Providing climate services to the Central Region

Collaboration Activity Between:
- Collaboration with Dennis Todey (South Dakota State Climatologist), Jim Angel (Illinois State Climatologist), Doug Kluck and John Eise (NOAA), State Climatologists and the Midwest Regional Climate Center, High Plains Regional Climate Center, NOAA's Climate Prediction Center, Iowa State University, Brian Fuchs (National Drought Mitigation Center)

Next Climate/Drought Outlook Webinar
- March 19, 2015 with Dennis Todey (South Dakota State Climatologist)

Access to Future Climate Webinars and Information
- [http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars](http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars)

Past recorded presentations and slides can be found here:
- [http://mrcc.isws.illinois.edu/webinars.htm](http://mrcc.isws.illinois.edu/webinars.htm)
- [http://www.hprcc.unl.edu/webinars.php](http://www.hprcc.unl.edu/webinars.php)

There will be time for questions at the end
Agenda

- Current Conditions
- Regional Climate Updates
- Outlooks

Colorado Tmax Temperature Records

- January Records
- February Records

Wendy Ryan Colorado State Climate Office
Current Conditions

Feb 1-2 Snowfall

- 1 to 2 inches
- 2 to 3 inches
- 3 to 4 inches
- 4 to 6 inches
- 6 to 8 inches
- 8 to 10 inches
- 10 to 12 inches
- 12 to 15 inches
- 15 to 18 inches
- 18 to 21 inches
- 21 to 24 inches
- 24 to 30 inches
- 30 to 36 inches
- Greater than 36 in
30-Day Temperature Departure

Departure from Normal Temperature (F)
1/19/2015 – 2/17/2015

Generated 2/18/2015 at HPRCC using provisional data.
Regional Climate Centers
30-Day Precipitation Departure

Departure from Normal Precipitation (in)
1/19/2015 – 2/17/2015

Generated 2/18/2015 at HPRCC using provisional data.
90-Day Precipitation Departure

Departure from Normal Precipitation (in)
11/20/2014 – 2/17/2015
Year to Date Precipitation

Departure from Normal Precipitation (in)
1/1/2015 – 2/17/2015

Generated 2/18/2015 at HPRCC using provisional data.
Year to Date Temperature

Departure from Normal Temperature (F)
1/1/2015 – 2/17/2015
28-Day Average Streamflow

Monday, February 16, 2015

http://waterwatch.usgs.gov/

Explanation - Percentile classes:
- Low: <10, Much below normal
- 10-24: Below normal
- 25-75: Normal
- 76-90: Above normal
- >90: Much above normal
- High

USGS

NIDIS
28-Day Average Streamflow

Monday, February 16, 2015

Explanation - Percentile classes

<table>
<thead>
<tr>
<th>Low</th>
<th>&lt;10</th>
<th>10-24</th>
<th>25-75</th>
<th>76-90</th>
<th>&gt;90</th>
<th>High</th>
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<tbody>
<tr>
<td>Much below normal</td>
<td>Below normal</td>
<td>Normal</td>
<td>Above normal</td>
<td>Much above normal</td>
<td>High</td>
<td></td>
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</tbody>
</table>

USGS
28-Day Average Streamflow

Monday, February 16, 2015

Explanation - Percentile classes

<table>
<thead>
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<th>Percentile</th>
<th>Description</th>
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<td>10-24</td>
<td>Below normal</td>
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<td></td>
<td>25-75</td>
<td>Normal</td>
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<tr>
<td></td>
<td>76-90</td>
<td>Above normal</td>
</tr>
<tr>
<td></td>
<td>&gt;90</td>
<td>Much above normal</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td>High</td>
</tr>
</tbody>
</table>
28-Day Average Streamflow

Monday, February 16, 2015
Current Snow Cover

Modeled Snow Depth forecasted for 2015 February 18, 16:00 UTC

http://www.nohrsc.noaa.gov/interactive/html/map.html?
Snow Water Equivalent

Modeled Snow Water Equivalent forecasted for 2015 February 18, 16:00 UTC

Inches of water equivalent

- > 30
- 20 to 30
- 18 to 20
- 16 to 18
- 14 to 16
- 12 to 14
- 10 to 12
- 8 to 10
- 6 to 8
- 4 to 6
- 2 to 4
- 1 to 2
- trace to 1
- Not Estimated

Elevation in feet

- > 13124
- 6203 to 13124
- 3281 to 6203
- 3 to 3281
- < 3
Wyoming SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 18, 2015

Current Snow Water Equivalent (SWE)
Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

Map showing the percentage of normal snow water equivalent across different basins in Wyoming. The map is color-coded to indicate the percent of normal for each basin.

Provisional Data Subject to Revision

The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA NRCS National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov

USDA NRCS
Missouri River Basin – Mountain Snowpack Water Content
February 18, 2015

The Missouri River Basin mountain snowpack normally peaks near April 15. By February 15, normally 70% of the peak has accumulated. On February 18, 2015 the mountain snow water equivalent (SWE) in the “Total above Fort Peck” reach is currently 11.0”, 92% of average. The mountain SWE in the “Total Fort Peck to Garrison” reach is currently 9.9”, 99% of average.

