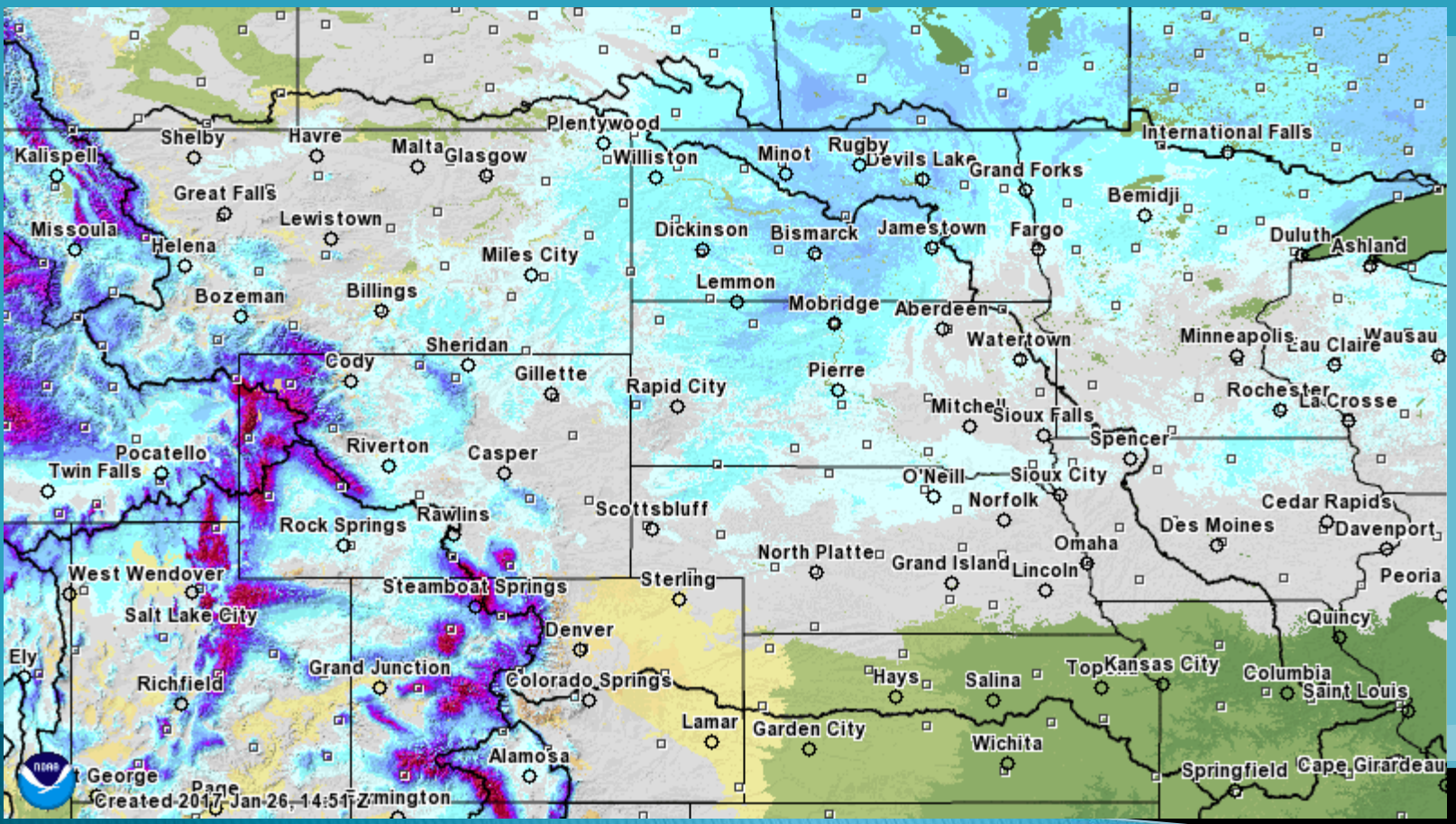
Missouri Basin Federal Climate Collaborative



January 26th, 2017

Agenda

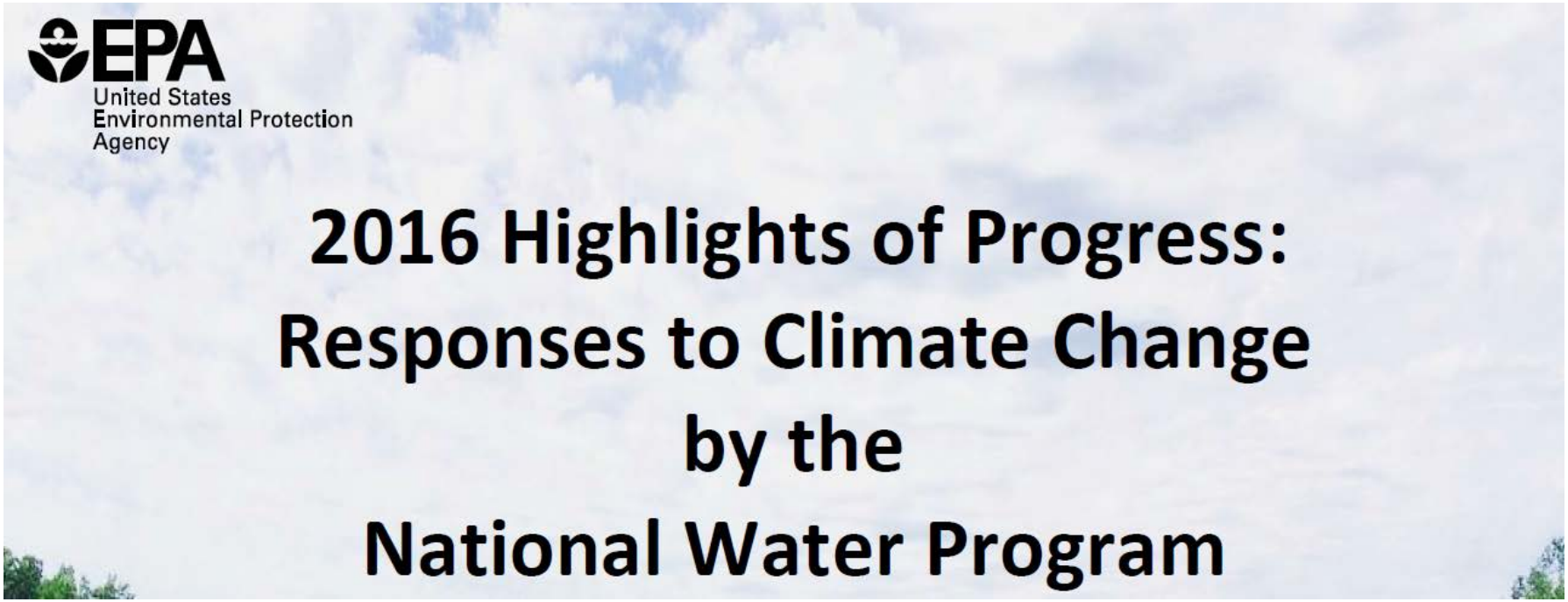
- Agency/Center/Hub Updates
- National Climate Assessment, North Plains Region
- National Integrated Drought Information System Meetings
- Extreme Snow Climatology Database (for FEMA)
- Basin Conditions and Outlook
- Next steps for the group or ideas

Agency Updates

- USDA – N. Plains Ag Hub Director Dannele Peck (intro)
- EPA Region VII – Amy Shields (slides)
- BIA – Diane Mann-Klager
- USGS –
- NPS –
- FEMA –
- WAPA –
- BOR –
- Others –

US EPA Region 7 Update

Amy Shields, Ph.D.
Missouri Basin Federal Climate Collaboration Call
January 26th, 2017



Online NOW!
https://www.epa.gov/sites/production/files/2017-01/documents/2016_nwp_climate_highlights_report_final_1.pdf

The U.S. Environmental Protection Agency (U.S. EPA) has published a report, 'Climate Change Indicators in the United States (Fourth Edition)'.

