

Nebraska Climate Report and 2020 Ag Forecast Predictions

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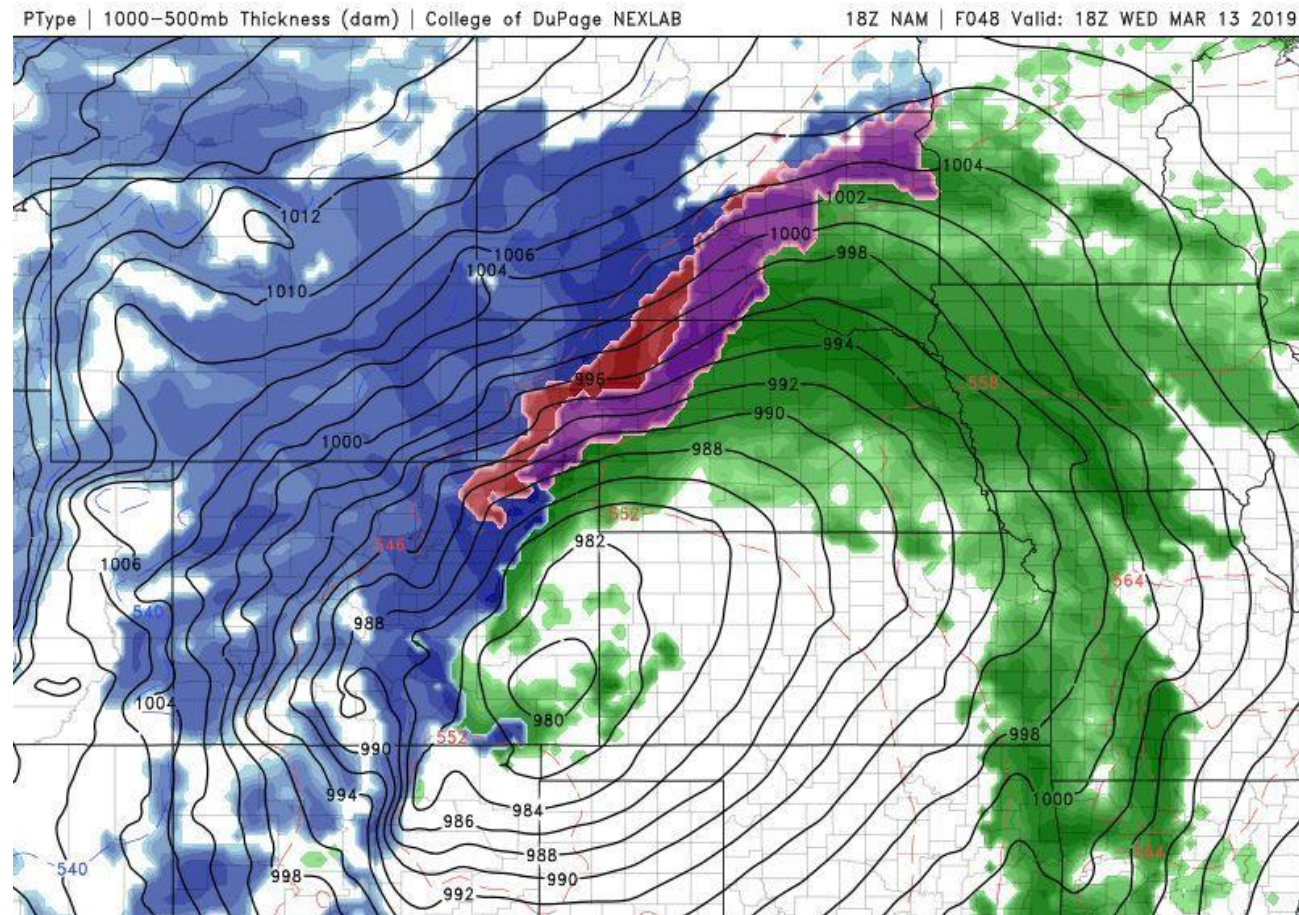
Presentation for the Upper Big Blue NRD Project Grow: Winter Workshop. December 3, 2020

What is a Bomb Cyclone

- Rapid Intensification – 24 mb drop over a 24-hour period.
- Often associated with Cyclogenesis off the Northeastern U.S.
- In the central Plains, often lead to blizzard conditions and/or heavy precipitation.
- Because these systems are so strong, there is usually a week or more of a forecast window for the expected event.
- A bomb cyclone doesn't mean a flood is eminent, it just means that a major system will impact the region. It is the underlying surface conditions that determine the risk for significant flooding.

