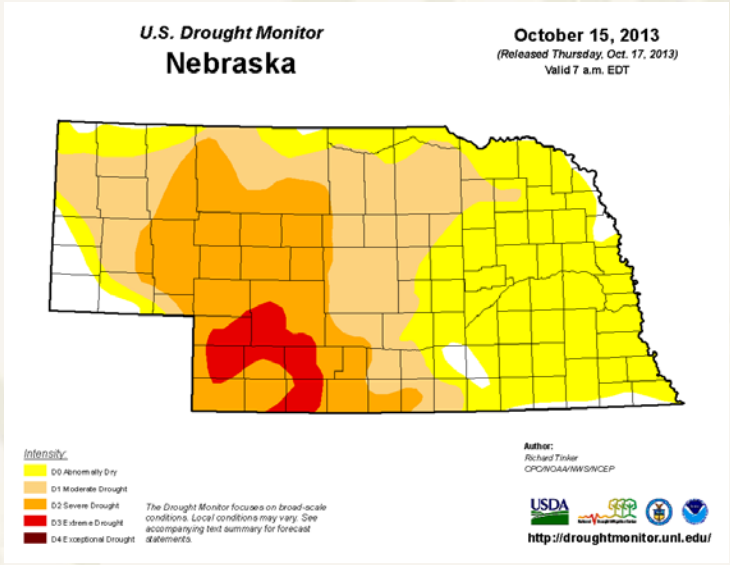
NE Drought Conditions CARC Update: October 23, 2013



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

Current Conditions around Nebraska and the region…

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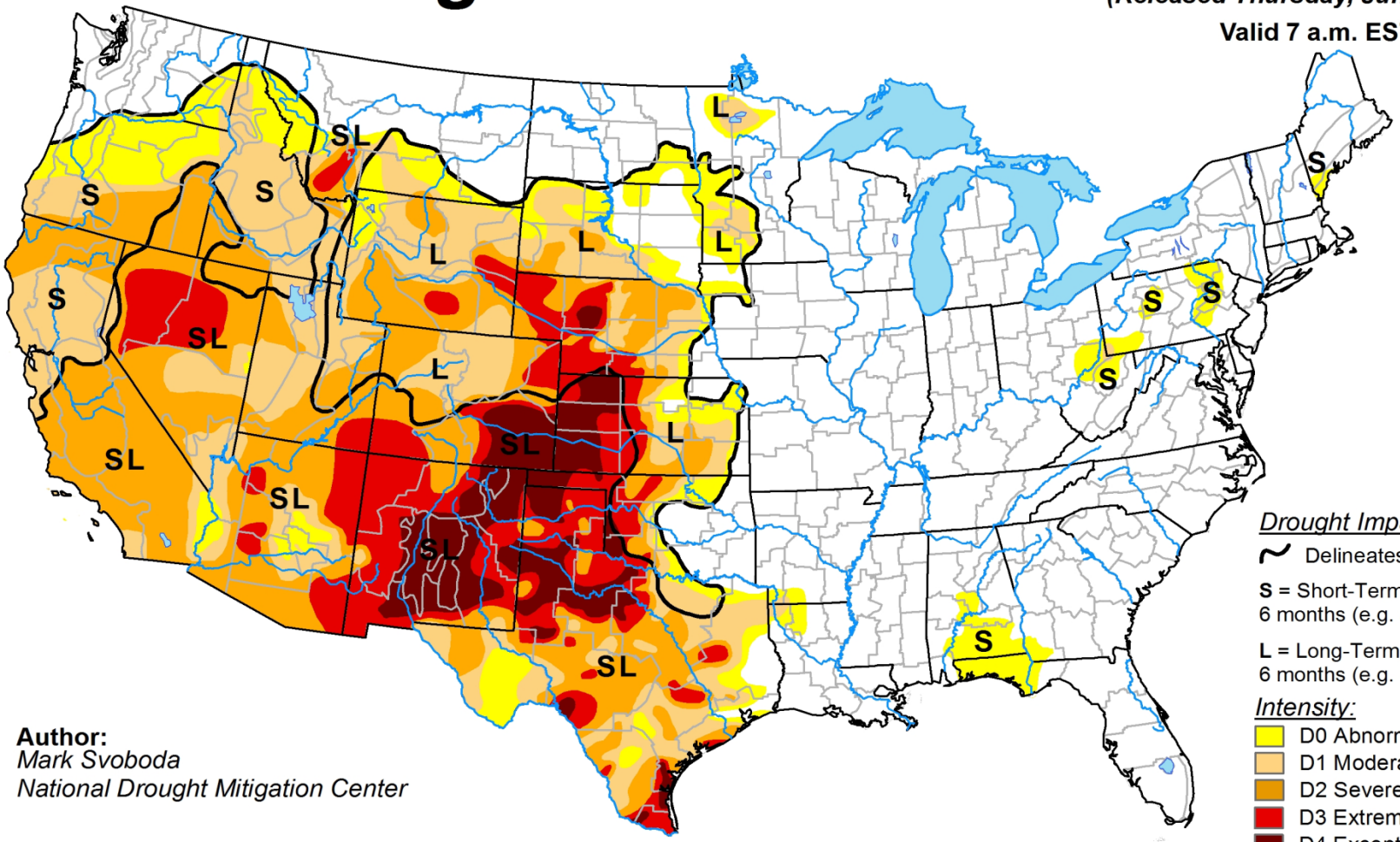
U.S. Drought Monitor

June 18, 2013

(Released Thursday, Jun. 20, 2013)

Valid 7 a.m. EST



Author:
Mark Svoboda
National Drought Mitigation Center

Drought Impact Types:

~ Delineates dominant impacts

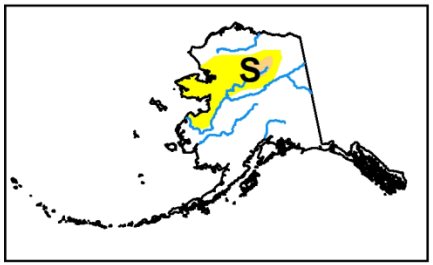
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

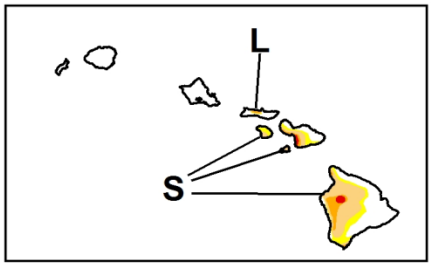
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

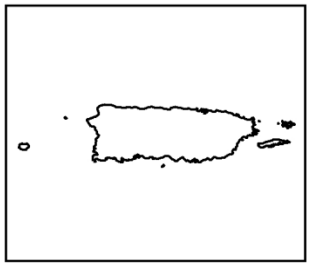
Intensity:

- 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.







