MIDWEST AND GREAT PLAINS DROUGHT AND CLIMATE OUTLOOK
16 JANUARY 2014

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GENERAL INFORMATION

Providing climate services to the Midwest and Great Plains Collaboration Activity Among:

• Doug Kluck and John Eise (NOAA), State Climatologists and the Midwest Regional Climate Center, High Plains Regional Climate Center, NOAAs Climate Prediction Center, Iowa State University, National Drought Mitigation Center

Next Climate/Drought Outlook Webinar

• February 20, 2014 (1 PM CDT)

Access to Future Climate Webinars and Information

http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars

http://mrcc.isws.illinois.edu/webinars.htm
http://www.hprcc.unl.edu/webinars.php

Operator Assistance for questions at the end
CURRENT CONDITIONS AND CONTEXT

Look back at 2012 and 2013
The past month
Drought status
Snowpack and runoff
WHAT A DIFFERENCE A YEAR MAKES

TEMPERATURE

Average Temperature (°F): Departure from Mean January 1, 2012 to December 31, 2012

Mean period is 1981–2010.

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 1/16/2014 10:06:26 AM CST

Average Temperature (°F): Departure from Mean January 1, 2013 to December 31, 2013

Mean period is 1981–2010.

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 1/16/2014 10:06:51 AM CST
WHAT A DIFFERENCE A YEAR MAKES

Accumulated Precipitation: Percent of Mean January 1, 2012 to December 31, 2012

Accumulated Precipitation: Percent of Mean January 1, 2013 to December 31, 2013

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 1/16/2014 10:10:02 AM CST
Significant Events for December 2013

The contiguous U.S. drought footprint remained virtually unchanged during Dec. Abnormally dry conditions expanded in the Northwest and contracted in the Southeast.

CA, OR, WA were top 10 dry. The Pfeiffer Fire in Big Sur, CA burned over 900 acres and destroyed 34 homes.

MN and ND had a top 10 cold Dec. with temperatures 8.2°F and 8.4°F below average, respectively.

A severe weather outbreak on Dec. 21 led to 14 preliminary tornado reports in the Mid-South and Ohio Valley. AR and MS each reported a fatality.

Several winter storms impacted the nation during Dec. The contiguous U.S. snow cover extent was the 8th largest on record for the month.

The Southeast and Mid-Atlantic were warm and wet. FL was top 10 warm. AL, GA, OH, WV, and VA were top 10 wet.

AK had its 5th wettest Dec. Barrow was record wet.

Windward locations on the Big Island, Maui, and Kauai were wetter than average. Hilo had its 10th wettest Dec. on record.

The average U.S. temperature during December was 30.9°F, 2.0°F below the 20th century average. December U.S. precipitation was 2.17 inches, 0.06 inch below the 20th century average.
TEMPERATURE
DEC 2013 & OND 2013

December 2013 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

October-December 2013 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

Temperature
1 = Coldest
119 = Warmest

Record Coldest
Much Below Normal
Below Normal
Near Normal
Above Normal
Much Above Normal
Record Warmest

Record Coldest
Much Below Normal
Below Normal
Near Normal
Above Normal
Much Above Normal
Record Warmest
PRECIPIATION
DEC 2013 & OND 2013

December 2013 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

October-December 2013 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

Precipitation
1 = Driest
119 = Wettest

Record Driest
Much Below Normal
Below Normal
Near Normal
Above Normal
Much Above Normal
Record Wettest
30-DAY PRECIPITATION

Accumulated Precipitation (in): Departure from Mean December 18, 2013 to January 16, 2014

Mean period is 1981–2010.

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 1/16/2014 9:35:17 AM CST

Accumulated Precipitation: Percent of Mean December 18, 2013 to January 16, 2014

Mean period is 1981–2010.

