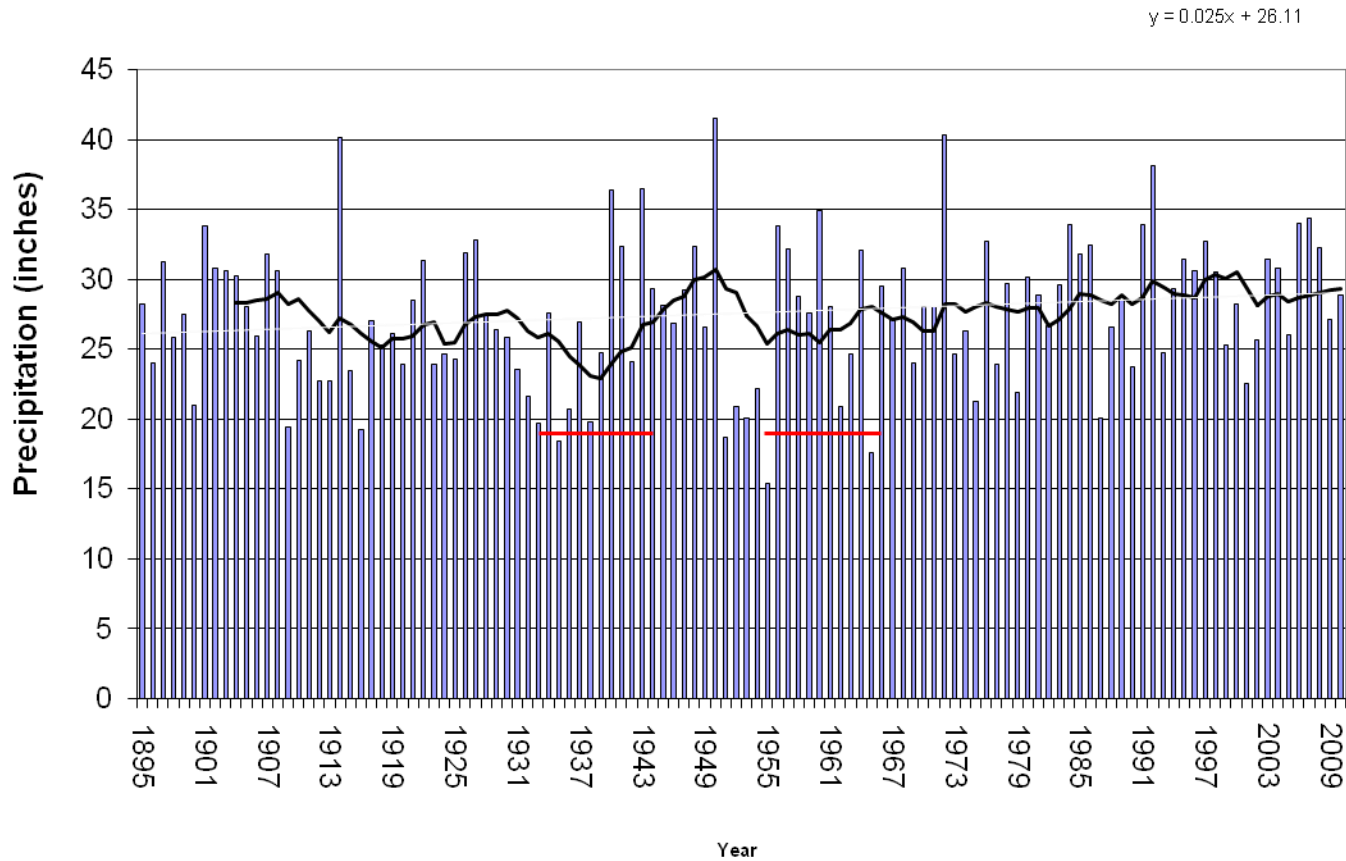


Kansas Drought Update

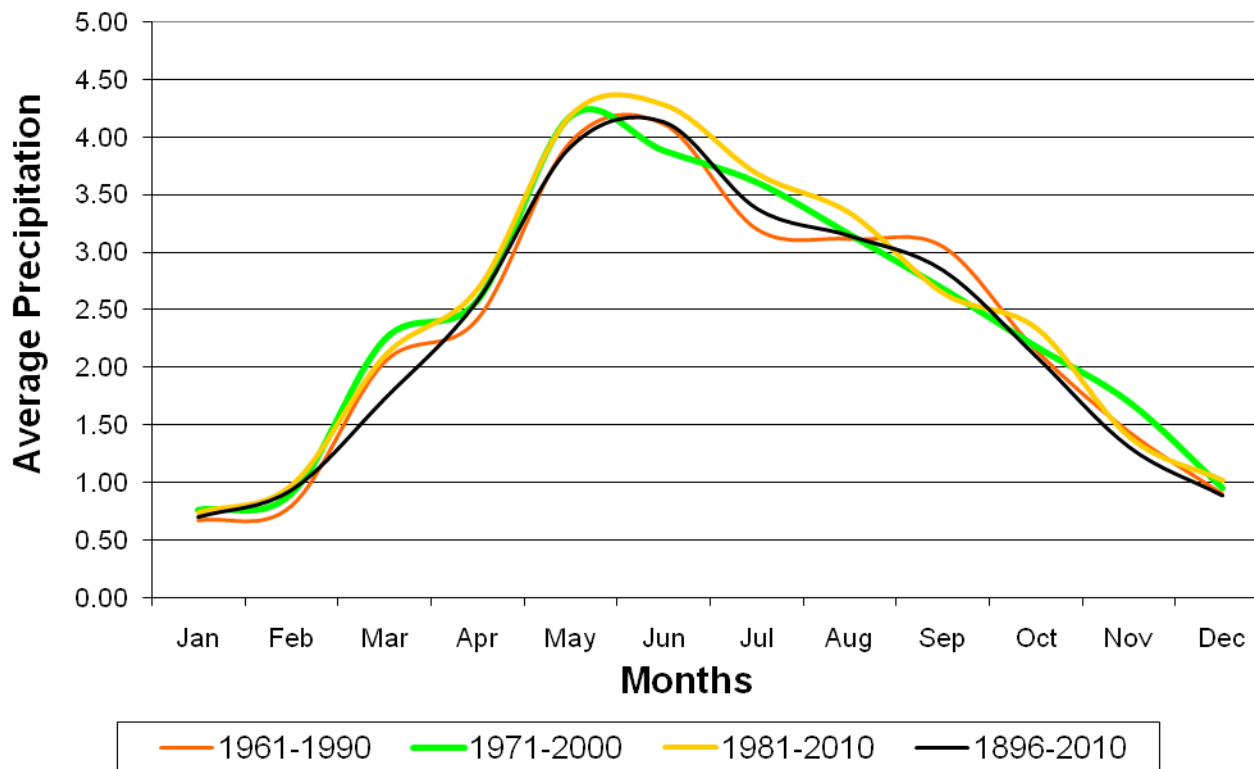
Kansas Water Office

December 7, 2020

Kansas Annual Rainfall

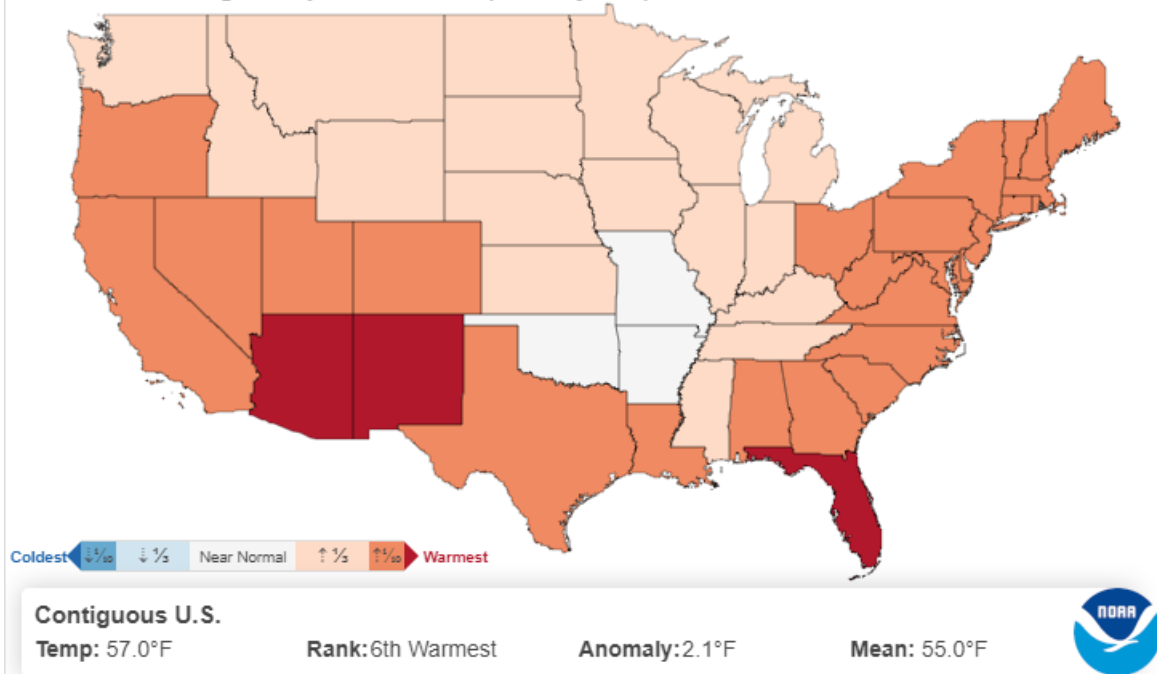


Kansas 30 Year Rainfall Pattern



Statewide Average Temperature Rank (of 126 years)

January - October 2020



Kansas

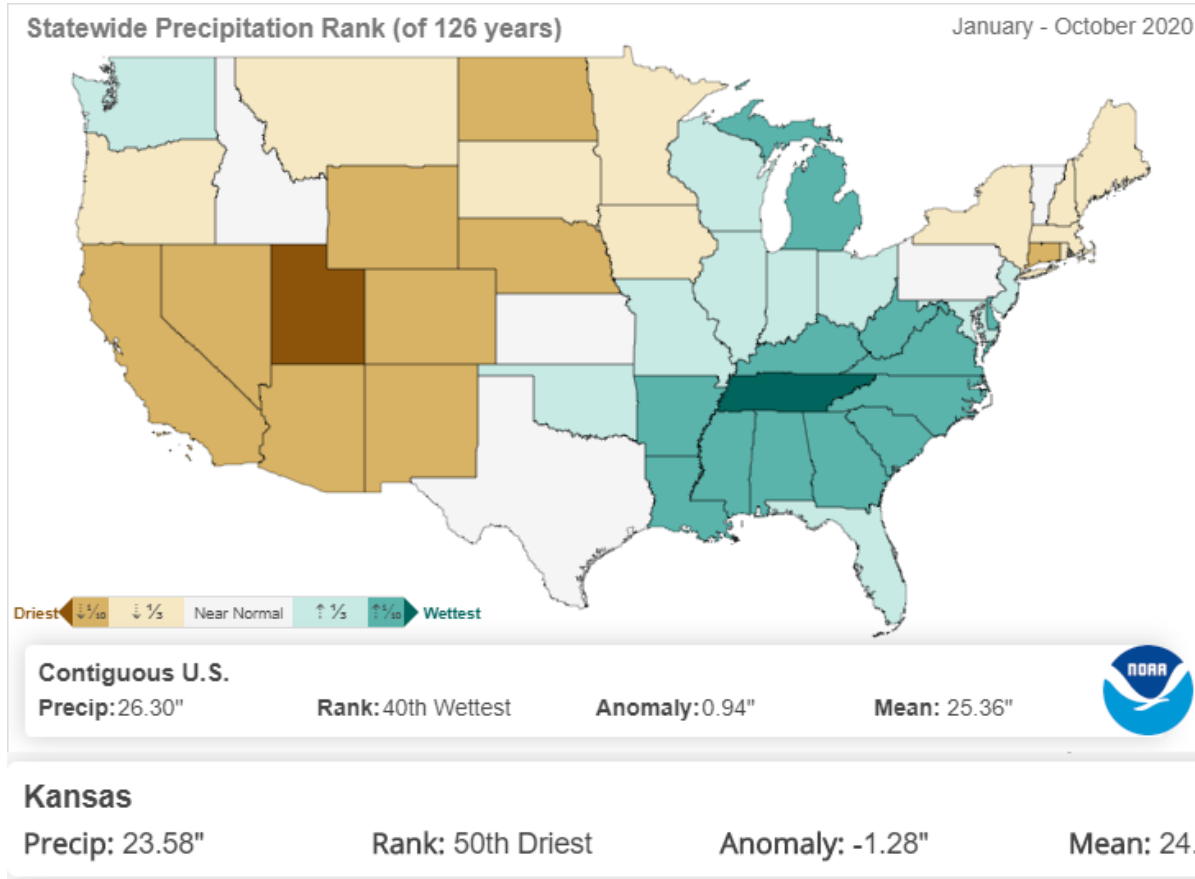
Temp: 58.3°F

Rank: 39th Warmest

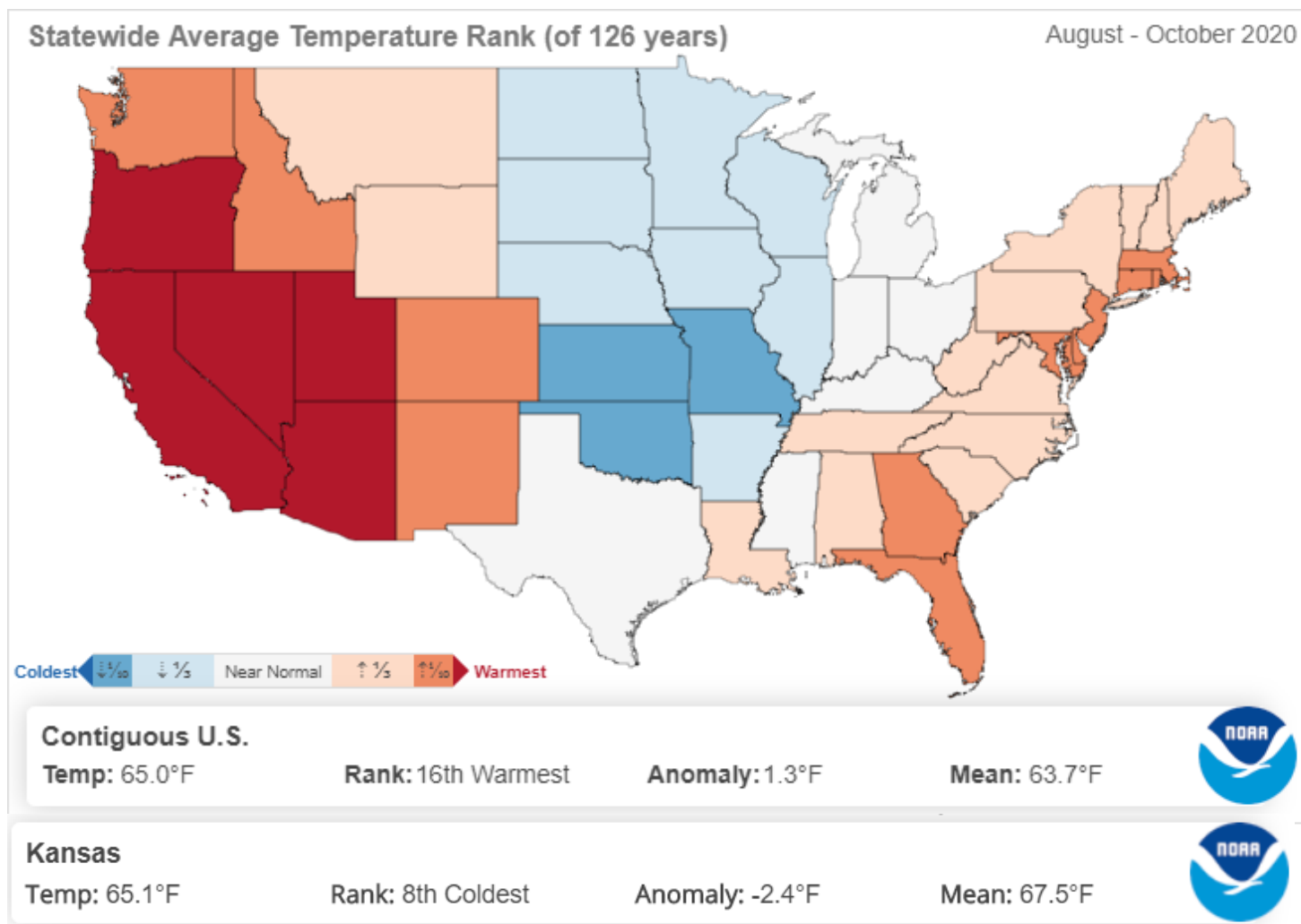
Anomaly: 0.7°F

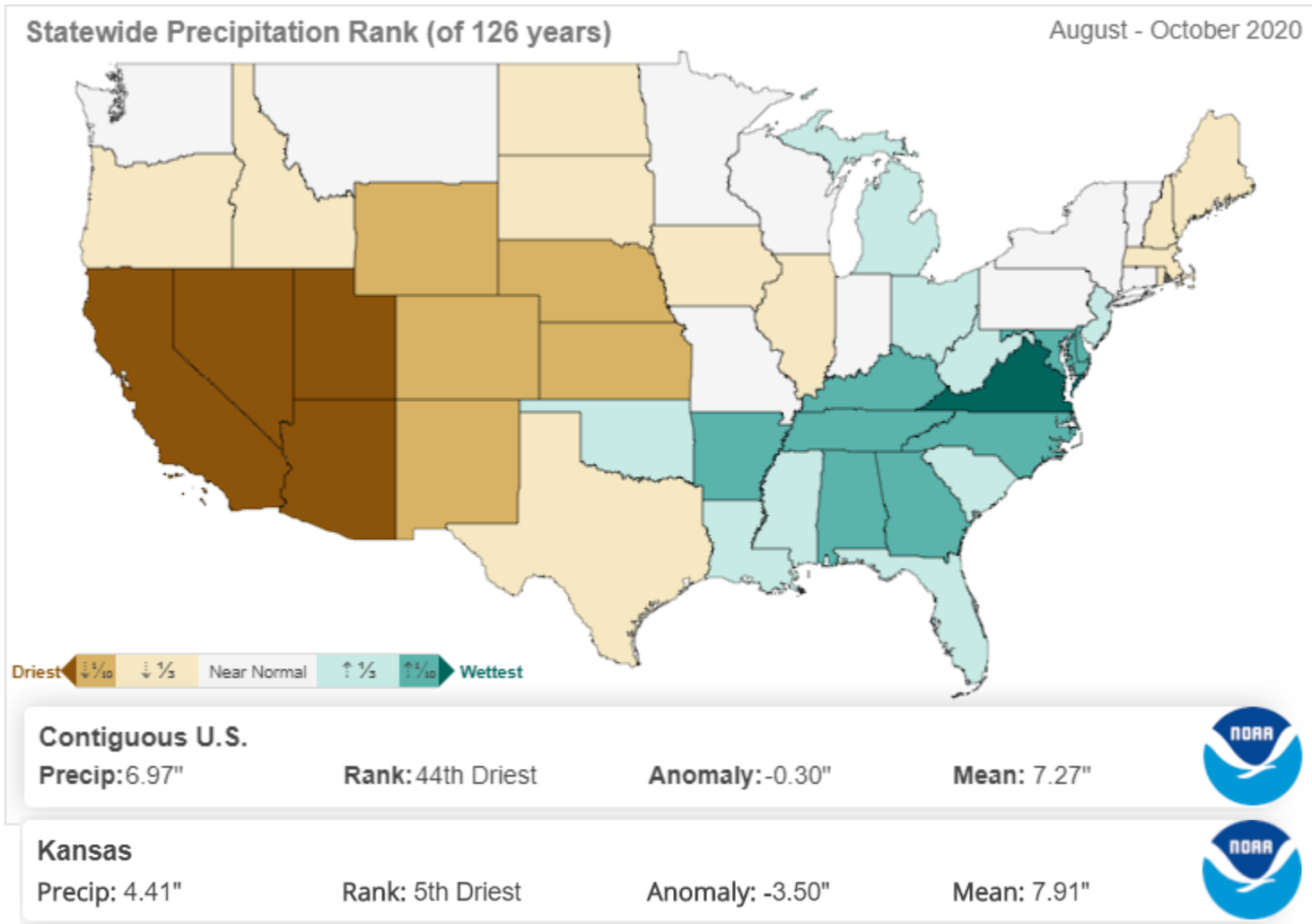
Mean: 57.6°F

Climate.gov



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What Is The U.S. Drought Monitor?

