

Current Status of Drought in NM

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New Mexico State Climatologist

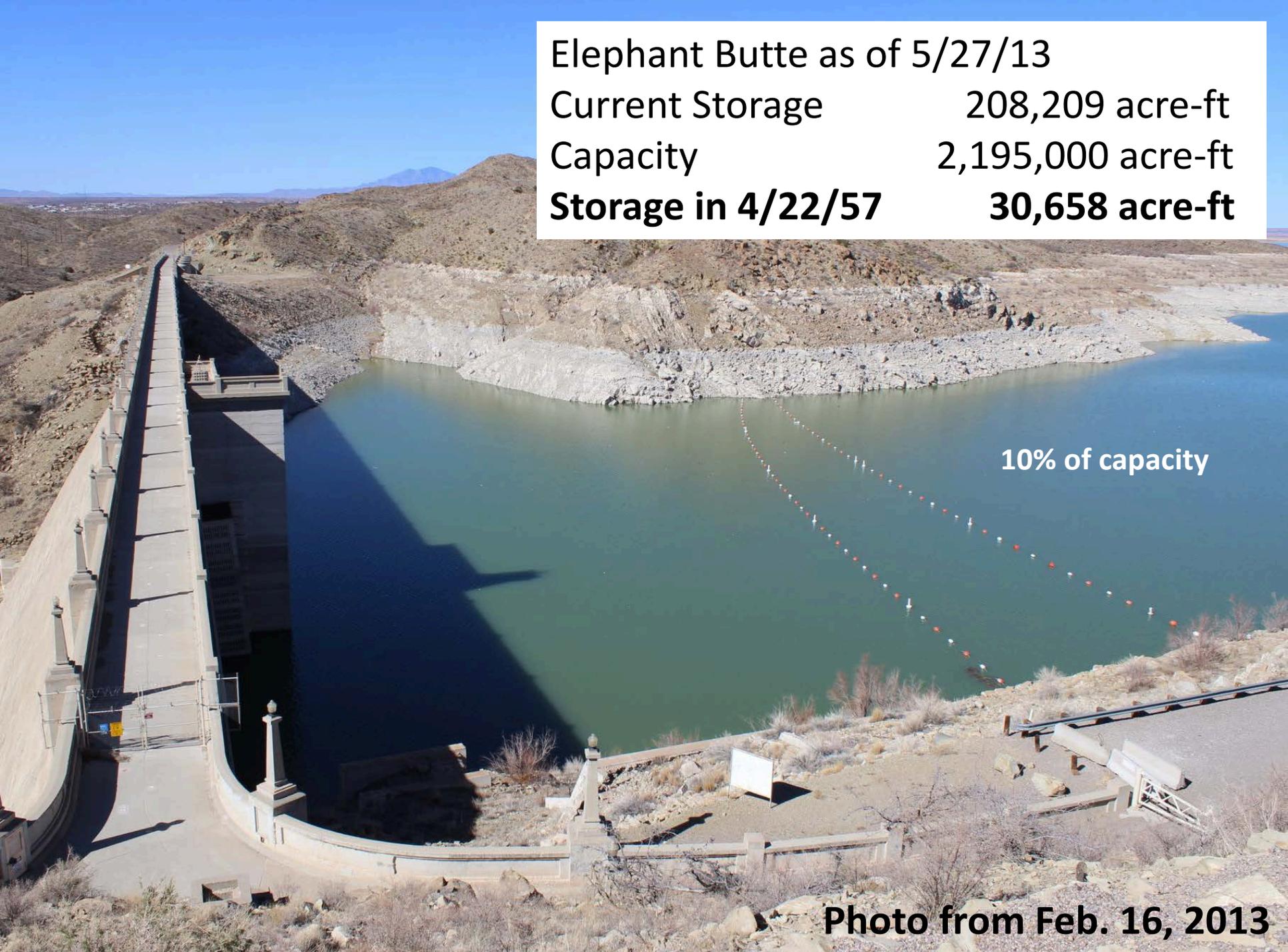
**Presented at NM Drought Workshop: Drought Outlook and Management
Considerations for Rangeland Livestock Production
May 29, 2013**

