



Drought Status and Outlook

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

Presented at the Water & Natural Resource Committee meeting, July 27, 2015

July 4, 2015 from Southwest flight from Chicago to Albuquerque: Truchas Peak



Snotel

Rio Grande Basin

Legend

- Feature 1
- ❄ Feature 2
- ▲ Peak

**MODIS-Terra
False color infrared
to highlight snow
cover (red)**

11 May 2015

Rio Grande Basin

Santa Fe

Albuquerque

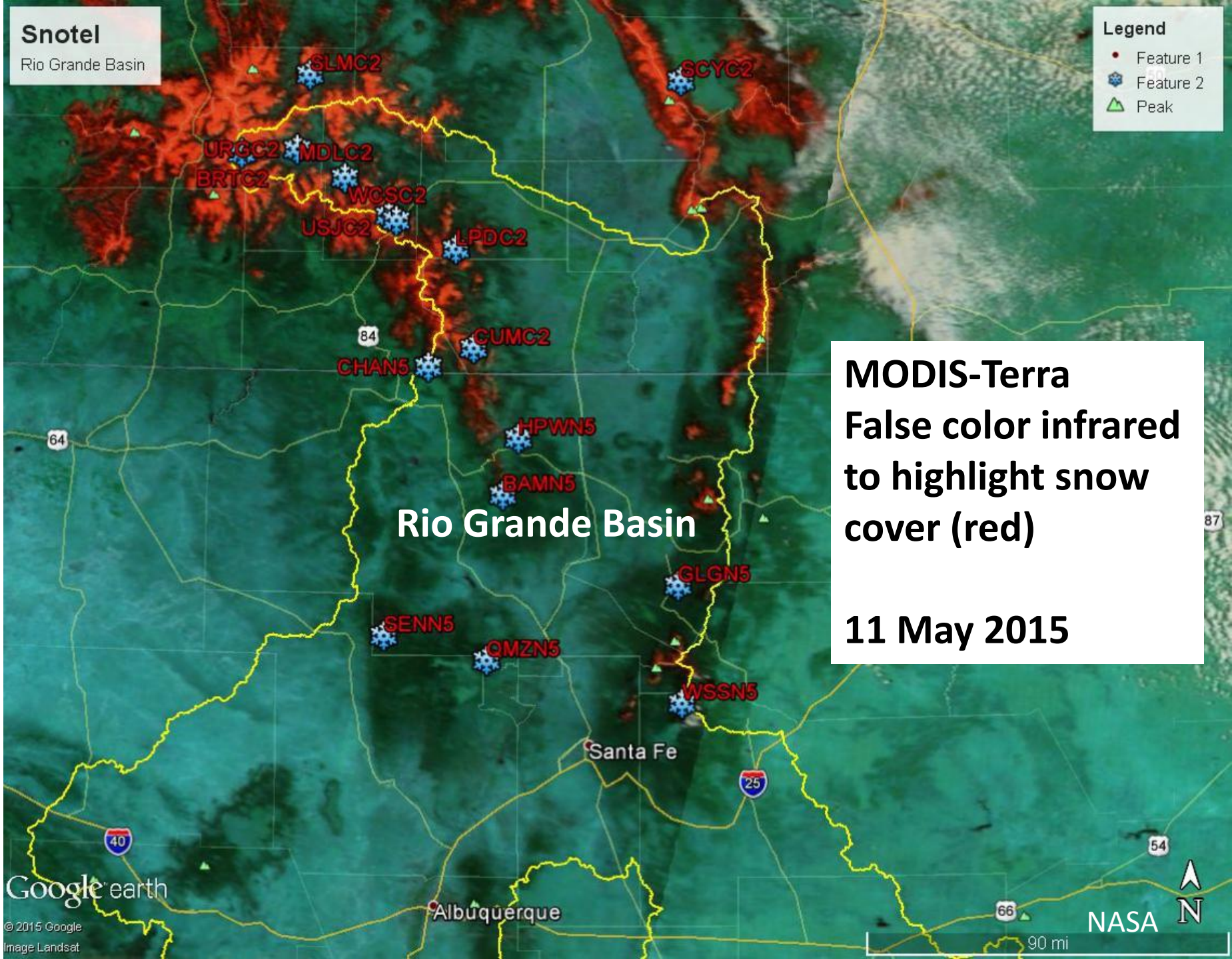
Google earth

© 2015 Google
Image Landsat

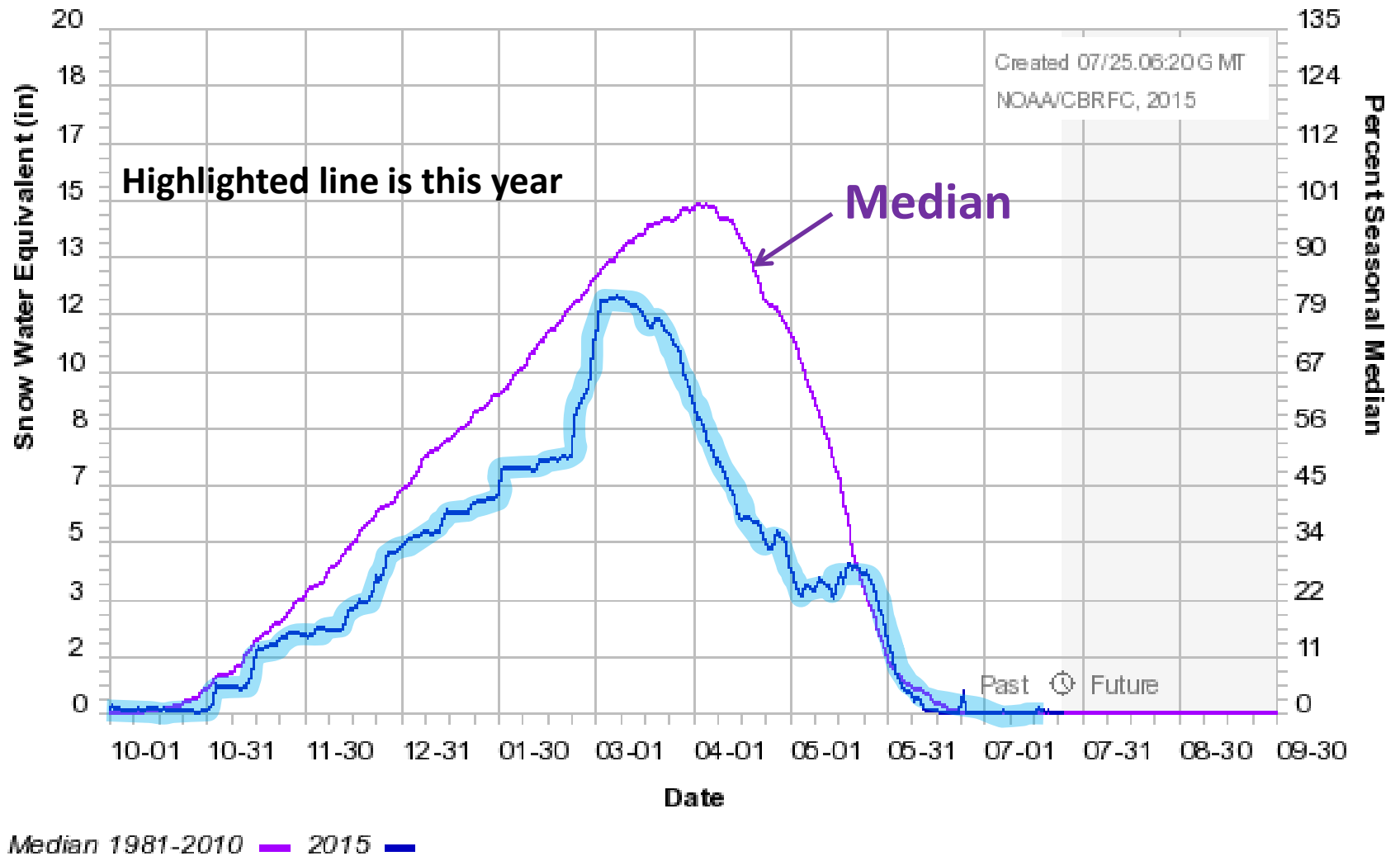
NASA



90 mi



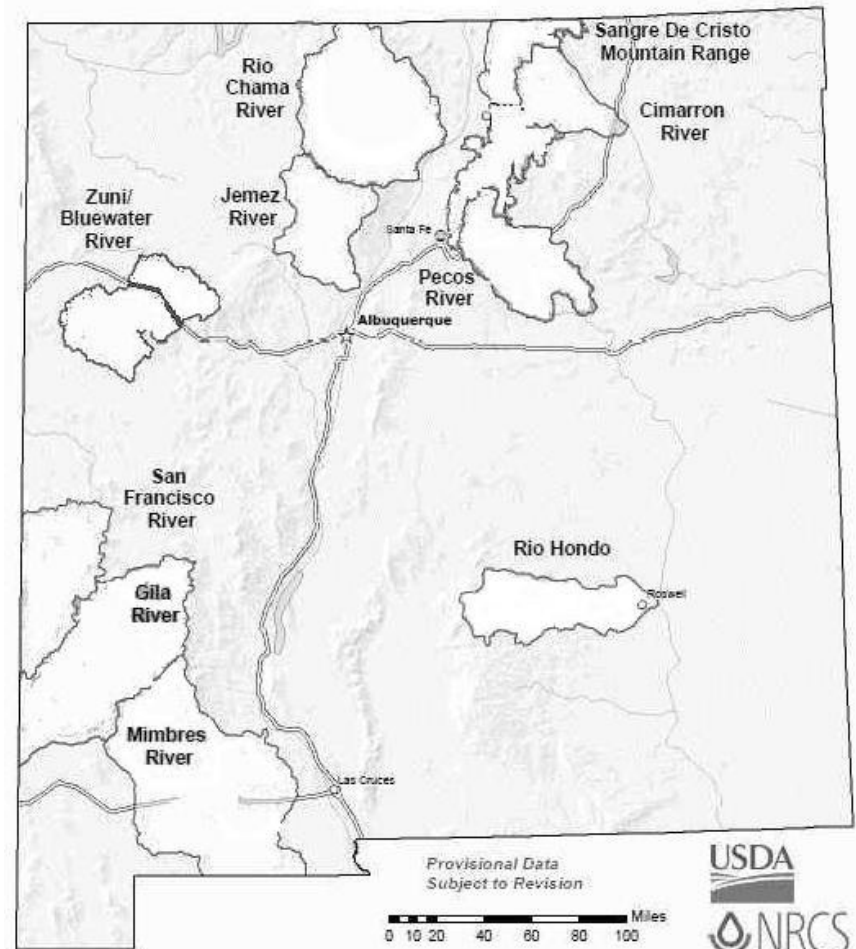
Rio Grande Basin Snow Observations



Water Year Precipitation by Basin

SNOTEL mountain top observations

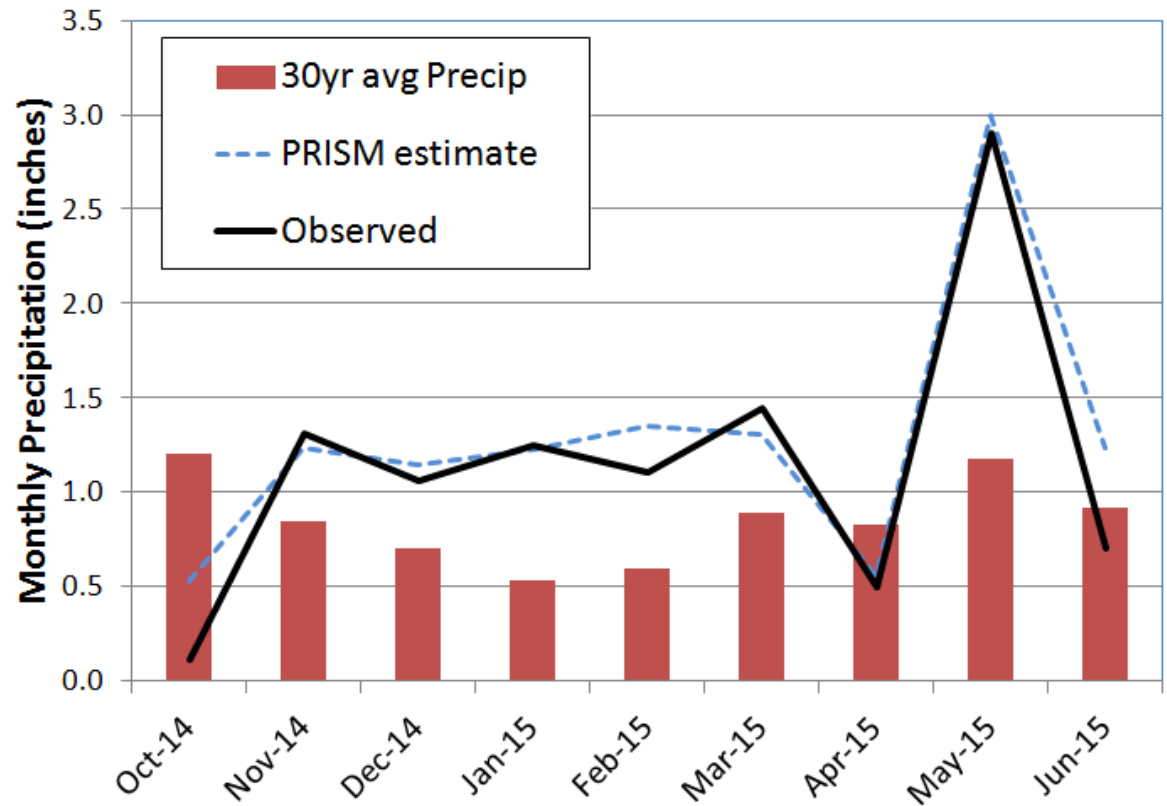
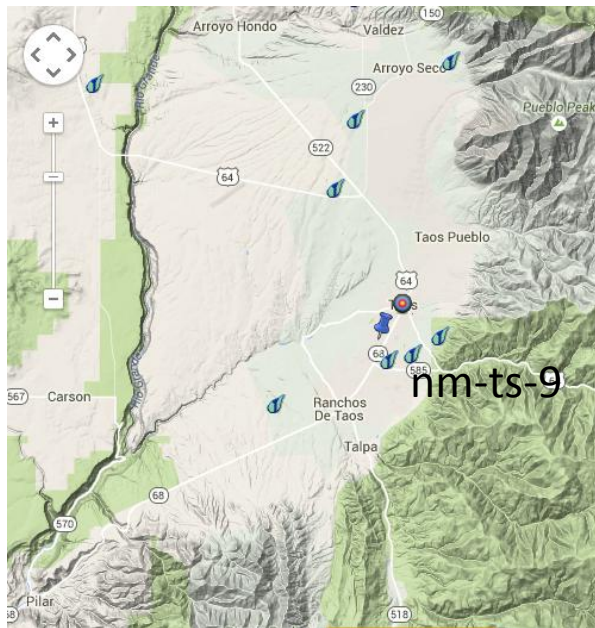
Basin	% of Avg
Rio Chama River	105
Upper Rio Grande	97
Sangre de Cristo Mtn Range	107
Jemez River	120
San Francisco River	86
Gila River	82
Mimbres River	77
Pecos River	99
San Juan River Headwaters	93
Animas River	99
Cimarron River	123
Zuni/Bluewater River	112
Rio Hondo	94



