

Federal Climate Collaboration in the Missouri Basin



Credit: Sioux City Journal



Credit: Argus Leader

Summer MRBIR Meeting – Omaha, NE
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Topics

- Missouri Basin Federal Climate Collaboration (MBFCC)
- National Integrated Drought Information System (NIDIS) Actions
- Water Resources Reform Development Act (WRRDA)
- Outlook (if time/necessary)

Federal Collaboration

- The objectives of this committee are to *maximize communication, awareness and coordination* among regional federal agencies while minimizing redundancy.
- USDA (RMA, ARS, NRCS, USFS), DOI (BLM, FWS, NPS, BOR, BIA, USGS), DOE (WAPA), EPA, DOC (NOAA), DOD (USACE), DHS (FEMA)

8 Primary Goals

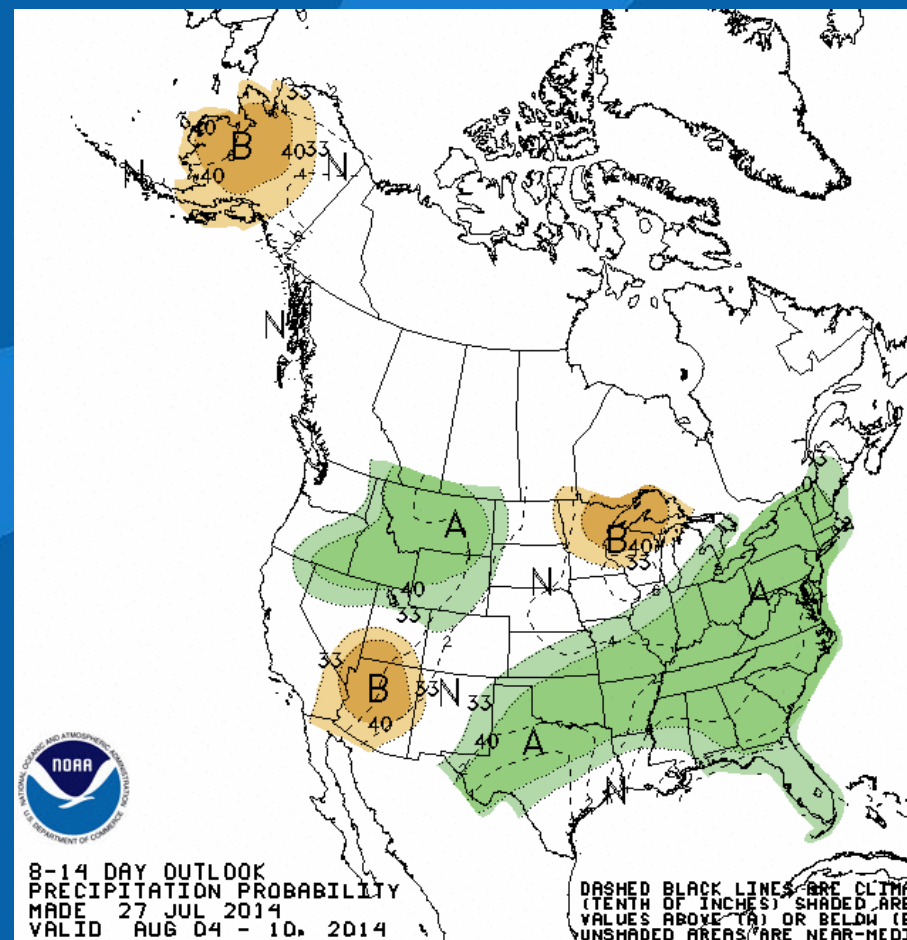
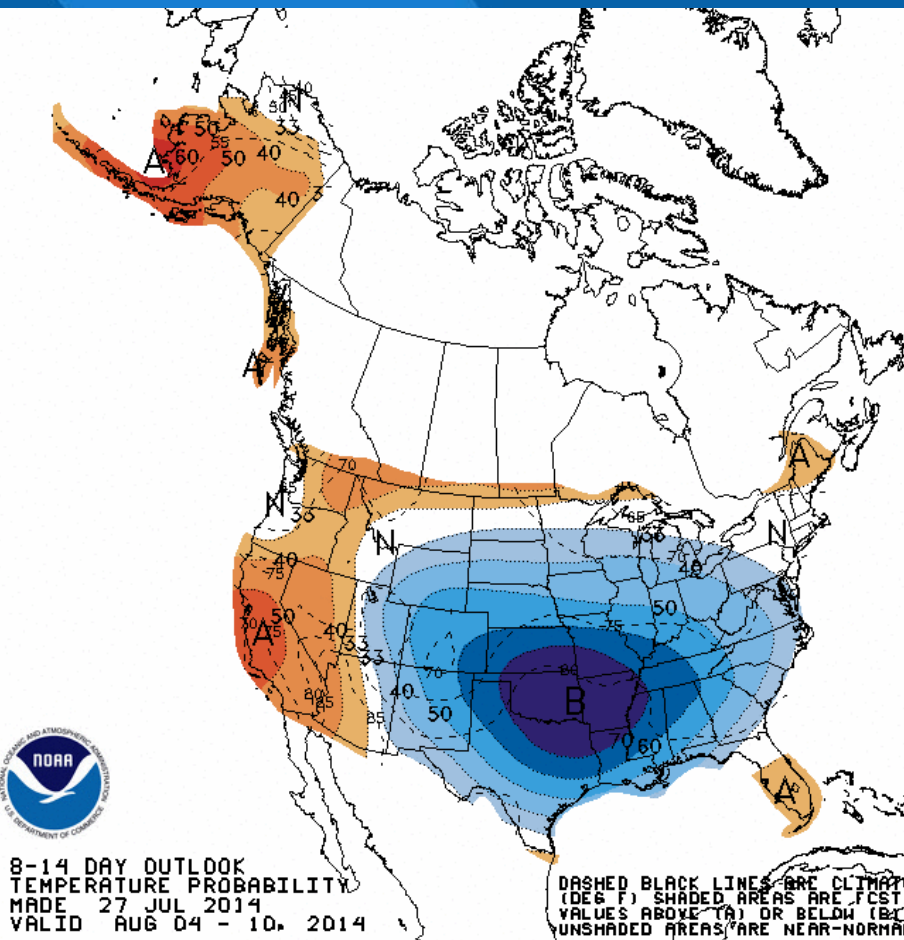
- Exchange of information, create awareness, build capacity
- Provide a broader context and guidance for the various activities in the region
- Inform MRBIR on Missouri River Basin climate related activities
- Address national climate policy
- Support the collection, storage, instrumentation and maintenance of climate and weather data
- Response to extreme climate and weather events with communication and information delivery
- Recognized network of regional climate expertise and capacity
- Unified federal committee to coordinate with national programs and initiatives