Elephant Butte as of 5/27/13

Current Storage 208,209 acre-ft

Capacity 2,195,000 acre-ft

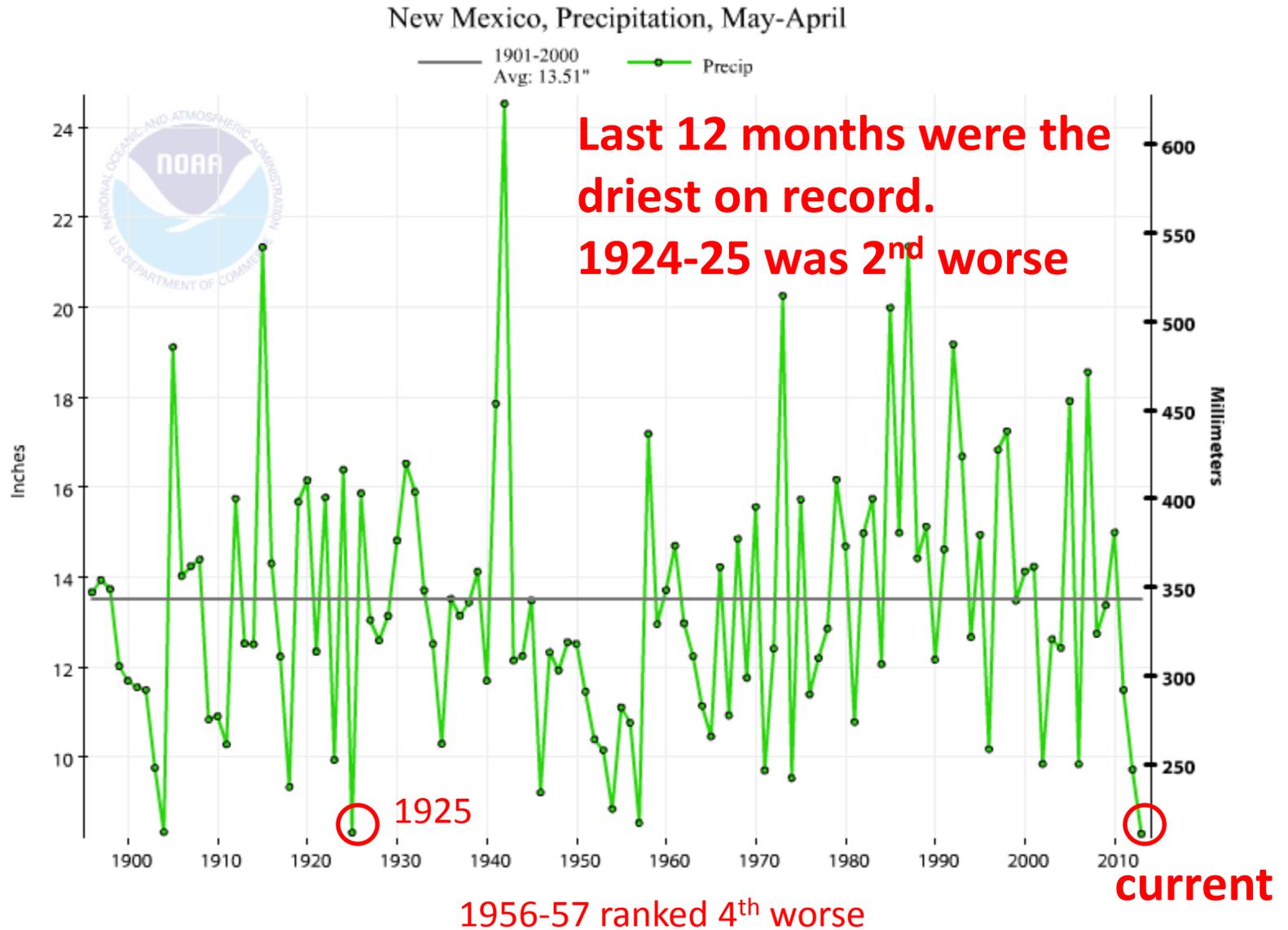
Storage in 4/22/57 30,658 acre-ft



10% of capacity

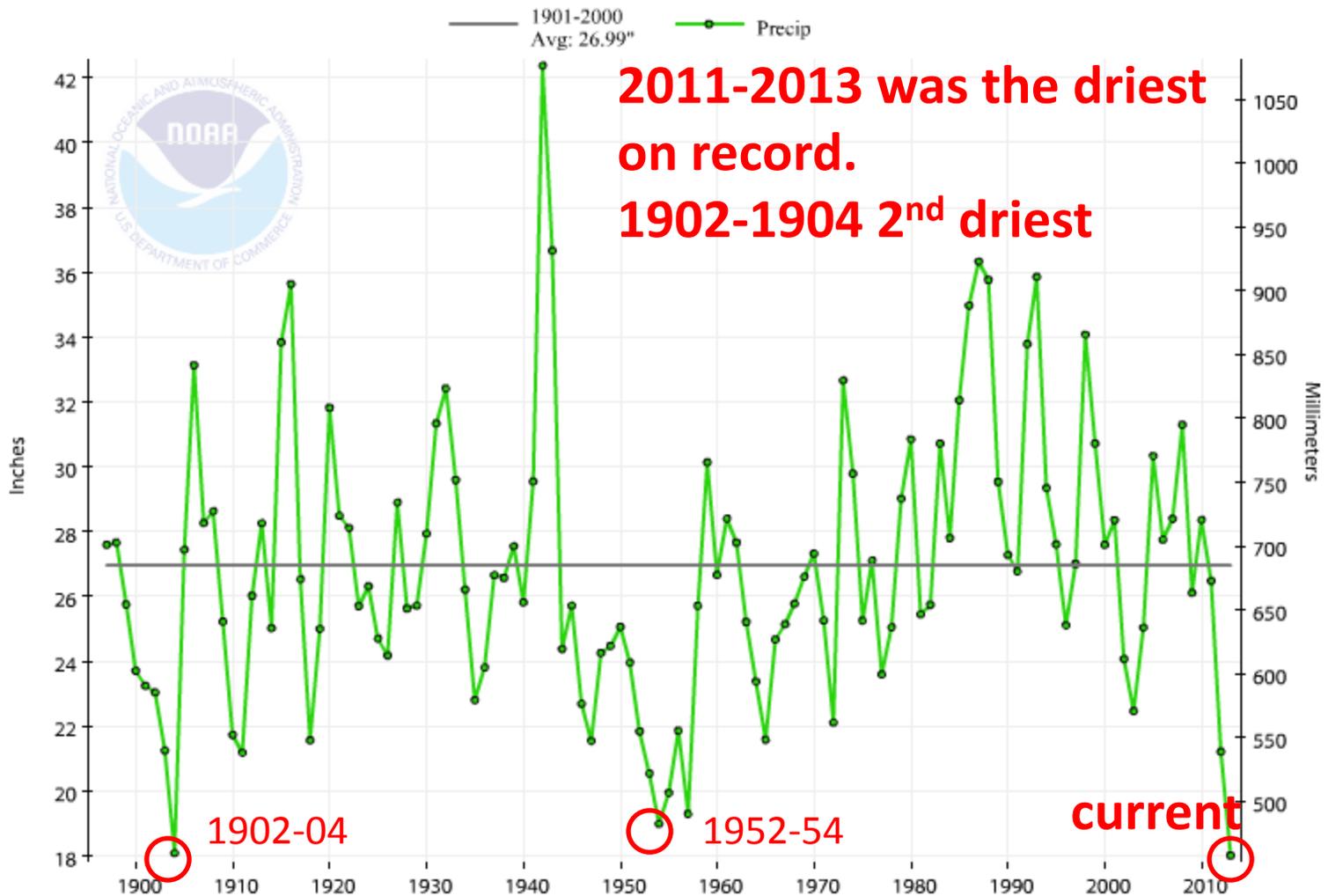
Photo from Feb. 16, 2013

How do the last 12-months stack up?



What about the last 24-months?

New Mexico, Precipitation, 24-Month Period Ending in April



2013 NM Precipitation Rankings

- Calendar Year 2013 was the 19th driest year on record for New Mexico. (Statewide precipitation was just 56% of average)
- Water Year 2013 is the 12th *driest* on record for New Mexico. (54% of ave) The driest was 1904

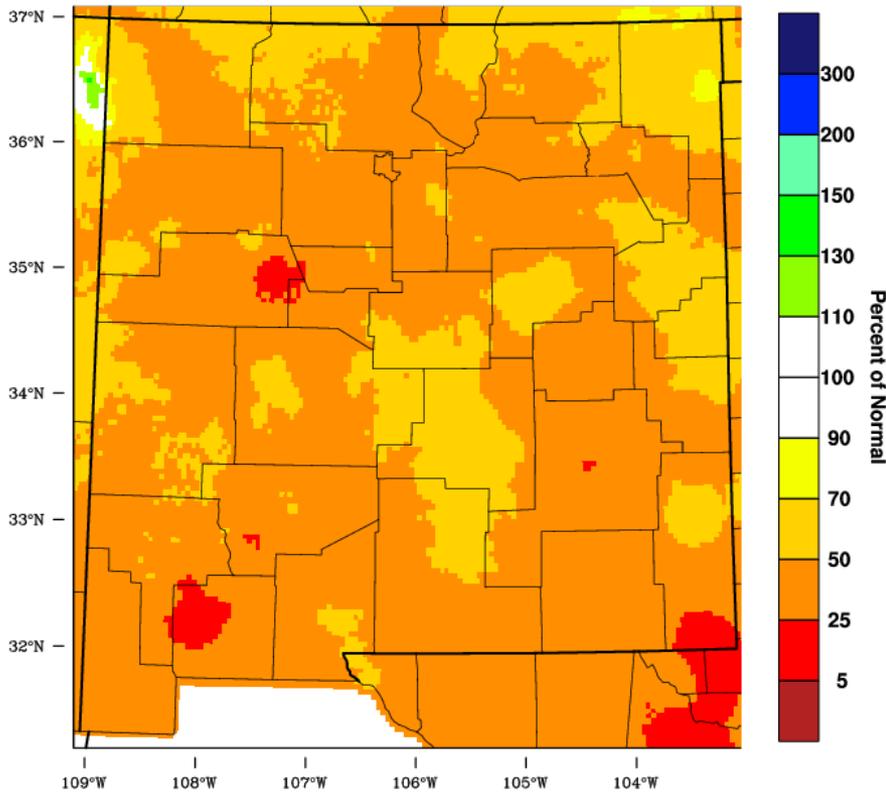
Period	Amount	20 th Century Average	Departure	Rank (out of 119 years)	Record	Wettest/Driest Since
Oct 2012 - Apr 2013 7-month period	2.70" (68.58 mm)	4.98" (126.49 mm)	-2.28" (-57.91 mm)	12 th Driest	1904	Driest since: 2011
				107 th Wettest	1915	Wettest since: 2012
Jan - Apr 2013 Year-to-Date	1.44" (36.58 mm)	2.55" (64.77 mm)	-1.11" (-28.19 mm)	19 th Driest	1972	Driest since: 2012
				101 st Wettest	1905	Wettest since: 2010

