidly warming temps and overnight lows above freezing
 - Rapid snowmelt
 - Lowland and urban flooding
 - Difficult travel in rural areas due to washed out roads
- Heavy Rain ($\geq 1''$ + in 24 hours)
- Rain on snow at any elevation





What You Can Do

- Encourage those who live near streams or rivers to purchase flood insurance if they haven't already (30 days for it to take effect)
- Sandbag availability
- Encourage residents to clear snow from drains and culverts near driveways
- Move equipment, hay or livestock in low-lying or areas prone to flooding to higher ground
- Call your local NWS office if you see any flooding or ice jams





Helpful Links

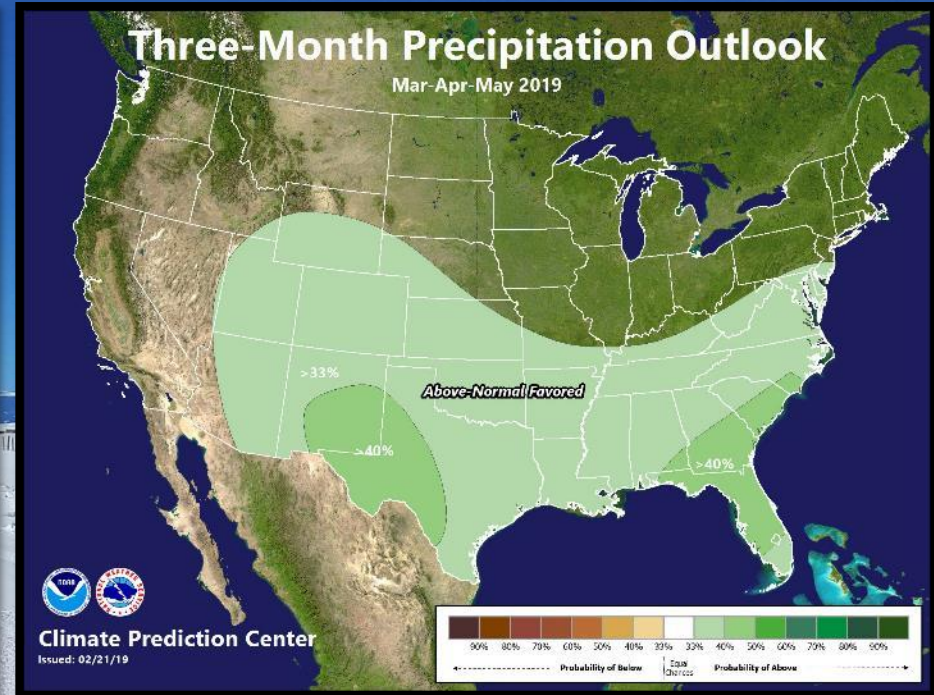
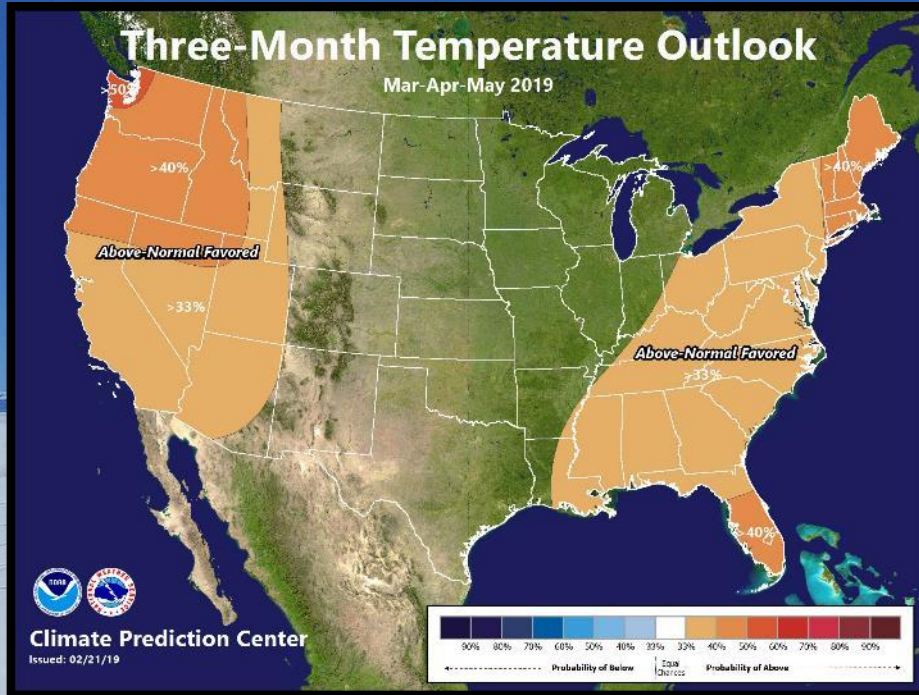
- <https://www.weather.gov/tfx/dssriver>
- https://water.weather.gov/ahps/region_forecast.php?state=mt
- <https://www.wrh.noaa.gov/tfx/icejam/?wfo=txf>
- [weather.gov/greatfalls](https://www.weather.gov/greatfalls)

