

# Drought Status and Outlook

**Dr. Dave DuBois**  
**State Climatologist**  
**NM Drought Monitoring Work Group Chair**

**Presented at the Water & Natural Resource Committee meeting, June 4, 2019**



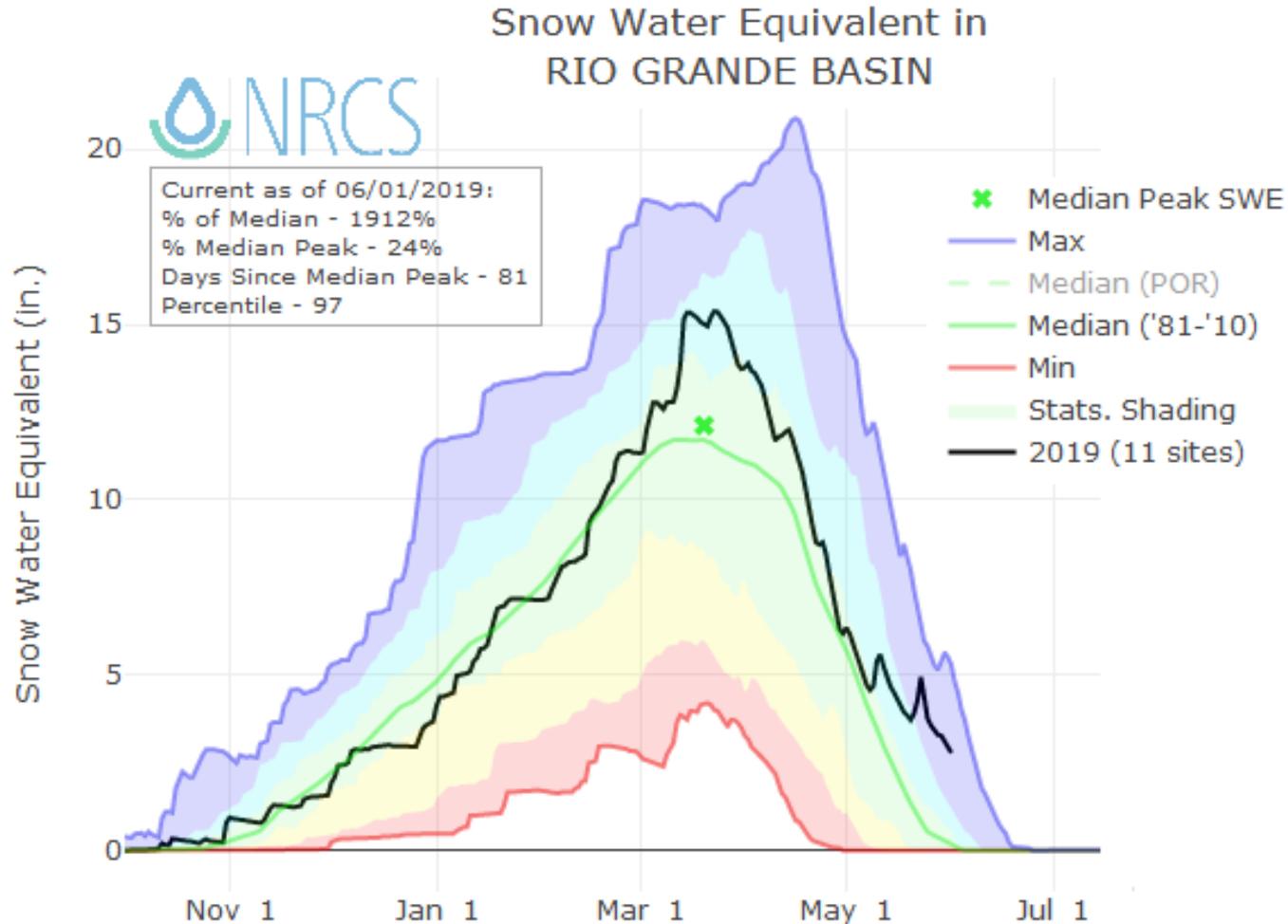
**NM**  
**STATE**

All About Discovery! <sup>TM</sup>  
New Mexico State University  
[aces.nmsu.edu](http://aces.nmsu.edu)

# Drought Tracking in NM

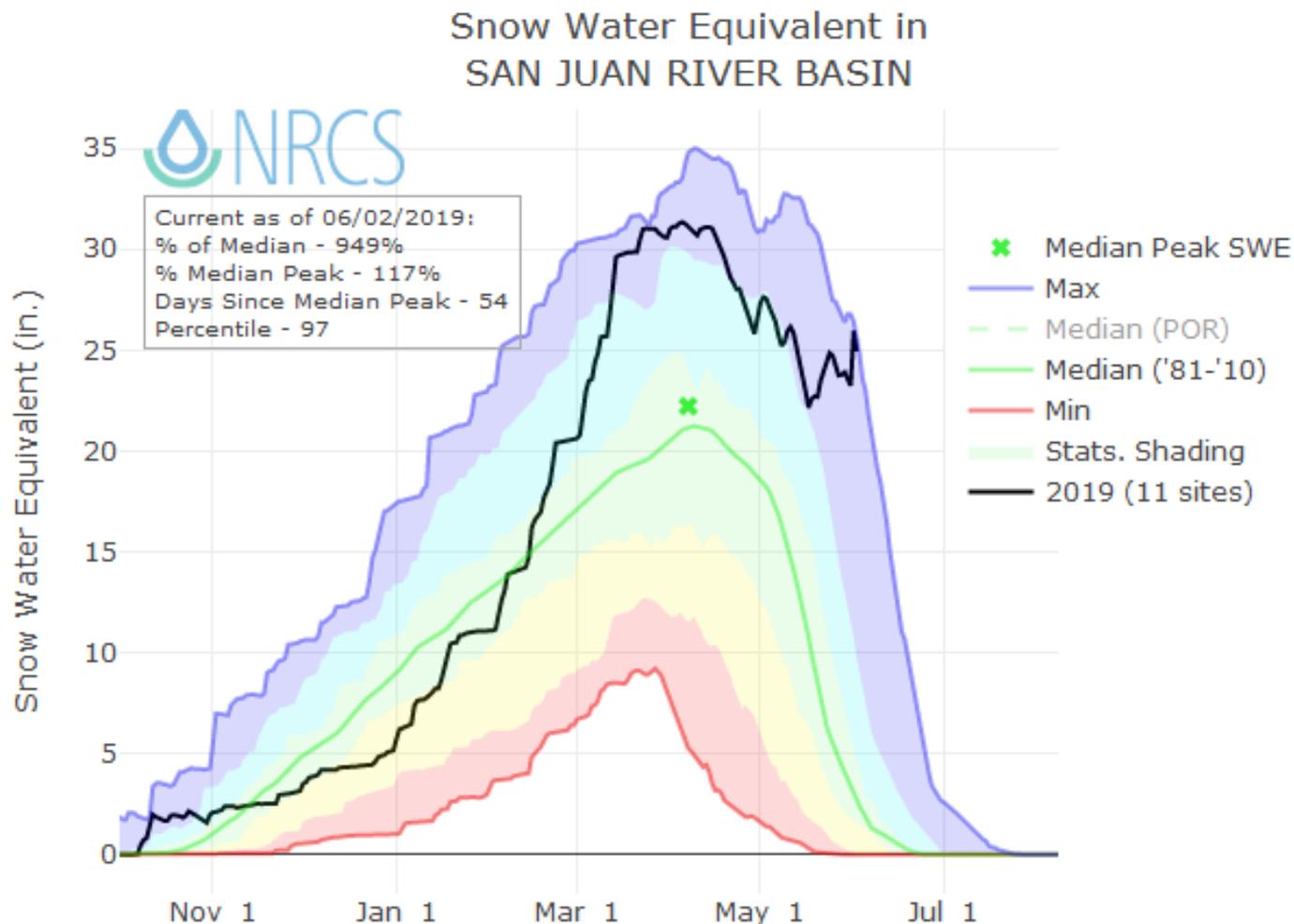
- The NM Drought Monitoring Work Group meets monthly
- We report to the NM Drought Task Force
- Members consist of federal, state, tribal representatives to share drought information
- National Weather Service Albuquerque hosts the webinar and directed by State Climatologist
- Weekly contributions to US Drought Monitor

# Rio Grande Basin Snow Observations



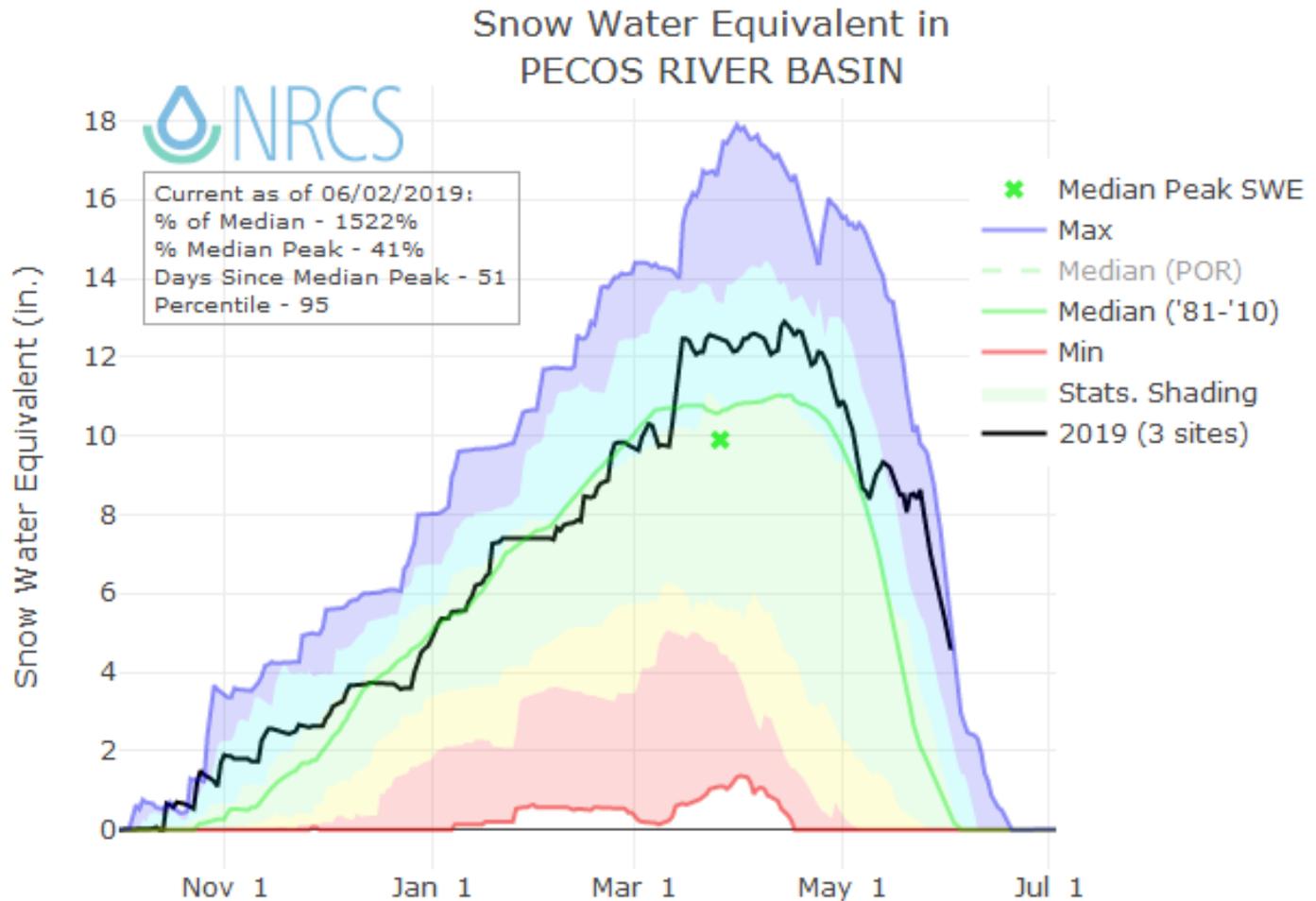
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