Comparing 1956 with 2012

Calendar year 1956 precipitation

New Mexico - Precipitation

January-December 1956 Percent of 1981-2010 Normal

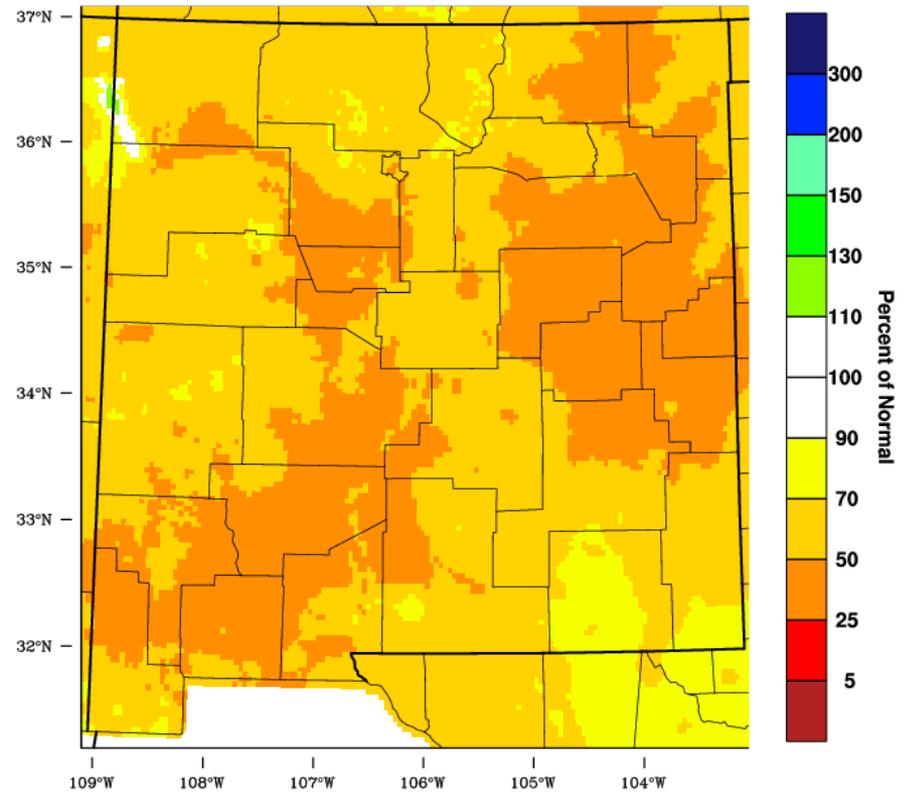


WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Final), created 7 SEP 2011

Calendar year 2012 precipitation

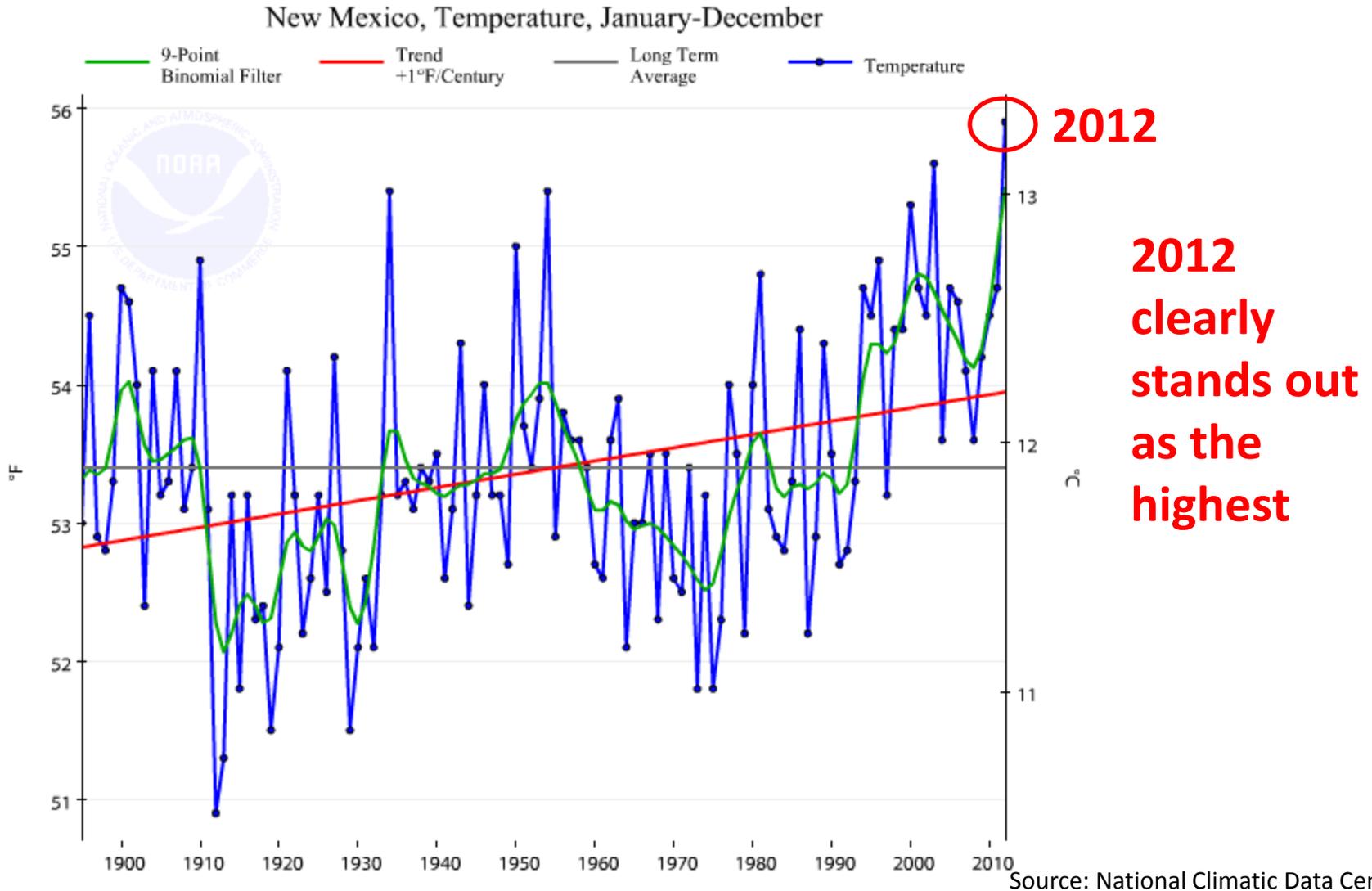
New Mexico - Precipitation

January-December 2012 Percent of 1981-2010 Normal



WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 22 JAN 2013

Annual Statewide Temperatures since 1895



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

Current Drought Status

U.S. Drought Monitor

May 21, 2013
Valid 7 a.m. EST

New Mexico

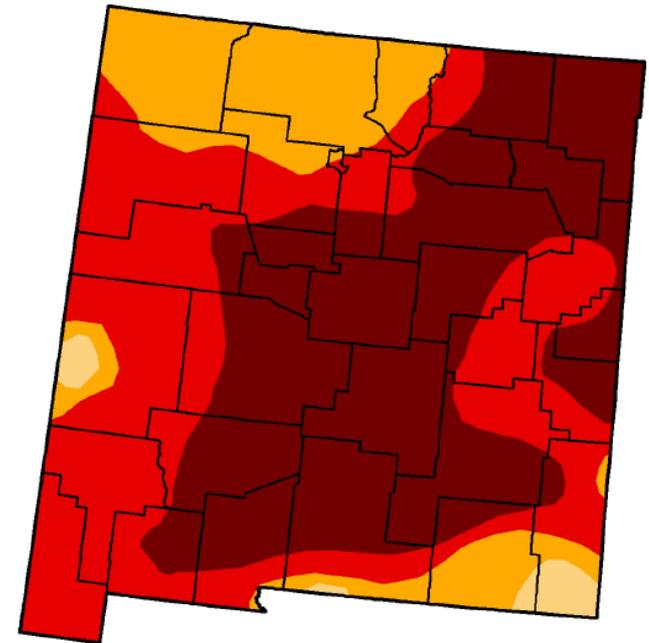
100% of state is in drought

<1% in D4 last year compared to 45% now

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	98.17	81.79	44.87
Last Week (05/14/2013 map)	0.00	100.00	99.04	97.63	81.68	44.14