arin.peters@noaa.gov

406-727-7671

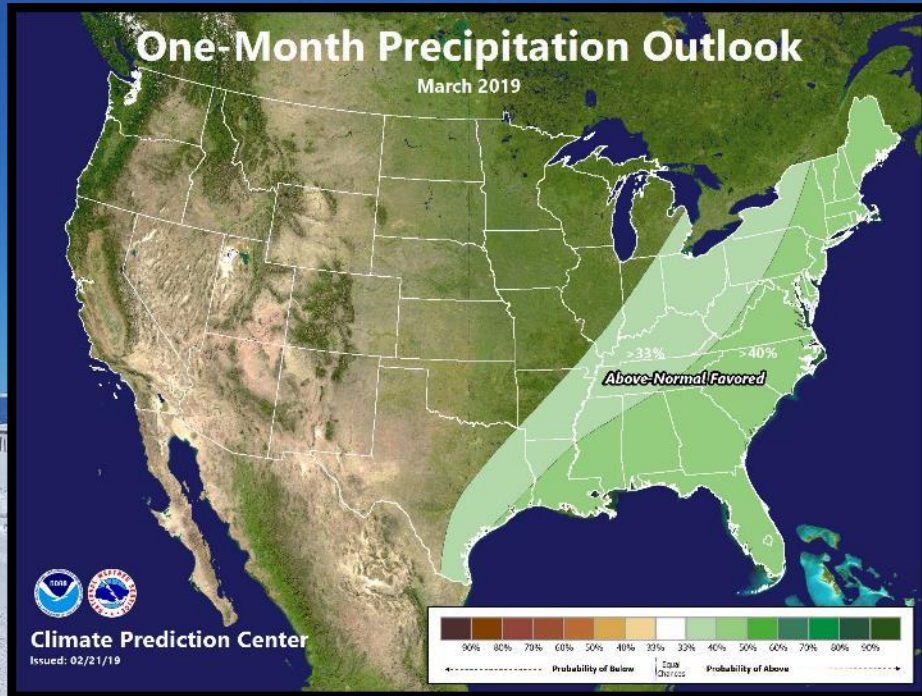
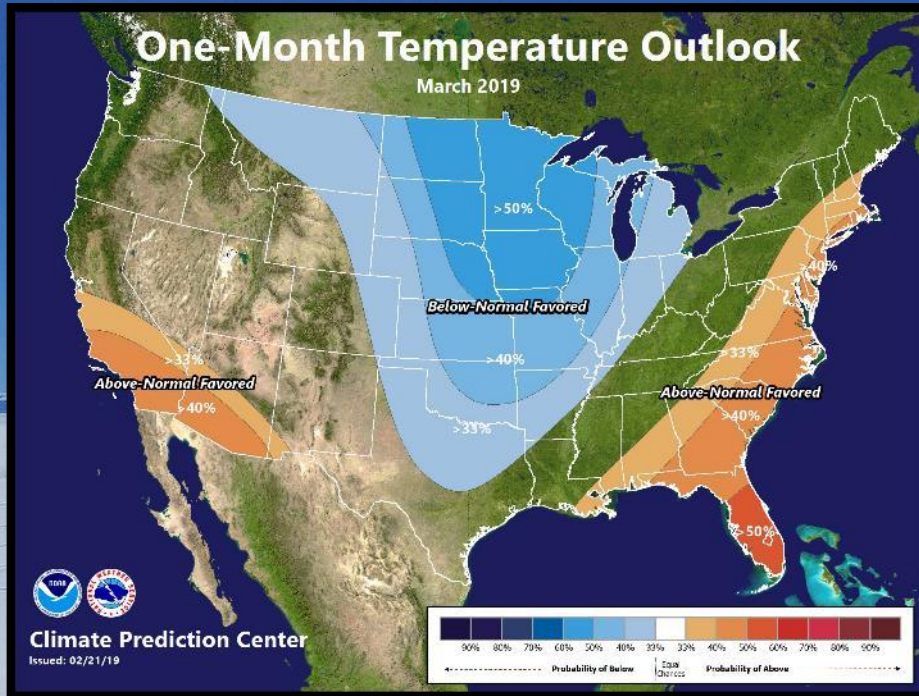


