



# Kentucky Climate Summary and Outlook

November 15, 2017

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Department of Geography and Geology

Western Kentucky University

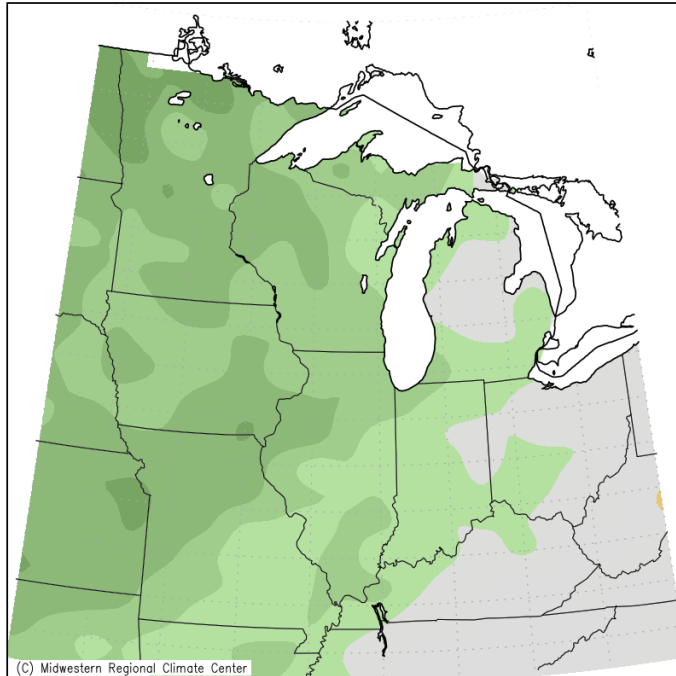
[Stuart.foster@wku.edu](mailto:Stuart.foster@wku.edu)

270.745.5983

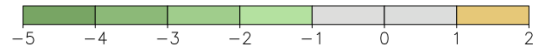


# Regional 30-day Climate Summary

Average Temperature (°F): Departure from Mean  
October 15, 2017 to November 13, 2017

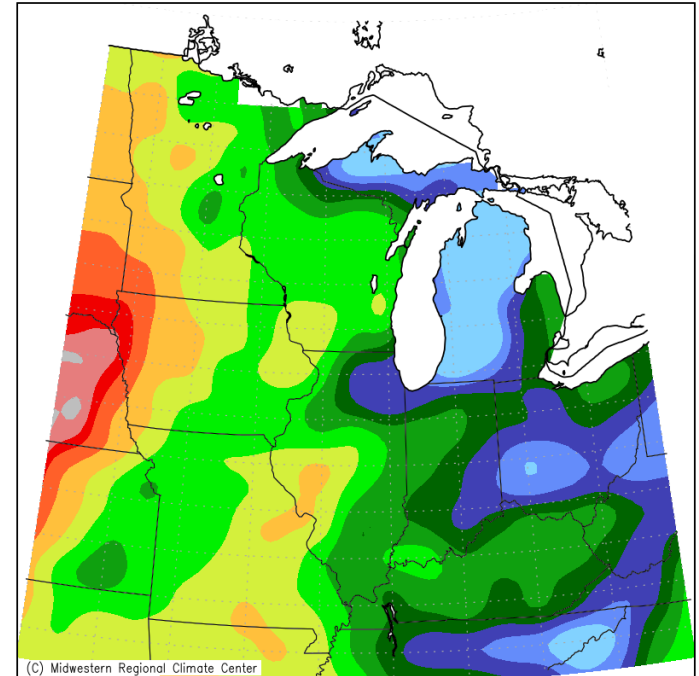


Mean period is 1981–2010.

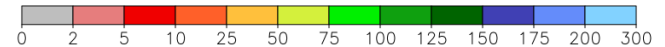


Midwestern Regional Climate Center  
Illinois State Water Survey, Prairie Research Institute  
University of Illinois at Urbana–Champaign

Accumulated Precipitation: Percent of Mean  
October 15, 2017 to November 13, 2017



Mean period is 1981–2010.

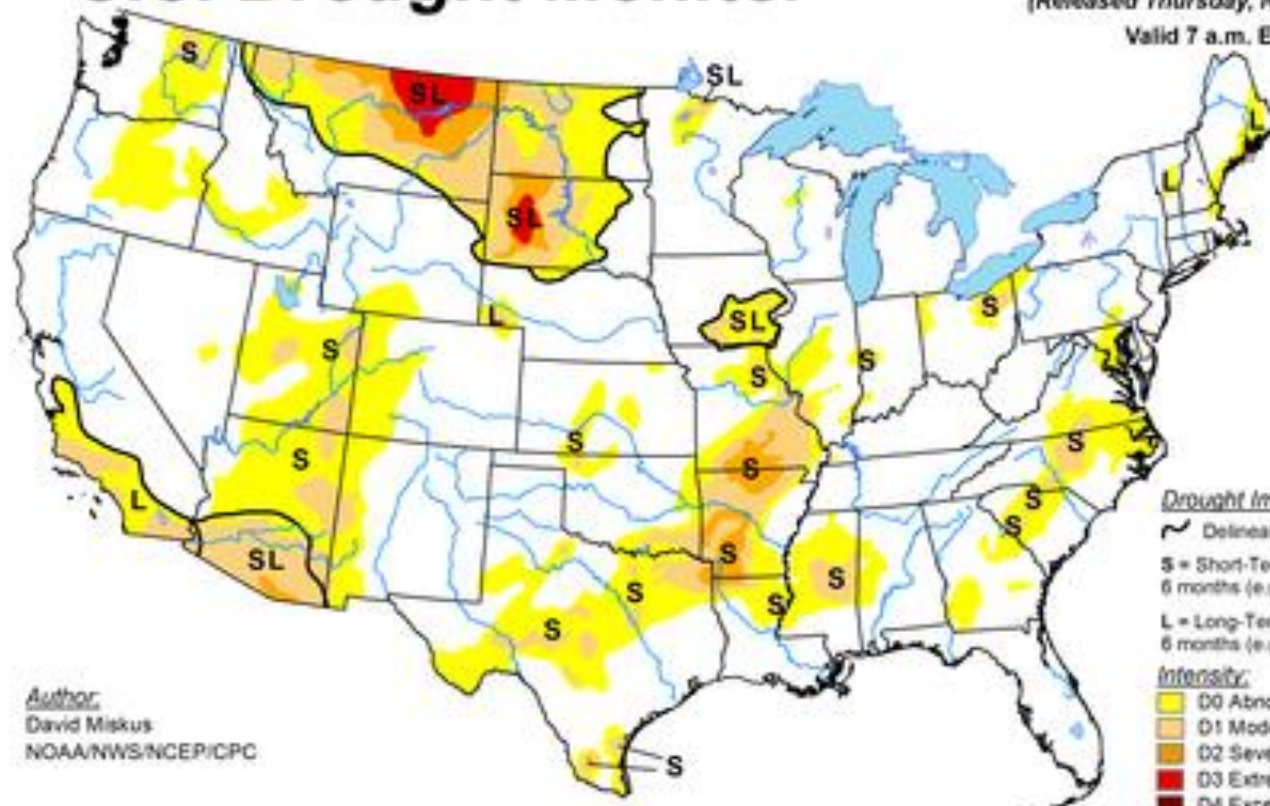


Midwestern Regional Climate Center  
Illinois State Water Survey, Prairie Research Institute  
University of Illinois at Urbana–Champaign