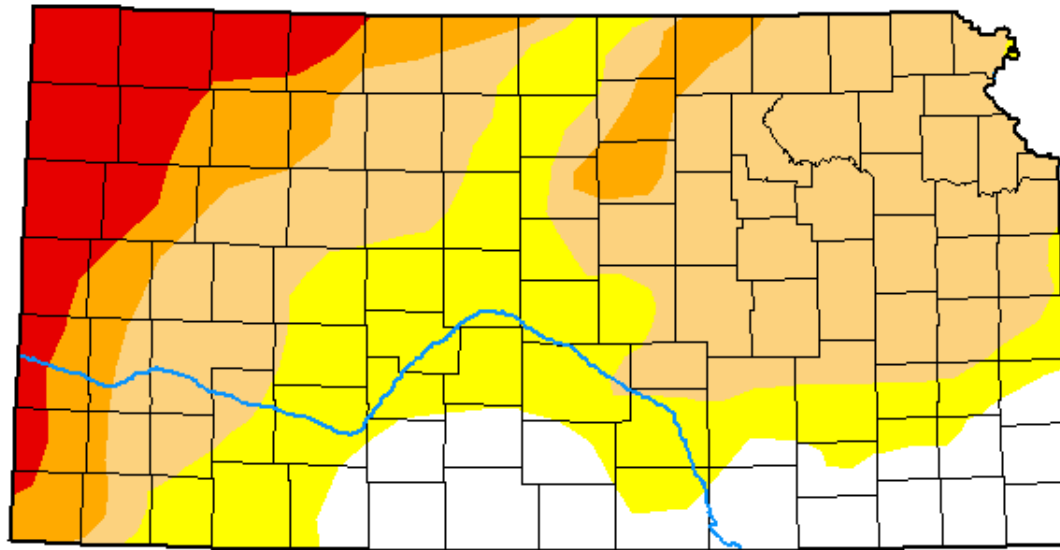
About > What Is The USDM

Maybe you've seen it in the media: that map of the U.S. painted with blobs of yellow, orange and red. It shows drought – but how do we know which colors go where? Who decides? What does it mean for you? Read below to find out.

Category	Description	Possible Impacts	Ranges				
			Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> short-term dryness slowing planting, growth of crops or pastures Coming out of drought: <ul style="list-style-type: none"> some lingering water deficits pastures or crops not fully recovered 	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	<ul style="list-style-type: none"> Some damage to crops, pastures Streams, reservoirs, or wells low, some water shortages developing or imminent Voluntary water-use restrictions requested 	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	<ul style="list-style-type: none"> Crop or pasture losses likely Water shortages common Water restrictions imposed 	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	<ul style="list-style-type: none"> Major crop/pasture losses Widespread water shortages or restrictions 	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	<ul style="list-style-type: none"> Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies 	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Category	Impact
D0	Stock pond levels decrease, planting is delayed (particularly for winter wheat), irrigation/watering demands increase
D1	Wheat and grasses are drought stressed; hay demand increases
	Fire danger increases
	Pond levels are low; habitat is poor in migratory flyways
D2	Wheat, corn, soybean, and hay yields are low; crops are severely damaged
	Burn bans are implemented; firework sales are banned; more grass fires occur
	Blue-green algae impacts water supply; ponds and streams are dry
D3	Cattle sales are high; emergency grazing is opened; corn and wheat crops fail; pasture conditions are poor
	Major infestation of locusts occurs; quail and pheasant populations are reduced; trees are stressed
	Emergency water supplies are needed; river levels are low; municipal water restrictions are implemented
D4	All crops are severely impacted/not harvested; ground is cracking
	Wildfires and large dust storms occur
	All aquatic species and food chains are affected; fish kills occur
	Negative impact on economy is noted
	Irrigation is turned off; river has dried up

U.S. Drought Monitor **Kansas**



Author:

Richard Heim
NCEI/NOAA



droughtmonitor.unl.edu

December 1, 2020

(Released Thursday, Dec. 3, 2020)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

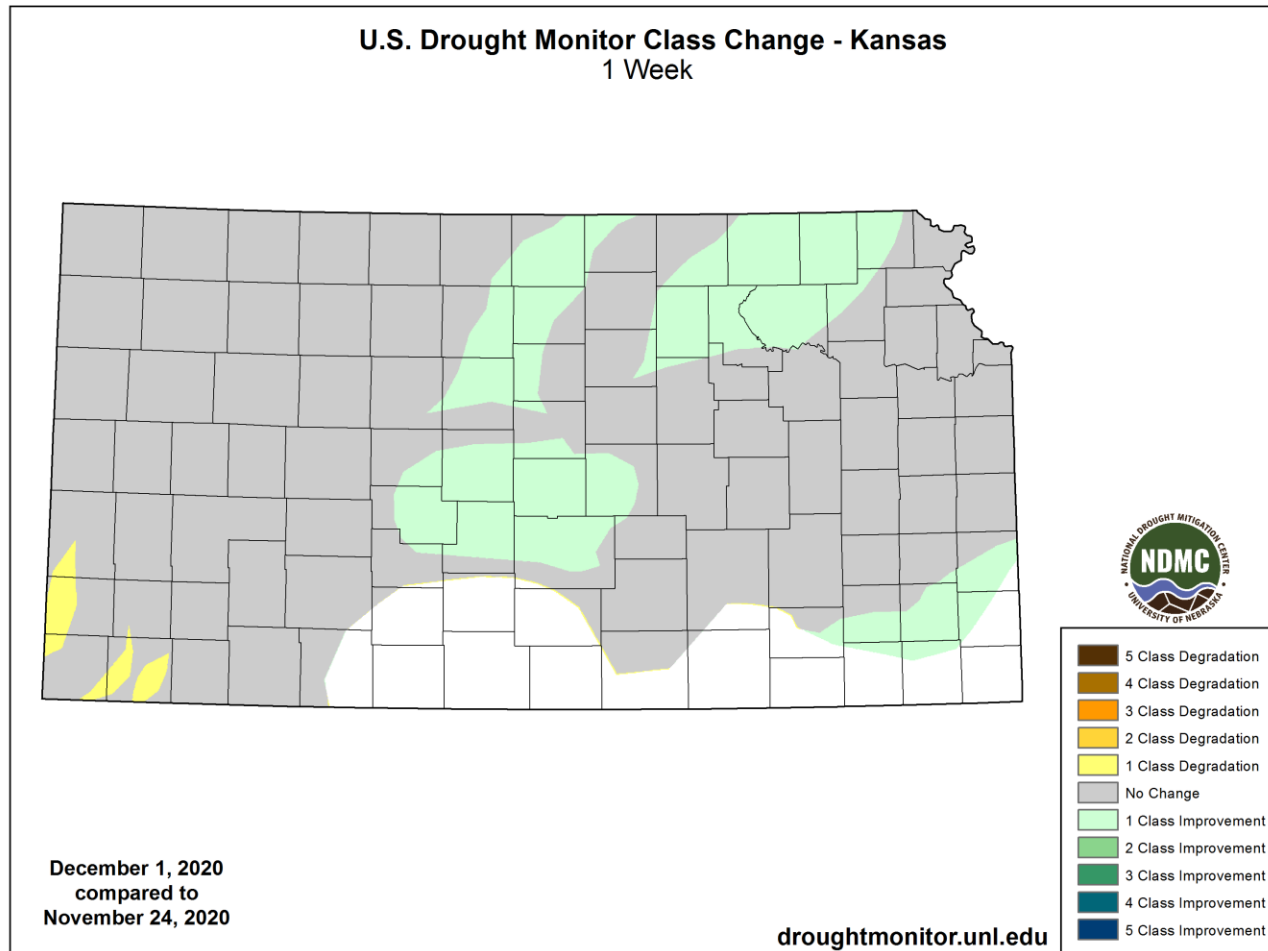
	None	D0	D1	D2	D3	D4
Current	14.76	24.69	40.08	10.46	10.01	0.00
Last Week <i>11-24-2020</i>	12.80	18.18	43.17	16.36	9.50	0.00
3 Months Ago <i>09-01-2020</i>	63.39	21.65	10.83	3.49	0.65	0.00
Start of Calendar Year <i>12-31-2019</i>	67.13	22.98	5.67	4.22	0.00	0.00
Start of Water Year <i>09-29-2020</i>	22.82	60.25	12.50	3.74	0.68	0.00
One Year Ago <i>12-03-2019</i>	51.64	30.14	12.70	3.93	1.60	0.00

Intensity:

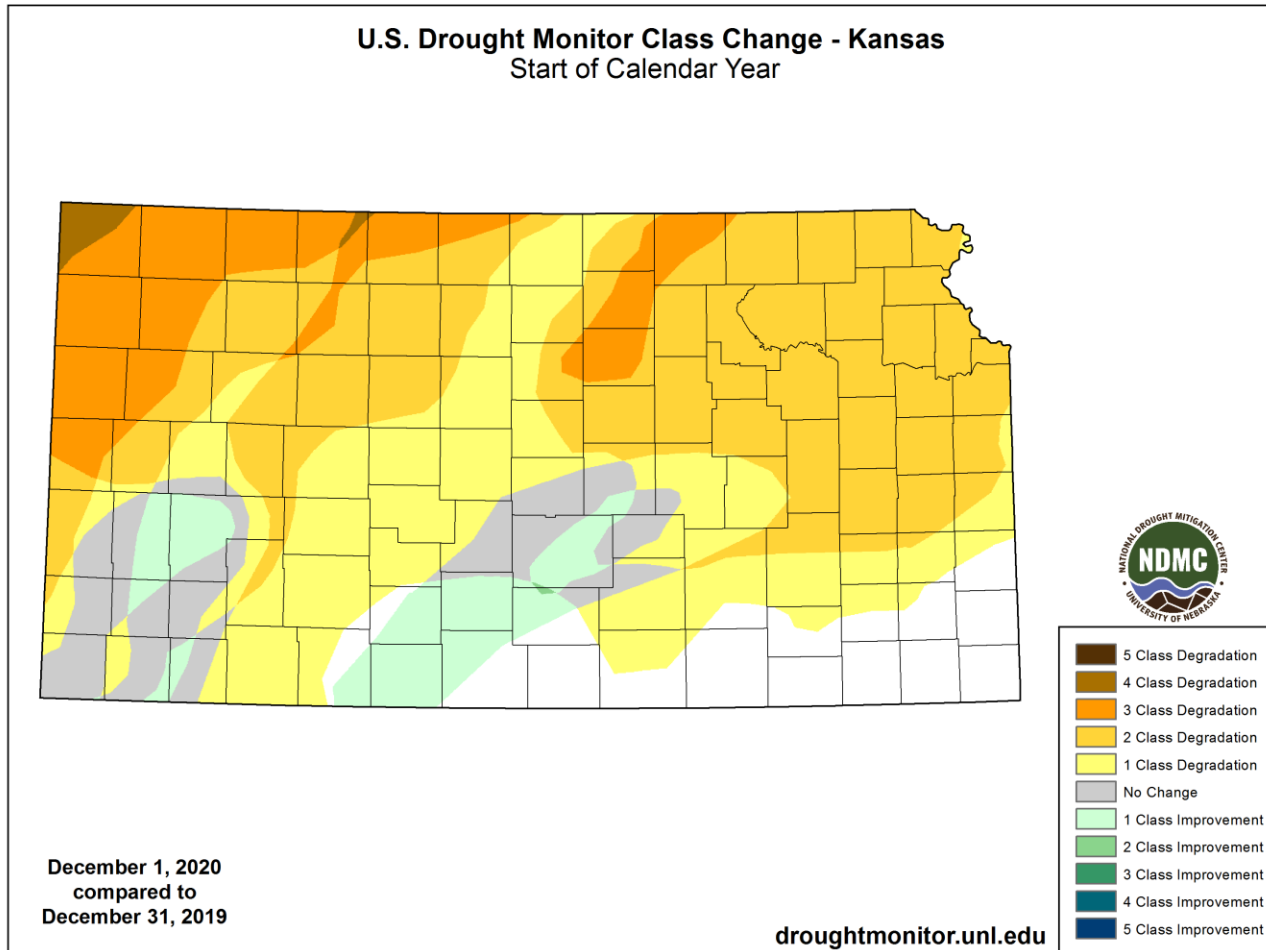
 None	 D2 Severe Drought
 D0 Abnormally Dry	 D3 Extreme Drought
 D1 Moderate Drought	 D4 Exceptional Drought

