

# Hydrologic and Climate Assessment

December 3, 2019



Photo Credit: Kat Bledsoe

**Aaron B. Wilson**

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DEPARTMENT OF EXTENSION - CFAES

BYRD POLAR & CLIMATE RESEARCH CENTER

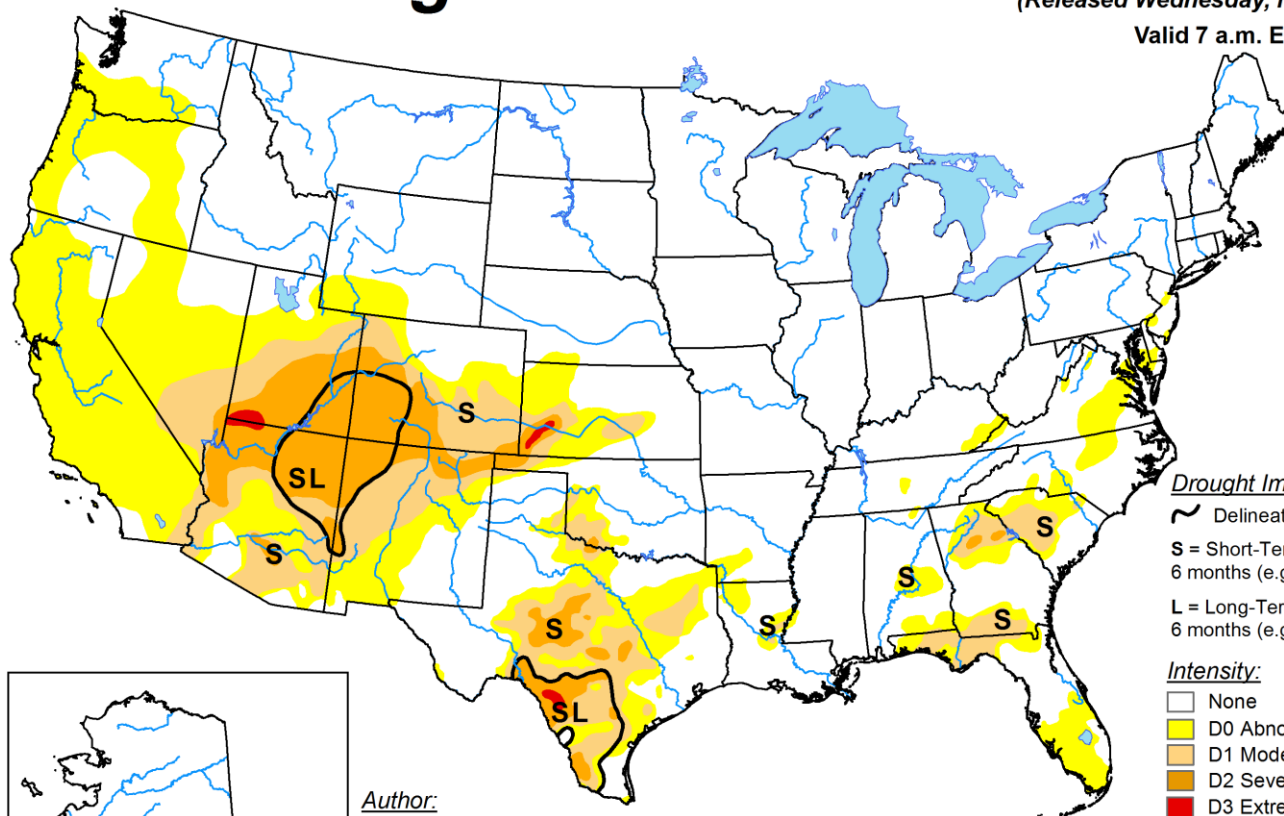
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# U.S. Drought Monitor

November 26, 2019  
 (Released Wednesday, Nov. 27, 2019)  
 Valid 7 a.m. EST

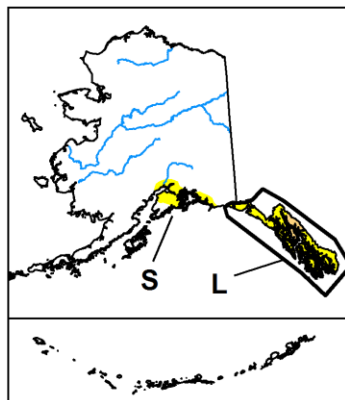


**Drought Impact Types:**

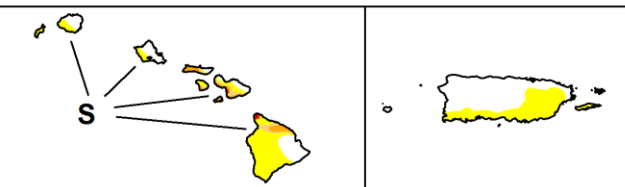
- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought



*Author:*  
 Brad Rippey  
 U.S. Department of Agriculture



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



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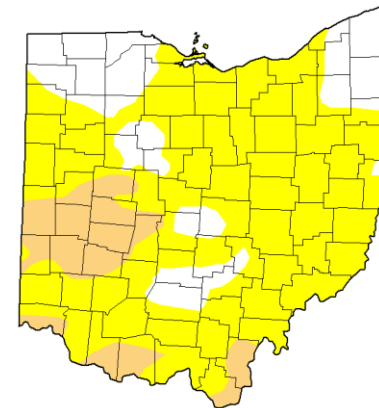
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# 2019 Drought Recap

- Abnormally dry (D0) conditions were introduced to southwest Ohio on August 6<sup>th</sup>; Moderate drought (D1) on September 10<sup>th</sup>; State remained abnormally dry until November 12<sup>th</sup> (14 weeks)
- Peak coverage of D0-D1 was depicted on October 1<sup>st</sup> at 80.59% (Top Right); The peak D1 conditions were reported on October 15<sup>th</sup> and October 22<sup>nd</sup> at 26.05%.
- The driest areas (Bottom Right; dark blue shading) are indicated over parts of the Miami Valley, Central Ohio, and parts of the northeast, where only 5-7.5 inches of rain fell during this time.; ~50% of normal during this period (Fig. 2b).
- Ag impacts: decreased soil moisture, crop stress, low farm ponds, and a few combine fires during the harvest season.
- No major impacts on other sectors

## U.S. Drought Monitor Ohio

October 1, 2019  
(Released Thursday, Oct. 3, 2019)  
Valid 8 a.m. EDT



	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	19.41	80.59	12.37	0.00	0.00	0.00
Last Week (09/24/2019)	34.22	65.78	8.85	0.00	0.00	0.00
3 Months Ago (07/03/2019)	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year (01/01/2019)	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year (09/01/2018)	19.41	80.59	12.37	0.00	0.00	0.00
One Year Ago (10/02/2018)	100.00	0.00	0.00	0.00	0.00	0.00