# U.S. Drought Monitor

November 7, 2017  
(Released Thursday, Nov. 9, 2017)

Valid 7 a.m. EST



Author:  
David Miskus  
NOAA/NWS/NCEP/CPC

## 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:

Yellow D0 Abnormally Dry

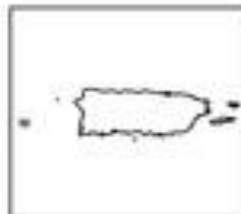
Orange D1 Moderate Drought

Dark Orange D2 Severe Drought

Red D3 Extreme Drought

Dark Red D4 Exceptional Drought

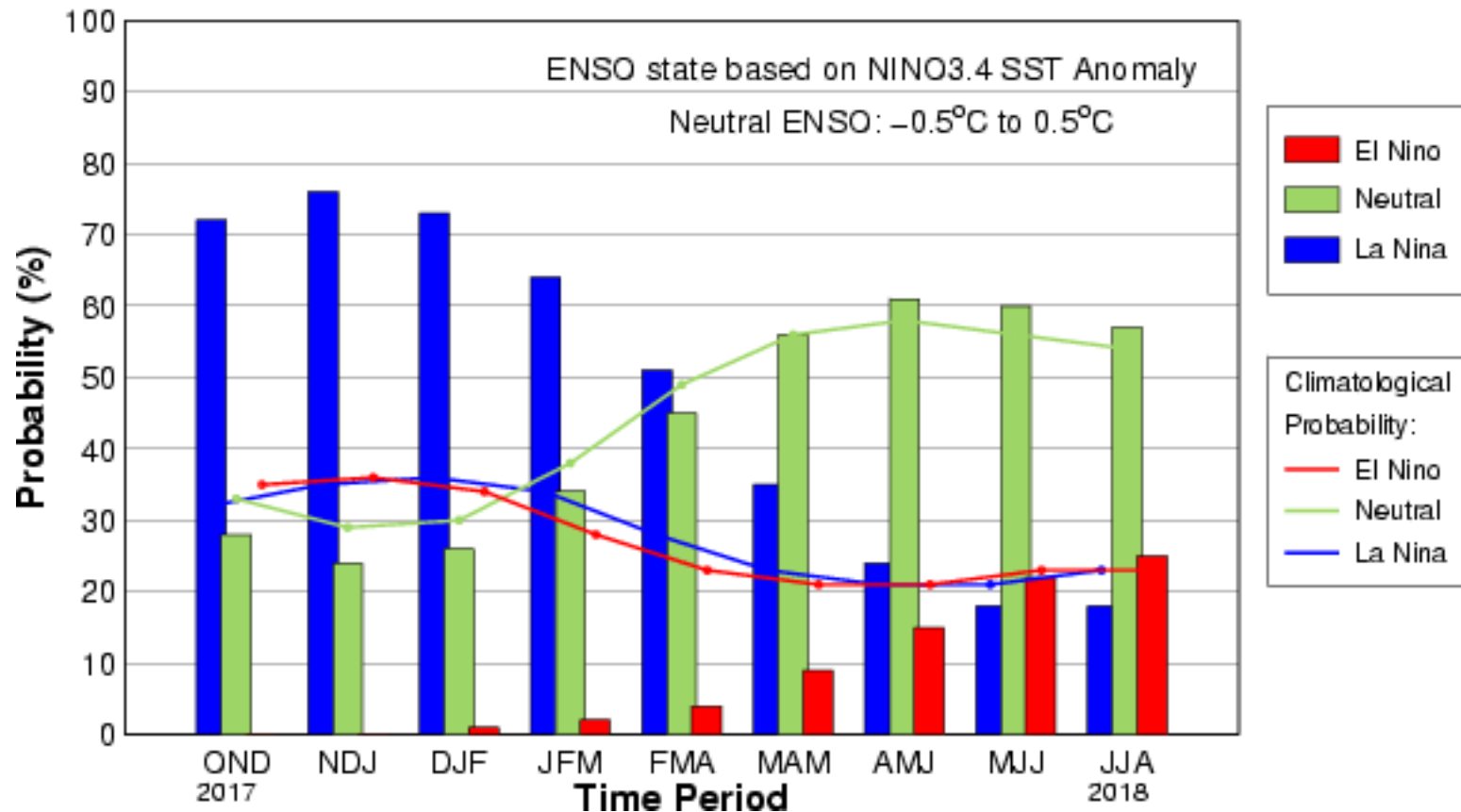
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

