

NE Drought Conditions CARC Update: November 22, 2016

Brian Fuchs
National Drought Mitigation Center
University of Nebraska-Lincoln
School of Natural Resources



Current Conditions around Nebraska and the region...

National Drought Mitigation Center



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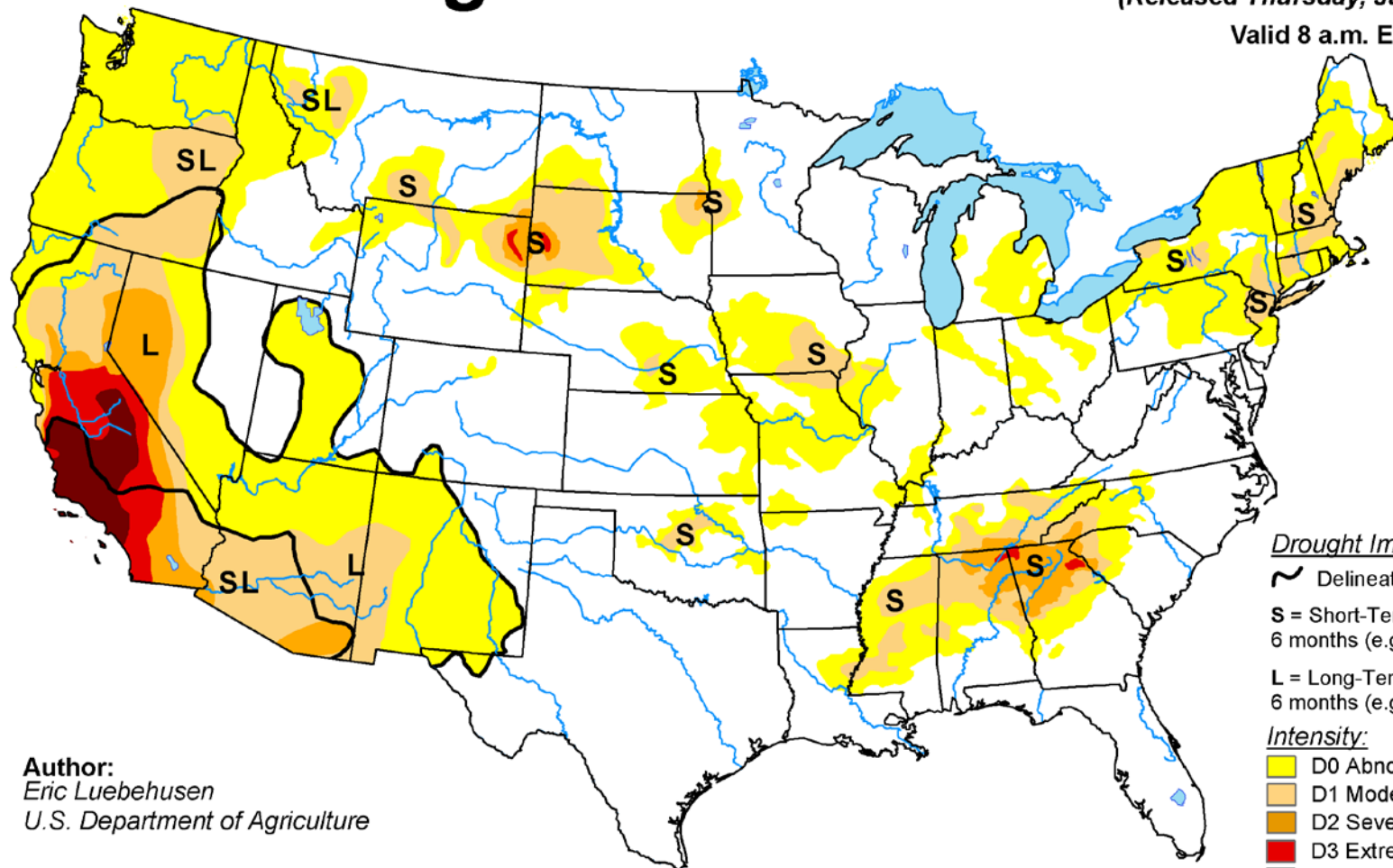


U.S. Drought Monitor

June 28, 2016

(Released Thursday, Jun. 30, 2016)

Valid 8 a.m. EDT



Author:
Eric Luebehusen
U.S. Department of Agriculture

Drought Impact Types:

~ Delineates dominant impacts

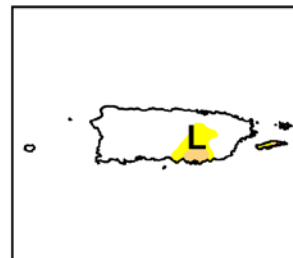
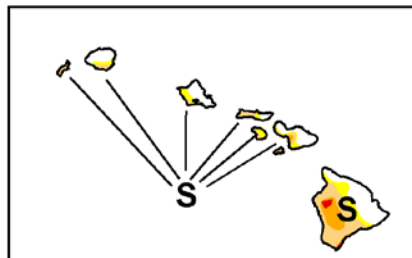
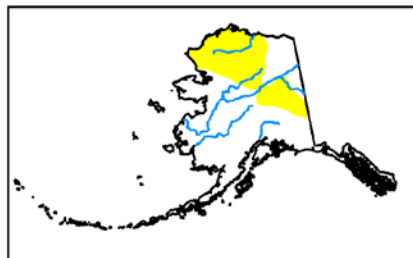
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- Yellow D0 Abnormally Dry
- Light Orange D1 Moderate Drought
- Medium 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.



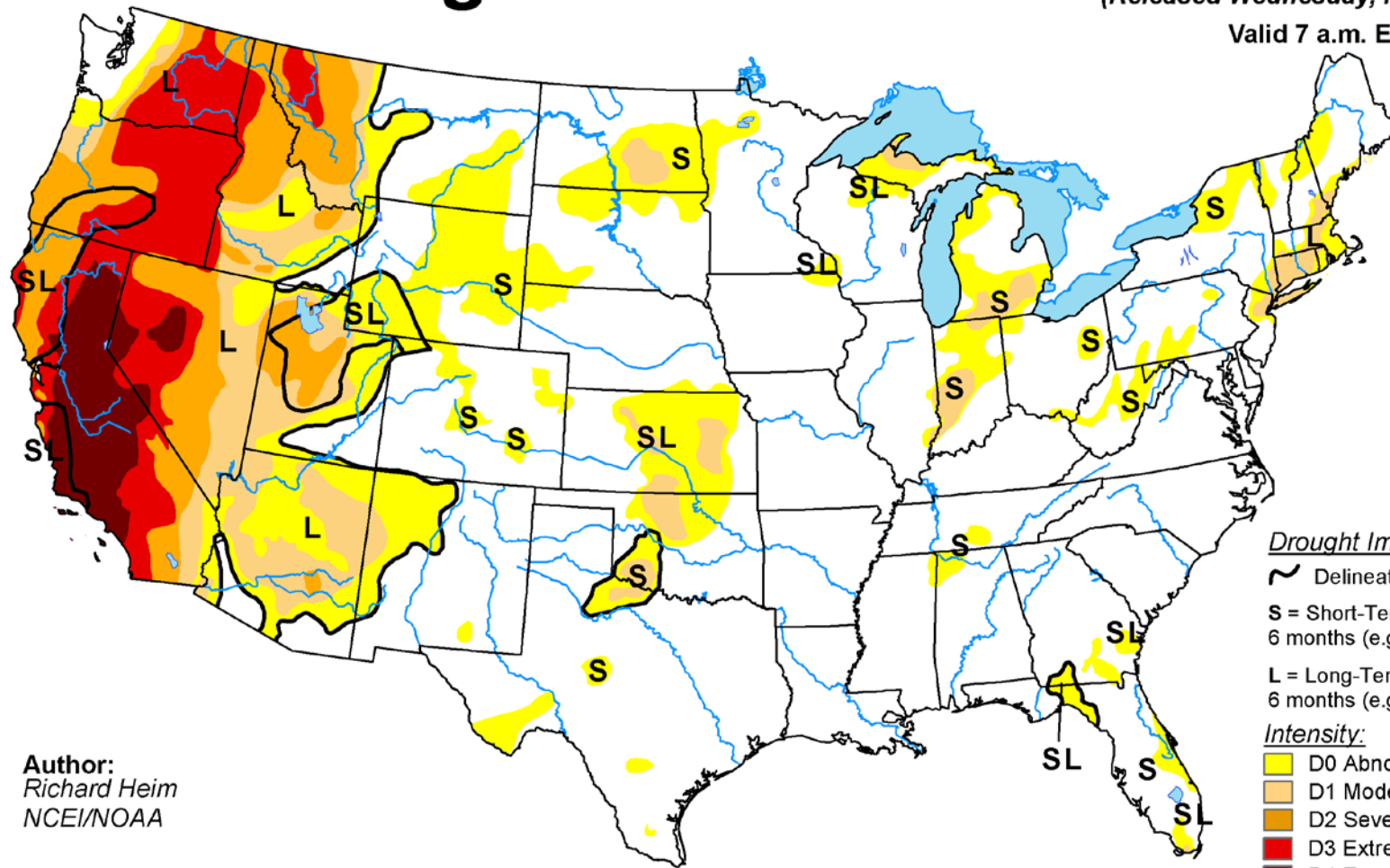
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

November 24, 2015

(Released Wednesday, Nov. 25, 2015)

Valid 7 a.m. EST



Author:
Richard Heim
NCEI/NOAA

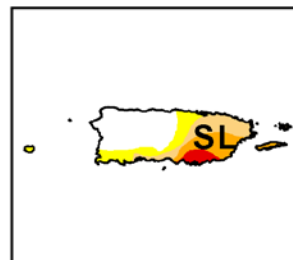
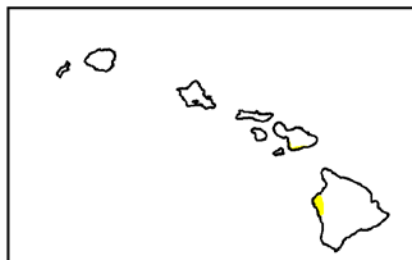
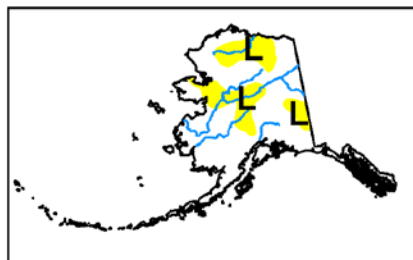
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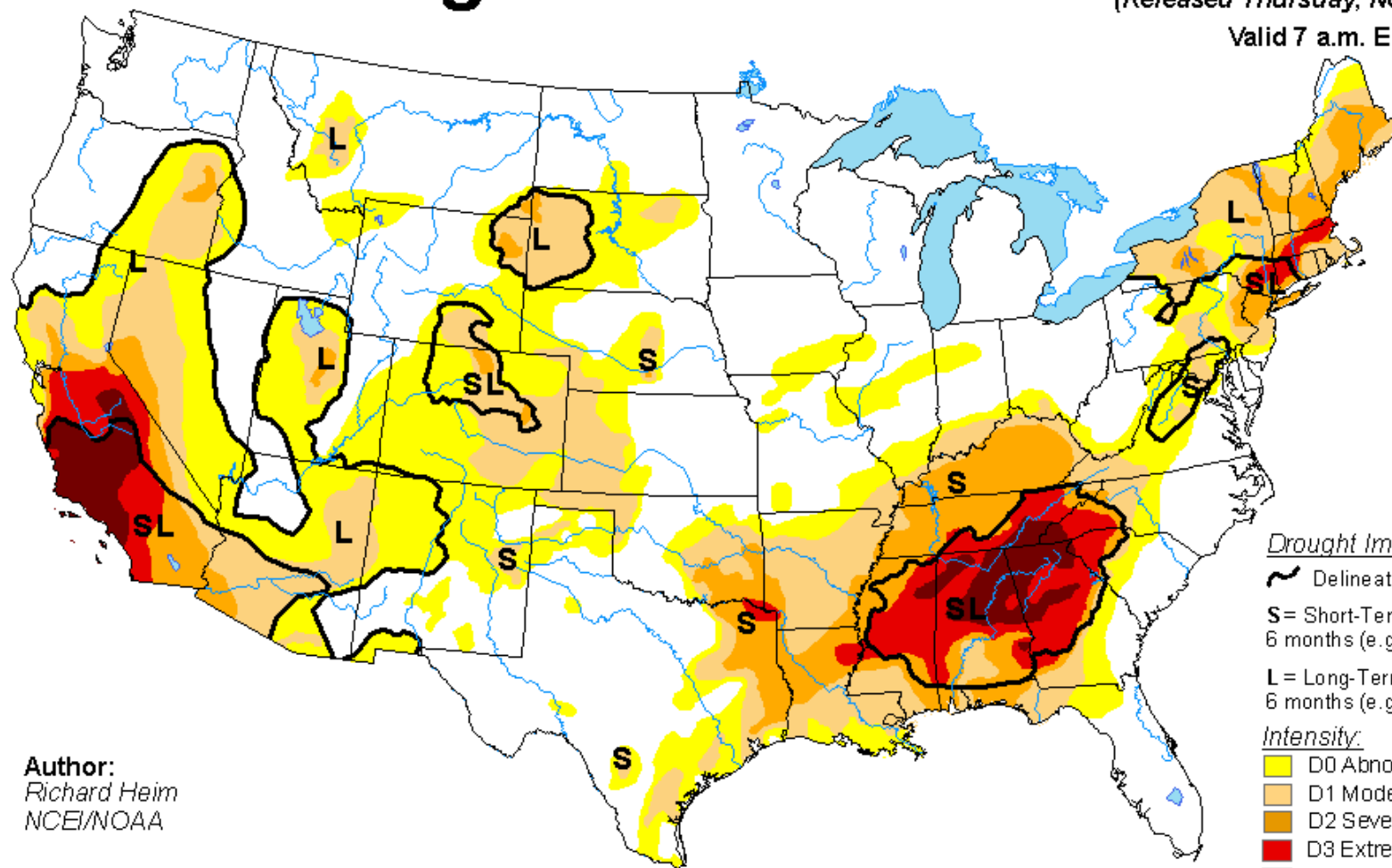
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