3 Month Outlook (MAM)



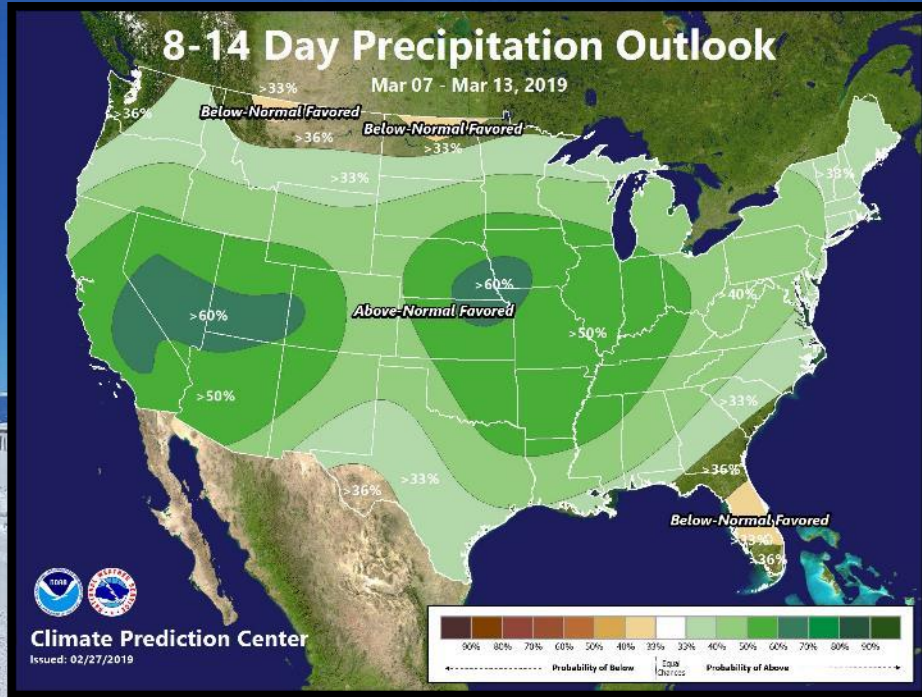
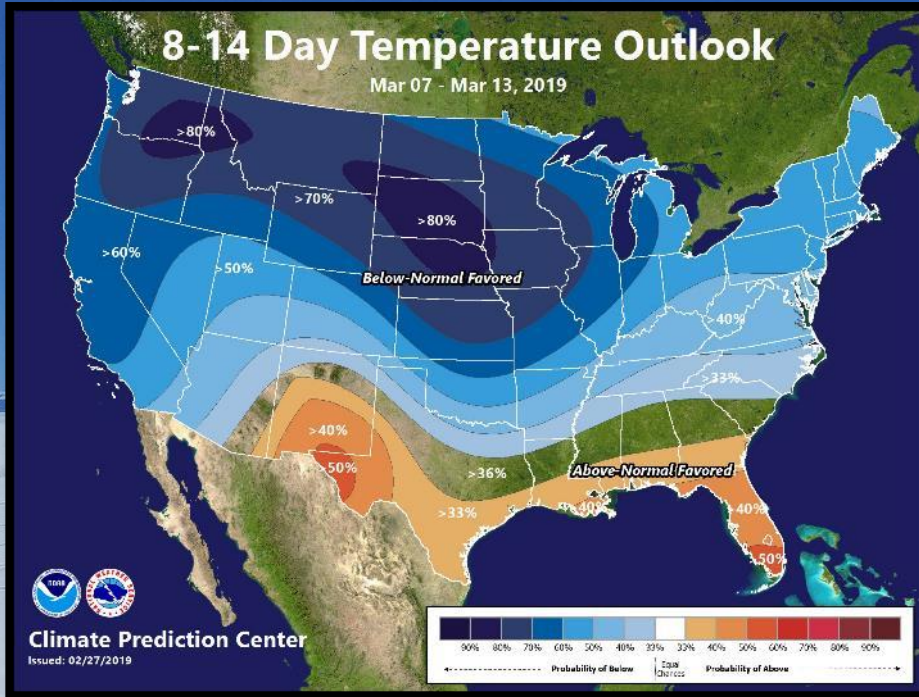