# ENSO Status

## Early–Nov CPC/IRI Official Probabilistic ENSO Forecast



# TYPICAL LA NIÑA WINTERS

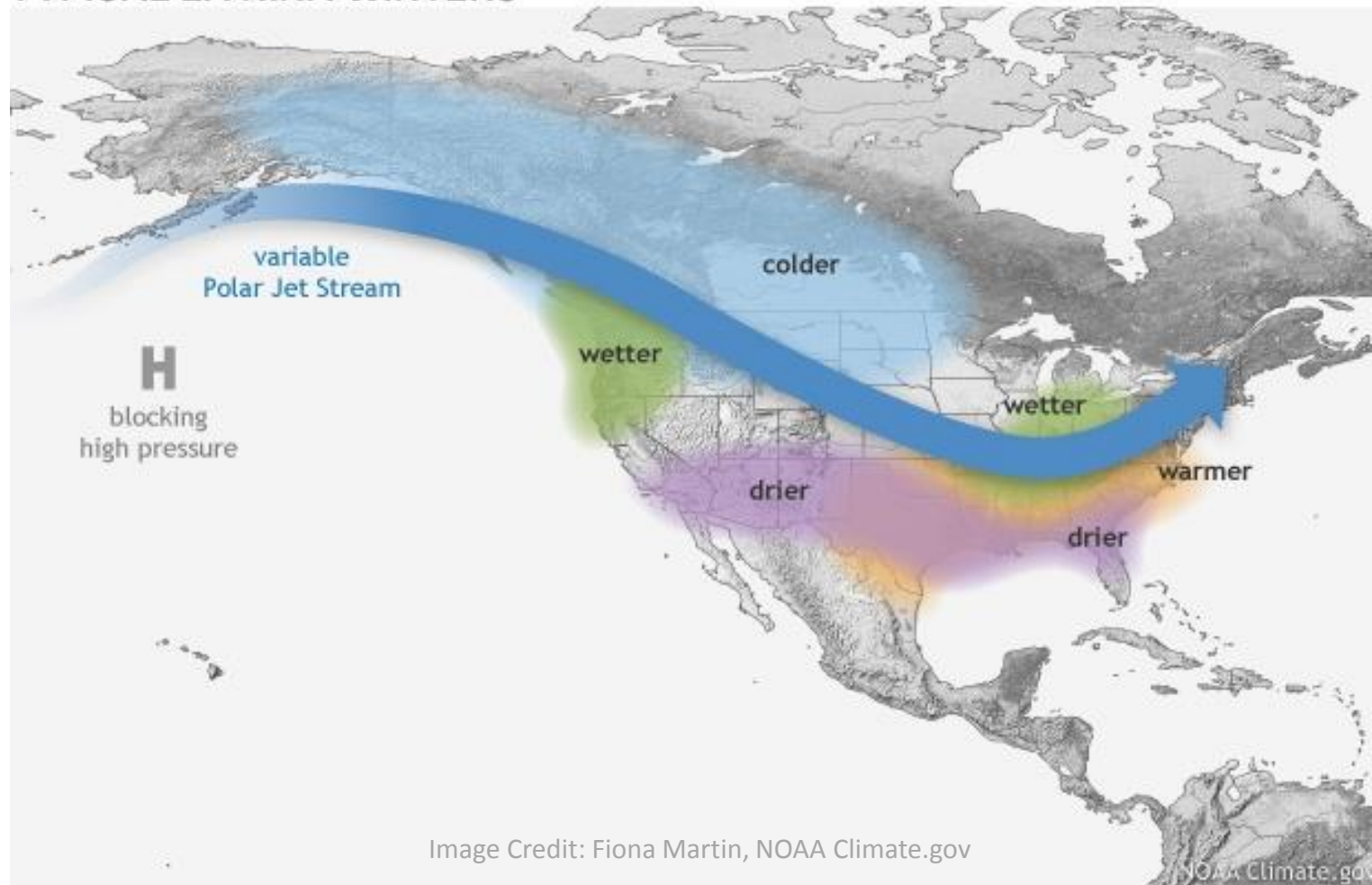
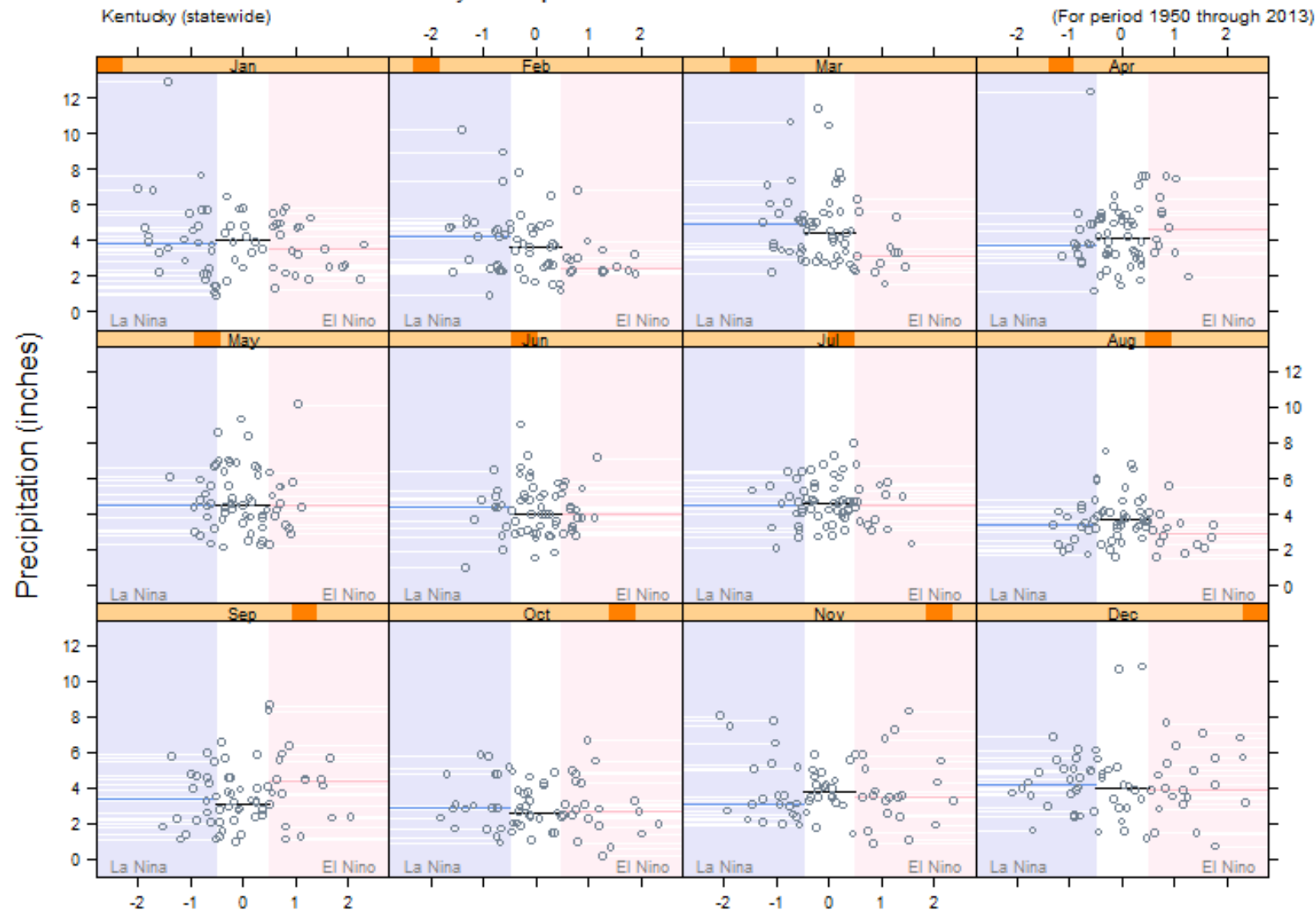