November 15, 2016

(Released Thursday, Nov. 17, 2016)

Valid 7 a.m. EST



Author:
Richard Heim
NCEI/NOAA

Drought Impact Types:

~ Delineates dominant impacts

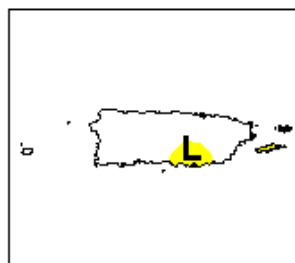
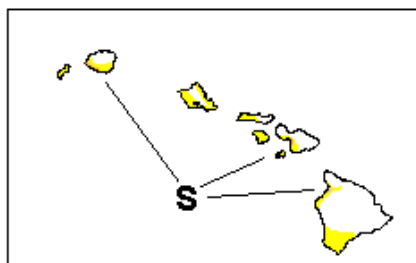
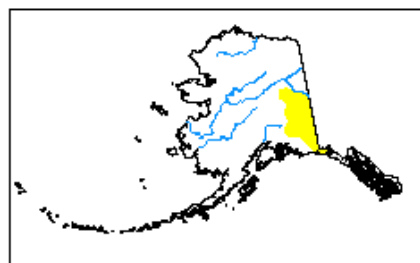
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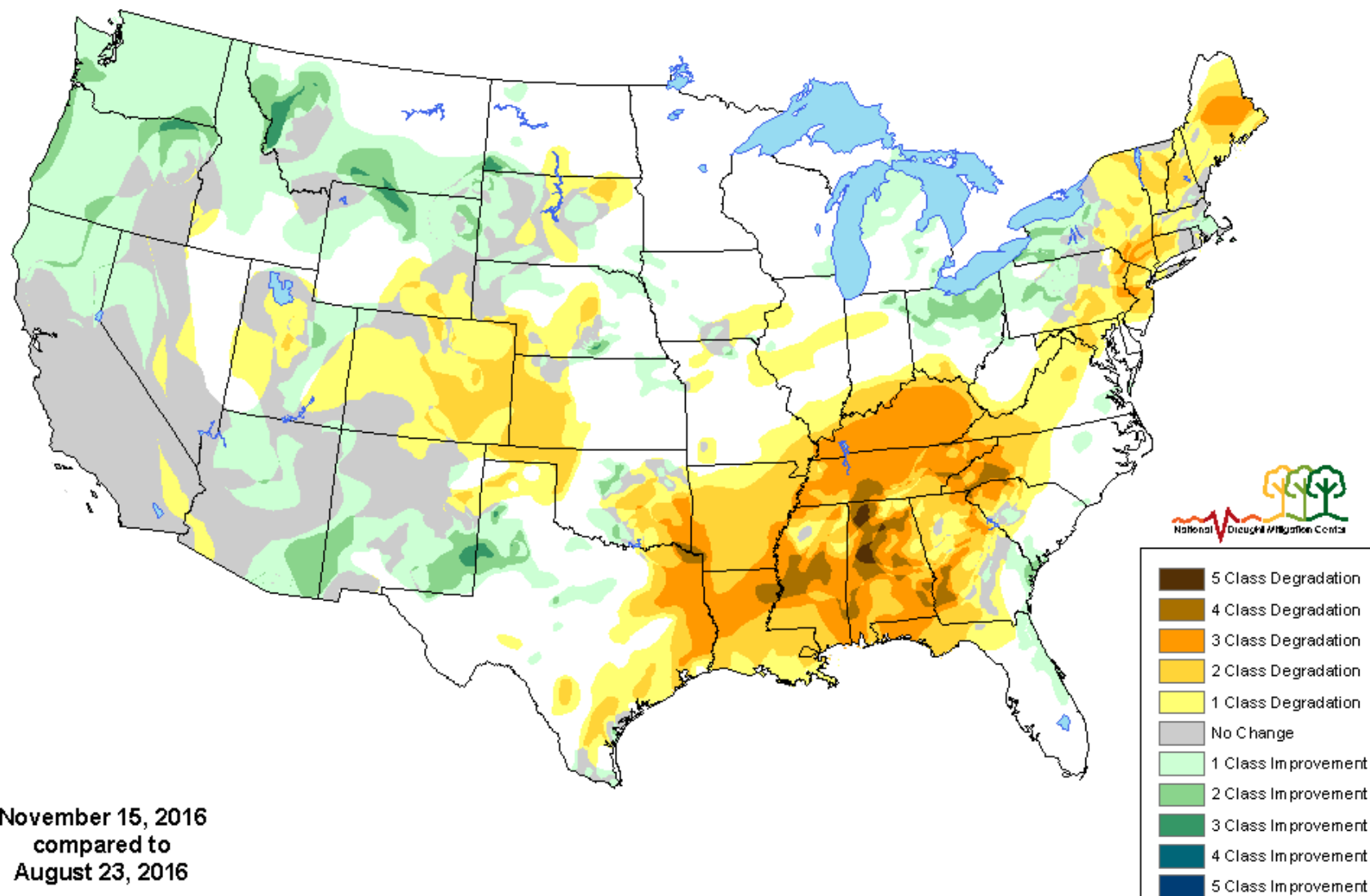
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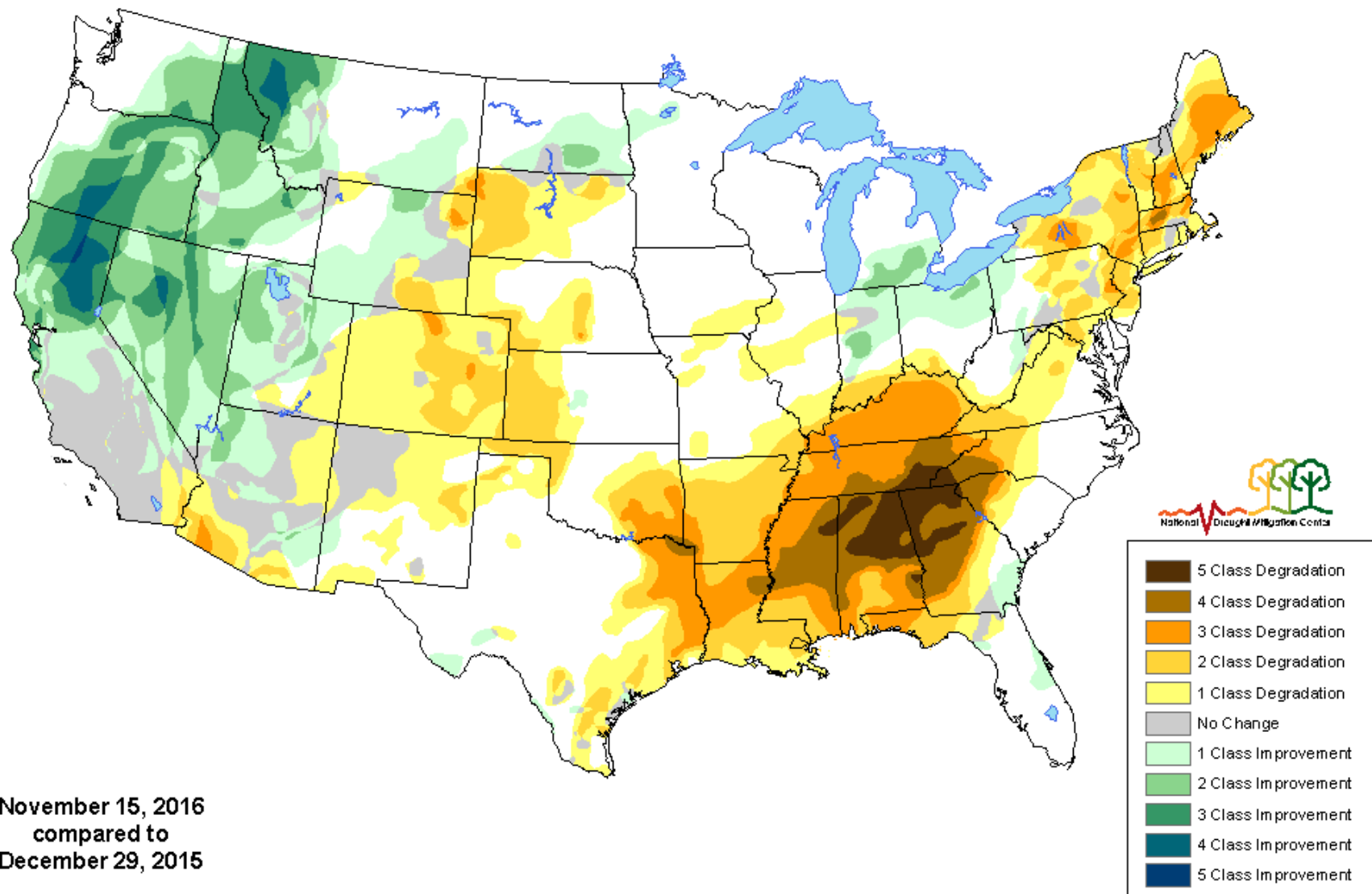
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor Class Change 3 Months