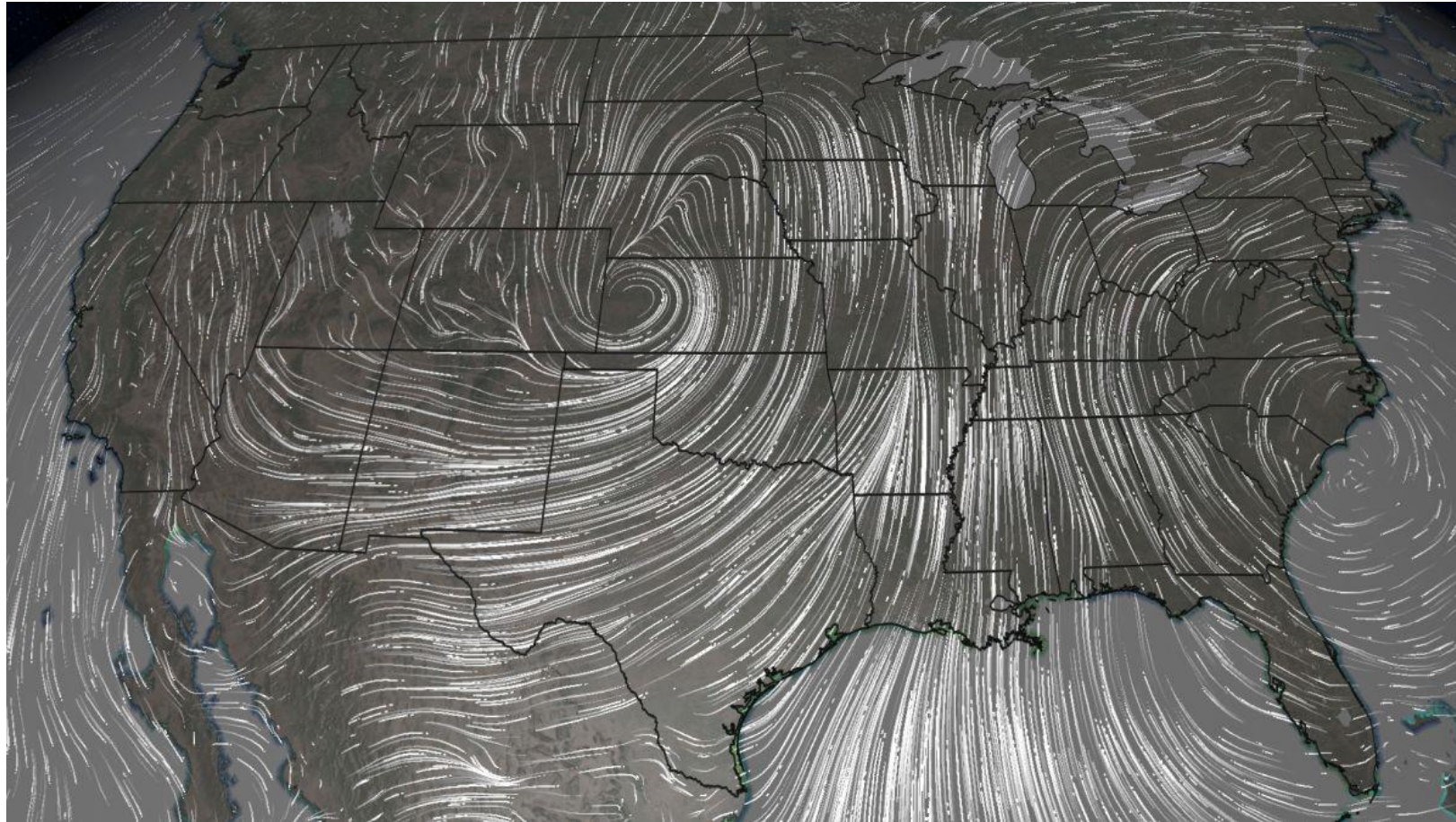
Bomb Cyclone Surface Depiction

Source: CBS- Denver



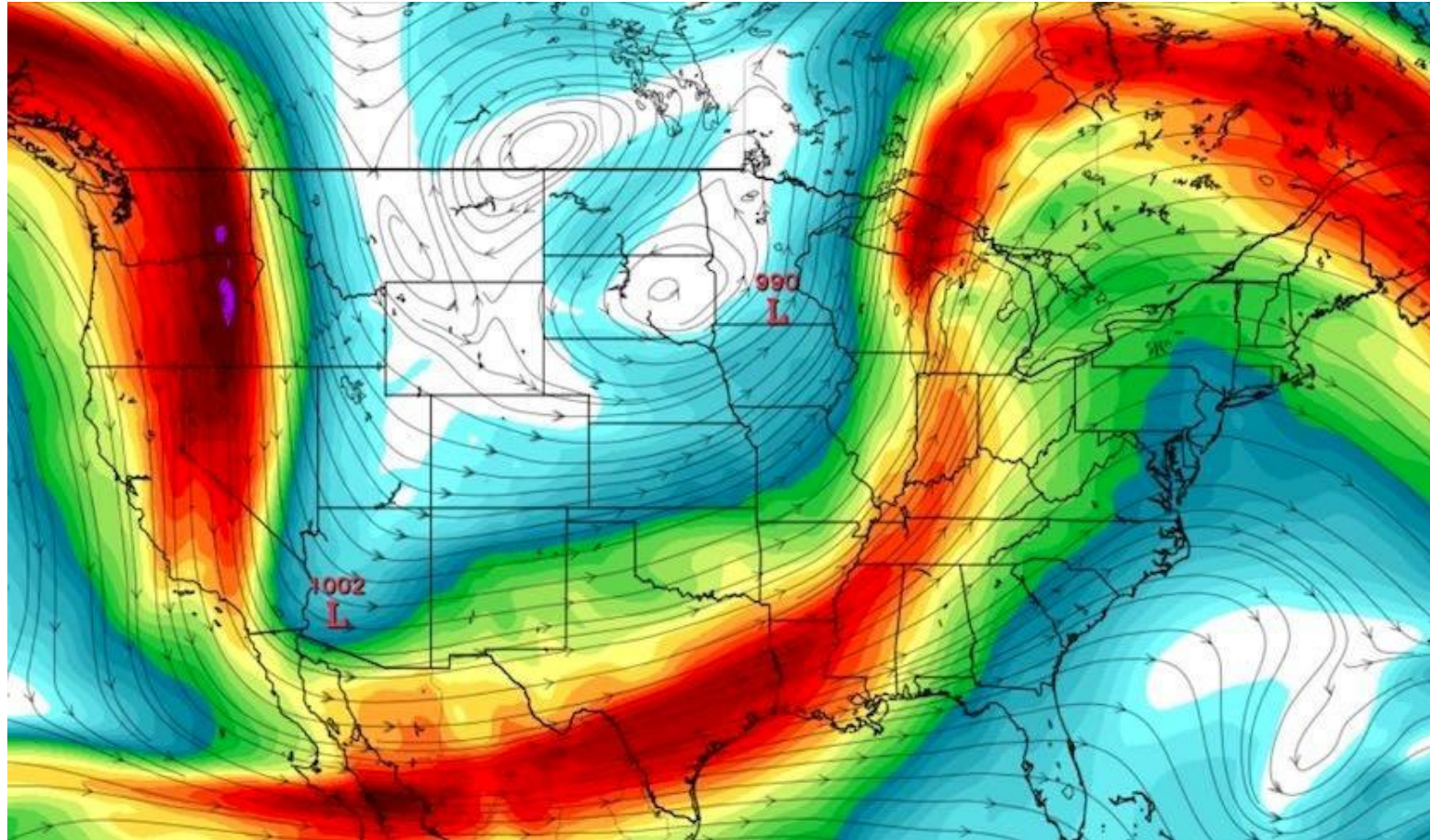
Bomb Cyclone Streamline Depiction

Source: CNN



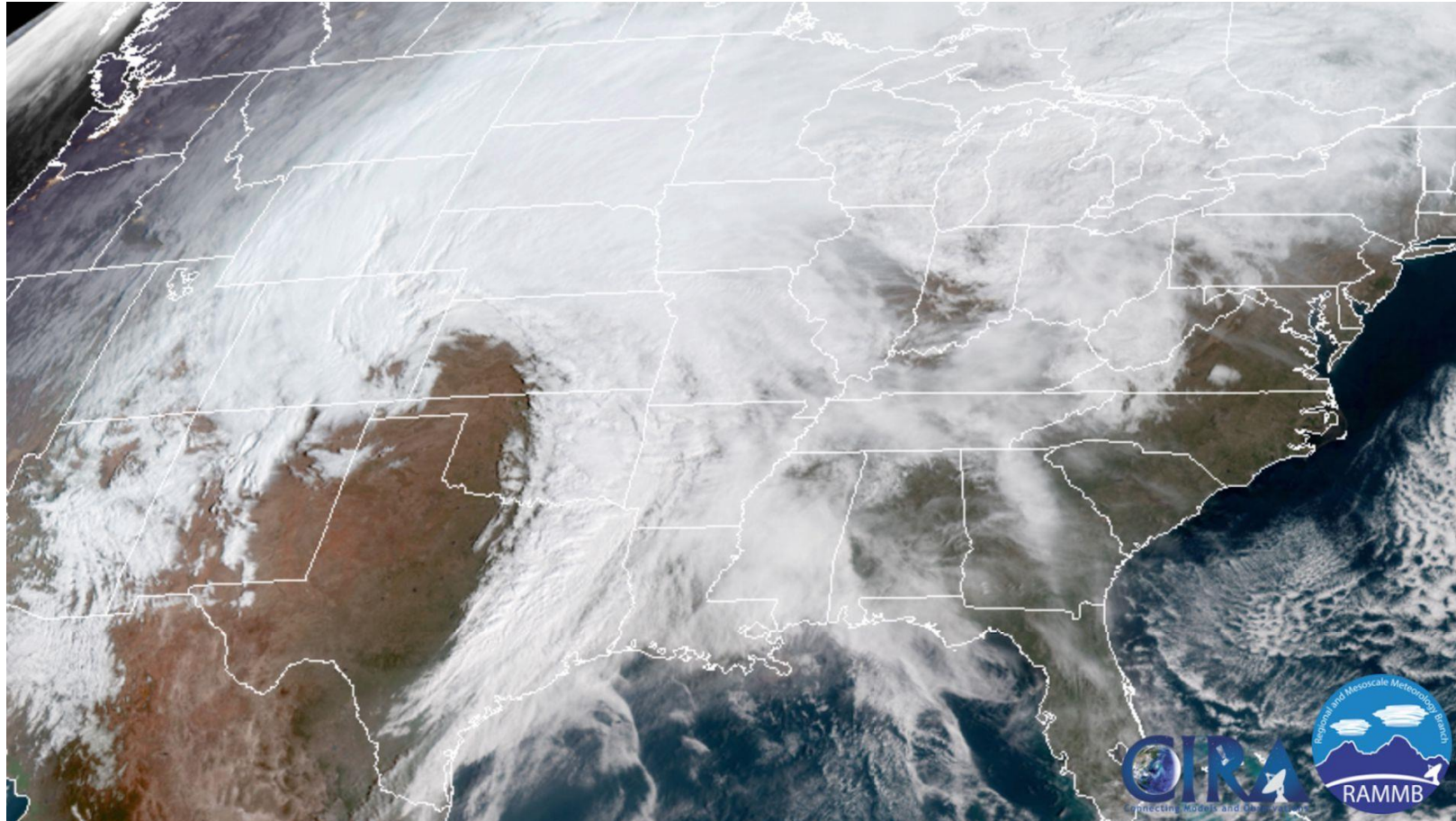
Bomb Cyclone Jet Stream Pattern

Source: Weather Underground



Bomb Cyclone Satellite View

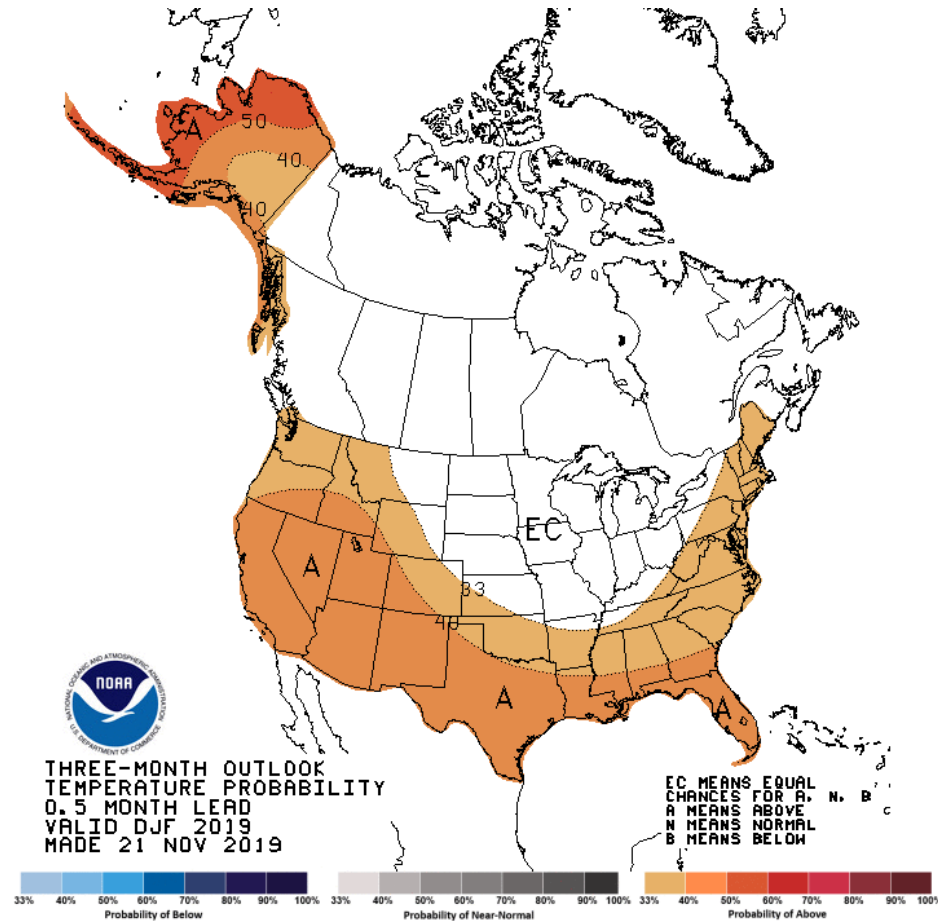
Source: Axios



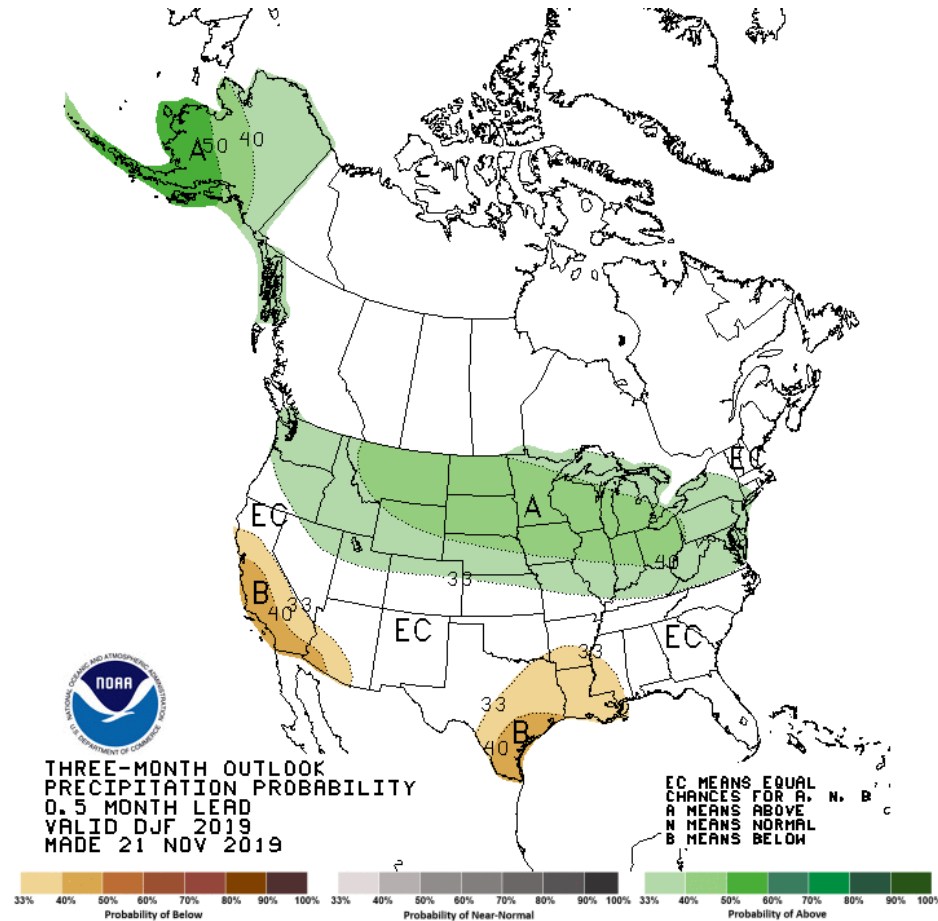
NOAA Outlooks Issued since late October

- Official Winter Outlook:
 - <https://www.noaa.gov/media-release/winter-outlook-warmer-than-average-for-many-wetter-in-north>
 - The November 3 month forecast scheduled for release on November 14th will serve as the final modification of the official winter outlook. The link above will still serve as the official forecast.
- NOAA Flood Risk Statement:
 - https://www.weather.gov/media/crh/Fall_Flood_2019_Outlook.pdf