'The Earth's climate is changing. Temperatures are rising, snow and rainfall patterns are shifting, and more extreme climate events – like heavy rainstorms and record high temperatures – are already happening. Many of these observed changes are linked to the rising levels of carbon dioxide and other greenhouse gases in our atmosphere, caused by human activities. EPA partners with more than 40 data contributors from various government agencies, academic institutions, and other organizations to compile a key set of indicators related to the causes and effects of climate change.'

For a free copy, send a request including your full mailing address to EPA's Climate Change Indicators Team at climateindicators@epa.gov.

Climate Change Indicators Team
U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington, DC

climateindicators@epa.gov / www.epa.gov

EPA Region 7 Harmful Algal Bloom Workshop

(By Invitation Only)

SAVE THE DATE:

Virtual Workshop – February 3rd, 2017

In-Person Workshop – February 15th & 16th, 2017

LOCATION:

EPA Regional Office

Big Rivers Meeting Room

MICROSCOPE DEMONSTRATION

SPEAKERS:

Federal Partners

Four State Partners

Tribal Partner

Academic Experts such as Dr. Hans Paul

VIRTUAL WORKSHOP

Webinar Presentations

IN-PERSON WORKSHOP

Poster Sessions

Lightning Rounds & Plenary Talk

Register To Participate: e-Mail Amy Shields shields.amy@epa.gov *SPACE IS LIMITED!*

FREE RESILIENCE PLANNING WORKSHOP FOR THE WATER UTILITY SECTOR
April 5, 2017 | EPA Region 7 Office, 1201 Renner Blvd, Lenexa, KS 66219

About the Workshop
The U.S. Environmental Protection Agency is offering an interactive training workshop to help water sector utilities:
-Share information about how flooding and drought events in the U.S. Midwest could impact drinking water utilities;
-Explore strategies for enhancing utility resilience to these events and reducing long-term risk to water infrastructure and resources;
-Help participants identify key questions about water infrastructure vulnerabilities to address within their respective utilities or communities; and
-Introduce EPA's Creating Resilient Water Utilities (CRWU) resources and tools.

If you have questions or need more information, email Fries.Steve@epa.gov. To learn more about the Creating Resilient Water Utilities program, visit epa.gov/crwu.

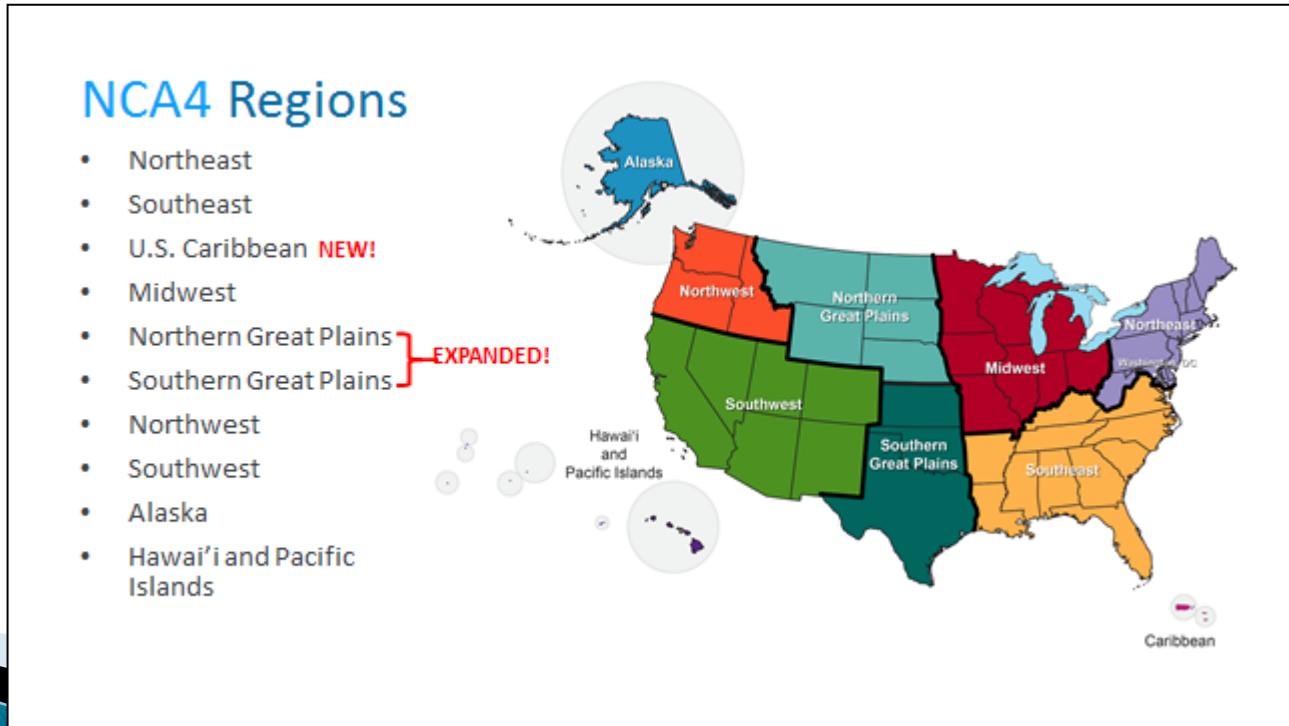
National Climate Assessment (Northern Plains Chapter)

- Authors:
  - Lead: Rich Conant – Colorado State U
  - Mike Hayes – U of Nebraska
  - Martha Shulski – U of Nebraska
  - Barb Mayes – National Weather Service
  - Shannon McNeeley – Colorado State U/Climate Science Center
  - Laura Farris – EPA Region VIII
  - Dannele Peck – USDA (Ag Climate Hub)
  - Justin Derner – USDA ARS
  - Ben Livneh – U of Colorado
  - Lyle Witham – Tristate (energy)
  - Mark Anderson – USGS (ret)

National Climate Assessment

- Listening session: February 22nd, Rapid City, SD – South Dakota School of Mines
- Open to the public
- Satellite sites: Lincoln, NE & Ft Collins, CO
- Draft – June 30th, 2017
- State Summaries

https://statesummaries.ncics.org/



National Integrated Drought Information System (NIDIS) Update

- Kickoff Meeting in 2/2014
- Two update & planning meetings
  - Lower Basin: March 8-9 + drought tools café 7th afternoon, Nebraska City, NE
  - Upper Basin: Late May/early June, Rapid City, SD