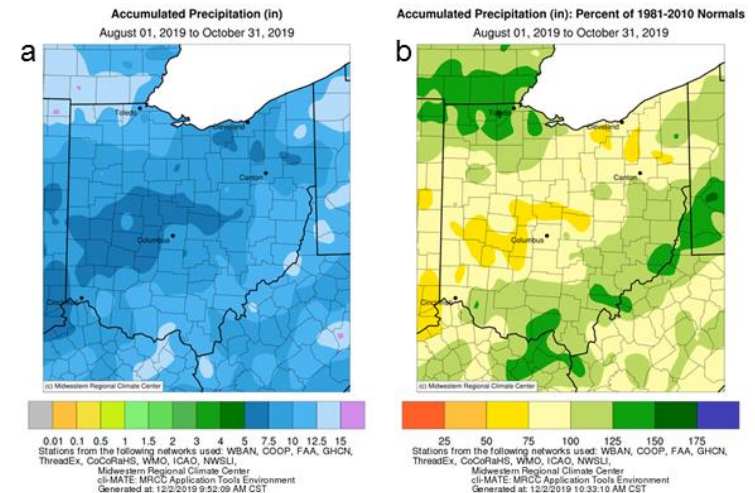
**Intensity**  
 None  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**AUTHOR**  
 Brian Fuchs  
 National Drought Mitigation Center



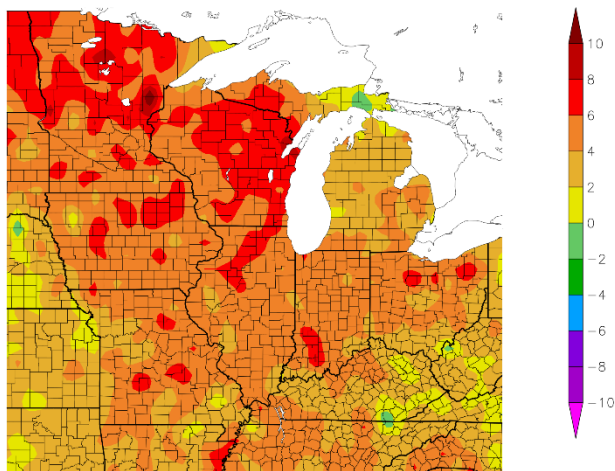
droughtmonitor.unl.edu



# Temperature Differences Compared to Average (1981-2010)

## 7-Day

Departure from Normal Temperature (F)  
11/25/2019 – 12/1/2019

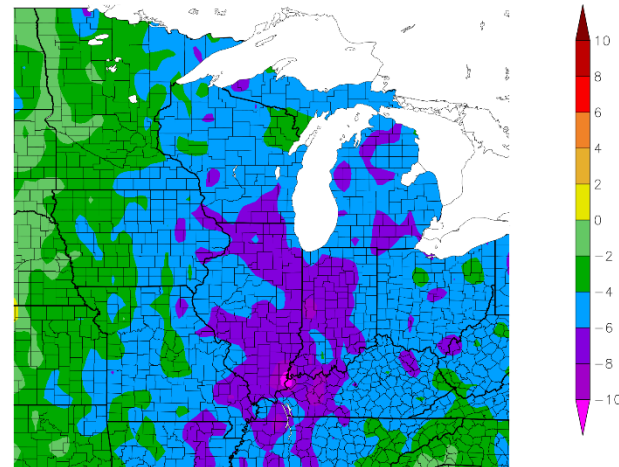


Generated 12/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

## 30-Day

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

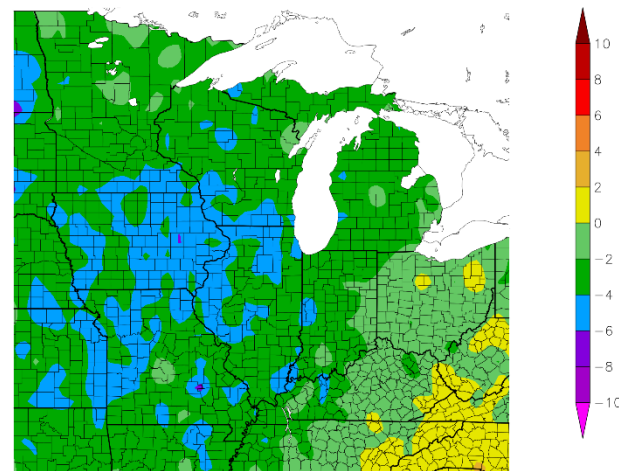


Generated 12/1/2019 at HPRCC using provisional data.

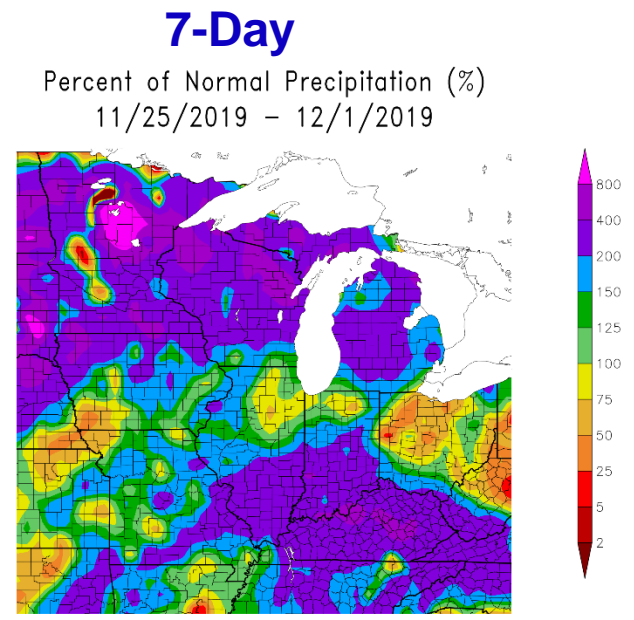
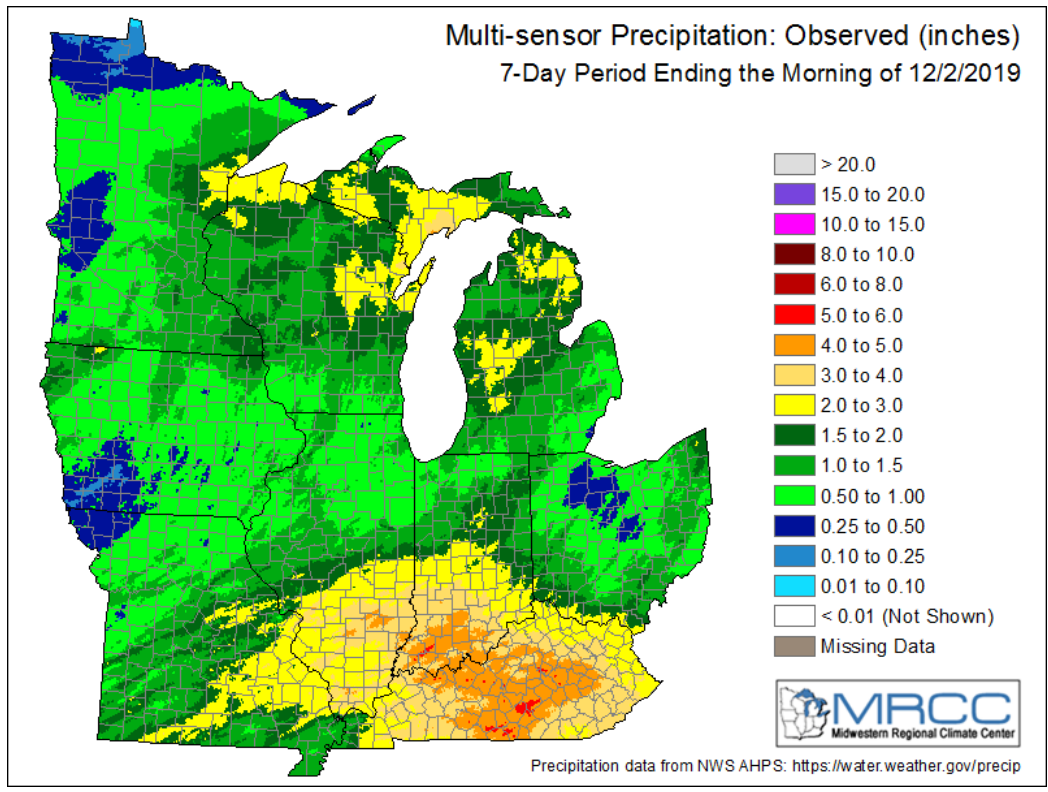
NOAA Regional Climate Centers