Latest Temperature Forecast for this Winter

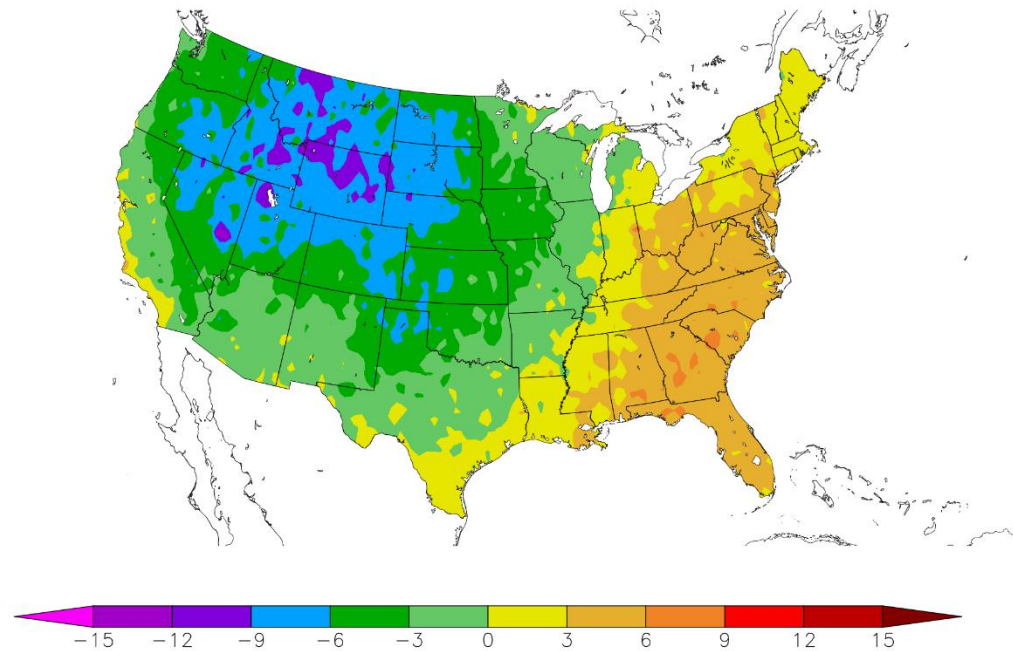


Latest Precipitation Forecast for this Winter



National October Temperature Trend

Departure from Normal Temperature (F)
10/1/2019 – 10/31/2019

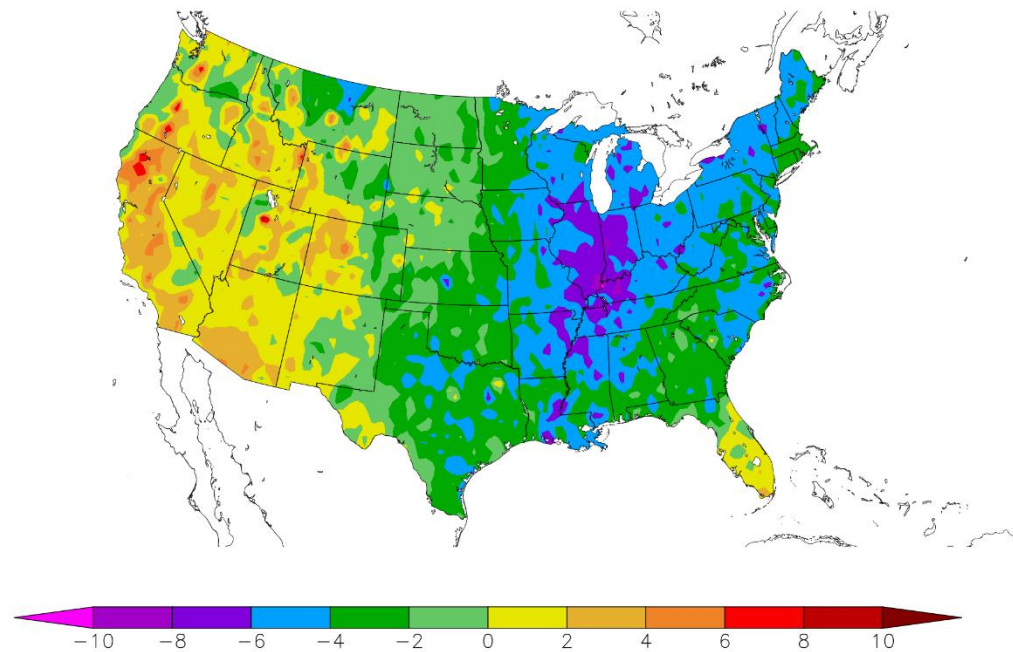


Generated 11/20/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

National November Temperature Trend

Departure from Normal Temperature (F)
11/1/2019 – 11/30/2019

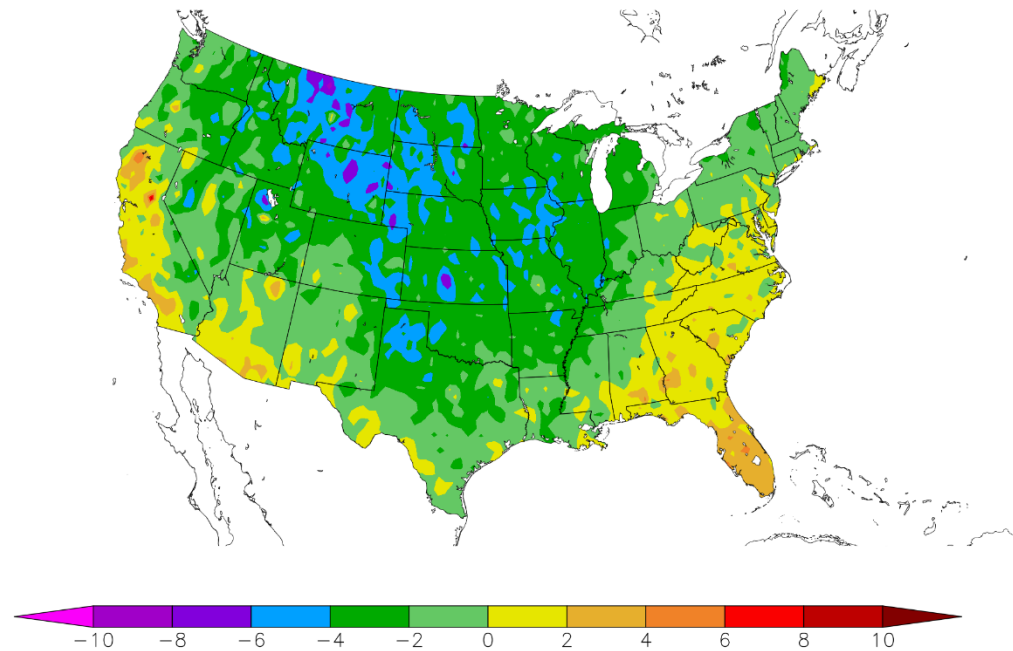


Generated 12/1/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

National October-November Temperature Trend

Departure from Normal Temperature (F)
10/1/2019 – 11/30/2019

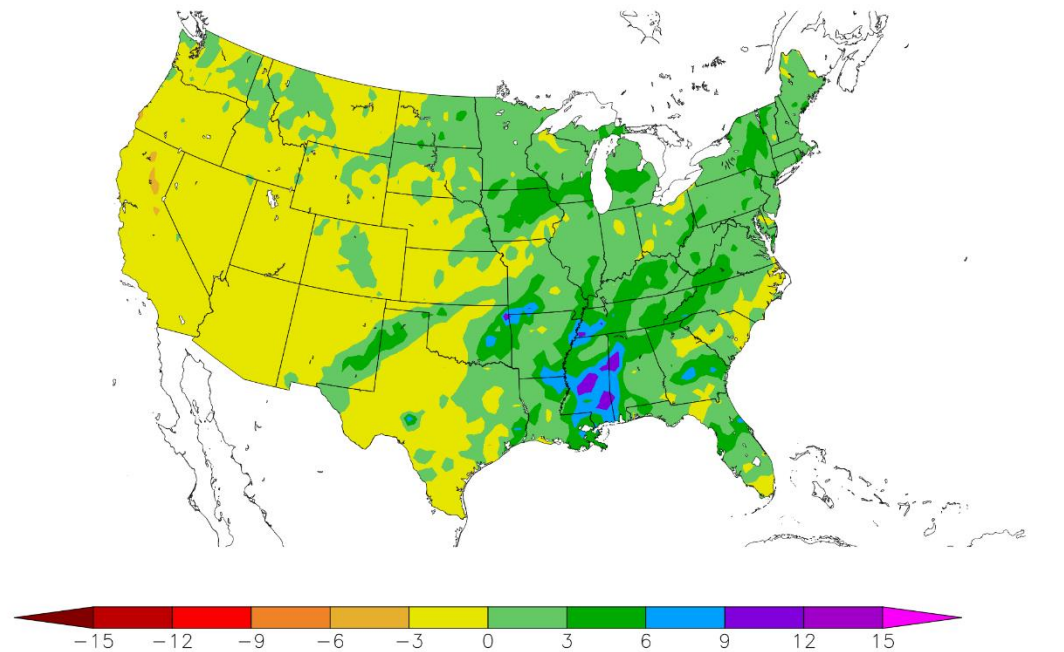


Generated 12/1/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