# San Juan Basin Snow Observations



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

# Pecos Basin Snow Observations

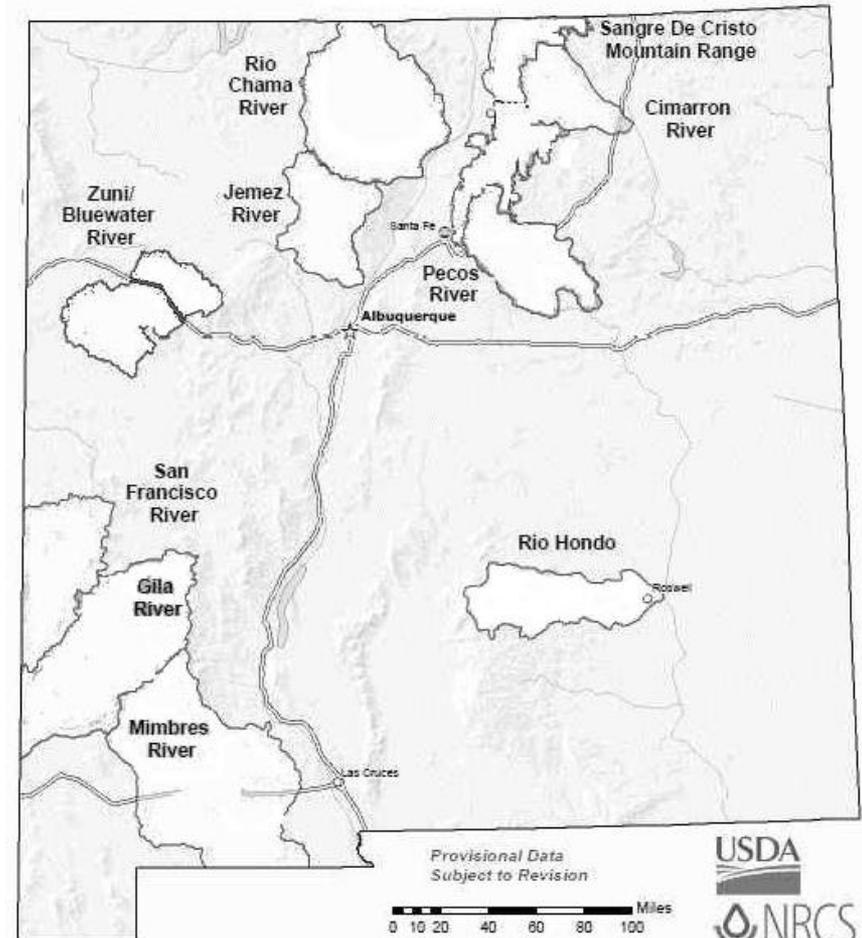


Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles.

# Water Year Precipitation by Basin

SNOTEL mountain top observations

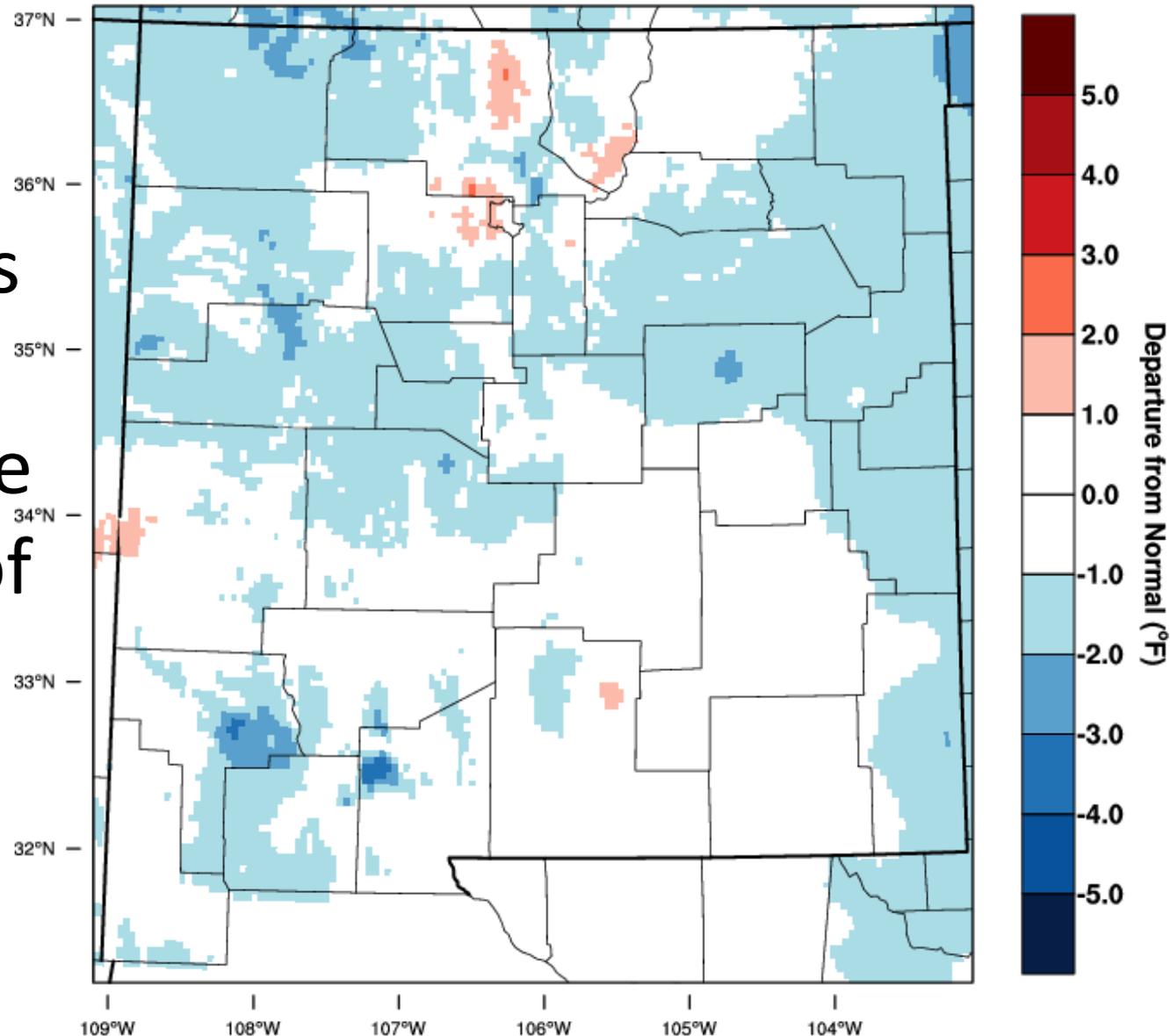
Basin	% of Avg
Rio Chama River	128
Upper Rio Grande	129
Sangre de Cristo Mtn Range	121
Jemez River	124
San Francisco River	101
Gila River	85
Mimbres River	84
Pecos River	120
San Juan River Headwaters	129
Animas River	138
Cimarron River	125
Zuni/Bluewater River	110
Rio Hondo	128