## 60-Day

Departure from Normal Temperature (F)  
10/2/2019 – 11/30/2019



# This Week's Precipitation



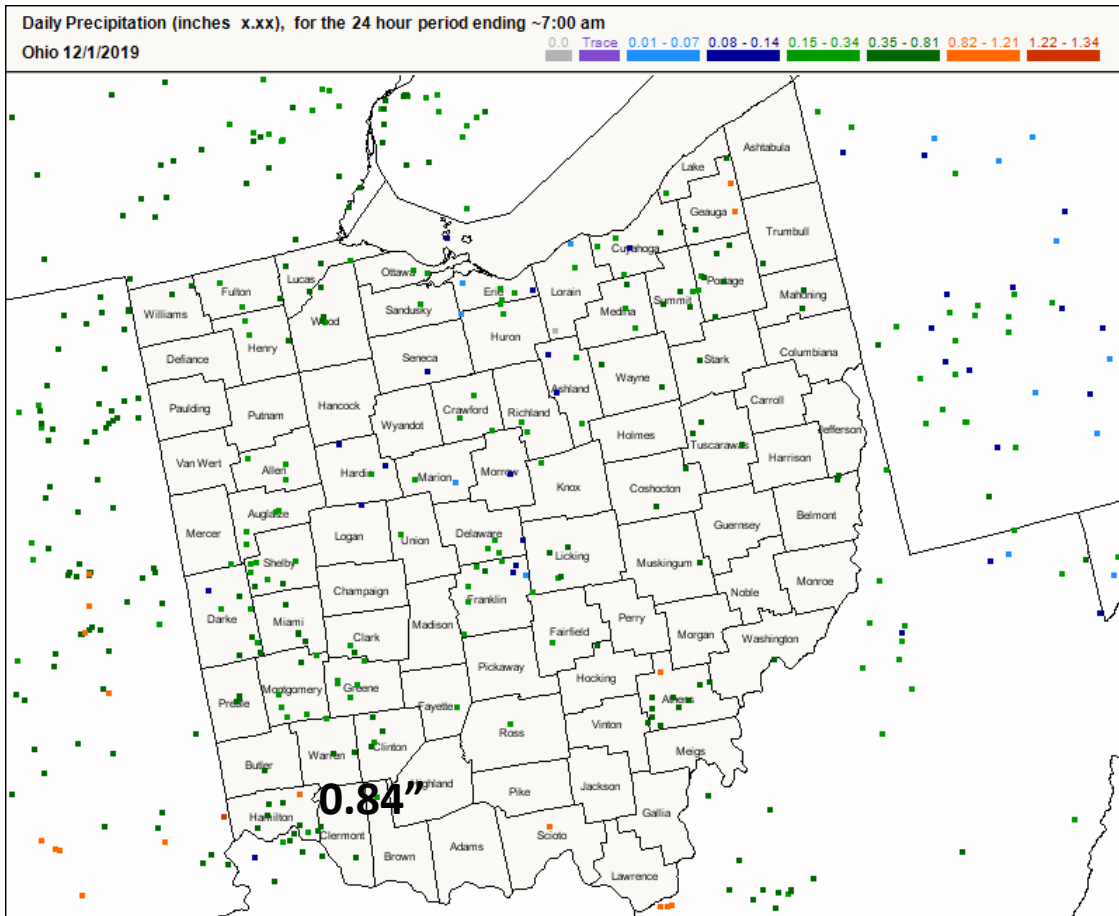
Generated 12/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers



# CoCoRaHS

## Top 10 Wettest



CoCoRaHS Name	Total Precip (inches)
Cheviot 3.4 W	59.90
Amelia 0.3 SSW	59.64
Cherry Grove 0.4 NW	58.06
Fayetteville 0.5 W	57.92
Cincinnati 8.4 NW	55.92
Bethel 3.8 SW	55.82
Batavia 3.3 NE	55.22
Cincinnati 6.7 E	55.14
Cincinnati 4.2 ESE	54.28
Reynoldsburg 1.1 ENE	52.90

<https://cocorahs.org/>



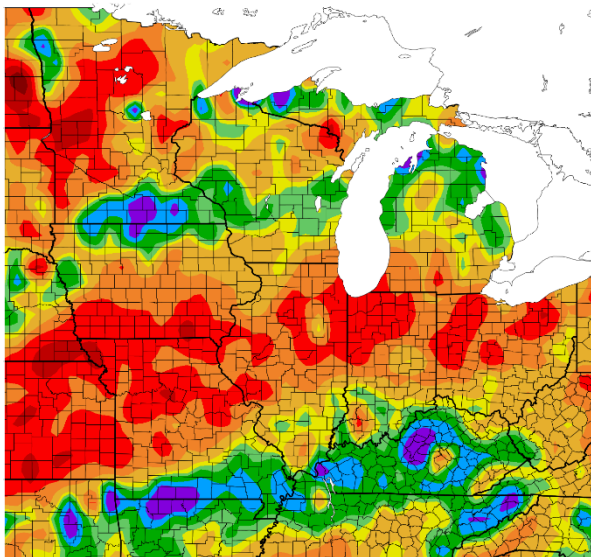
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# Precipitation Differences Compared to Average (1981-2010)

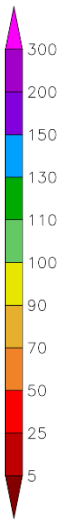
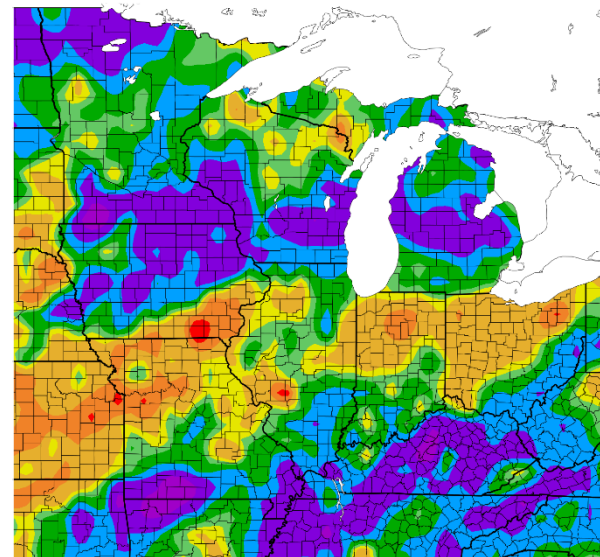
## 30-Day

