Midwest and Great Plains Climate-Drought Outlook 17 March 2016

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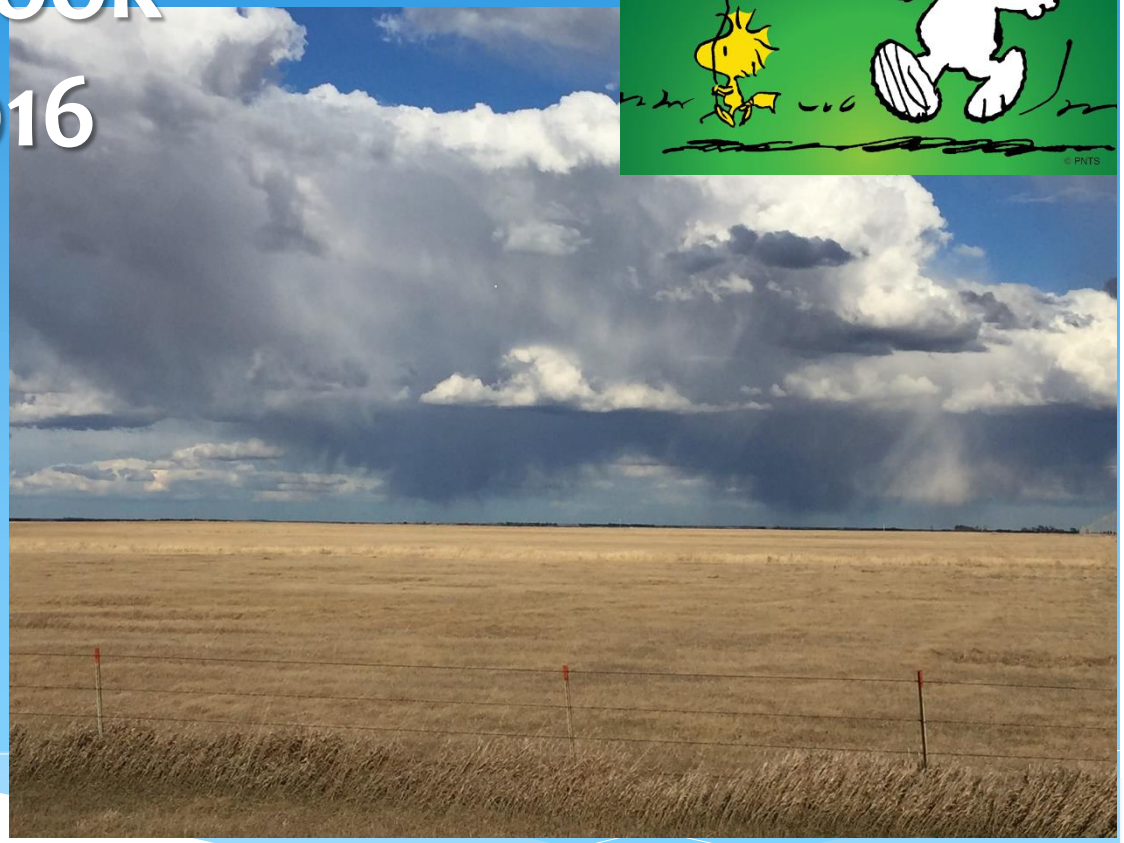


Photo taken Feb 19, 20

Virga near Huron SD – Author Photo

General Information

- **Providing climate services to the Central Region**
  - Collaboration Activity Between:
    - State Climatologists
    - Doug Kluck (NOAA)
    - American Association of State Climatologists
    - Midwest and High Plains Regional Climate Centers
    - National Drought Mitigation Center/USDA

- **Next Regular Climate/Drought Outlook Webinar**
  - Apr. 21, 2016 (1 PM CDT) Pat Guinan
- **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*
- **Open for questions at the end**

Agenda

* Current Conditions
* Impacts
  * Ag
  * Hort
  * Fire
  * Water
* Outlooks
  * El Niño to La Niña
  * Spring and Summer