3 Months Ago (02/19/2013 map)	0.20	99.80	98.45	89.85	49.59	1.22
Start of Calendar Year (01/01/2013 map)	0.00	100.00	98.83	94.05	31.88	0.97
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	62.56	12.25	0.66
One Year Ago (05/15/2012 map)	0.00	100.00	96.20	62.63	23.99	0.67

Intensity:

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



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

<http://droughtmonitor.unl.edu>

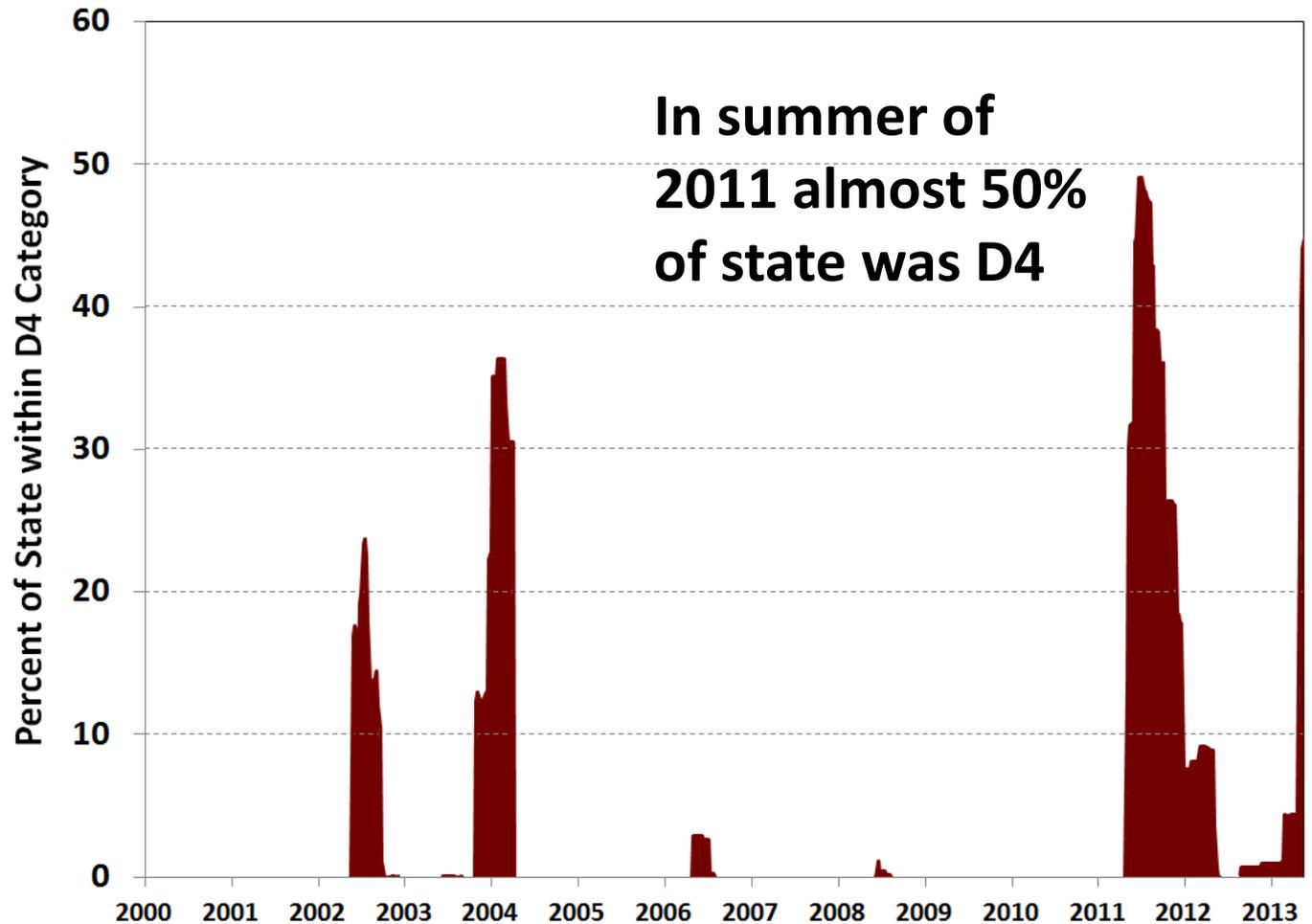


Released Thursday, May 23, 2013
Brad Rippey, U.S. Department of Agriculture

How unusual is this drought?

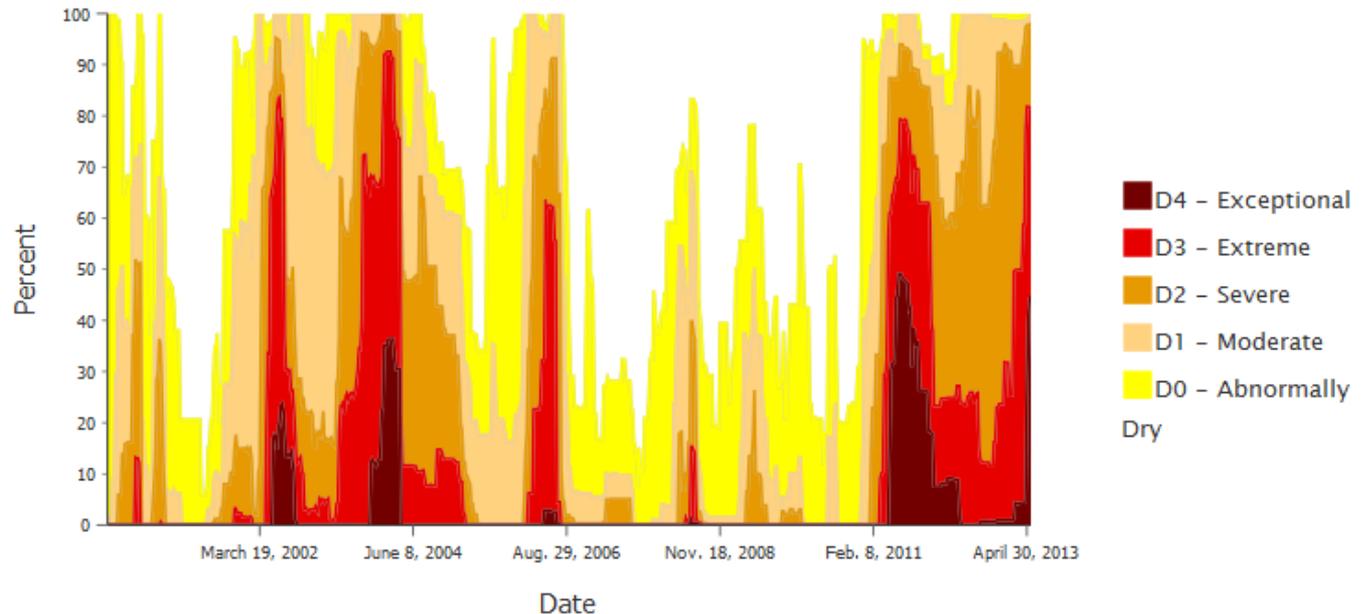
- Look at Drought Monitor in NM over past 12 years

**%
D4
Exceptional
Drought**



New Mexico Drought Timeseries

**State-wide
Drought
Monitor 2000
to the present.**



The U.S. Drought Monitor is produced in partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Maps courtesy of NDMC-UNL.