Current National Integrated Drought Information System (NIDIS) Actions

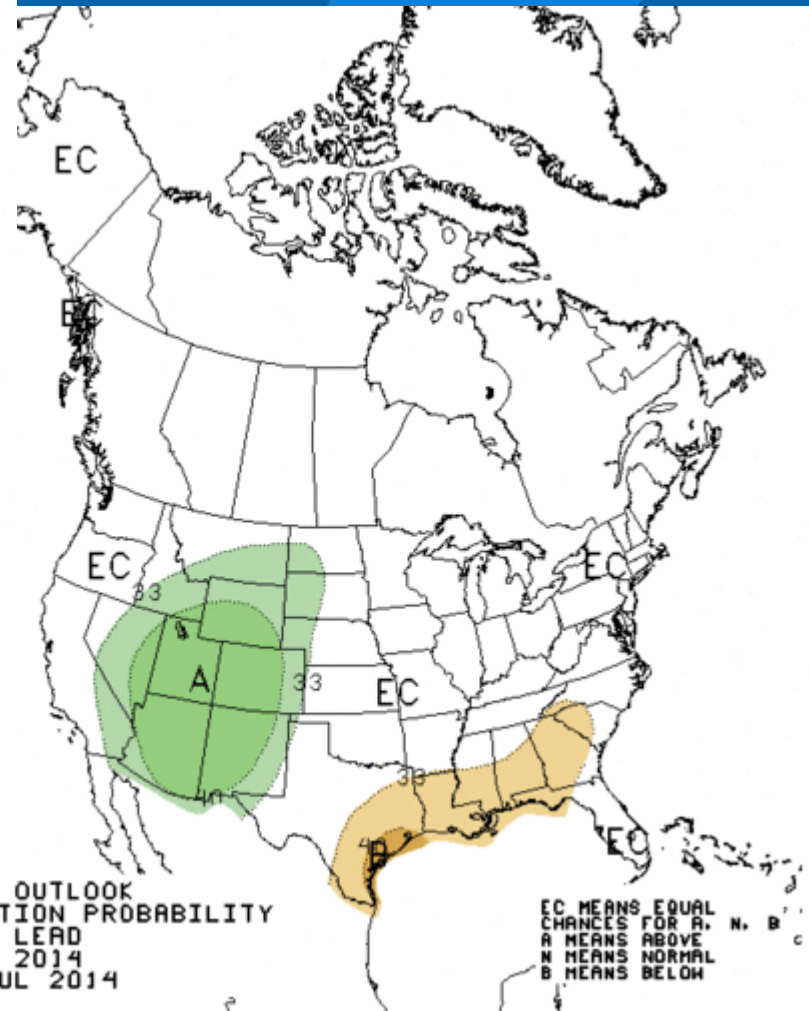
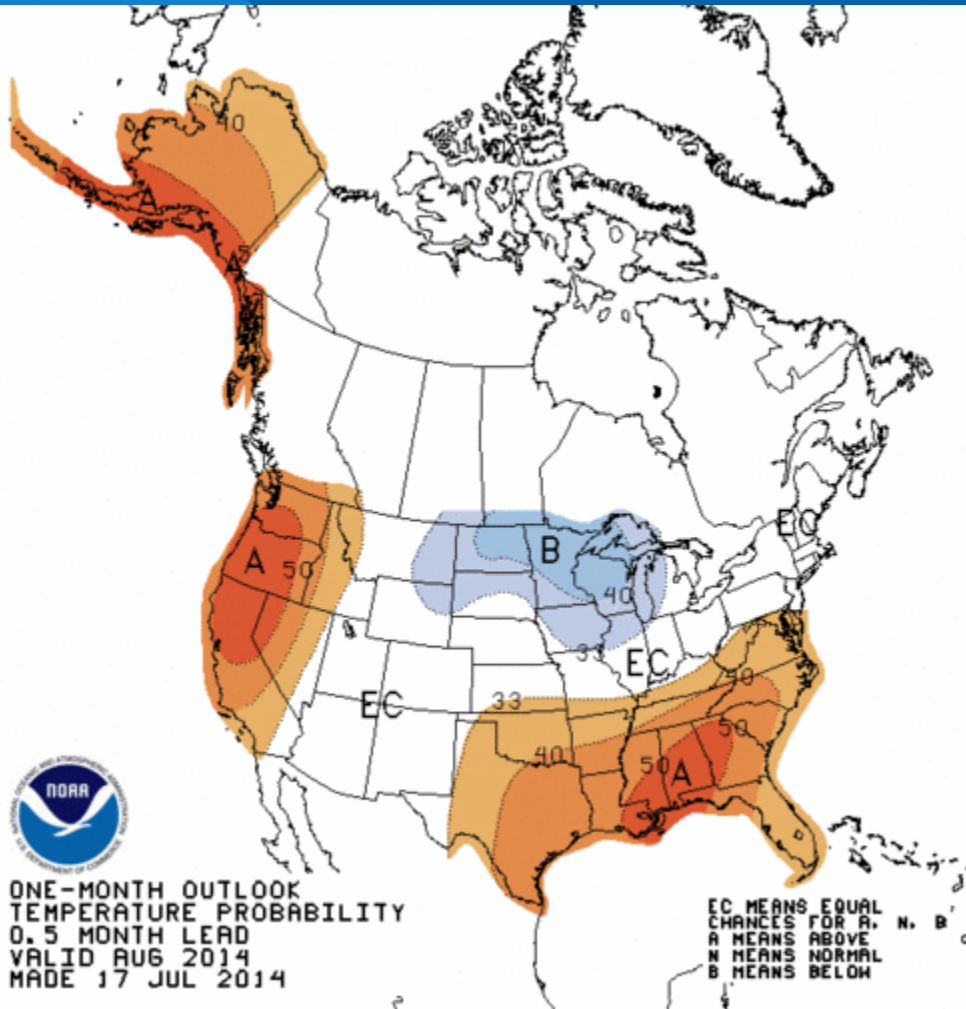
- Wind River Reservation
 - Understanding vulnerabilities (w/USGS CSC)
 - Assist in updating a drought plan
- Montana Initiative and NDRP
- South Dakota: Assist Drought plan
- Tribal Drought Meeting: Continuing effort to build resilience (w/USGS CSC & USDA Ag Hub)
- Missouri Basin Drought Portal –
 - <http://drought.gov/drought/regional-programs/mrb/missouri-river-basin-home>