USDA National Drought Mitigation Center

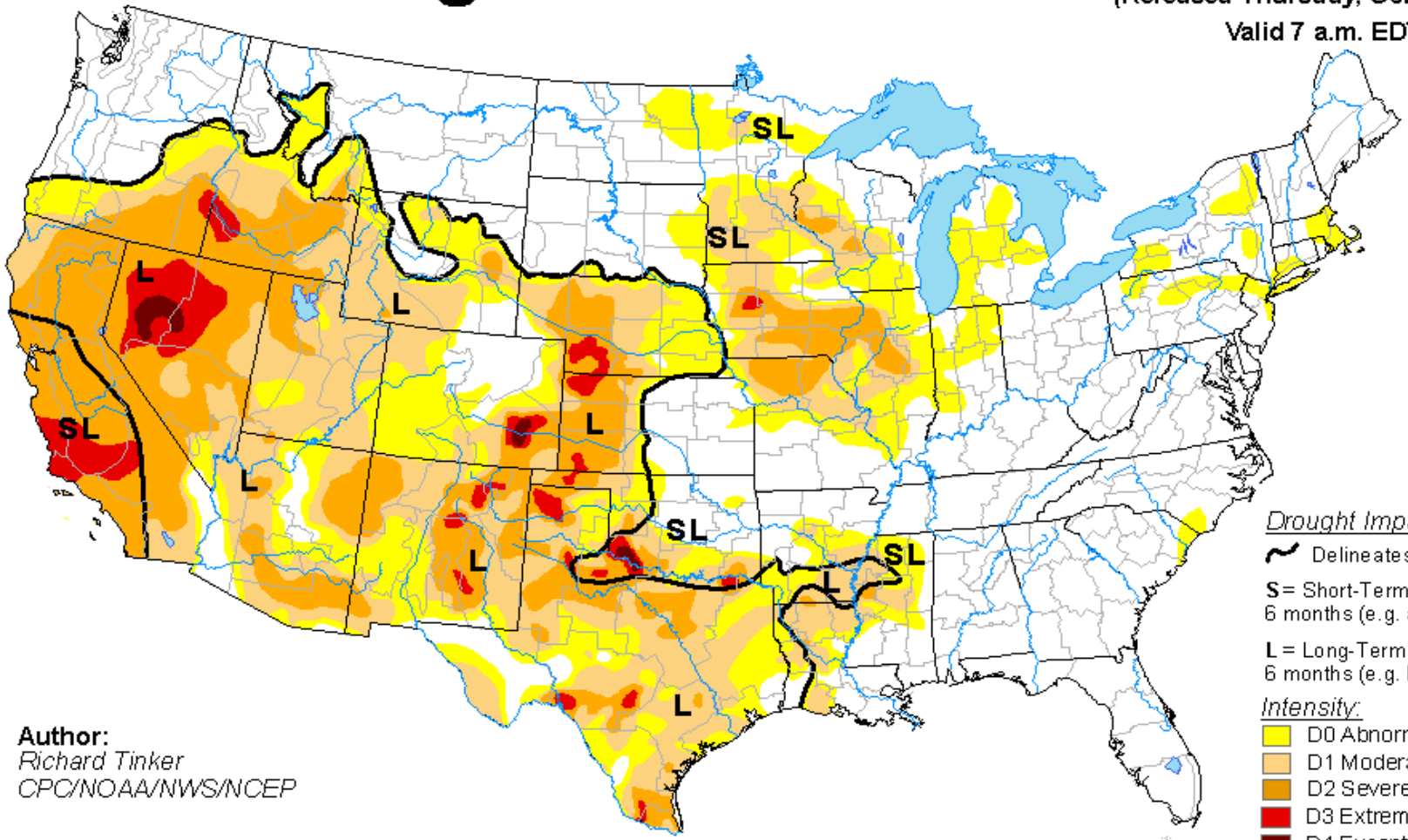
http://droughtmonitor.unl.edu/

U.S. Drought Monitor

October 15, 2013

(Released Thursday, Oct. 17, 2013)

Valid 7 a.m. EDT



Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

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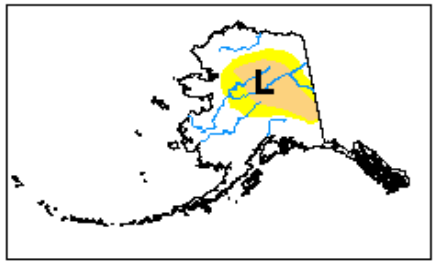
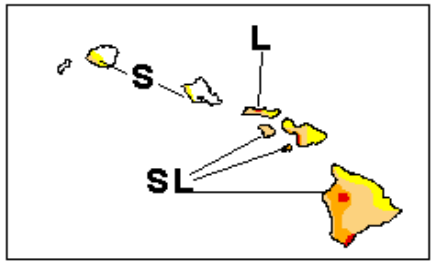
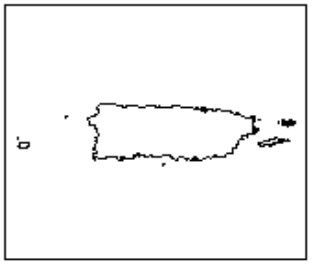


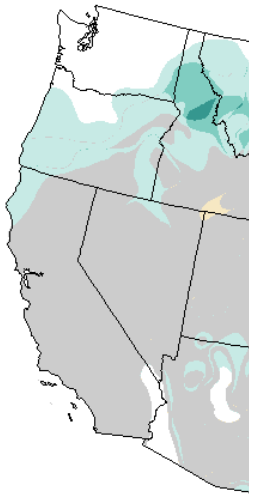




USDA National Drought Mitigation Center

http://droughtmonitor.unl.edu/

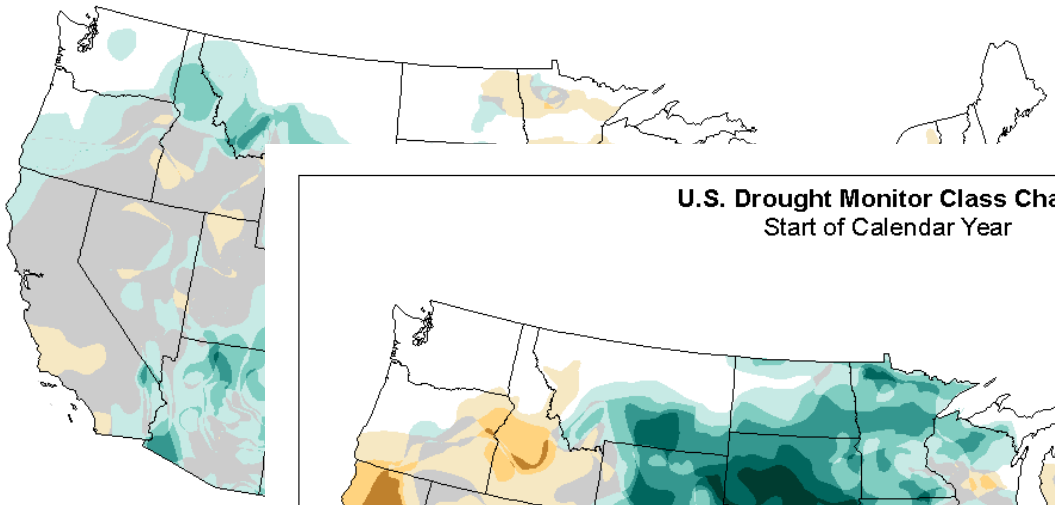
U.S. Drought Monitor Class Change
1 Month



October 15, 2013
compared to
September 17, 2013

http://droughtmonitor.unl.e

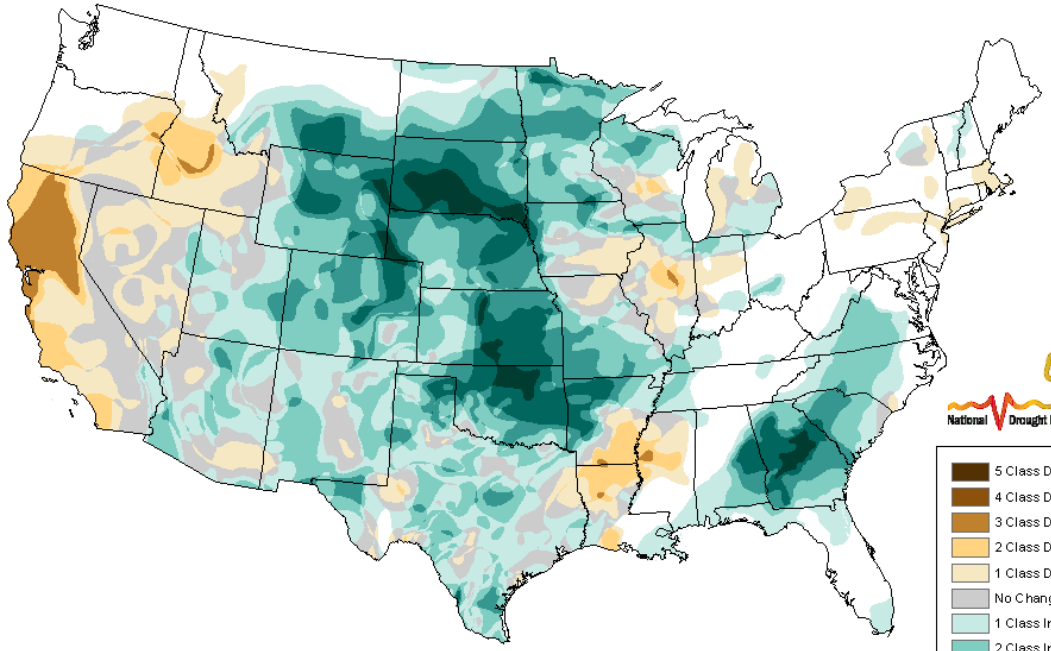
U.S. Drought Monitor Class Change
3 Months