Purpose: share what has and is being done, build capacity of those involved in drought and plan with states, tribes, feds next steps

AASC AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

National Drought Mitigation Center

NIDIS NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM

NCEI extreme snow products

Derek Arndt
Monitoring Branch
NOAA's National Centers for Environmental Information
Asheville, North Carolina

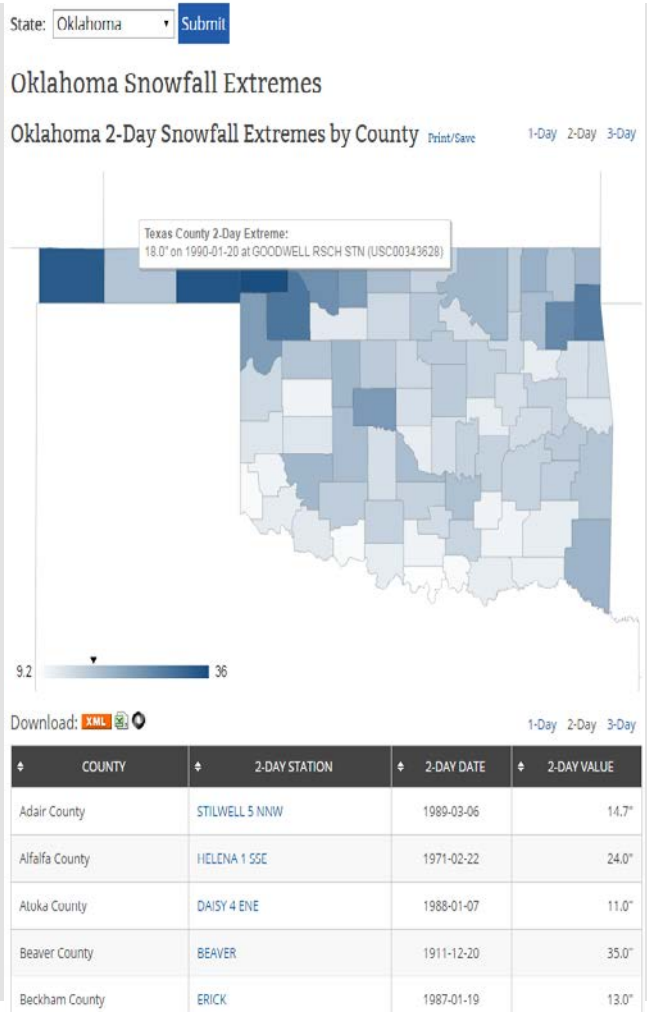
Extreme Snow Products: Background

https://www.ncdc.noaa.gov/snow-and-ice/

- Designed to FEMA specifications
- Used to help FEMA adjudicate snow disaster relief, and to eliminate some legwork required of NWS local offices related to same
- With that said, they are likely valuable for other uses

Historical Snowfall Extremes

https://www.ncdc.noaa.gov/snow-and-ice/snowfall-extremes/



Select one-, two-, or three-day event

Roll over county for date, amount and location of record (same info in table below)

Click county for detailed info about station

Sort table by county name, station name, date or record amount

Snowfall Extremes: Historical "storms of record" by county

Big thank you to many NWS WFOs that helped vet the information

Daily Snow Monitoring

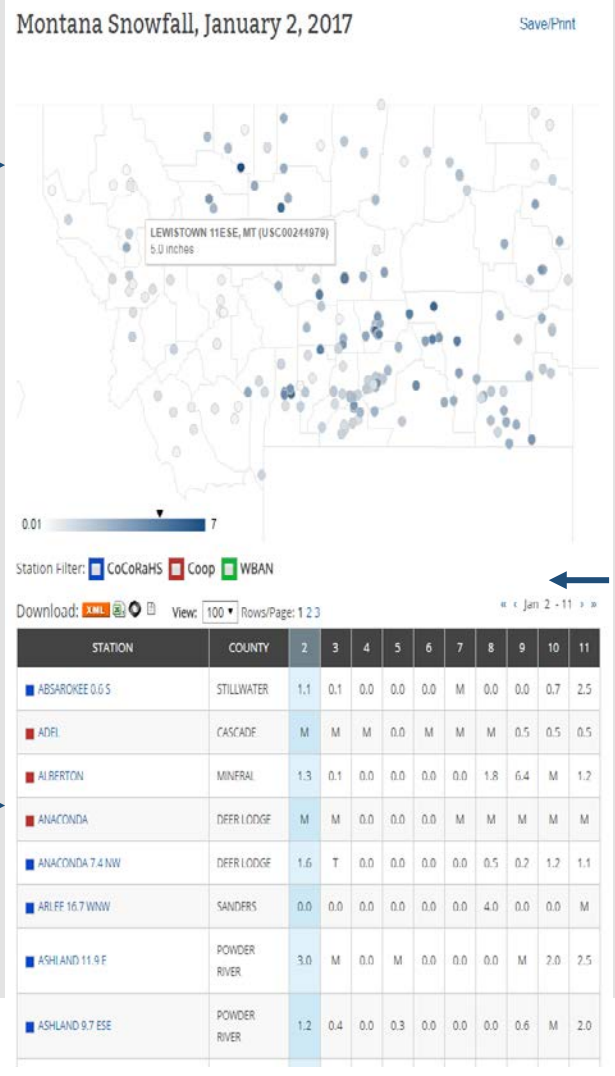
https://www.ncdc.noaa.gov/snow-and-ice/daily-snow/

Daily U.S. Snowfall and Snow Depth: This season's observed snow, as NCEI gets the info

Interactive map; roll over station for day's snow total

Filter by station type (automated, coop, cocorahs)