*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>*

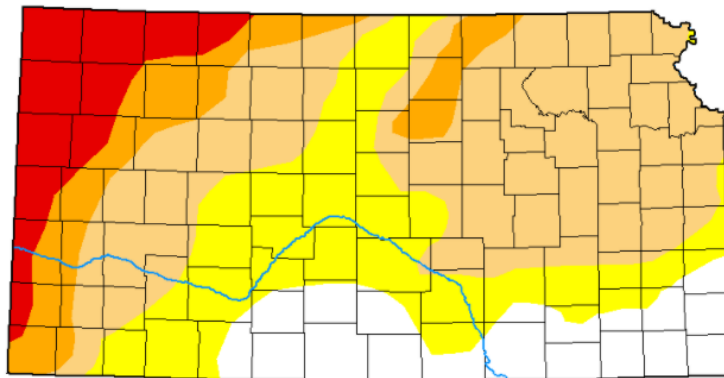
Change in Kansas Conditions



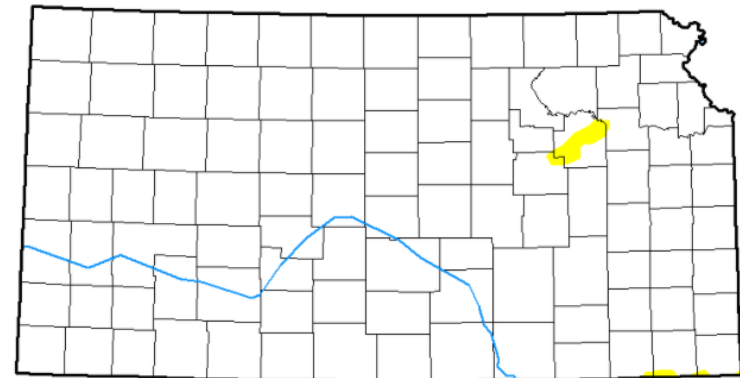
Change in Kansas Conditions



Drought Classification

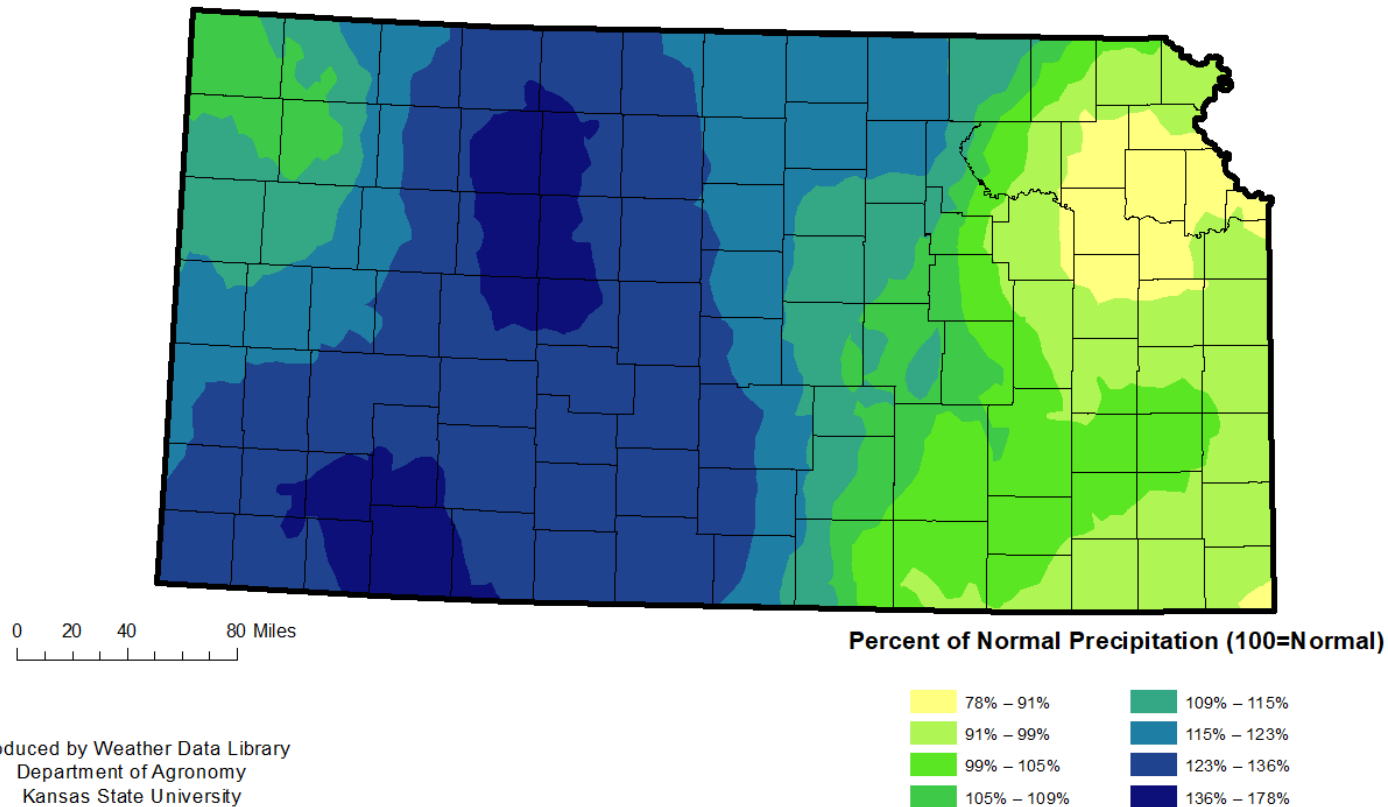


December 1, 2020



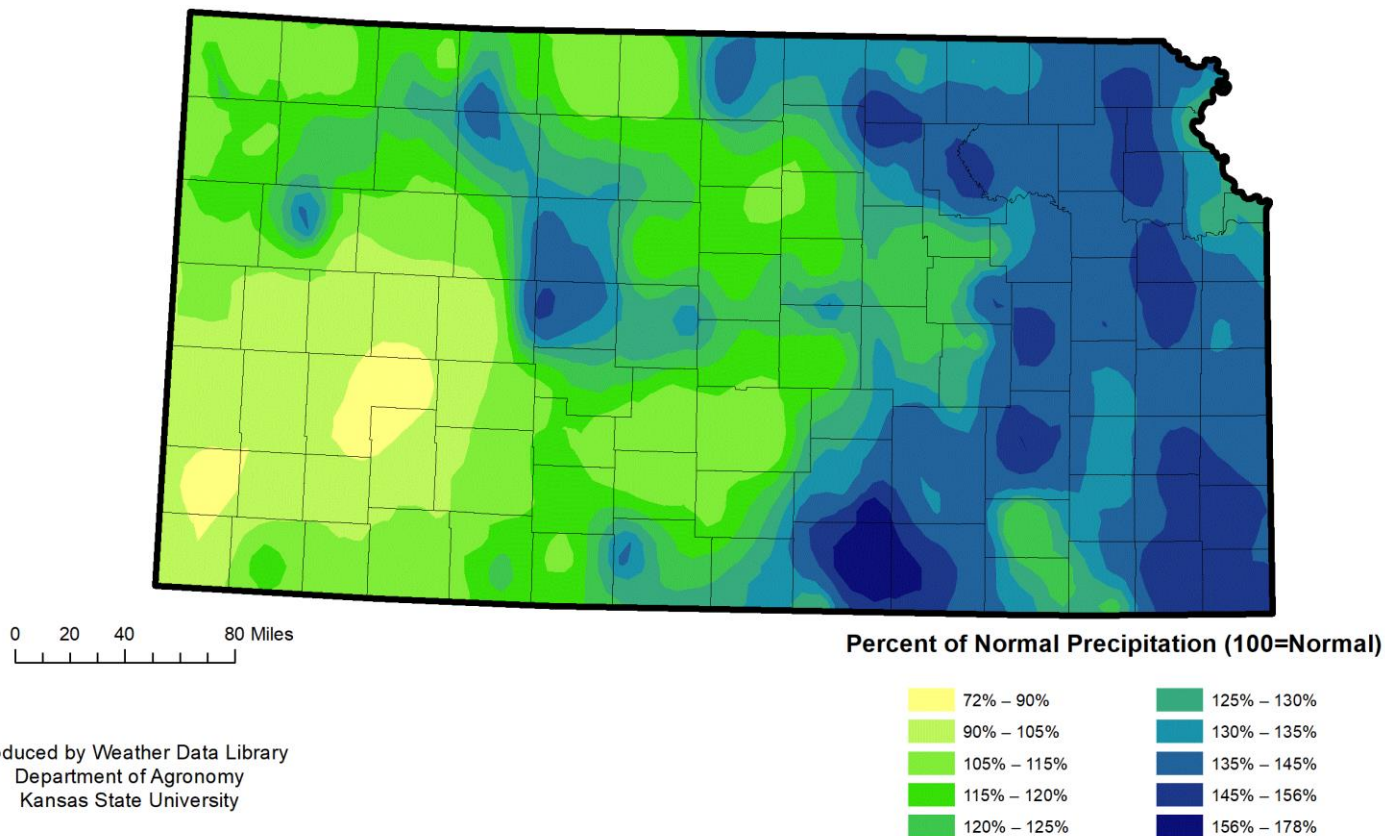
December 4, 2018

Percent of Normal Annual Precipitation January 1 - December 31, 2018



Produced by Weather Data Library
Department of Agronomy
Kansas State University

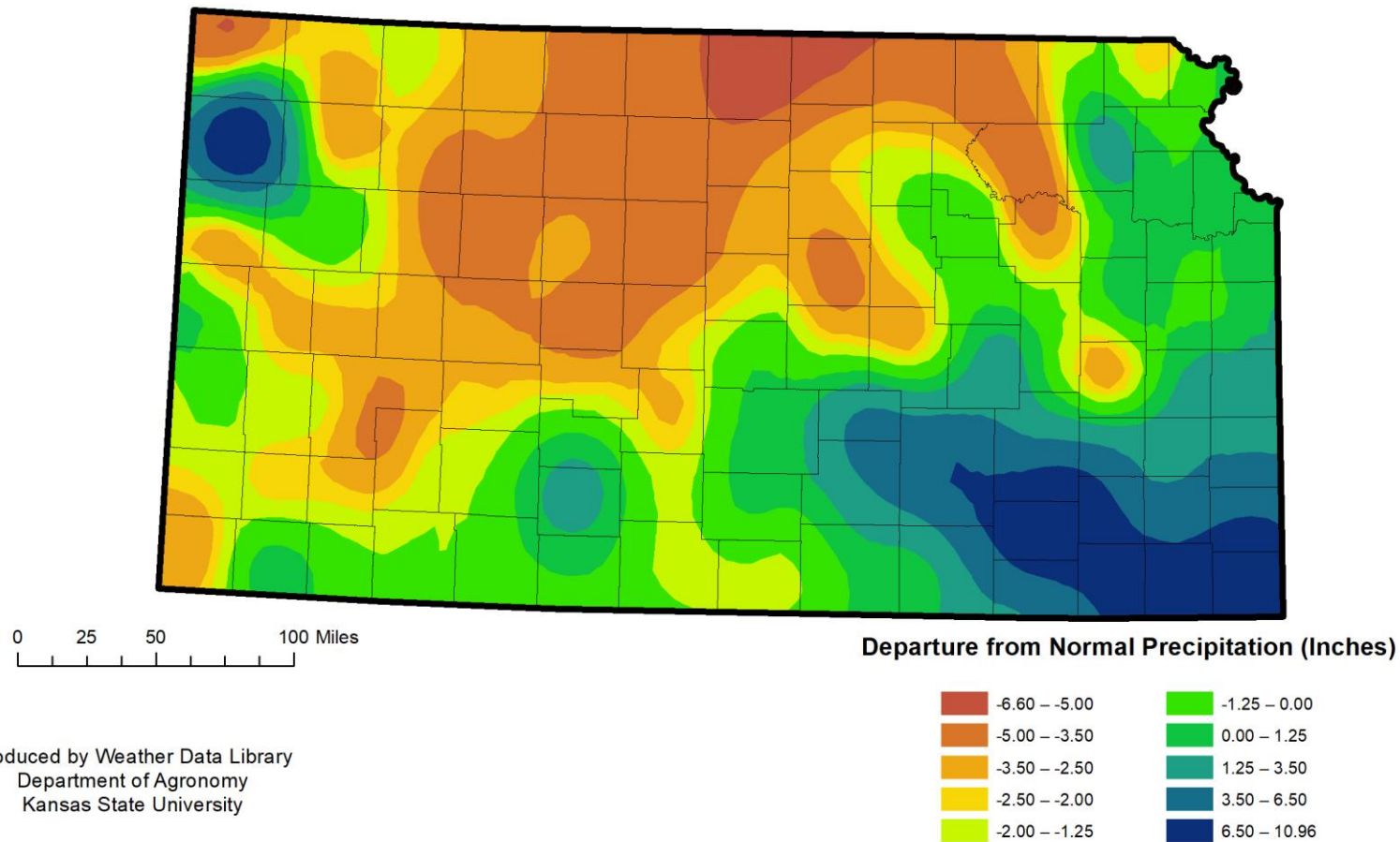
Percent of Normal Annual Precipitation
January 1 - December 31, 2019



Produced by Weather Data Library
Department of Agronomy
Kansas State University

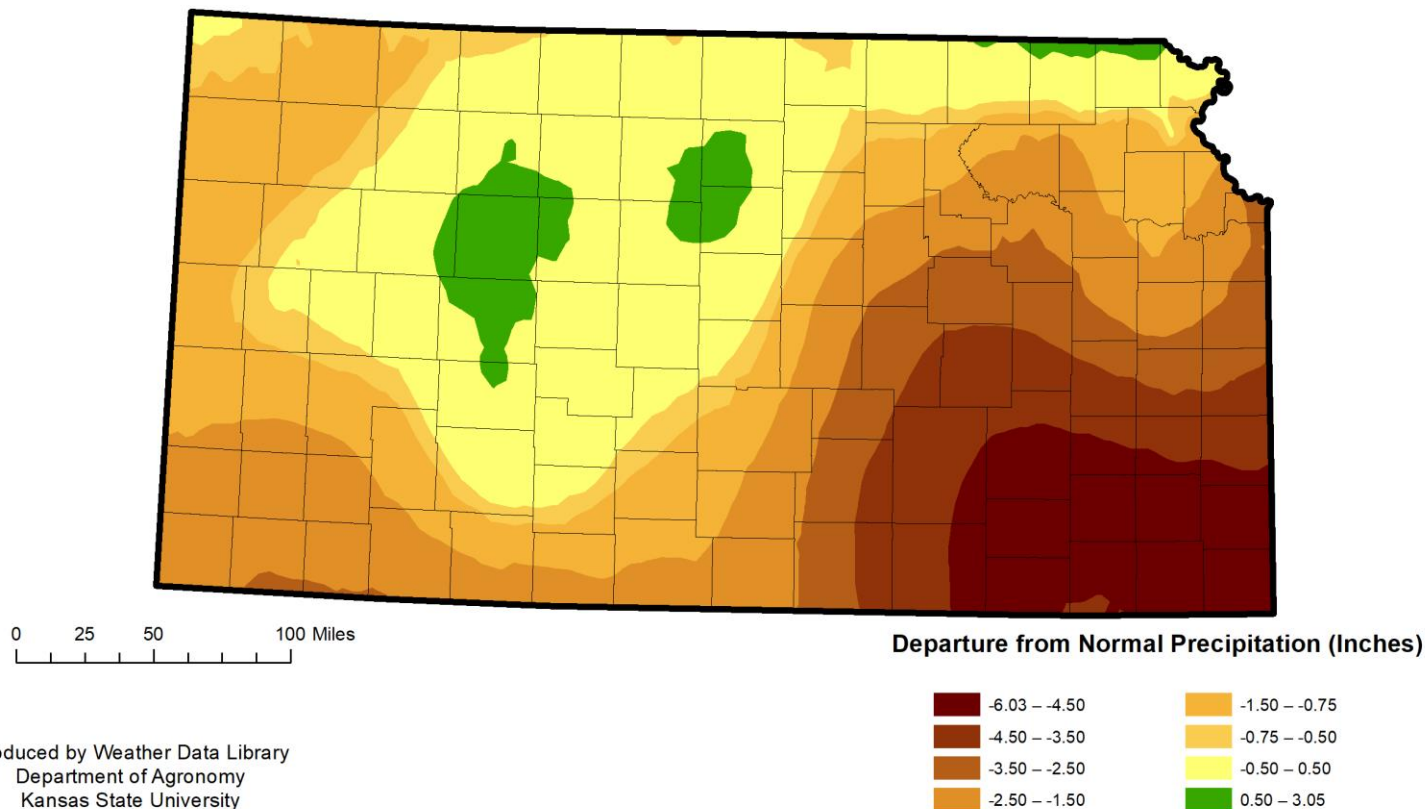
Departure from Normal Precipitation Summary

January 1, 2020 - May 18, 2020



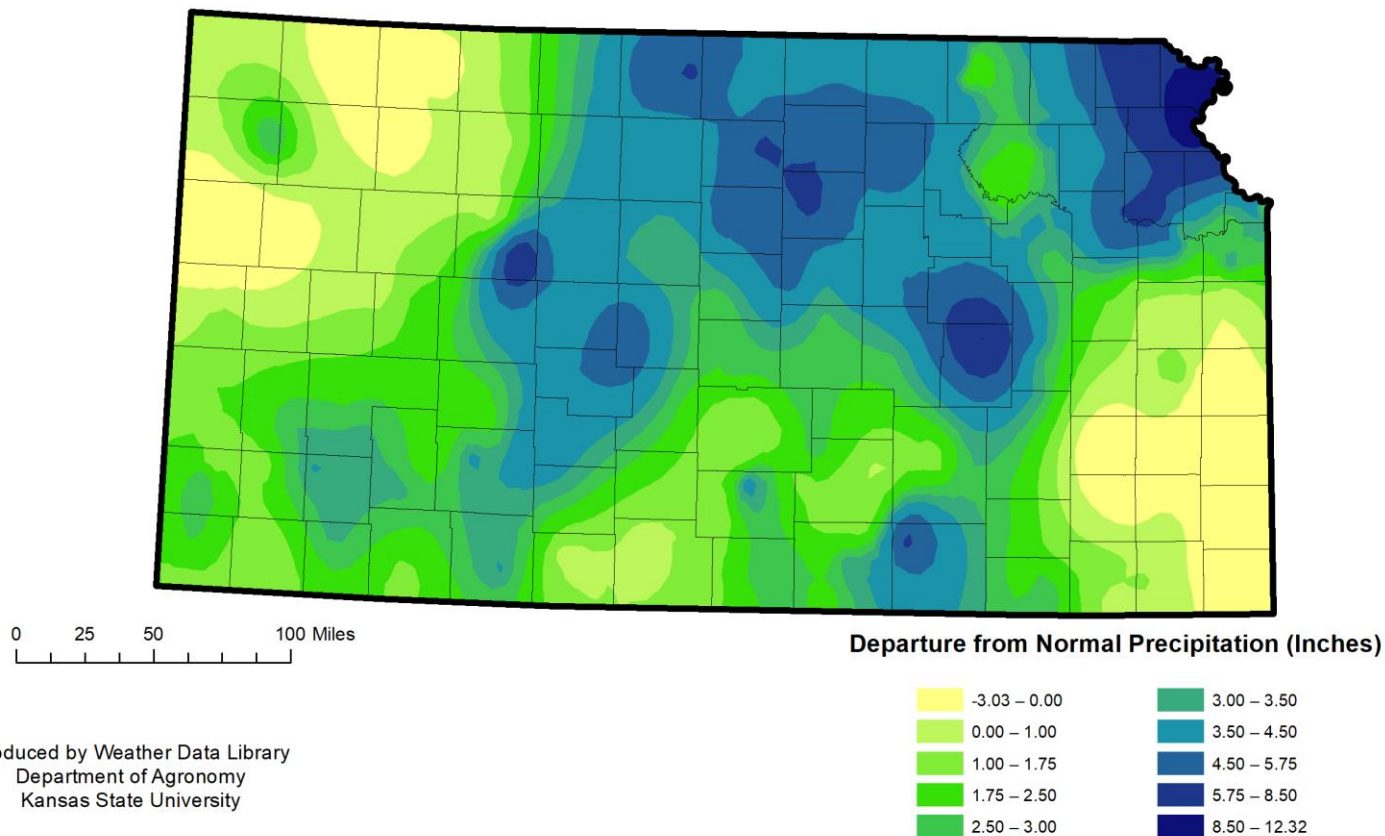
Produced by Weather Data Library
Department of Agronomy
Kansas State University

Departure from Normal Monthly Precipitation June 1 - June 30, 2020



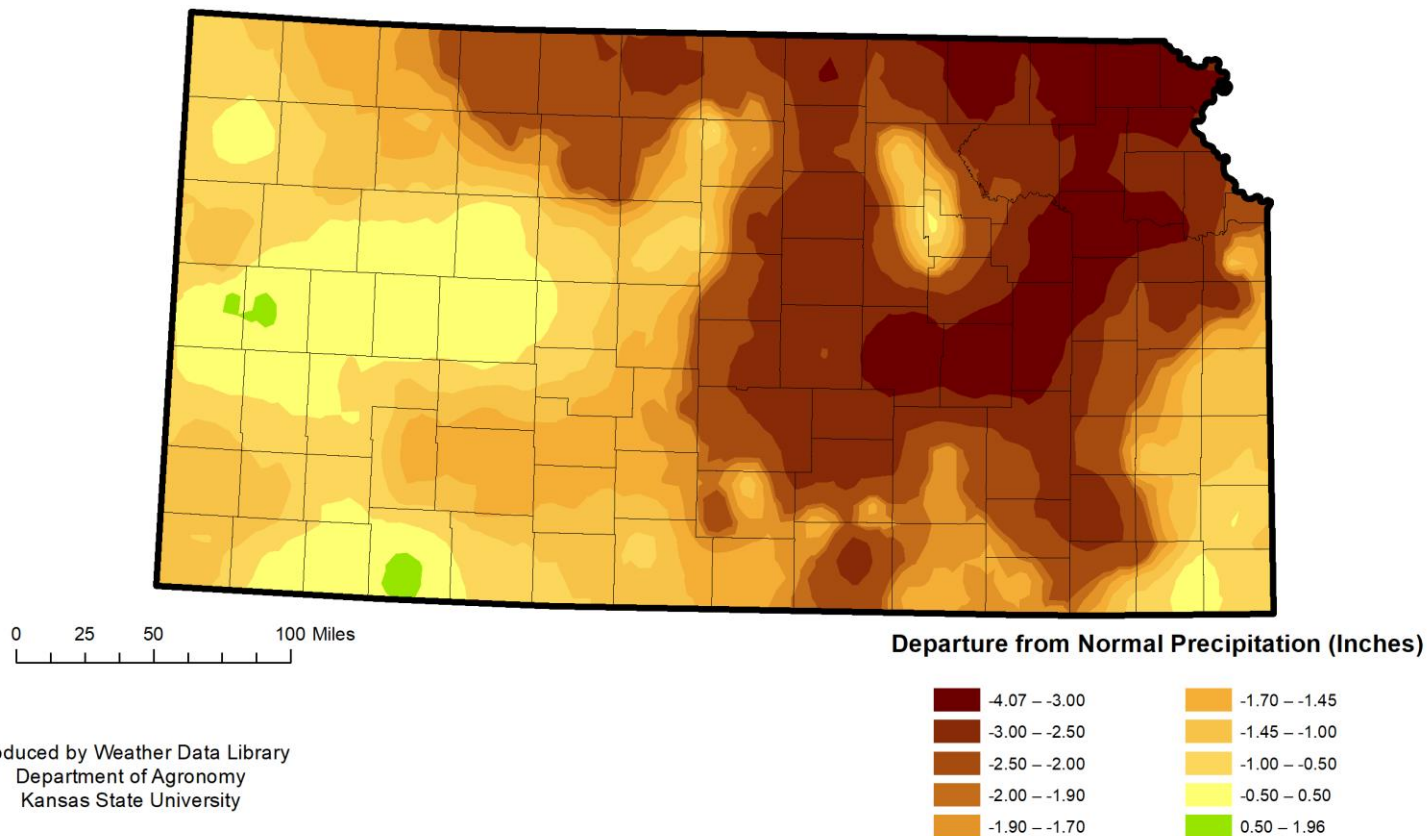
Produced by Weather Data Library
Department of Agronomy
Kansas State University

Departure from Normal Monthly Precipitation July 1 - July 31, 2020



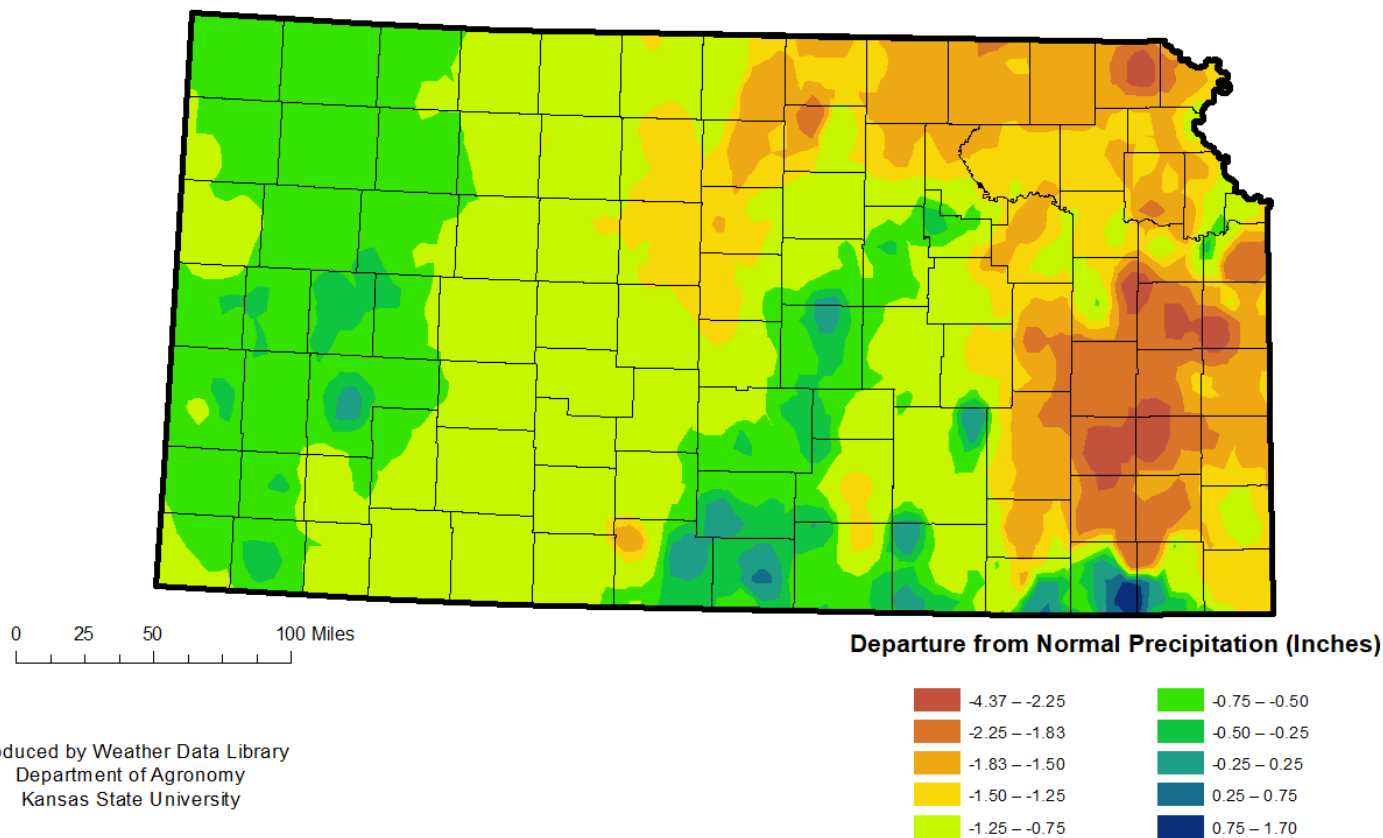
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Departure from Normal Monthly Precipitation August 1 - August 31, 2020