National October Precipitation Trend

Departure from Normal Precipitation (in)
10/1/2019 – 10/31/2019

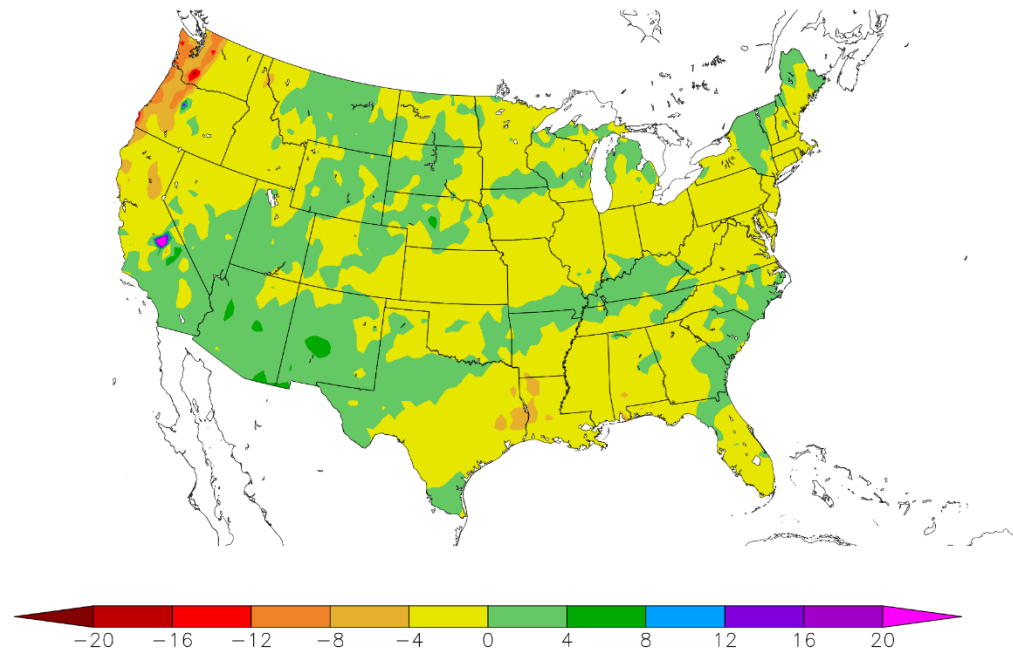


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NOAA Regional Climate Centers

National November Precipitation Trend

Departure from Normal Precipitation (in)
11/1/2019 – 11/30/2019

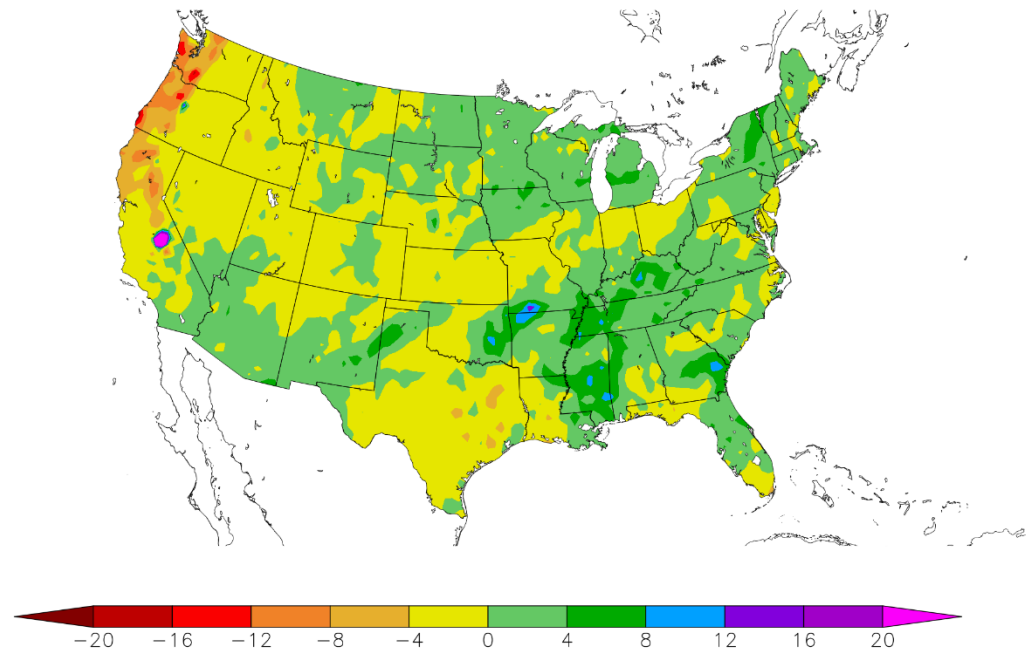


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NOAA Regional Climate Centers

National October-November Precipitation Trend

Departure from Normal Precipitation (in)
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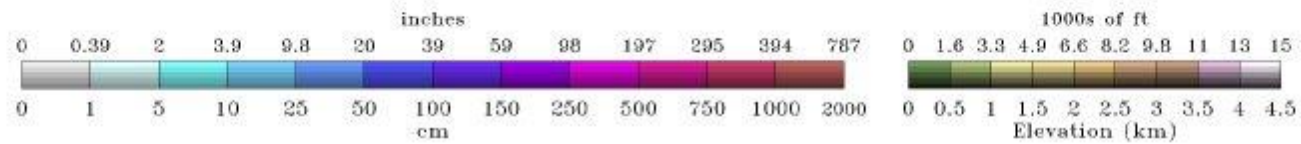
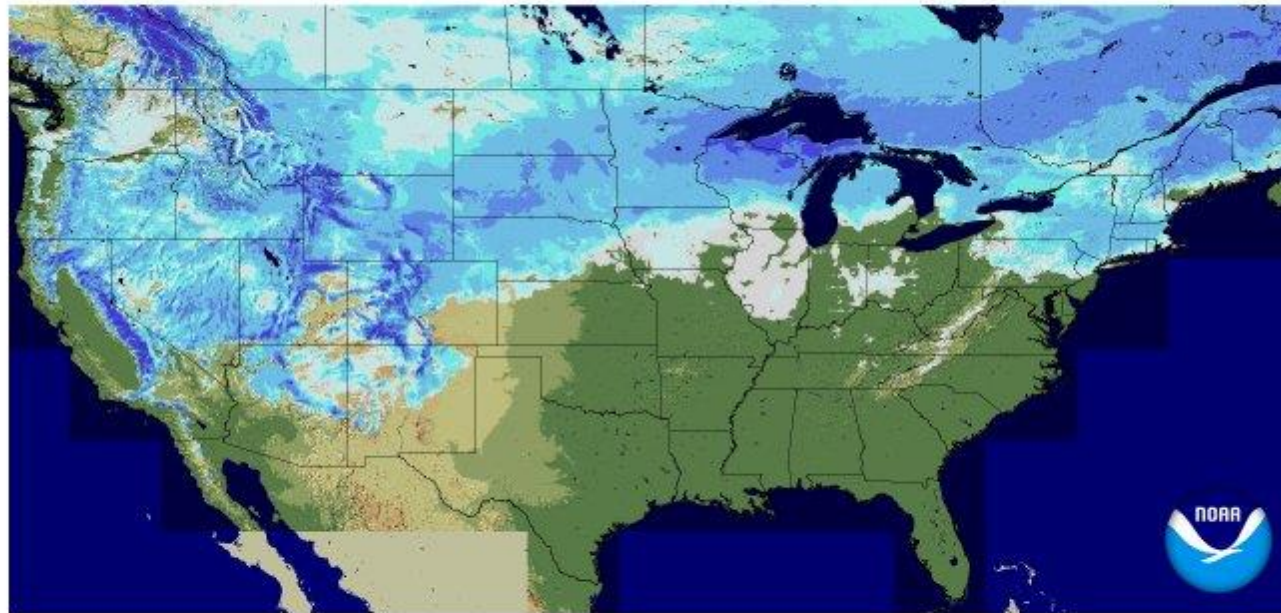
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NOAA Regional Climate Centers