Outlooks

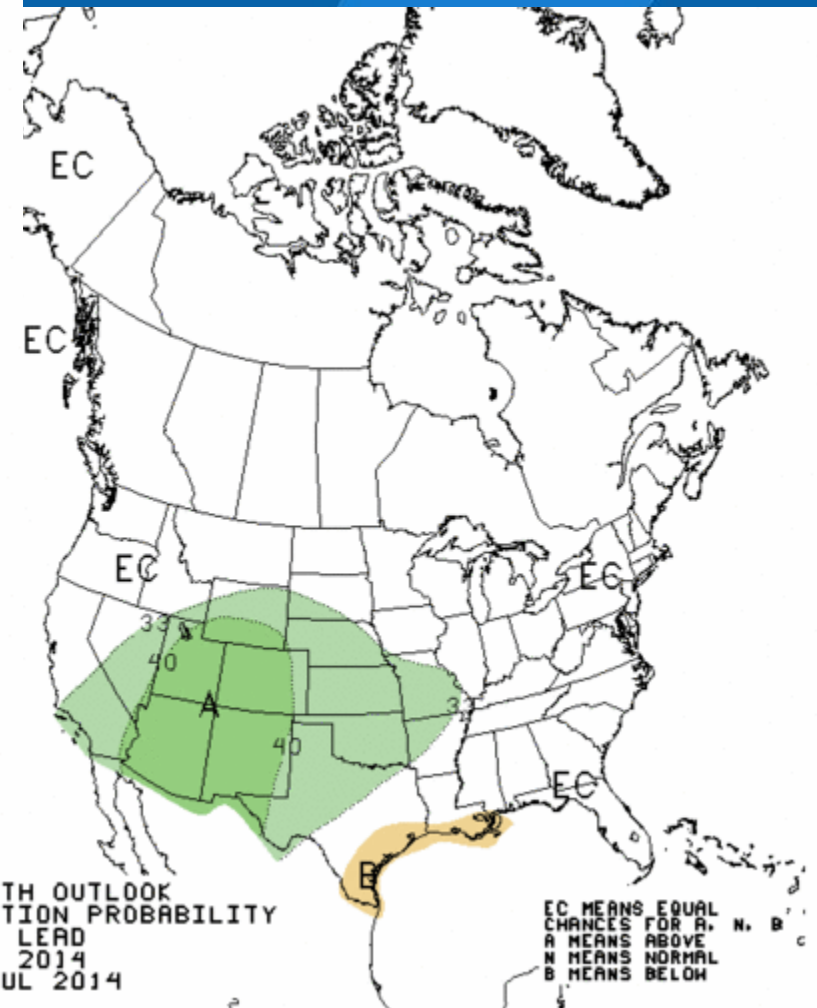
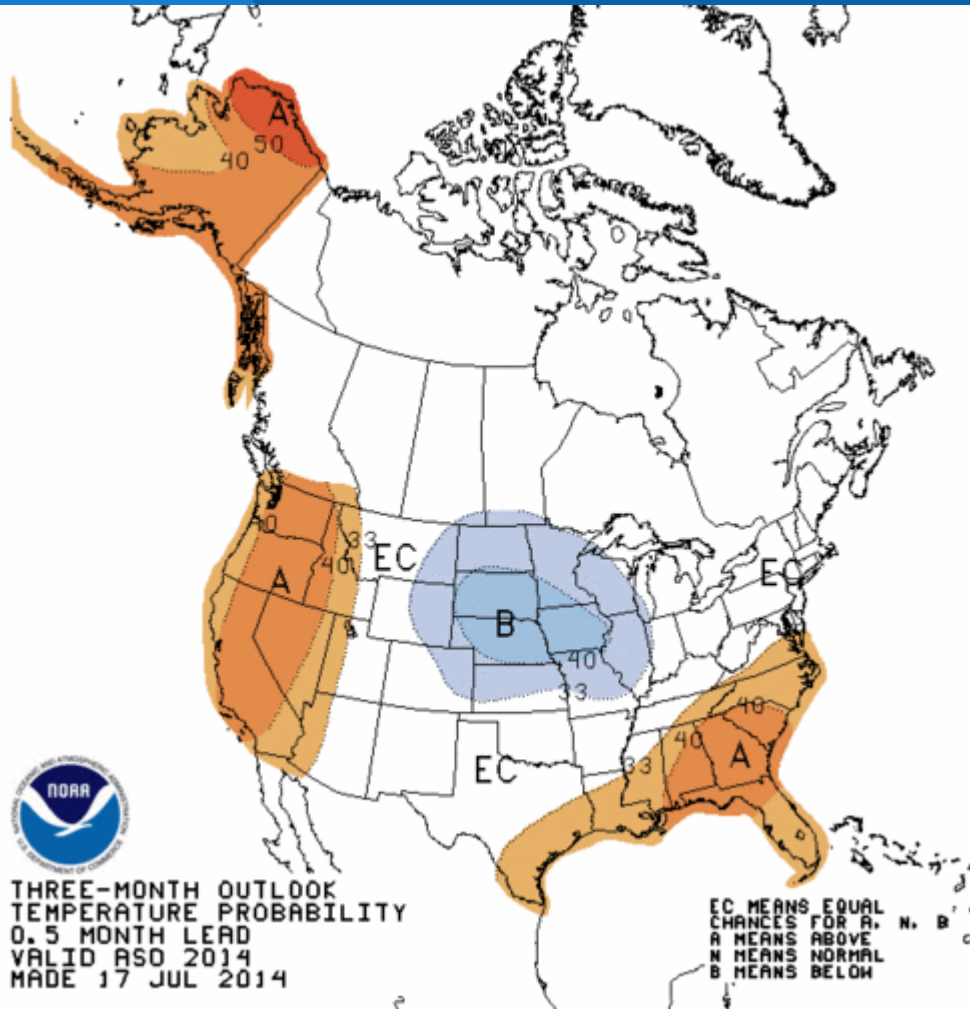
- Week 2 – August 6 - 12