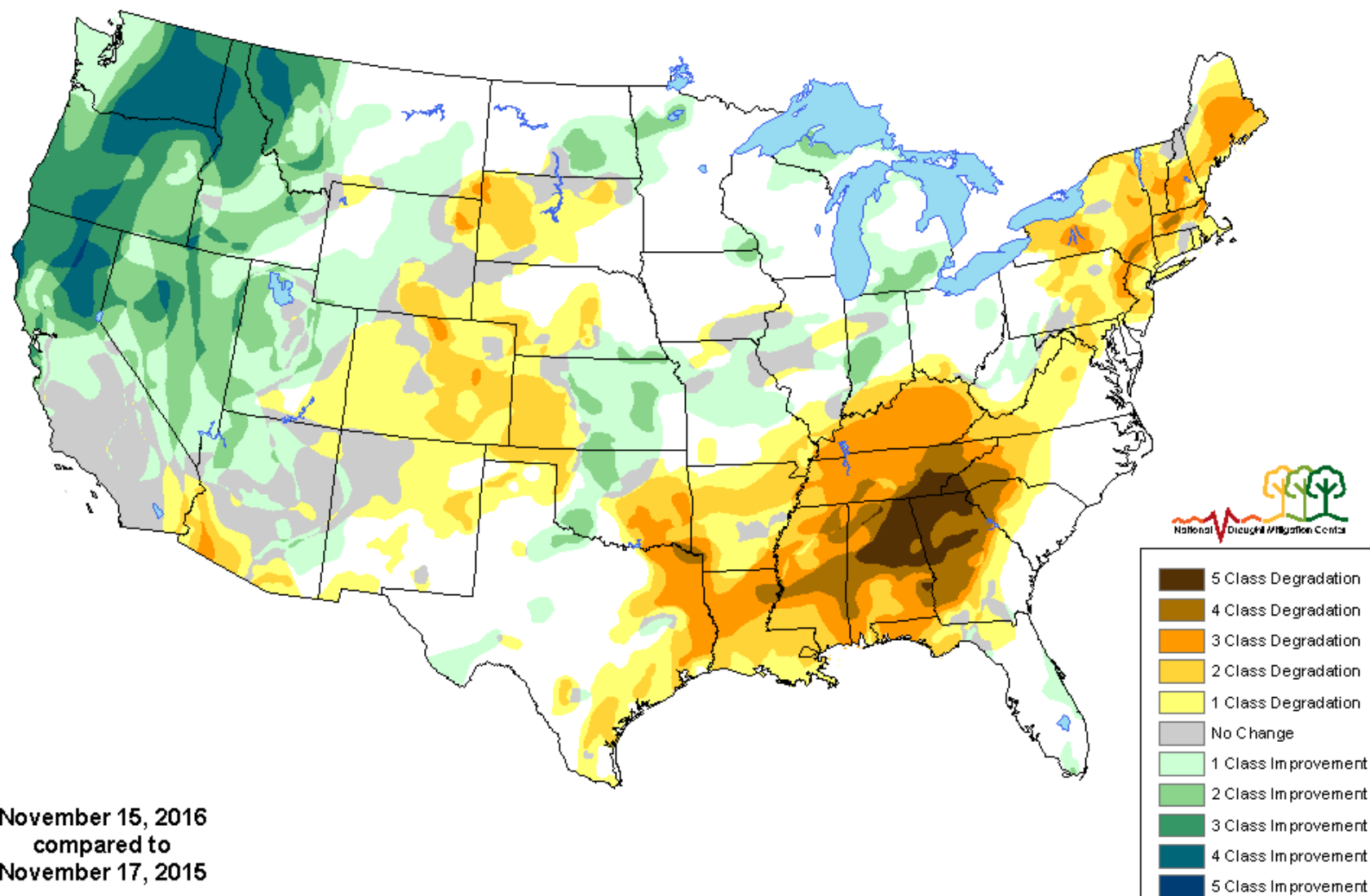


November 15, 2016
compared to
August 23, 2016

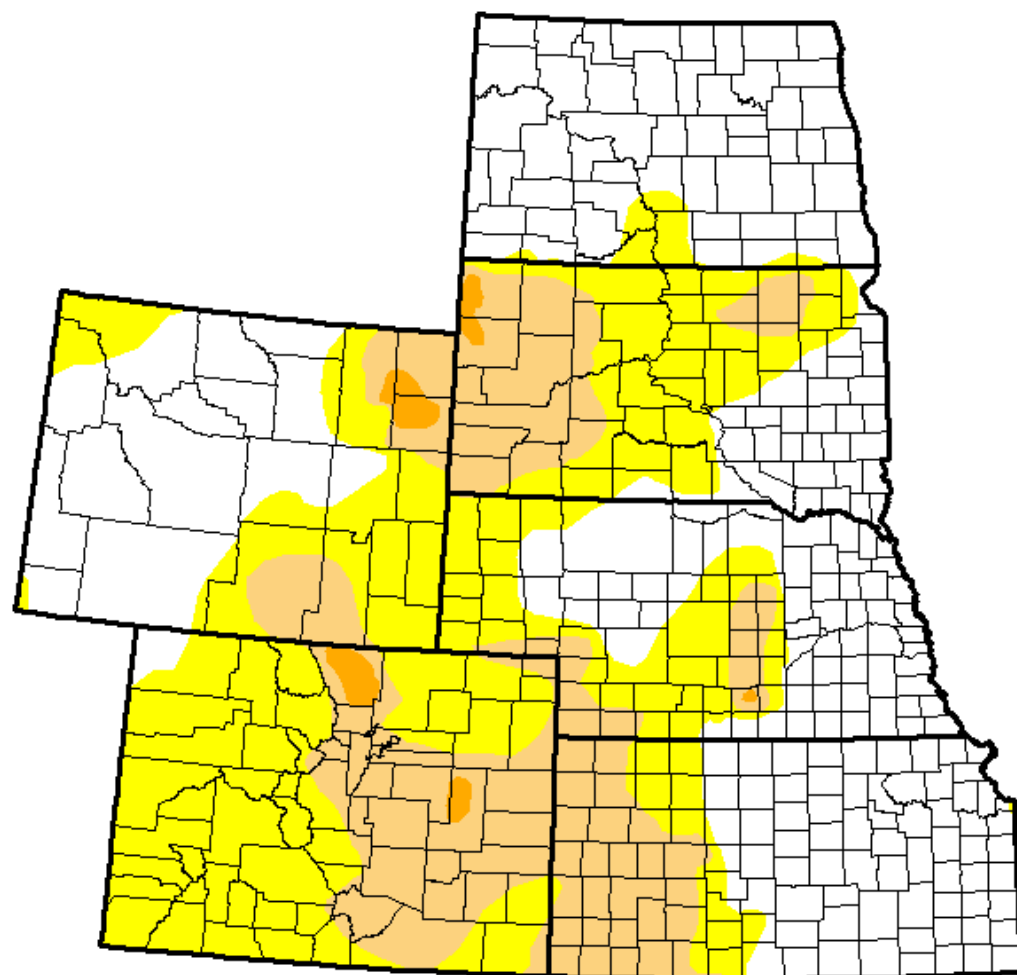
U.S. Drought Monitor Class Change Start of Calendar Year



U.S. Drought Monitor Class Change 1 Year



U.S. Drought Monitor High Plains



November 15, 2016
(Released Thursday, Nov. 17, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	46.78	53.22	20.66	1.00	0.00	0.00
Last Week 11/8/2016	49.19	50.81	15.13	0.56	0.00	0.00
3 Months Ago 8/16/2016	63.70	36.30	11.48	3.98	1.14	0.00
Start of Calendar Year 12/29/2015	78.82	21.18	1.58	0.00	0.00	0.00
Start of Water Year 9/27/2016	70.86	29.14	8.66	2.68	0.17	0.00
One Year Ago 11/17/2015	62.15	37.85	4.09	0.00	0.00	0.00

Intensity:

 D0 Abnormally Dry	 D3 Extreme Drought
 D1 Moderate Drought	 D4 Exceptional Drought
 D2 Severe Drought	

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

Author:
Richard Heim
NCEI/NOAA



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

United States Drought Monitor

[Home](#) > [Maps And Data](#) > Weekly Comparison

[Login](#)

U.S. Drought Monitor Weekly Comparison

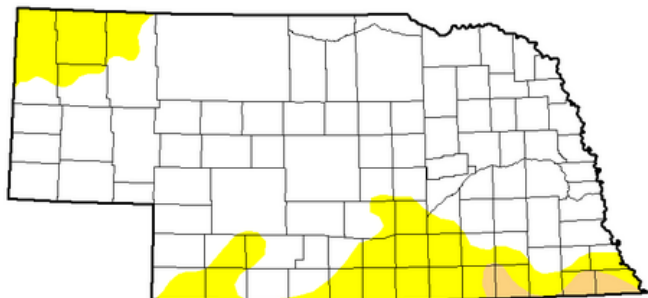
State

Nebraska

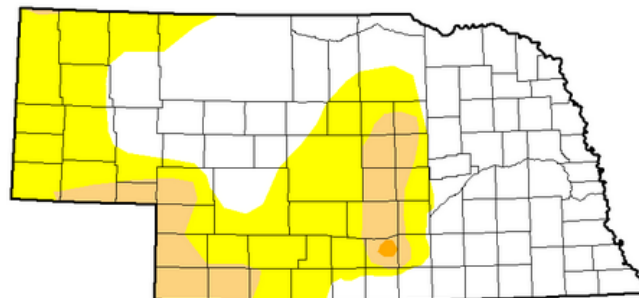
Statistics type:

Traditional Percent Area

Legend



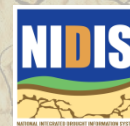
November 17, 2015



November 15, 2016

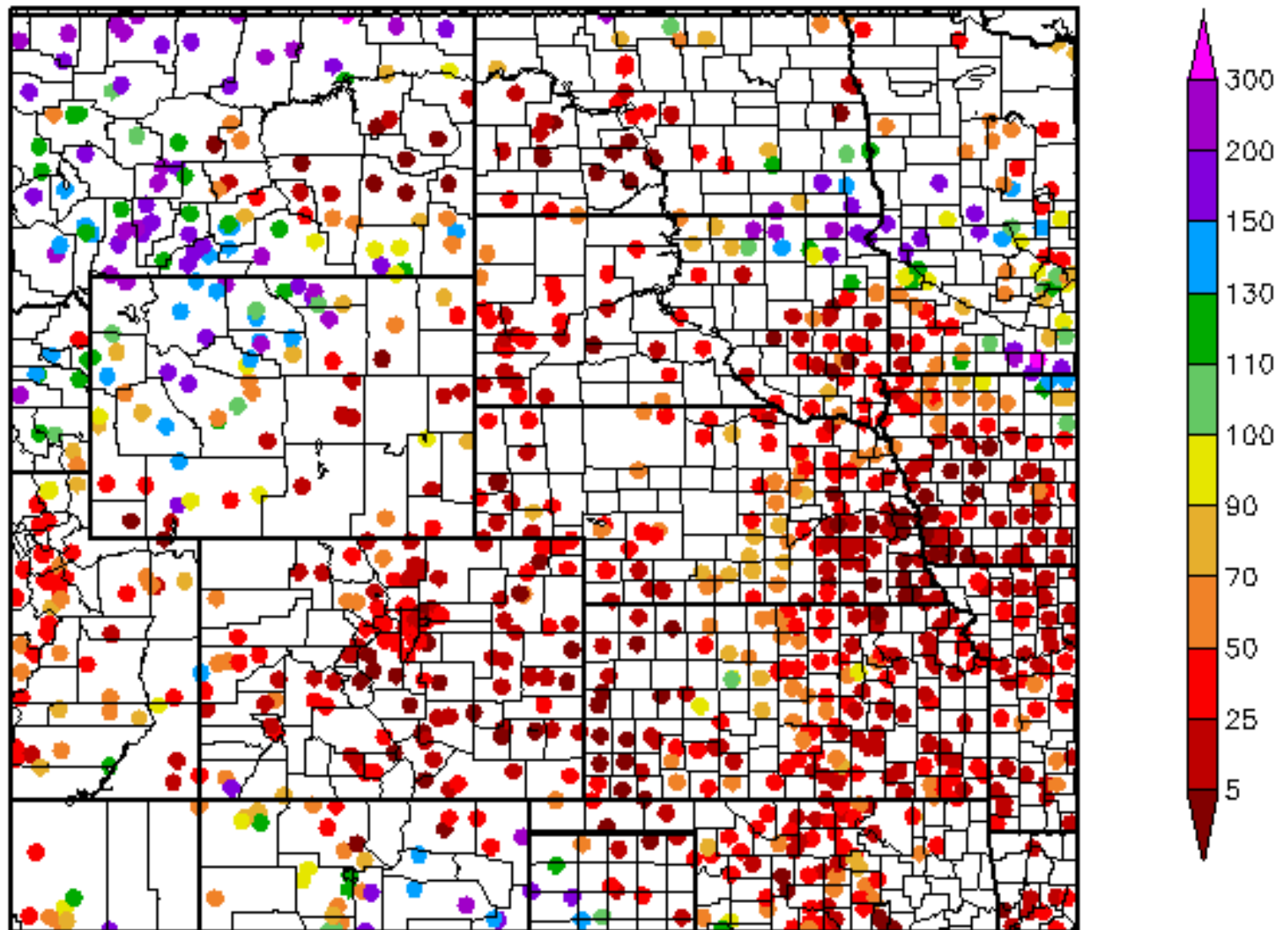
Statistics Comparison

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2015-11-17	80.22	19.78	1.69	0.00	0.00	0.00
2016-11-15	56.06	43.94	10.68	0.16	0.00	0.00