Percent of Normal Precipitation (%)  
11/1/2019 – 11/30/2019



## 60-Day

Percent of Normal Precipitation (%)  
10/2/2019 – 11/30/2019



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

NOAA Regional Climate Centers

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

NOAA Regional Climate Centers

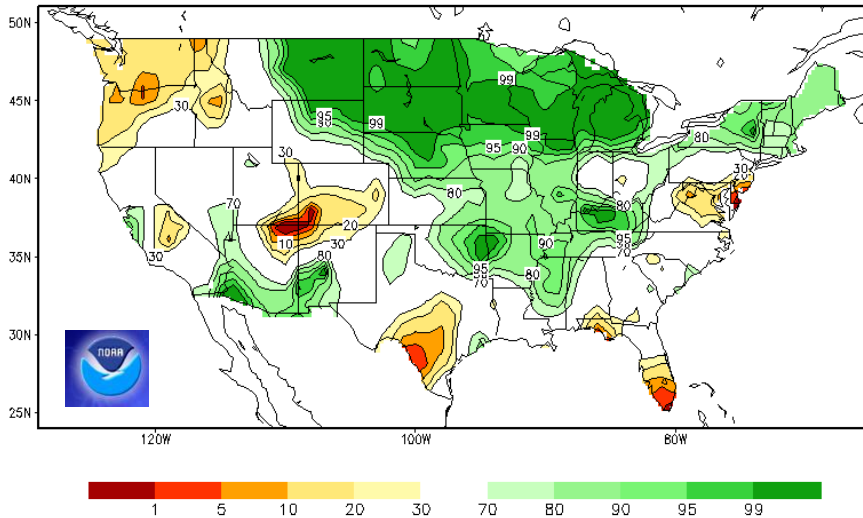


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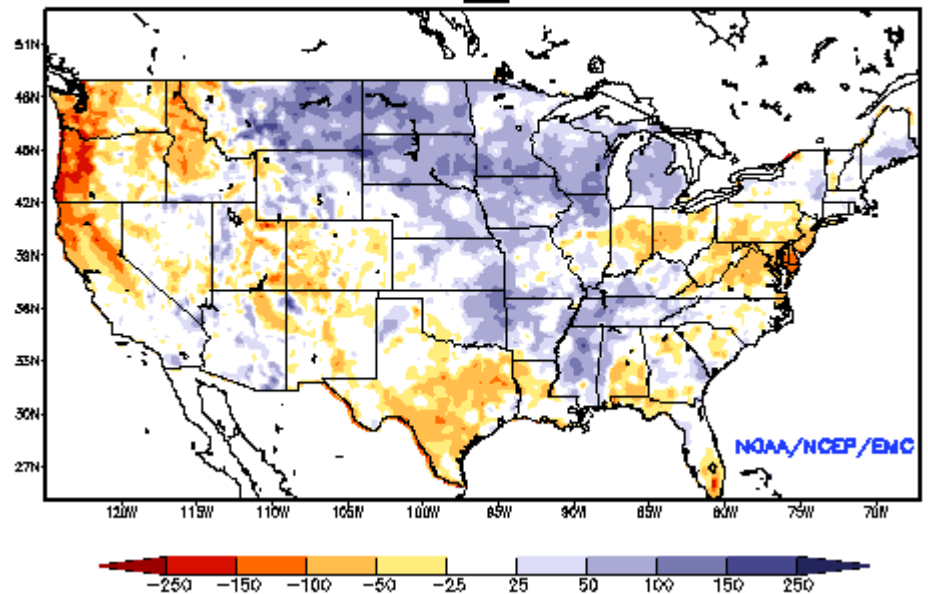
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# Soil Moisture

Calculated Soil Moisture Ranking Percentile  
DEC 02, 2019



Ensemble-Mean - Current Total Column Soil Moisture Anomaly (mm)  
NCEP NLDAS Products Valid: NOV 28, 2019



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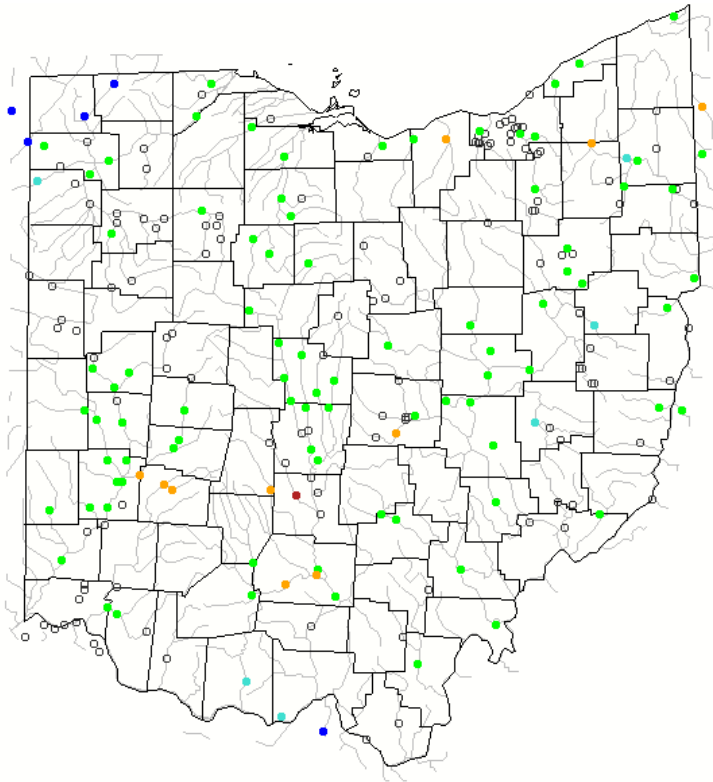
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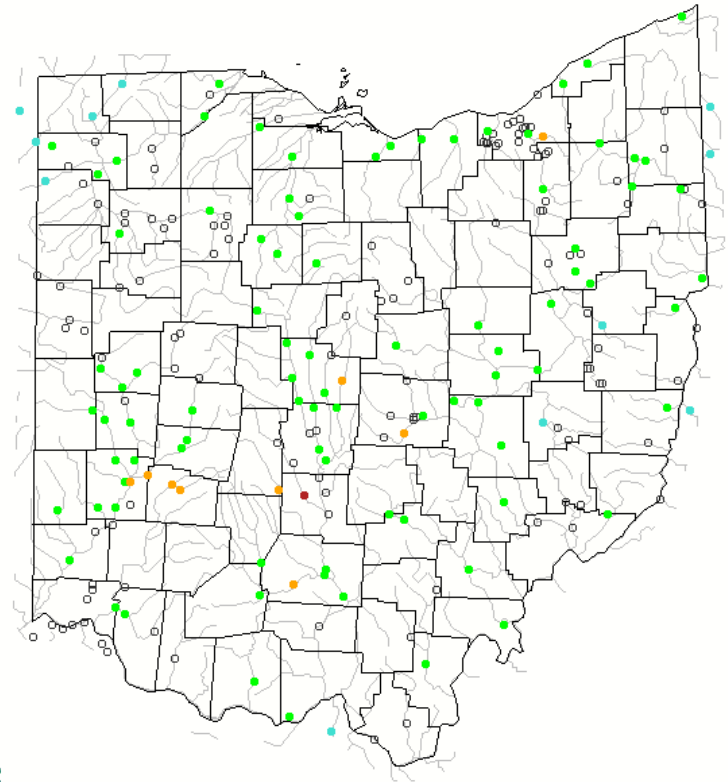