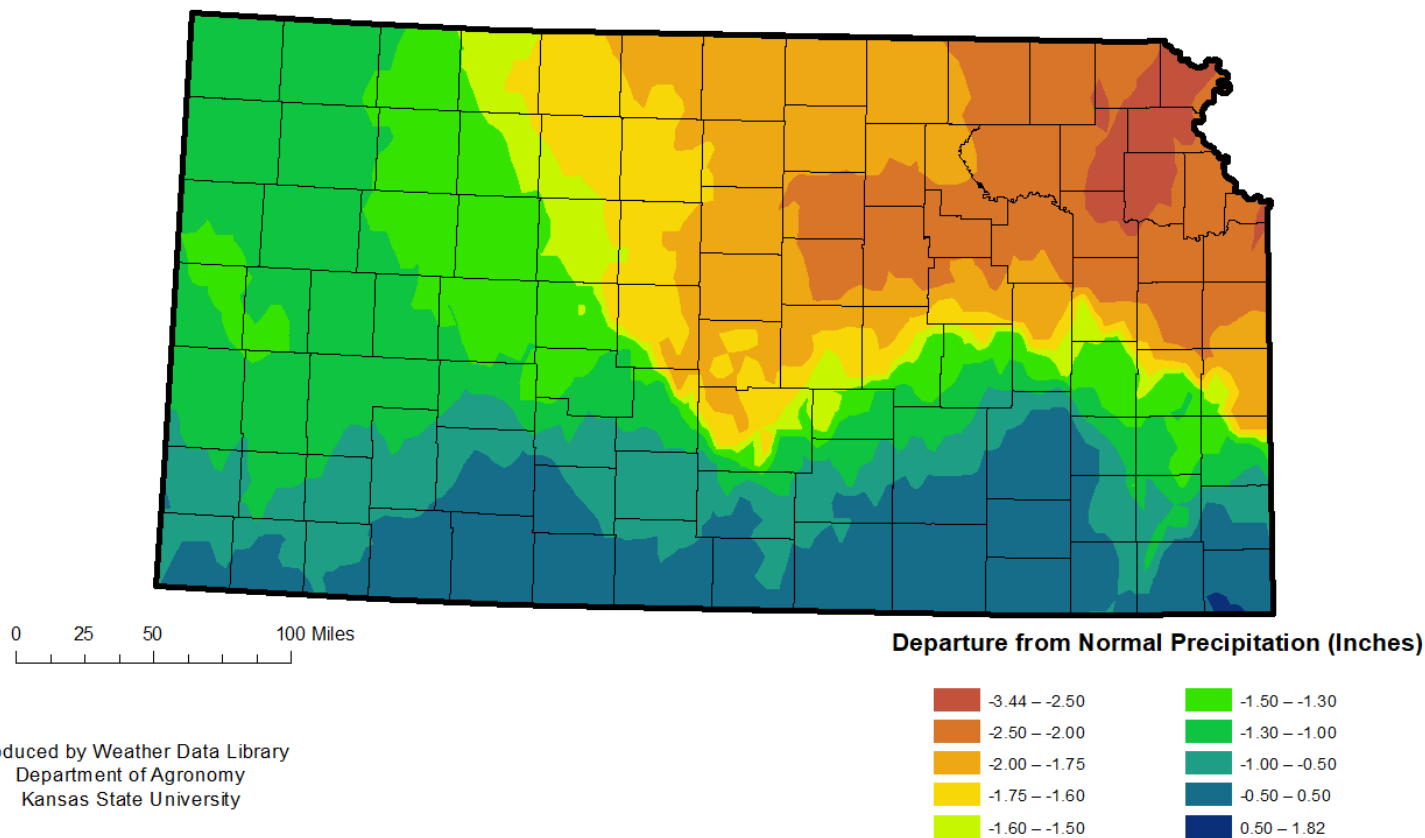
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Departure from Normal Monthly Precipitation September 1 - September 30, 2020



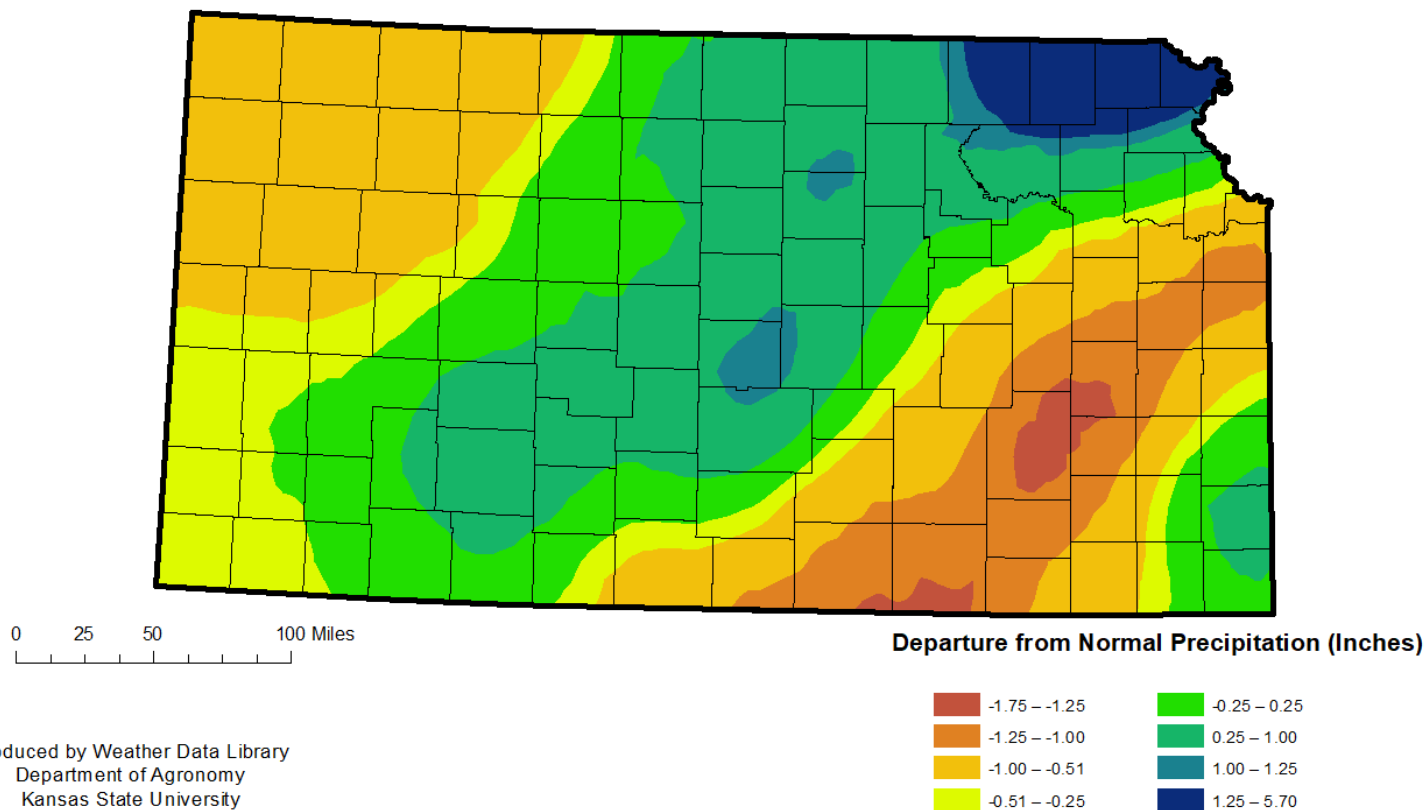
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Kansas State University

Departure from Normal Monthly Precipitation October 1 - October 31, 2020

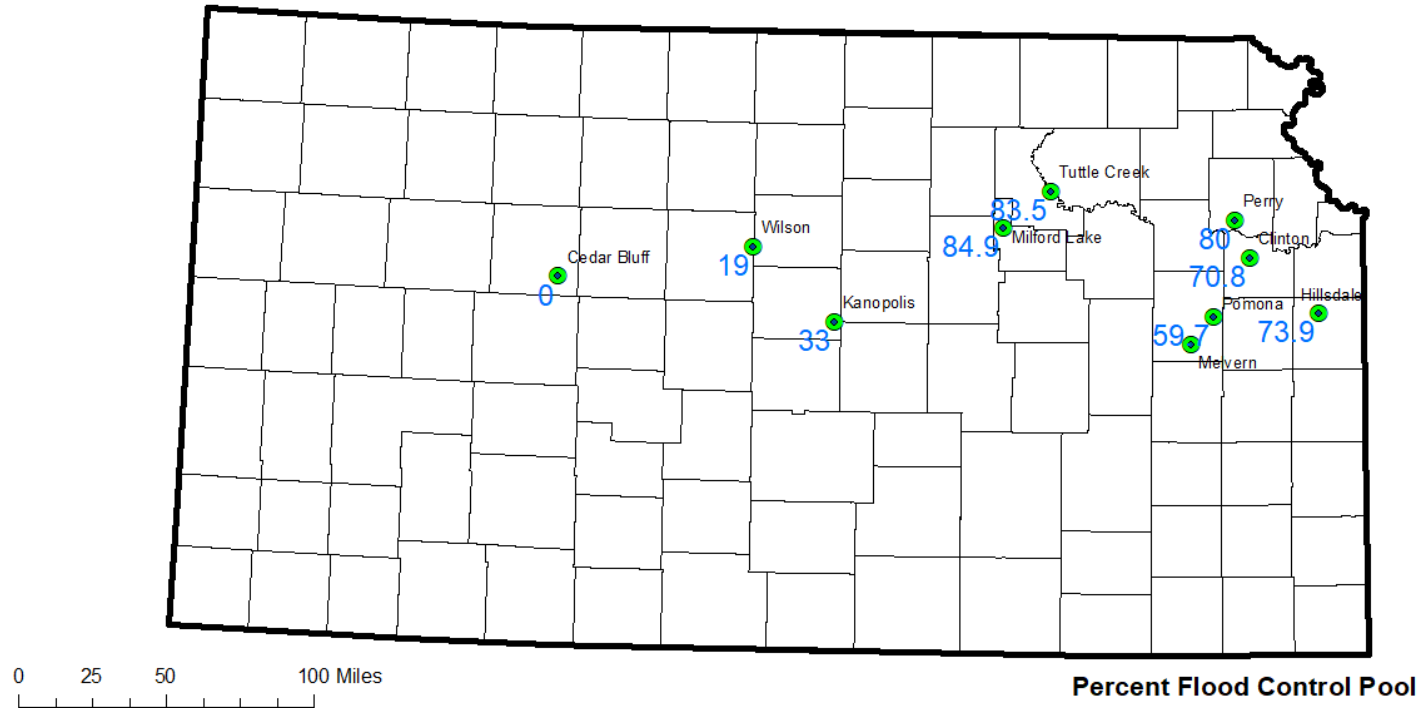


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Departure from Normal Monthly Precipitation November 1 - November 30, 2020

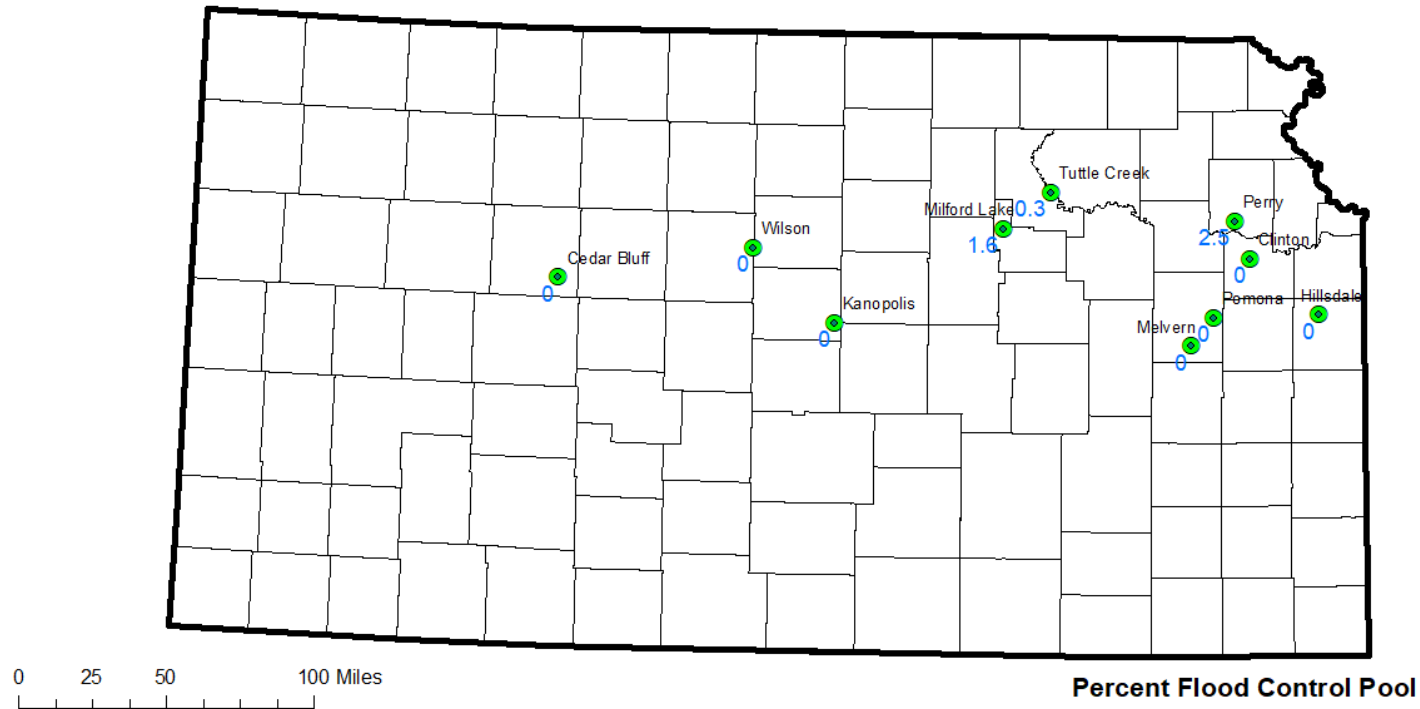


Corps of Engineers Lake Status as of July 5, 2019 at 12:00 pm CDT



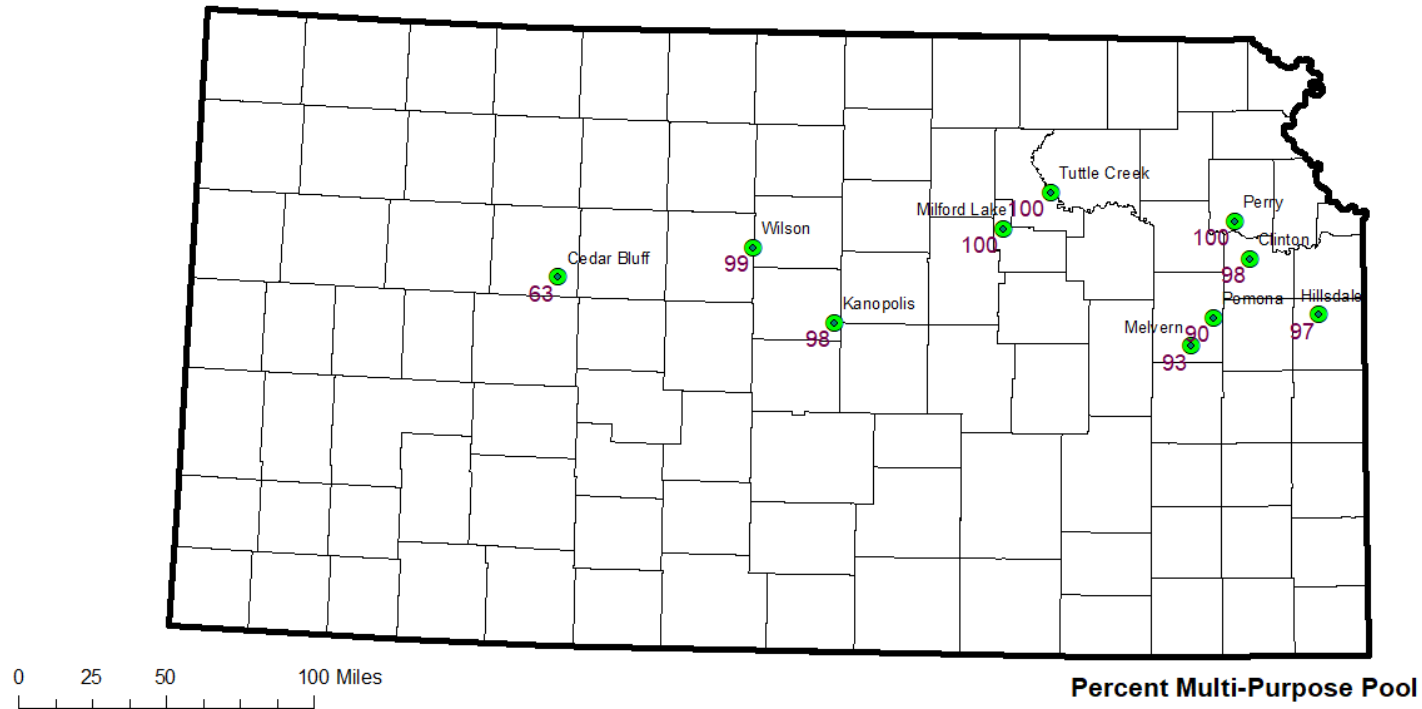
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Corps of Engineers Lake Status December 6, 2020 at 11:00 pm CST

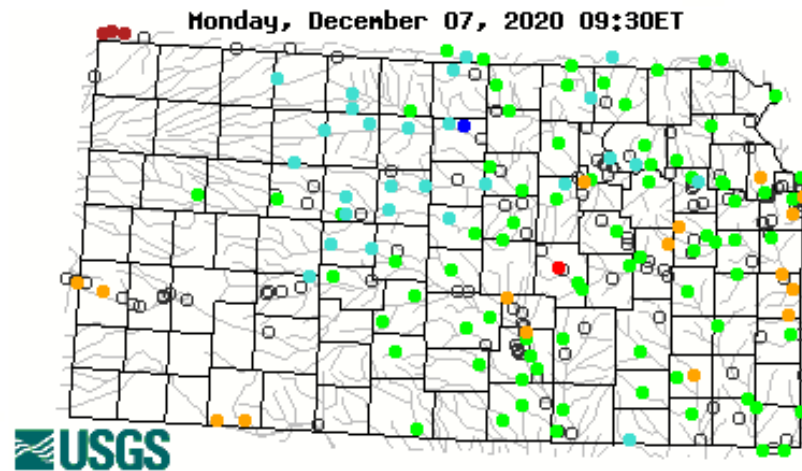


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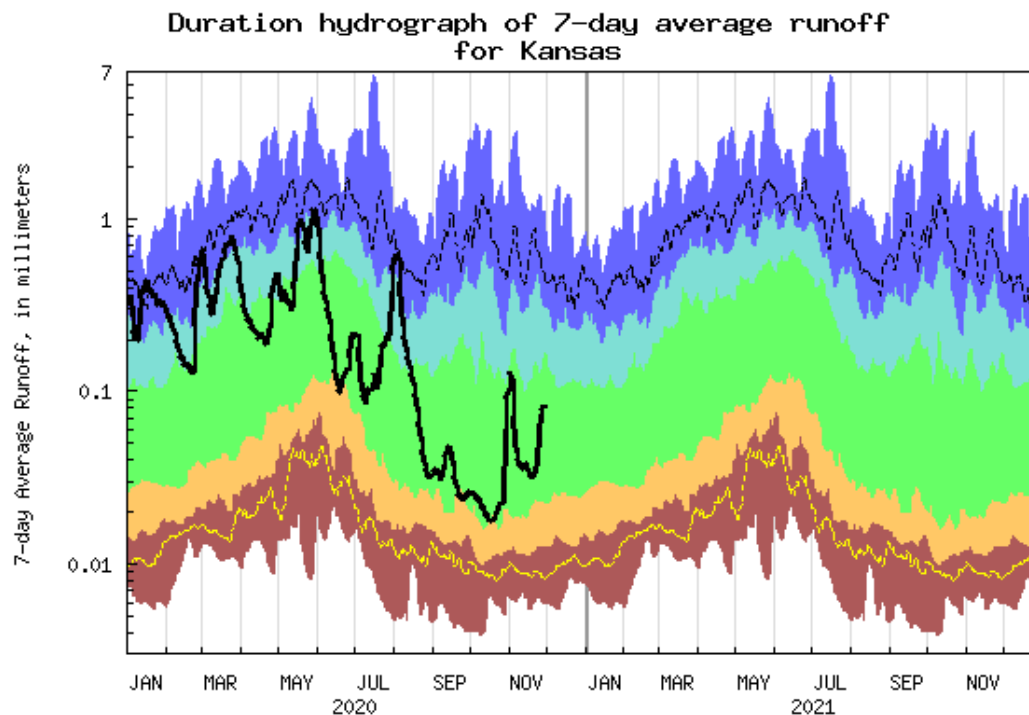
Corps of Engineers Lake Status December 6, 2020 at 11:00 pm CST