Image Credit: Fiona Martin, NOAA Climate.gov

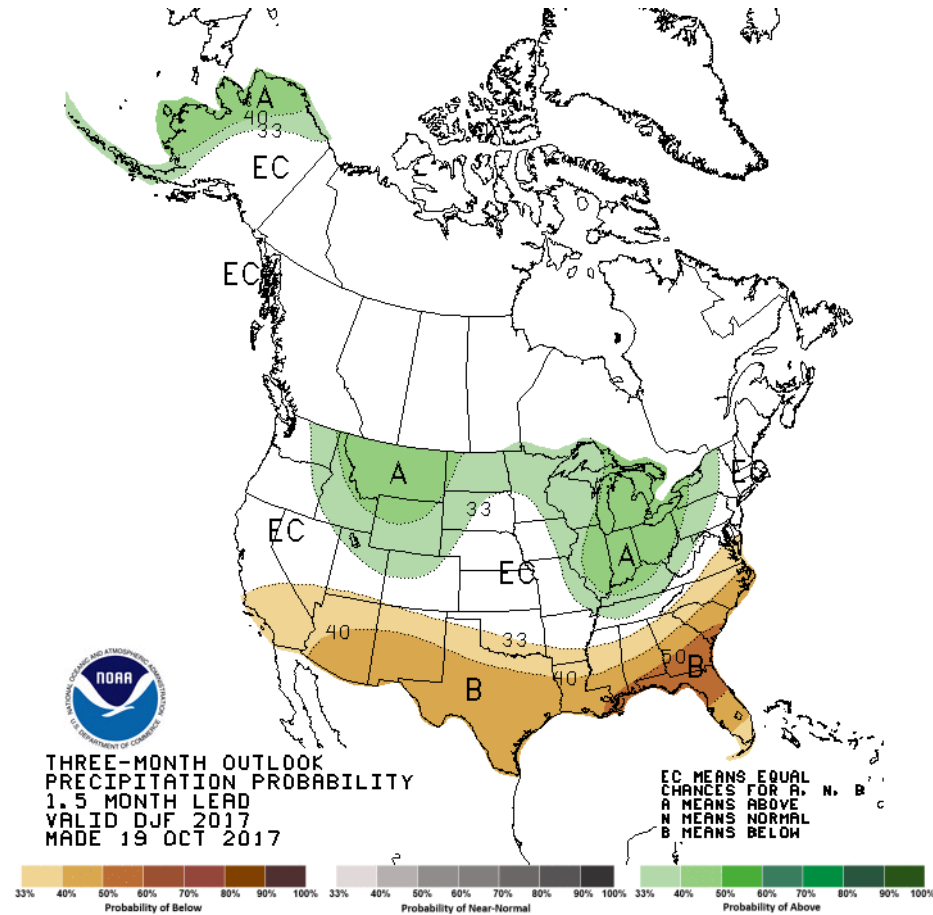
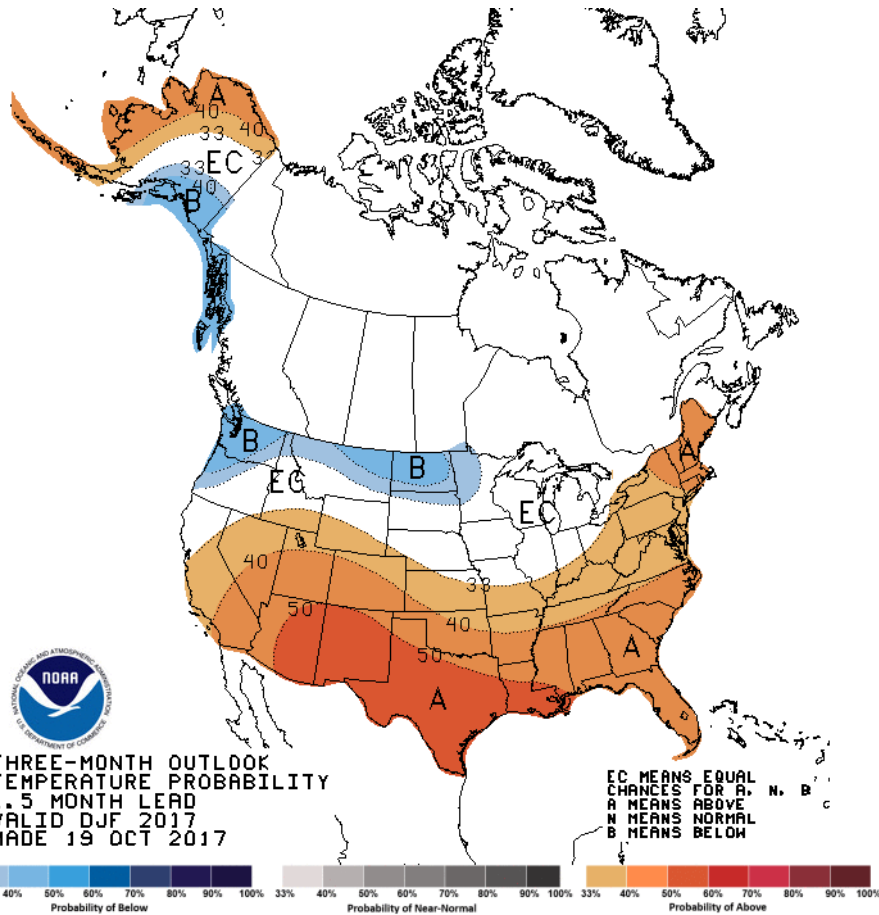