*Generally considered the high and low year of the last 20-year period.

Provisional data. Subject to revision.

Courtesy of Kevin Grode, USACE
Platte River Basin - Mountain Snowpack Water Content
Water Year 2014-2015
2/19/2015

The North and South Platte River Basin mountain snowpacks normally peak near April 15. As of February 18, 2015, the mountain snowpack SWE in the "Total North Platte" reach is currently 11.2", 79% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 8.6", 97% of average.

Provisional Data. Subject to Revision

Courtesy of Kevin Grode, USACE
Great Lakes

JANUARY MEAN LAKE LEVELS (IGLD 1965)

<table>
<thead>
<tr>
<th></th>
<th>Superior</th>
<th>Michigan-Huron</th>
<th>St. Clair</th>
<th>Erie</th>
<th>Ontario</th>
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</thead>
<tbody>
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<td>Ft. 2015</td>
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<tr>
<td>N. 183.32</td>
<td>176.29</td>
<td>174.83</td>
<td>173.99</td>
<td>74.56</td>
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** PRECIPITATION (INCHES) **

<table>
<thead>
<tr>
<th>BASIN</th>
<th>January 2015</th>
<th>Average (1800-2010)</th>
<th>Diff.</th>
<th>% of Average</th>
<th>Last 12 Months</th>
<th>Average (1900-2010)</th>
<th>Diff.</th>
<th>% of Average</th>
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<tbody>
<tr>
<td>Superior</td>
<td>1.36</td>
<td>1.94</td>
<td>-0.58</td>
<td>70</td>
<td>33.29</td>
<td>30.46</td>
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<tr>
<td>Michigan-Huron</td>
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<td>2.14</td>
<td>-1.00</td>
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<td>34.91</td>
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<tr>
<td>Erie</td>
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<td>2.49</td>
<td>-0.67</td>
<td>73</td>
<td>33.75</td>
<td>35.43</td>
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<tr>
<td>Ontario</td>
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<td>57</td>
<td>35.19</td>
<td>35.73</td>
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<td>98</td>
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<tr>
<td>Great Lakes</td>
<td>1.32</td>
<td>2.20</td>
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<td>60</td>
<td>34.31</td>
<td>32.64</td>
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<table>
<thead>
<tr>
<th>LAKE</th>
<th>January Net Basin Supplies(^1) (cfs)</th>
<th>January Outflows(^2) (cfs)</th>
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<tr>
<td>Superior</td>
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<td>2015</td>
</tr>
<tr>
<td>Michigan-Huron</td>
<td>51,000</td>
<td>60,000</td>
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<tr>
<td>Erie</td>
<td>1,000</td>
<td>29,000</td>
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<tr>
<td>Ontario</td>
<td>22,000</td>
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<tr>
<td>Great Lakes</td>
<td>[183.32, 176.29, 174.83, 173.99, 74.56]</td>
<td>221,000, 222,000</td>
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</table>
GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)

Analysis Date: JD 048 02/17/2015
Percent Pixels with Data within +/-10 Days: 21.0%
Date of last ice analysis: 2/17/2015
NOAA CoastWatch

Great Lakes Total Ice Cover: 82.3%

Water Temperature

Median Ice Concentration
- <10%
- 10–39%
- 40–69%
- 70–89%
- 90–99%
- 100%

Great Lakes Environmental Research Laboratory
National Ice Ice Center
Soil Moisture Anomaly

Ensemble-Mean - Current Total Column Soil Moisture Anomaly (mm)
NCEP NLDAS Products Valid: FEB 13, 2015

Map showing soil moisture anomaly across the United States with a red oval highlighting a specific area.
As of 2/17/15 just over 73,500,000 people are being impacted by drought in the CONUS.
Regional USDM map 2/17

U.S. Drought Monitor
NWS Central Region

February 17, 2015
(Released Thursday, Feb. 19, 2015)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
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<tbody>
<tr>
<td>Current</td>
<td>63.37</td>
<td>36.63</td>
<td>11.26</td>
<td>2.43</td>
<td>0.13</td>
<td>0.00</td>
</tr>
<tr>
<td>Last Week</td>
<td>63.37</td>
<td>36.63</td>
<td>7.94</td>
<td>2.43</td>
<td>0.13</td>
<td>0.00</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>83.53</td>
<td>16.47</td>
<td>4.57</td>
<td>2.48</td>
<td>0.16</td>
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<td>Start of Calendar Year 12/30/2014</td>
<td>74.67</td>
<td>25.33</td>
<td>5.02</td>
<td>2.41</td>
<td>0.16</td>
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<tr>
<td>Start of Water Year 9/01/2014</td>
<td>85.60</td>
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<td>5.68</td>
<td>2.64</td>
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<tr>
<td>One Year Ago</td>
<td>61.77</td>
<td>38.23</td>
<td>16.77</td>
<td>7.21</td>
<td>1.26</td>
<td>0.13</td>
</tr>
</tbody>
</table>