water year to date precipitation as of June 1, 2019

**New Mexico - Mean Temperature**  
**October-May 2019 Departure from 1981-2010 Normal**

Water Year  
Temperatures  
Average to  
below average  
across most of  
NM

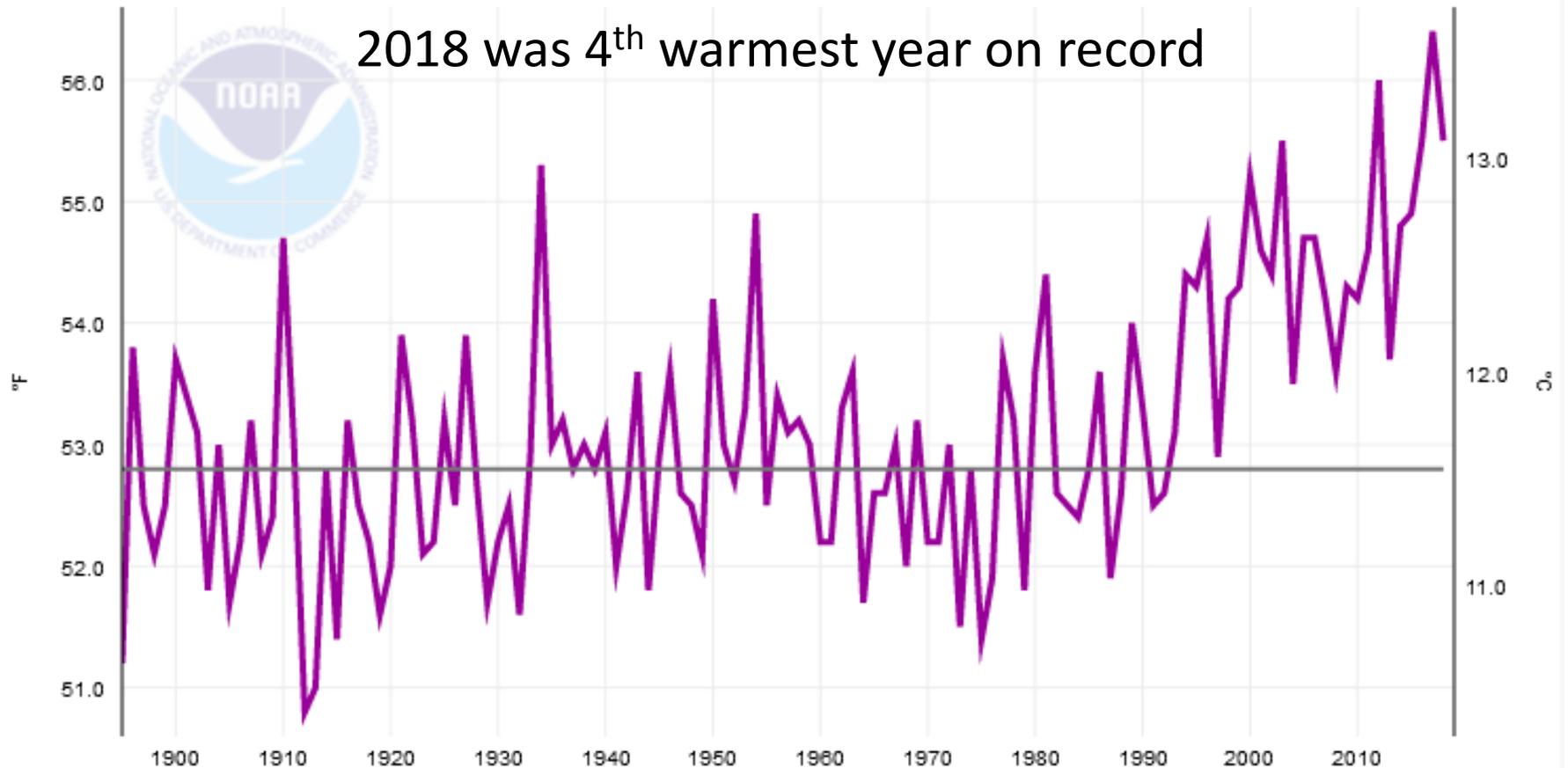


WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 2 JUN 2019

# State-wide annual temperature trends since 1895

New Mexico, Average Temperature, January-December

Avg Temperature      1901-2000 Mean: 52.8°F

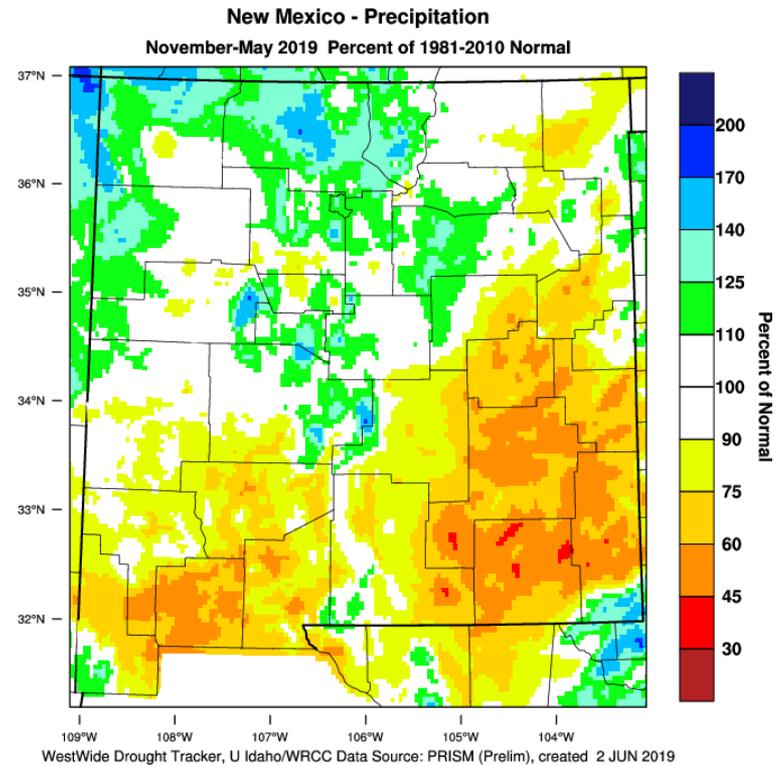
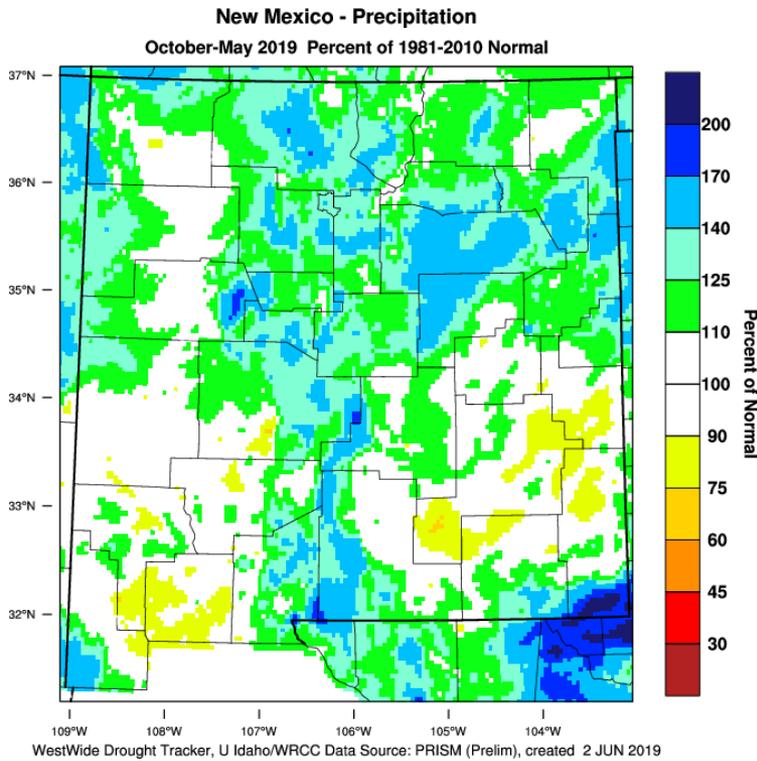


# Precipitation

Water Year 2019

Last 8 months (Oct to May)

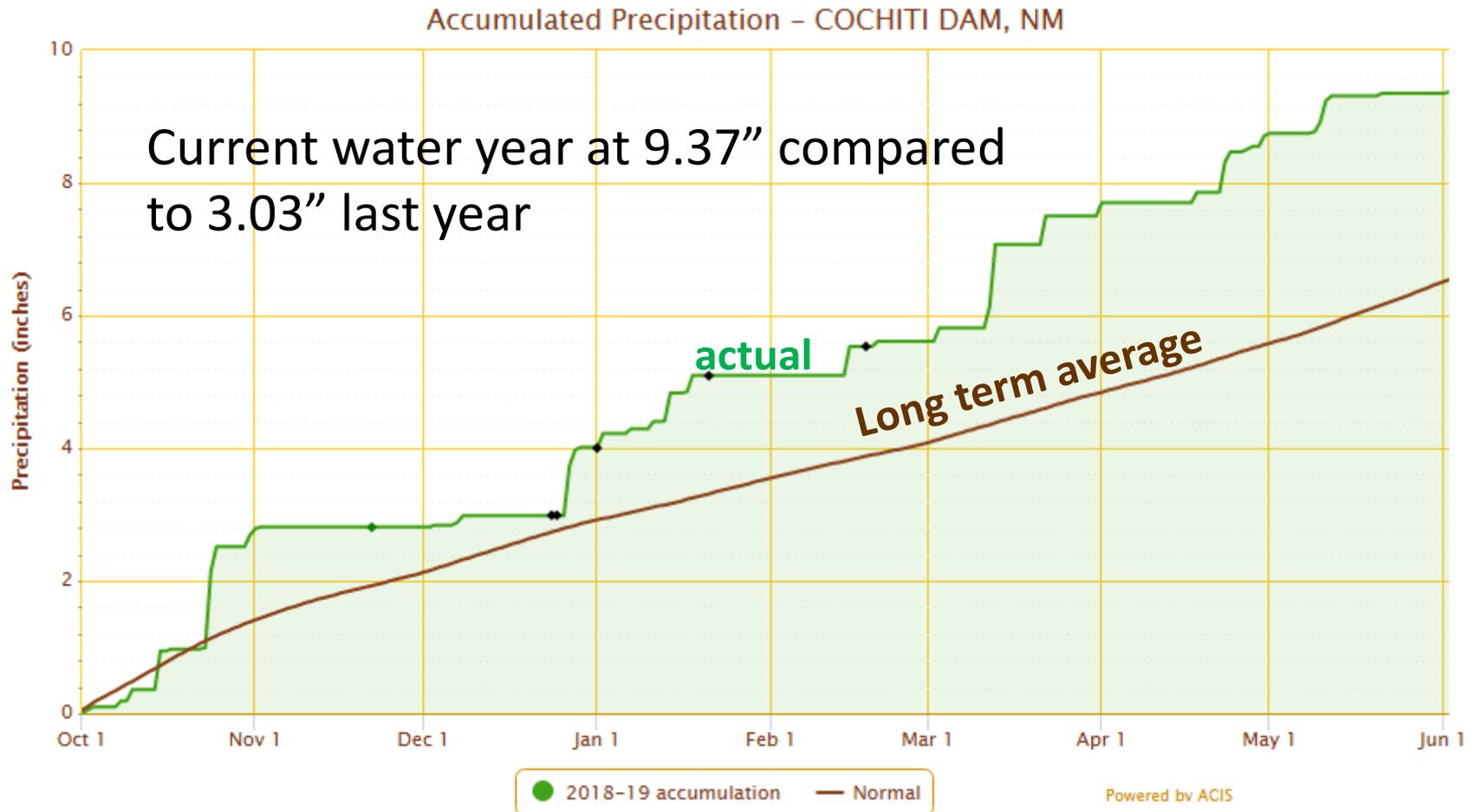
Last 7 months (Nov to May)