Choose date to display on interactive map



Scroll through this season's dates

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MISSOURI BASIN

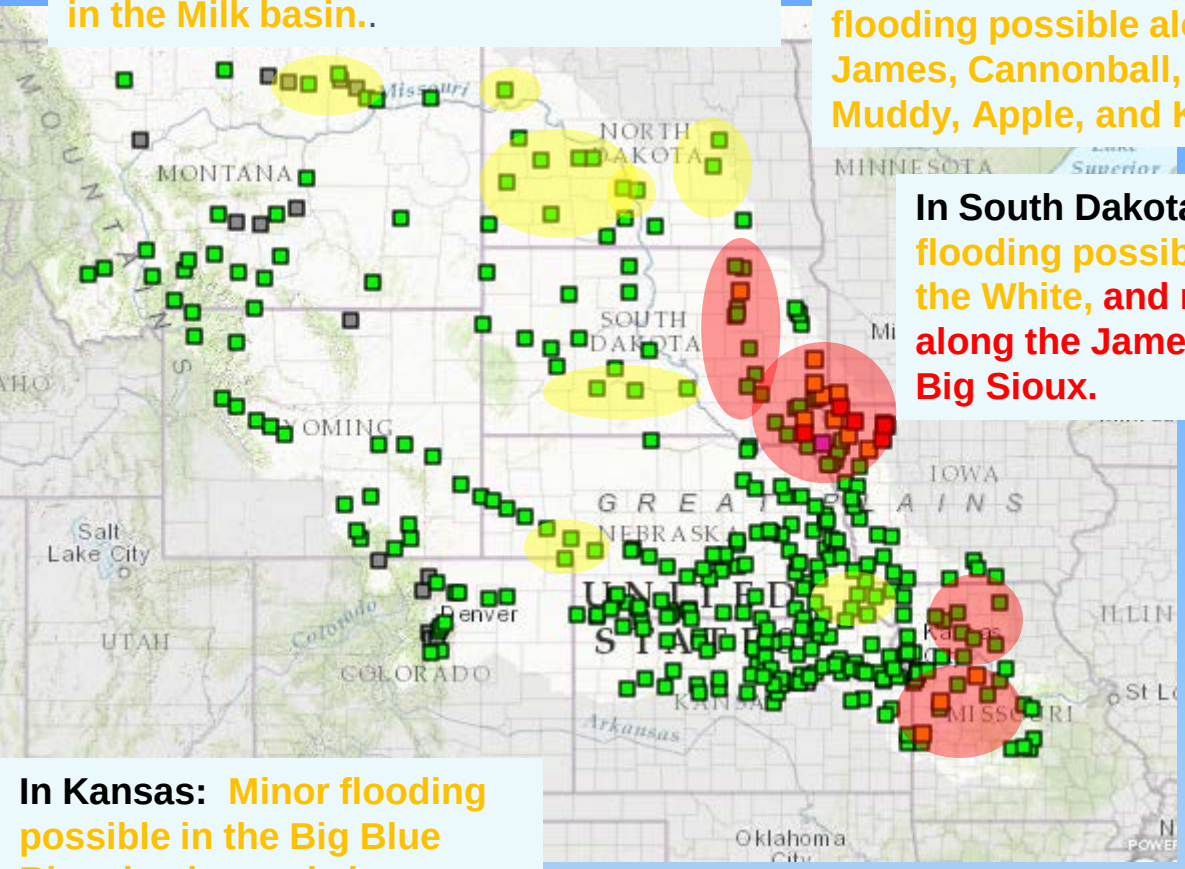
FLOOD POTENTIAL OUTLOOK

In Montana: Minor flooding possible in the Milk basin..

In North Dakota: Minor flooding possible along the James, Cannonball, Little Muddy, Apple, and Knife.

In Nebraska: Minor flooding possible along the lower Platte, as well as along smaller streams in southeastern Nebraska.

In South Dakota: Minor flooding possible along the White, and moderate along the James and Big Sioux.



In Iowa: Moderate flooding possible along Big Sioux. Little Sioux, and Floyd.

In Missouri: Minor flooding possible along the Platte, and along many of the smaller tributaries. Moderate flooding possible in the Grand and Osage.

In Kansas: Minor flooding possible in the Big Blue River basin , and along Stranger Creek.

Draft

MISSOURI BASIN

SPRING FLOOD SUMMARY

- **Mountain snowpack sort of average....Yellowstone is bit above, Upper Missouri below, Platte system above. Just over the half-way mark in the accumulation period.**
- **Plains SWE above average in North Dakota, and parts of South Dakota.**
- **Significant flooding due to mountain snow runoff alone is not likely.**
- **Wet and warm Fall across northern tier. Frozen ground may play limited role.**
- **Freeze-up ice jams have already occurred (no major impacts reported). Northern WFOs concerned about break-up jamming this Spring.**
- **Minor-to-moderate flooding expected across much of the plains. Springtime storms always a player in lower third.**

U.S. Army Corps Update

Missouri River Basin – Weekly Update – 24 Jan 2017

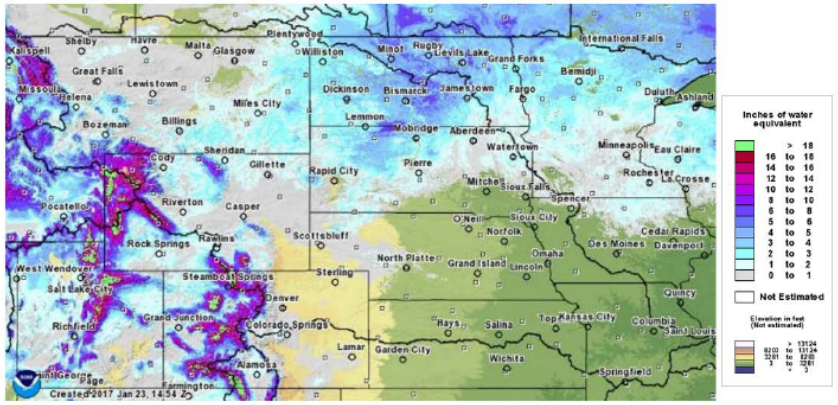
Mainstem Reservoir Status:

- Storage is 56.0 million acre-feet (MAF), 0.1 MAF below the base of Annual Flood Control and Multiple Use Zone.
- All 16.3 MAF of flood control storage is available to capture runoff.

Basin/Runoff Status:

- Mountain snowpack is slightly below average for the reach above Fort Peck, and slightly above average for the reach between Fort Peck and Garrison.
- Plains snowpack is very heavy in central North Dakota and northwestern South Dakota; moderate to light elsewhere in the upper basin.
- Spring precipitation and temperatures in the upper basin are leaning towards slightly wetter and cooler than normal, respectively.

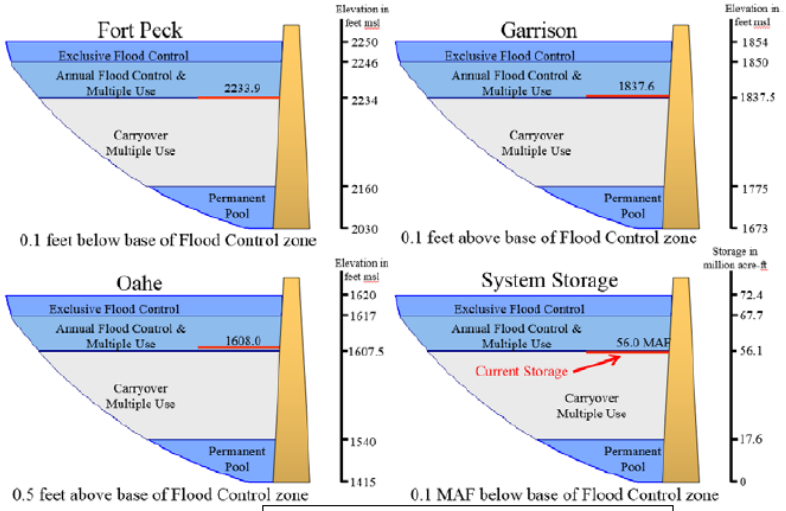
Plains Snowpack



Source: NOAA National Operational Hydrologic Remote Sensing Center (NOHRSC)