water year to date precipitation as of July 25, 2015

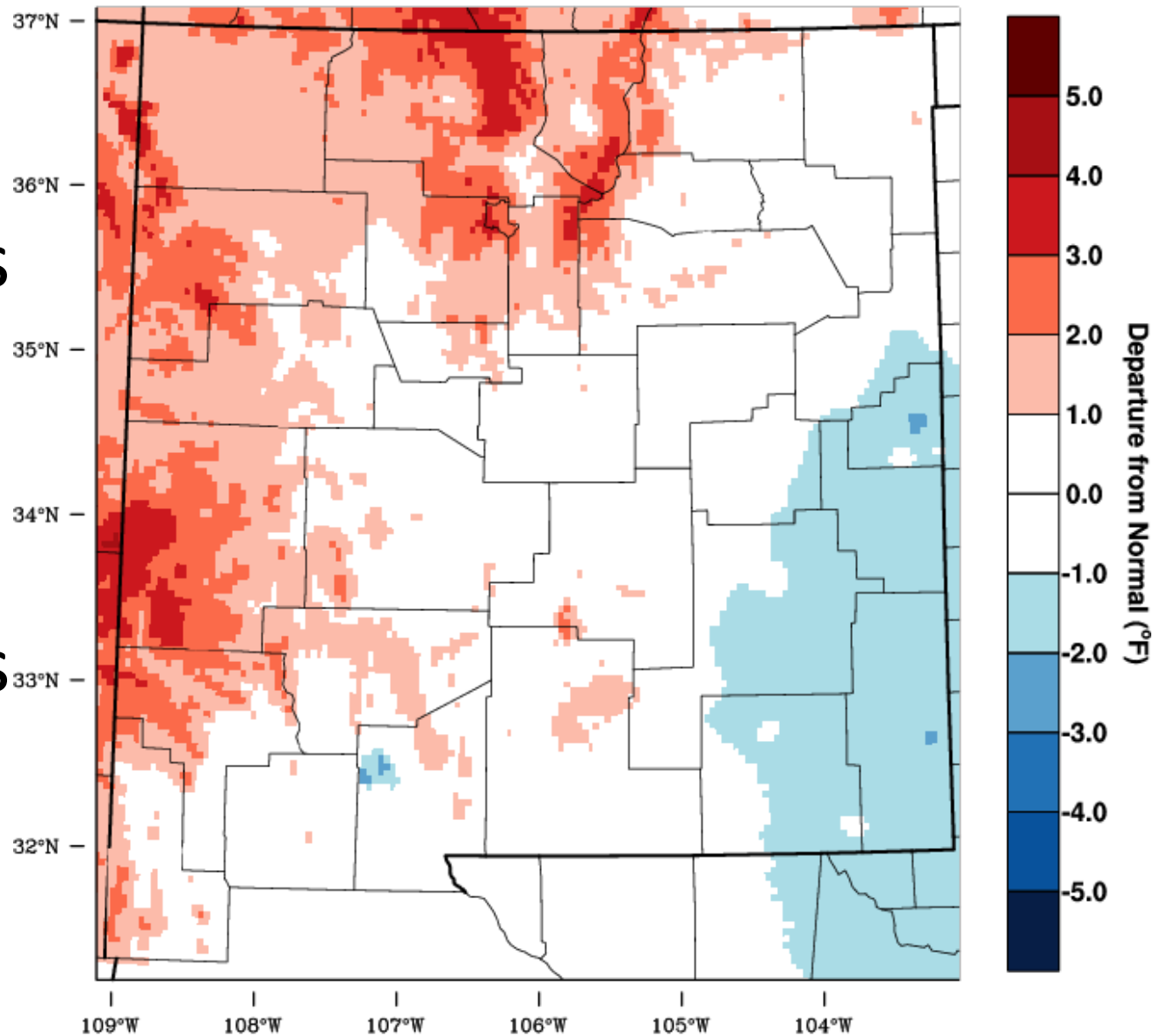
Taos Water Year Precipitation

- Water Year 135% of average by CoCoRaHS network



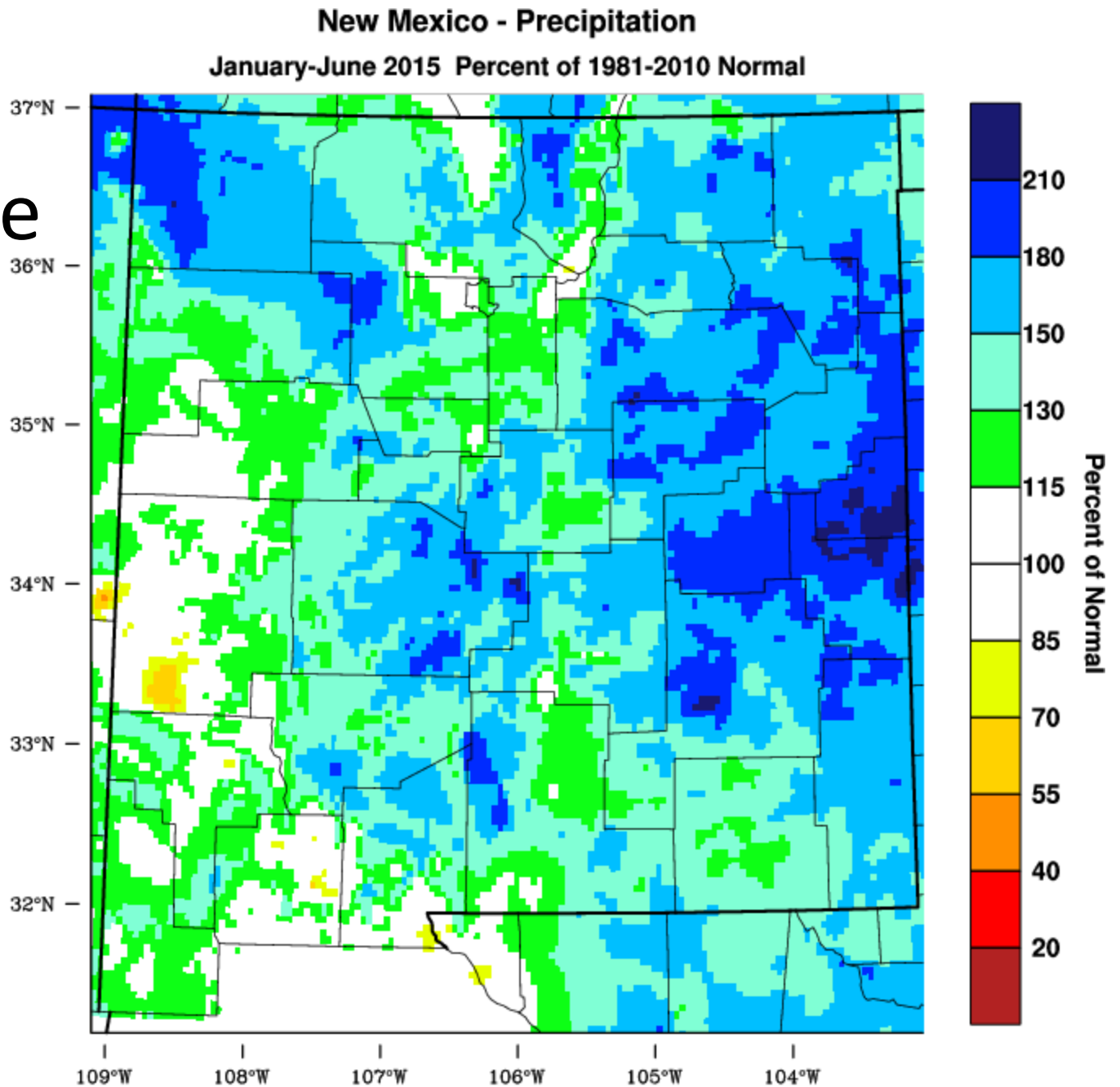
New Mexico - Mean Temperature
October-June 2015 Departure from 1981-2010 Normal

Water Year
Temperatures
Above
Average in
northern &
western Mtns



WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 16 JUL 2015

Jan to June 2015 Rainfall

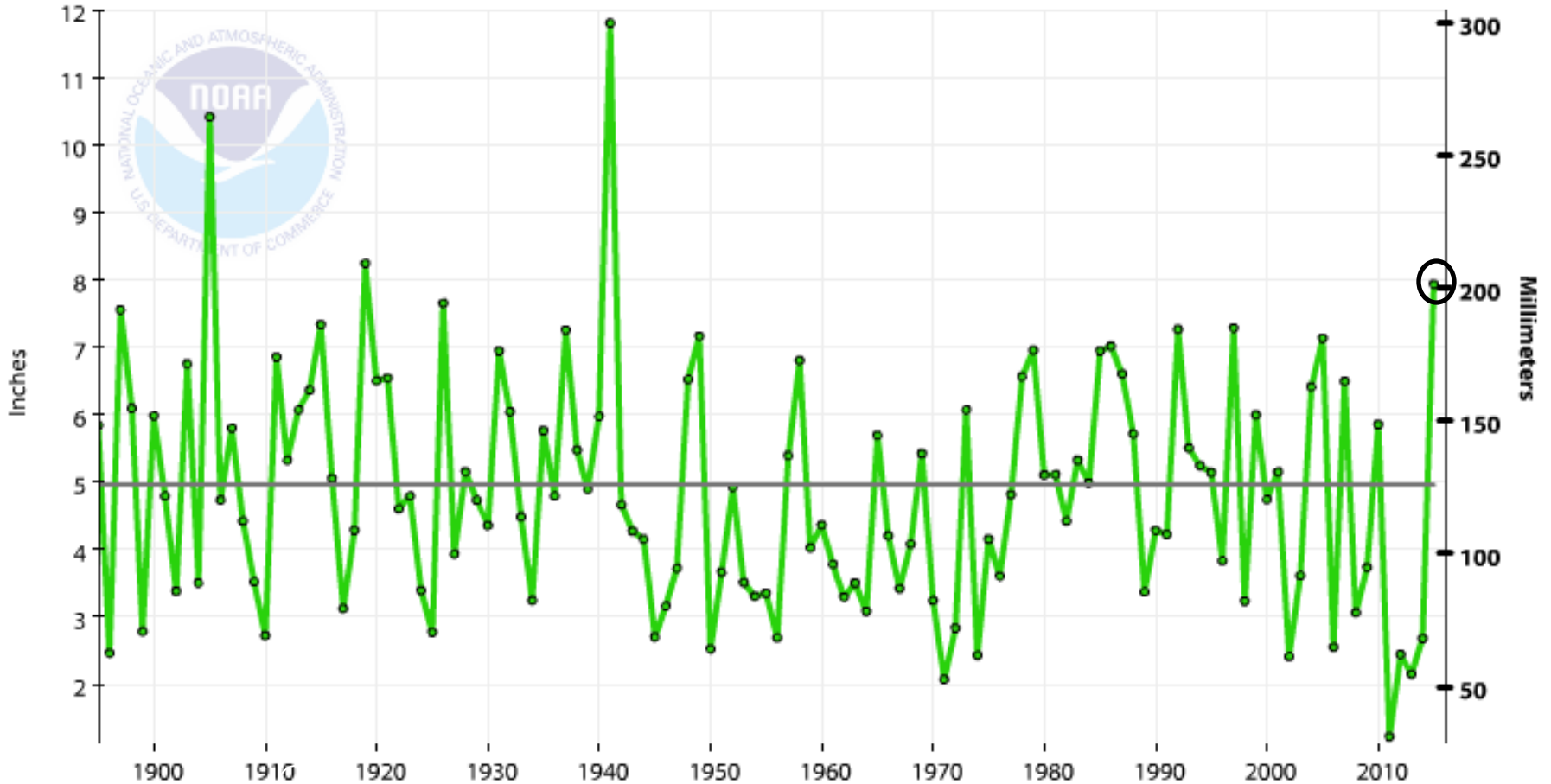


First 6 months of 2015

NM Precipitation Rank (4th wettest: +2.98")