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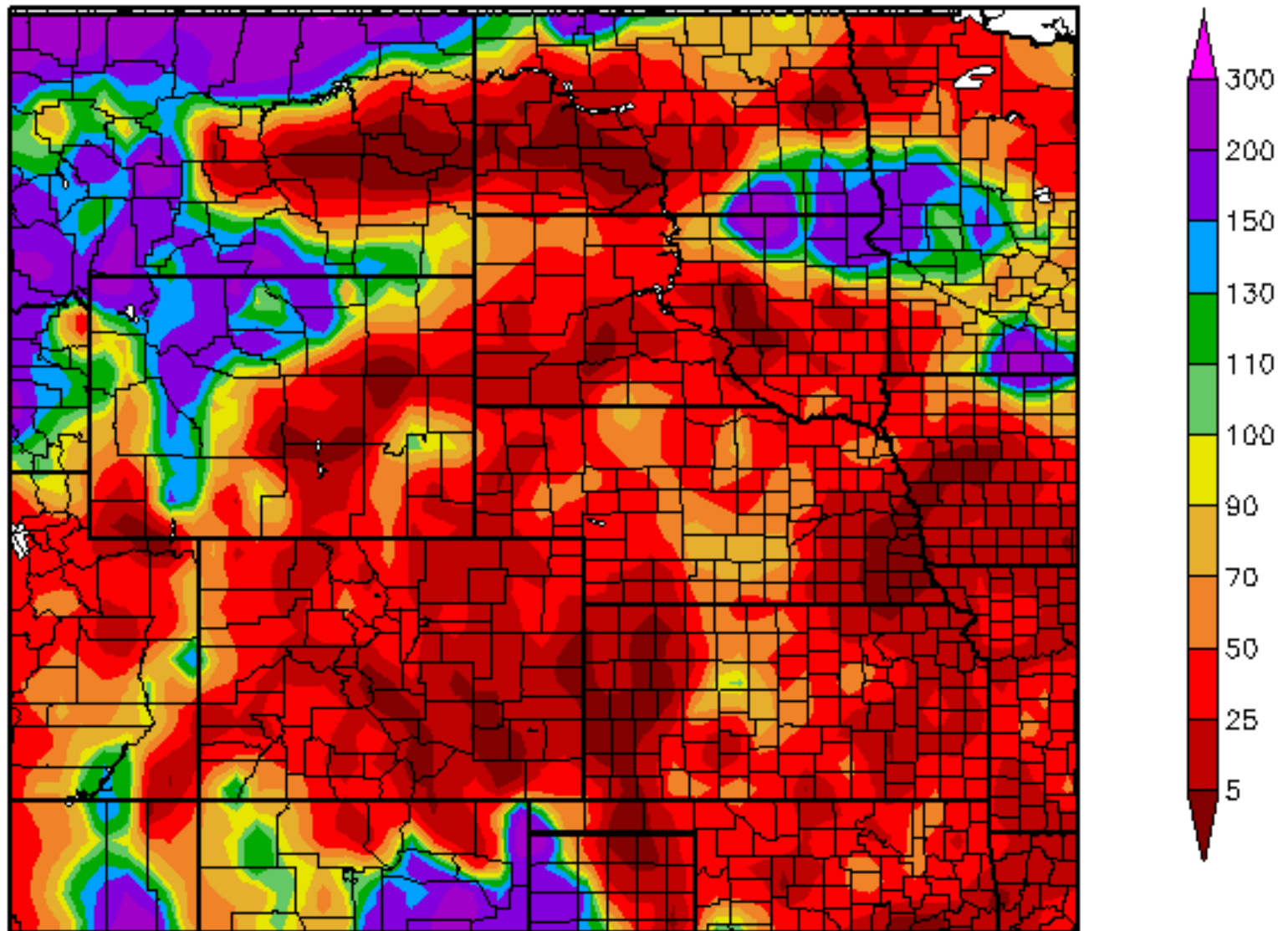

Percent of Normal Precipitation (%)

10/22/2016 – 11/20/2016



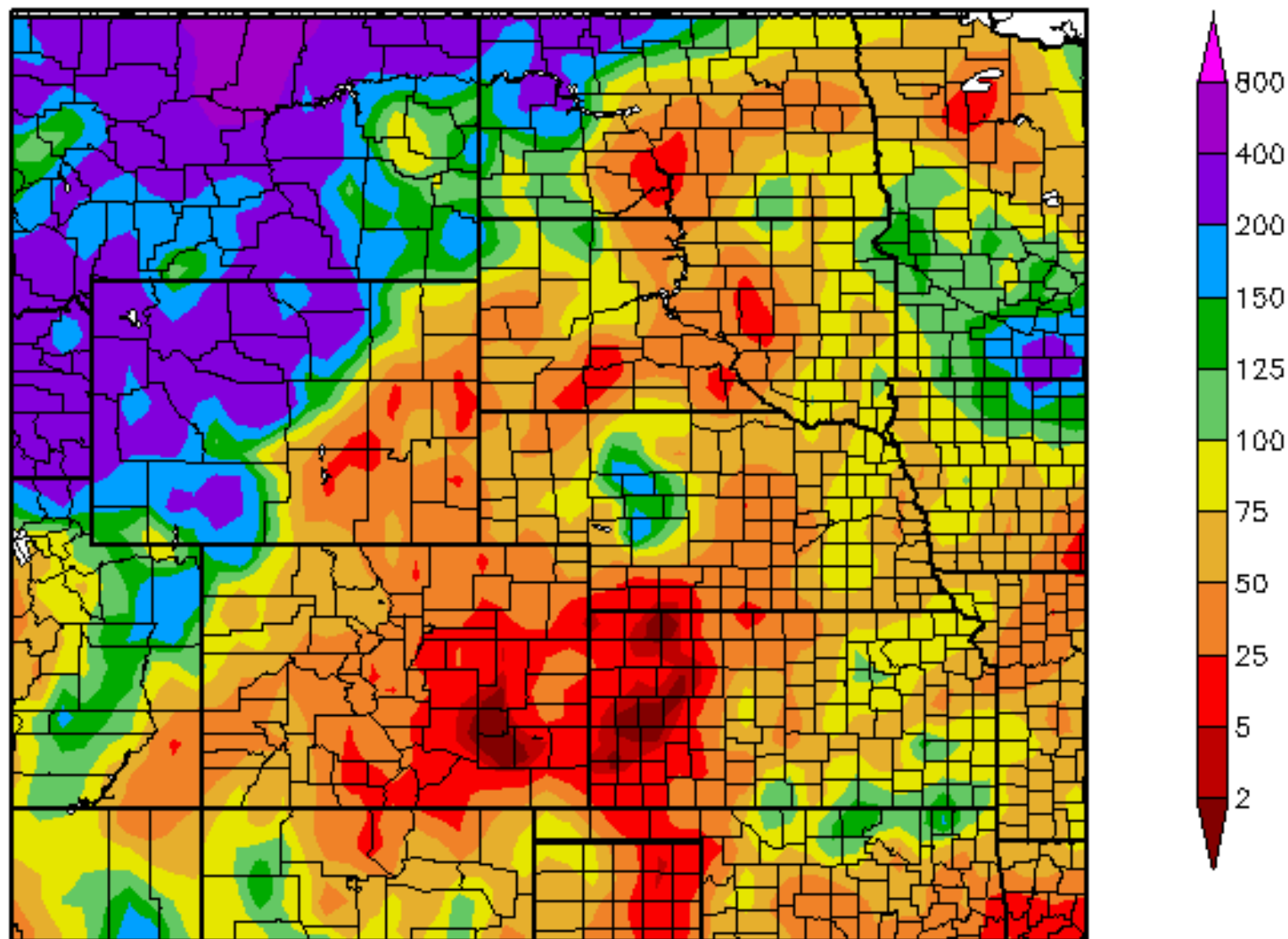
Percent of Normal Precipitation (%)

10/22/2016 – 11/20/2016

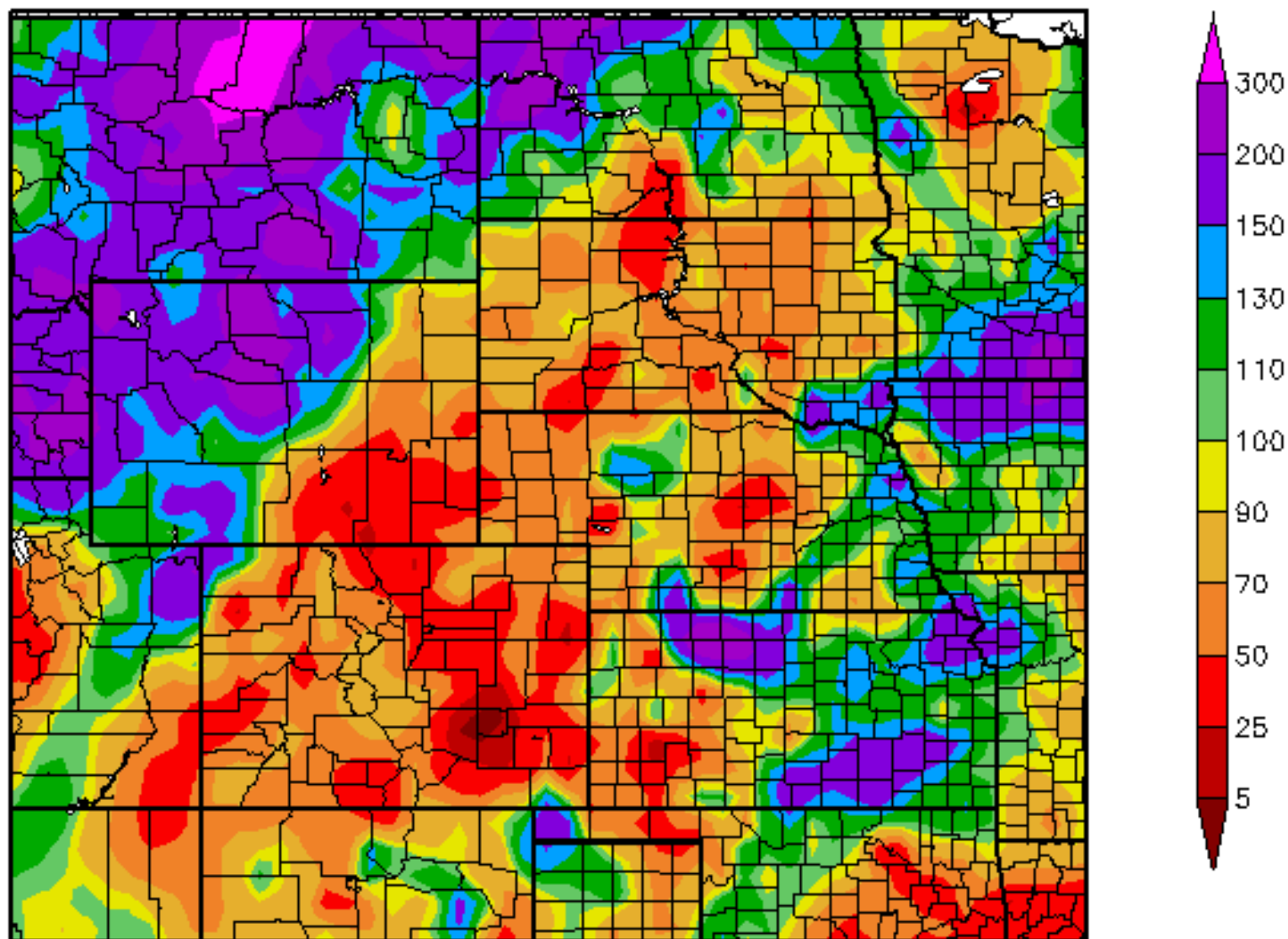


Percent of Normal Precipitation (%)