# Monthly Precipitation in Relation to ENSO Status



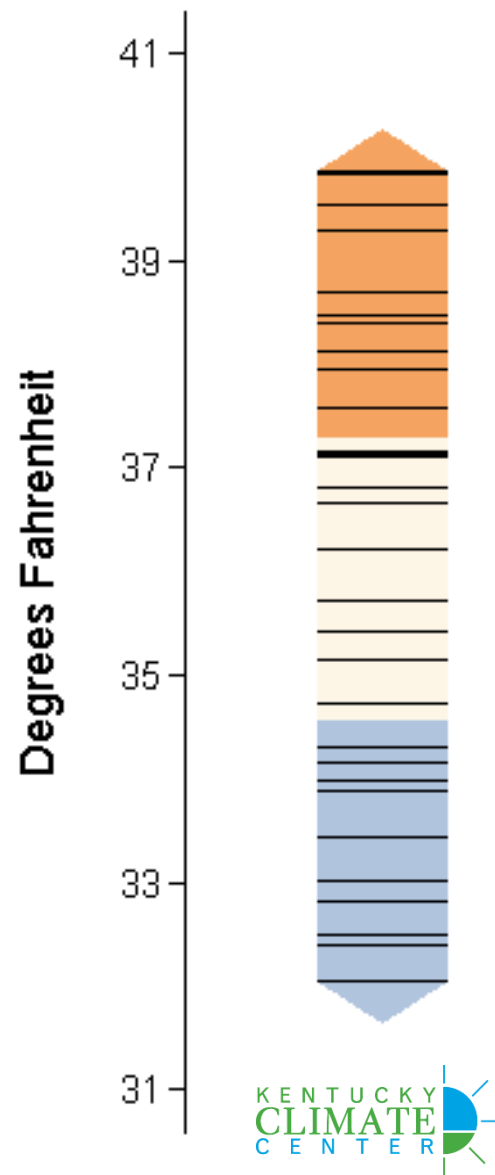
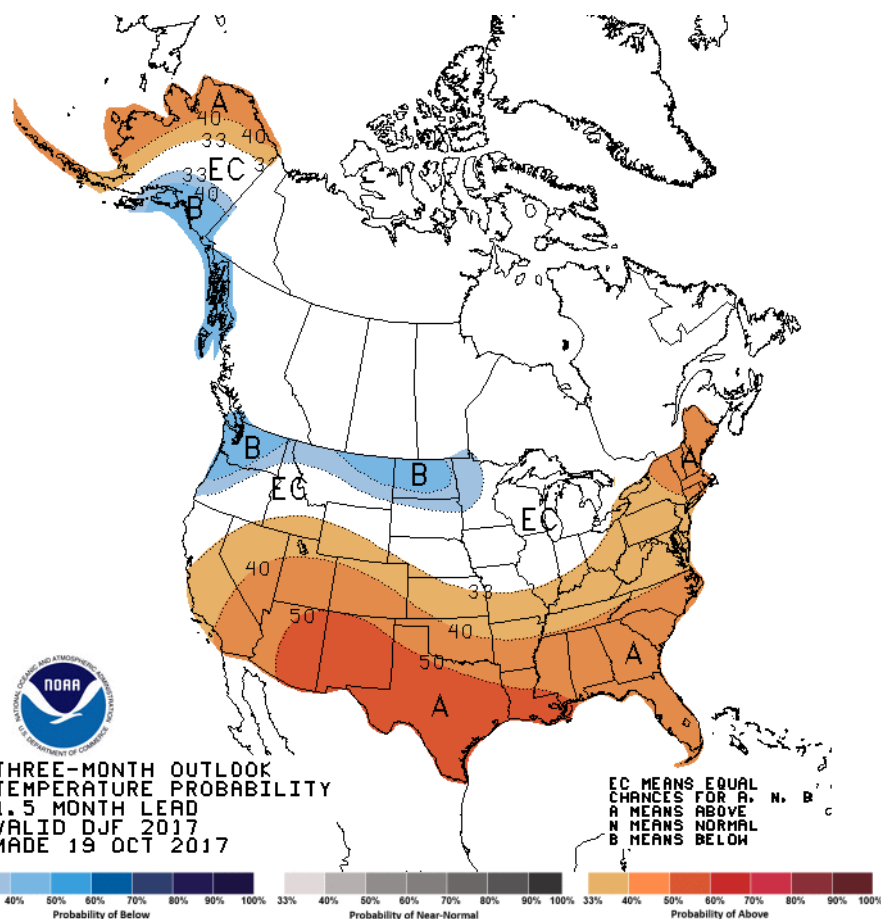
# Seasonal Outlook for Winter

NWS Climate Prediction Center



# Temperature Outlook

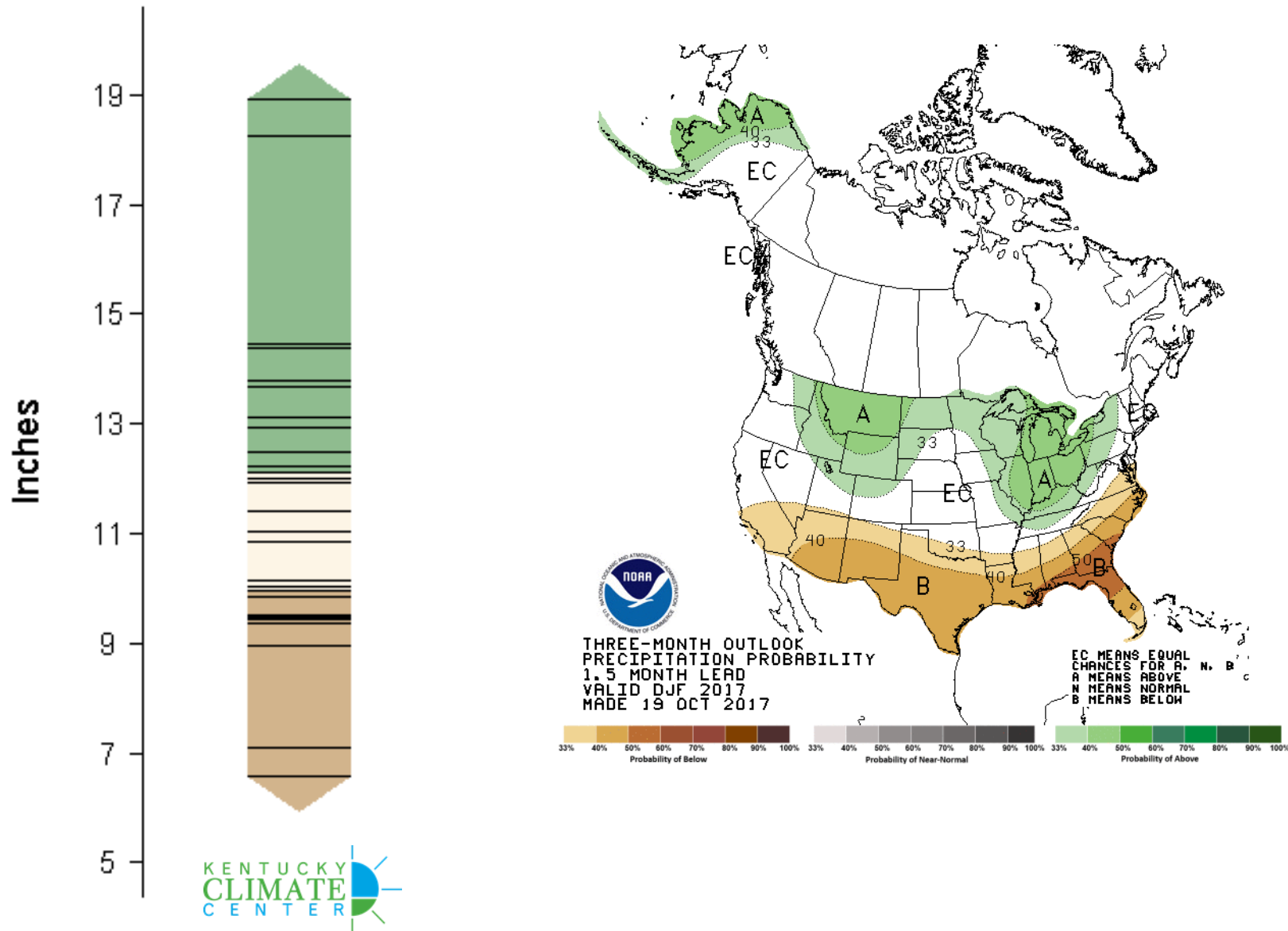
## With 1981-2010 Kentucky Reference Distribution