August Temps and Precip



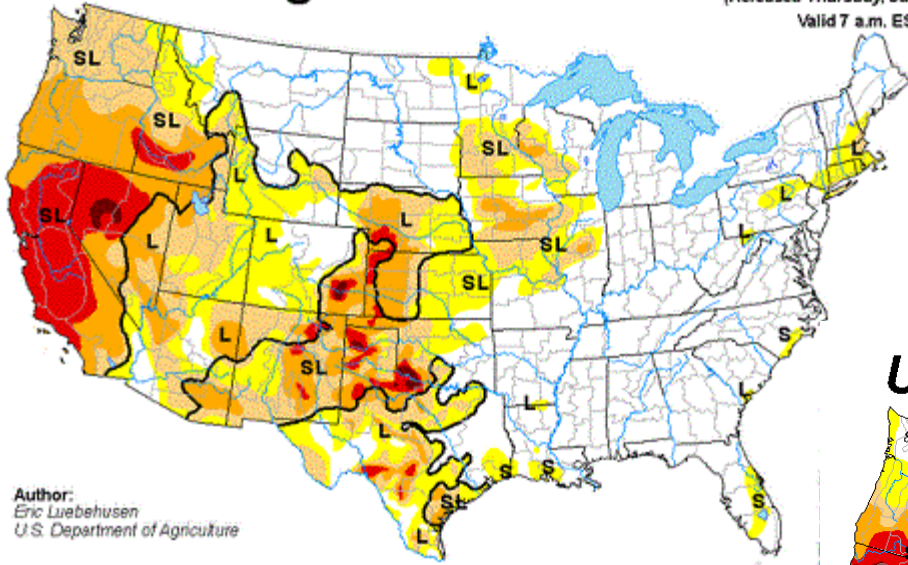
August - October Precip & Temp



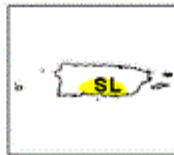
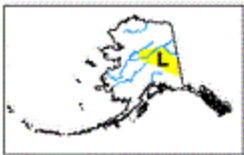
Drought January and Now

U.S. Drought Monitor

January 14, 2014
(Released Thursday, Jan. 16, 2014)
Valid 7 a.m. EST



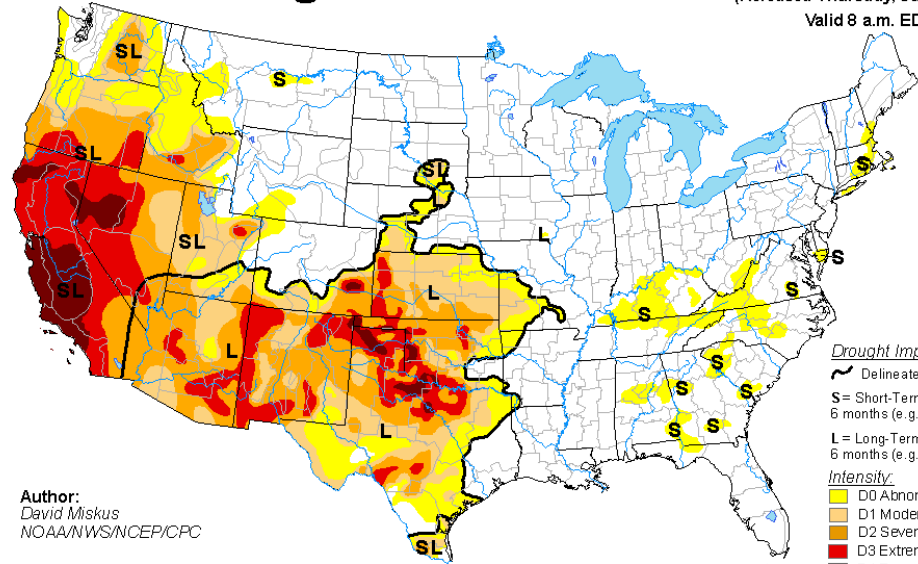
Author:
Eric Luebbehusen
U.S. Department of Agriculture



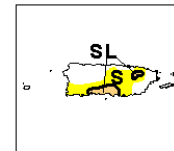
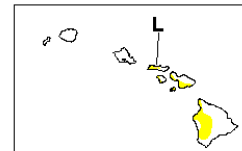
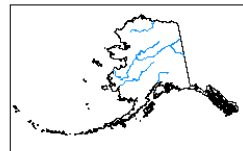
<http://dro>

U.S. Drought Monitor

July 22, 2014
(Released Thursday, Jul. 24, 2014)
Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC



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.