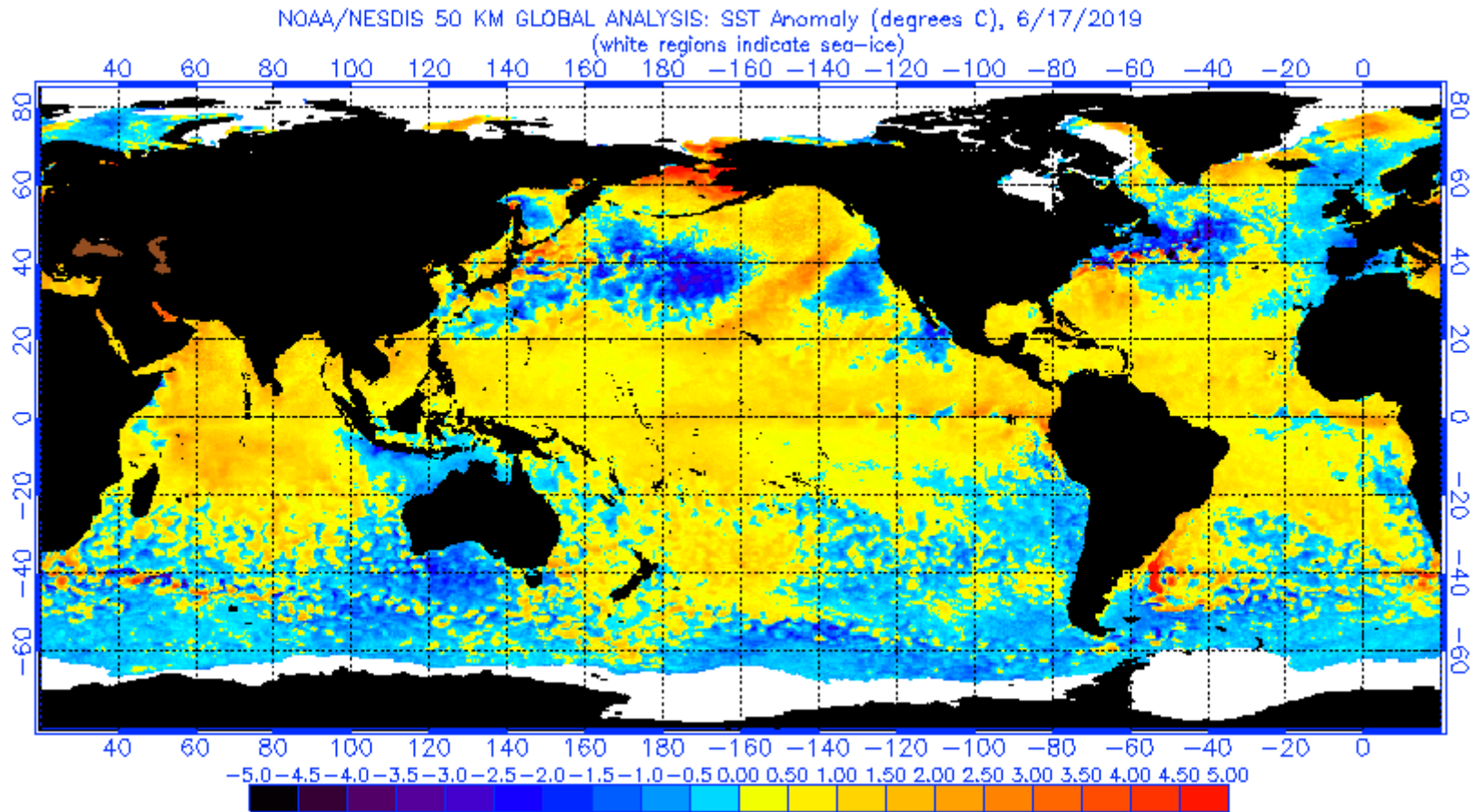
Current National Snowpack Map

OWP | OFFICE OF WATER PREDICTION
National Snow 2018-2019 Analysis 2019

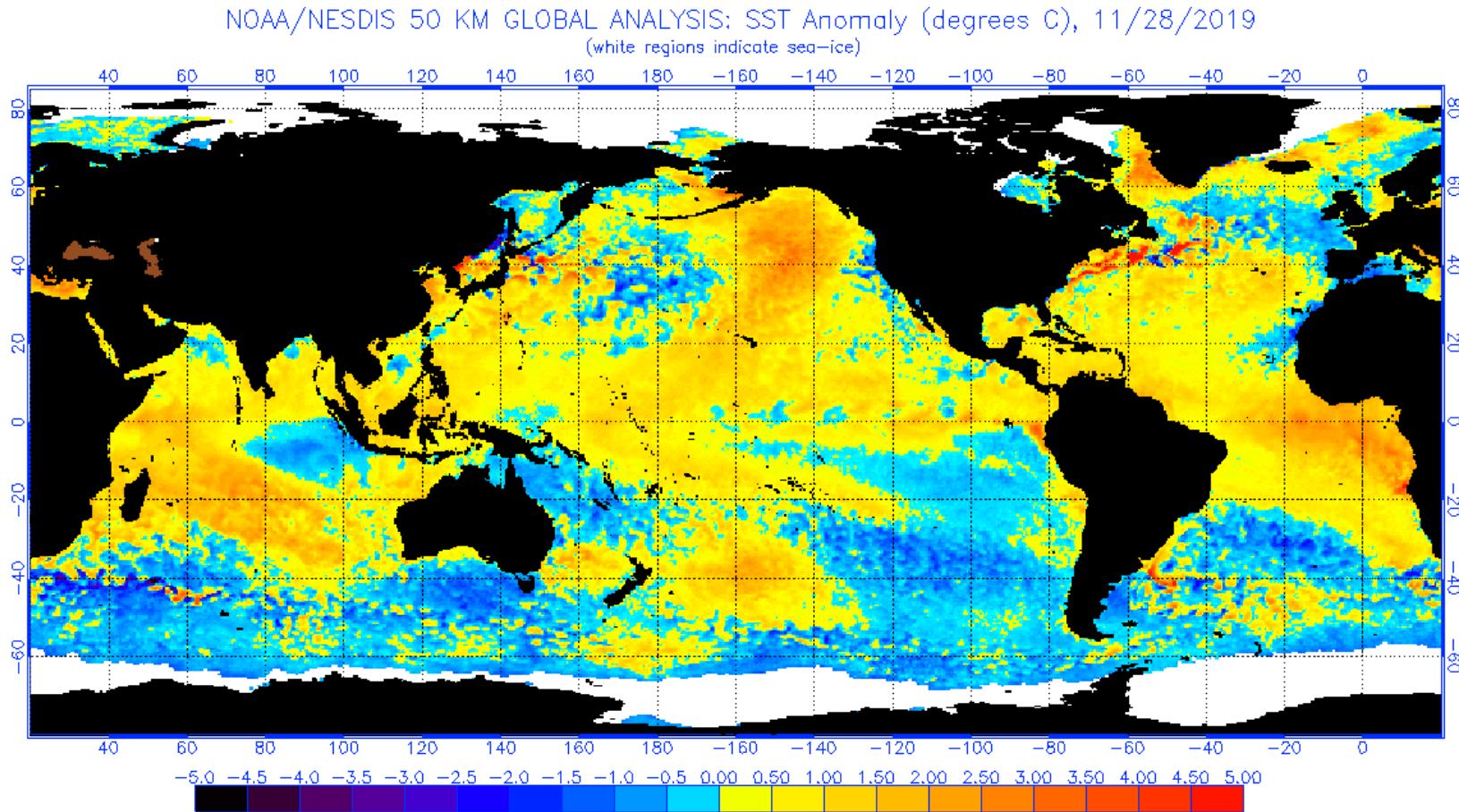
Snow Depth
2019-12-02 06 UTC



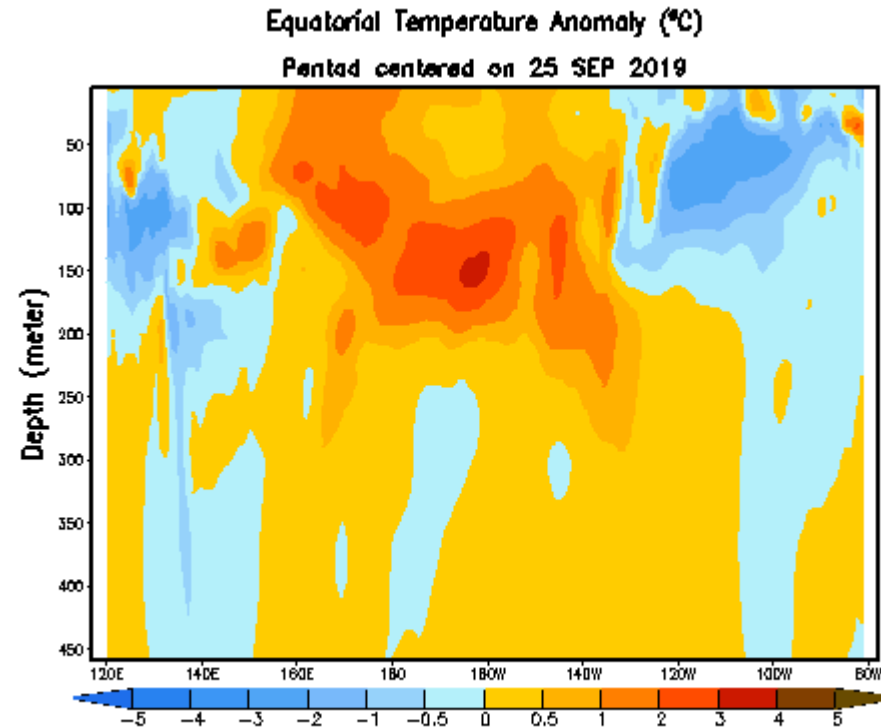