October 15, 2013
compared to
July 23, 2013

http://droughtmonitor.unl.ed

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

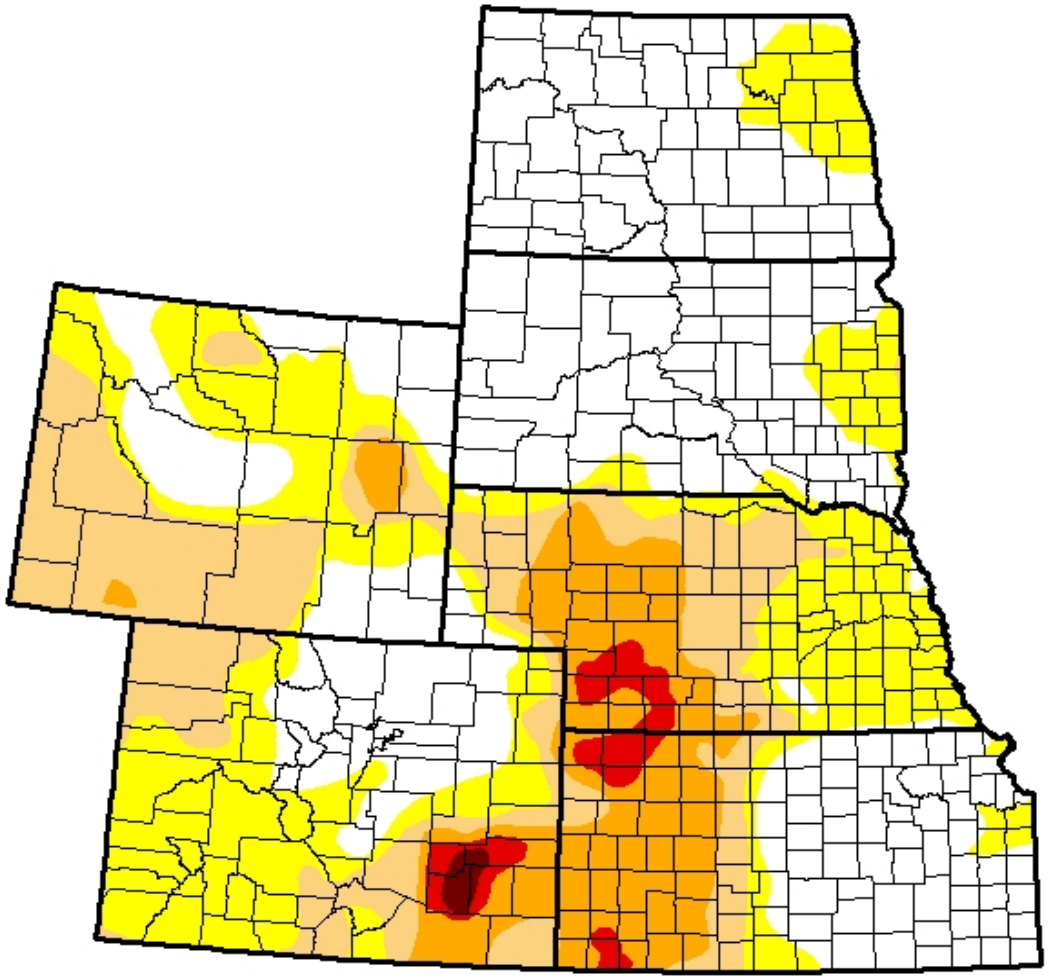


October 15, 2013
compared to
January 1, 2013

http://droughtmonitor.unl.edu

U.S. Drought Monitor

High Plains



October 15, 2013

(Released Thursday, Oct. 17, 2013)

Valid 7 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	45.14	54.86	29.51	12.46	2.18	0.30
Last Week *10/8/2013*	38.88	61.12	34.37	14.62	2.46	0.30
3 Months Ago *7/16/2013*	21.99	78.01	67.00	48.02	22.41	7.87
Start of Calendar Year *1/1/2013*	1.54	98.46	93.01	86.20	60.25	26.99
Start of Water Year *10/1/2013*	29.87	70.13	43.21	19.50	3.01	0.30
One Year Ago *10/16/2012*	15.06	84.94	64.60	34.31	15.50	0.28

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 Tinker
CPC/NOAA/NWS/NCEP

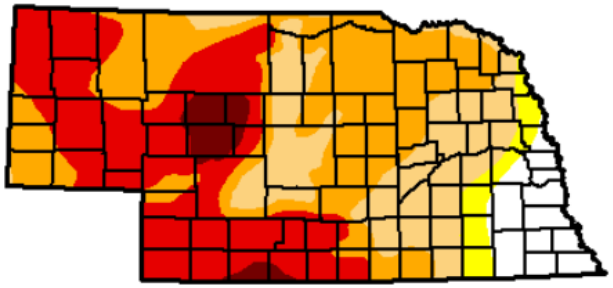
USDA National Drought Mitigation Center

http://droughtmonitor.unl.edu/

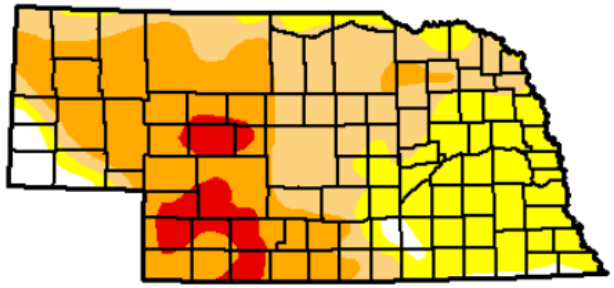
Nebraska

Drought Severity

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



PNG PDF JPG June 18, 2013



PNG PDF JPG October 8, 2013

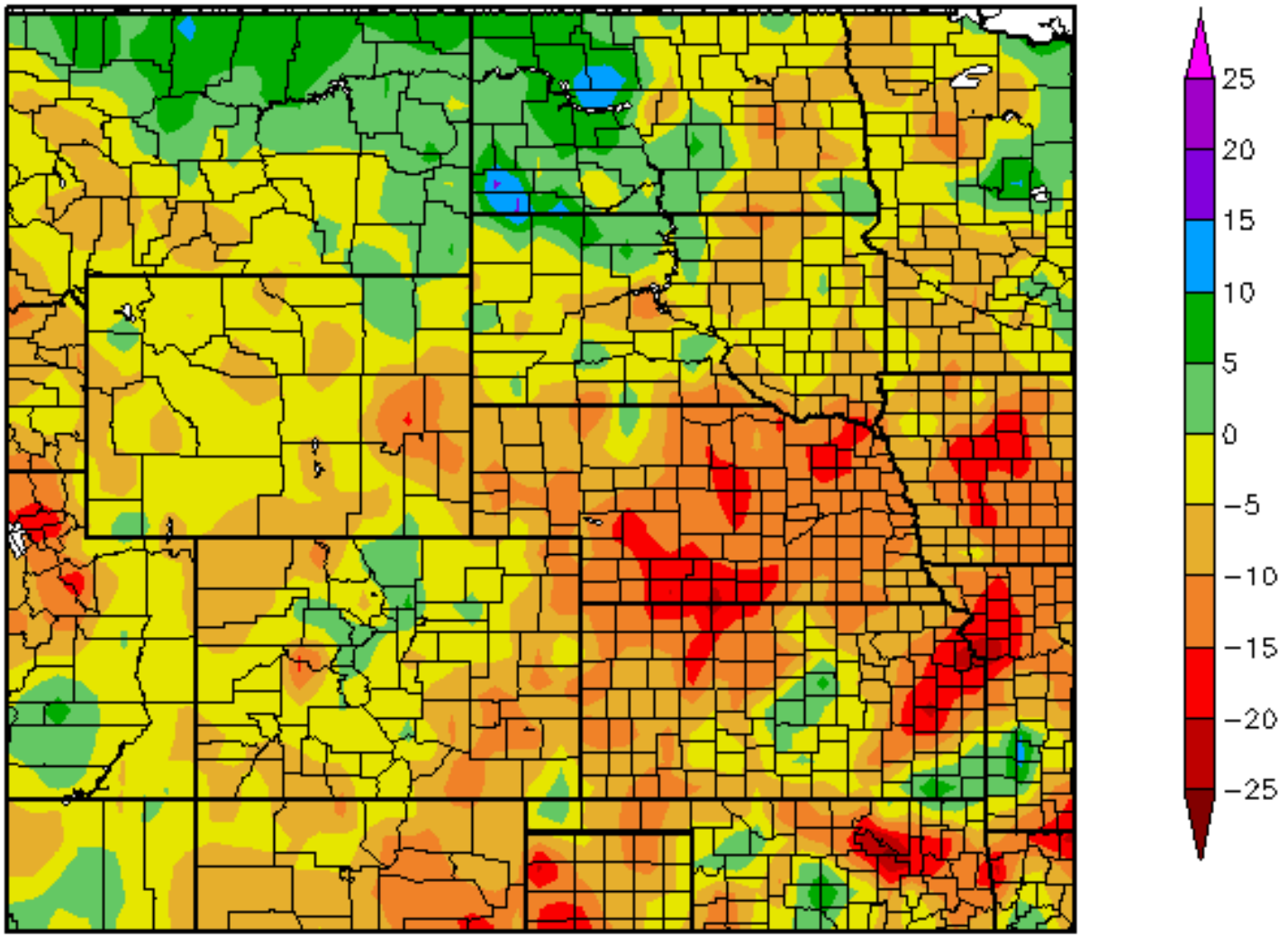
Statistics | Time Series | Narrative

Statistics type: (•) Traditional (D0-D4, D1-D4, etc.) ( ) Categorical (D0, D1, etc.)