9/22/2016 – 11/20/2016

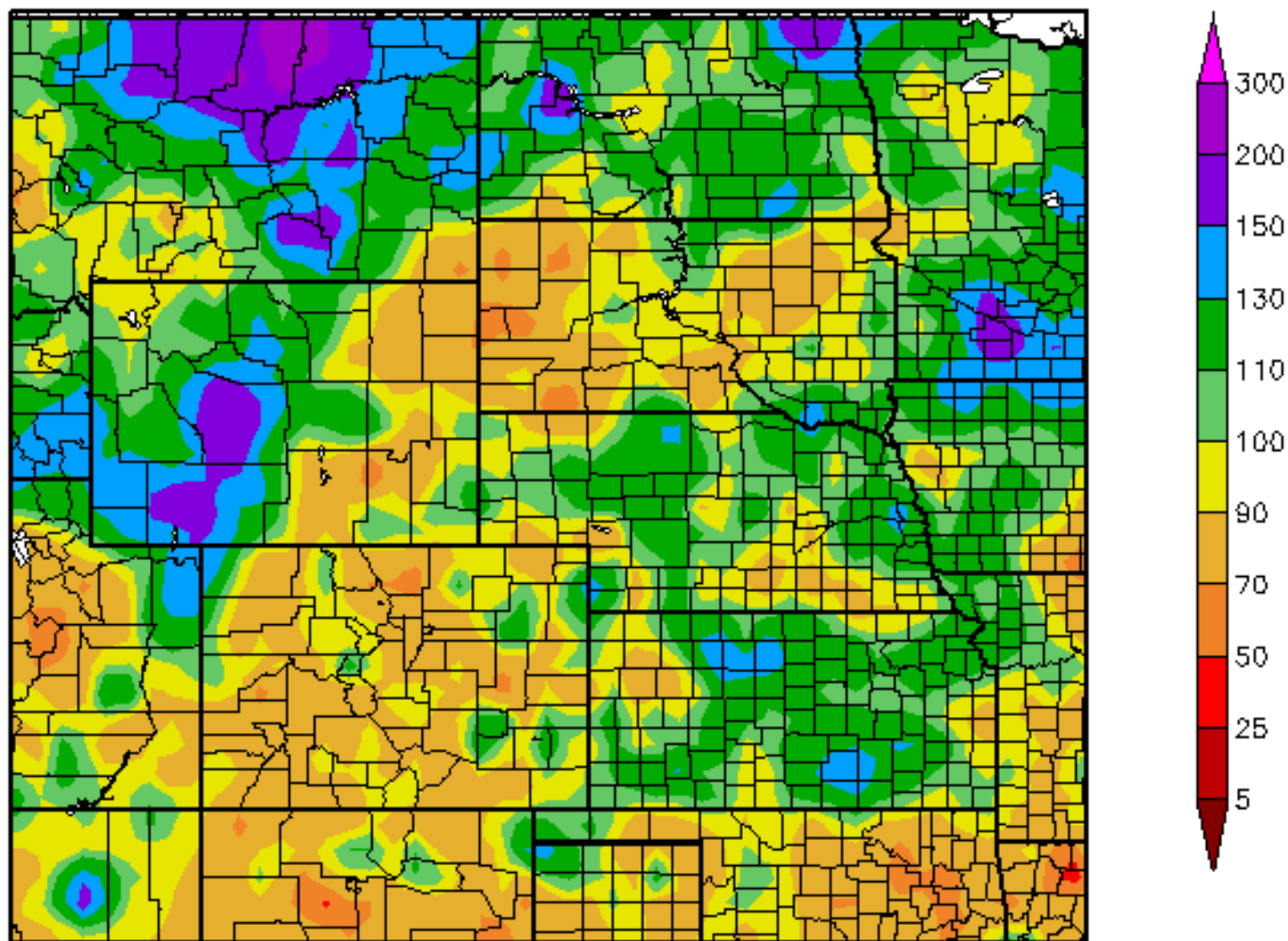


Percent of Normal Precipitation (%)
8/23/2016 – 11/20/2016

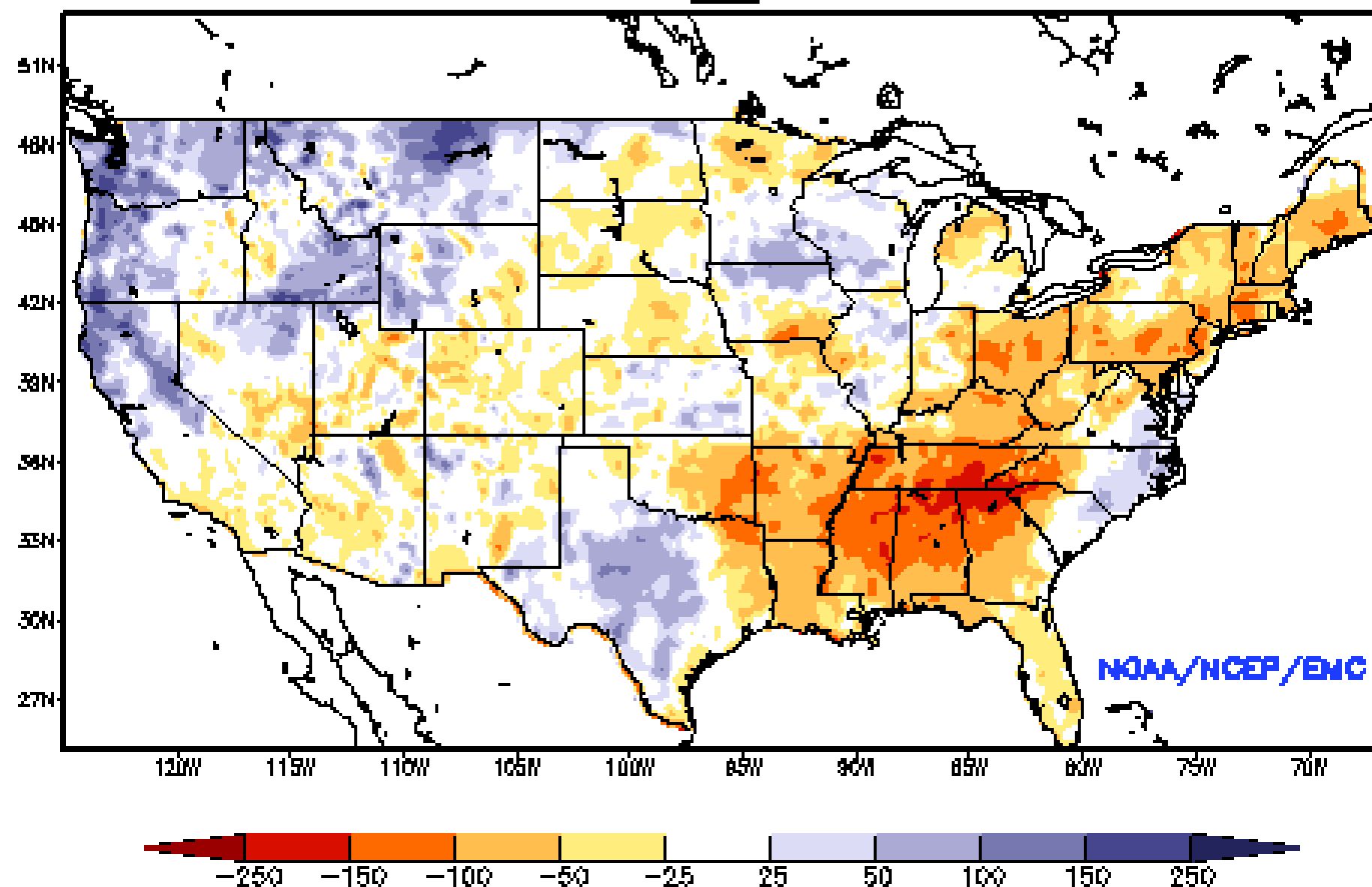


Percent of Normal Precipitation (%)

1/1/2016 – 11/19/2016



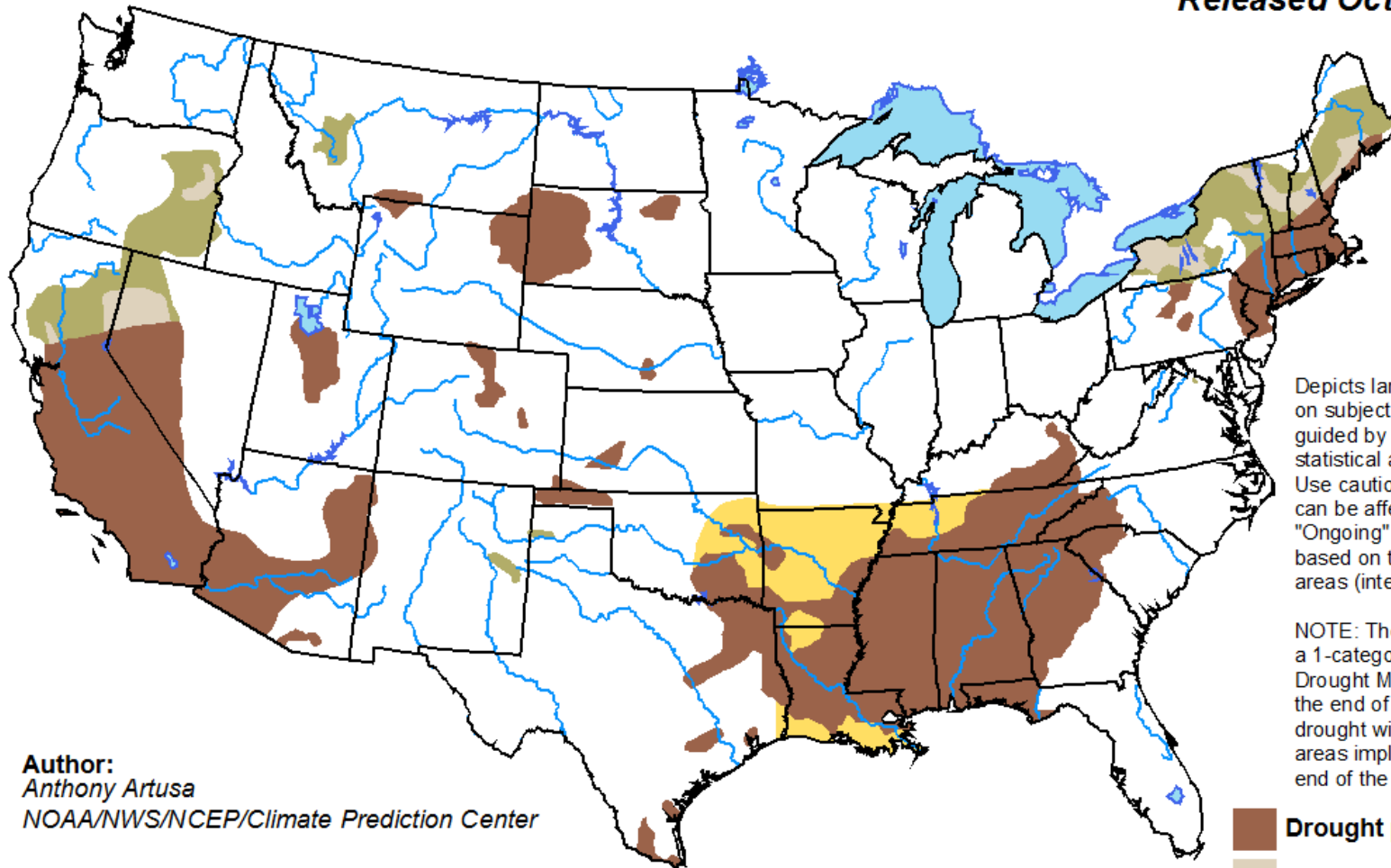
Ensemble-Mean - Current Total Column Soil Moisture Anomaly (mm)
NCEP NLDAS Products ___ Valid: NOV 16, 2016



U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period





Valid for November 2016
Released October 31, 2016

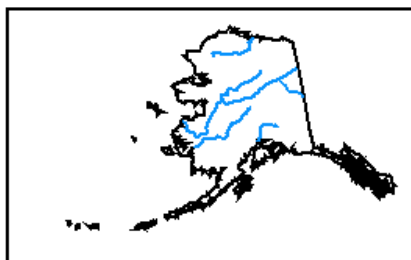


Author:
Anthony Artusa
NOAA/NWS/NCEP/Climate Prediction Center

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).