Magnolia Tree Outside
Hardin Hall East Campus, UNL
March 14, 2016

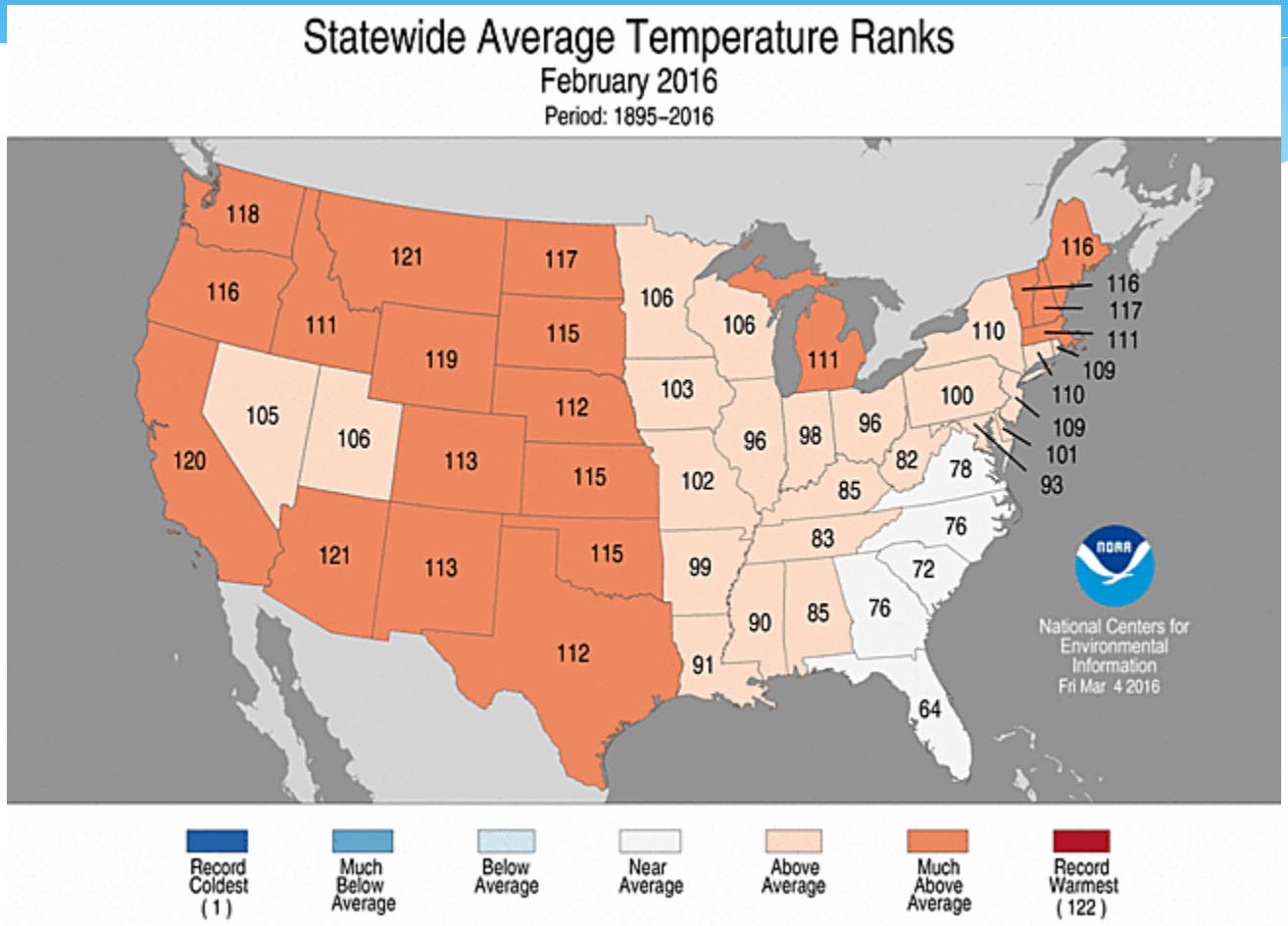
Magnolia Tree Outside
Hardin Hall East Campus, UNL
April 5, 2011

Tree comparison UNL campus – Ken Dewey Facebook

Review/Current Conditions

February Temperature Recap

Warm across the US – warmer in the western areas.