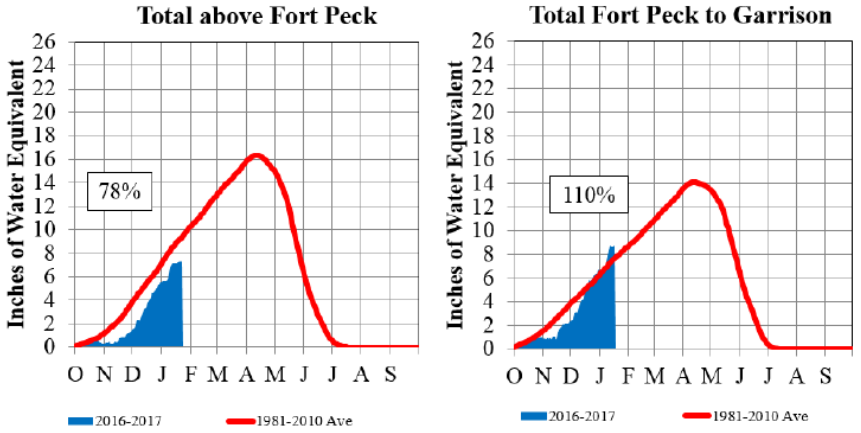
Click Here for 2011 Peak Plains Snowpack

Current Reservoir Levels



Click Here for Latest 3-Week Forecast

Mountain Snowpack

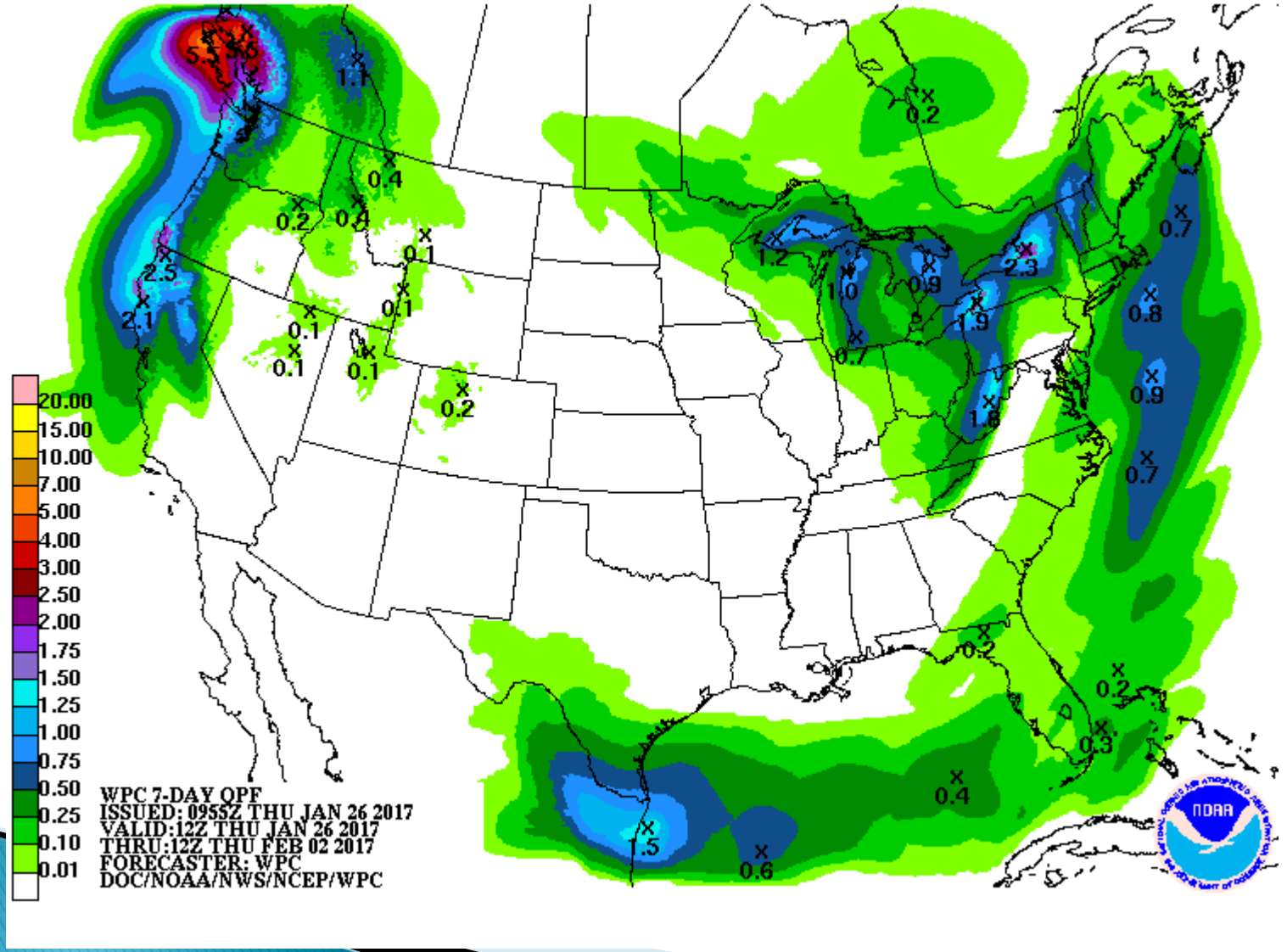


Normally by January 15, about 54% of the peak mountain SWE has occurred in both reaches.