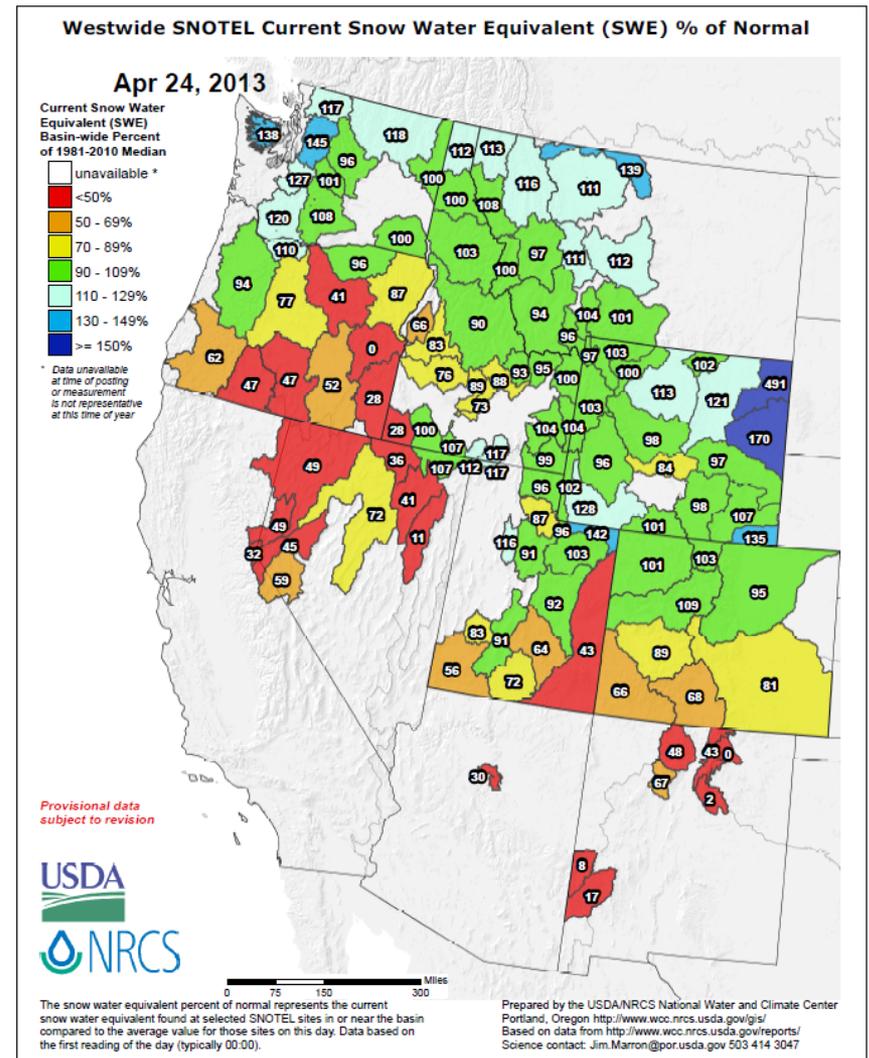
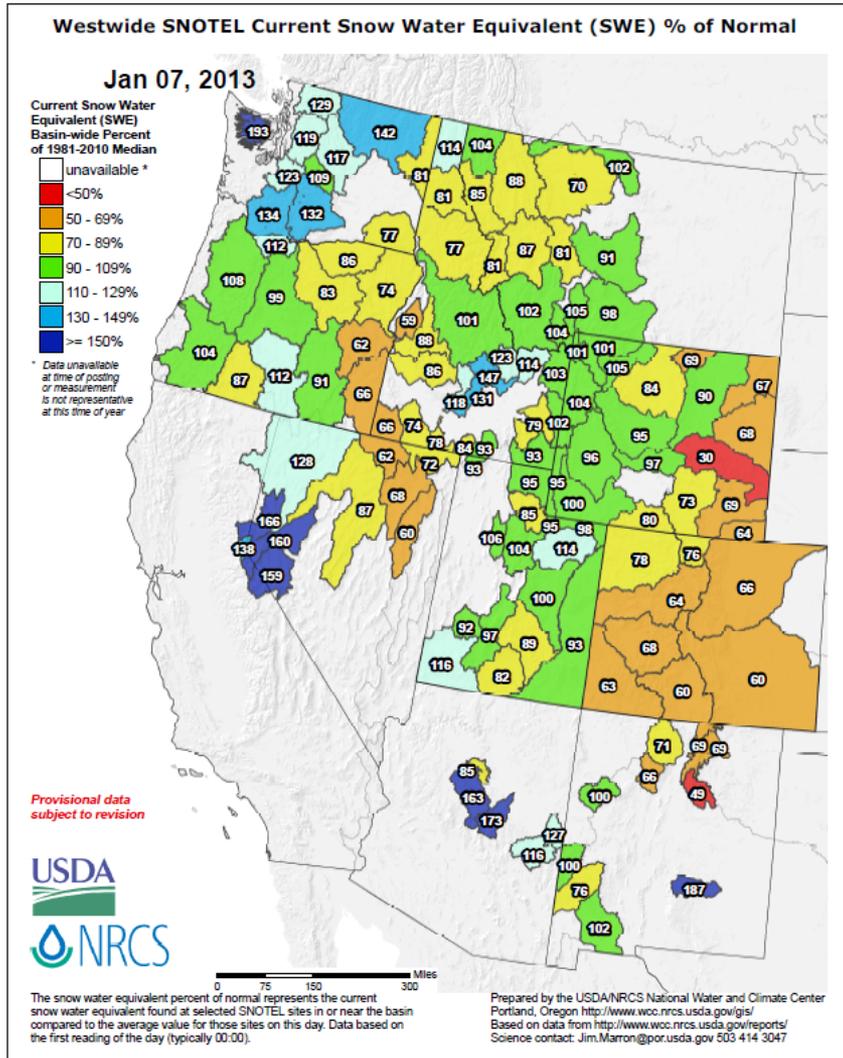
Source: [Drought Monitor](#)



2013 Snow Water Equivalent

SWE at start of 2013

by end of April SWE % of normal 2013



MODIS-Terra 13 Feb 2013

- SLMC2
- SCYC2
- BRTC2
- URGC2
- MDLC2
- WCSC2
- USJC2
- LPDC2
- CHAN5
- CUMC2
- HPWN5
- BAMN5
- GLGN5
- SENN5
- QMZN5
- WSSN5