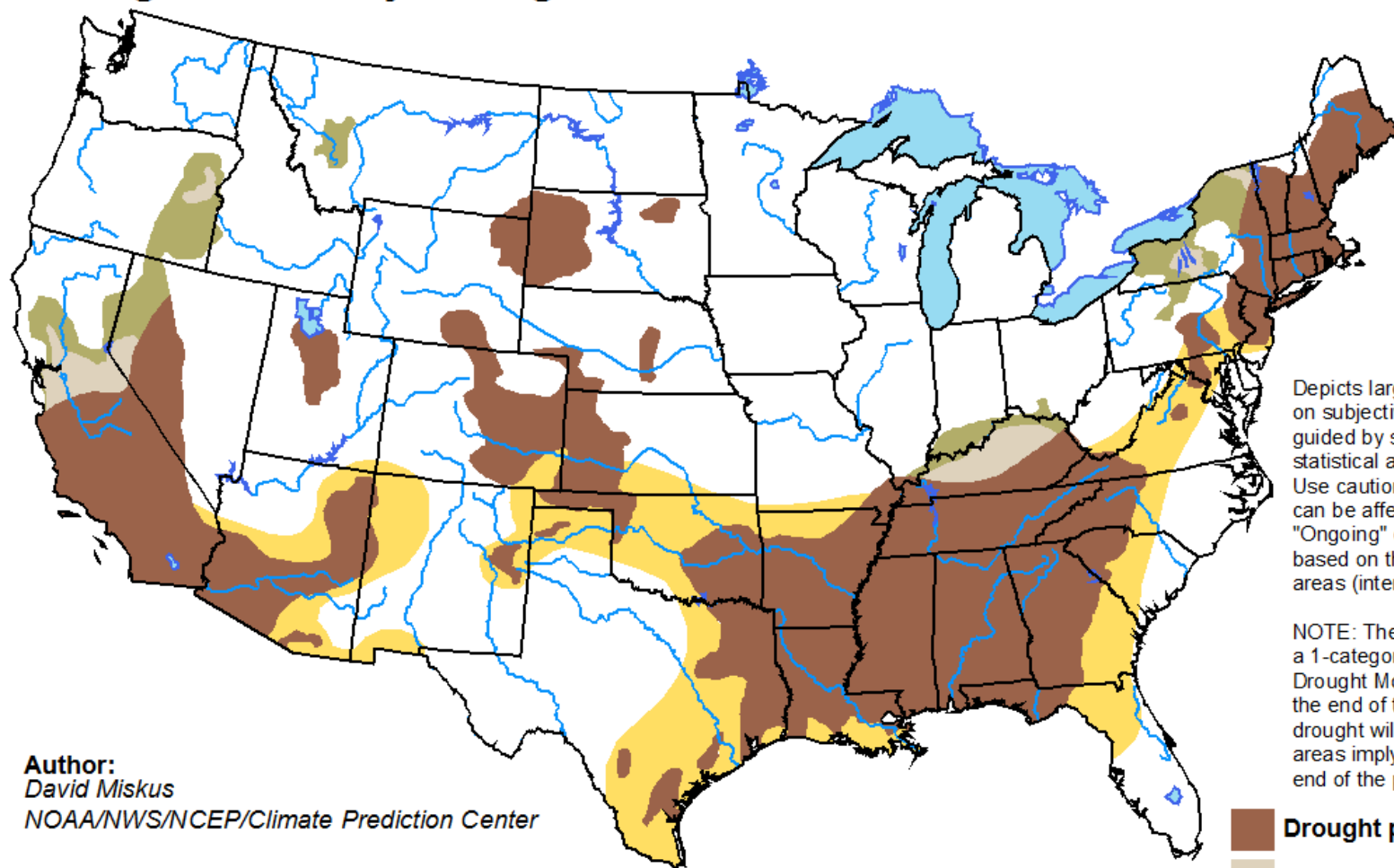
-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



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

U.S. Seasonal Drought Outlook





Valid for November 17 - February 28, 2017
Drought Tendency During the Valid Period
Released November 17, 2016

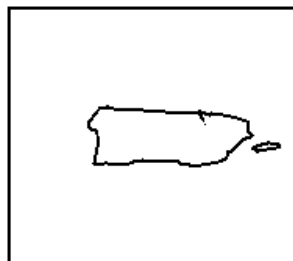
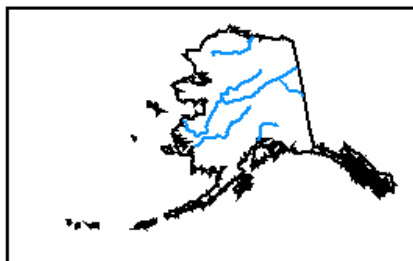


Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

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).

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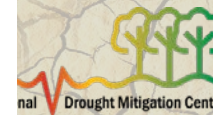
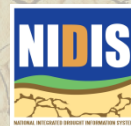
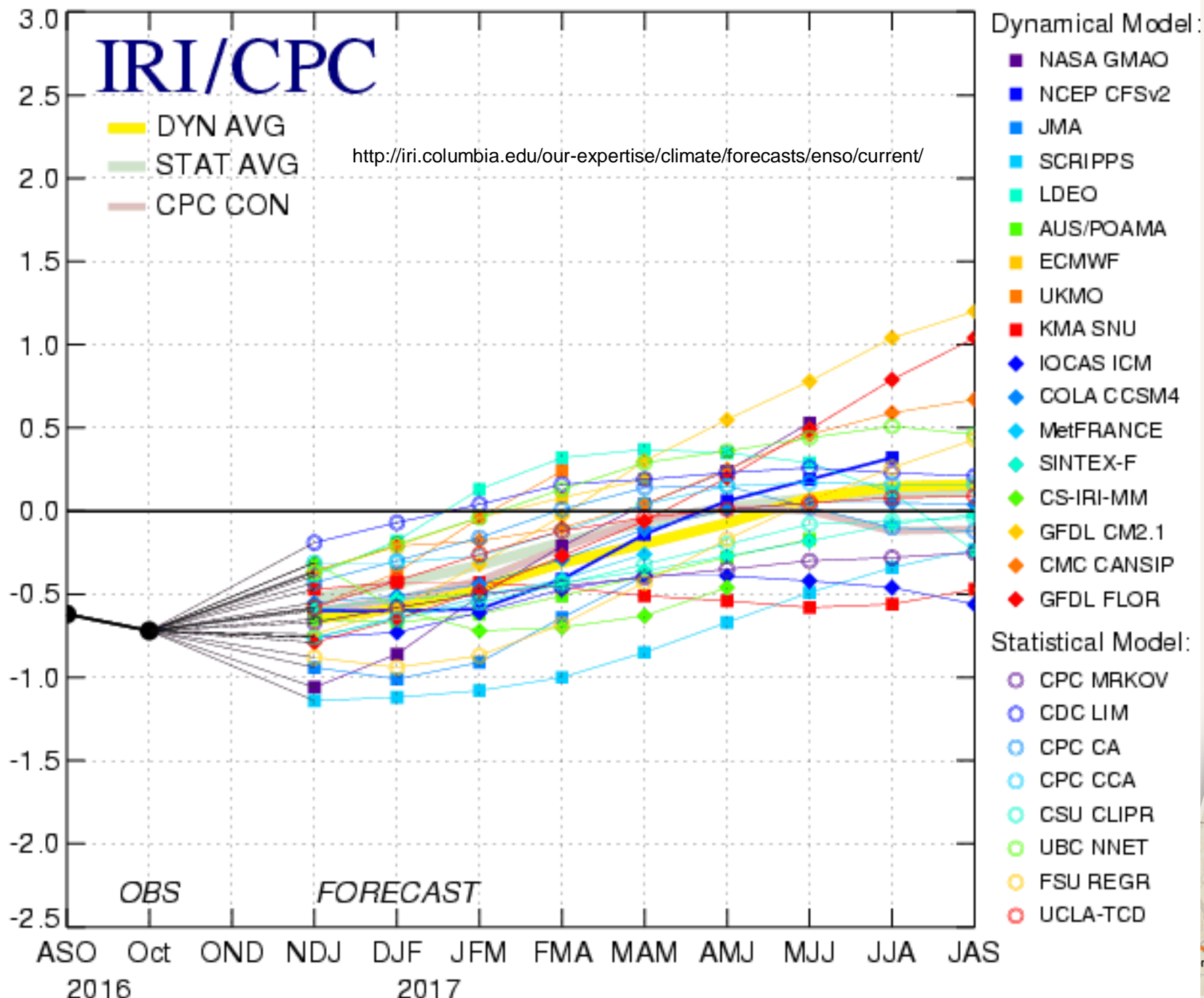
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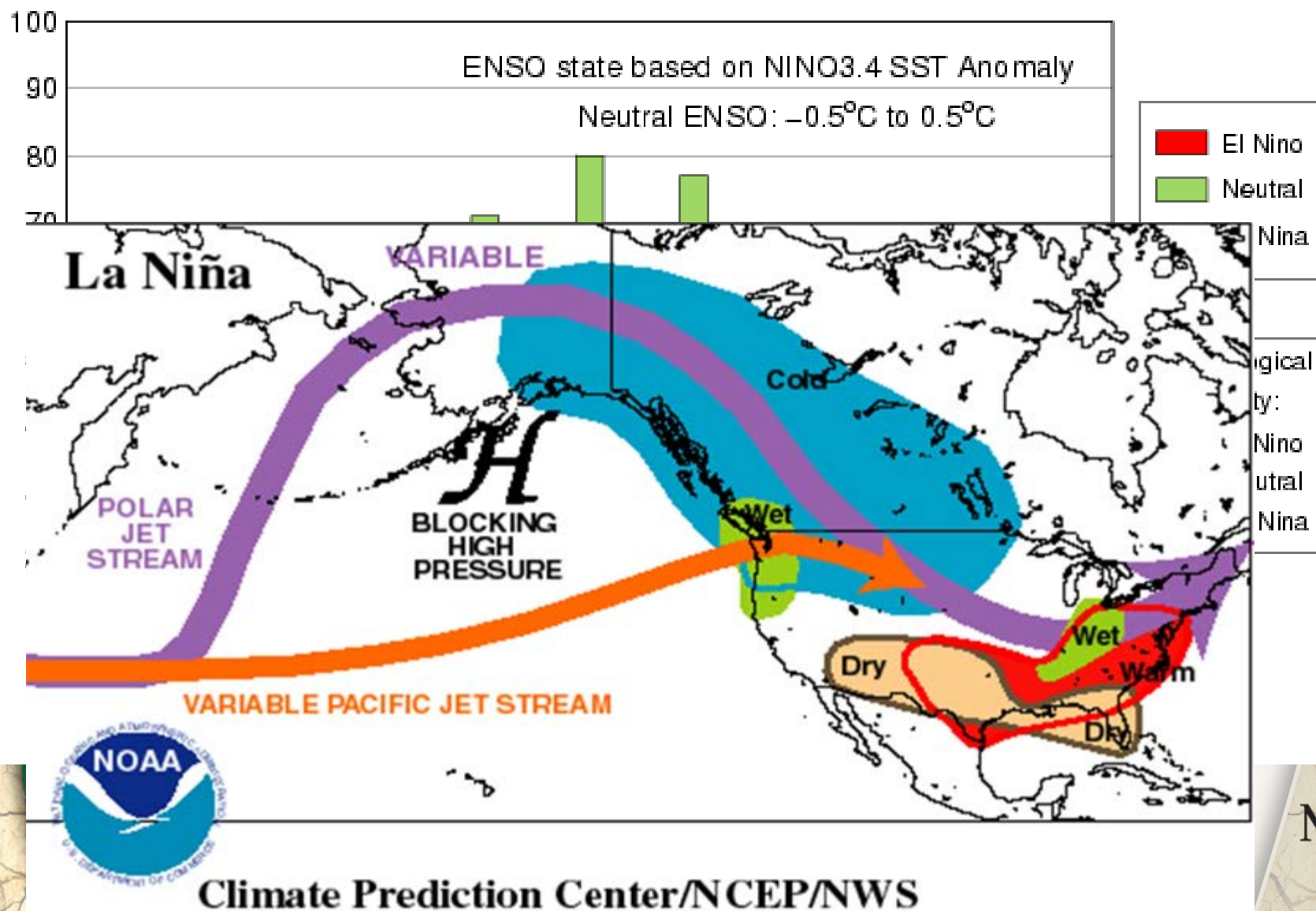
<http://go.usa.gov/3eZ73>

Mid-Nov 2016 Plume of Model ENSO Predictions

NINO3.4 SST Anomaly (°C)

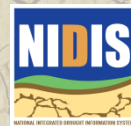


Mid-Nov IRI/CPC Model-Based Probabilistic ENSO Forecast



Climate/Drought Summary

- ▶ Most of the region has recorded above normal precipitation for the year, but there are pockets of dryness and drought which have developed in the summer and fall.
- ▶ **30.13% of the contiguous U.S.** is currently in drought (D1 or worse) as of 11/15/2016
 - This time last year it was at **22.78%**.
 - **Up nearly 12%** Year-to-Date (18.74% on Dec. 29, 2015)
- ▶ Current USDM (11/15/2016) **for NE** shows **10.68%** of the state in drought (**D1 only**), **up from 0% on January 1, 2016**



Climate/Drought Summary

- ▶ The Climate Prediction Center's Seasonal Drought Outlook ***calls for development of drought*** across the ***Southern United States through the end of February with drought development into the Mid-Atlantic possible too***

- ▶ **CPC/IRI ENSO Alert System Status:**
 - ***La Niña conditions into early 2017 and transitioning to neutral conditions by spring***