New Mexico, Precipitation, January-June

— 1901-2000 Avg: 4.95" —●— Precip



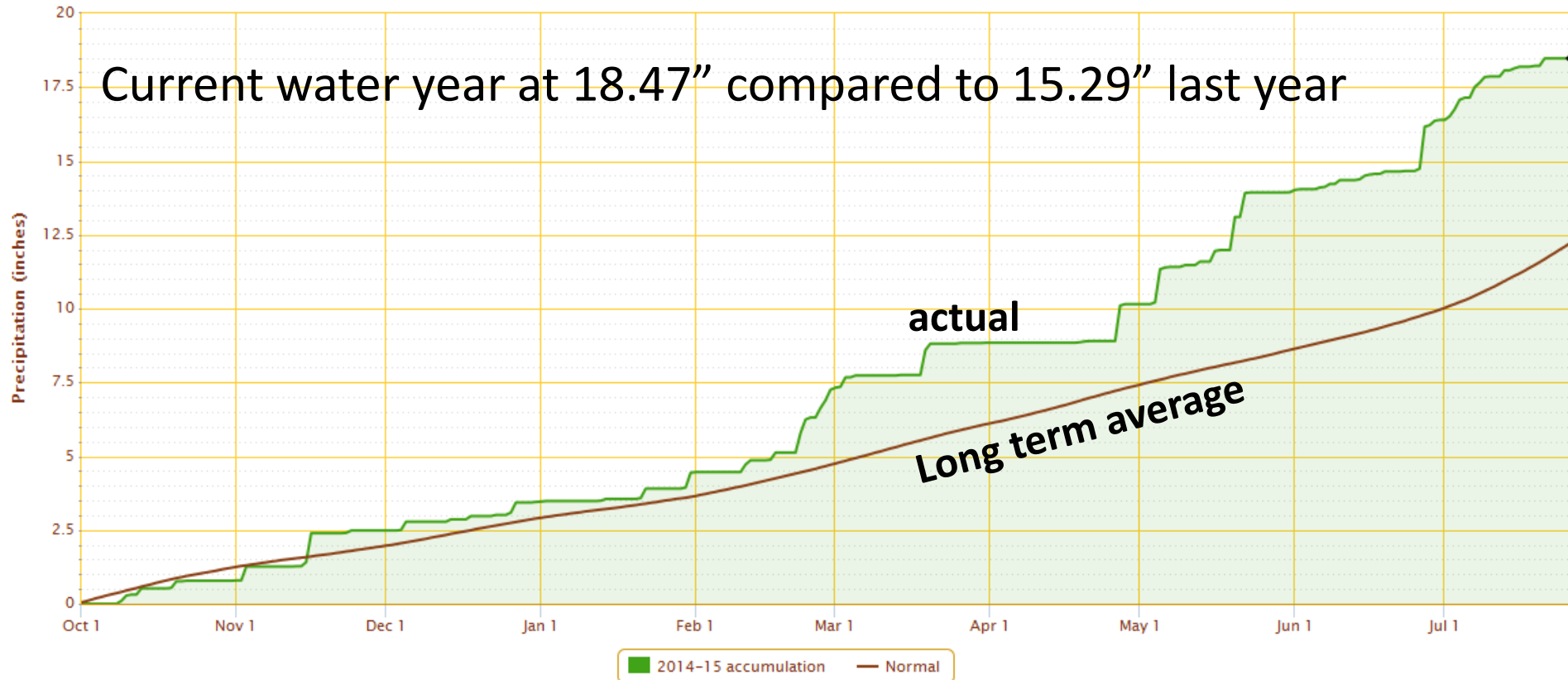
Eagle Nest – Water Year 2015

Precipitation

- Water Year 151% of average (2nd highest on record)

Accumulated Precipitation – EAGLE NEST, NM

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



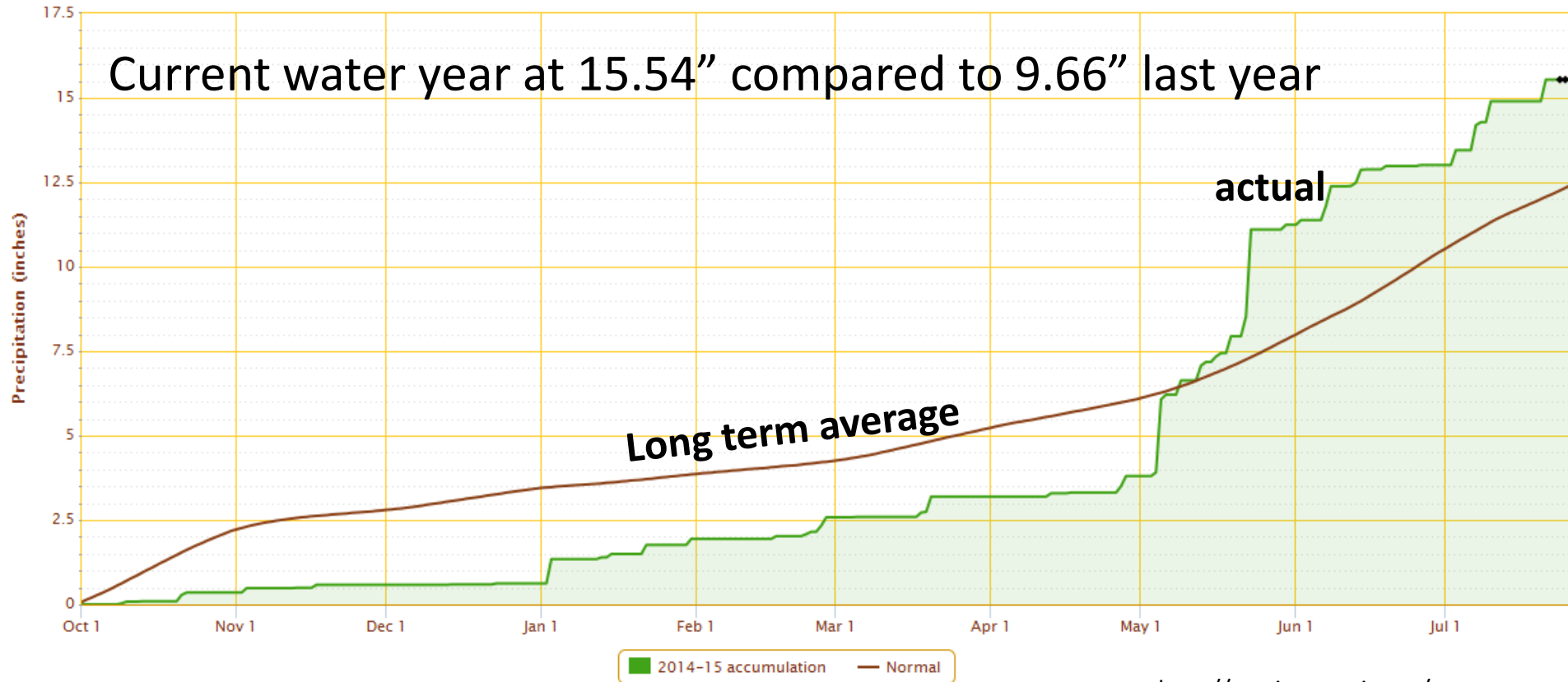
Clovis – Water Year 2015 Precipitation

Clovis – NMSU Ag Science Center

- Water Year 125% of average (15th highest on record)