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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



Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal	Runoff	

Percent of Soil Saturation

as of November 18, 2020

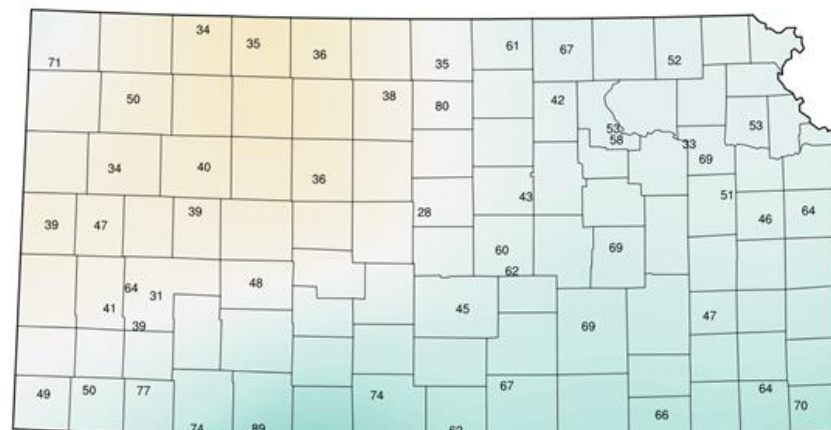
2 Inch



Map is representative of grassland vegetation

Kansas Mesonet - 05 cm % of Saturation at 2020-11-18 10:47 (CST)

4 inch



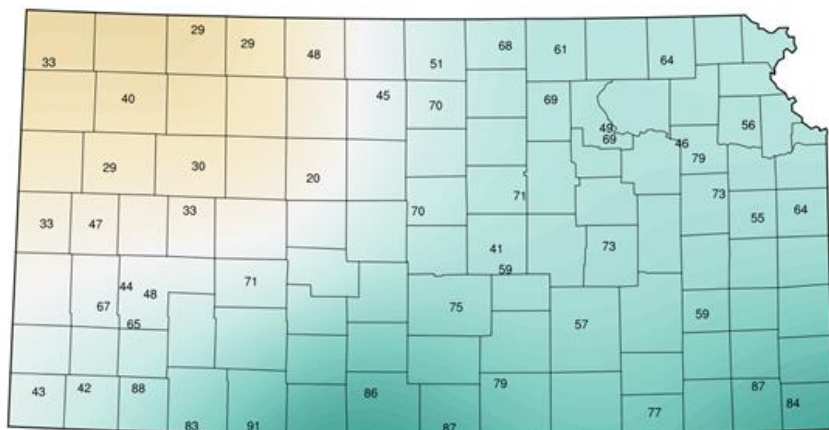
Map is representative of grassland vegetation

Kansas Mesonet - 10 cm % of Saturation at 2020-11-18 10:47 (CST)

Percent of Soil Saturation

as of December 1, 2020

2 Inch



Map is representative of grassland vegetation

Kansas Mesonet - 05 cm % of Saturation at 2020-12-03 13:27 (CST)

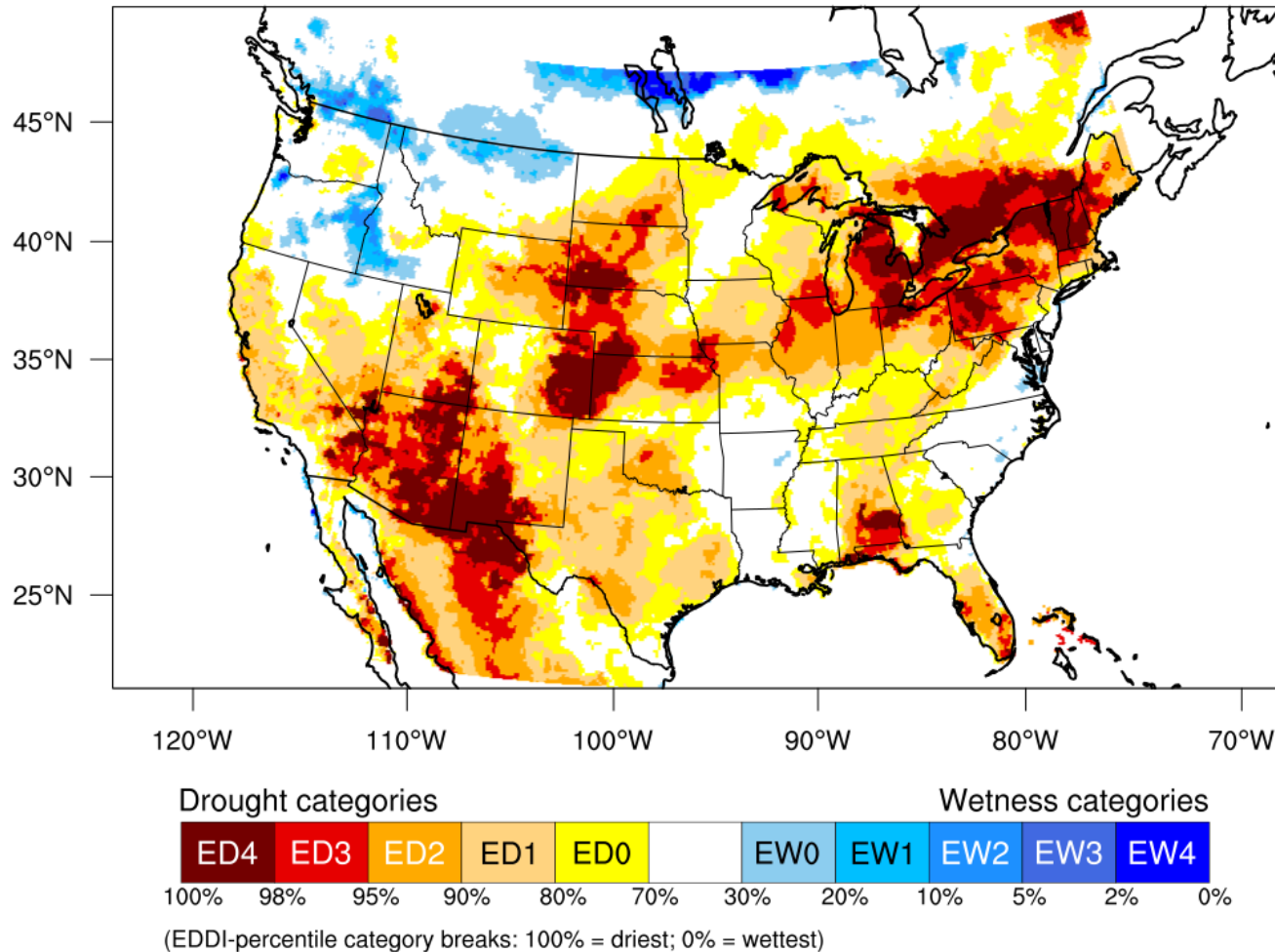
4 inch



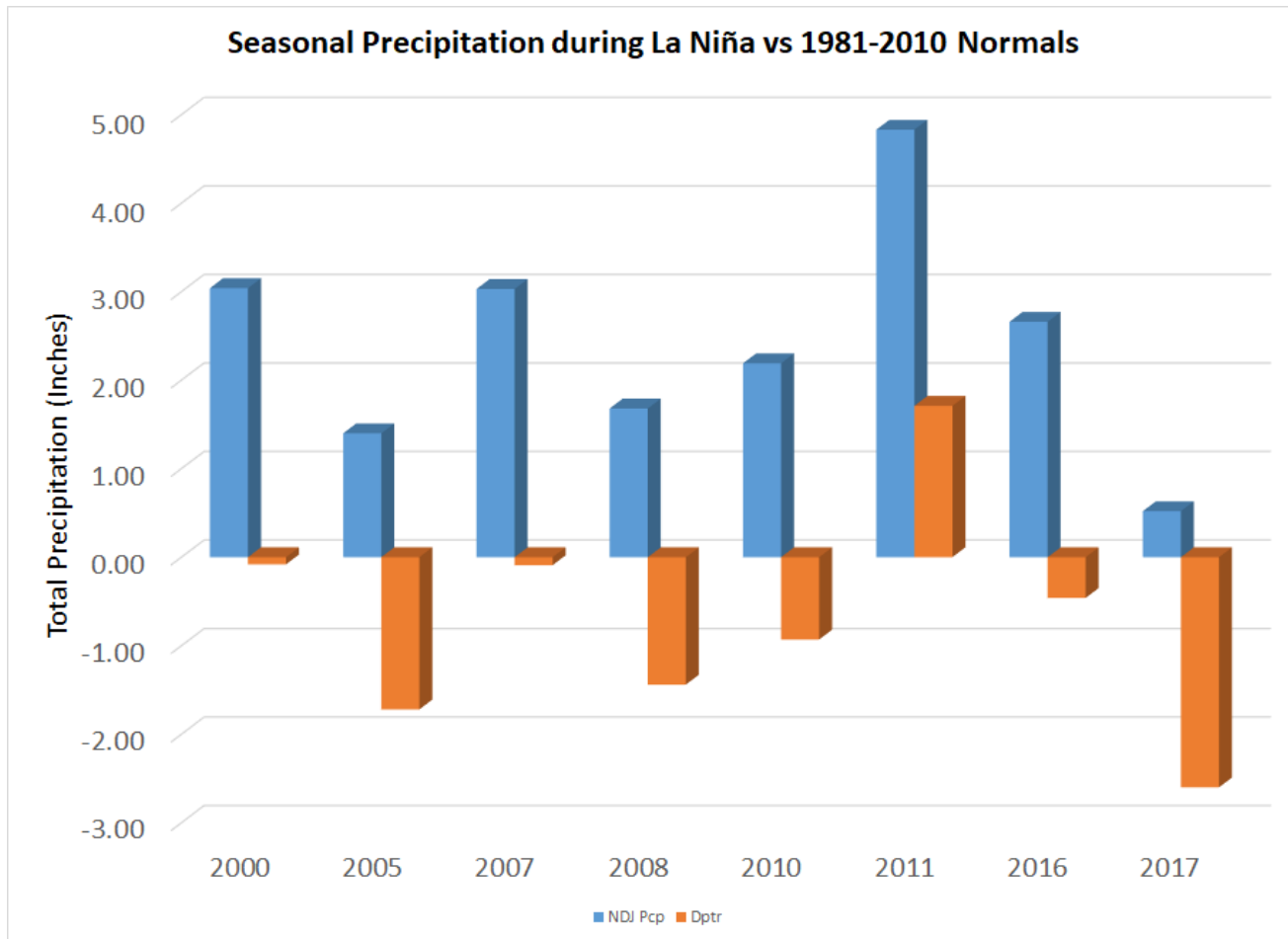
Map is representative of grassland vegetation

Kansas Mesonet - 10 cm % of Saturation at 2020-12-03 13:27 (CST)

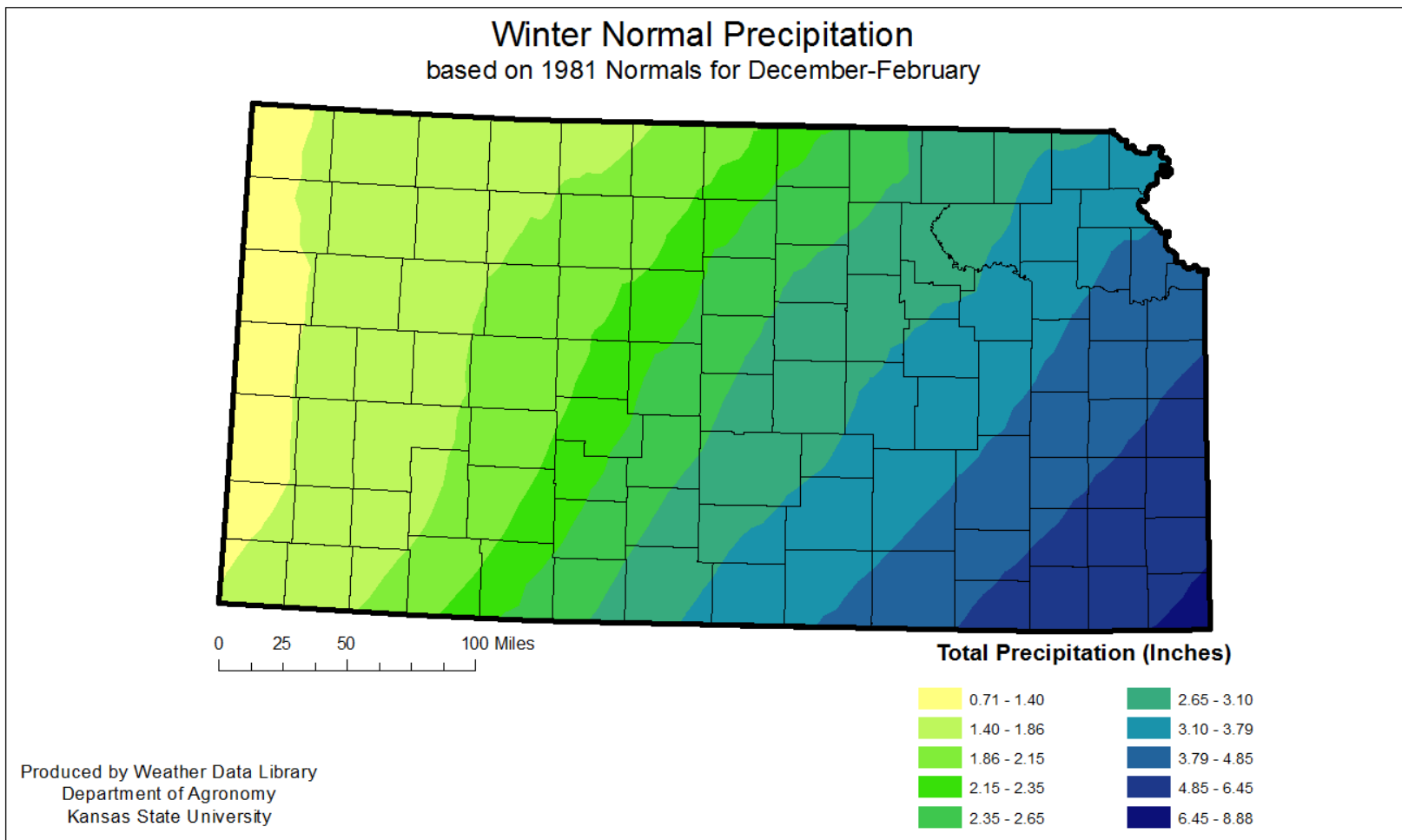
4-week EDDI categories for December 2, 2020



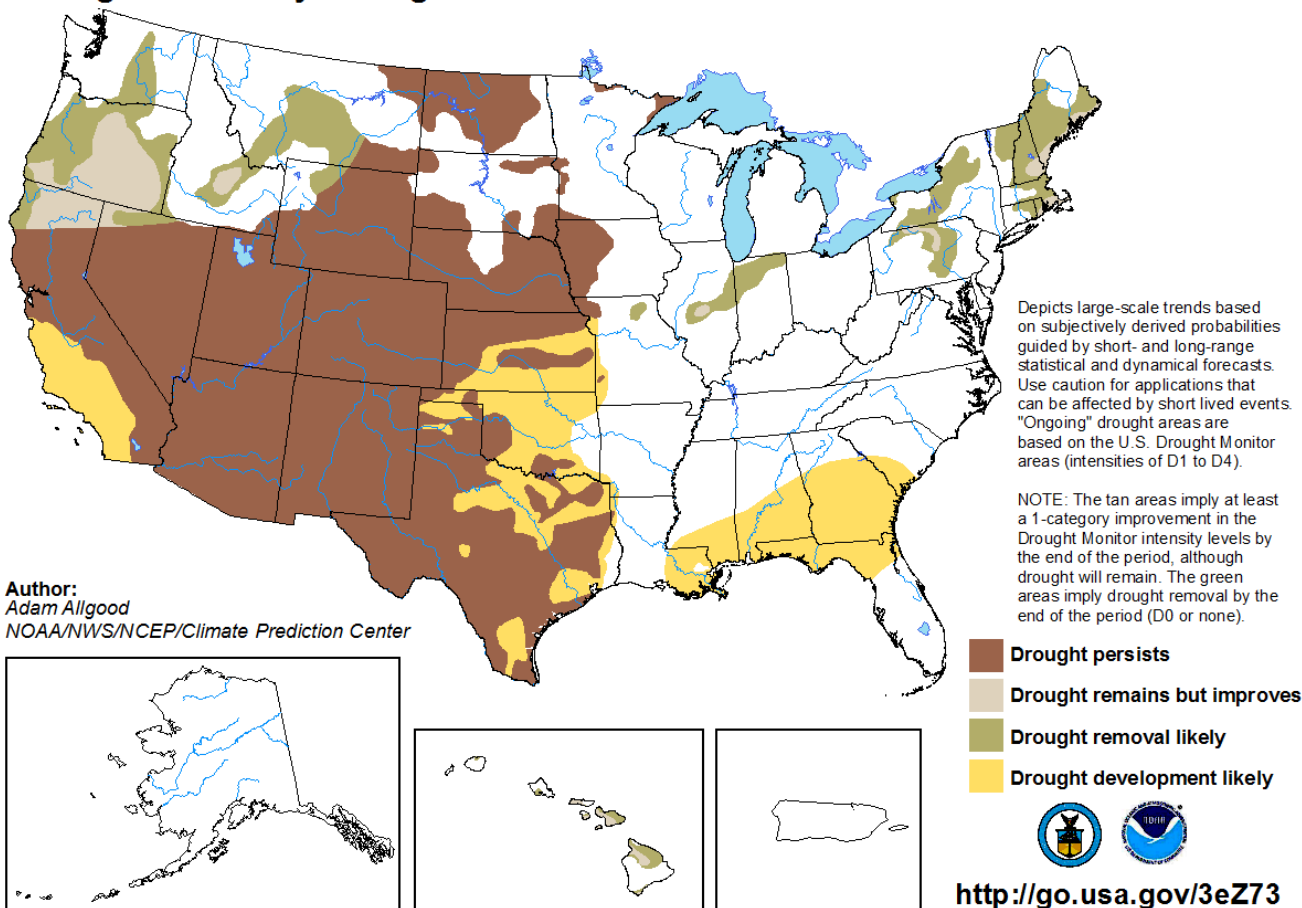
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2000	-1.7	-1.4	-1.1	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.6	-0.7	-0.7
2001	-0.7	-0.5	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3
2002	-0.1	0.0	0.1	0.2	0.4	0.7	0.8	0.9	1.0	1.2	1.3	1.1
2003	0.9	0.6	0.4	0.0	-0.3	-0.2	0.1	0.2	0.3	0.3	0.4	0.4
2004	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.7	0.7	0.7
2005	0.6	0.6	0.4	0.4	0.3	0.1	-0.1	-0.1	-0.1	-0.3	-0.6	-0.8
2006	-0.8	-0.7	-0.5	-0.3	0.0	0.0	0.1	0.3	0.5	0.7	0.9	0.9
2007	0.7	0.3	0.0	-0.2	-0.3	-0.4	-0.5	-0.8	-1.1	-1.4	-1.5	-1.6
2008	-1.6	-1.4	-1.2	-0.9	-0.8	-0.5	-0.4	-0.3	-0.3	-0.4	-0.6	-0.7
2009	-0.8	-0.7	-0.5	-0.2	0.1	0.4	0.5	0.5	0.7	1.0	1.3	1.6
2010	1.5	1.3	0.9	0.4	-0.1	-0.6	-1.0	-1.4	-1.6	-1.7	-1.7	-1.6
2011	-1.4	-1.1	-0.8	-0.6	-0.5	-0.4	-0.5	-0.7	-0.9	-1.1	-1.1	-1.0
2012	-0.8	-0.6	-0.5	-0.4	-0.2	0.1	0.3	0.3	0.3	0.2	0.0	-0.2
2013	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.4	-0.2	0.1	0.3	0.2	0.1	0.0	0.2	0.4	0.6	0.7
2015	0.6	0.6	0.6	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.5	2.6
2016	2.5	2.2	1.7	1.0	0.5	0.0	-0.3	-0.6	-0.7	-0.7	-0.7	-0.6
2017	-0.3	-0.1	0.1	0.3	0.4	0.4	0.2	-0.1	-0.4	-0.7	-0.9	-1.0
2018	-0.9	-0.8	-0.6	-0.4	-0.1	0.1	0.1	0.2	0.4	0.7	0.9	0.8
2019	0.8	0.8	0.8	0.7	0.6	0.5	0.3	0.1	0.1	0.3	0.5	0.5
2020	0.5	0.6	0.5	0.3	0.0	-0.2	-0.4	-0.6				