# Cochiti Dam – Water Year 2019

## Precipitation

- Water Year 143% of average

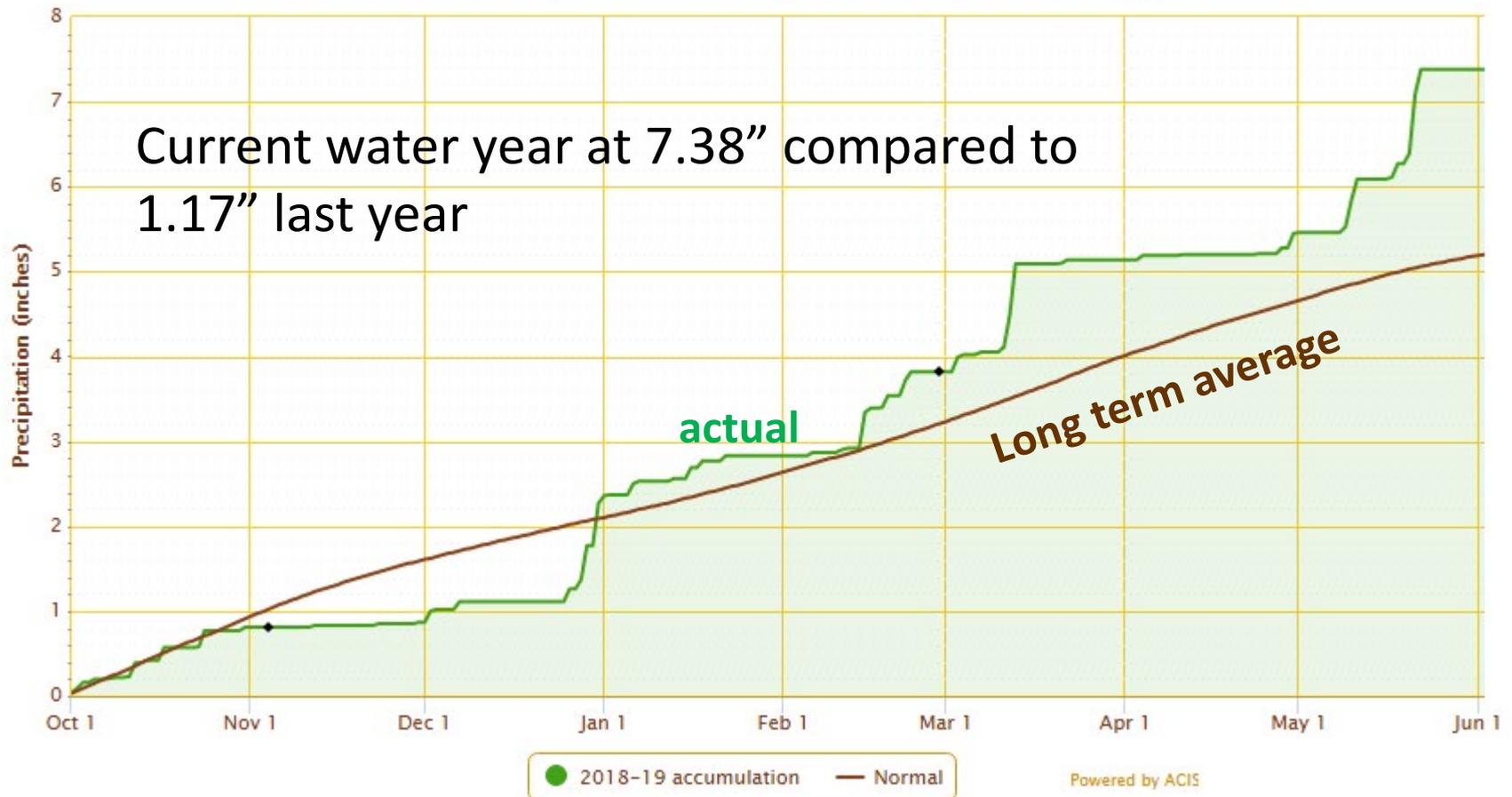


# Farmington – Water Year 2019

## Precipitation

- Water Year 142% of average

Accumulated Precipitation – FARMINGTON AG SCIENCE CNT, NM

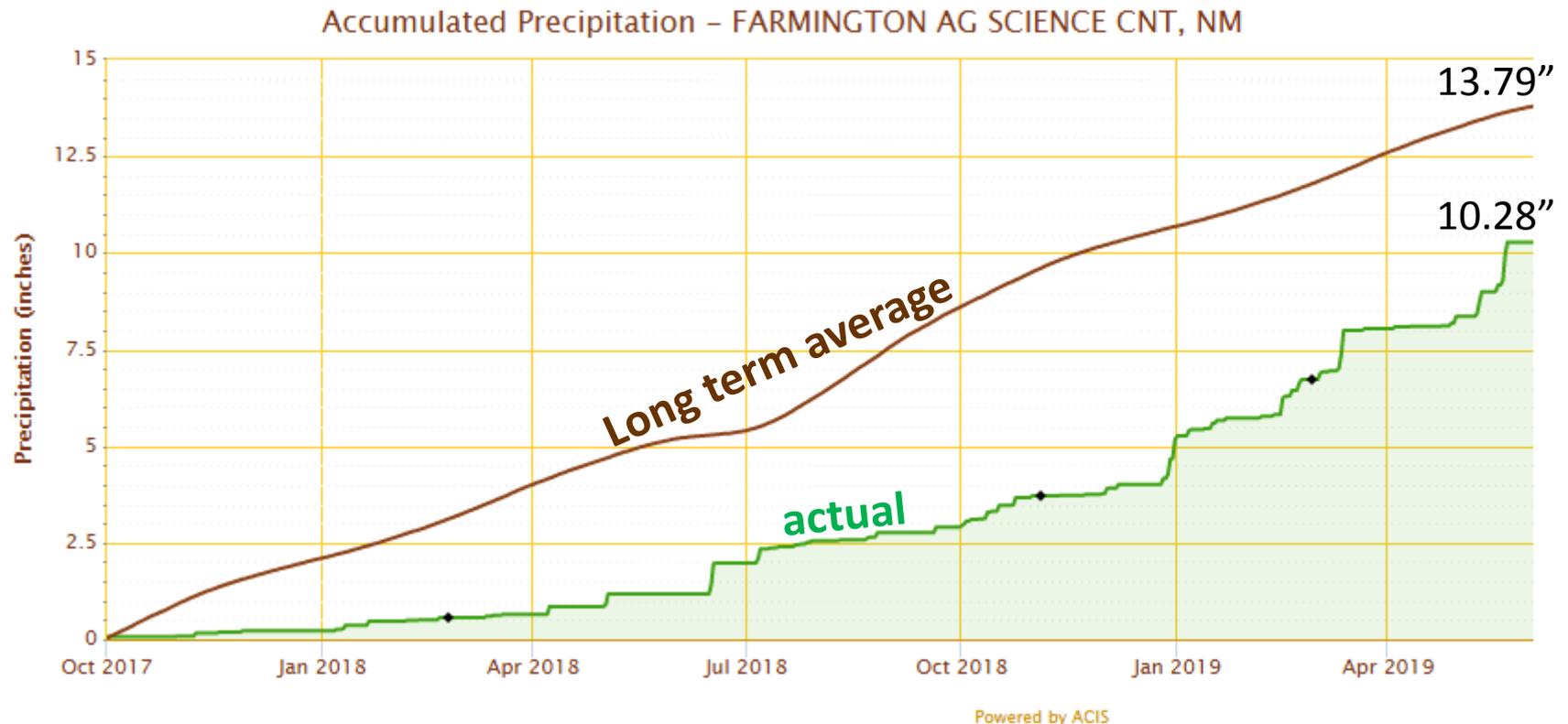


Powered by ACIS

<http://scacis.rcc-acis.org/>

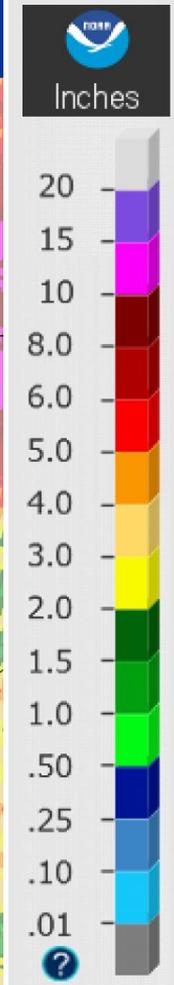
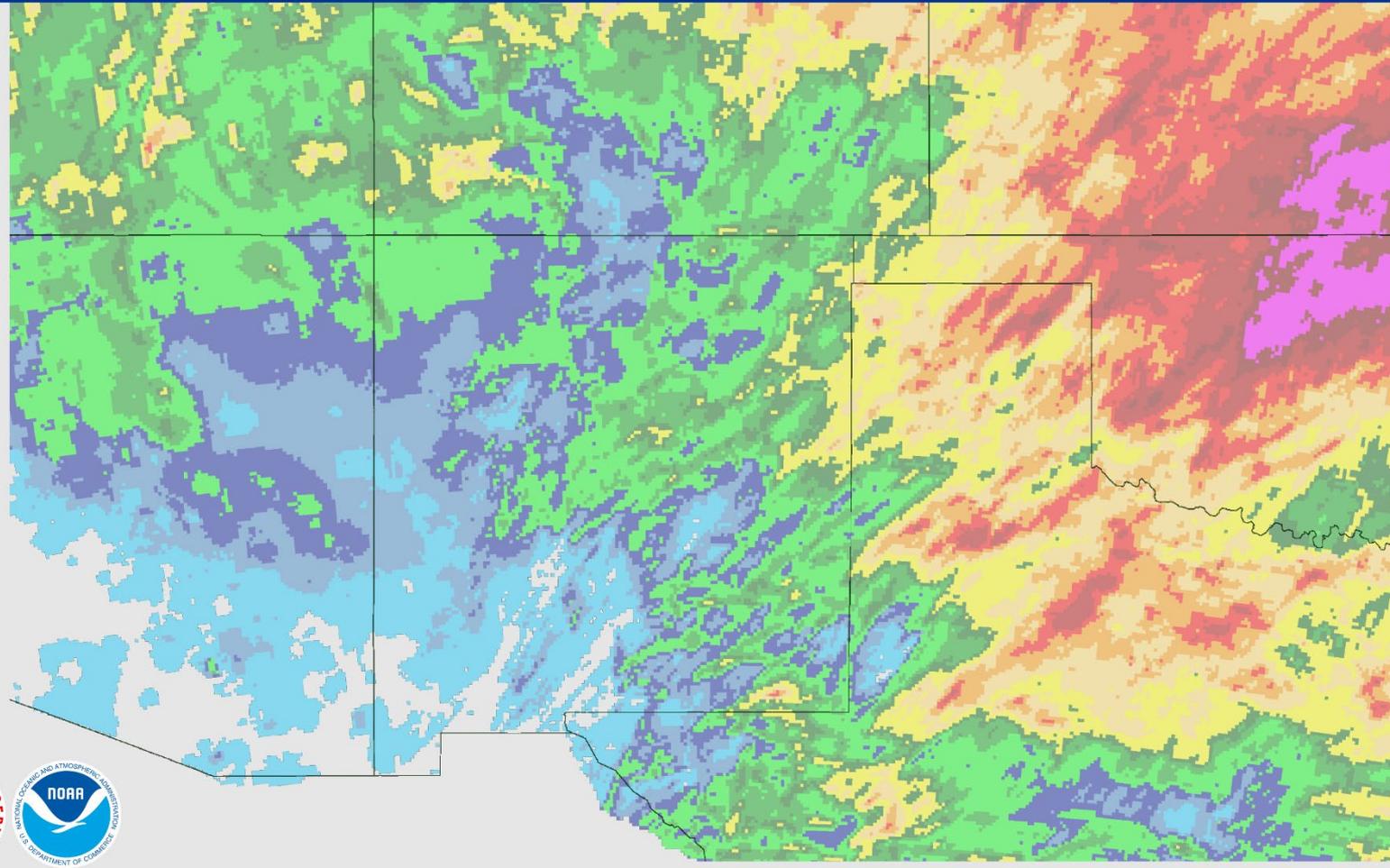
# Farmington – accumulation of last 2 yrs