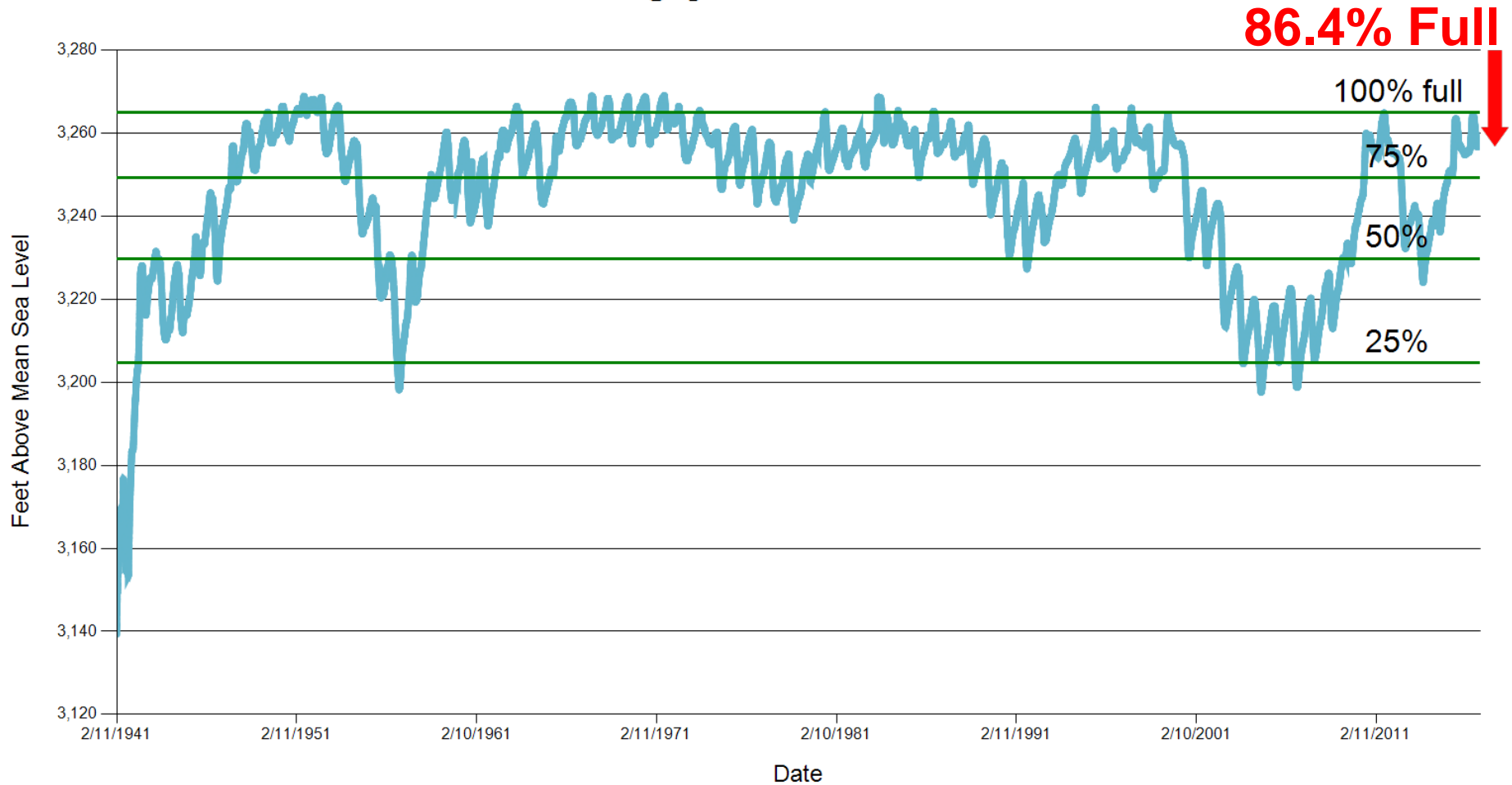
 - ***Synopsis:*** There is an ***approximately 65% chance*** that a moderate La Niña will develop through the Northern Hemisphere during the fall/winter



Nebraska Water Supply Update...

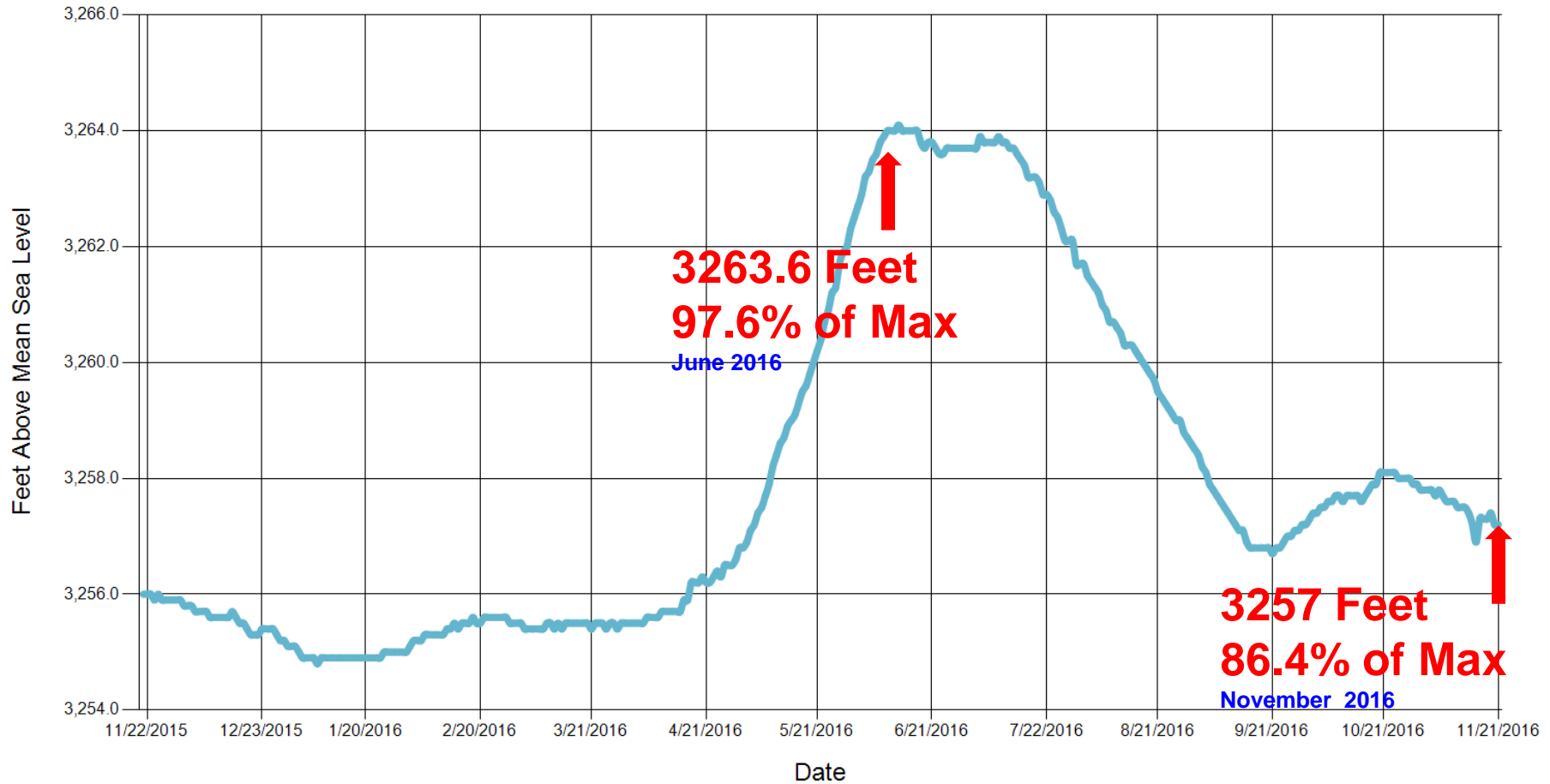


Lake McConaughy Elevation since 1941



SOURCE: CNPPID www.cnppid.com

Lake McConaughy Elevation (One Year)



SOURCE: CNPPID www.cnppid.com

November 2016 CARC Meeting



River & Canal Flows

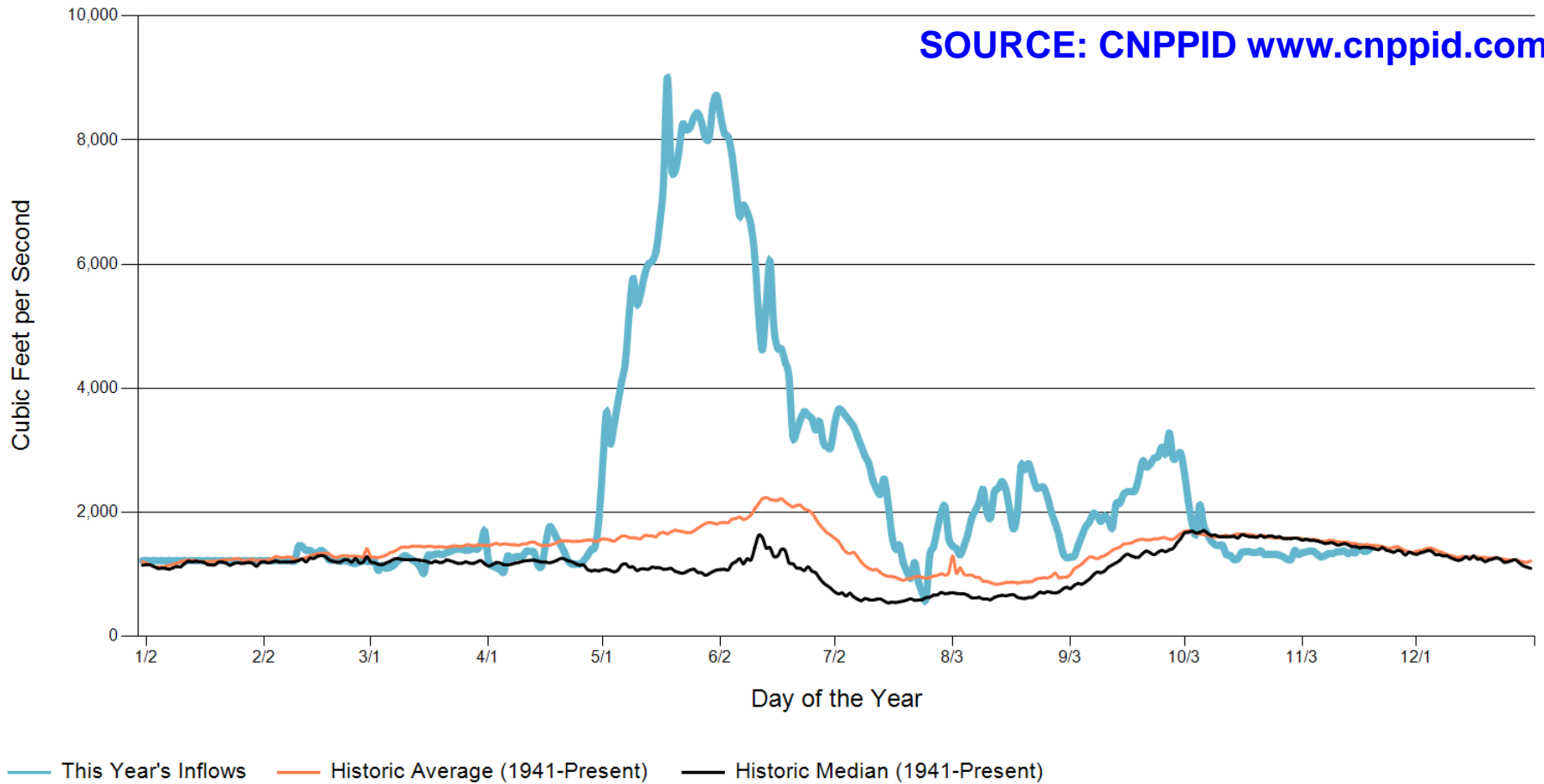
Station	Today (Cubic Feet per Second)	1 Week Ago	1 Month Ago	1 Year Ago
Inflows to McConaughy	1,409	1,366	1,407	1,236
Total Outflows from McConaughy	1,394	1,561	1,611	1,436
North Platte at Keystone	1,394	1,465	1,515	44
Keystone Diversion	N/A	96	96	1,392
North Platte at North Platte	2,009	2,017	1,563	433
South Platte at Roscoe	220	179	95	394
South Platte at North Platte	355	300	198	500
Supply Canal Diversion	2,214	2,216	850	2,259
Platte at Overton	2,310	2,346	727	2,469
Platte at Kearney	2,160	2,110	283	3,100
Platte at Grand Island	2,040	2,150	577	2,970



SOURCE: CNPPID www.cnppid.com

Lake McConaughy Inflows

SOURCE: CNPPID www.cnppid.com



Lake McConaughy

Civil engineer Cory Steinke reported that Lake McConaughy's elevation was 3,257.8 feet on Monday morning (1.52 million acre-feet). Inflows were running about 1,400 cubic feet per second recently, which are near normal for this time of year.