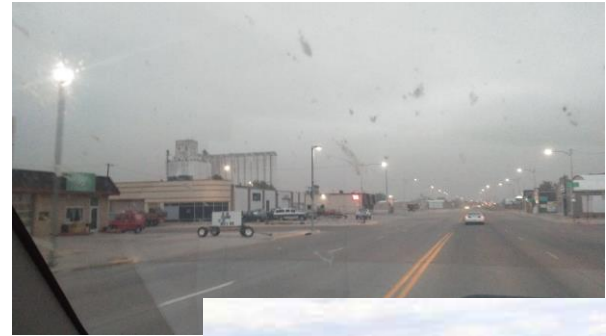
Normal Winter Precipitation

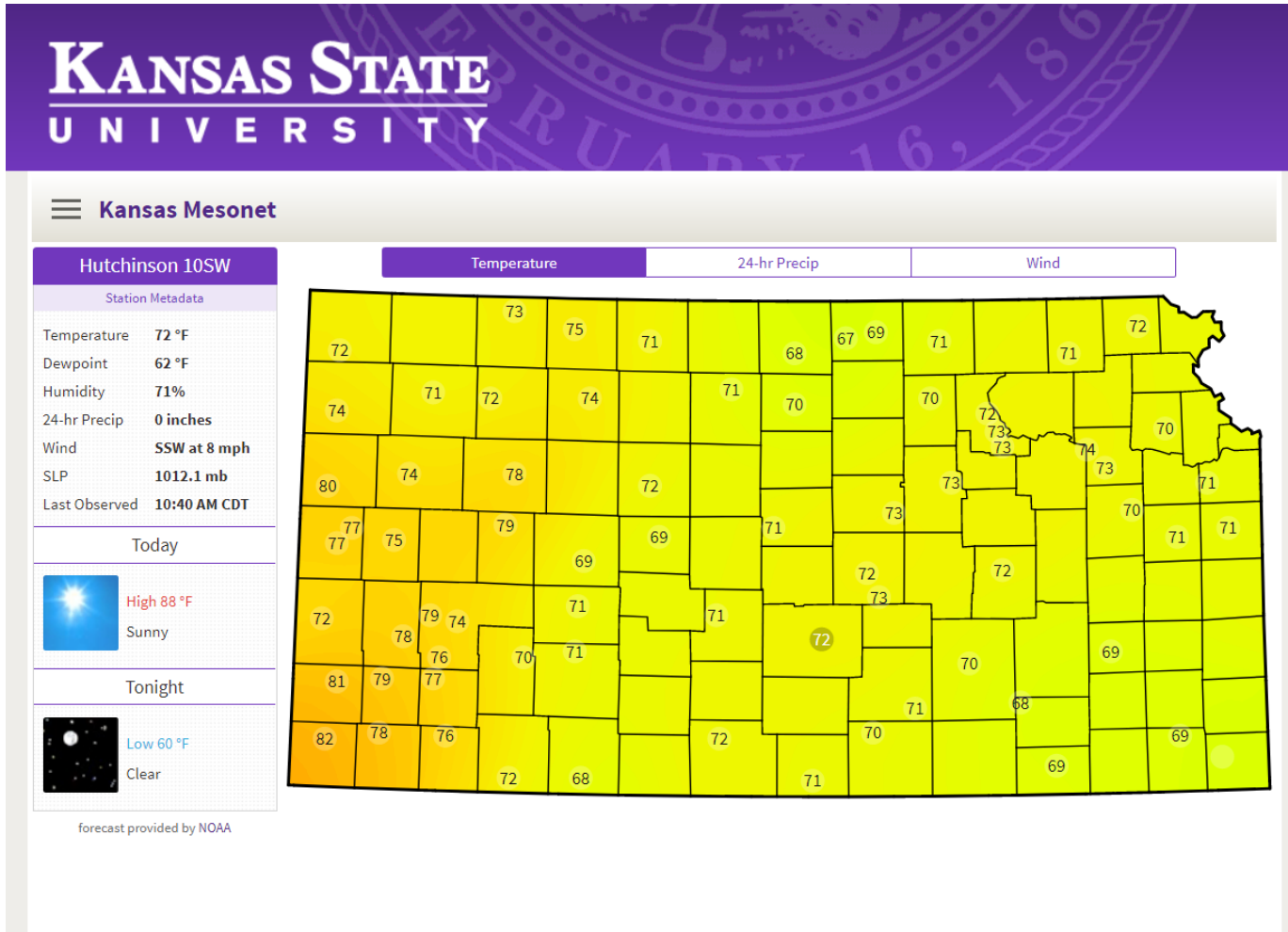




U.S. Seasonal Drought Outlook Valid for November 19, 2020 - February 28, 2021 **Drought Tendency During the Valid Period** Released November 19, 2020



- Increased wind erosion potential
- Stress on Winter Wheat
- Falling surface water supplies – particularly stock ponds
- Increased fire danger







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Heavy rainfall and severe weather threat diminishes over the Southeast overnight, winter storm to impact the West Tuesday

The heavy rainfall and severe weather threat over the Southeast U.S will diminish. A strong cold front will impact the Western U.S overnight through Tuesday. Winter Storm Warnings, Watches, and Advisories are in effect. Portions of the Sierra's and Rockies could see one foot of snow and travel impacts.

[Read More...](#)

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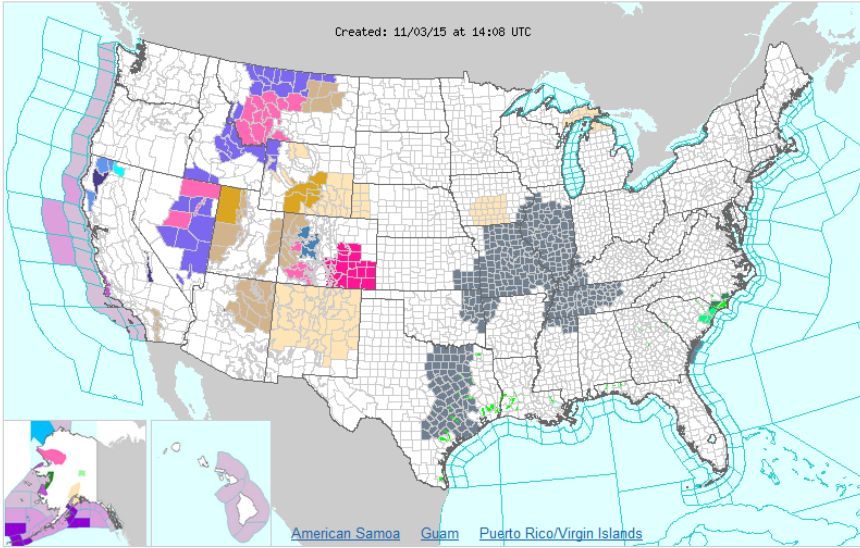
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Created: 11/03/15 at 14:08 UTC



Click on the map above for detailed alerts or [Public Alerts in XML/CAP v1.1 and ATOM Formats](#)

Winter Storm Warning	Red Flag Warning	Small Craft Advisory For Rough Bar	Winter Storm Watch
High Wind Warning	Winter Weather Advisory	Small Craft Advisory	Flood Watch
Storm Warning			Freeze Watch



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Monitoring and Data

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- Stratosphere
- Pacific Islands
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Partnerships

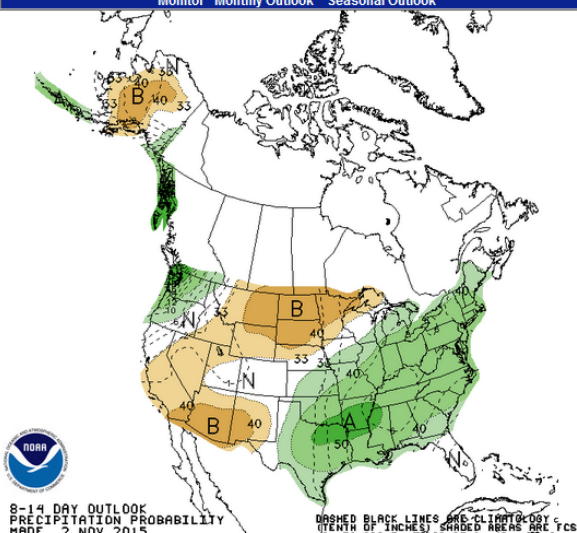
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- Climate Test Bed
- NOAA
- Interagency
- JAWF
- USAID/FEWS NET

Climate News

- **NOAA's 2015 Atlantic and E. Pacific Hurricane Outlooks**
- **NOAA's 40th Climate Diagnostics and Prediction Workshop**
- **El Niño Advisory Issued**
- **New CPC Web Page Design**

Click on product title to go to product page. Move cursor over product parameter name to display the graphic -- click to enlarge. Links to these same products are also available below.

6-10 Day Outlook (Interactive Display)		One Month Outlook	
Temperature	Precipitation	Temperature	Precipitation
8-14 Day Outlook (Interactive Display)		Three Month Outlook	
Temperature	Precipitation	Temperature	Precipitation
Experimental Week 3-4		U.S. Hazards Outlook	
Temperature	Precipitation	3-7 Day	8-14 Day
		8-14 Day Temps	
U.S. Drought Information			
Monitor		Monthly Outlook Seasonal Outlook	



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MAP: 2 NOV 2015

DASHED BLACK LINES ARE CLIMATE NORMALS
(TENTH OF INCHES) SHADED AREAS ARE 10% OF TOTAL

https://climate.gov/maps-data

Global Vege... Slack HPRCC SC ACIS2 Climate Records CPC SPC QPF EDDI Div Data KSU Outreach Log WDL Request Gra

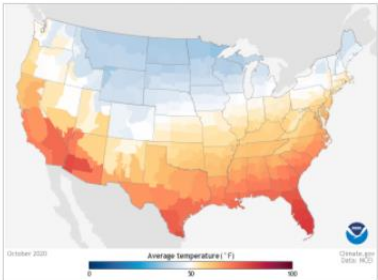
Climate.gov
science & information for a climate-smart nation

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Easy access to climate data, products, and services

Data Snapshots Dataset Gallery Climate Data Primer Climate Dashboard

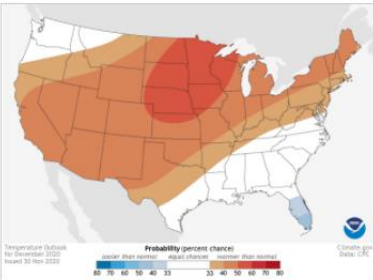
Data Snapshots: Reusable Climate Maps



October 2020

Average temperature (°F)

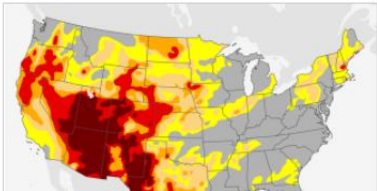
Average Monthly Temperature




Temperature Outlook for December 2020 based on 30 Nov 2020

Probability (percent chance)

Monthly Temperature Outlook





Browse the Dataset Gallery

This visual catalog with convenient filtering options can help you find the climate data you need. How-to instructions can help you navigate data access tools.

[Enter the Dataset Gallery](#)

GIS Data Locator (Advanced Users)

[Launch Map Application](#)

Climate Data Primer

Ready to learn some of the basics about climate data? Find out about measuring, modeling, and predicting climate and ways to find and use climate data.

The Primer includes information on instruments used to measure weather and climate; how weather observations relate to climate products; how climate scientists check

- National Weather Service
 - <http://weather.gov>
- Climate
 - <http://climate.gov>
- Climate Predication Center
 - <http://www.cpc.ncep.noaa.gov/>
- Community Collaborative Rain Hail Snow (CoCoRaHS)
 - <http://cocorahs.org/>

Contact Information

- Weather Data Library
- Department of Agronomy
- Kansas State University
- Manhattan, KS 66506
- PH: office (785) 532-7019
 - Cell (785) 313-1562
- E-mail: kansas-wdl@k-state.edu
- URL: mesonet.k-state.edu
- URL: climate.k-state.edu



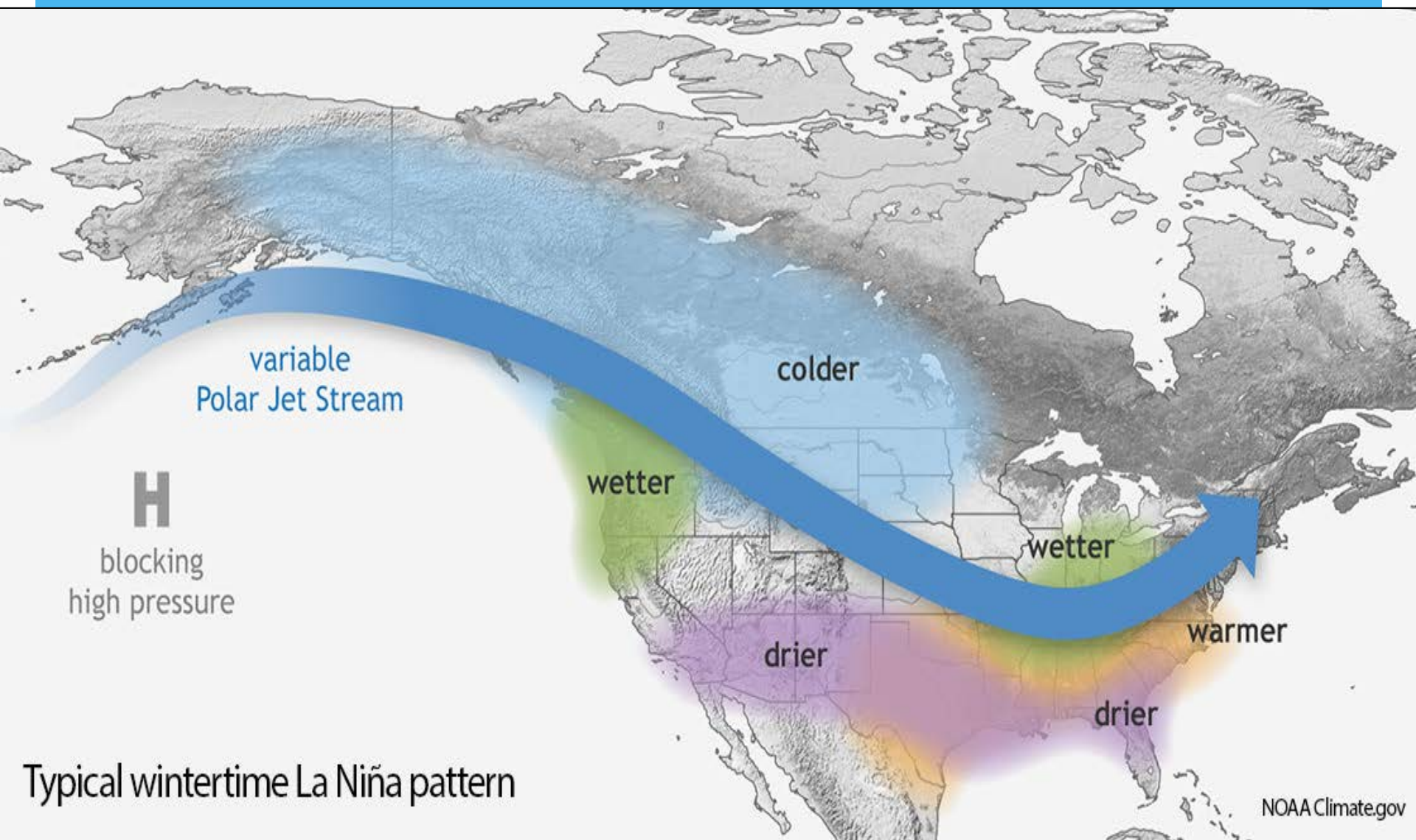
Kansas 2020-2021 Winter-Spring Climate Outlook

Doug Kluck
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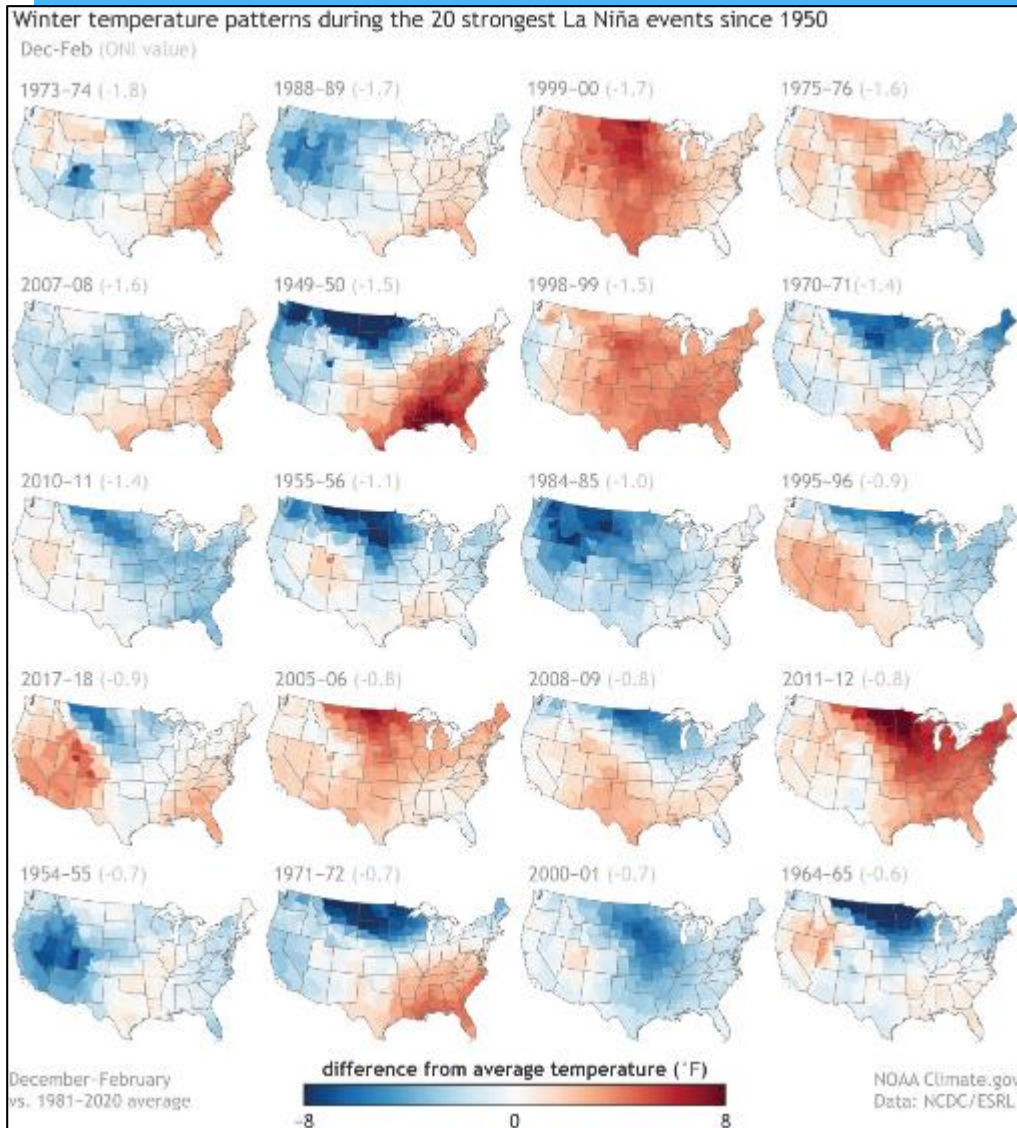
December 7th, 2020
For the Kansas Water Office