- Oct 2017 to June 2019
- 3.51" precipitation deficit over this period



# Rainfall over the last 2-weeks

June 02, 2019 14-Day Observed Precipitation  
Created on: June 03, 2019 - 02:29 UTC  
Valid on: June 02, 2019 12:00 UTC



# US Drought Monitor

Drought classification puts drought in historical perspective

<u>DM Level</u>		<u>Name</u>	<u>Percentile</u>
D0		Abnormally dry	21-30
D1		Moderate drought	11-20
D2		Severe drought	6-10
D3		Extreme drought	3-5
D4		Exceptional drought	0-2

# U.S. Drought Monitor

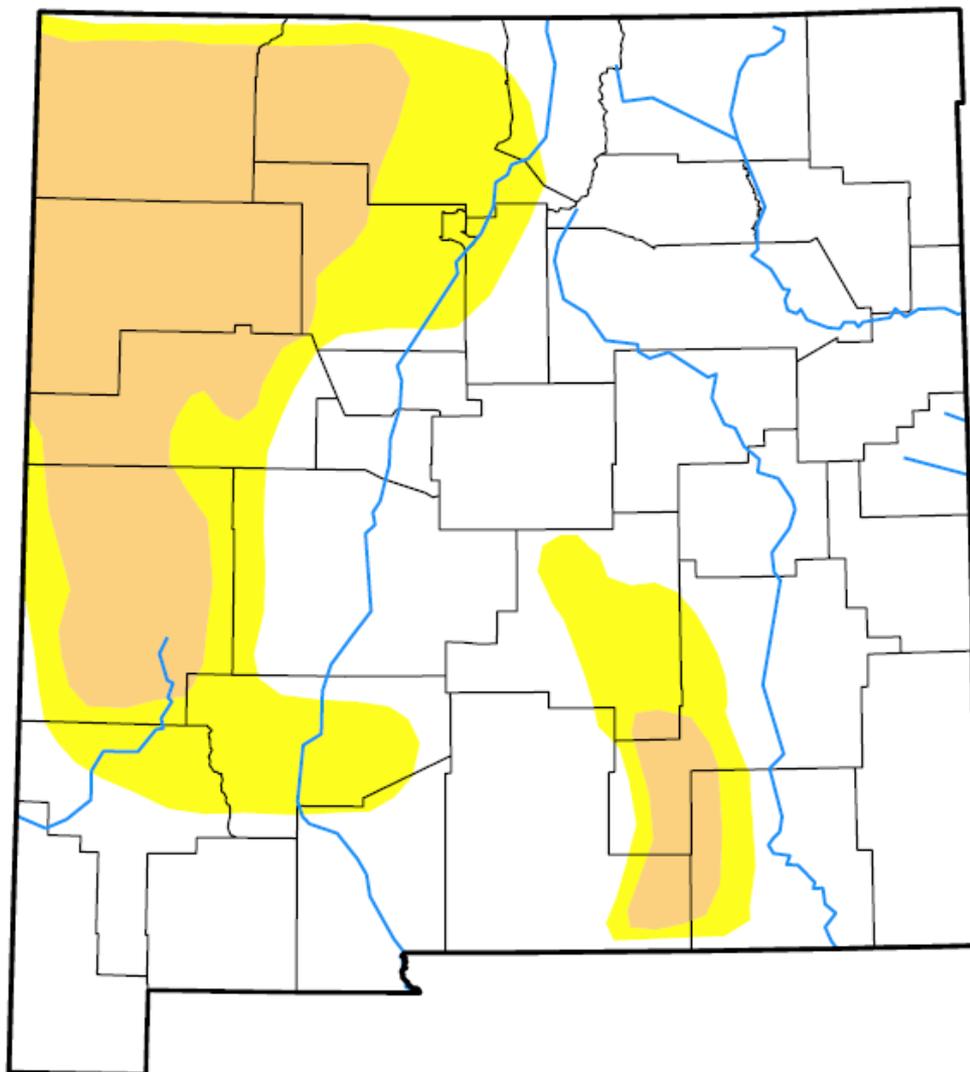
## New Mexico

### Latest map

### May 28, 2019

(Released Thursday, May. 30, 2019)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	64.63	35.37	18.85	0.00	0.00	0.00
<b>Last Week</b> 05-21-2019	64.58	35.42	18.85	0.00	0.00	0.00
<b>3 Months Ago</b> 02-26-2019	39.00	61.00	42.47	31.96	13.14	0.88
<b>Start of Calendar Year</b> 01-01-2019	37.99	62.01	44.71	35.03	19.67	14.17
<b>Start of Water Year</b> 09-25-2018	0.40	99.60	93.27	59.56	31.84	15.53
<b>One Year Ago</b> 05-29-2018	0.16	99.84	99.35	89.39	62.86	18.27

#### Intensity:

- 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:

Richard Heim  
NCEI/NOAA



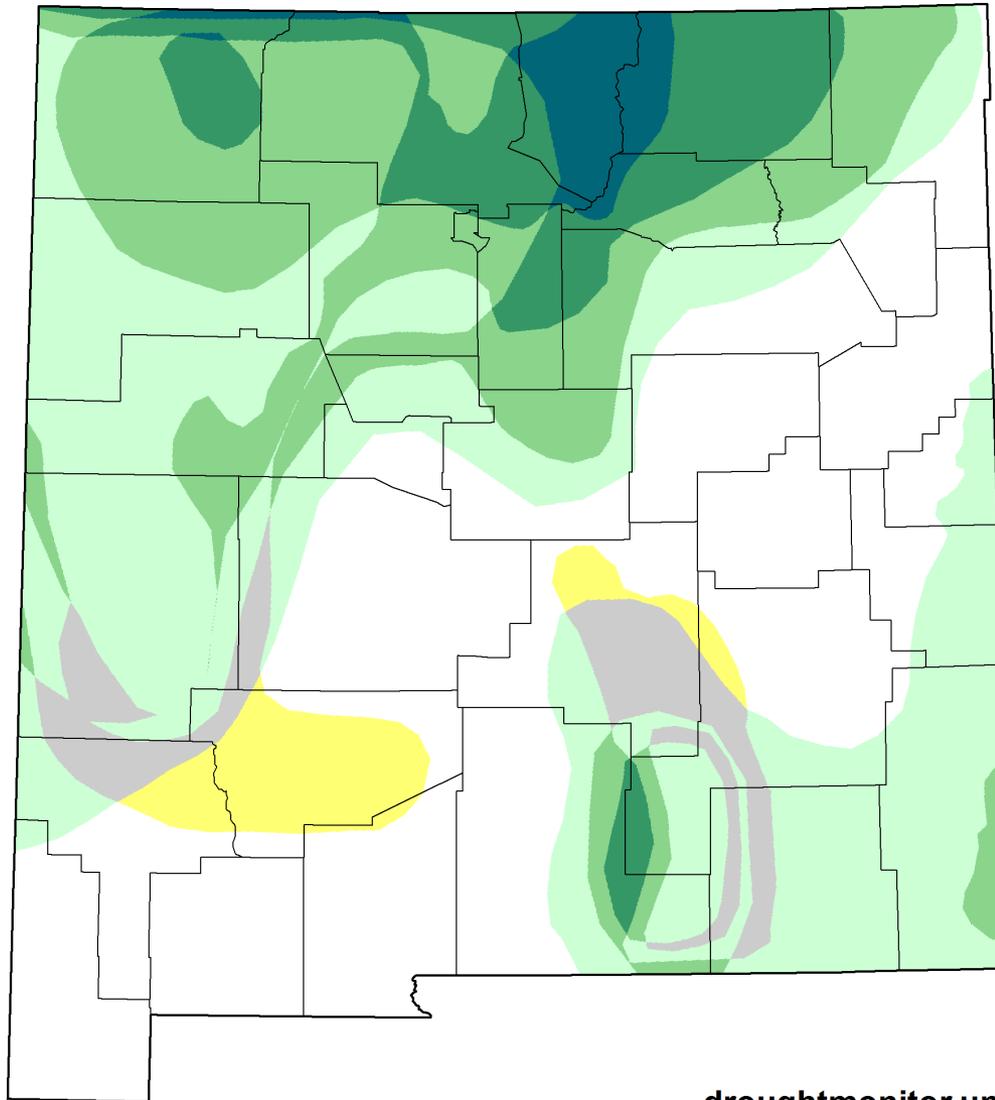
# 2017 at Bandelier National Monument



# 2019 at Bandelier National Monument



# U.S. Drought Monitor Class Change - New Mexico 3 Months



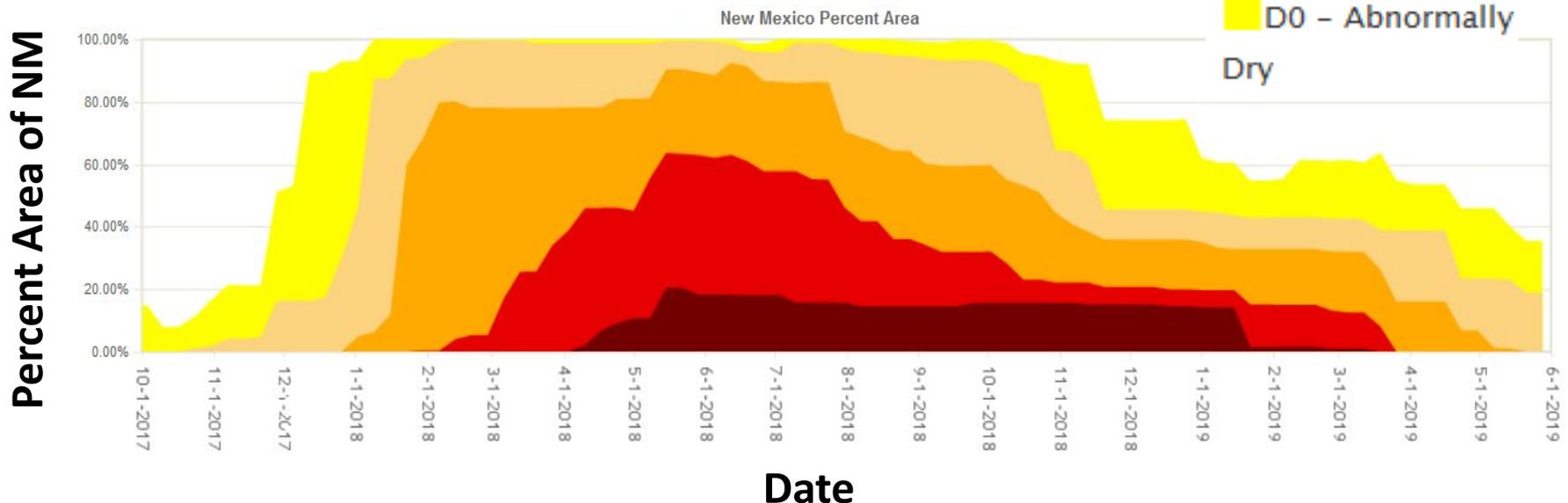
-  5 Class Degradation
-  4 Class Degradation
-  3 Class Degradation
-  2 Class Degradation
-  1 Class Degradation
-  No Change
-  1 Class Improvement
-  2 Class Improvement
-  3 Class Improvement
-  4 Class Improvement
-  5 Class Improvement

May 28, 2019  
compared to  
March 5, 2019

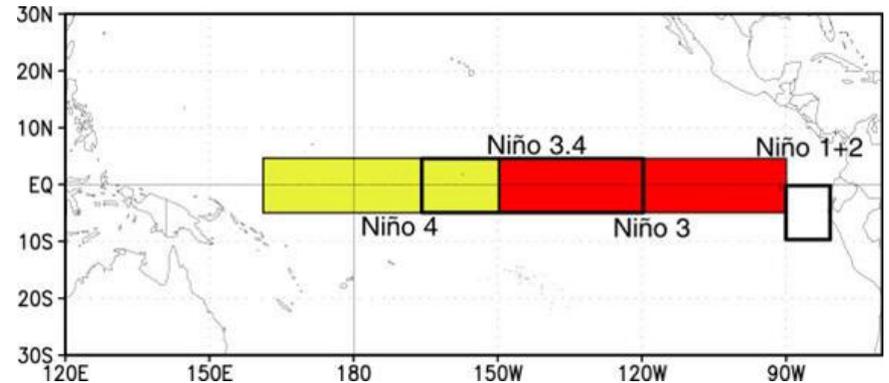
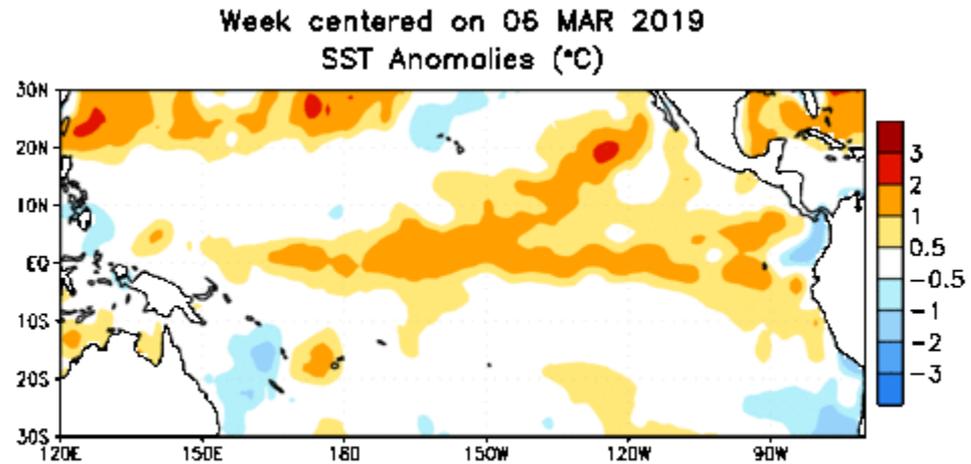
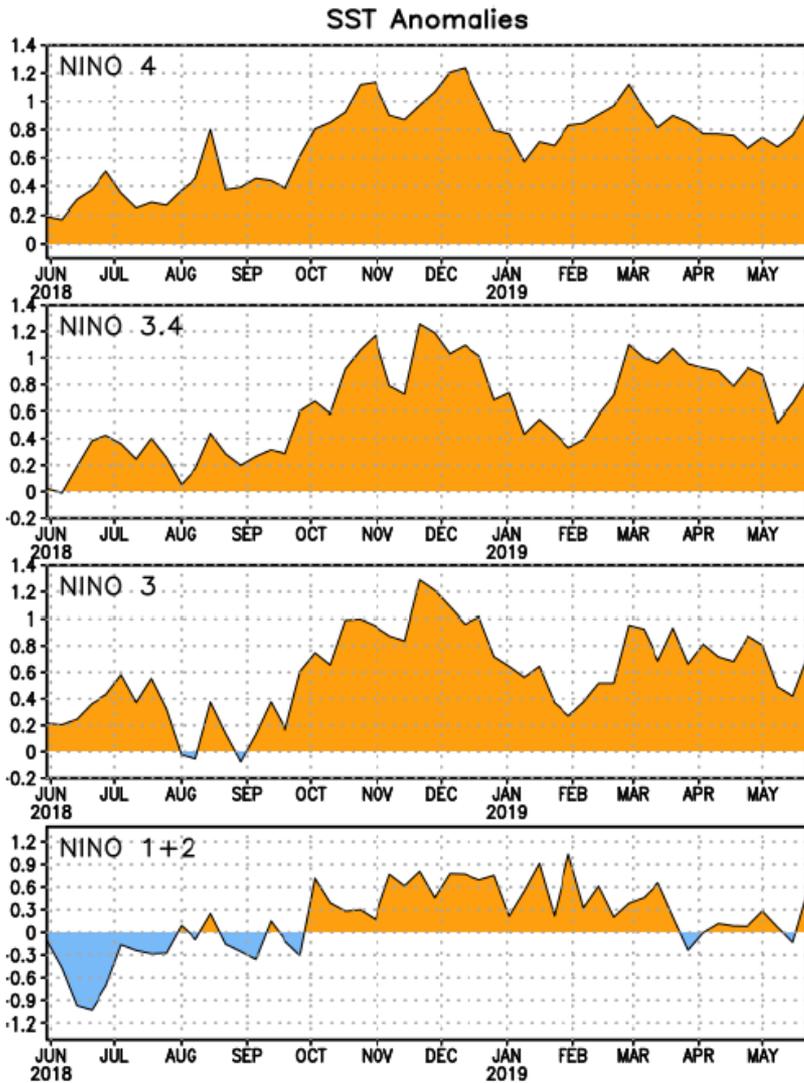
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

# Last 20-months in Drought Monitor

- Currently 19% in drought (last year 99%)
- Last year 18% in D4, this year 0%
- About 9 months with D4
- Notice improvement this past spring