Click Here for Comparison Plot to 1997 and 2011

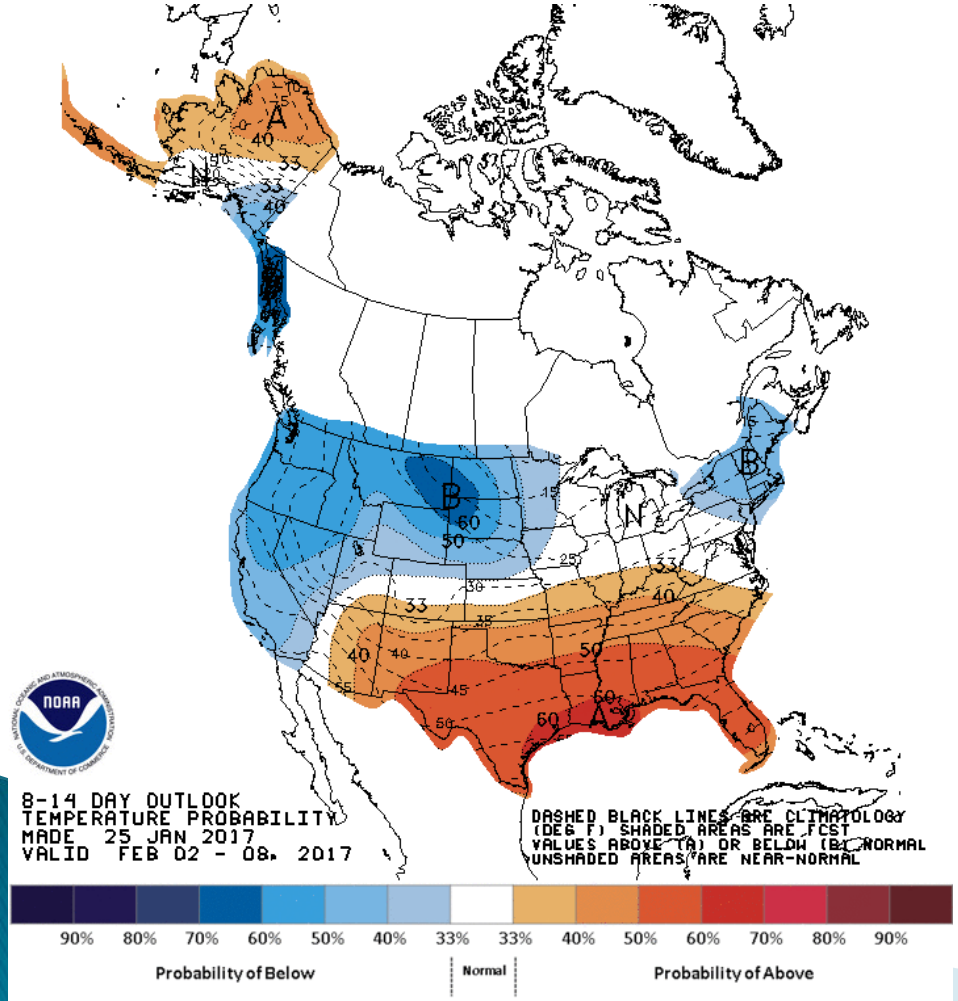
Accumulated Precipitation Next 7 days

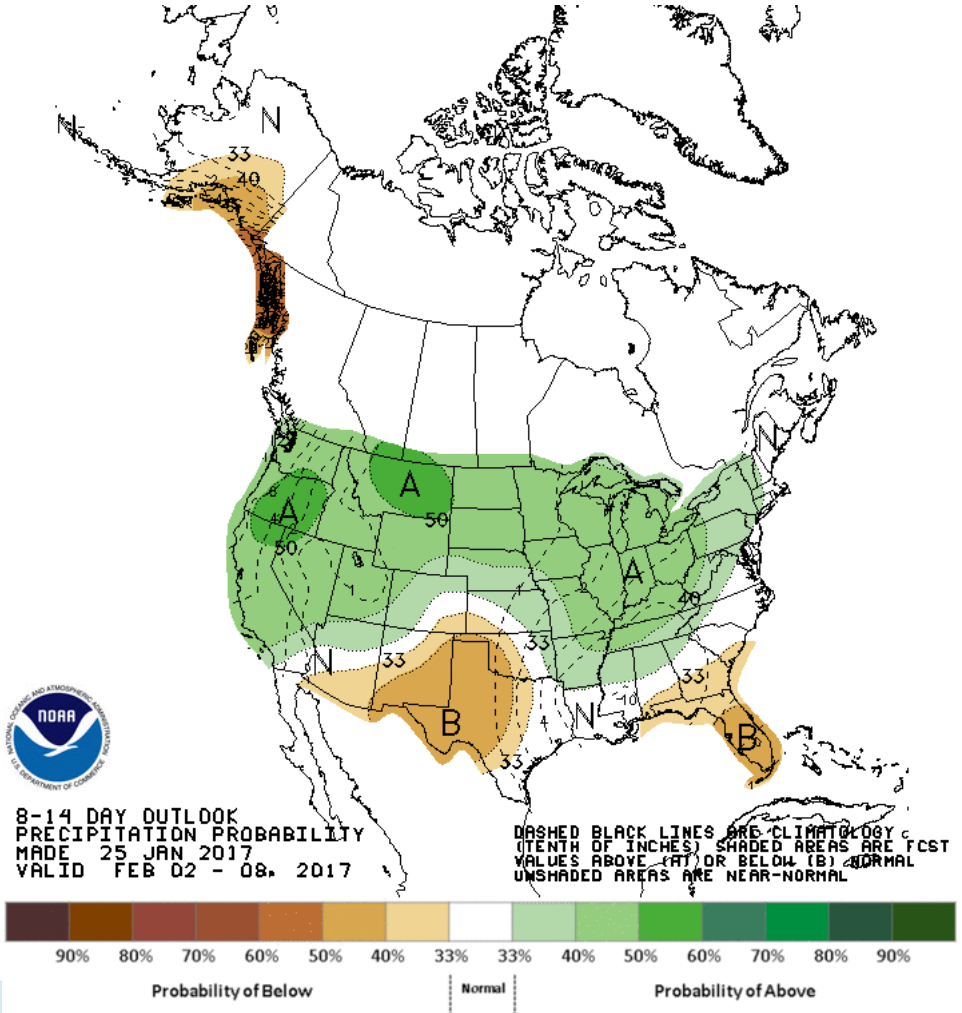
Through February 1st



February 2-8, 2017

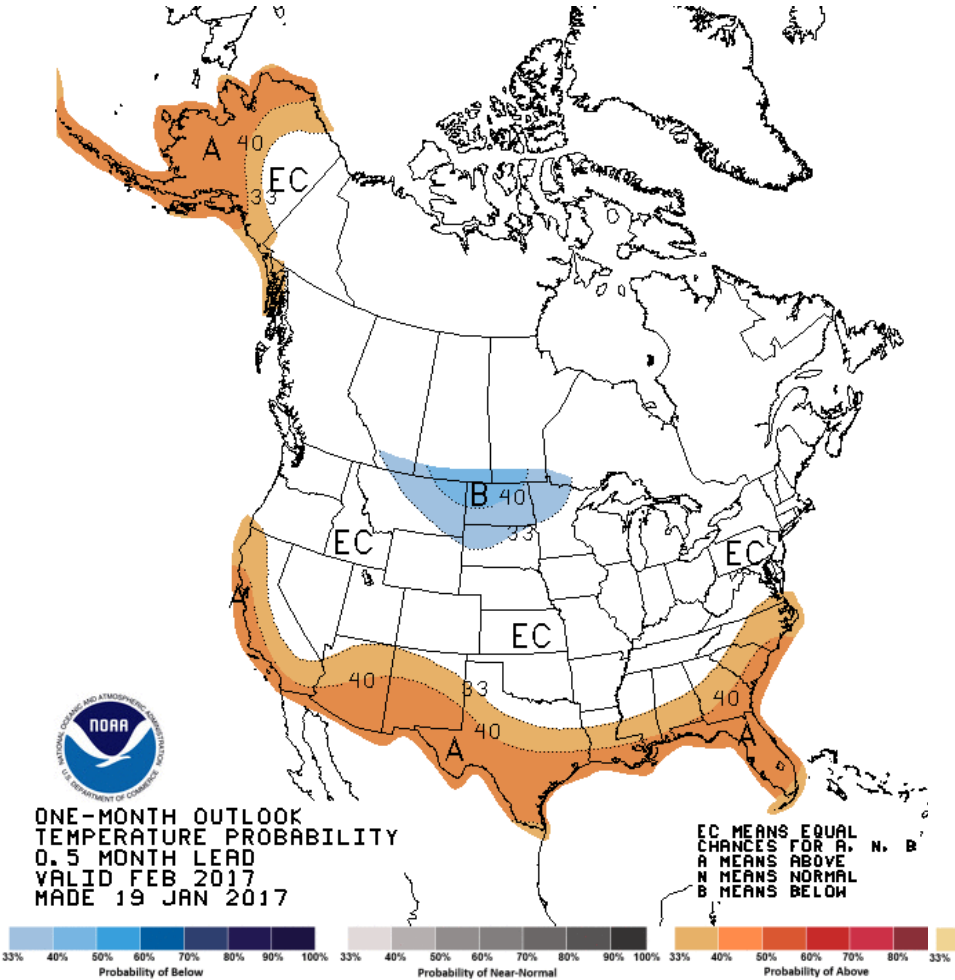
Temperature & Precipitation Probabilities