# Precipitation Outlook

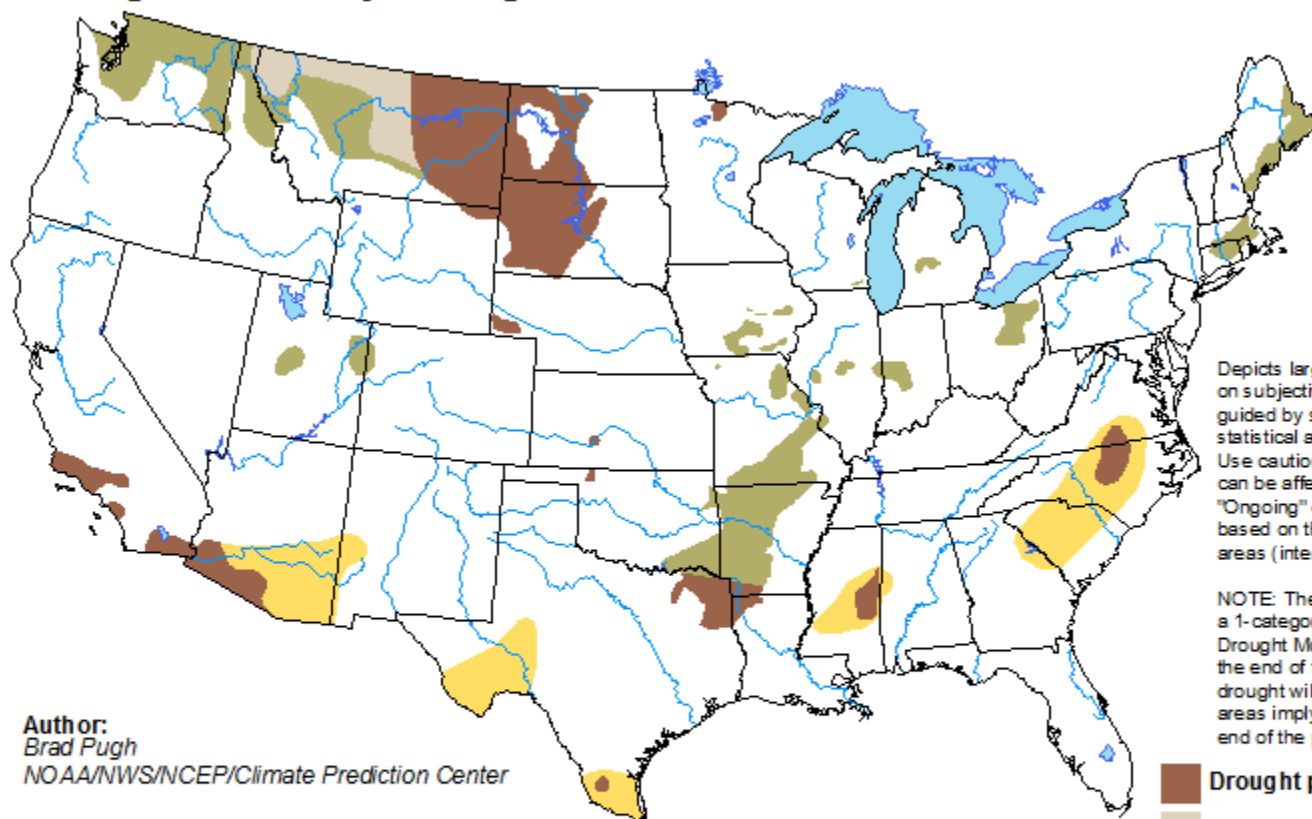
## With 1981-2010 Kentucky Reference Distribution



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for October 19 - January 31, 2018  
Released October 19, 2017

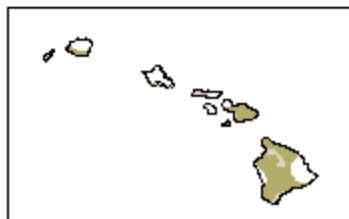
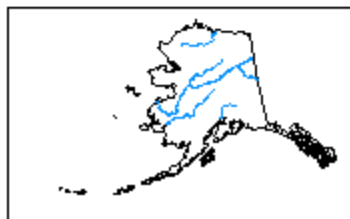


Author:  
Brad Pugh  
NOAA/NWS/NCEP/Climate Prediction Center

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>



# Kentucky Mesonet Update: Towards a Kentucky DEWS

Stuart A. Foster  
State Climatologist for Kentucky  
Kentucky Climate Center  
Western Kentucky University

Kentucky Farm Bureau  
Water Management Working Group

Elizabethtown, Kentucky

November 15, 2017



# Station Instrumentation

## Tier I Instrumentation Package

- Air temperature
- Precipitation *UPGRADE IN PROGRESS*
- Leaf Wetness
- Solar radiation
- Relative humidity *UPGRADE COMPLETE*
- Wind speed & direction

## Tier II Supplemental Instrumentation Package \*

- Soil moisture & temperature *23 SITES COMPLETE*
- Barometer *8 SITES COMPLETE*
- Camera *7 SITES COMPLETE*

\* Tier II stations are in the process of being developed. Some sites already have all listed instrumentation.