6 Month Animation of Global SST's



Static Global SST's: November 28, 2019



Equatorial Pacific Sub-Surface Heat Content Animation



Consensus ENSO 12 Month Outlook

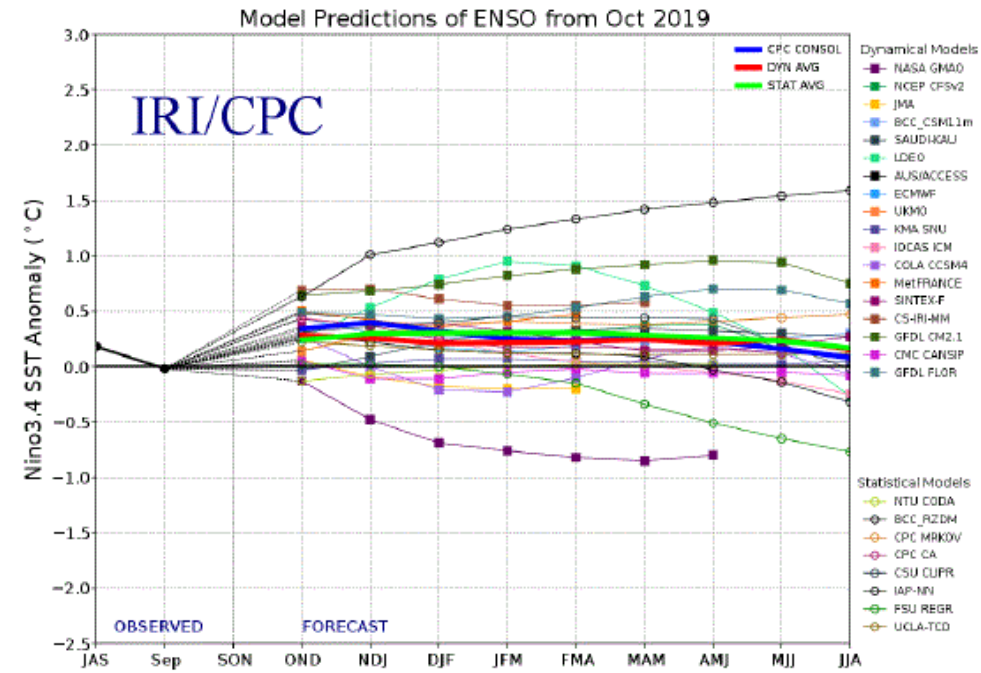
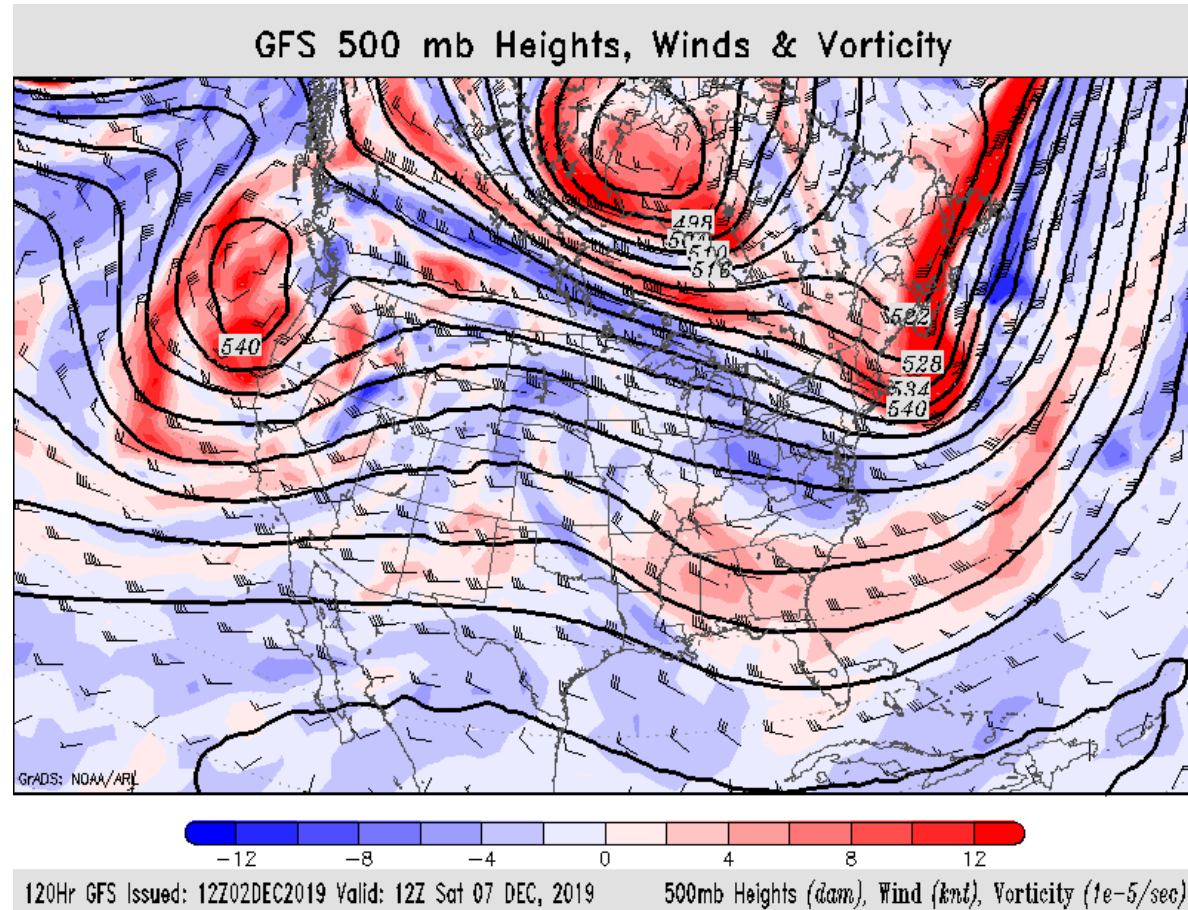
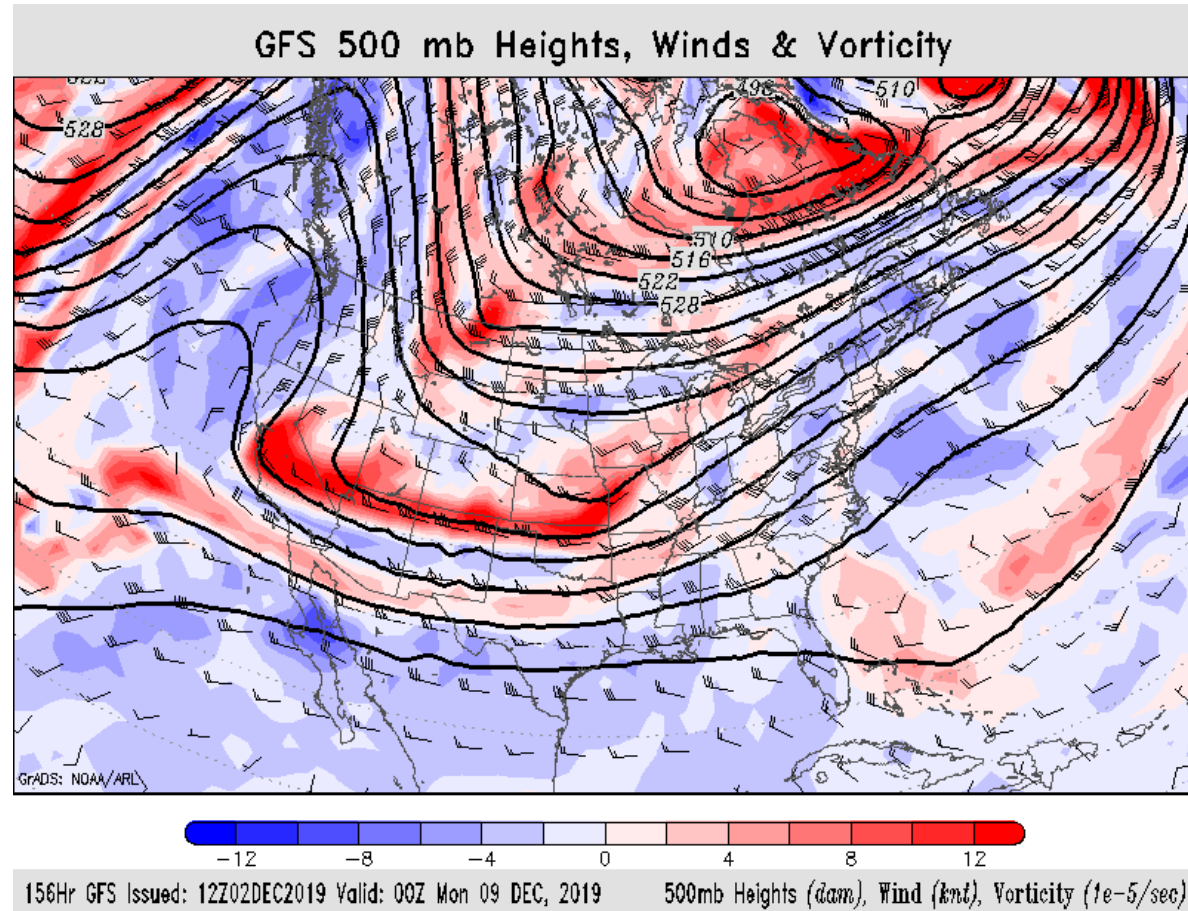