Albuquerque

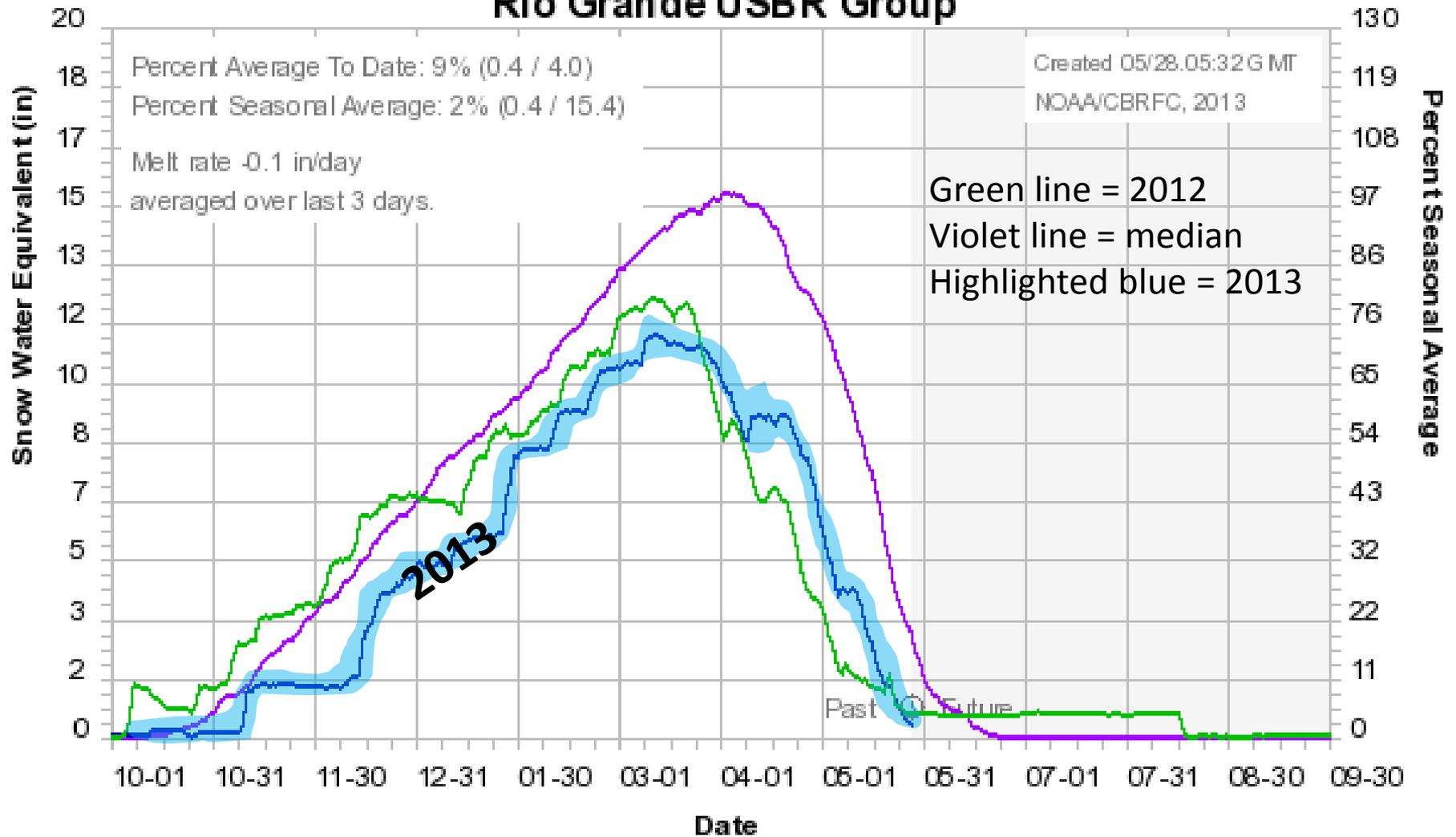
Image © 2013 TerraMetrics
© 2013 Google

Google earth

lat 36.388548° lon -105.873581° elev 2174 m

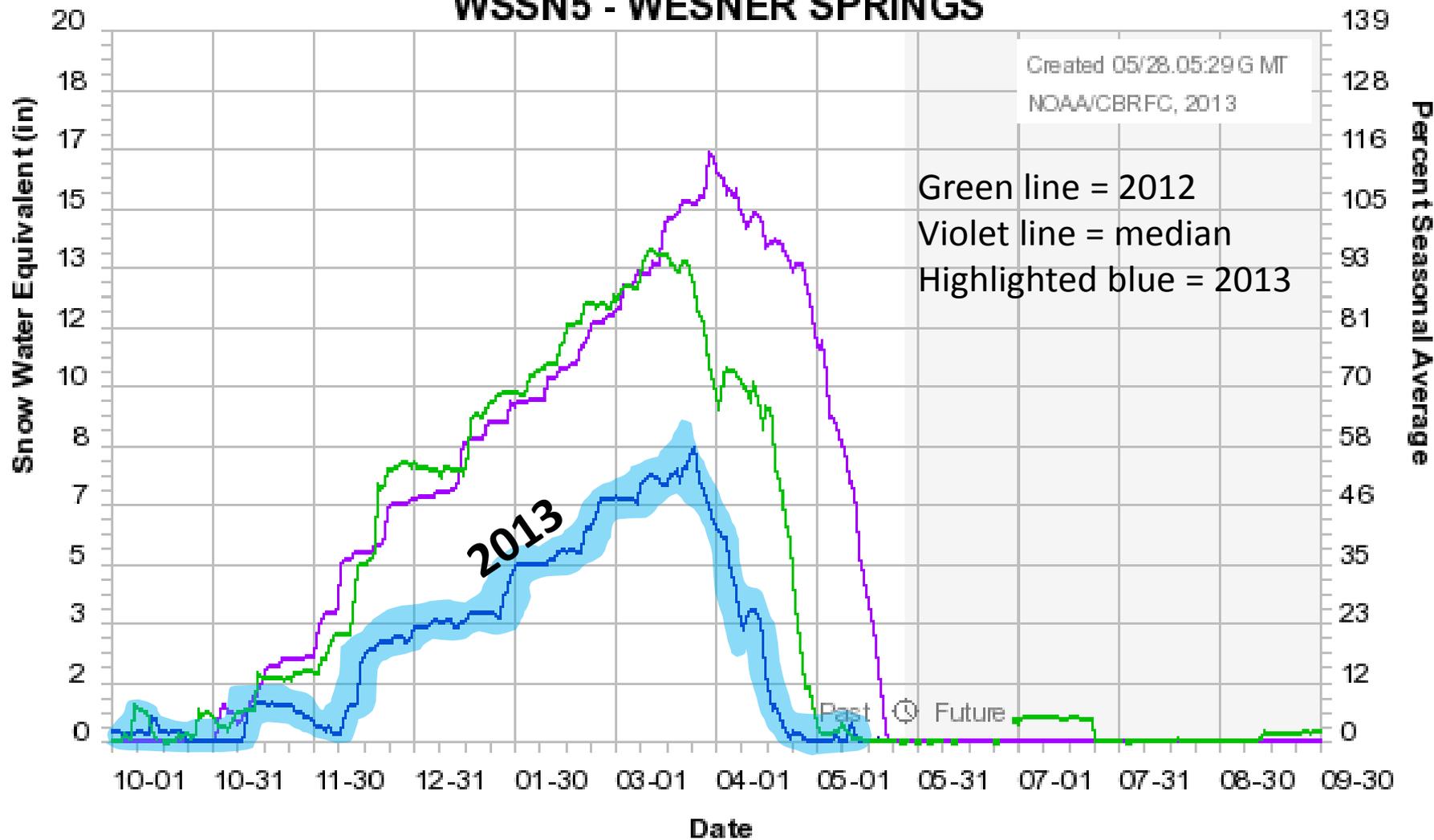
Eye alt 541.31 km

Colorado Basin River Forecast Center Rio Grande USBR Group



Median 1981-2010 2013 2012 2012

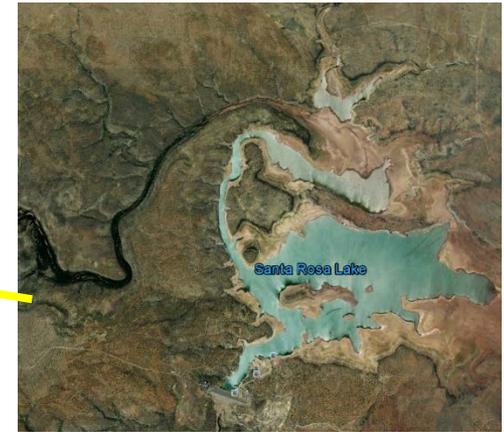
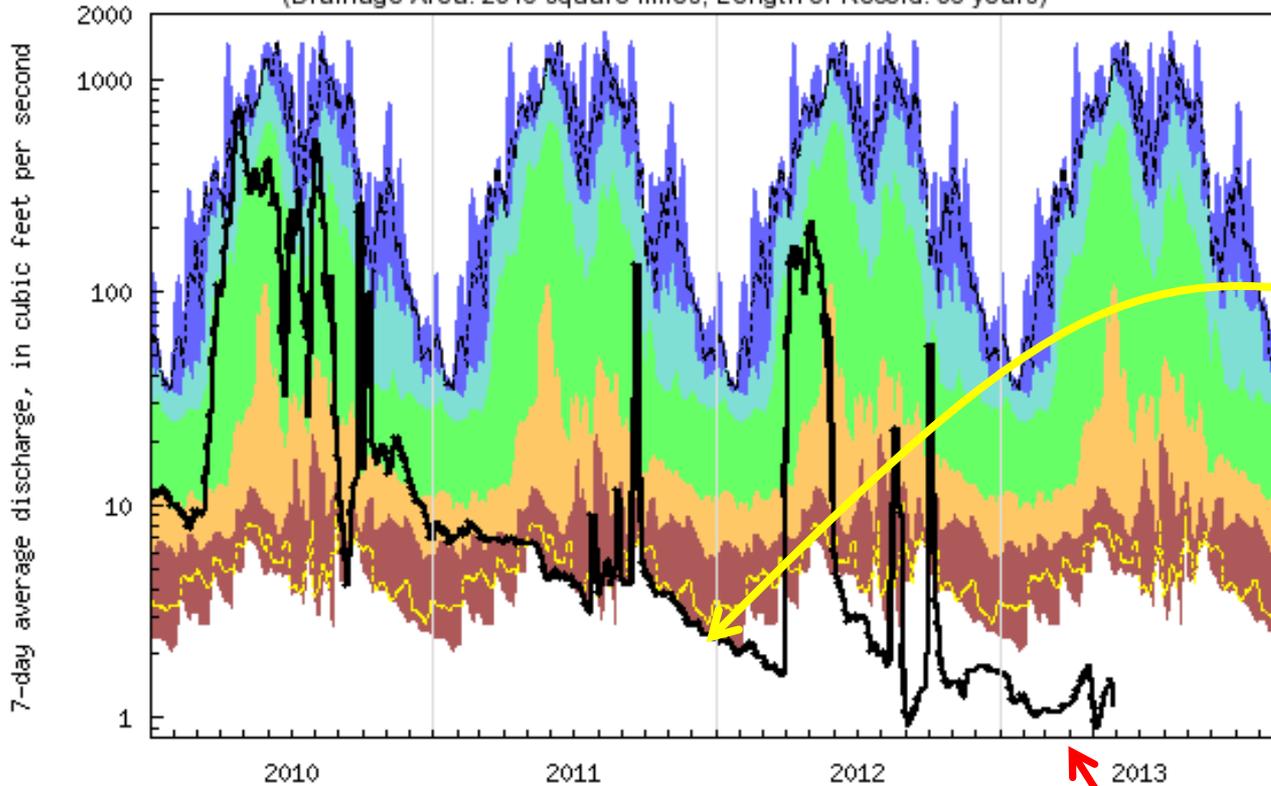
Colorado Basin River Forecast Center WSSN5 - WESNER SPRINGS



Median 1981-2010 2013 2012

Pecos River flow into Santa Rosa Lake

USGS 08382650 PECOS RIVER ABOVE SANTA ROSA LAKE, NM
(Drainage Area: 2340 square miles, Length of Record: 36 years)



July 2011



October 2012

USGS WaterWatch

Last updated: 2013-05-27

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		Flow

<http://waterwatch.usgs.gov/index.php>

Images from Google Earth

Governor's Executive Order

May 11, 2012 executive order 2012-006 "Drought Declaration"

- Executive order directed the following
 - Assess continued severity of drought and effects on various sectors of state's resources and economy
 - Make recommendations to Gov. for intermediate actions and long-term strategies to mitigate drought conditions and impacts in the state