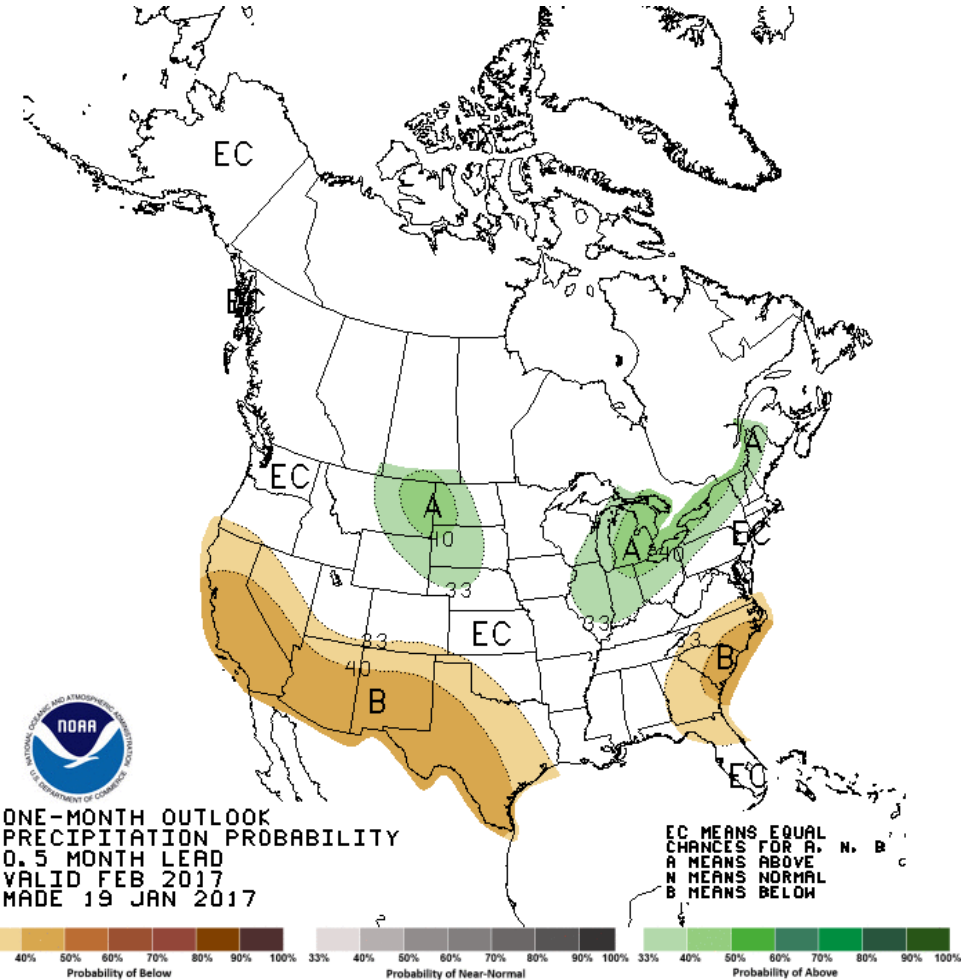




February Outlook

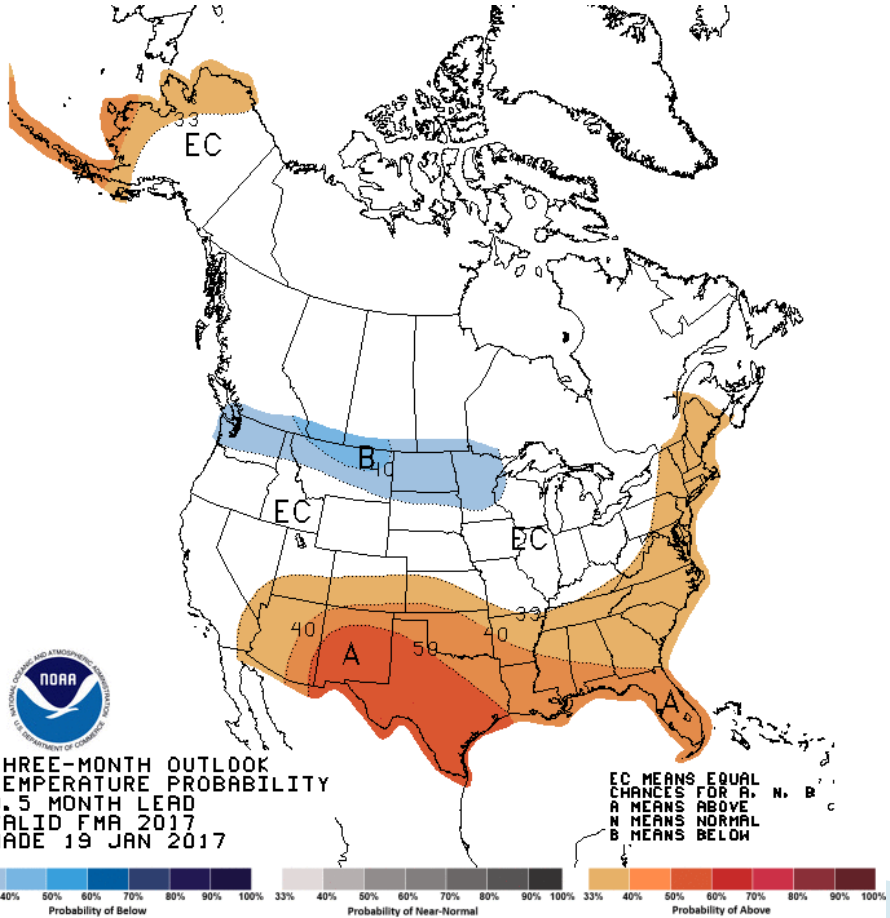
Temperature & Precipitation Probabilities