Week	Nothing	D0-D4	D1-D4	D2-D4	D3-D4	D4
6/18/2013	7.85	92.15	88.36	67.77	34.66	3.64
10/8/2013	4.06	95.94	68.1	38.94	6.6	0

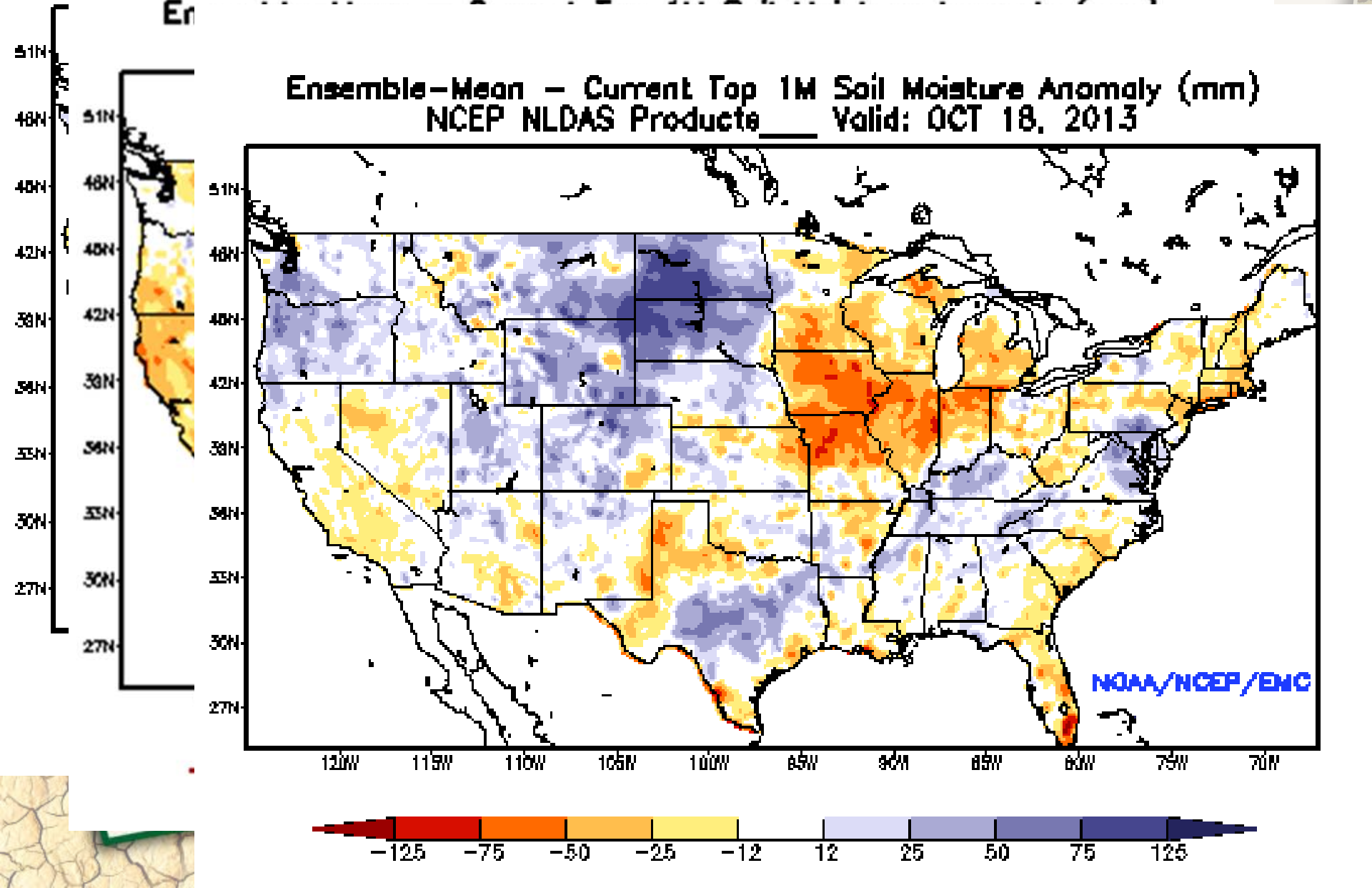
The National Drought Mitigation Center | 3310 Holdrege Street | P.O. Box 830988 | Lincoln, NE 68583–0988
phone: (402) 472–6707 | fax: (402) 472–2946 | Contact Us