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 1/16/2014 9:35:40 AM CST
30-DAY TEMPERATURE

Average Temperature (°F): Departure from Mean December 18, 2013 to January 15, 2014
SOIL MOISTURE ANOMALY

January 11, 2014

August 10, 2013

Soil Moisture Anomaly in millimeters

http://www.emc.ncep.noaa.gov/mmb/nldas/drought/
THE REAL QUESTION:
WESTERN KANSAS AND NEBRASKA

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Precipitation (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955-56</td>
<td>24.68</td>
</tr>
<tr>
<td>1954-55</td>
<td>26.89</td>
</tr>
<tr>
<td>1934-35</td>
<td>27.47</td>
</tr>
<tr>
<td>2002-03</td>
<td>27.52</td>
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<tr>
<td>1936-37</td>
<td>28.54</td>
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<tr>
<td>1935-36</td>
<td>28.91</td>
</tr>
<tr>
<td>2012-13</td>
<td>28.97</td>
</tr>
</tbody>
</table>
Arkansas River Basin Time Series Snowpack Summary

Based on Provisional SNOTEL data as of Jan 08, 2014

Current as Pct of Normal: 100%
Current as Pct of Avg: 95%
Current as Pct of Last Year: 183%
Current as Pct of Peak: 44%
Normal as Pct of Peak: 44%
Pct of Normal Needed to Reach Peak: 100%
Normal Peak Date: Apr 11

Snow Water Equivalent (inches)
South Platte River Basin Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Jan 08, 2014

Current as Pct of Normal: 108%
Current as Pct of Avg: 101%
Current as Pct of Last Year: 169%
Current as Pct of Peak: 44%
Normal as Pct of Peak: 41%
Pct of Normal Needed to Reach Peak: 95%
Normal Peak Date: Apr 26
The Missouri River basin mountain snowpack normally peaks near April 15. By January 15 normally 54% of the peak has accumulated. On January 15, 2014 the mountain snowpack in the “Total above Fort Peck” reach is currently 10", 115% of the 1981-2010 30-year average. The mountain snowpack in the “Total Fort Peck to Garrison” reach is currently 9.0", 119% of the 1981-2010 30-year average.

*Generally considered the high and low year of the last 20-year period.
Missouri River Mainstem Reservoir System
Current and Forecast Reservoir Levels
January 15, 2014 and March 1, 2014

System Storage
million acre feet (MAF)

72.4
67.7
56.1
17.6
0

6.0 / 6.0 MAF into Carryover Multiple Use Zone
Missouri River Basin
2014 Runoff Forecast above Sioux City*

Jan 1 Forecast of Annual Runoff = 26.1 MAF
Historic Annual Runoff Average = 25.2 MAF

* Forecast as of January 1, 2014
CLIMATE OUTLOOKS

Monthly
Seasonal
Drought
FEBRUARY PRECIPITATION OUTLOOK

ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID FEB 2014
MADE 16 JAN 2014

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
3-MONTH TEMPERATURE OUTLOOK
3-MONTH PRECIPITATION OUTLOOK

THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID FMA 2014
MADE 16 JAN 2014

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 January 16 - April 30, 2014
Released January 16, 2014

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

Author: Brad Pugh, Climate Prediction Center, NOAA
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)

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

* Recent Conditions
  * Colder than normal
  * Drought issues persist in portions of Great Plains and Midwest
  * Wet conditions persist over eastern portion of the Midwest
  * Snowpack is normal to good in areas feeding rivers of the Great Plains
SUMMARY

* **Outlooks**
  * ENSO is neutral, but some indication of El Nino conditions developing into Summer 2014
  * Drought conditions expected to persist or intensify in portions of the Greats Plains and Midwest
  * Cooler than normal pattern likely to persist across northern areas
  * Week indication of above normal precipitation in portions of central Mississippi and lower Ohio River Valleys, otherwise no clear signals regarding precipitation
Further Information - Partners

Today’s and Past Recorded Presentations and:

http://mrcc.isws.illinois.edu/webinars.htm
http://www.hprcc.unl.edu

• NOAA’s National Climatic Data Center: www.ncdc.noaa.gov
  ➢ Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/

• NOAA’s Climate Prediction Center: www.cpc.ncep.noaa.gov

• Climate Portal: www.climate.gov

• U.S. Drought Portal: www.drought.gov

• National Drought Mitigation Center: http://drought.unl.edu/

• State climatologists
  • http://www.stateclimate.org

• Regional climate centers
  • http://mrcc.isws.illinois.edu
  • http://www.hprcc.unl.edu
THANK YOU AND QUESTIONS?

Questions:

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