Accumulated Precipitation – CLOVIS 13 N, NM

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



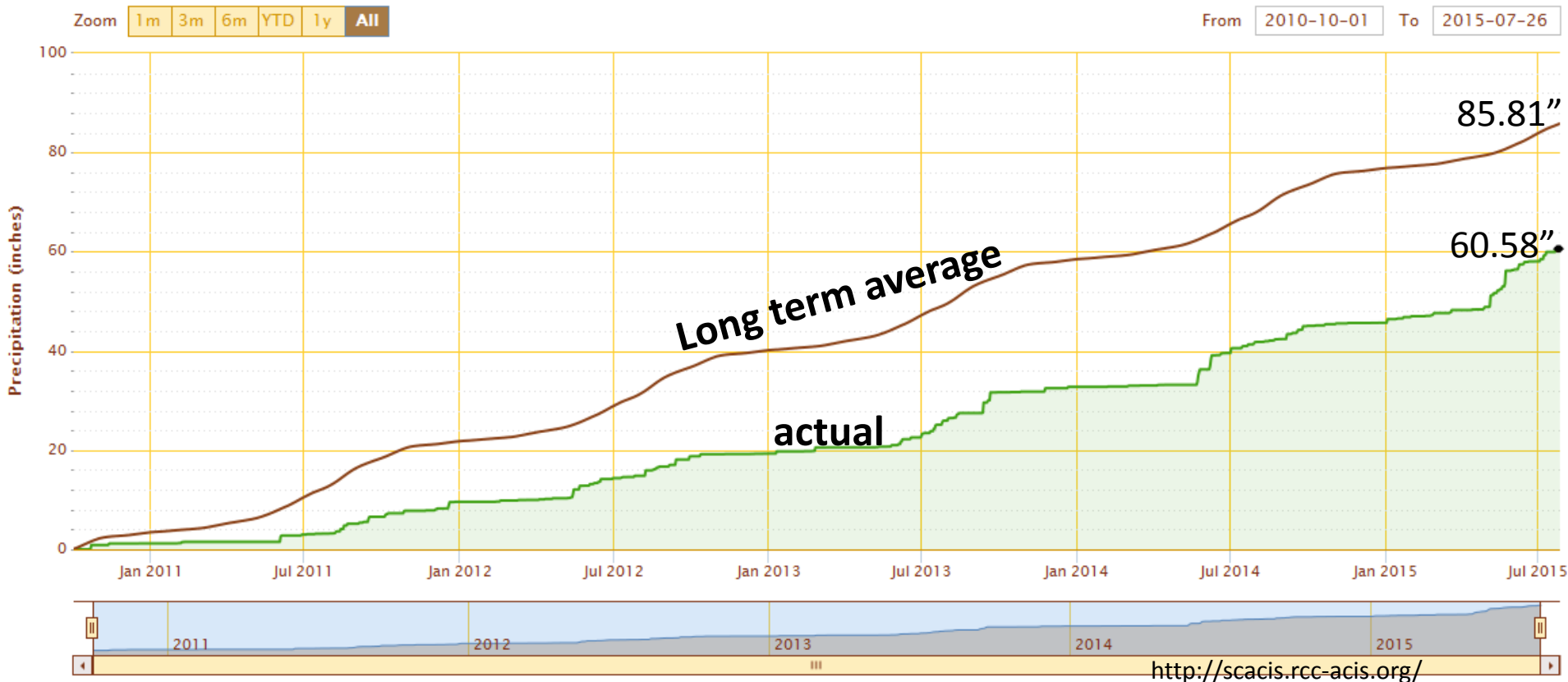
Clovis – accumulation of last 5 yrs

- Oct 2010 to July 2015
- 25.23" precipitation deficit over this period

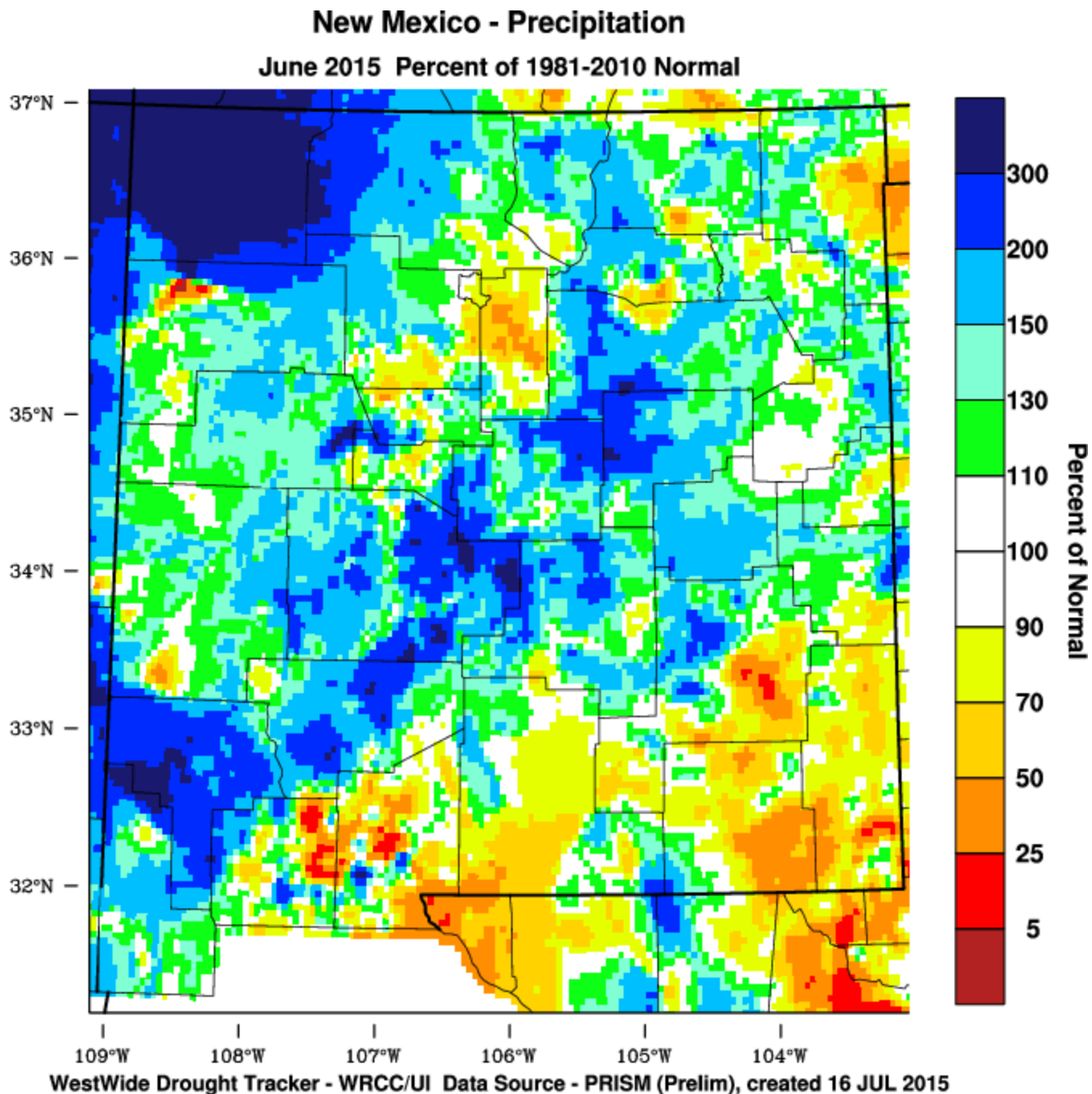
Clovis – NMSU Ag Science Center

Accumulated Precipitation – CLOVIS 13 N, NM

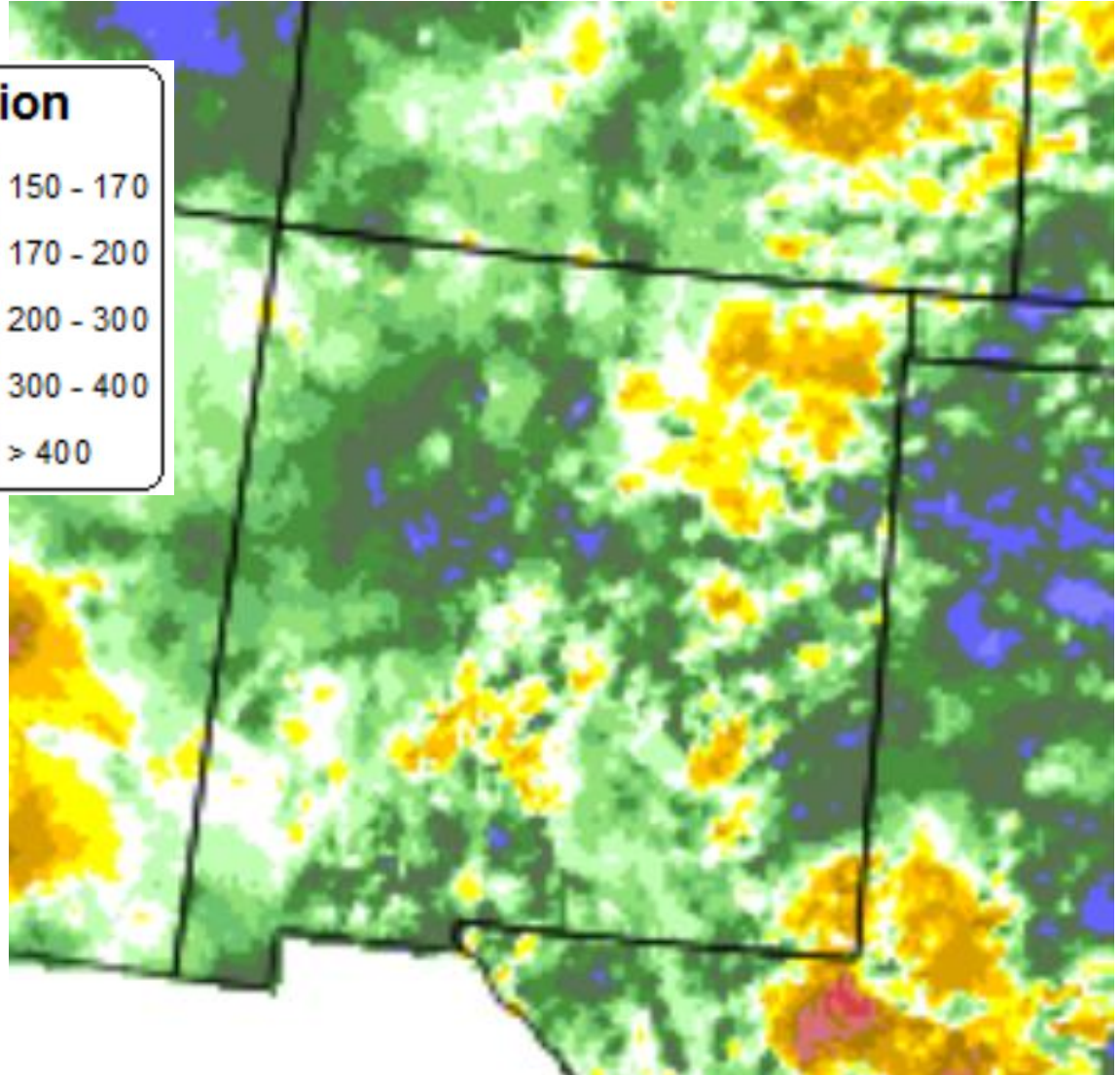
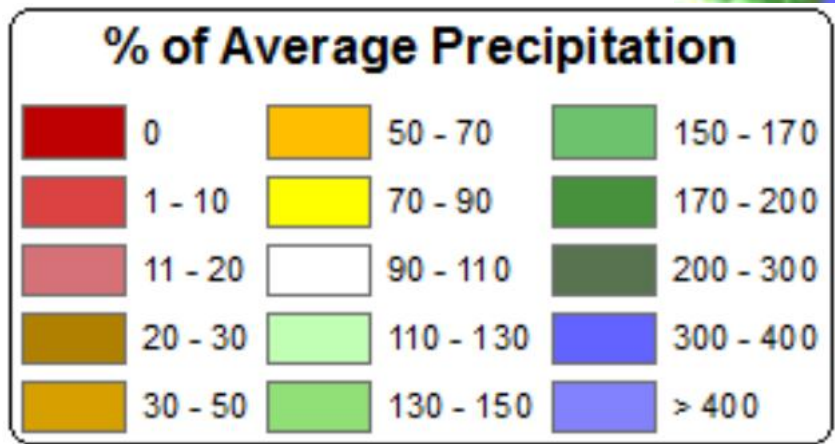
Use navigation tools above and below chart to change displayed range; green/black diamonds represent subsequent/missing values



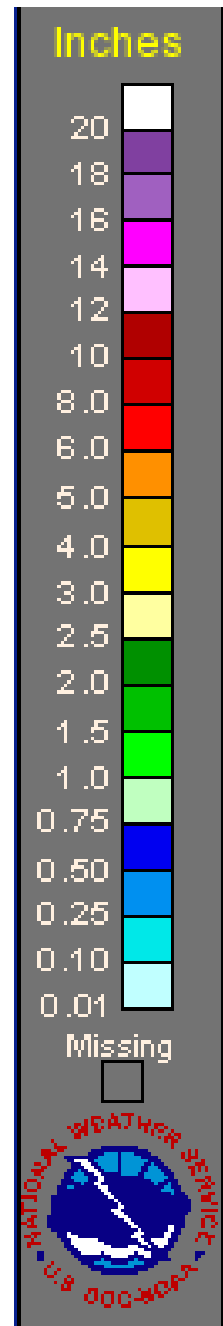
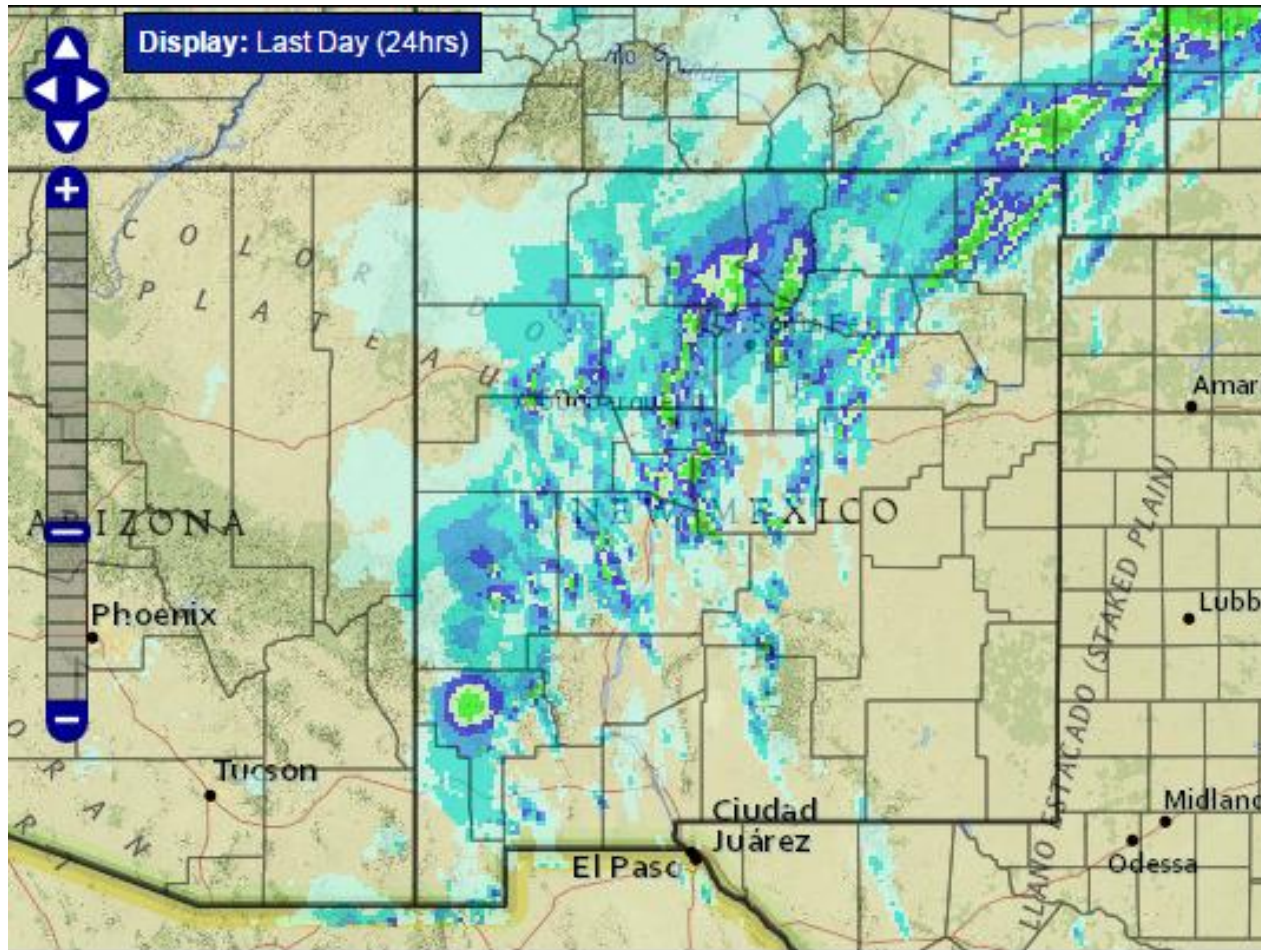
June 2015 Rainfall



July 1-25, 2015 precipitation








July 27 (Last 24-hours)



US Drought Monitor

Drought classification puts drought in historical perspective

<u>DM Level</u>	<u>Name</u>	<u>Frequency</u>
D0 	Abnormally dry	3-5 years
D1 	Moderate drought	5-10 yrs
D2 	Severe drought	10-20 yrs
D3 	Extreme drought	20-50 yrs
D4 	Exceptional drought	50-100 yrs

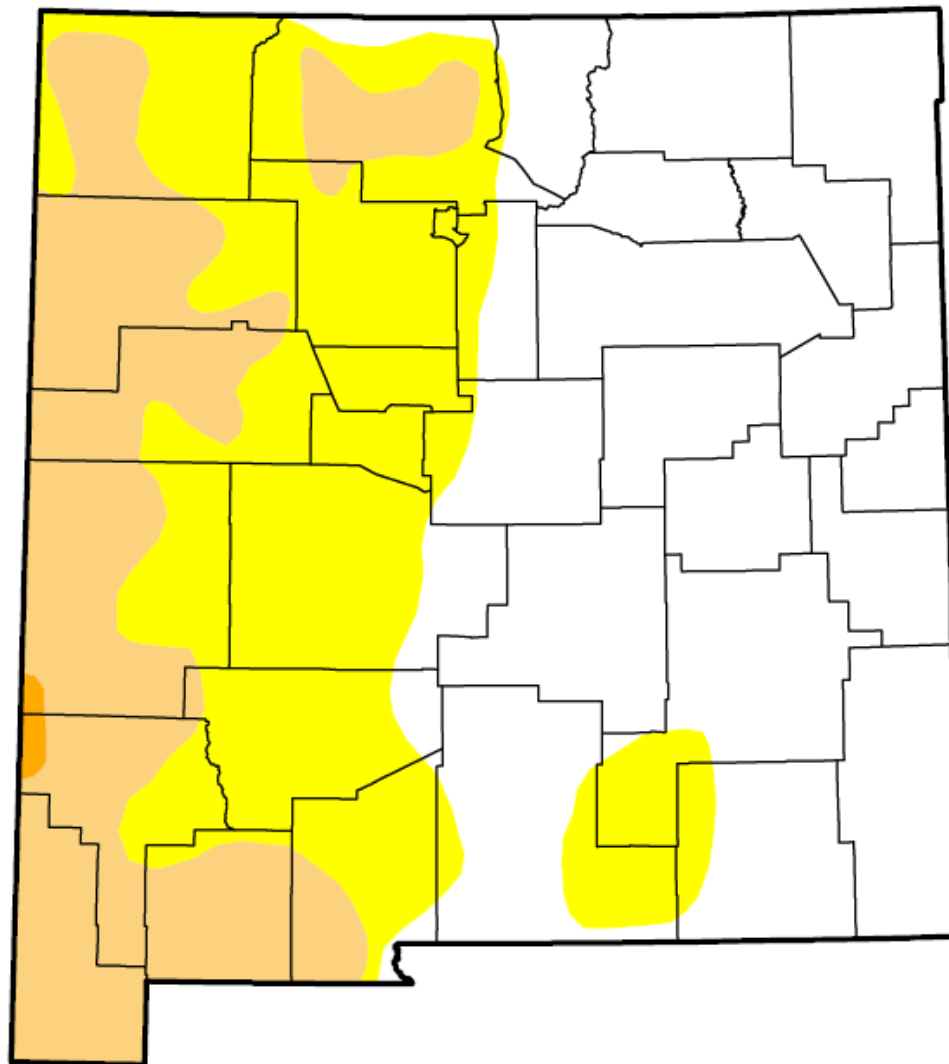
U.S. Drought Monitor New Mexico

Latest map

July 21, 2015

(Released Thursday, Jul. 23, 2015)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	49.44	50.56	21.09	0.27	0.00	0.00
Last Week 7/14/2015	49.44	50.56	21.09	4.12	0.00	0.00
3 Months Ago 4/21/2015	19.35	80.65	58.31	18.76	0.00	0.00
Start of Calendar Year 12/30/2014	12.01	87.99	65.38	29.10	3.70	0.00
Start of Water Year 9/30/2014	16.70	83.30	62.57	30.04	8.08	0.00
One Year Ago 7/22/2014	0.00	100.00	96.38	77.61	34.10	0.39