1 Month Outlook (MAM)





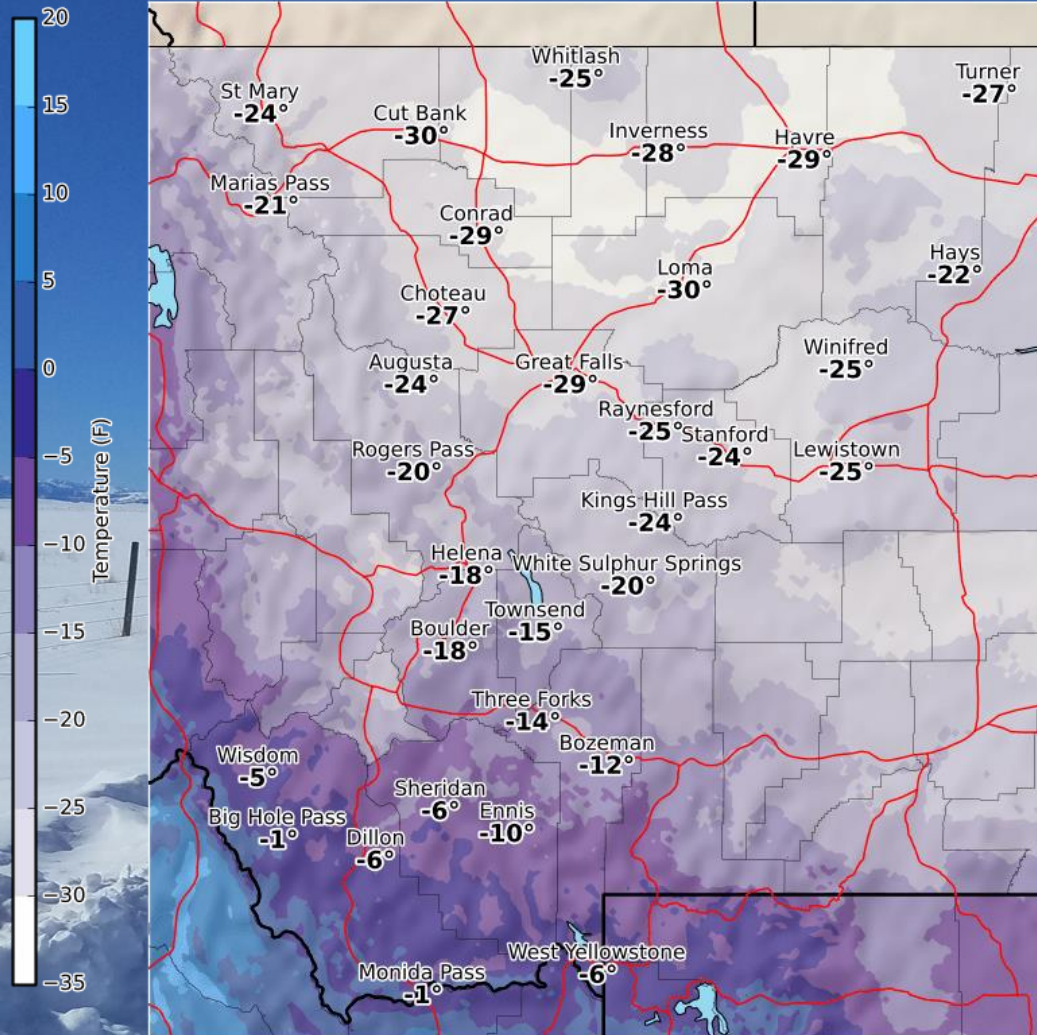
8-14 Day Outlook





Extreme Cold: This Fri-Tues

Sunday AM Low Temperature Forecast

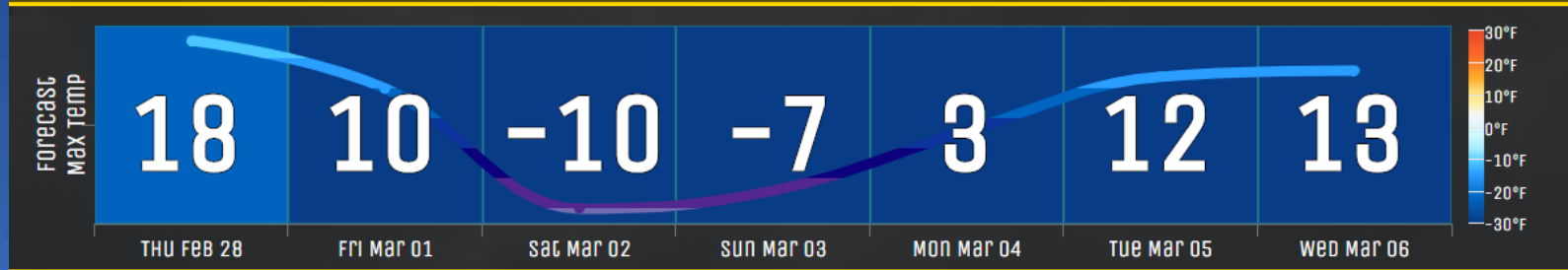


- Coldest temps likely over North Central Montana Saturday and Sunday Night.
- Coldest of the season for many.
- Record cold-maximums possible.
- Exposed skin can freeze in less than 10 minutes.
- Limit time outdoors, travel with a safety kit, protect livestock