La Niña

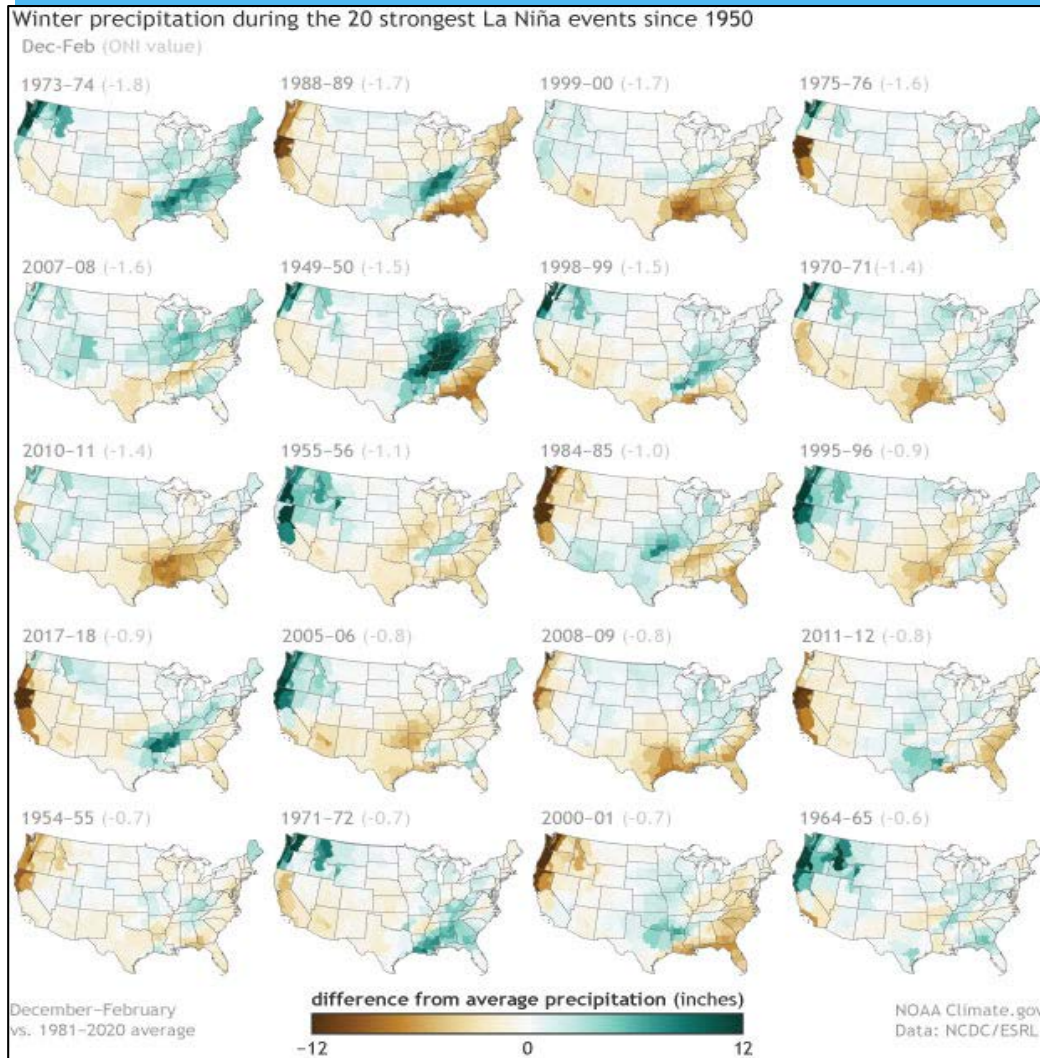


Winter Temperatures Patterns for Strongest La Niñas



- * Since 1950
- * Multitude of outcomes
- * Variability will rule
- * Falls tend to be dry and relatively warm
- * 2010-2011
- * 2011-2012
- * 2017-2018

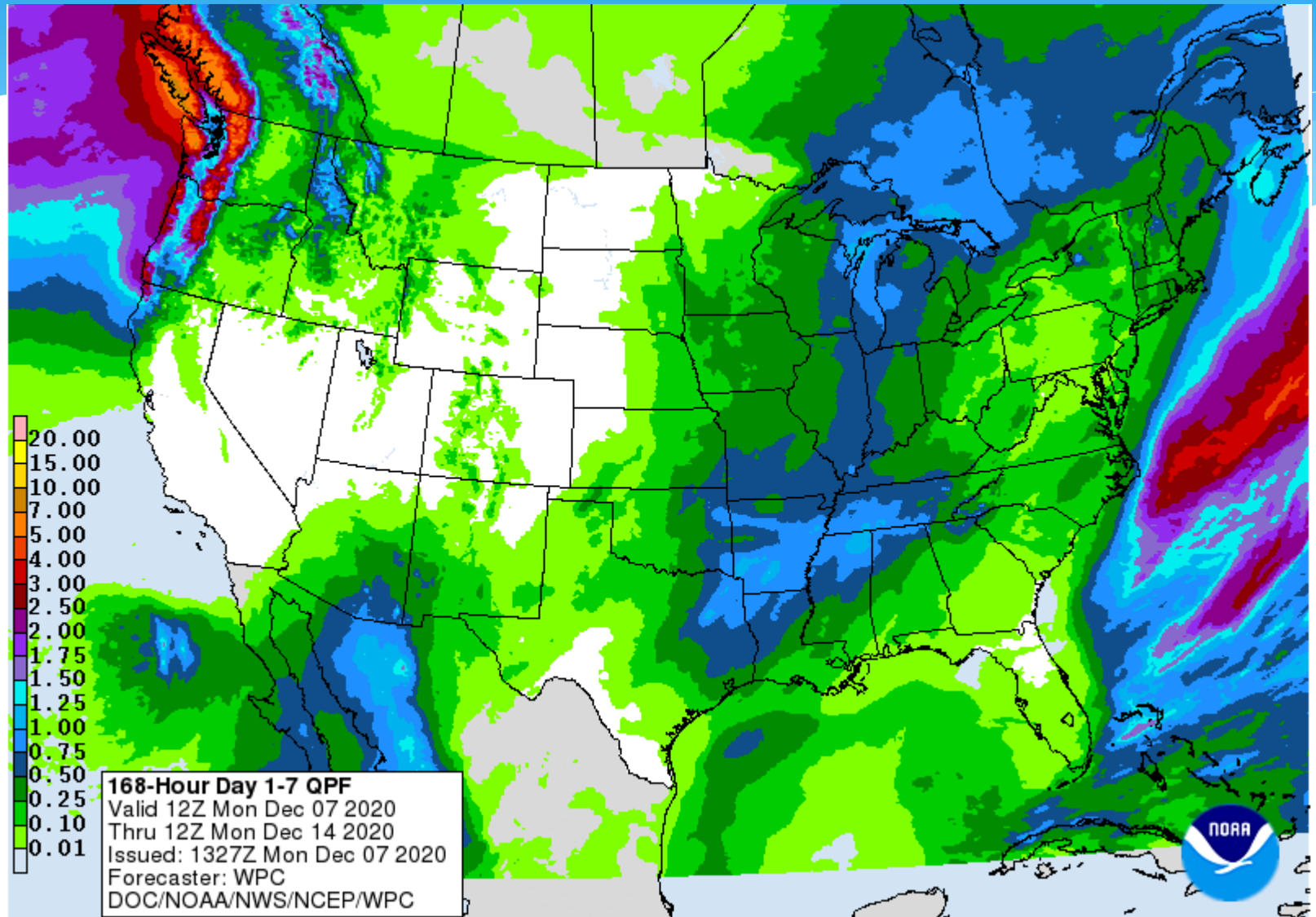
Winter Precipitation Patterns for Strongest La Niñas



- * Since 1950
- * Multitude of outcomes
- * Variability will rule
- * Falls tend to be dry and relatively warm
- * 2010-2011
- * 2011-2012
- * 2017-2018

7 Day Accumulated Precipitation

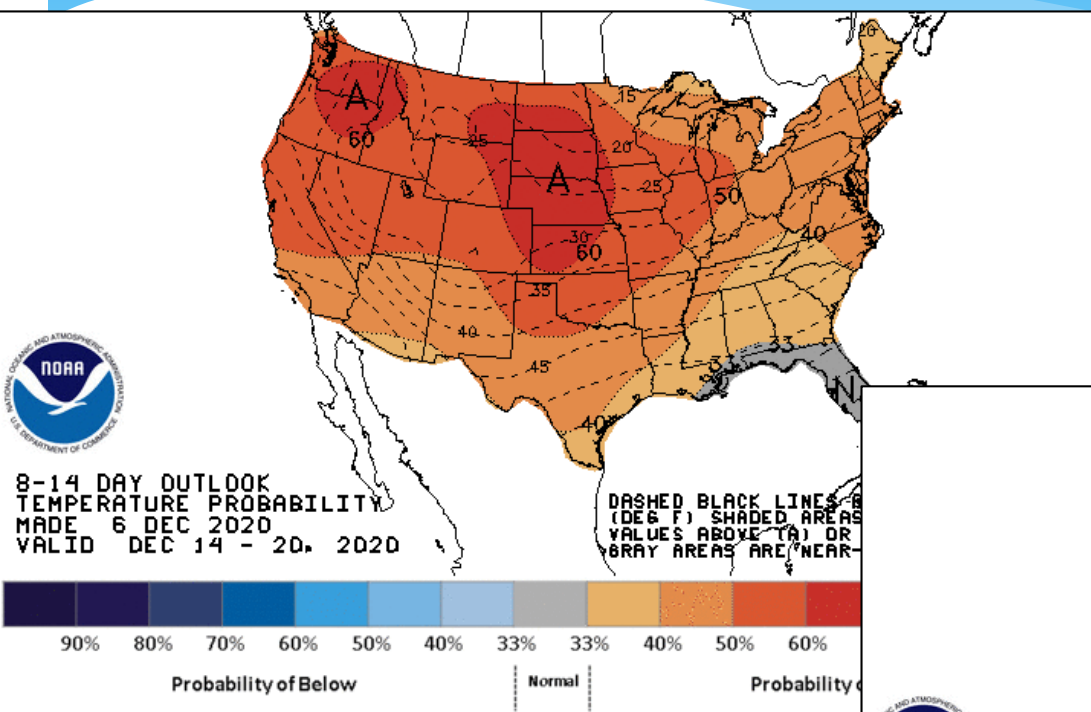
December 7 -14, 2020



<https://www.wpc.ncep.noaa.gov/qpf/p168i.gif?1607118018>

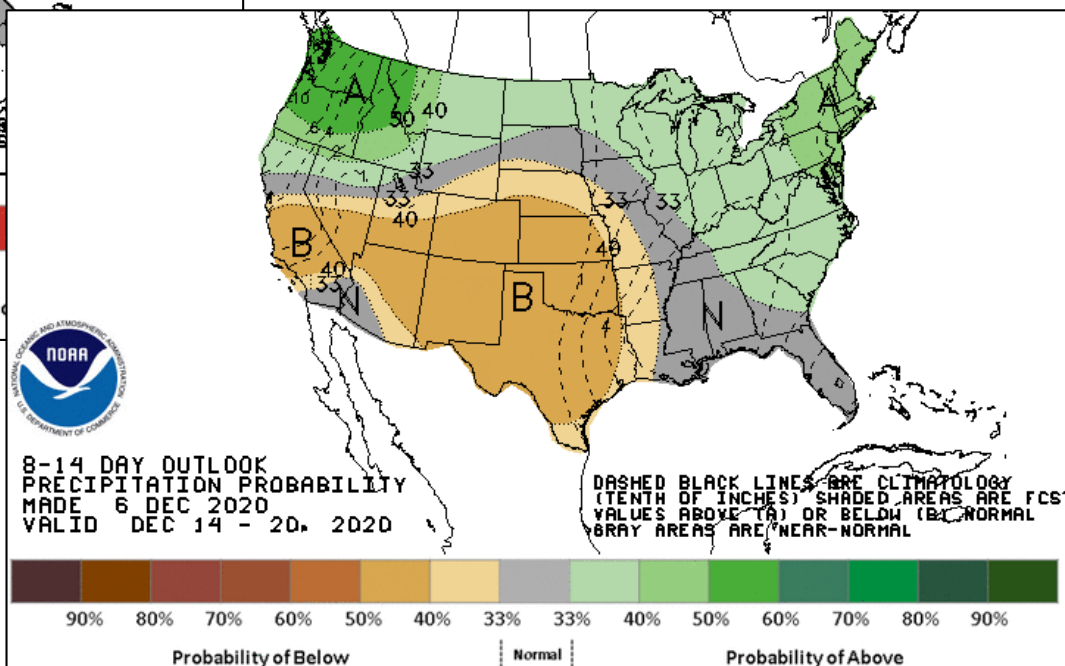
Week 2 Outlook

December 14-20



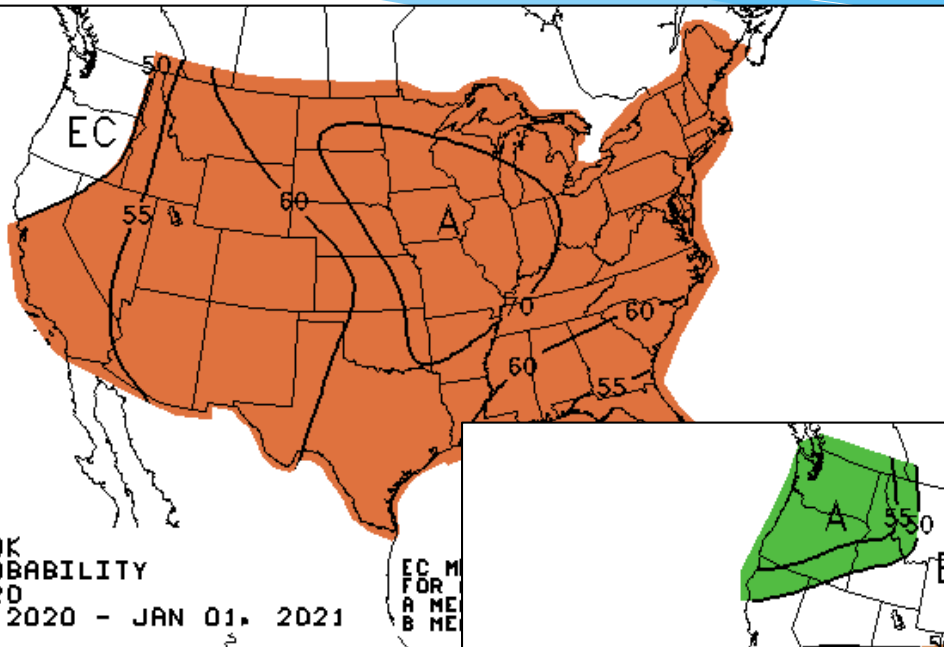
Temperature

Precipitation

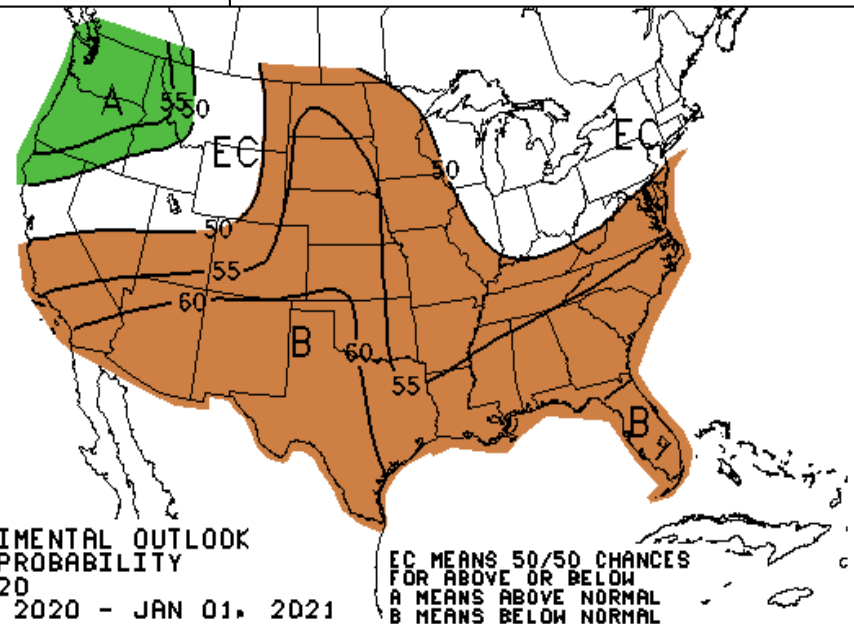


Temperature and Precipitation

Weeks 3 & 4 (12/19/20 – 1/1/21)