Intensity:



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

Author:

David Simeral

Western Regional Climate Center



U.S. Drought Monitor

New Mexico

June 25, 2013

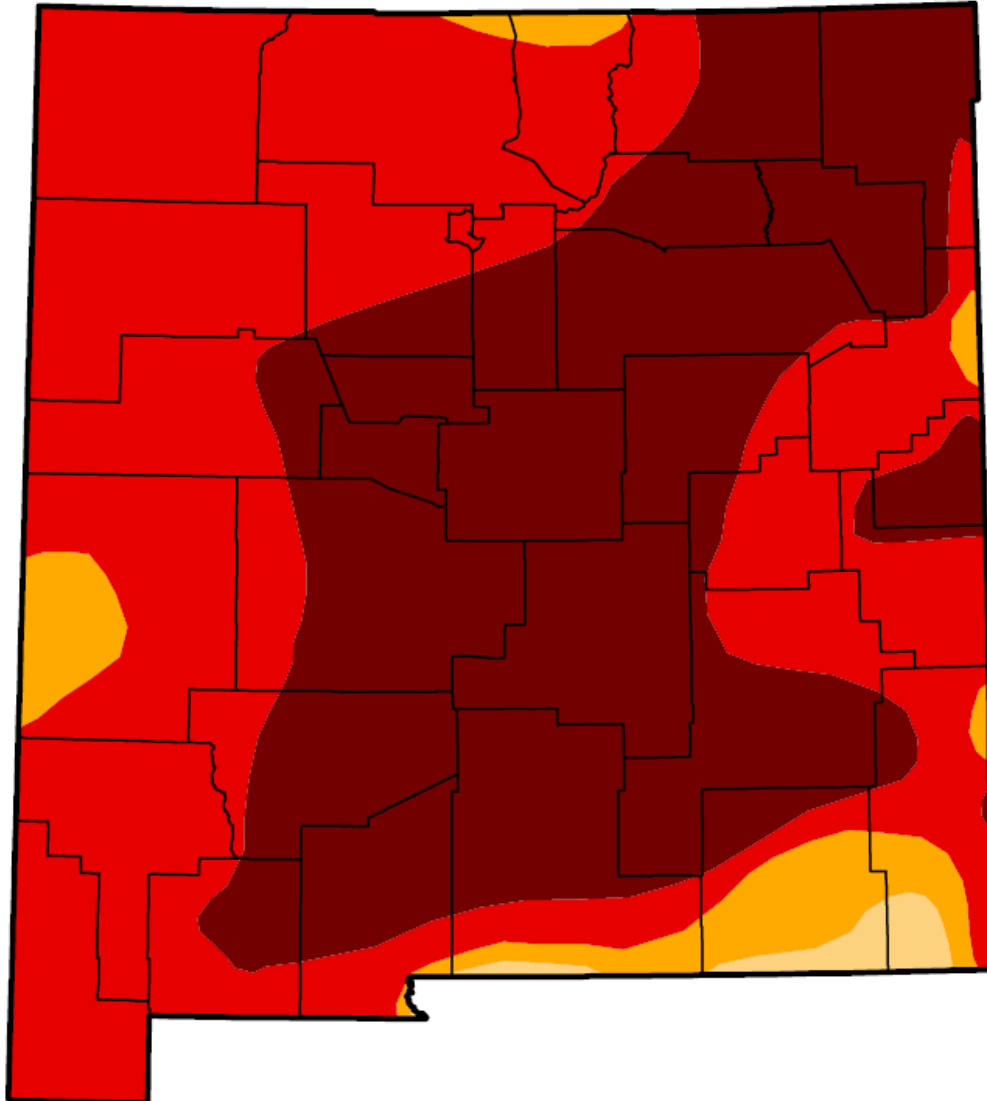
(Released Thursday, Jun. 27, 2013)

Valid 7 a.m. EST

Drought at its worst!

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	98.79	93.46	44.79
Last Week 6/18/2013	0.00	100.00	100.00	98.49	90.18	44.13
3 Months Ago 3/26/2013	0.23	99.77	98.47	89.85	49.97	4.36
Start of Calendar Year 1/1/2013	0.00	100.00	98.83	94.05	31.88	0.97
Start of Water Year 9/25/2012	0.00	100.00	100.00	62.56	12.25	0.66
One Year Ago 6/26/2012	0.00	100.00	99.64	85.75	25.25	0.00



Intensity:

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

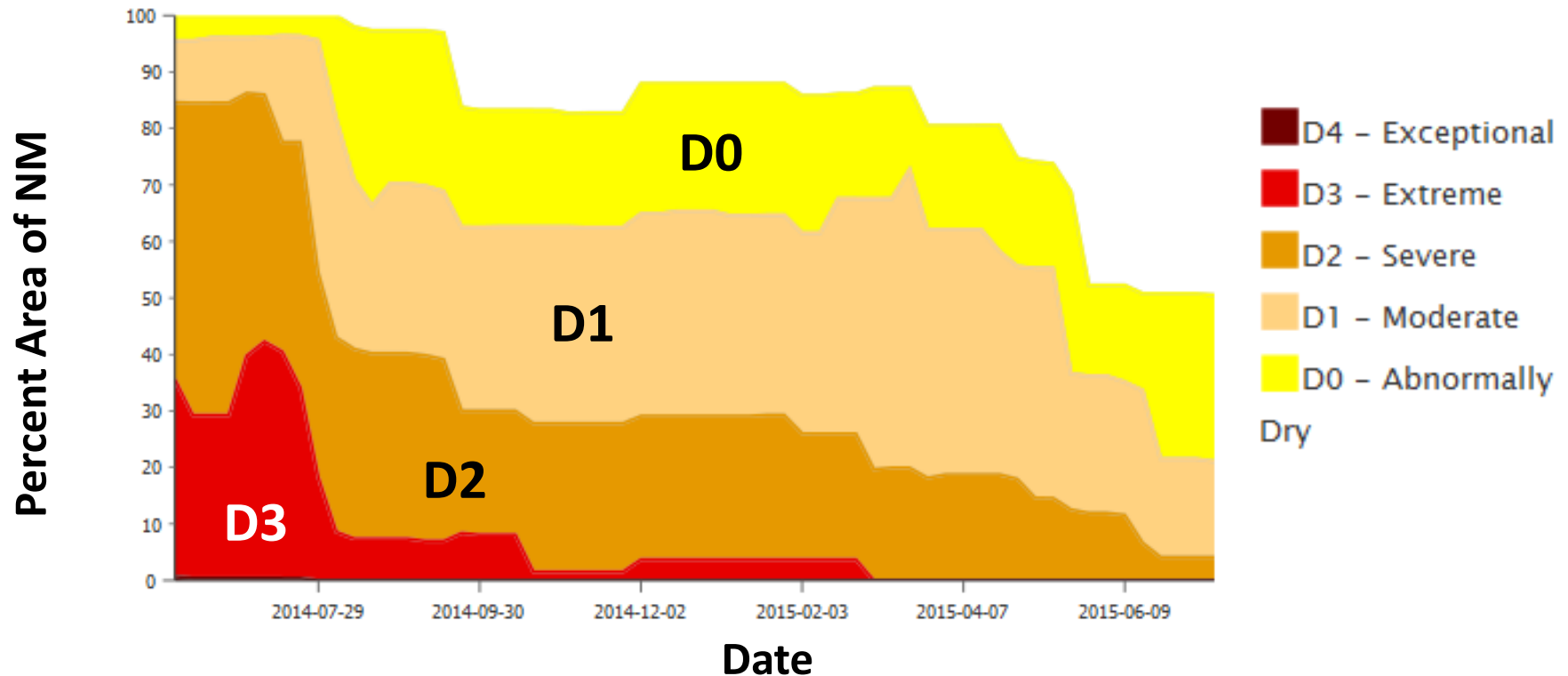
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Mark Svoboda
National Drought Mitigation Center



Last 12-months in Drought Monitor

- Currently 51% in drought (last year 100%)
- Last year 34% in D3, this year 0%
- Notice improvement this past spring

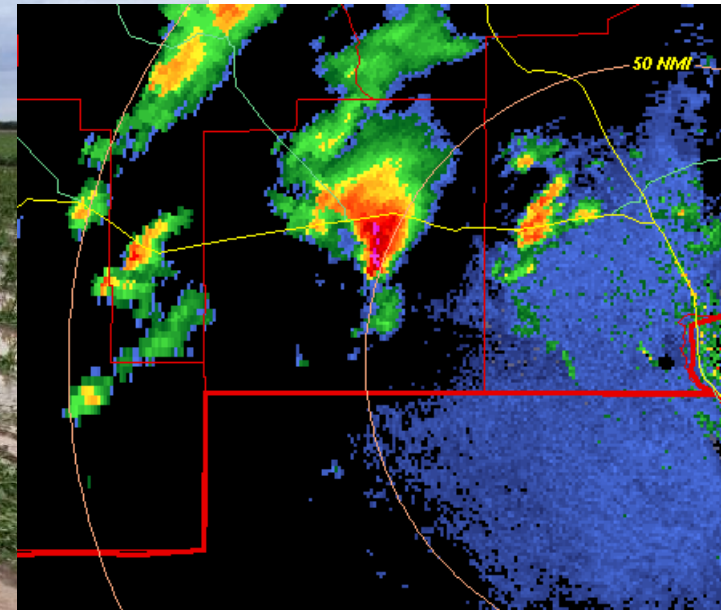


Weather Impacts to Agriculture

- Hail damage in Deming on July 10



Santa Teresa Radar
19:28Z (1:28 pm)