7-DAY



# USGS Streamflow

28-DAY



Explanation - Percentile classes

Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Average streamflow compared to historical streamflow for the day of the year



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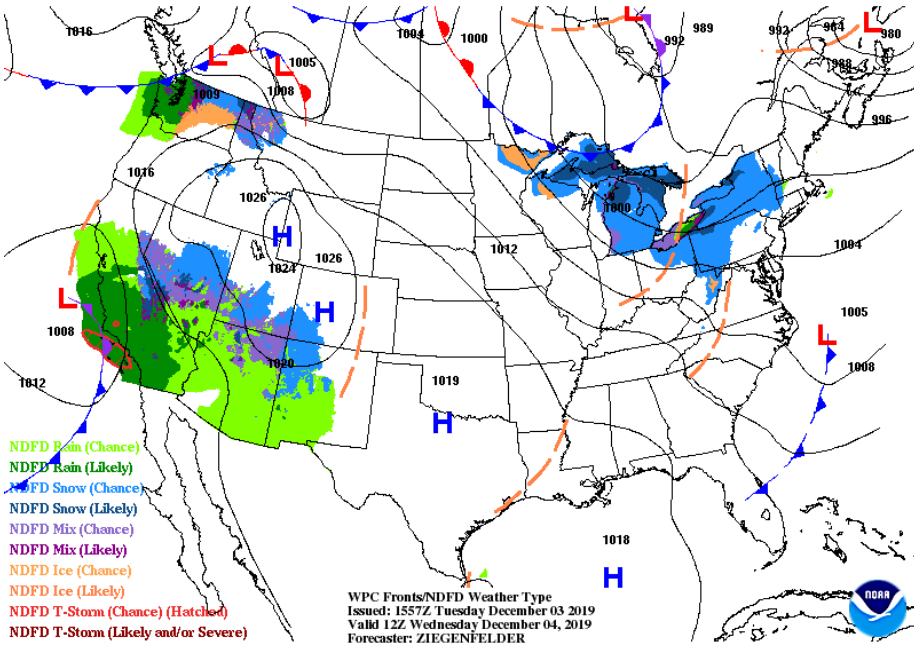
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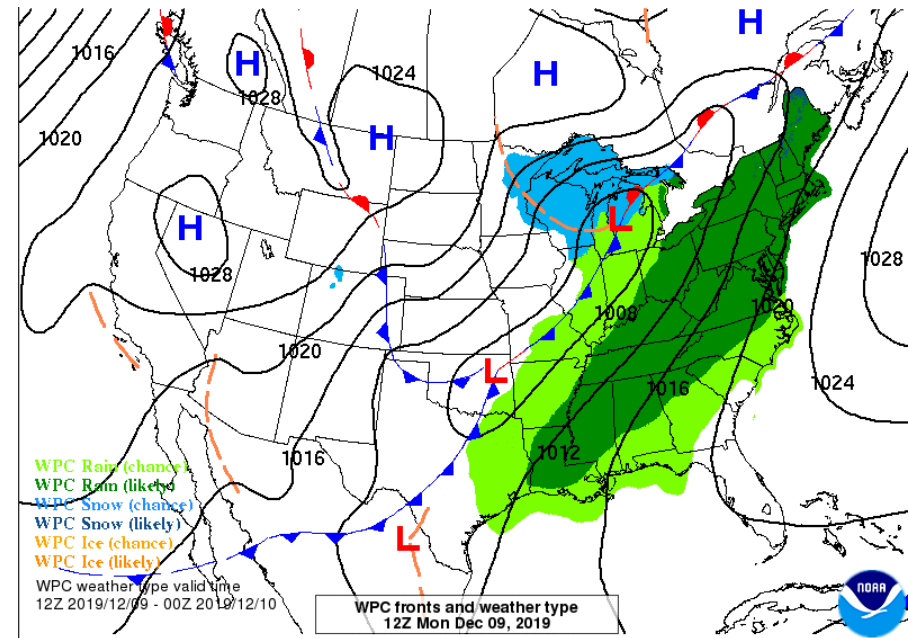


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# Weather for the Week Ahead