# Sea Surface Temperature Anomalies

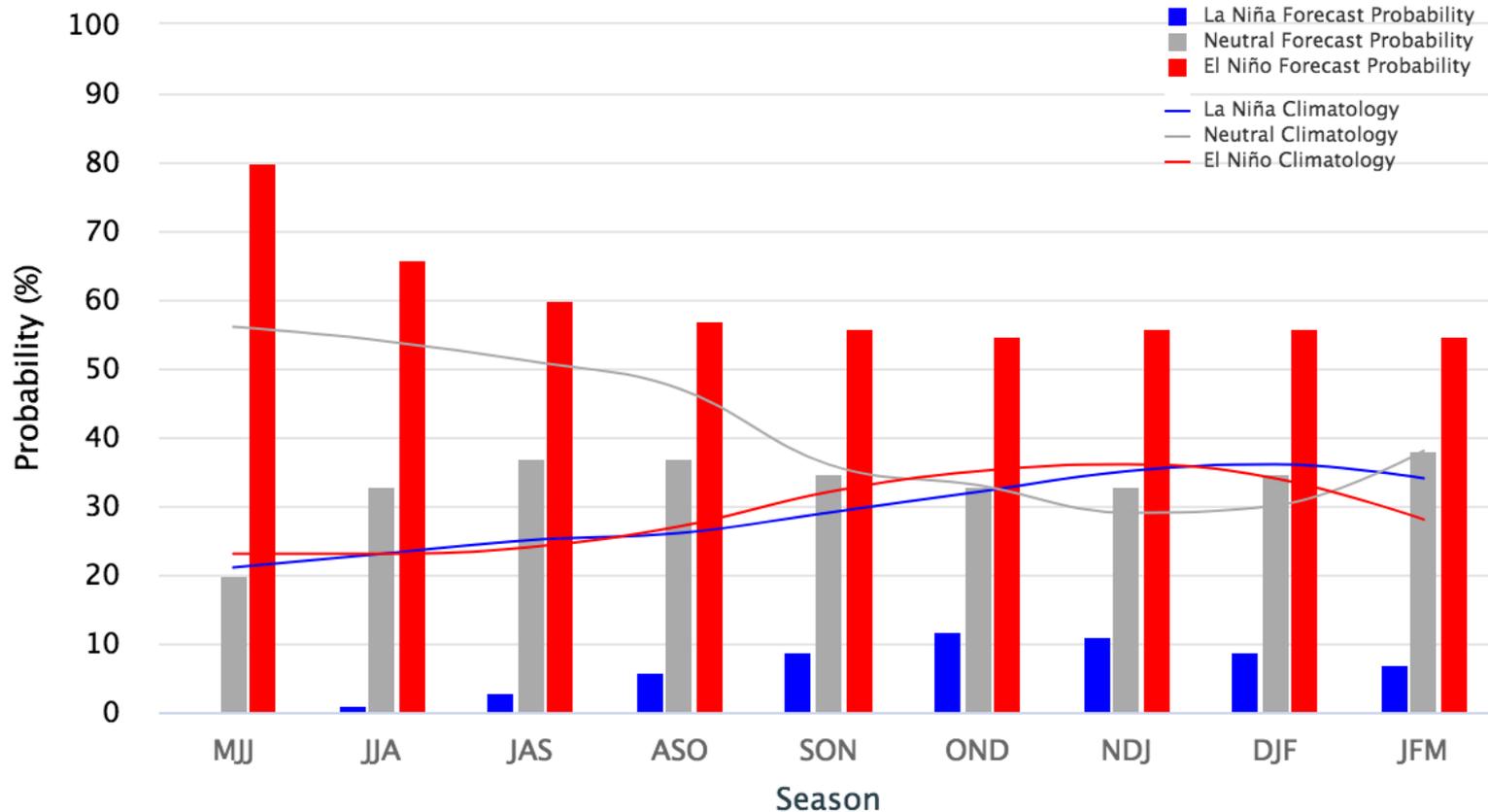


# Seasonal Forecast

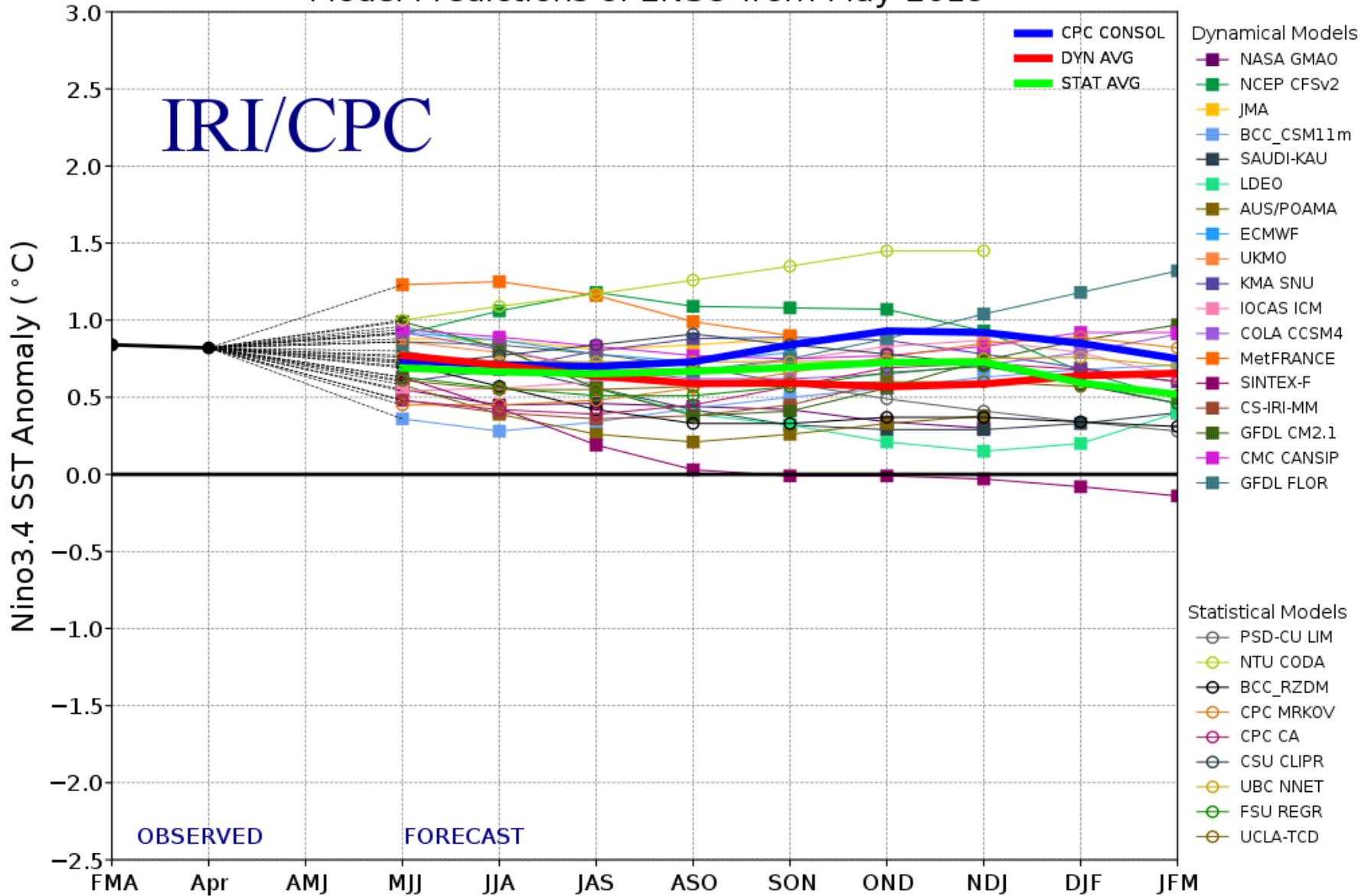
**Currently in El Niño. Greater than 50% chance it will continue through 2019**

Mid-May 2019 IRI/CPC Model-Based Probabilistic ENSO Forecasts

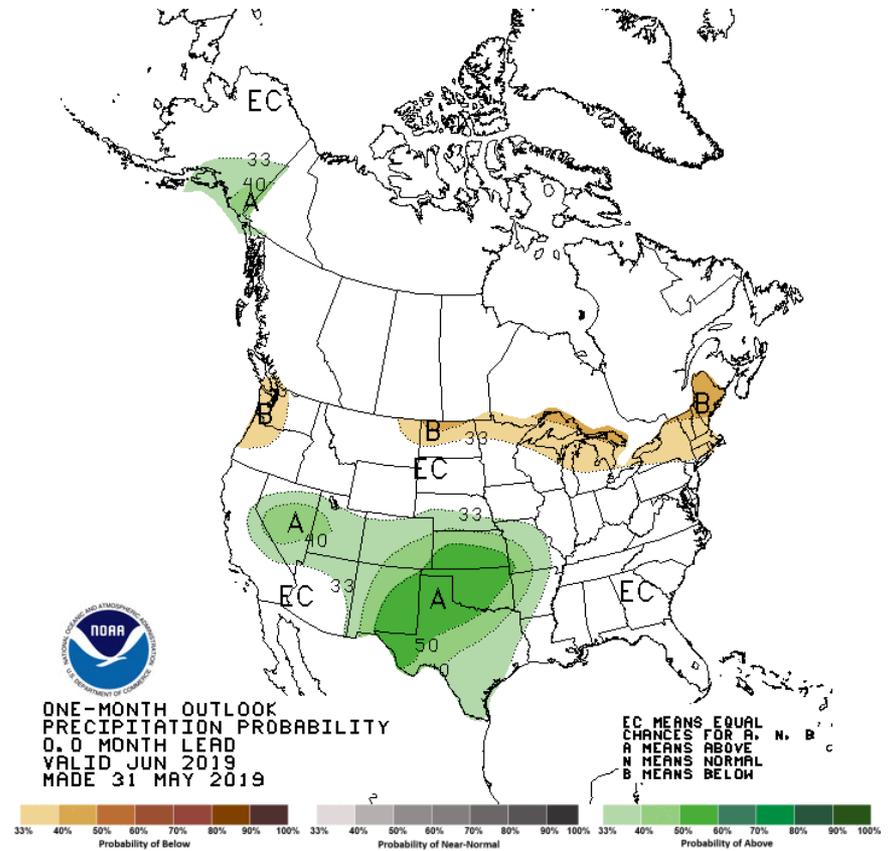
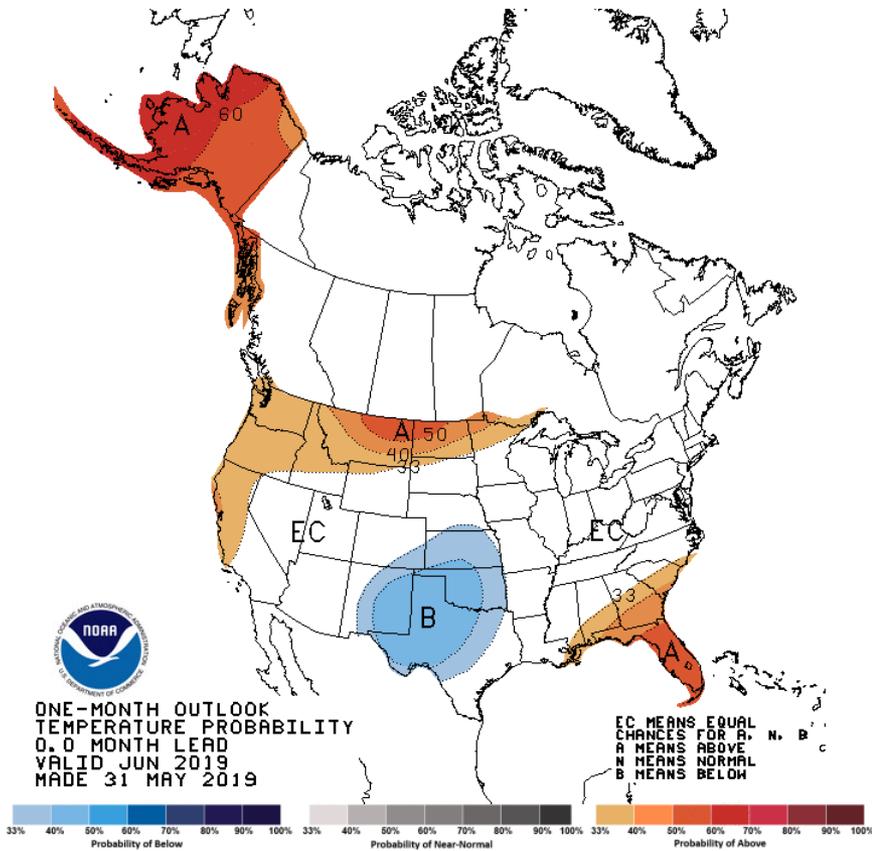
ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO:  $-0.5\text{ }^{\circ}\text{C}$  to  $0.5\text{ }^{\circ}\text{C}$