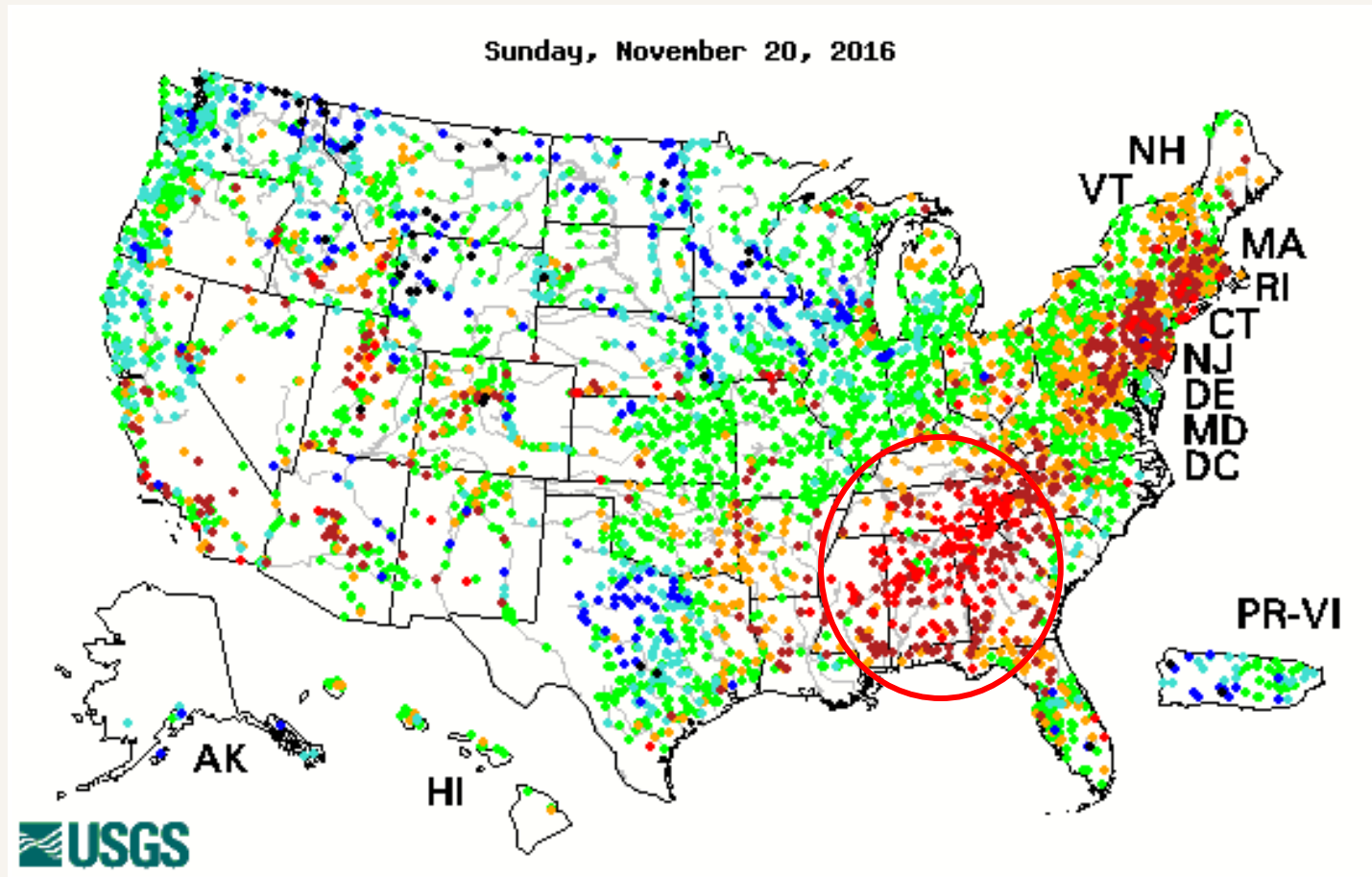
Steinke said the goal is to gradually lower the lake to around elevation 3,255.0 feet over the next few months while monitoring snowfall accumulation upstream over the winter months. Inflow and elevation conditions will then be re-evaluated as spring approaches.

SOURCE: CNPPID News Release, November 7, 2016

www.cnppid.com



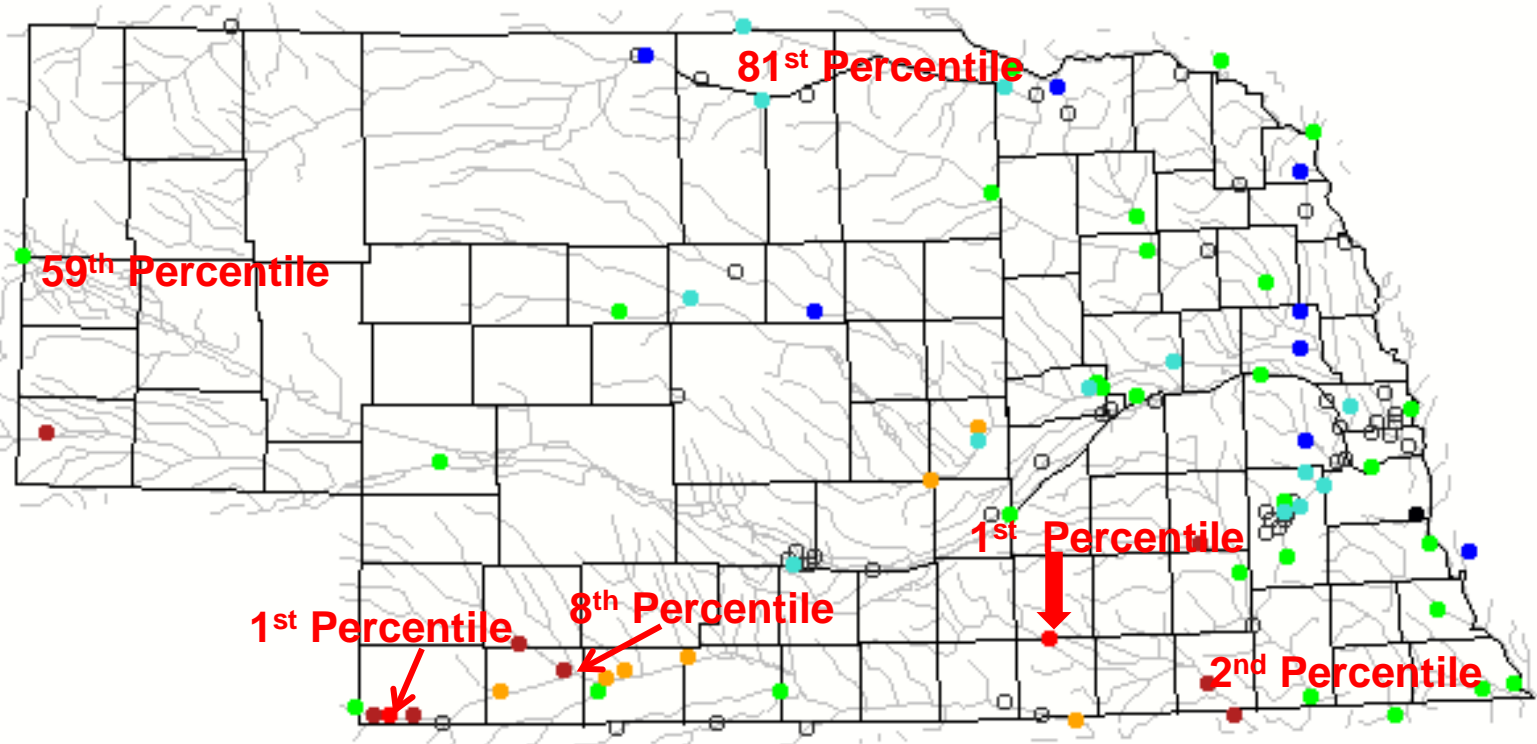
14-day average streamflow compared to historical streamflow for the day of year



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

14-day average streamflow compared to historical streamflow for the day of year

Sunday, November 20, 2016



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
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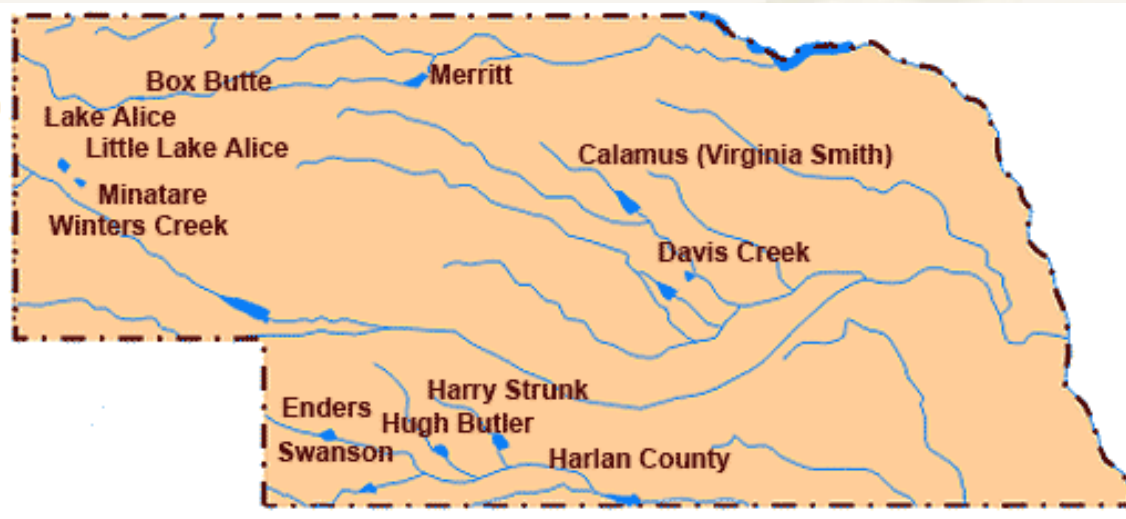
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Republican River Basin

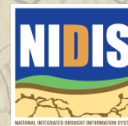


- ▶ **Hugh Butler:** 39.5%(44.3%) of conservation pool
- ▶ **Enders:** 23.5% (26.7%) of conservation pool
- ▶ **Harry Strunk:** 69.3%(100%) of conservation pool
- ▶ **Swanson:** 39.7% (58.8%) of conservation pool



*values in red are from the last CARC meeting in June 2016.

Source: BOR http://www.usbr.gov/gp/lakes_reservoirs



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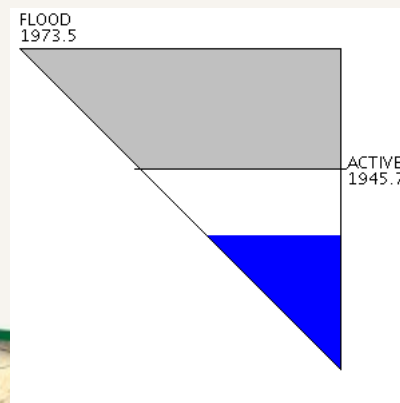


Republican River Basin

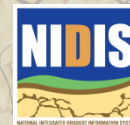


Harlan County Current Conditions

- ✓ Conservation Pool is 60.9% full (**76.7%**)
- ✓ 191,433 Acre-Feet in storage compared to **241,024** Acre-Feet (AF) of water in storage during June 2016
- ✓ Last year at this time, 153,524 AF was in storage
- ✓ Historical average storage for this time of the year is 211,954 AF



Source: BOR http://www.usbr.gov/gp/lakes_reservoirs/



Water Supply Summary

- ❖ No serious hydrological issues in the state as we have had significant run-off into the Platte basin due to a good snow season in 2015-16 and timely summer rains reducing irrigation demand overall. Continued low flows in the southwest part of Nebraska.
- ❖ **Lake McConaughy** is currently:
 - ❖ 6.6 feet lower than it was during the last CARC meeting in June 2016.
 - ❖ The inflows are near normal and stabilized in the past few months.
 - ❖ Elevation is about the same as it was last year at this time.
- ❖ Overall, storage in the Republican River basin has decreased since the last CARC meeting.
 - ❖ **Harlan County** is currently:
 - ❖ 49,591 Acre-Feet lower than in June 2016 (last CARC meeting)
 - ❖ 20,521 AF lower than the historical average for this time of year



Any Questions ?



Contact Information:

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