1:15pm nickel to quarter
sized hail reported



Chile



Cotton



Watermelon

Dust hazards remain on I-10 through June and early July

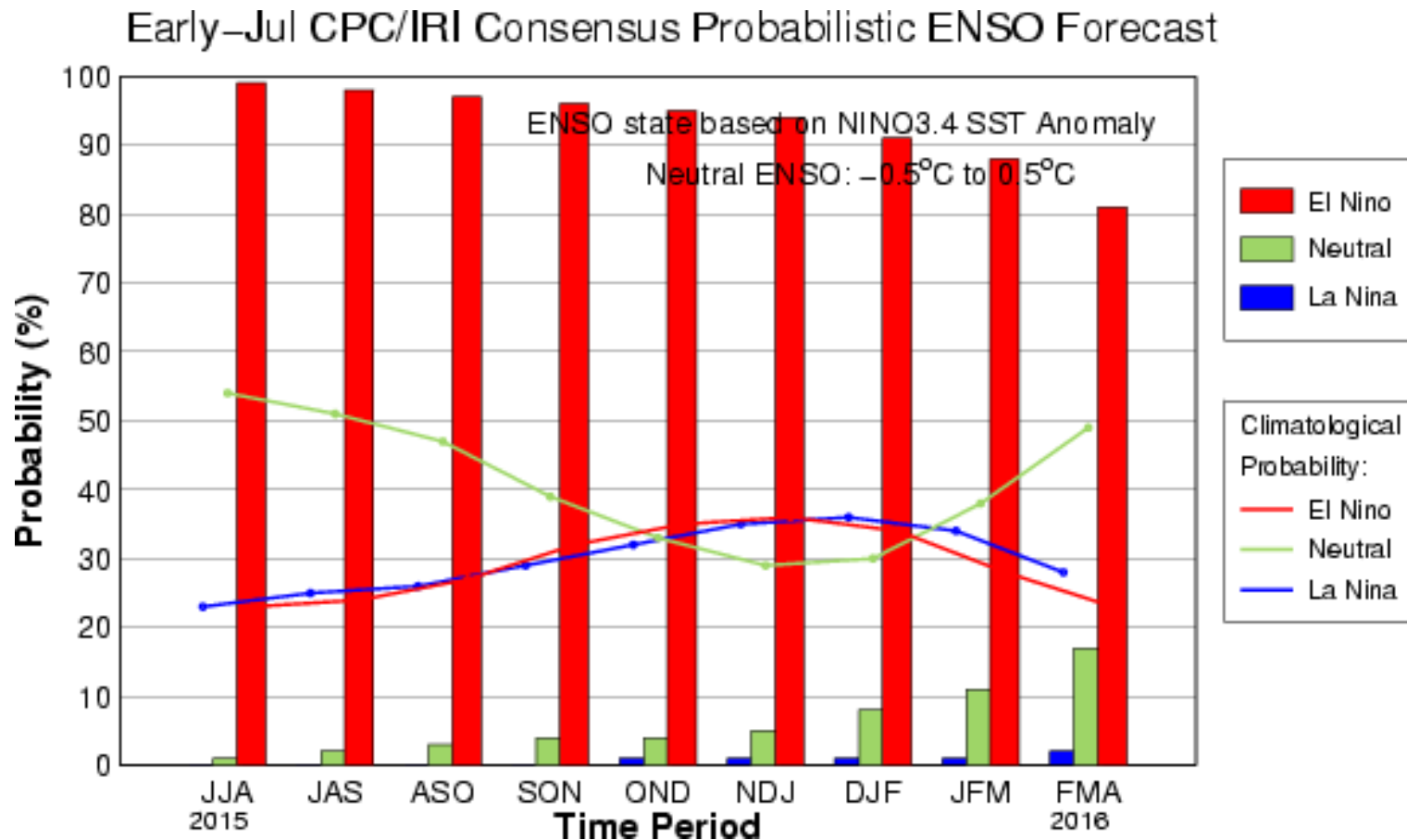


PLOTWATCHER PRO

06/09/2015 04:58:05PM 65% 98F

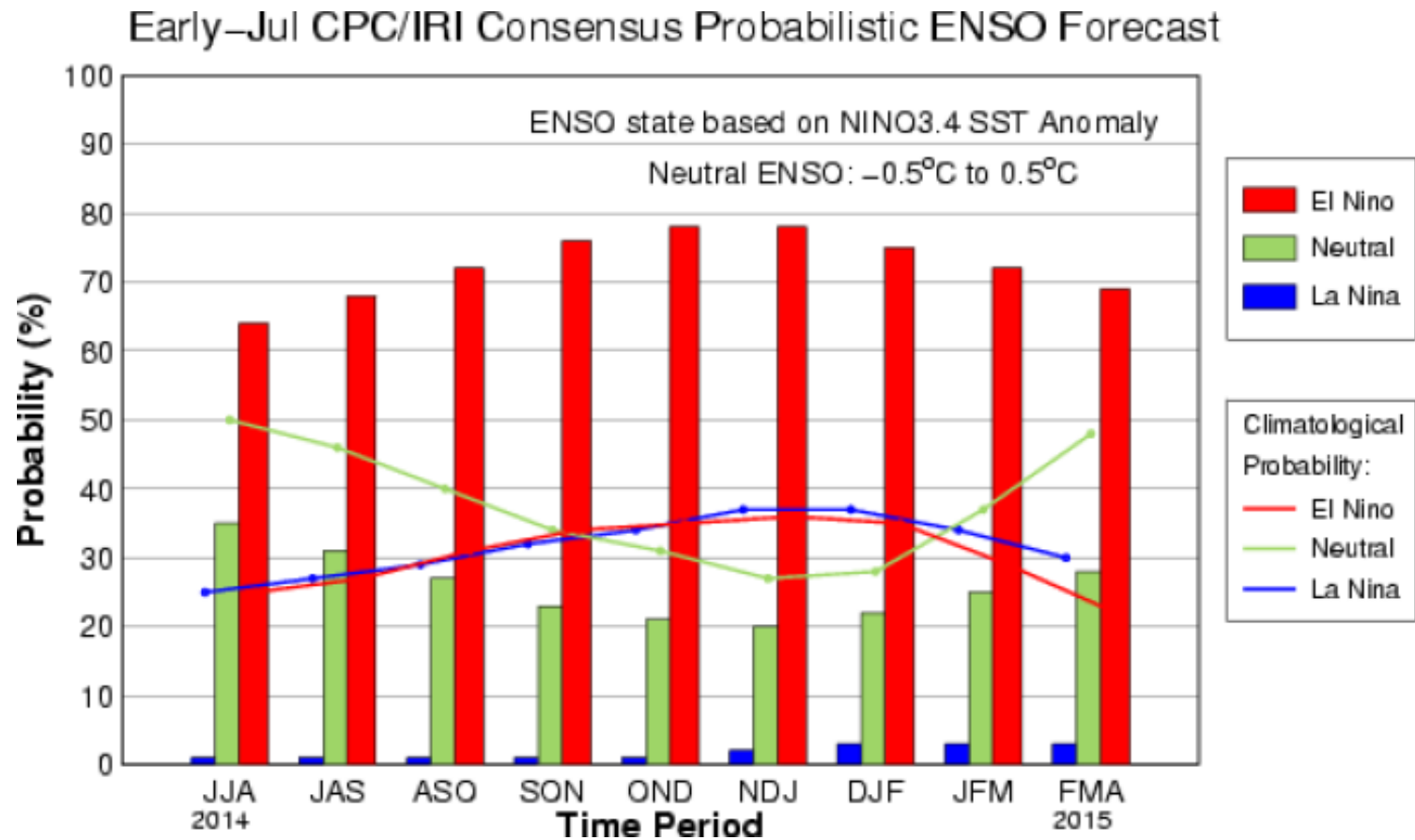
Seasonal Forecast

Currently in El Nino. Greater than 90% it will continue thru winter



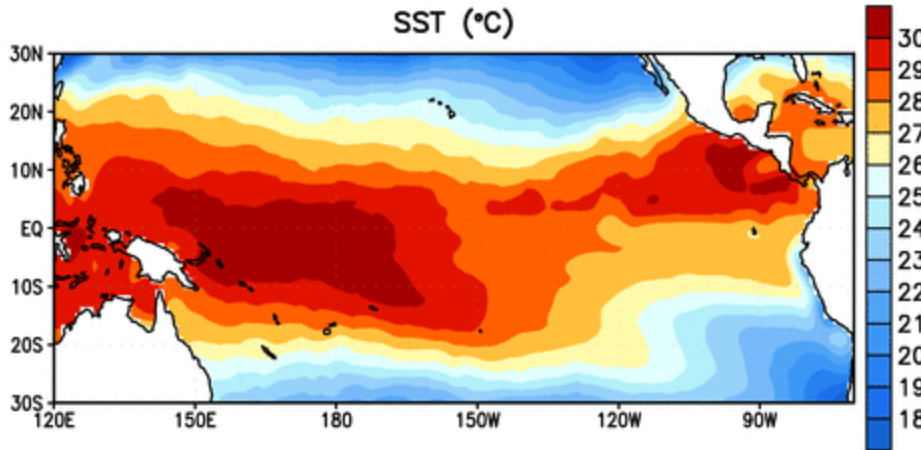
Last year this time

El Nino conditions were most likely one year ago.

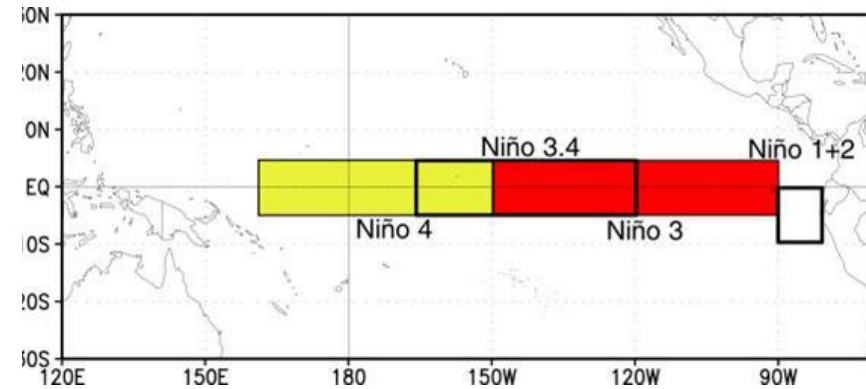
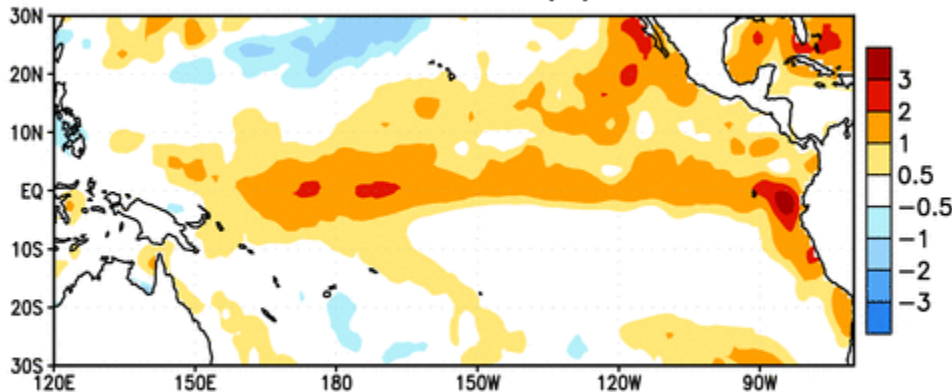


3 Month Loop of Weekly SST/anomalies

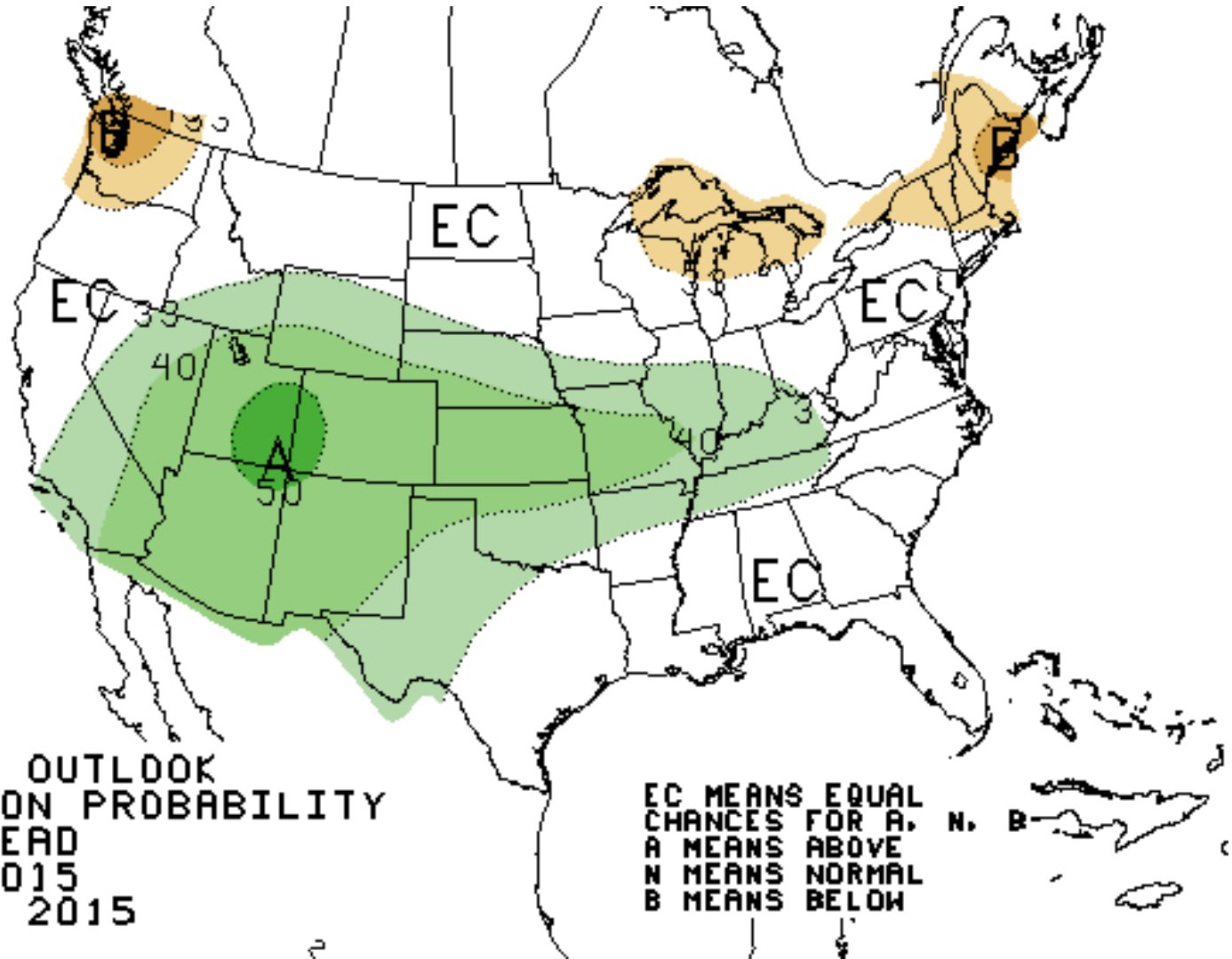
Week centered on 29 APR 2015
SST (°C)



Week centered on 29 APR 2015
SST Anomalies (°C)