Departure from Normal Precipitation (in)
10/21/2011 – 10/20/2013

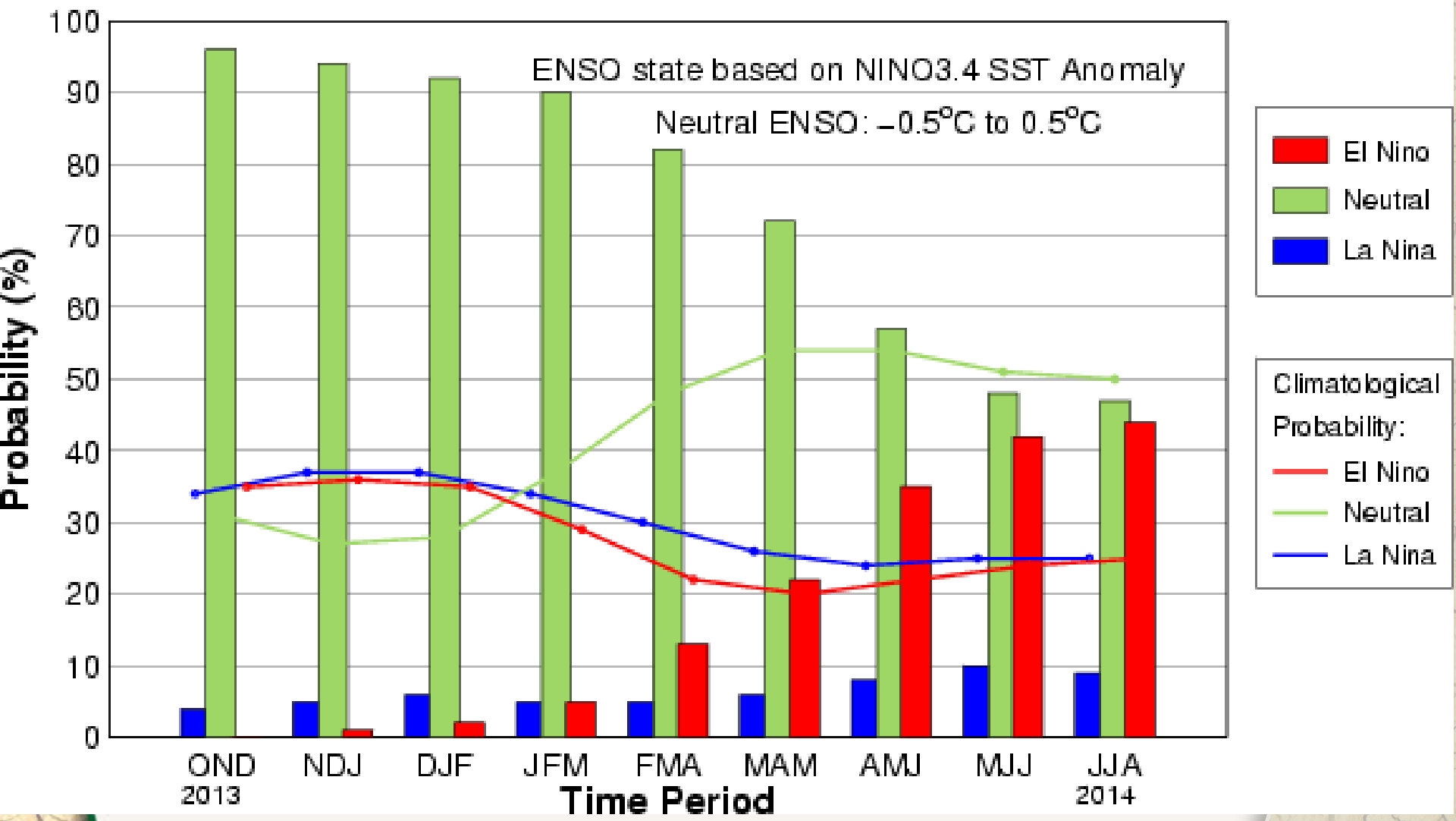


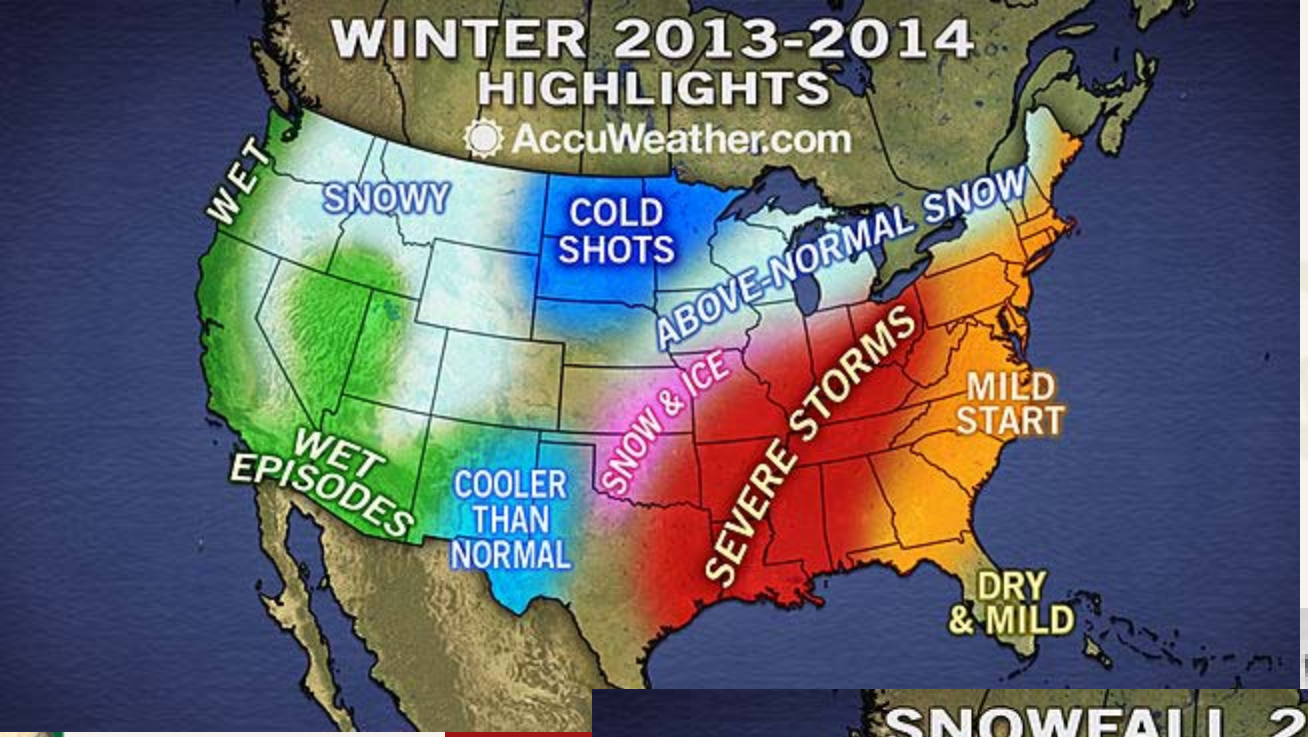
Generated 10/21/2013 at HPRCC using provisional data.

Regional Climate Centers


Ensemble-Mean – Current Top 1M Soil Moisture Anomaly (mm)
NCEP NLDAS Products___ Valid: OCT 18, 2013
NOAA/NCEP/EMC
51N
48N
45N
42N
39N
36N
33N
30N
27N
125W
120W
115W
110W
105W
100W
95W
90W
85W
80W
75W
70W
−125
−75
−50
−25
−12
12
25
50
75
125

Mid–Oct IRI/CPC Plume–Based Probabilistic ENSO Forecast




WINTER 2013-2014
HIGHLIGHTS
AccuWeather.com
WET
SNOWY
COLD SHOTS
ABOVE-NORMAL SNOW
SNOW & ICE
SEVERE STORMS
MILD START
WET EPISODES
COOLER THAN NORMAL
DRY & MILD

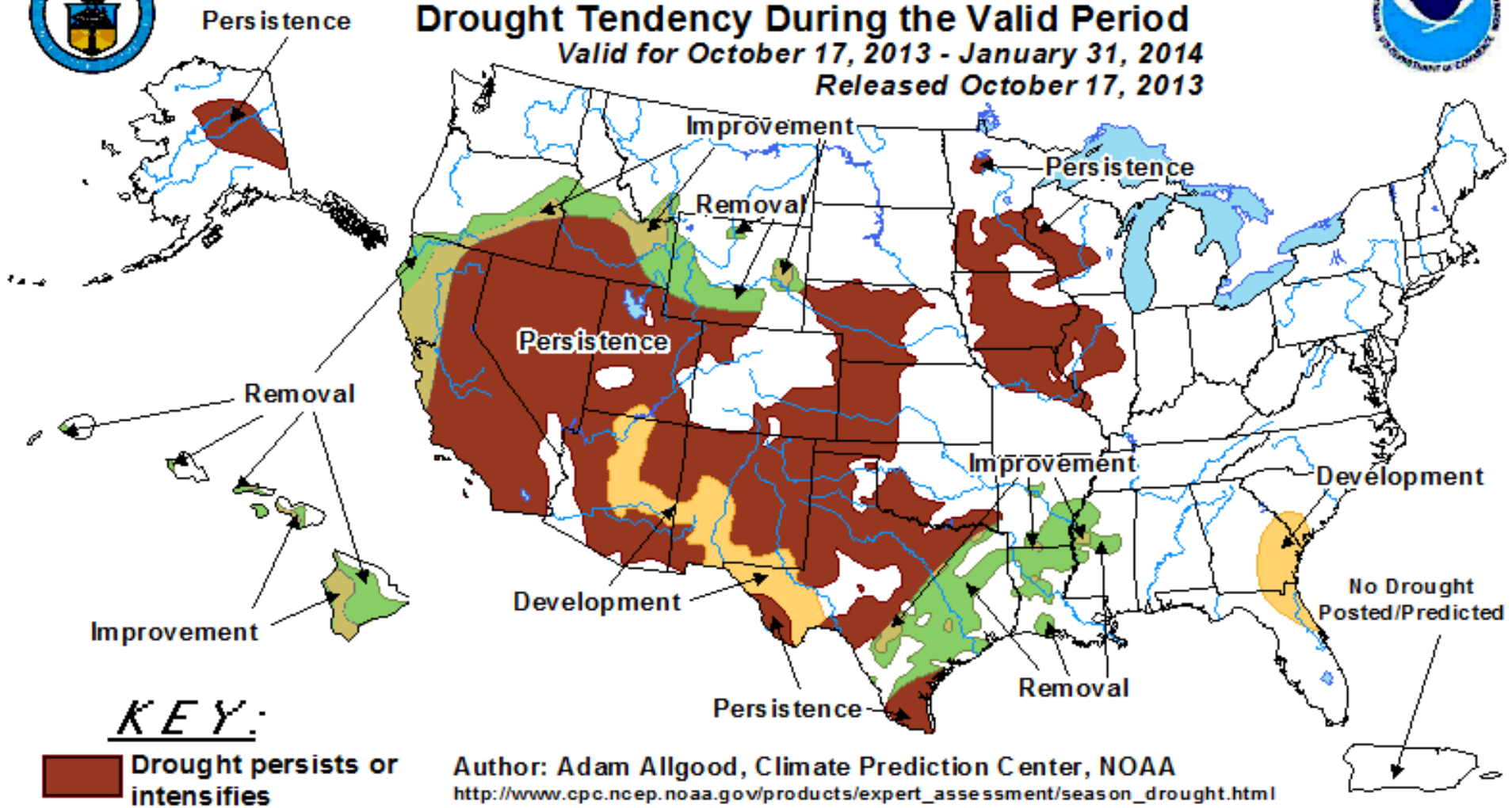

SNOWFALL 2013-2014
AccuWeather.com
Seattle
ABOVE
ABOVE
Minneapolis
New York
San Francisco
Salt Lake City
Chicago
Washington, D.C.
Omaha
Denver
BELOW
Phoenix
Atlanta
Dallas

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for October 17, 2013 - January 31, 2014

Released October 17, 2013



KEY:

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

Author: Adam Allgood, Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity).

For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan area 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)

Climate Summary

- Late summer was warm and dry, but early fall has generally been good for U.S. (contiguous) w/ drought coverage **down 24%** on the year. At present, we are down to **37% of the U.S. in drought**

- Current USDM (as of 10/15) shows **57% of the state in drought (D1-D4), down 43% since January 1 when 100% of NE was in severe (D2) drought**
  - **D3 has improved in NE from 96% to 5% since January 1 *(35% on 6/8)***
  - **D4 has been reduced in NE from 77% to 0% since January 1 *(4% on 6/8)***
  - **Southwest NE still feeling the brunt of it**
  - **Soil moisture is improving regionally and in NE….slowly, but surely…could use more recharge at 3-5 feet+**
  - **Big winter needed in the Rockies/MO Basin from a system supply standpoint!**

- Climate Prediction Center's Seasonal Drought Outlook calls for ***persistence or intensification of drought across the western half of Nebraska*** and along the western reaches of the Great Plains between now and the end of January.