<http://droughtmonitor.unl.edu/>

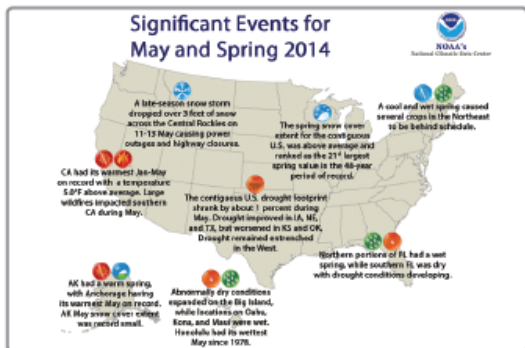
Thank You

Quarterly Climate Impacts and Outlook

Missouri River Basin

June 2014

National - Significant Events for March - May 2014



The average U.S. temperature during May was 61.2°F, 1.0°F above average. The spring U.S. temperature was 51.1°F, 0.2°F above average. May U.S. precipitation was 2.76 inches, 0.13 inch below average. The spring precipitation total was 8.01 inches, 0.07 inch above average.

Highlights for the Basin

Although individual locations experienced extremes this spring, statewide extremes were not common. Montana did have its 3rd wettest March, while Kansas had its 10th driest March and 6th driest May.

Precipitation was severely lacking in portions of South Dakota, Nebraska, and Kansas. Goodland, KS had its 10th driest spring on record with only 2.60 inches. Sioux Falls, SD had its 11th driest with 3.99 inches.

Mountain snowpack continued to be above average as the snow water equivalent peaked at 132% above Fort Peck Reservoir and 140% between Fort Peck and Garrison Reservoir.

Windy conditions continued into spring. April was particularly windy in Kansas as many locations were 3 mph above the long term average.

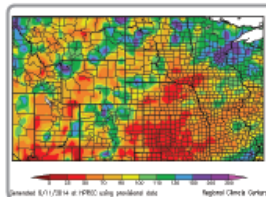
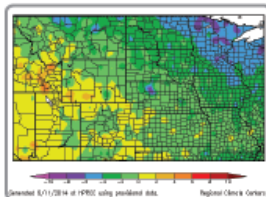
This spring had the least active start to tornado season in the past 60 years. One notable system was the Mother's Day storm which brought accumulating snowfall to western portions of the Basin and severe weather to eastern portions of the Basin.

Regional - Climate Overview for March - May 2014

Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)
March 1 - May 31, 2014

Percent of Normal Precipitation (%)
March 1 - May 31, 2014

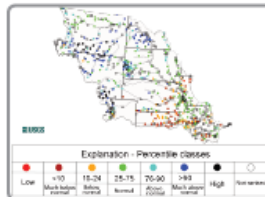


The strong ridge/trough pattern continued from the winter into the first part of spring with March showing the familiar northwest flow pattern. April and May were largely near normal, with the coldest temperatures confined to the northern tier of the Basin. For the spring as a whole, areas of northern Montana, North Dakota, and most of South Dakota averaged 2.0°F-6.0°F below normal while other areas of the Missouri River Basin states were within 2.0°F above or below normal.

Precipitation was highly variable during the spring months for the Missouri Basin states. The north precipitation areas included parts of North Dakota, Montana, and a swath running from western Colorado through the panhandle of Nebraska and into central South Dakota. Meanwhile, other areas missed out on precipitation. Parts of Kansas, Nebraska, and eastern Colorado were hit particularly hard with precipitation totals at best 50% of normal. Unfortunately, this led to the development of new drought conditions across Kansas.

Streamflow

Missouri Basin Streamflow
05/30/2014



Streamflow measurements indicated a range of conditions across the Basin at the end of spring. Lower than normal temperatures impacted the rivers this spring by producing more ice jam flooding than usual. But, these cooler conditions helped naturally meter out the snowmelt at a slower pace. Below normal streamflow was present in the southern part of the basin where precipitation has been lacking. Surface water supplies were a concern in Kansas due to both low streamflows and new drought conditions across Kansas.