Wednesday



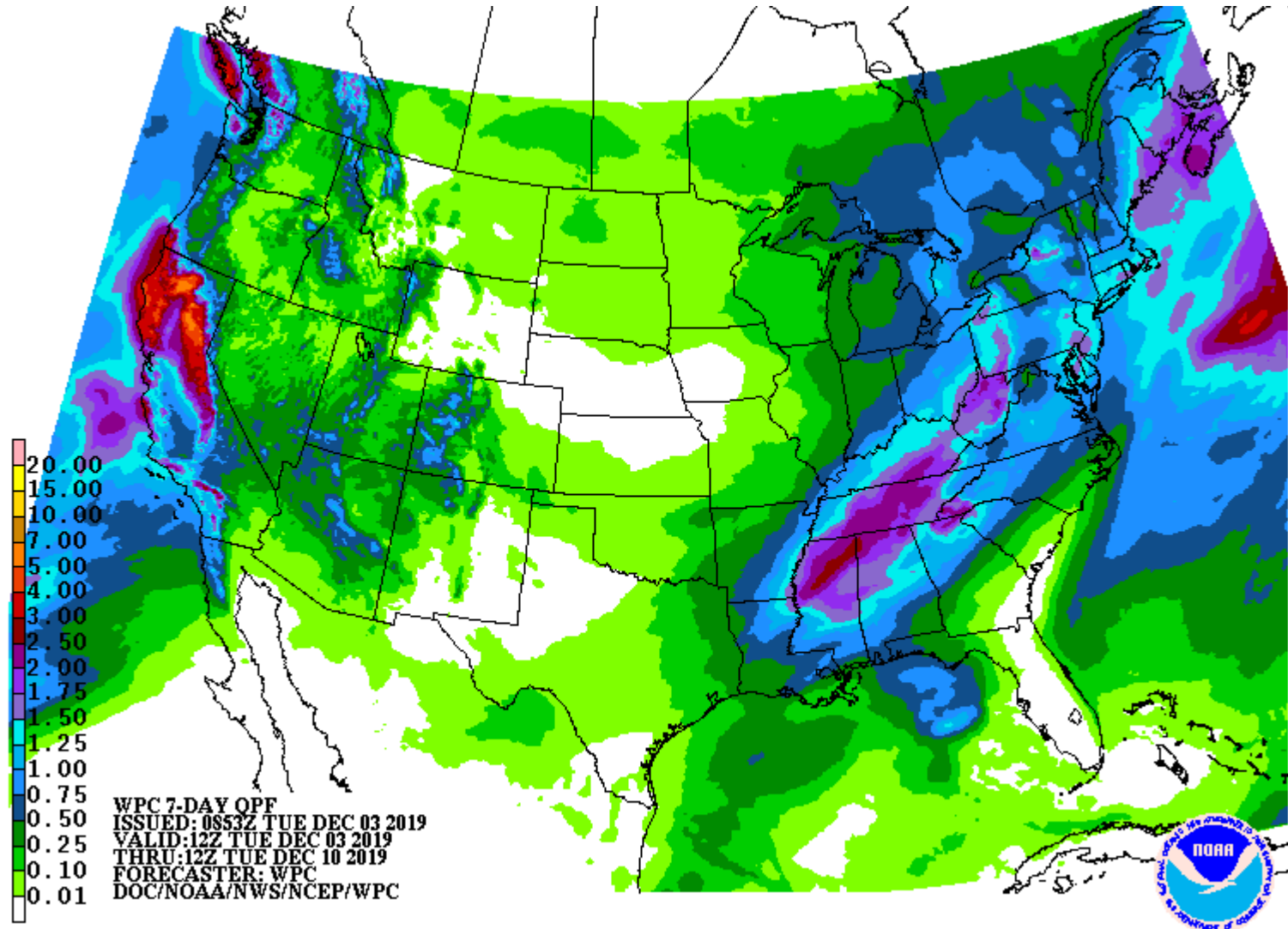
Monday



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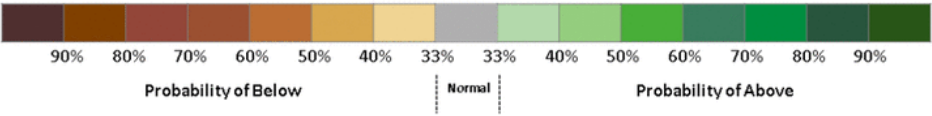
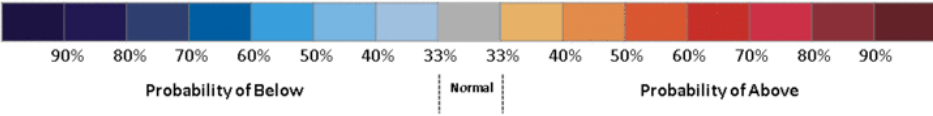
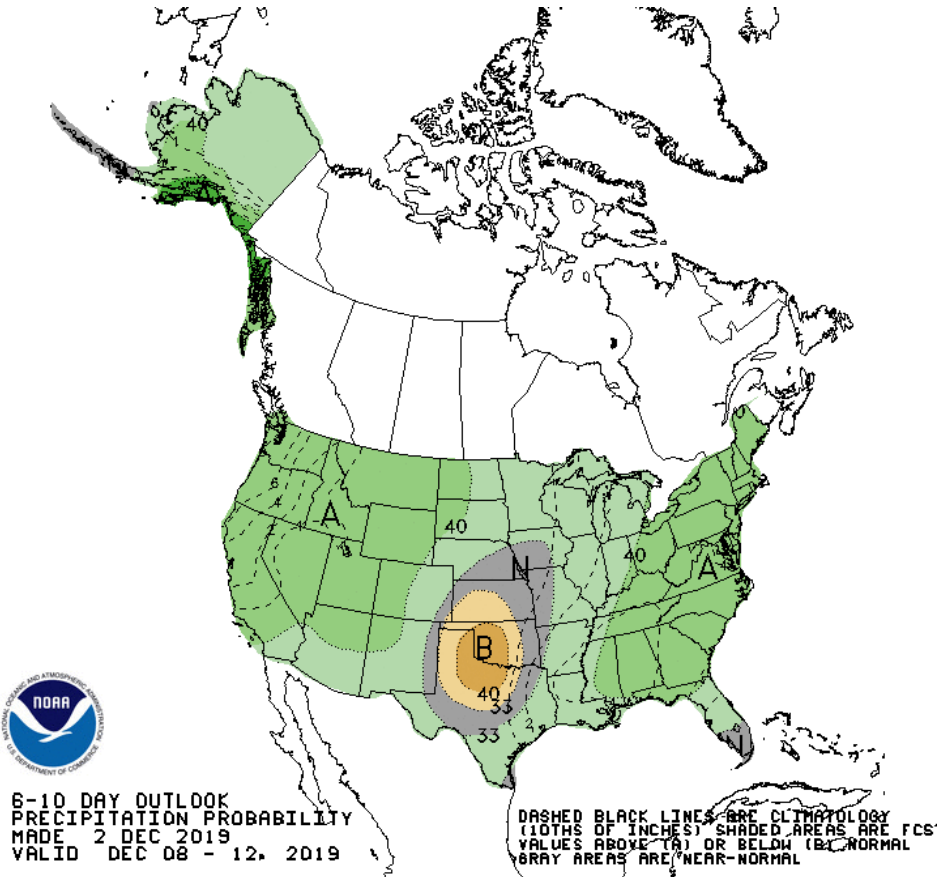
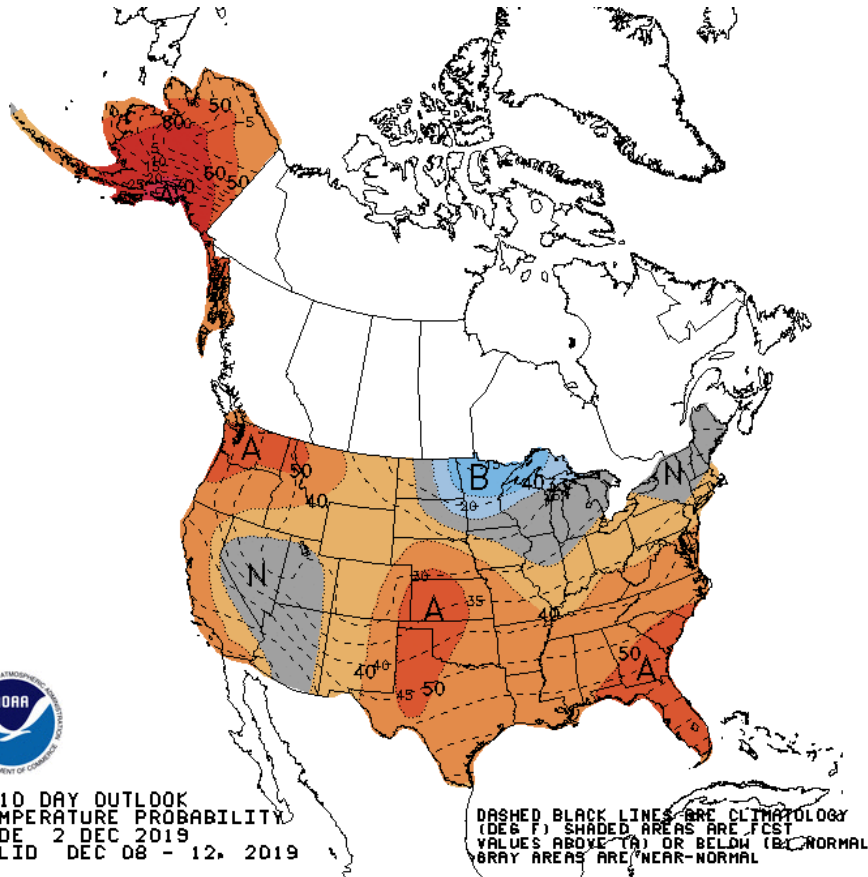
# Weather for the Week Ahead