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
NCDC/NOAA

http://droughtmonitor.unl.edu/
U.S. Drought Monitor
Missouri Watershed

February 17, 2015
(Released Thursday, Feb. 19, 2015)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
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<tbody>
<tr>
<td>Current</td>
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<td>26.39</td>
<td>1.70</td>
<td>0.72</td>
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<tr>
<td>Last Week</td>
<td>73.61</td>
<td>26.39</td>
<td>1.70</td>
<td>0.72</td>
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<td>3 Months Ago</td>
<td>88.40</td>
<td>11.60</td>
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<td>0.00</td>
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<td>One Year Ago</td>
<td>2/18/2014</td>
<td>64.53</td>
<td>35.41</td>
<td>15.84</td>
<td>8.11</td>
<td>1.55</td>
</tr>
</tbody>
</table>

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Author:
Richard Heim
NCDC/NOAA

http://droughtmonitor.unl.edu/
U.S. Drought Monitor
Ohio Watershed

February 17, 2015
(Released Thursday, Feb. 19, 2015)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0</th>
<th>D1</th>
<th>D2</th>
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<tr>
<td>Last Week</td>
<td>66.40</td>
<td>21.26</td>
<td>12.34</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Start of</td>
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<td>0.52</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Water Year</td>
<td>9/22/2014</td>
<td>99.44</td>
<td>0.52</td>
<td>0.03</td>
<td>0.00</td>
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<tr>
<td>One Year Ago</td>
<td>99.44</td>
<td>0.52</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
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Author:
Richard Heim
NCDC/NOAA

http://droughtmonitor.unl.edu/
February 17, 2015 compared to January 20, 2015

http://droughtmonitor.unl.edu
Climate Outlooks

- 7-day precipitation forecast
- 8-14 day outlook
- Monthly/Seasonal
- Winter Outlook (Dec-Feb)
- Seasonal Drought Outlooks
8-14 day Outlook
Mid-Feb 2015 Plume of Model ENSO Predictions

**IRI/CPC**

**Dynamical Model:**
- NCEP CFSv2
- JMA
- SCRIPPS
- LDEO
- AUS/POAMA
- ECMWF
- UKMO
- KMA SNU
- ESSIC ICM
- COLA CCSM3
- MetFRANCE
- SINTEX-F
- CS-IRI-IMM
- GFDL CM2.1
- CMC CANSIIP
- GFDL FLOR

**Statistical Model:**
- CPC MRKOV
- CDC LIM
- CPC CA
- CPC CCA
- CSU CLIPR
- UBC NNET
- FSU REGR
- UCLA-TCD
- UNB ICWC

OBS vs. FORECAST

NINO3.4 SST Anomaly (°C)

NDJ Jan JFM FMA MAM AMJ MJJ JJA JAS ASO SON OND

2014 2015
Early-Feb CPC/IRI Consensus Probabilistic ENSO Forecast

ENSO state based on NINO3.4 SST Anomaly

Neutral ENSO: -0.5°C to 0.5°C

Climatological Probability:
- Red: El Nino
- Green: Neutral
- Blue: La Nina

Time Period:
- JFM 2015
- FMA
- MAM
- AMJ
- MJJ
- JJA
- JAS
- ASO
- SON 2015
Monthly and Seasonal Outlook
Summer Outlook
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for February 19 - May 31, 2015
Released February 19, 2015

Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center

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).

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

http://go.usa.gov/hHTe
Summary

- **Snow in the region:** Most areas are seeing below normal snow for the season.

- **Temperatures:** Below normal in the eastern portion of the region and well above in the west.

- **Forecasts:** No strong indication of temperature or precipitation trends through the summer.

- **Drought:** Possible development in the upper Midwest through the spring. Some improvement over the Lower Mississippi and Ohio River basins.
Further Information - Partners

Today’s and Past Recorded Presentations and:

- [http://mrcc.isws.illinois.edu/webinars.htm](http://mrcc.isws.illinois.edu/webinars.htm)
- [http://www.hprcc.unl.edu](http://www.hprcc.unl.edu)

- NOAA’s National Climatic Data Center: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)

- NOAA’s Climate Prediction Center: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

- Climate Portal: [www.climate.gov](http://www.climate.gov)


- National Drought Mitigation Center: [http://drought.unl.edu/](http://drought.unl.edu/)

- State climatologists
  - [http://www.stateclimate.org](http://www.stateclimate.org)

- Regional climate centers
  - [http://mrcc.isws.illinois.edu](http://mrcc.isws.illinois.edu)
  - [http://www.hprcc.unl.edu](http://www.hprcc.unl.edu)
Thank You and Questions?

Questions:

**Climate:**
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- Jim Angel: jimangel@Illinois.edu, 217-333-0729
- Dennis Tody: dennis.tody@sdstate.edu, 605-688-5141
- Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
- John Eise: john.eise@noaa.gov, 816-268-3144
- Mike Timlin: mtimlin@illinois.edu, 217-333-8506
- Natalie Umphlett: numphlett2@unl.edu, 402 472-6764

**Weather:**
- crhroc@noaa.gov
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bfuchs2@unl.edu
402-472-6775

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