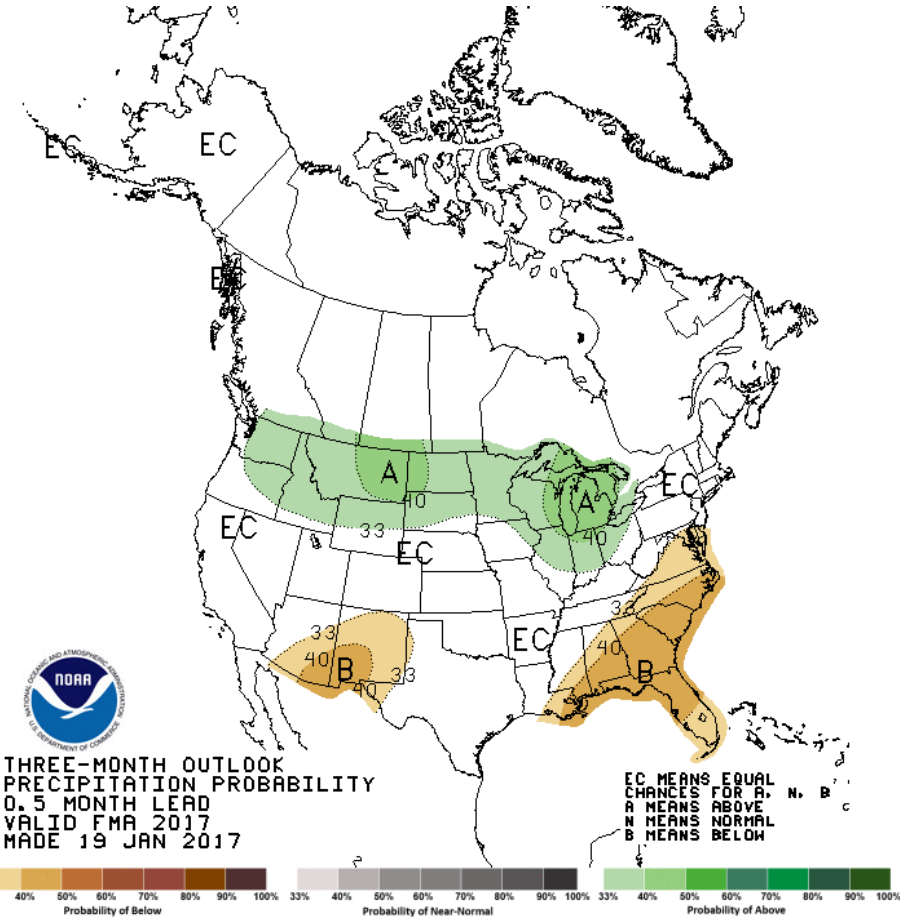




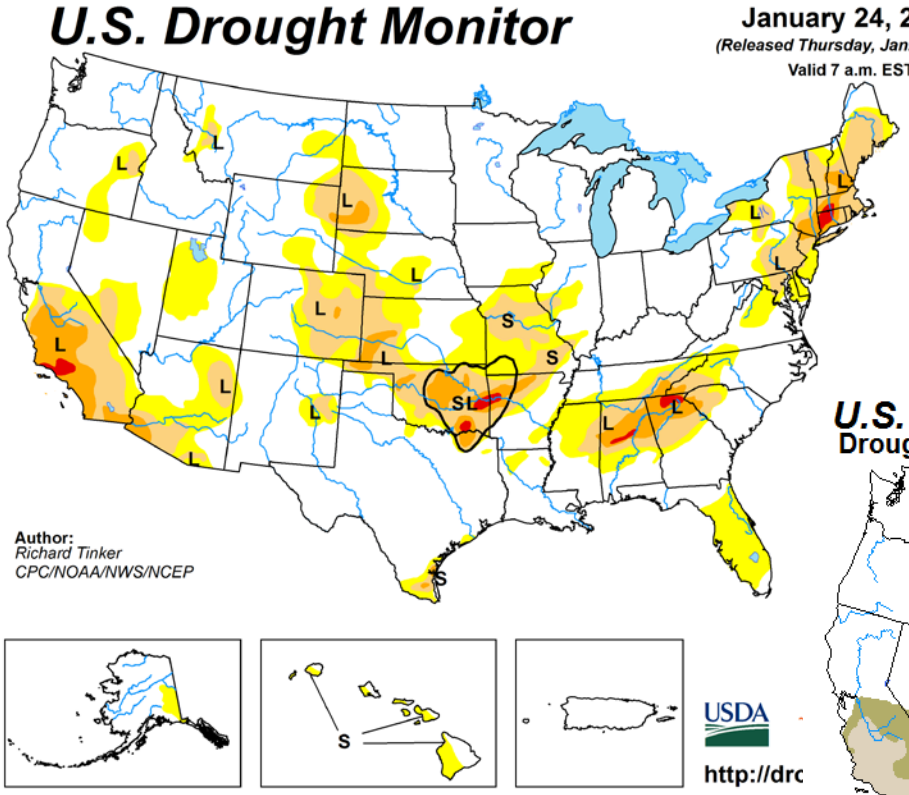
February – March – April

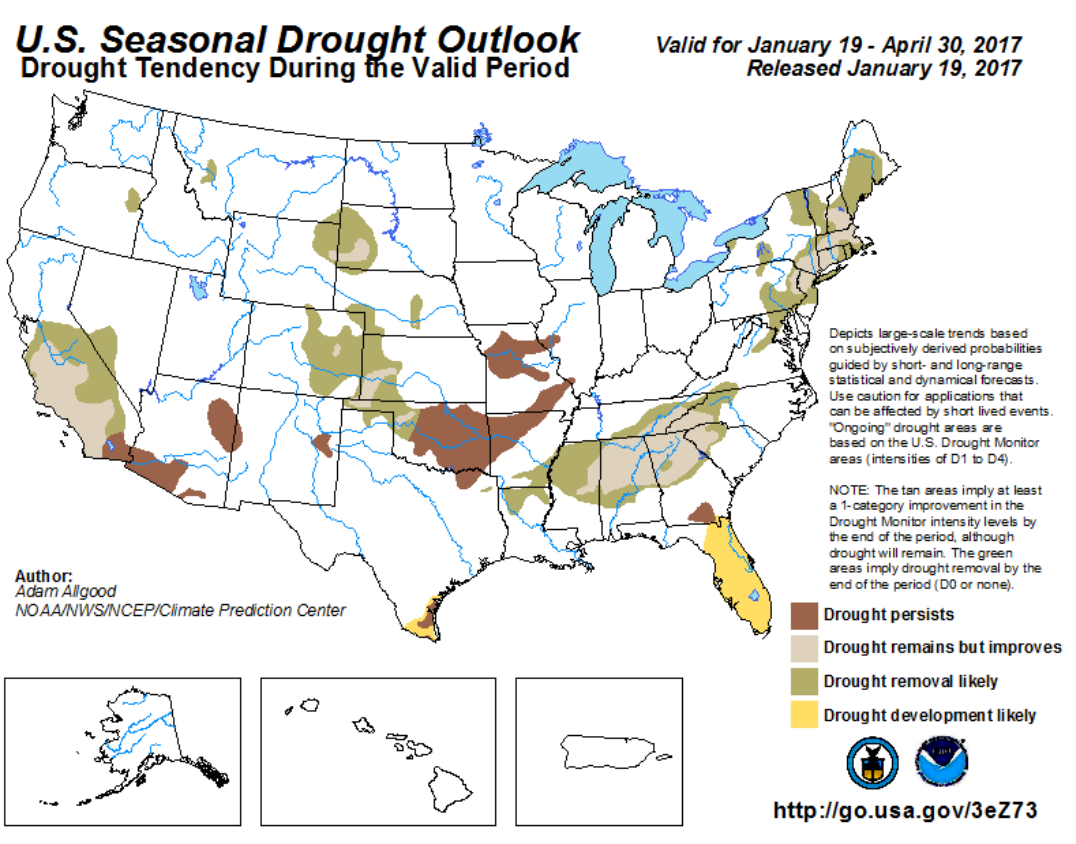
Temperature & Precipitation Probabilities





Current Drought and Outlook





The End

And Thanks to Everyone