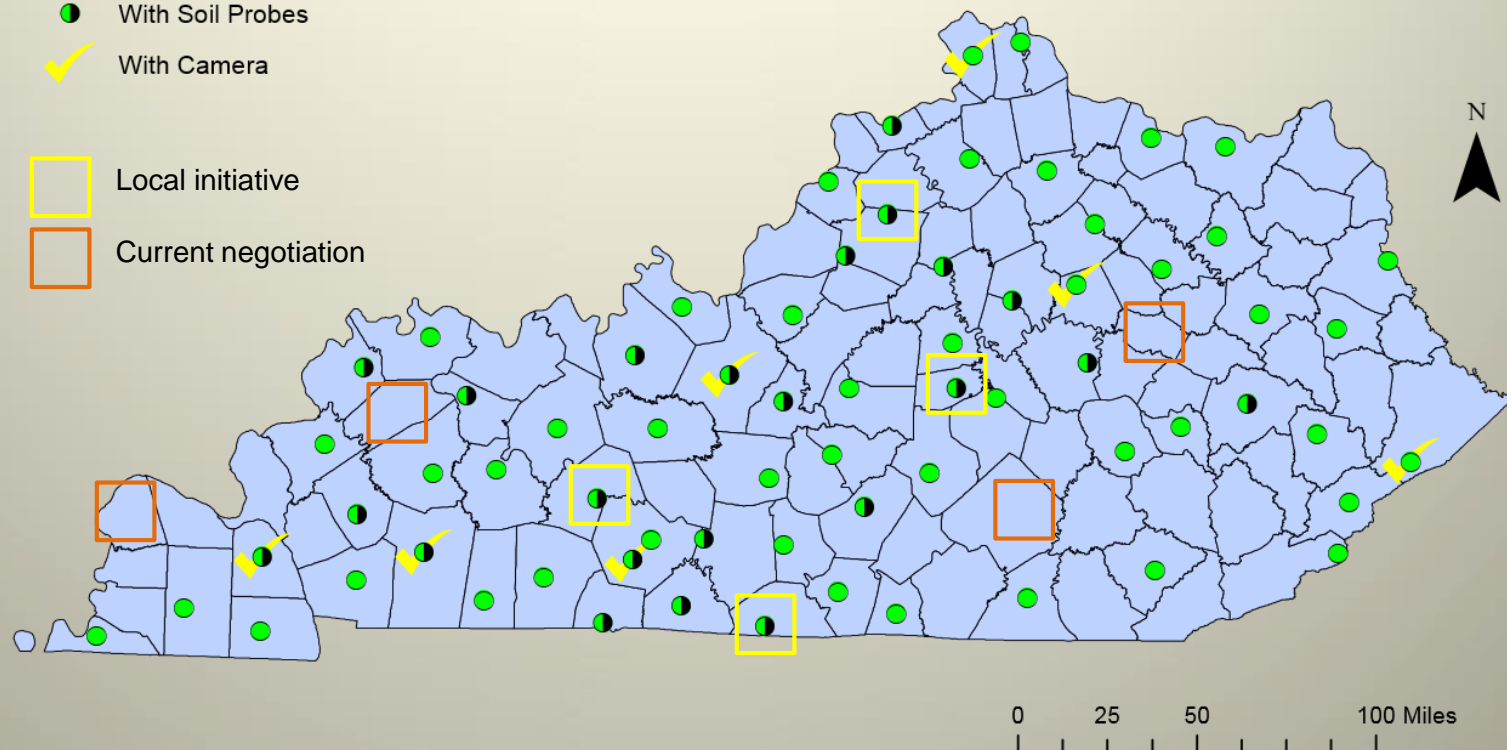


# Kentucky Mesonet Stations

## Legend

- Station
- With Soil Probes
- ✓ With Camera

- Local initiative
- Current negotiation

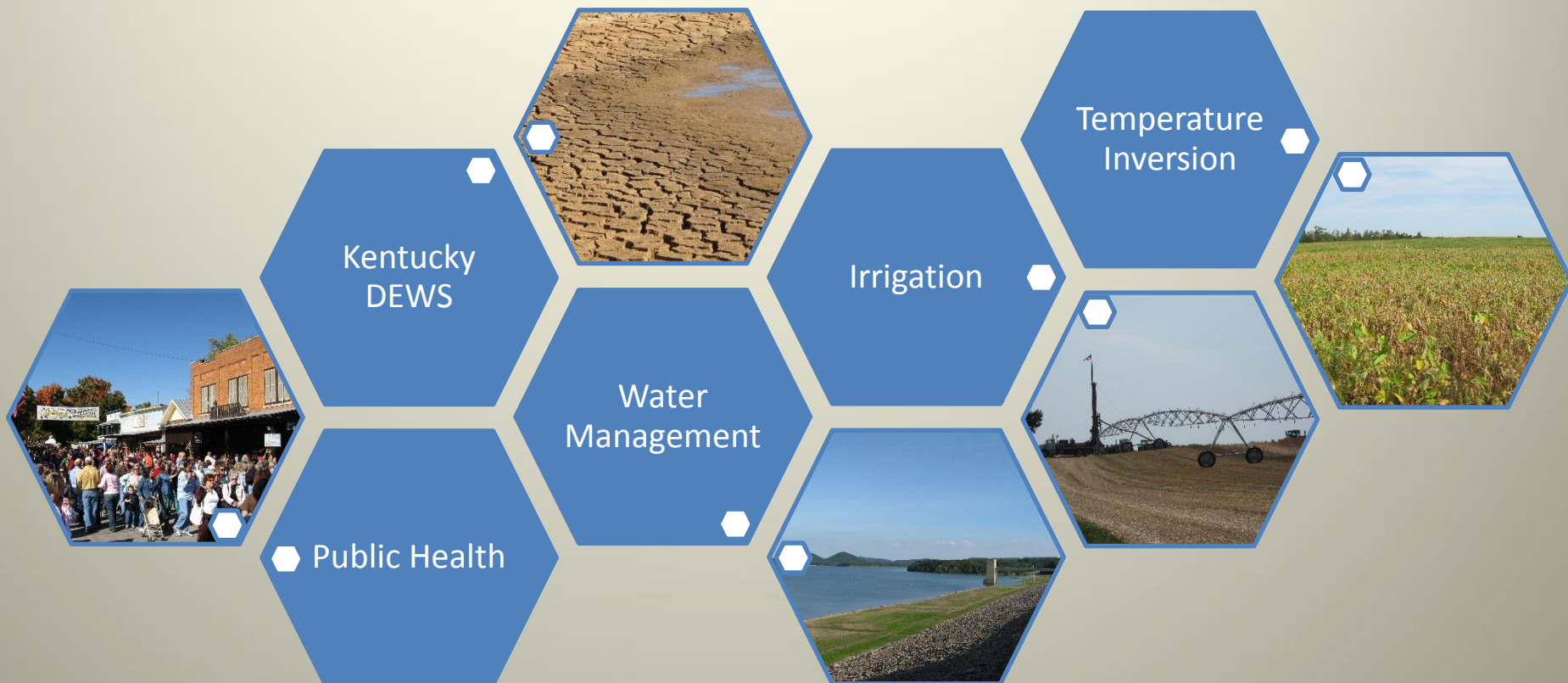


Source: Kentucky Climate Center

November 9, 2017

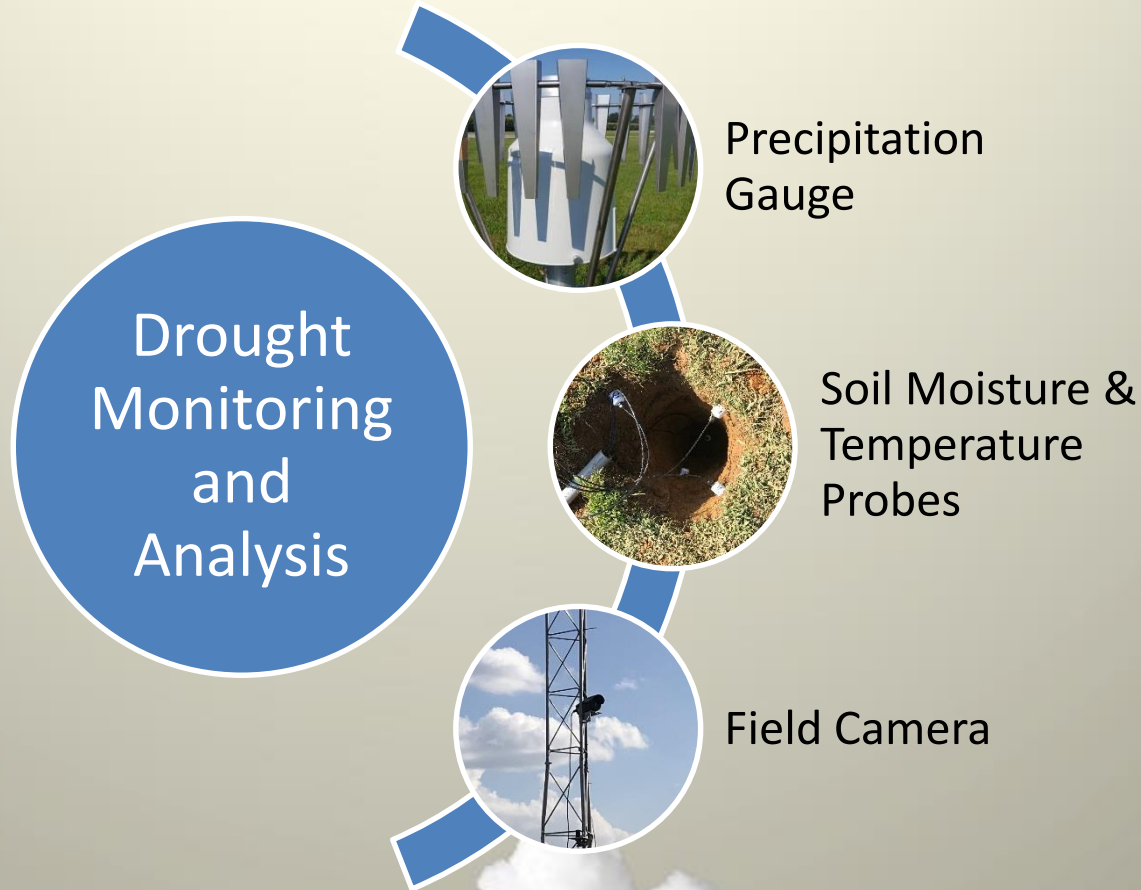


# Kentucky Mesonet Outreach Applications





# Enhanced Instrumentation Platform for the Kentucky Drought Early Warning System



# Image Time Line for a Fixed Site

## Monthly Sequence



2017/09/01 20:00:01 UTC Kentucky Mesonet - Warren County (FARM) - (NW 320 Degs)