 - Appoint such working groups to examine and recommend solutions regarding drought conditions to Drought Task Force
 - Provide information and guidance to Governor regarding conditions

Response: Drought Task Force

- Meet quarterly
- Communication Plan
- Focus on Impact and associated economic assessments
 - Agriculture
 - Wildlife
 - Wildland fires
 - Watersheds
 - Drinking water
 - Economics
 - Tourism
 - Recreation

Impacts Assessment

- Fires
 - Restrictions in US and NM Forests have been initiated
 - State is developing an emergency response protocol for public water systems before, during and after wild land fires
- Drinking water
 - Developing drought planning training for smaller communities

Impacts Assessment

- Tourism
 - Focus on non-water related activities
- Environmental
 - Assist in short term water transfers to critical habitat
- Legislative Response
 - Drought has become a constant topic
 - Special interim sessions on drought impacts
 - Funding for litigation

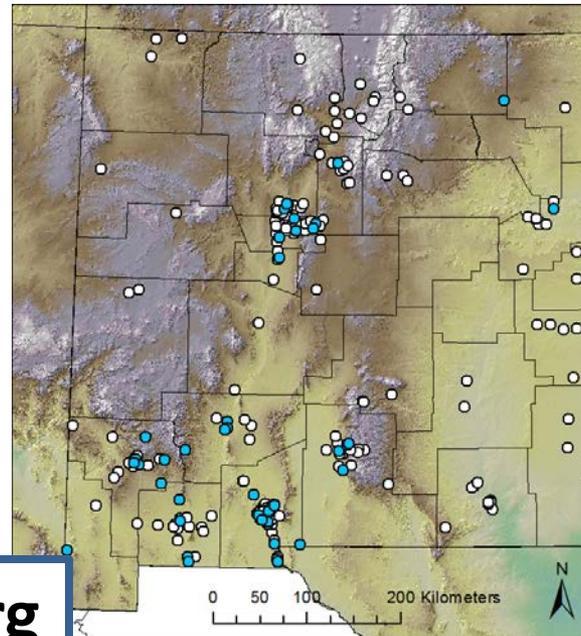
You know you're in a drought when it's common to see wind erosion on the Rio Grande River





CoCoRaHS

- Community Collaborative Rain Hail and Snow network
- Let's work together to measure precipitation across NM. . . Be a volunteer!