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# 6-10 Day Outlook



Highs: 40-45°F; Lows: 26-29°F; Precip: 0.70" (per week)

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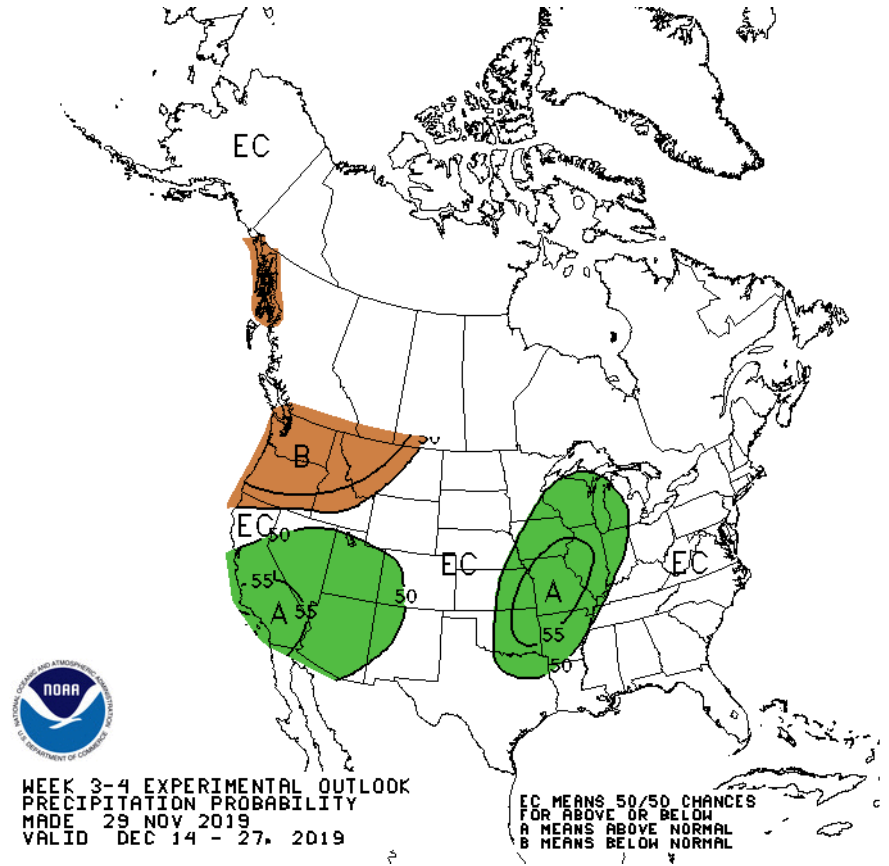
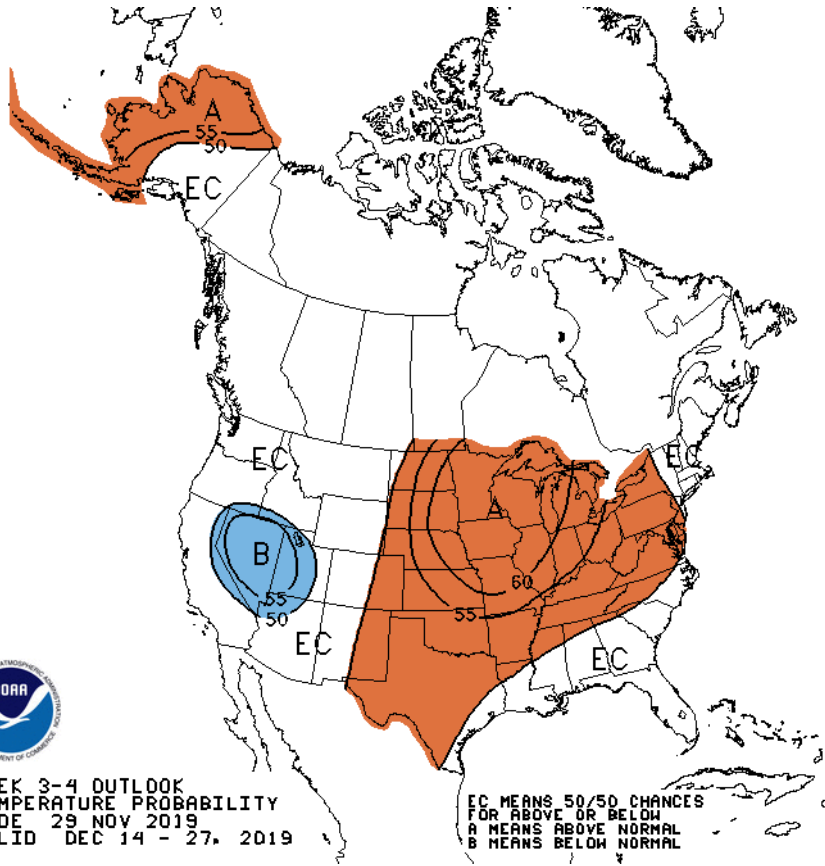
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# 3-4 Week Outlook