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Nebraska Water Supply Update…

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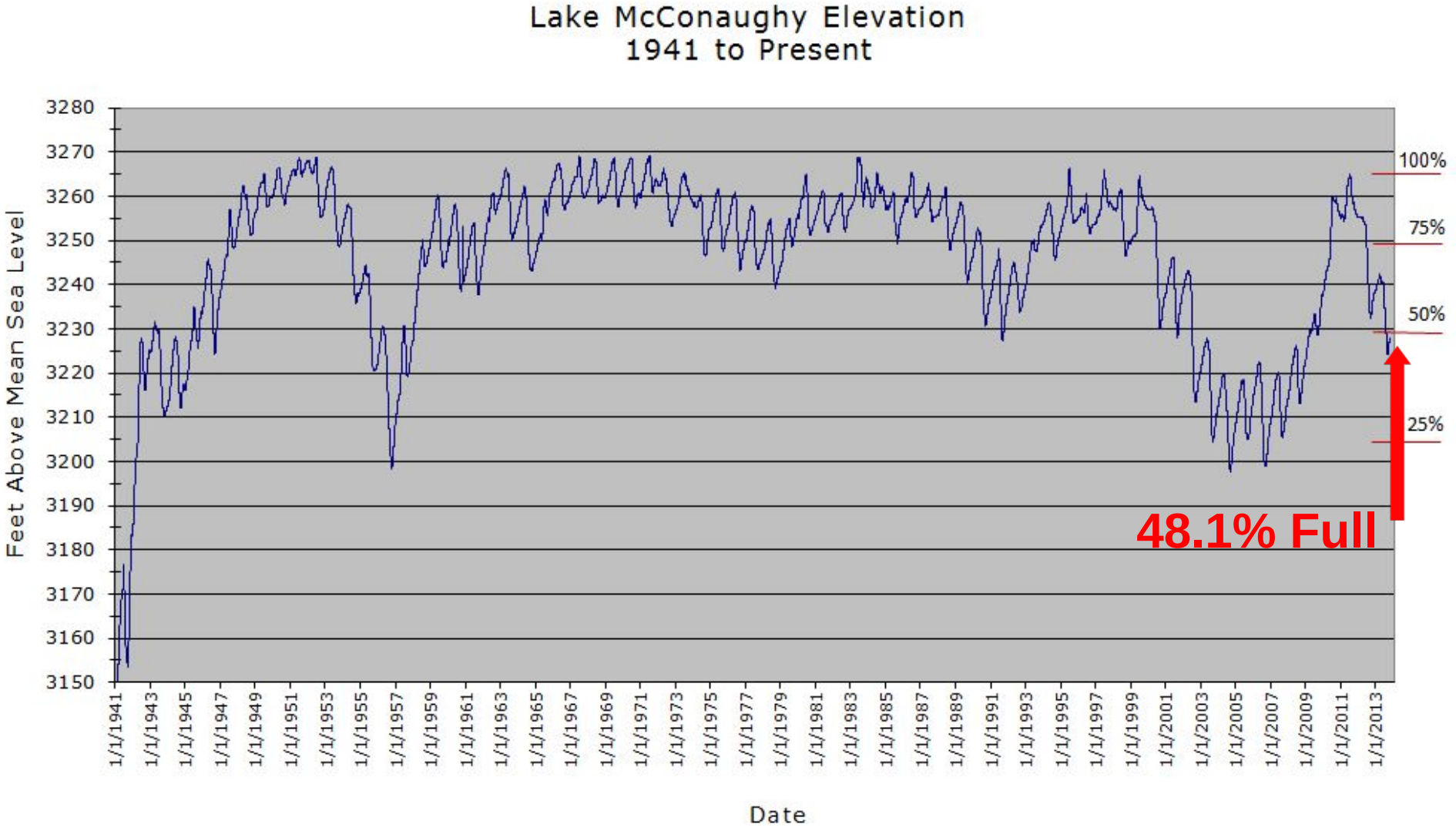
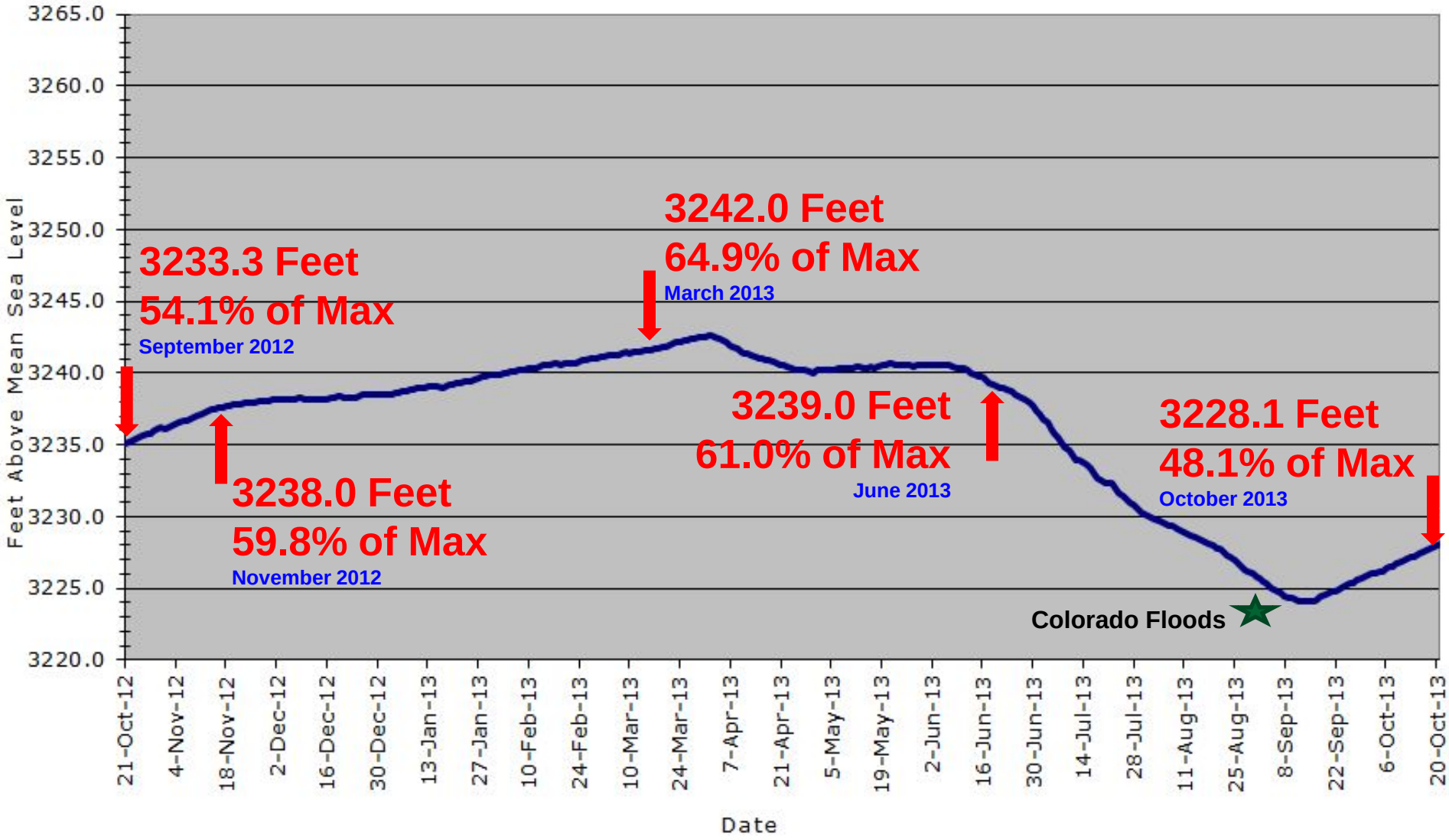


SOURCE: CNPPID www.cnppid.com

University of Nebraska Lincoln
National Drought Mitigation Center

Lake McConaughy Elevation

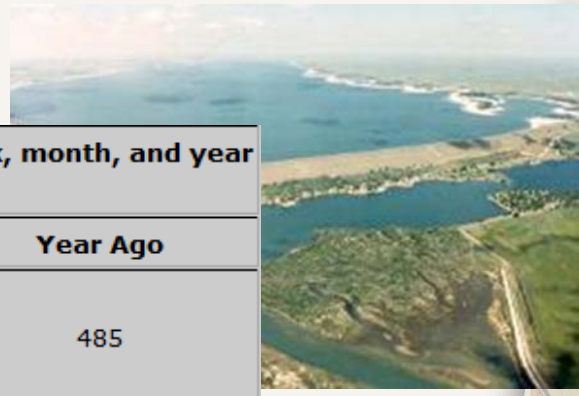
Oct. 21, 2012 to Oct. 21, 2013



SOURCE: CNPPID www.cnppid.com

National Drought Mitigation Center

June 2013 CARC Meeting



Stream flow in cubic feet per second (cfs). Spot reading for current day; daily average for week, month, and year ago.