Contact: Natalie Umphlett (numplett2@uni.edu)



Missouri River Basin Quarterly Climate Impacts and Outlook | June 2014
www.drought.gov/drought/content/resources/reports

Regional - Impacts for March - May 2014

Drought Impacts to Livestock

The ongoing drought in the central and southern Plains drove beef prices to record highs this spring. According to the United States Department of Agriculture, the average price for a pound of beef hit a new high of \$5.72 in March. A combination of impacts from the drought has led to what is now the United States' smallest national cattle herd in 63 years.

Continued Cold Hampers Producers in North

It was a late start for the growing season in North Dakota and portions of South Dakota where most crops were planted later than average as a result of both cooler air and soil temperatures. Additionally, the remaining frost layer in the soil prevented moisture from infiltrating deeply. The top layer of soil became too moist, further preventing any field work.



Above: (Left) Wet fields in late April in Wahpeton, North Dakota, courtesy DuPont. (Center) Stranded vehicle surrounded by dirt from a dust storm in April in Barton County, Kansas, courtesy Kansas Department of Transportation. (Right) Wheat field in March in Kit Carson County, Colorado, courtesy coloradodwest.org.

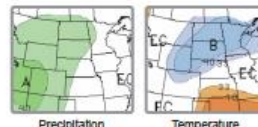
Extreme Temperatures and High Winds Impact Winter Wheat Crop

Winter wheat was hit hard this spring, especially in portions of Kansas and Colorado, where dry and windy conditions continued. Some fields are now too dry and barren to hold on to their topsoil. Blowing dust from these fields resulted in dust storms which impacted travel on many roads and interstates and resulted in at least one fatality. In addition to dry and windy conditions, extreme temperatures including record highs and lows also played a role in the rapid decline of the winter wheat crop. A late freeze event in mid-May was the final blow. Although the final numbers on winter wheat damage are not in yet, insurance payments have already gone out to some producers which would be considered quite early.

Regional - Outlook for Summer 2014

3-Month Precipitation and Temperature Outlooks

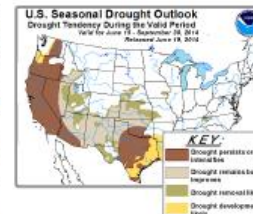
Valid for July - September 2014



EC: Equal chances of above, near or below normal
A: Above normal, B: Below normal

U.S. Seasonal Drought Outlook

Valid for 06/19/2014 - 09/30/2014



KEY:
 ■ Drought persists or intensifies
 ■ Drought remains but improves
 ■ Drought recedes but may
 ■ Drought development likely

This spring, drought conditions worsened across the southern tier of the basin as extreme drought expanded across eastern Colorado, central Kansas, and central Nebraska. Drought conditions also spread northward into South Dakota. Only few areas had improvements. During the first half of June, heavy rains across Kansas, Nebraska, South Dakota, and North Dakota improved drought conditions significantly. The seasonal outlook indicates that drought conditions will continue to improve or be removed completely.

MO River Basin Partners

- High Plains Regional Climate Center
www.hprcc.uni.edu
- Kansas State, Department of Agronomy
www.agronomy.k-state.edu
- National Oceanic and Atmospheric Administration
www.noaa.gov
- National Weather Service - Central Region
www.crh.noaa.gov/crh
- National Climatic Data Center
www.ncdc.noaa.gov
- Missouri River Basin Forecast Center
www.crh.noaa.gov/mbrfc
- Climate Prediction Center
www.cpc.ncep.noaa.gov
- National Integrated Hydrologic Remote Sensing Center
www.nohrs.noaa.gov
- National Drought Mitigation Center
www.drought.uni.edu
- National Integrated Drought Information System (NIDIS)
www.drought.gov
- State Climatologists
www.stateclimatology.org
- South Dakota State University Extension
http://ffrow.org
- U.S. Army Corps of Engineers - Missouri River Basin Water Management Division
www.usace.army.mil
- U.S. Department of Agriculture
www.usda.gov
- NRCS National Water & Climate Center
www.nrcs.nrcs.usda.gov
- Regional Climate Hubs
www.usda.gov/soa/climate_change/regional_hubs.htm
- U.S. Geological Survey, Water Mission Area
www.usgs.gov/water
- Western Governors' Association
www.westgov.org

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