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 18 October 2019.

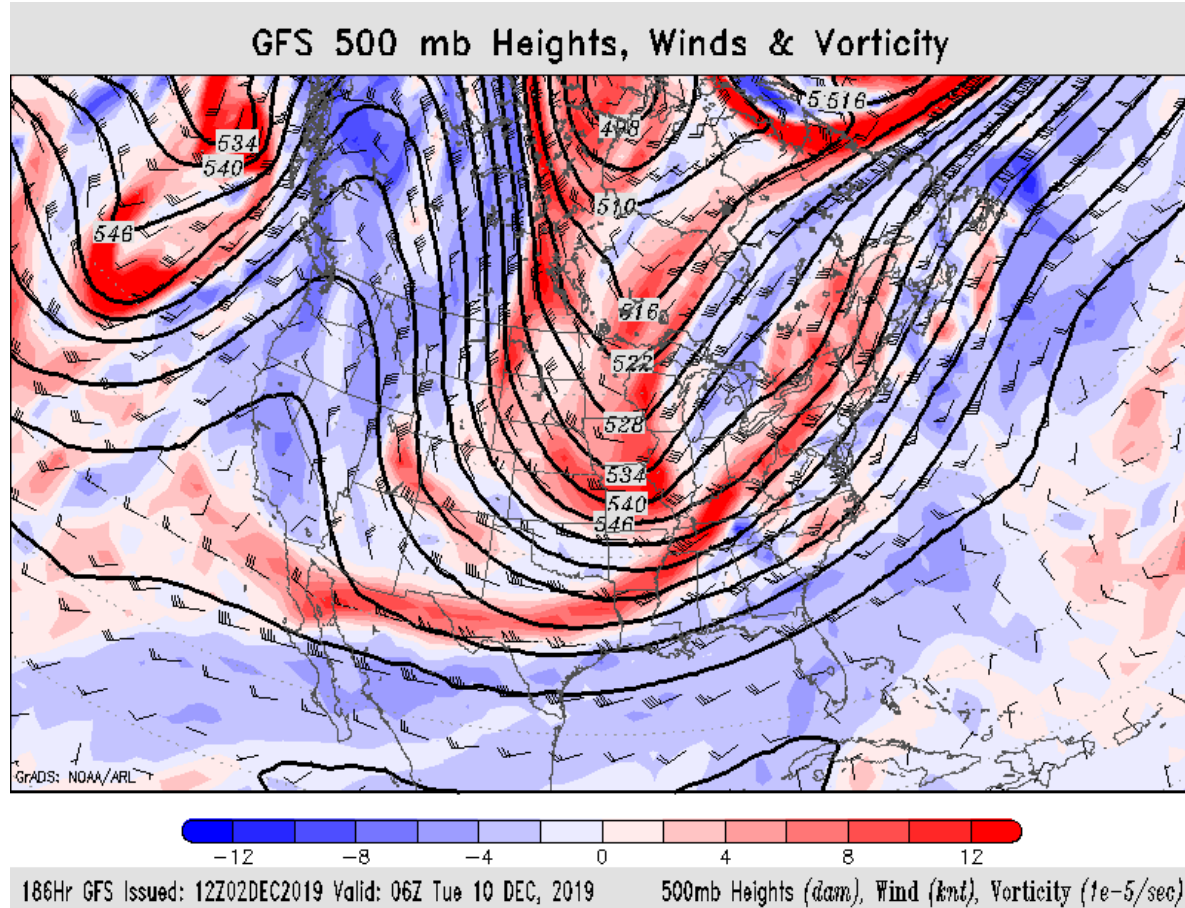
500 mb Jet Stream Pattern: Example 1



500 mb Jet Stream Pattern: Example 2



500 mb Jet Stream Pattern: Example 3



Concluding Statements

- An elevated flood risk exist for much of the corn belt through next spring
- The degree of flood risk will ultimately be determined by precipitation, temperature, frost depth, and storm tracks this winter
- The atmosphere has shown us three modes for storm tracks since the middle of October.
- Moisture favored much further north than last winter with a lower count of southern stream storms.
- ENSO neutral conditions through 2020, cooling favored second half of 2020.