2017/10/01 20:00:00 UTC Kentucky Mesonet - Warren County (FARM) - (NW 320 Degs)

WKU Farm | 09/01/2017 | 14:00 CDT

WKU Farm | 10/01/2017 | 14:00 CDT



# Drought Analysis and Reporting Tool

Landscape Photo



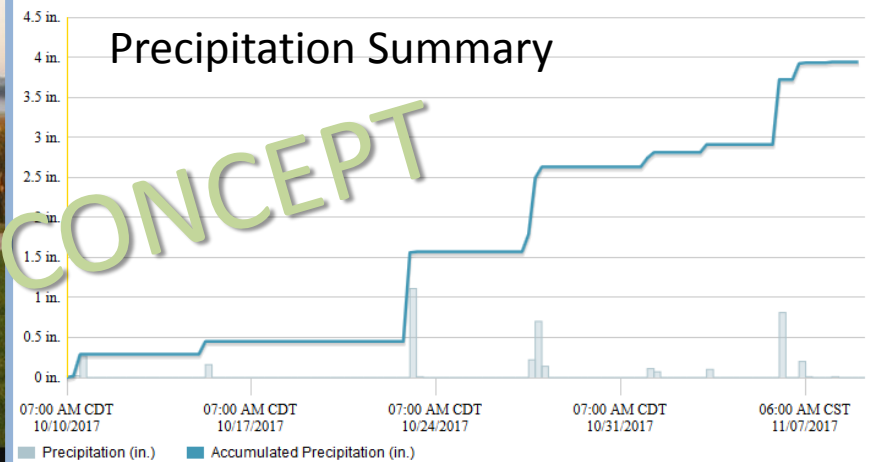
2017/09/24 12:00:00 UTC Kentucky Mesonet - Warren County (FARM) - (NW 320 Degs)

Report1

Farmers report ponds becoming dry. Pastures are in poor condition particularly in the northern portion of the county.

Text Description

FARM Precipitation and Accumulated Precipitation (30 Day)



FARM Soil Moisture (Water Fraction by Volume) (30 Day)