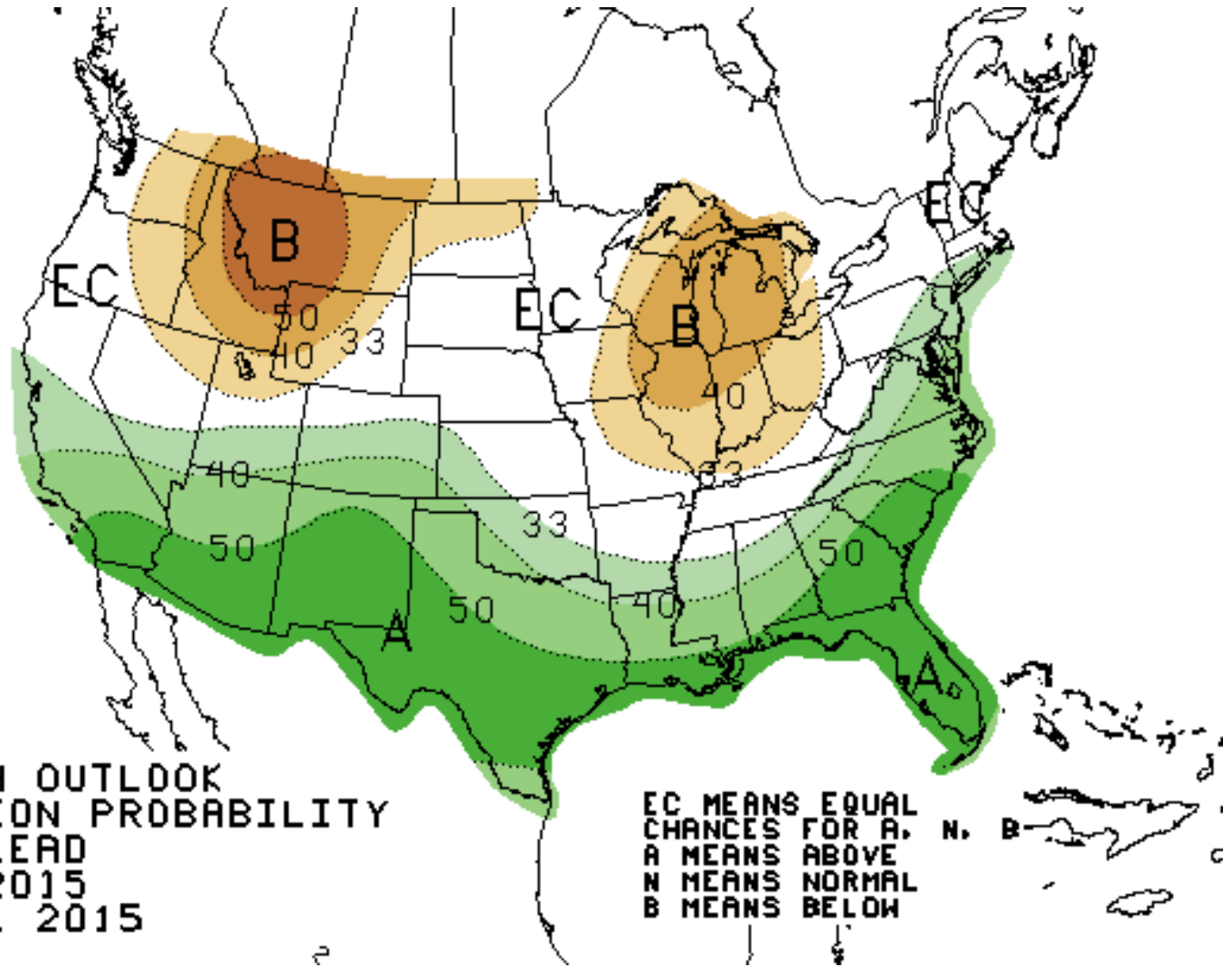


Rest of summer (Aug – Oct) precipitation outlook



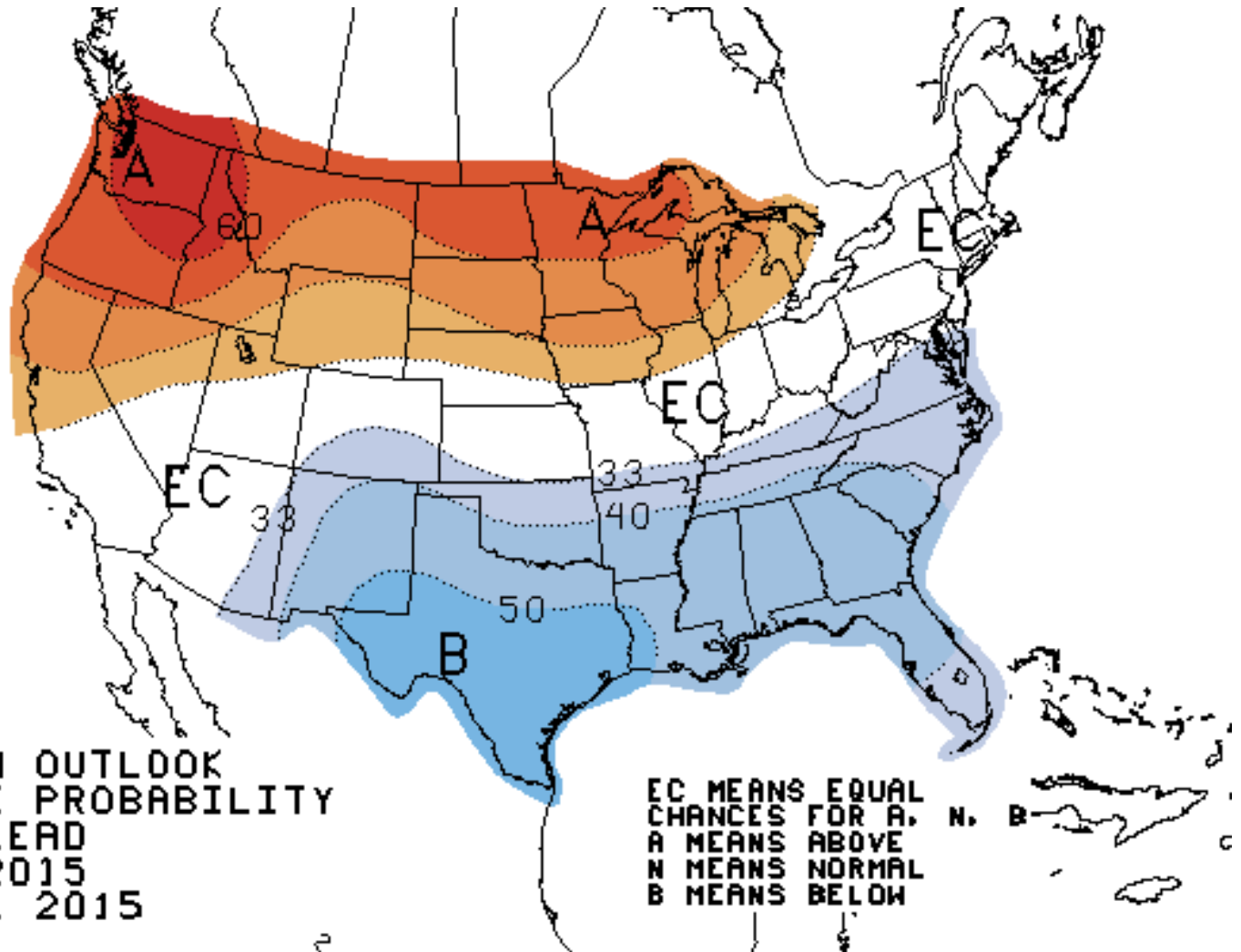
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID ASD 2015
MADE 16 JUL 2015

Winter (Dec – Feb) Precipitation Outlook



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
4.5 MONTH LEAD
VALID DJF 2015
MADE 16 JUL 2015

Winter (Dec – Feb) Temperature Outlook



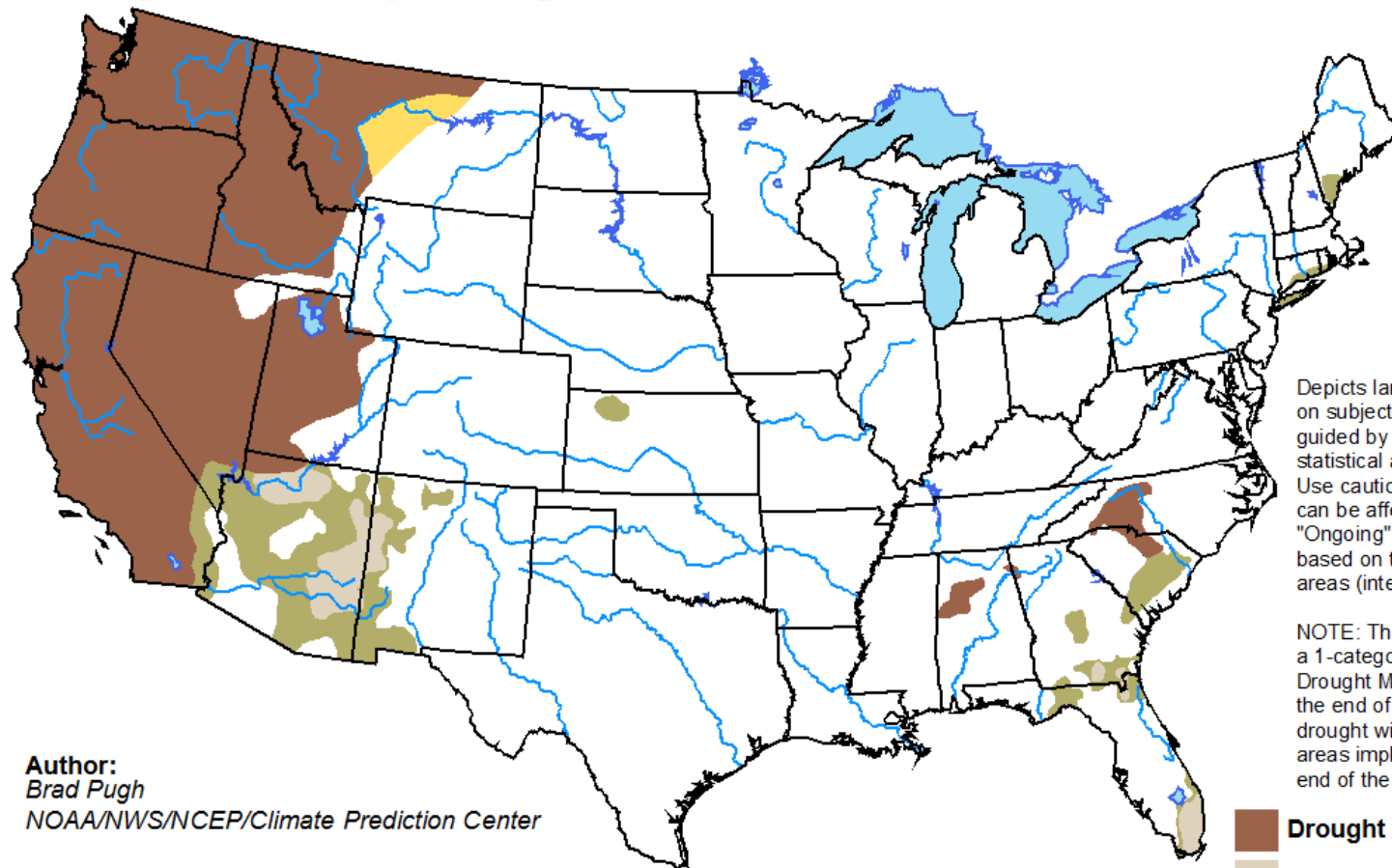
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
4.5 MONTH LEAD
VALID DJF 2015
MADE 16 JUL 2015

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period





Valid for July 16 - October 31, 2015
Released July 16, 2015

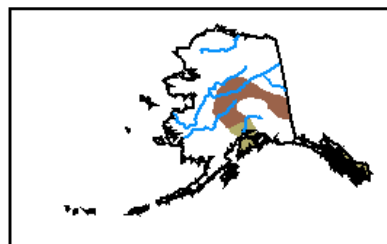


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to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