	Today (7 a.m.)	Week Ago	Month Ago	Year Ago
Inflows to Lake McConaughy (Current, Average & Median Inflow graph)	284	265	643	485
Total Lake McConaughy Outflow	1,850	1,540	1,164	2,469
North Platte below Keystone Dam	245	139	250	1,071
Keystone Dam Diversion	1,591	1,268	716	1,732
North Platte at North Platte	221	272	540	691
South Platte at Roscoe***	N/A	N/A	N/A	N/A
South Platte at North Platte	260	250	326	150
Diversion to CNPPID Supply Canal	1,280	1,371	1,143	2,186
Platte River at Overton	191	170	196	190
Platte River at Kearney	133	75	242	197
Platte River at Grand Island	230	298	330	358

** Percent of capacity is dependent upon maximum elevations/operating levels at different times of the year. Lower maximum levels were established in 1974 after a 1972 storm caused damage to the dam's face. The limits are in effect for periods when high winds and waves are most likely to occur. (See Lake McConaughy Maximum Operating Levels table)*

SOURCE: CNPPID www.cnppid.com

*** Flow too low for gauge to measure*

**** River gauge for South Platte at Roscoe is out of use until further notice due to federal budget cuts.*

@ - Yesterday's average flow

≠ - Ice affecting stream gauges; readings may not be accurate

N/A - Data temporarily unavailable (data not reported from gauge)

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October 2013 CARC Meeting

Stream flow in cubic feet per second (cfs). Spot reading for current day; daily average for week, month, and year ago.

	Today (7 a.m.)	Week Ago	Month Ago	Year Ago
Inflows to Lake McConaughy (Current, Average & Median Inflow graph)	1,365	1,615	1,512	1,158
Total Lake McConaughy Outflow	0	1	0	0
North Platte below Keystone Dam	10	15	29	17
Keystone Dam Diversion	0	0	60	0
North Platte at North Platte	328	308	287	260
South Platte at Roscoe	770	1,560	19,300	44
South Platte at North Platte	1,520	2,254	12,389	92
Diversion to CNPPID Supply Canal	1,404	2,262	2,270	330
Platte River at Overton	1,640	2,331	722	180
Platte River at Kearney	2,240	2,661	348	26
Platte River at Grand Island	2,170	2,331	13	87

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SOURCE: CNPPID www.cnppid.com

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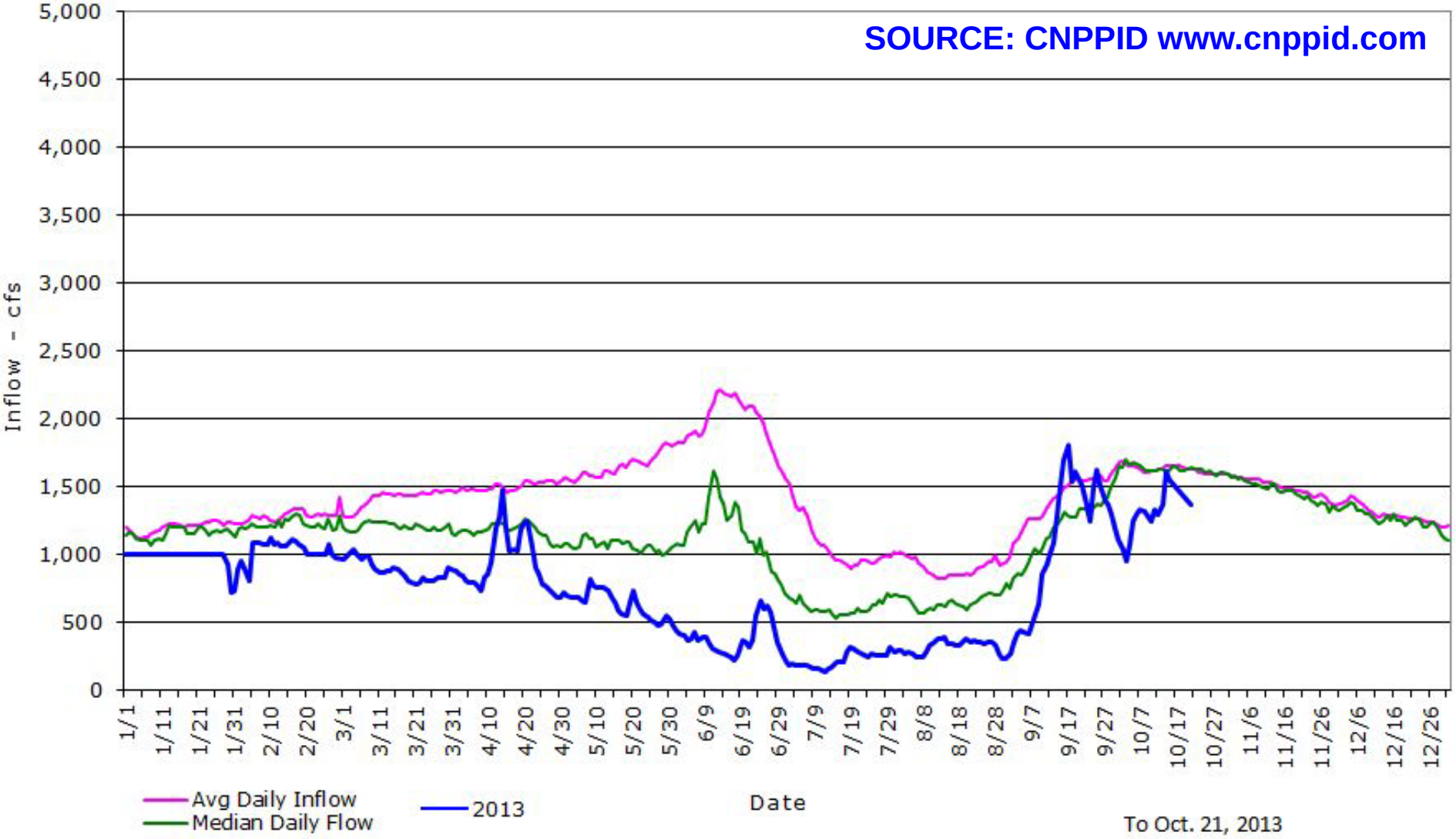
Daily Inflows - Lake McConaughy
Current, Average & Median Flows since 1941

Example to assist with reading graph: The average inflow for March 1 (measurements on every March 1 since 1941) is 1,308 cfs.
Similarly, the median flow for March 1 (the middle value in the range of every March 1 reading since 1941) is 1,210 cfs.