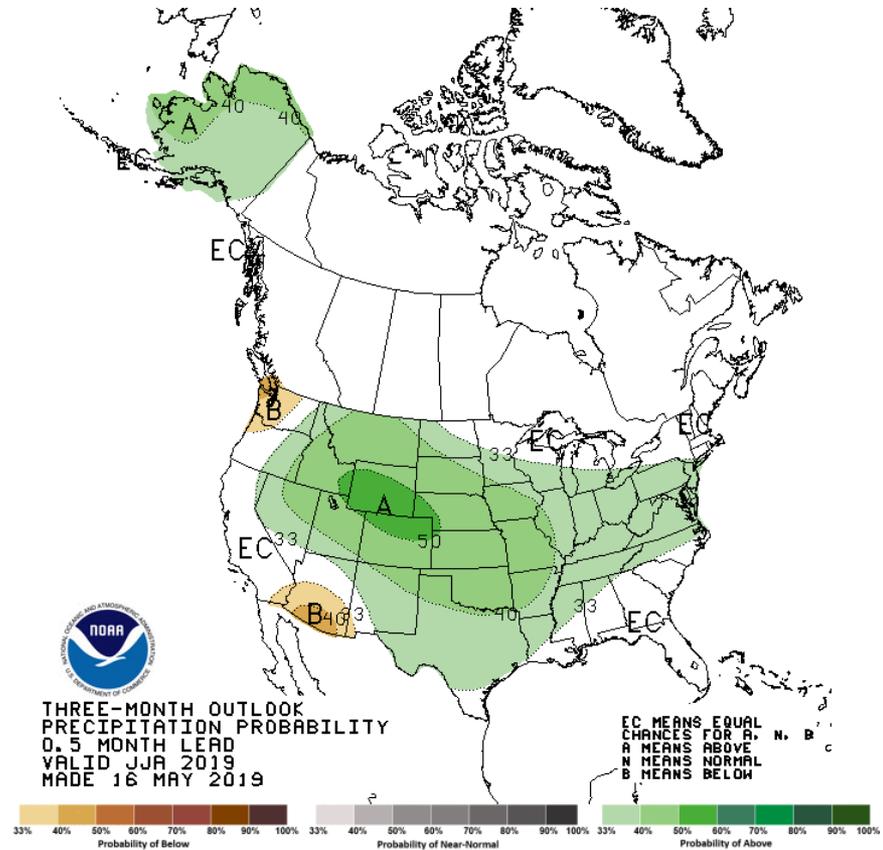
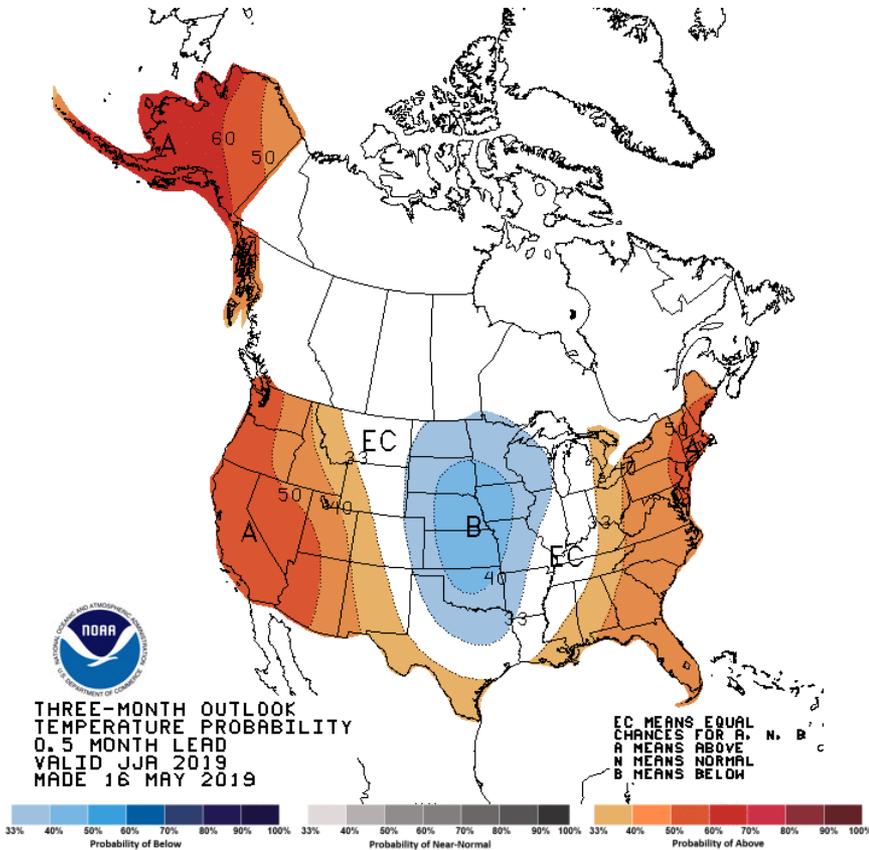
# Model Predictions of ENSO from May 2019



# June outlook



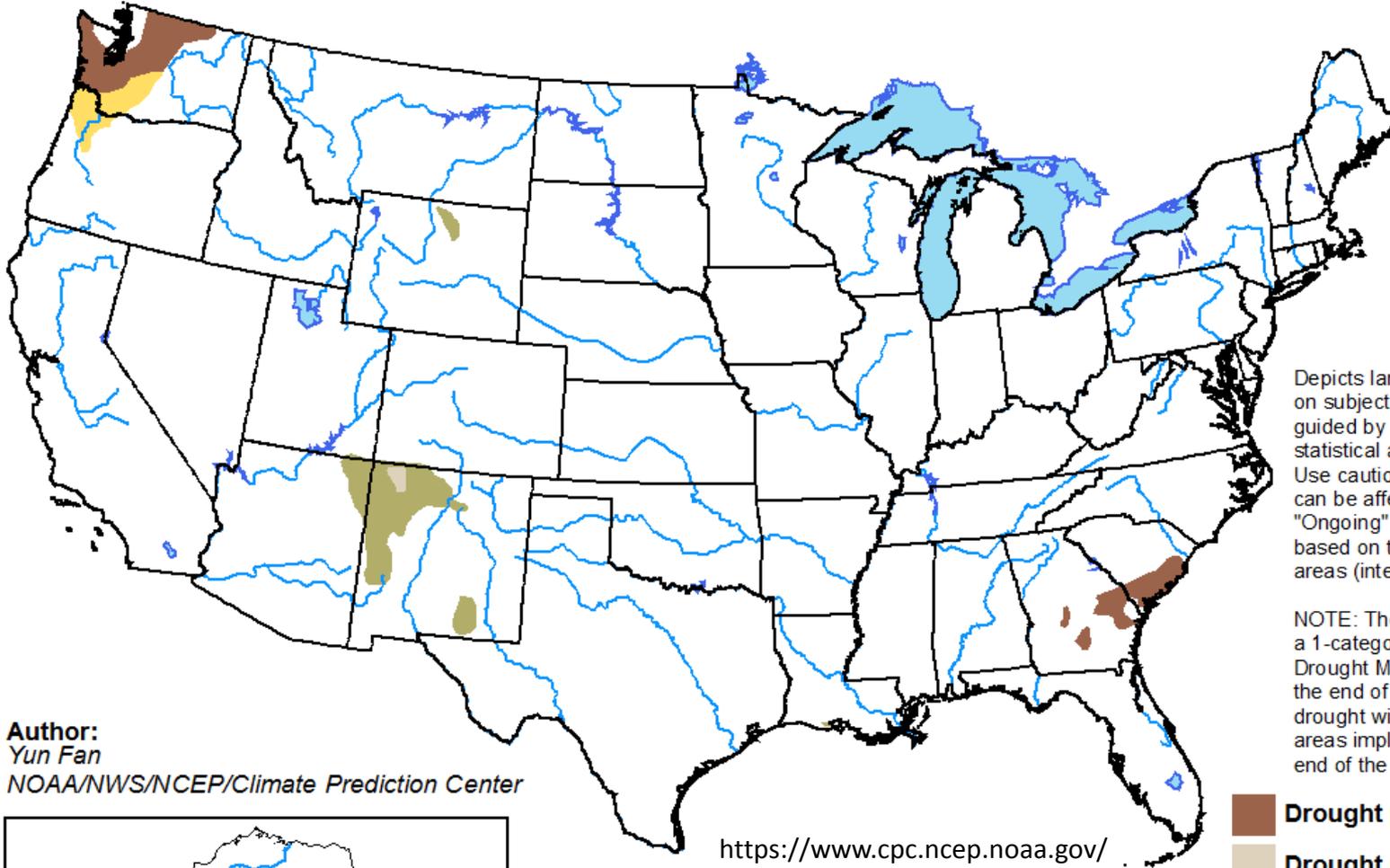
# 3-month outlook



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for May 16 - August 31, 2019  
Released May 16



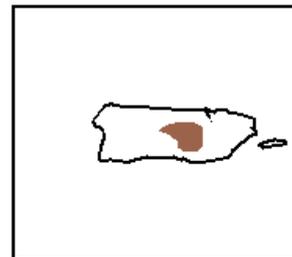
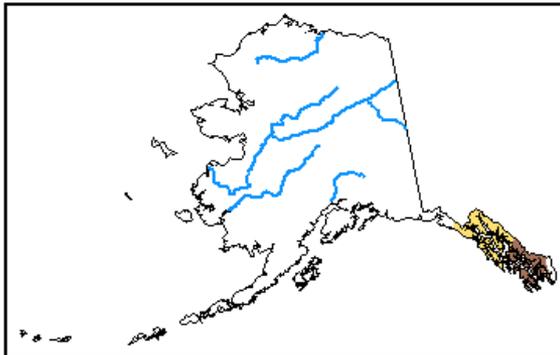
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

Author:  
Yun Fan  
NOAA/NWS/NCEP/Climate Prediction Center

<https://www.cpc.ncep.noaa.gov/>

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



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



**Dr. Dave DuBois  
State Climatologist  
NMSU**

**dwdubois@nmsu.edu  
@nmclimate**