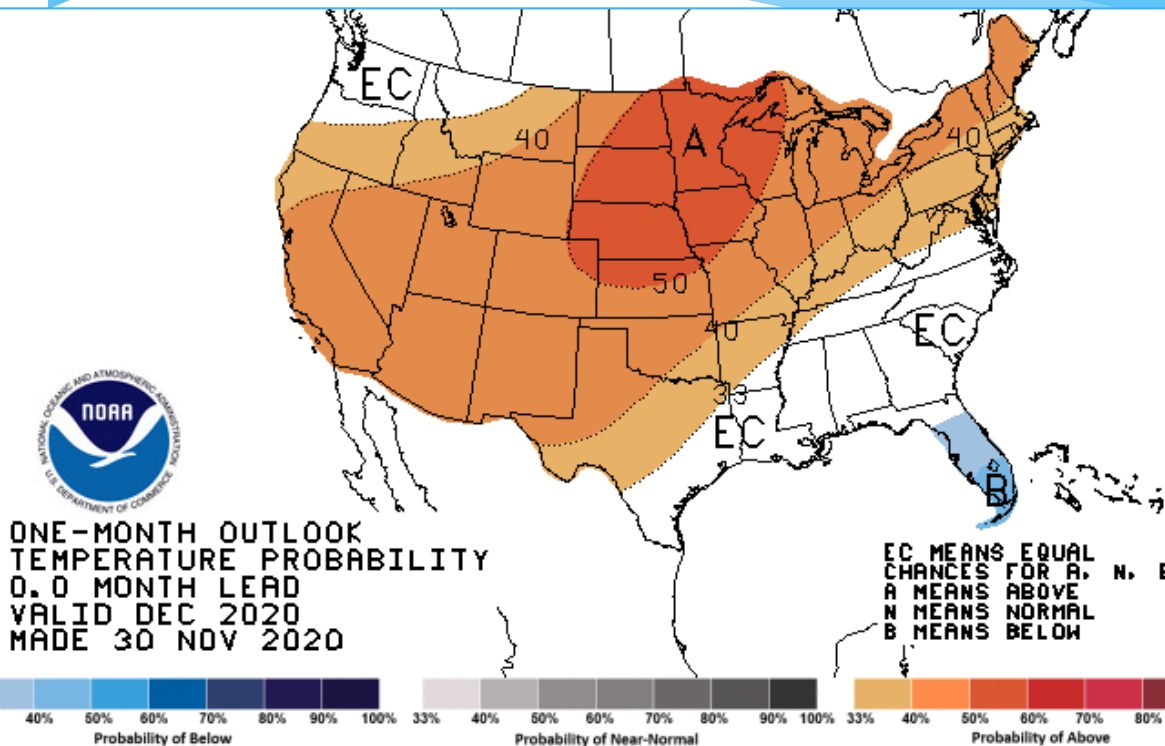
Precipitation



Temperature

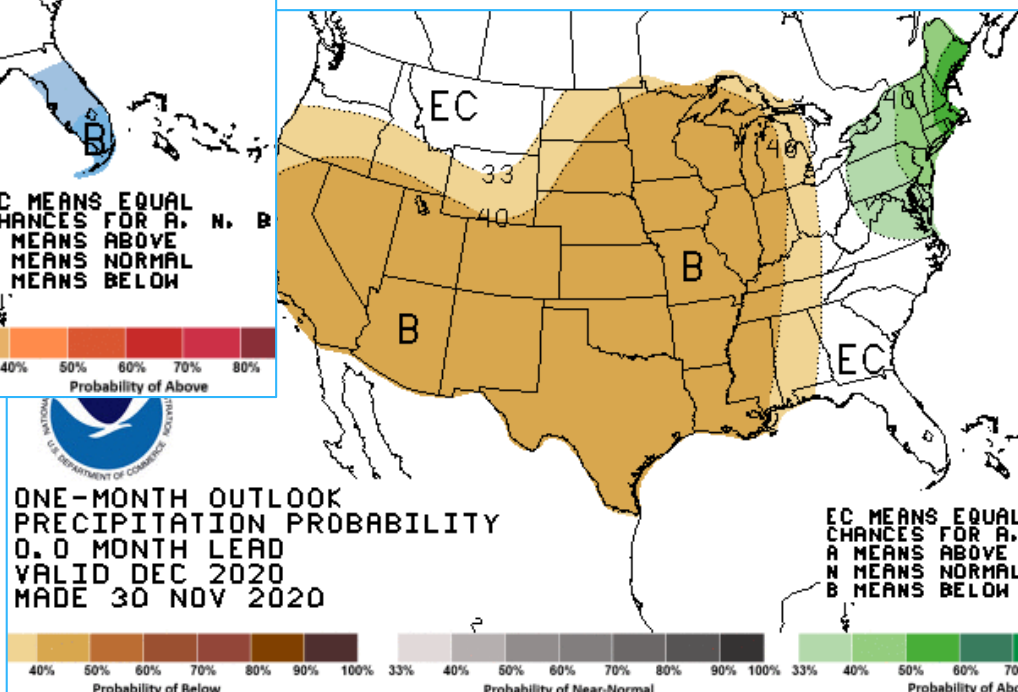
December 2020

Temperature & Precipitation Outlook

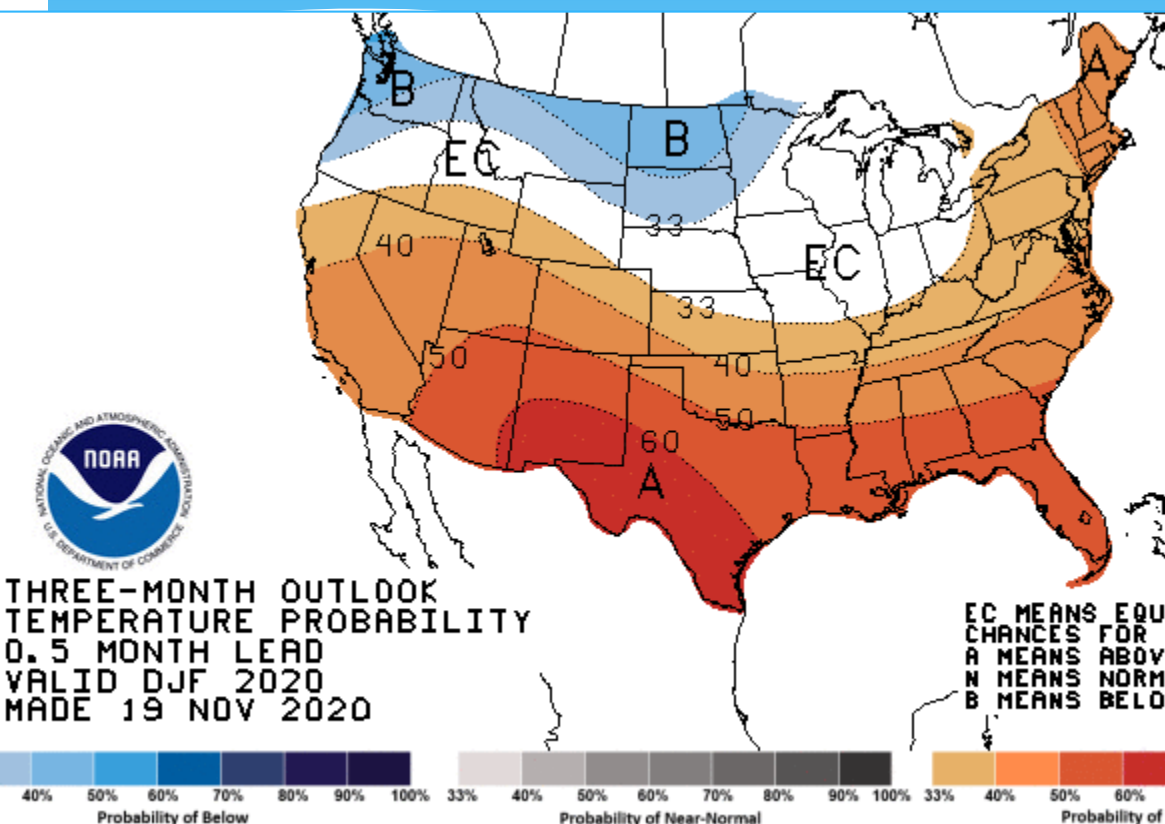


Temperature

Precipitation

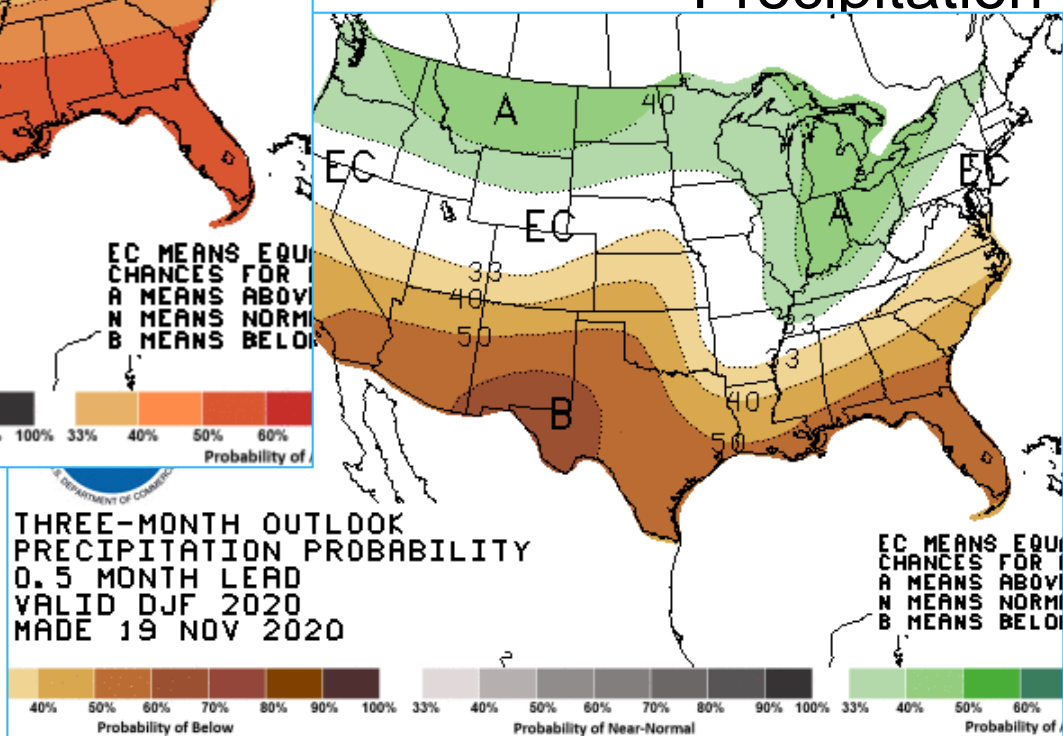


December 2020 – February 2021 Temperature & Precipitation Outlook



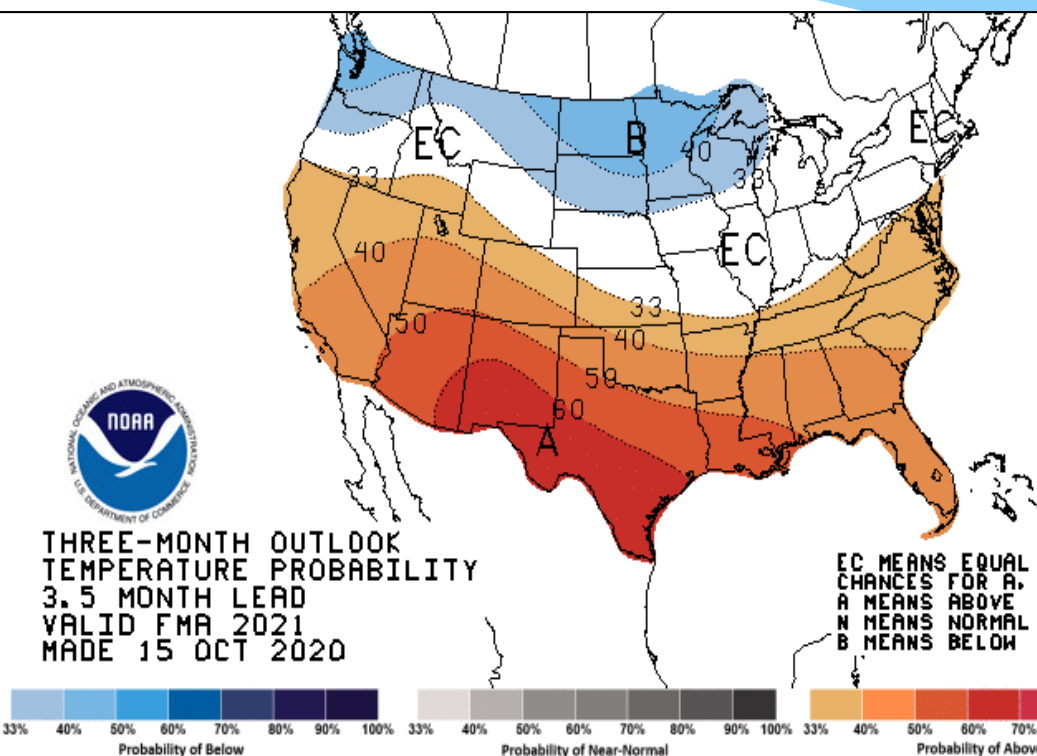
Temperature

Precipitation



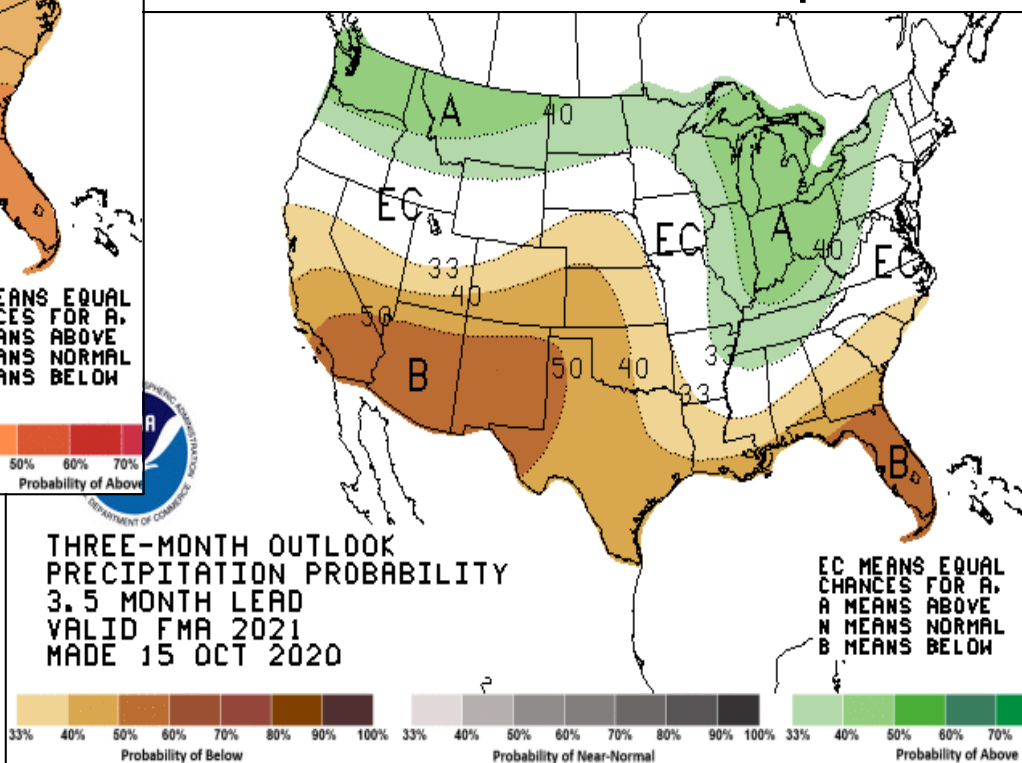
February - April 2021

Temperature & Precipitation Outlook



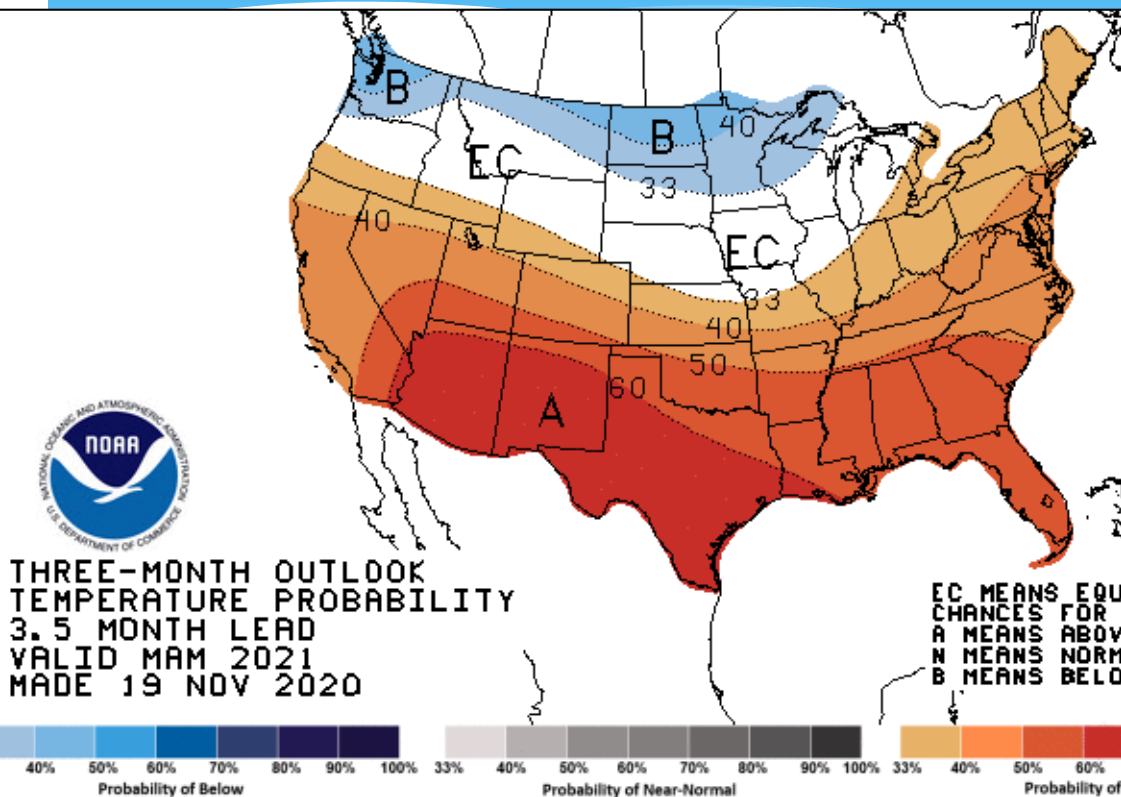
Temperature

Precipitation



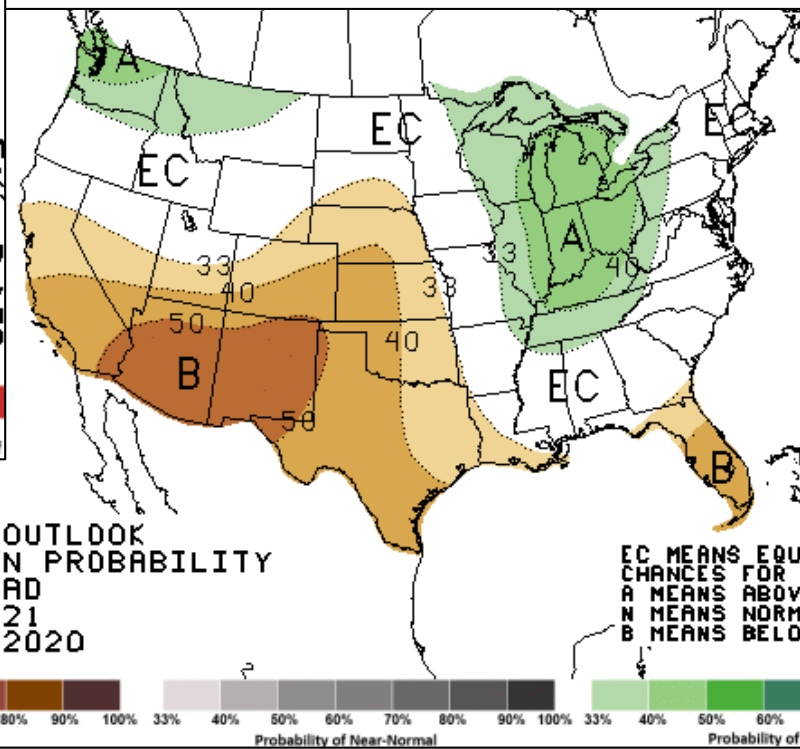
March - May 2021

Temperature & Precipitation Outlook



Temperature

Precipitation



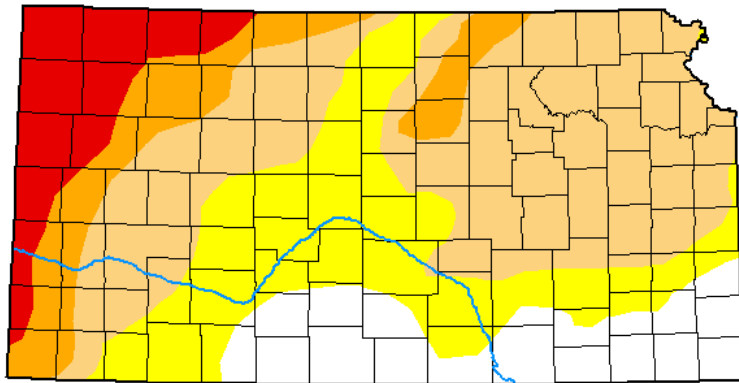
Drought Conditions

U.S. Drought Monitor Kansas

December 1, 2020
(Released Thursday, Dec. 3, 2020)
Valid 7 a.m. EST

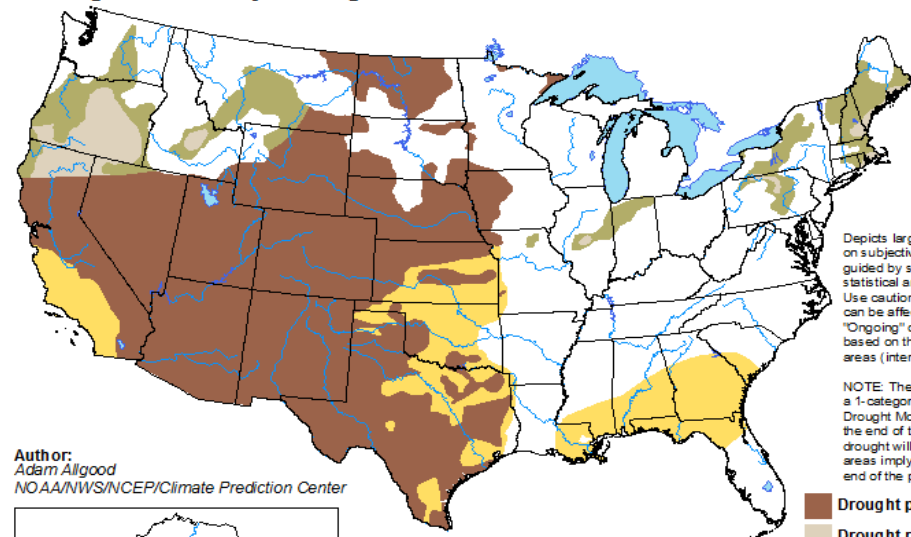
Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.76	85.24	60.55	20.47	10.01	0.00
Last Week 11-24-2020	12.80	87.20	69.02	25.85	9.50	0.00
3 Months Ago						

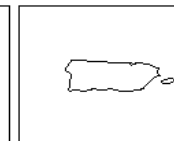
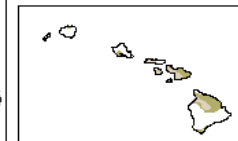


U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for November 19, 2020 - February 28, 2021
Released November 19, 2020



Author:
Adam Allgood
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>



Key Points

- * **Current Conditions**

- * **Dry**
- * **Strong “La Niña” ongoing, probably through spring 2021**

- * **Outlook**

- * **Temperatures: leans warm (short and long term)**
- * **Precipitation: leans dry (short and long term)**
 - * **Tendency for more southern-central plains dryness in late winter into spring**
- * **La Niñas tend to be quite variable with big swings**
 - * **Stay tuned ... changes are inevitable over the next few months**

Thank You



**Next NOAA State & Regional
Partners Climate Webinar on
December 17th, 1:00 pm CT**

Sign up here:

**[https://attendee.gotowebinar.com
/register/7528179497868100876](https://attendee.gotowebinar.com/register/7528179497868100876)**

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