New observers since March

Looking for more eastern NM volunteers

Legend

- New observers
- Existing observers

Sign up: www.cocorahs.org



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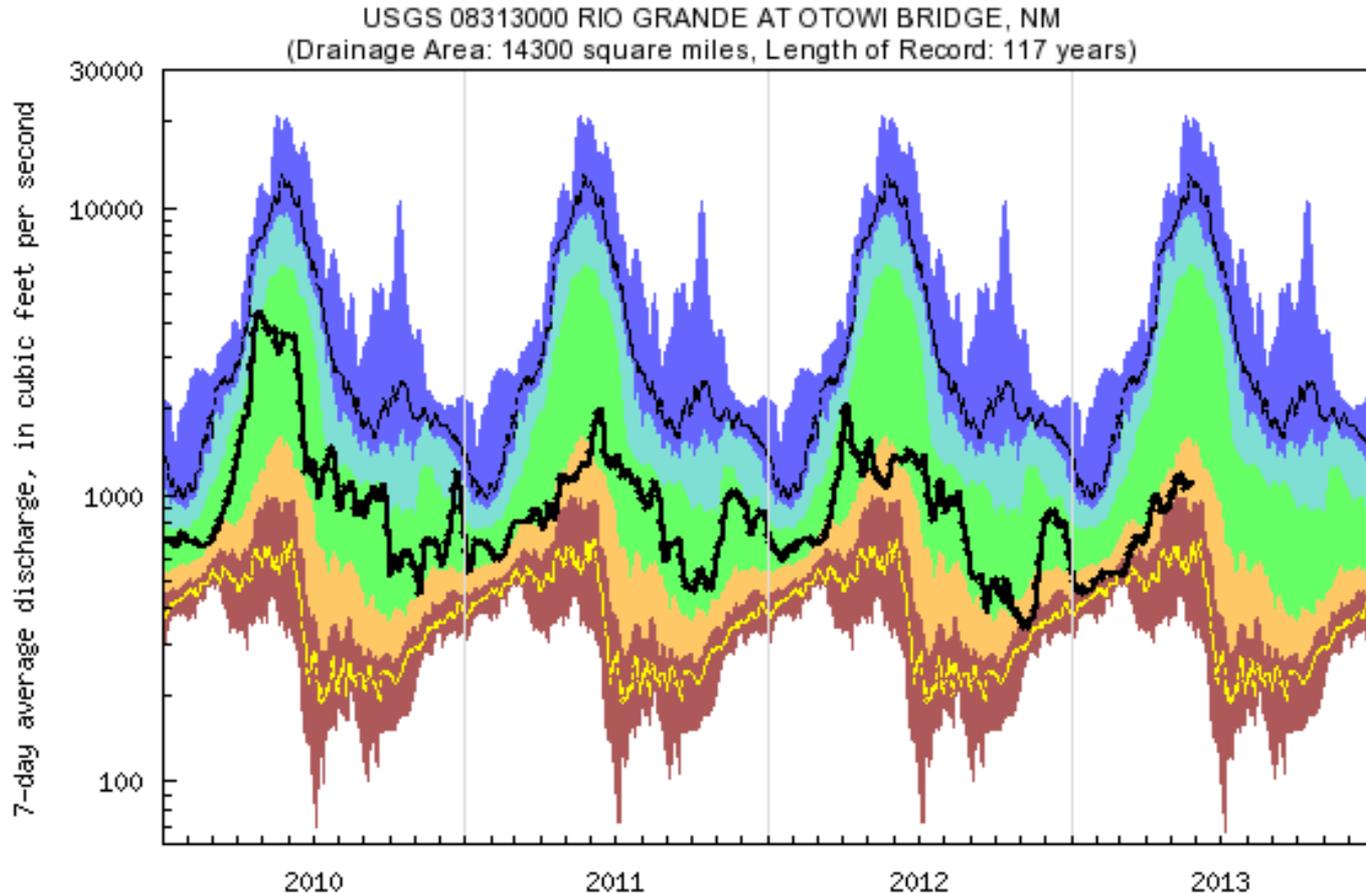
weather.nmsu.edu

CoCoRaHS.org

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Rio Grande Flow at Otowi Bridge

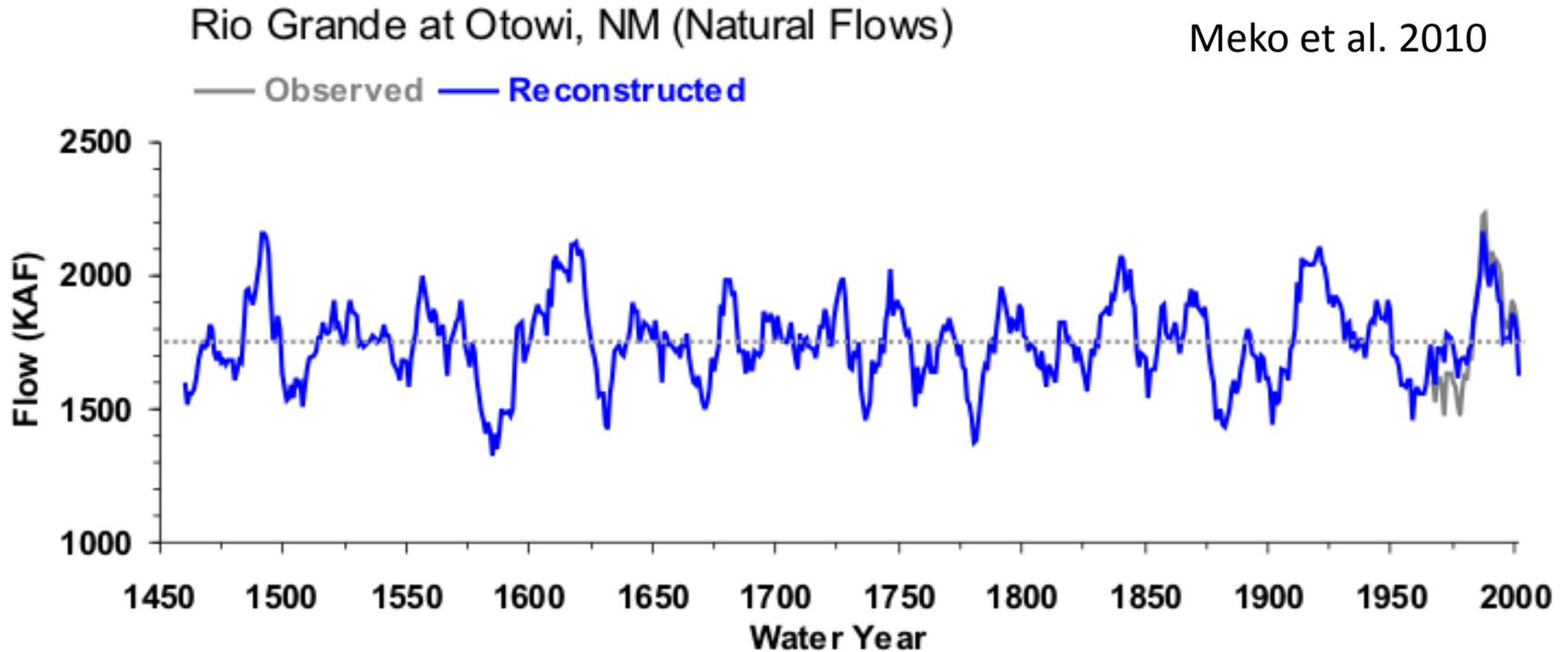


USGS WaterWatch

Last updated: 2013-05-28

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		Flow

Tree Ring Climate Reconstruction



Blue line is 10-year running mean

Dashed line is 552 year mean flow