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

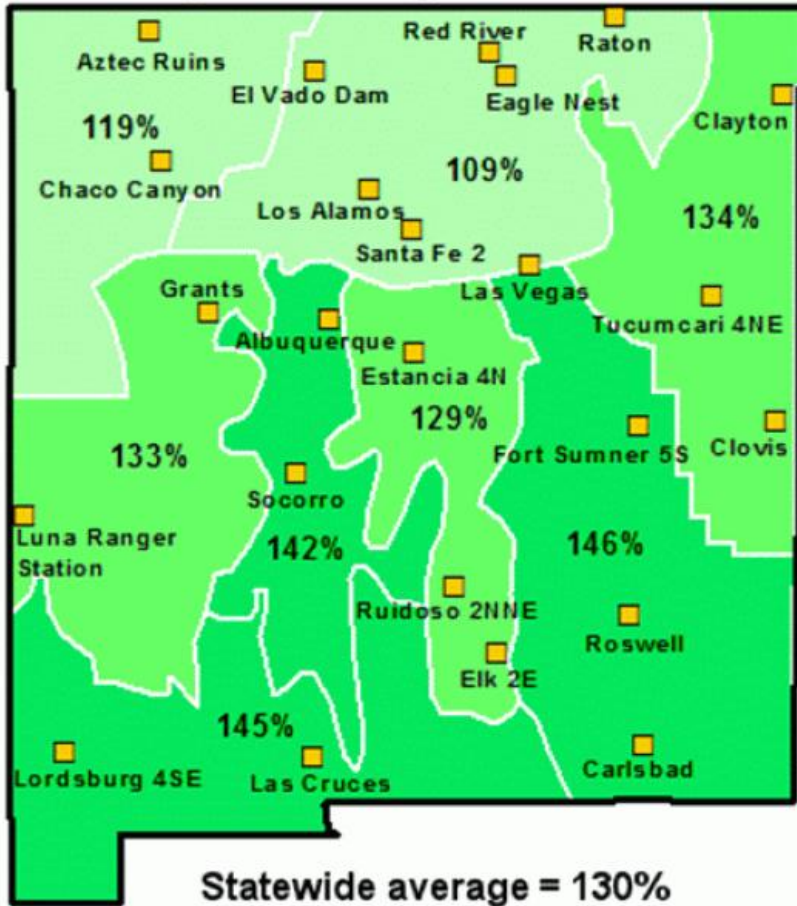


<http://go.usa.gov/hHTe>

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

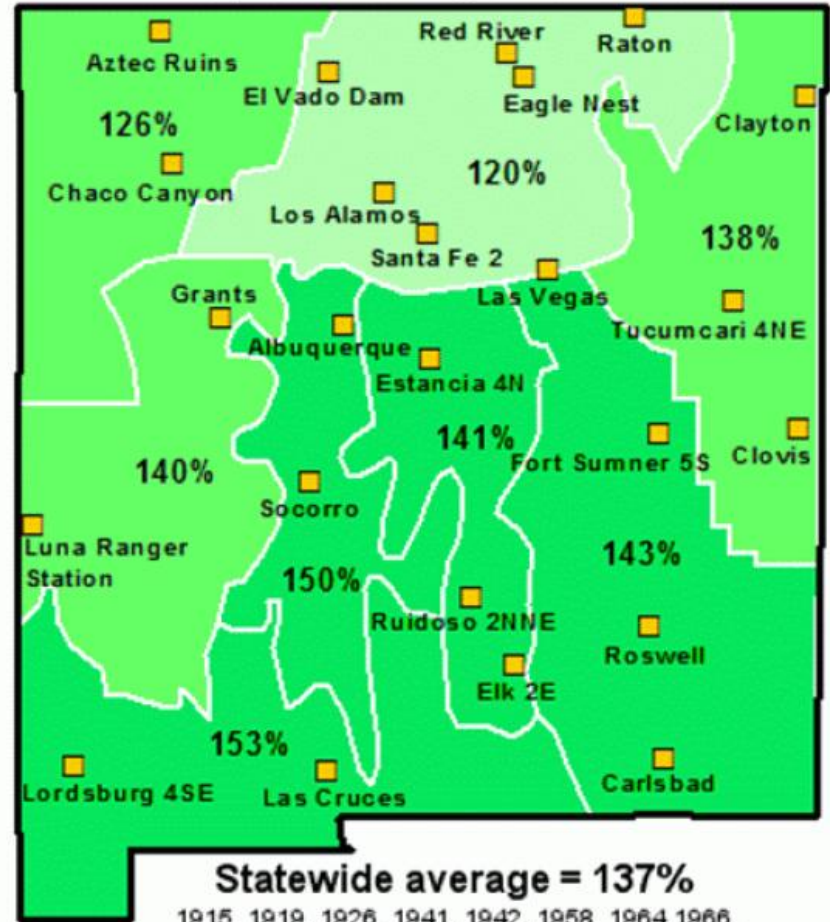
Impacts of El Niño Events

Percent of Normal Dec-Jan-Feb
Precipitation during El Niño Events



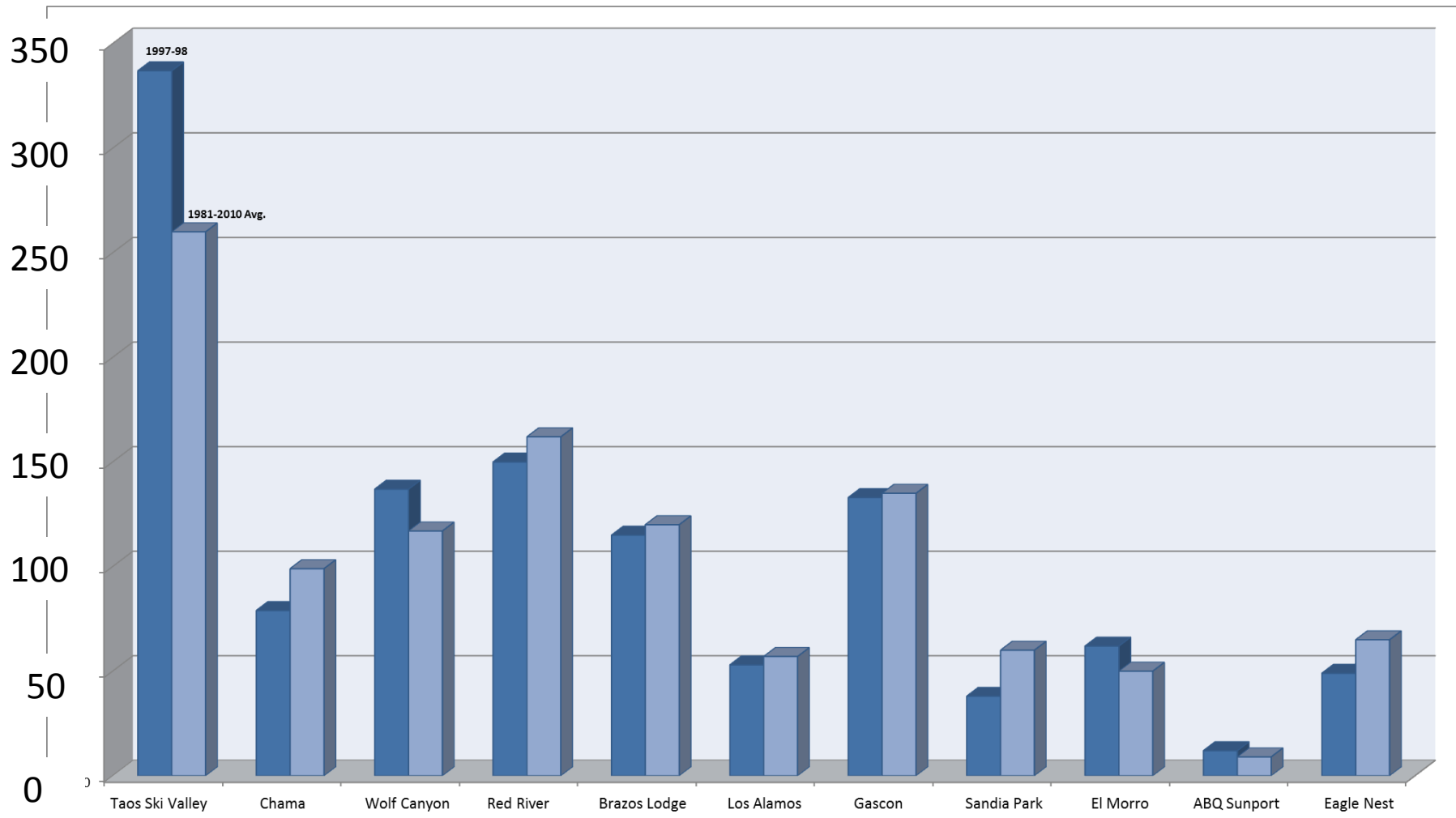
1914-15, 1918-19, 1925-26, 1940-41, 1941-42, 1957-58, 1963-64, 1965-66,
1968-69, 1969-70, 1972-73, 1976-77, 1977-78, 1982-83, 1986-87, 1987-88,
1991-92, 1994-95, 1997-98, 2002-03, 2004-05, 2006-07, 2009-10

Percent of Normal Mar-Apr-May
Precipitation during El Niño Events



1915, 1919, 1926, 1941, 1942, 1958, 1964, 1966,
1969, 1970, 1973, 1977, 1978, 1983, 1987, 1988,
1992, 1995, 1998, 2003, 2005, 2007, 2010

But Look Back at 1997-1998 Strong El Nino (October 1997–May 1998 Snowfall vs normal)

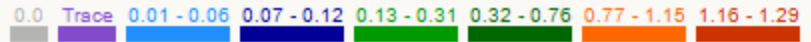


Courtesy Chuck Jones, National Weather Service, Albuquerque

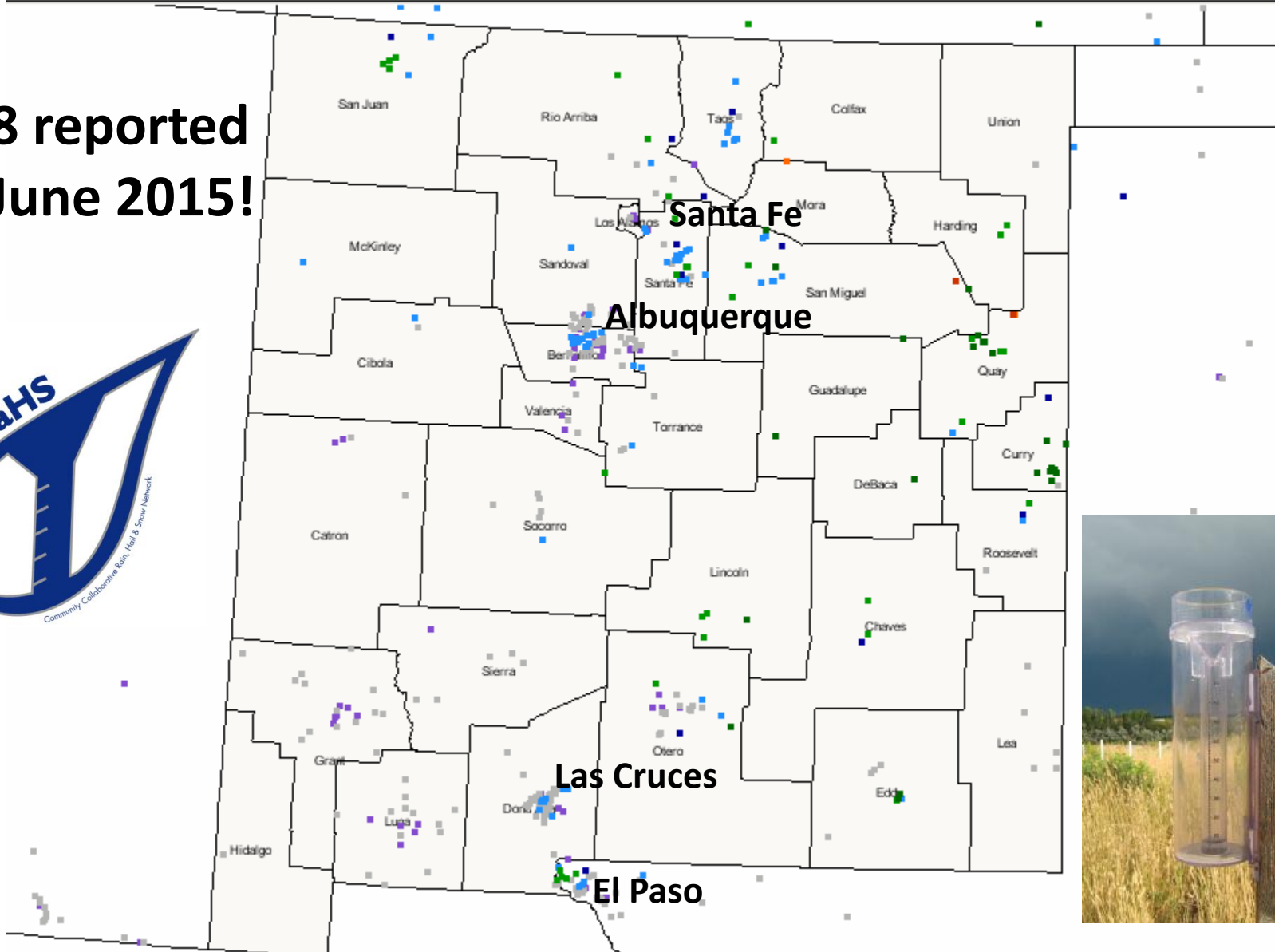
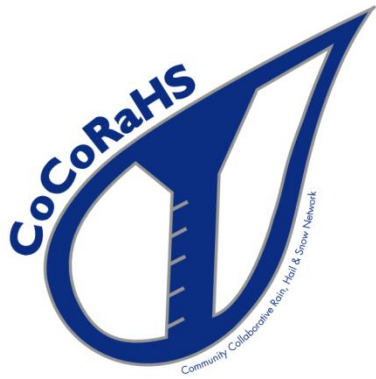
Community Collaborative Rain Hail and Snow Network

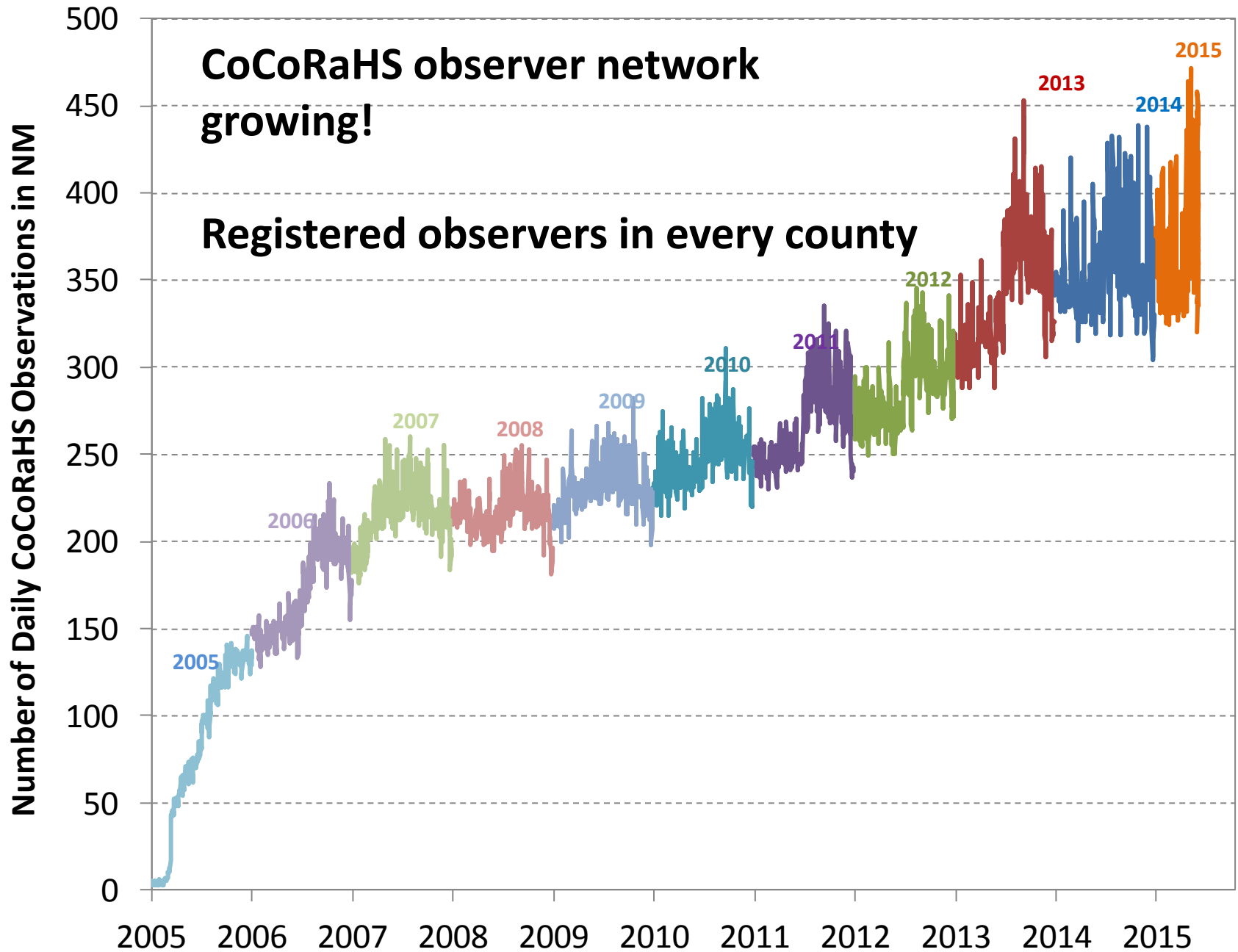
Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

New Mexico 6/7/2015



**458 reported
in June 2015!**







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[YouTube.com/nmclimate](https://www.youtube.com/nmclimate)**