To Oct. 21, 2013

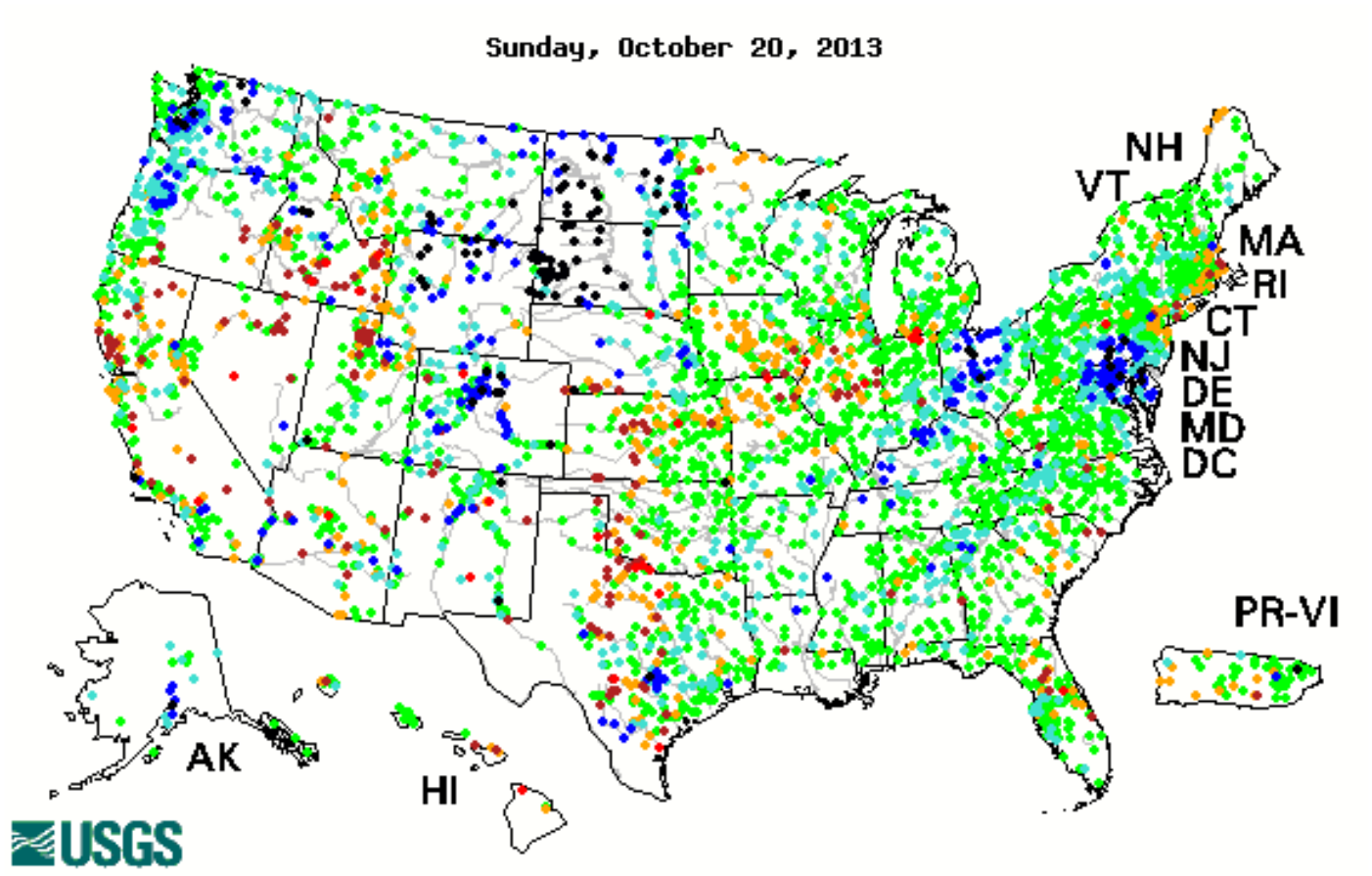
National Drought Mitigation Center

Lake McConaughy

At Lake McConaughy, inflows have dropped to about 1,365 cubic feet per second (cfs), below the 1,600 cfs inflows that are normal for this time of year. The lake contained about 840,300 acre-feet of water, which is **48.2 percent** of capacity. This is higher than a month ago, but still below the 983,000 acre-feet a year ago (56.4% of capacity).

The anticipation of better run-off may come to fruition this year as the soils in the basin are in much better shape and the key will be the amount of snow/snow water equivalence measured this coming winter.

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



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

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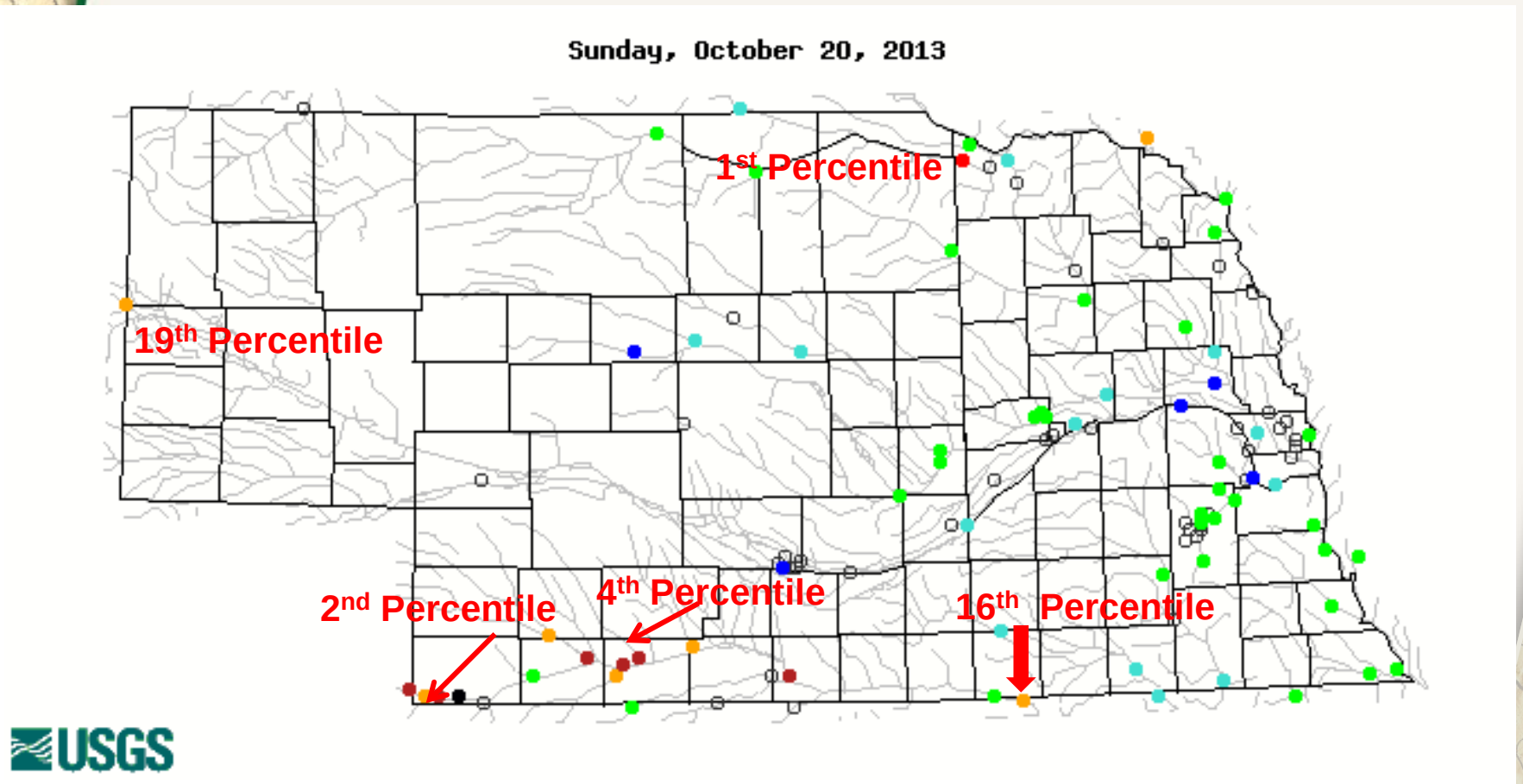
14-day average streamflow compared to historical streamflow for the day of year



USGS

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		

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Republican River Basin

- **Hugh Butler:** 16.8%(18.0%) of conservation pool
- **Enders:** 30.8% (35.0%) of conservation pool
- **Harry Strunk:** 43.6%(69.4%) of conservation pool
- **Swanson:** 25.1% (35.8%) of conservation pool

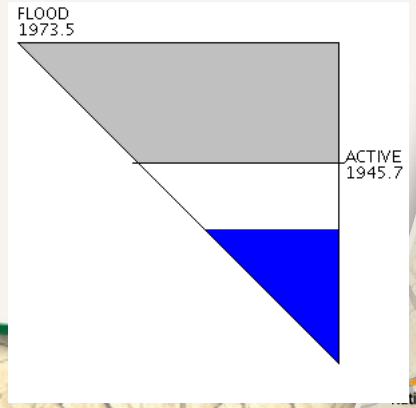
*values in red are from the last CARC meeting in June 2013

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

Republican River Basin

Harlan County Current Conditions

- ✓ Conservation Pool is 44.3% full (66.8%)
- ✓ 139,290 Acre-Feet in storage compared to 209,935 Acre-Feet of water in storage on June 2013.
- ✓ Last year at this time, 194,305 AF was in storage.
- ✓ Historical storage for this time of the year is 218,228 AF



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

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Water Supply Summary

- The drought conditions have eased in the region and along with it, a better hydrological/water supply situation.

- Lake McConaughy is currently:
  - 10.9 feet lower than it was during the last CARC meeting in June 2013.
  - 7.0 feet lower than it was in October 2012
  - The inflows have dropped off over the last few weeks, but were still better than they were last year at this time.

- Overall, storage in the Republican River basin has declined over the last 3 months compared to levels at the end of June 2013.
  - Harlan County is currently:
    - 70,645 Acre-Feet lower than in June 2013 (last CARC meeting)
    - 55,015 AF lower than October of 2012
    - 78,938 AF lower than the historical average for this time of year

Any Questions ?

Contact Information:

Mark Svoboda
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402-472-8238

Brian Fuchs
bfuchs2@unl.edu
402-472-6775

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