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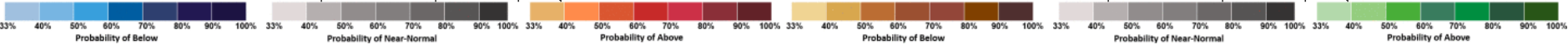
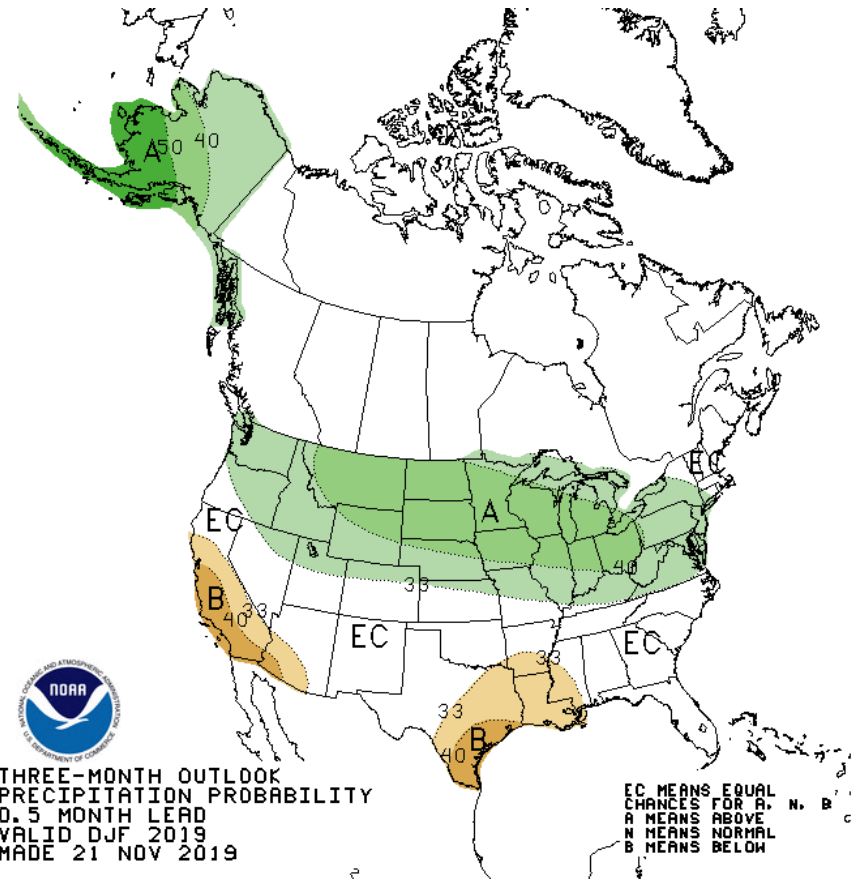
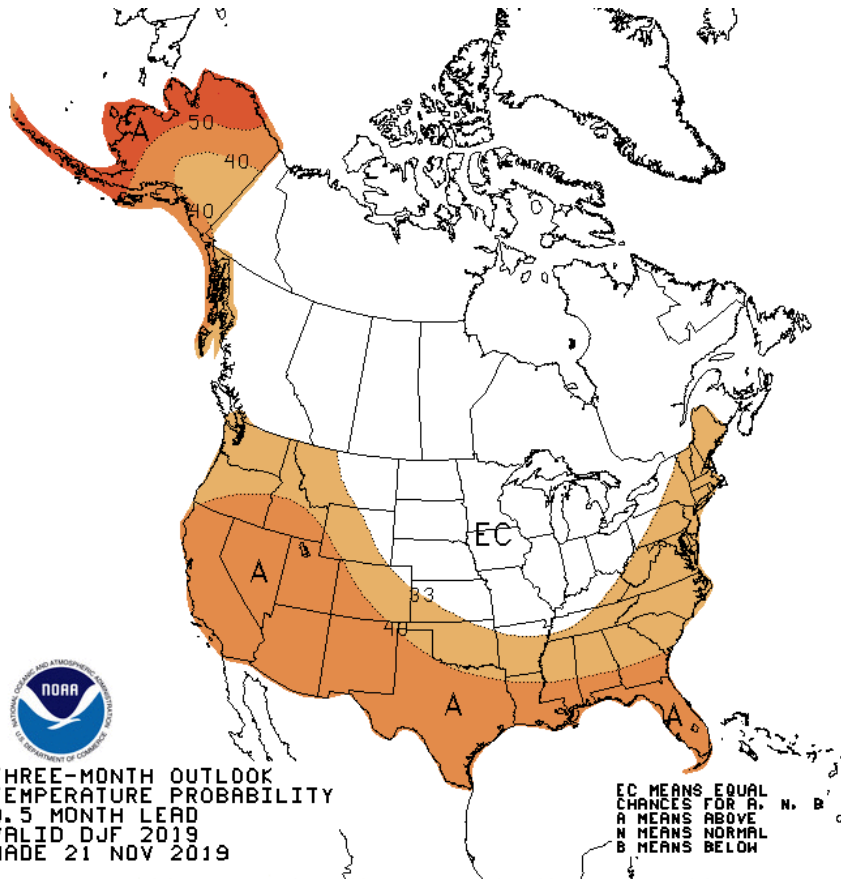
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# December – February Outlook



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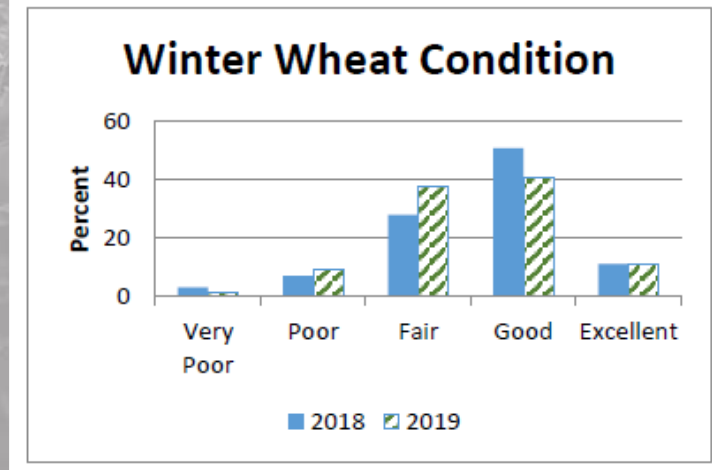
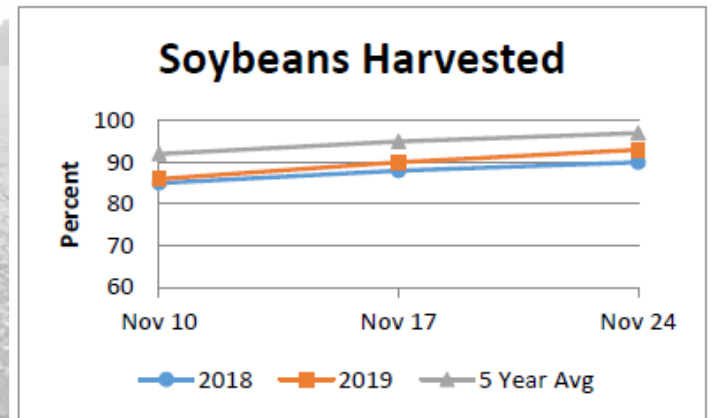
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# Ag Highlights

- 4.4 days suitable for fieldwork during the week ending November 25
- Corn harvested about 83% with 20% moisture
- Soybeans harvest about 93% with 14% moisture
- Cool damp weather was slowing harvest toward the end of November and dry down is an issue
- Winter wheat in good to excellent condition

**NASS: Cheryl Turner –**

[https://www.nass.usda.gov/Statistics\\_by\\_State/Ohio/Publications/Crop\\_Progress\\_&\\_Condition/2019/cw1719oh.pdf](https://www.nass.usda.gov/Statistics_by_State/Ohio/Publications/Crop_Progress_&_Condition/2019/cw1719oh.pdf)



# Summary of Conditions



Photo  
Credit:  
Kat Bledsoe

**Drought Monitor:** Drought conditions have alleviated but conditions are a bit dry

**Climate Recap:** Fairly cool over the last month or so, a bit warmer this past week

**The week ahead:** Fairly benign weather conditions this week; pattern looks to become more active throughout the month





# Partners and Additional Information

- SCOO's Website: <https://climate.osu.edu>
- NOAA's National Climatic Data Center: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)
  - Monthly climate reports (U.S. & Global): [www.ncdc.noaa.gov/sotc/](http://www.ncdc.noaa.gov/sotc/)
- NOAA's Climate Prediction Center: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)
- USDA Midwest Climate Hub: <https://www.climatehubs.oce.usda.gov/hubs/midwest>
- Climate Portal: [www.climate.gov](http://www.climate.gov)
- U.S. Drought Portal: [www.drought.gov](http://www.drought.gov)
- National Drought Mitigation Center: <https://drought.unl.edu/>
- Midwest Regional Climate Center: <https://mrcc.isws.illinois.edu>
- Community Collaborative Rain Snow Hail Network (CoCoRaHS): <https://cocorahs.org>
- Song: "Lazy River Rag" by Dan Lebowitz