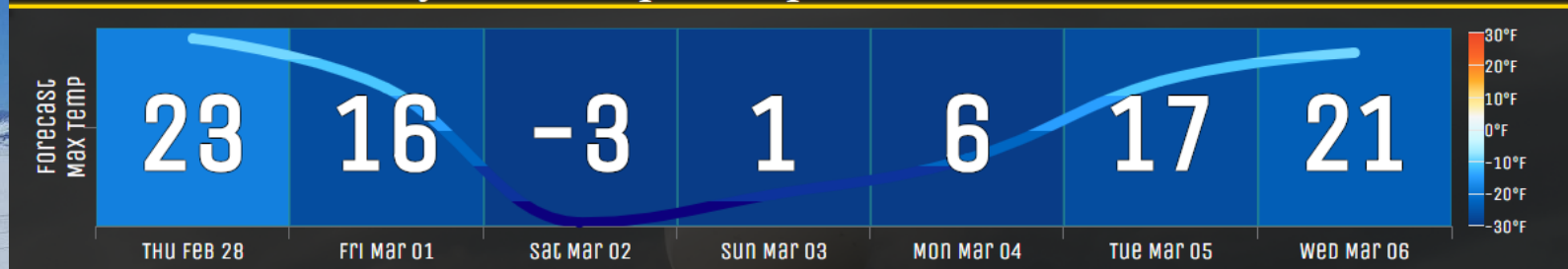
Extreme Cold: This Fri-Tues

Forecast Daily Max Temp vs Departure for Feb 28-Mar 06, 2019



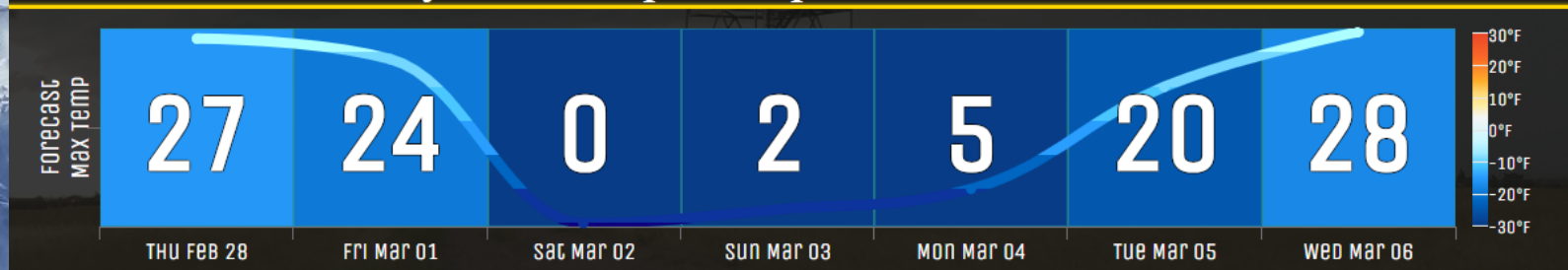
Great Falls Airport

Forecast Daily Max Temp vs Departure for Feb 28-Mar 06, 2019



Helena Airport

Forecast Daily Max Temp vs Departure for Feb 28-Mar 06, 2019



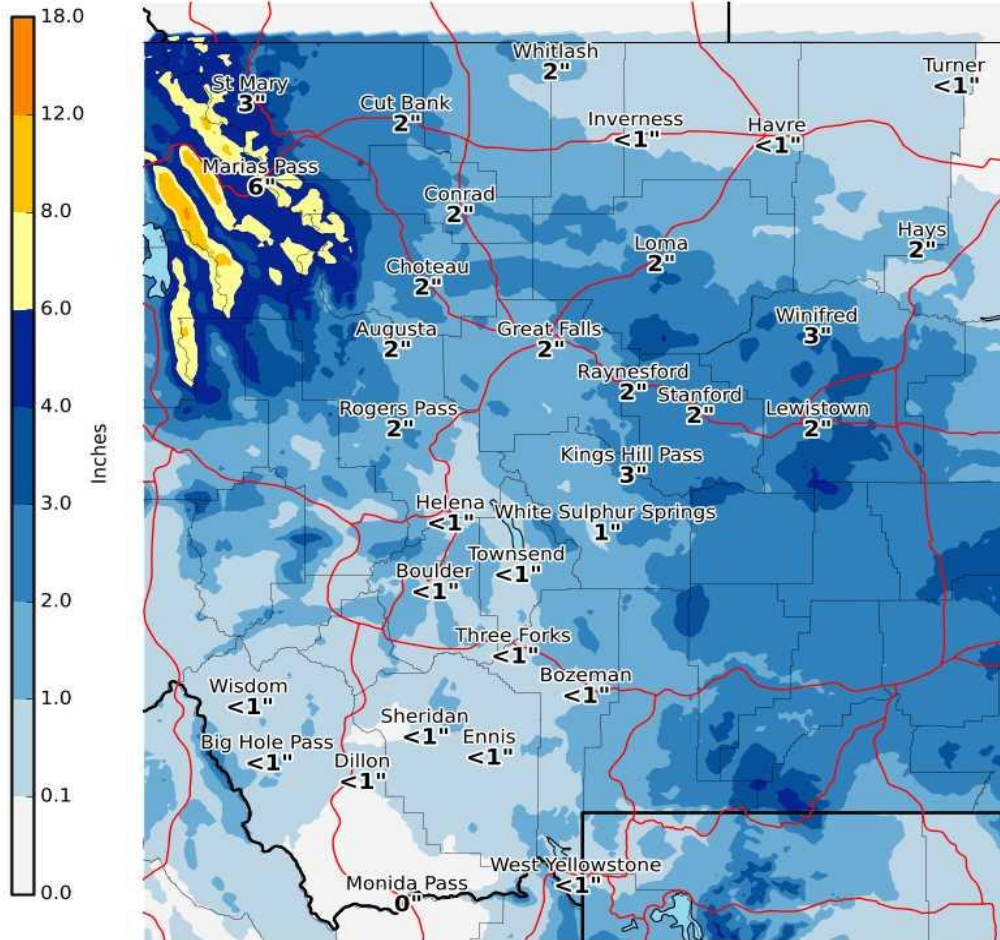
Bozeman Airport



Light Snow Possible

Expected Snowfall - Official NWS Forecast

Valid: 02/28/2019 11:00 PM - 03/02/2019 05:00 AM



- Snow amounts will be lighter than earlier in the week



National Weather Service
Great Falls Montana

02/28/2019 02:20 PM MST

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Questions?

Photo: Todd Klassy