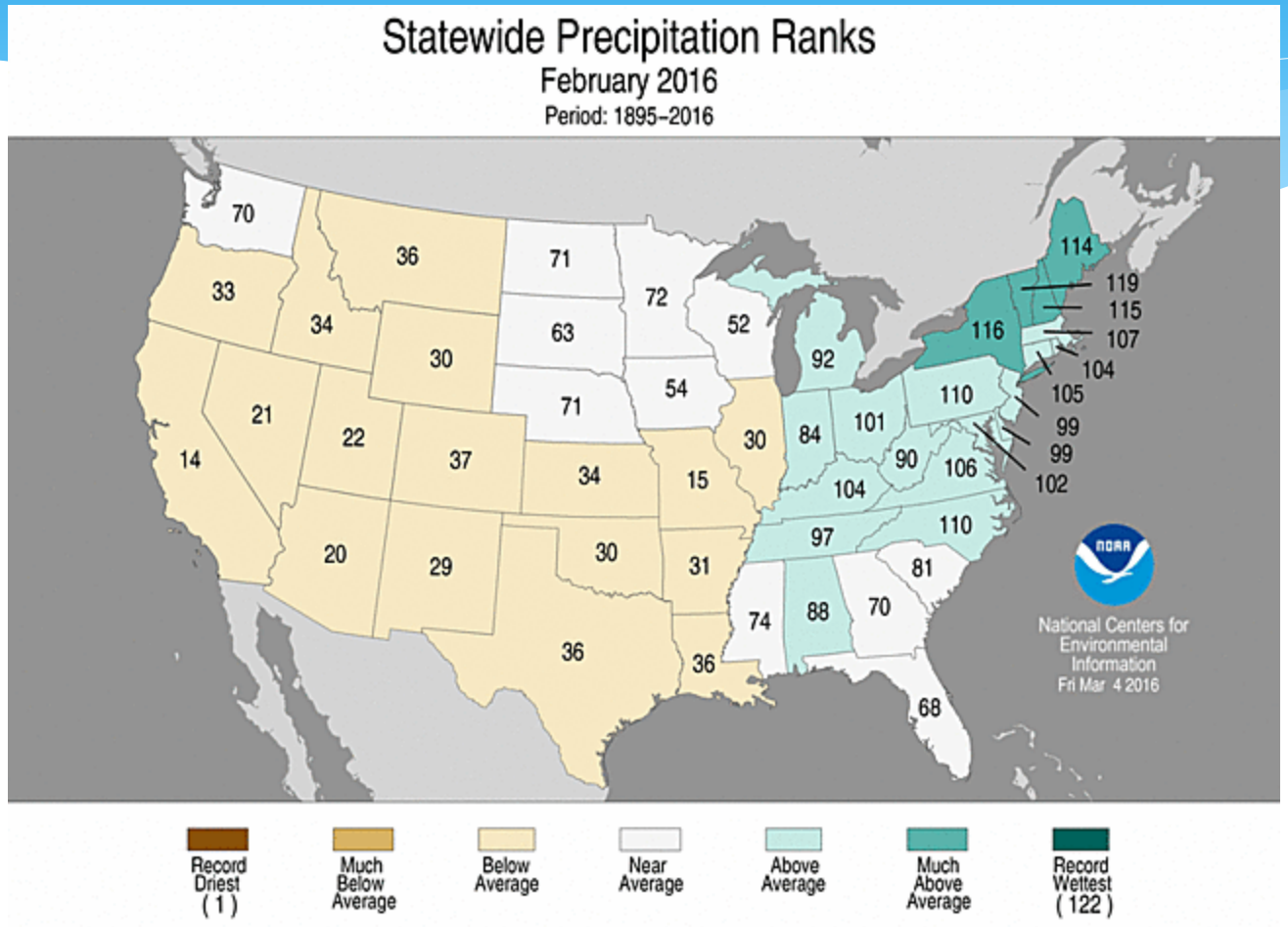


http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

February Precipitation Recap

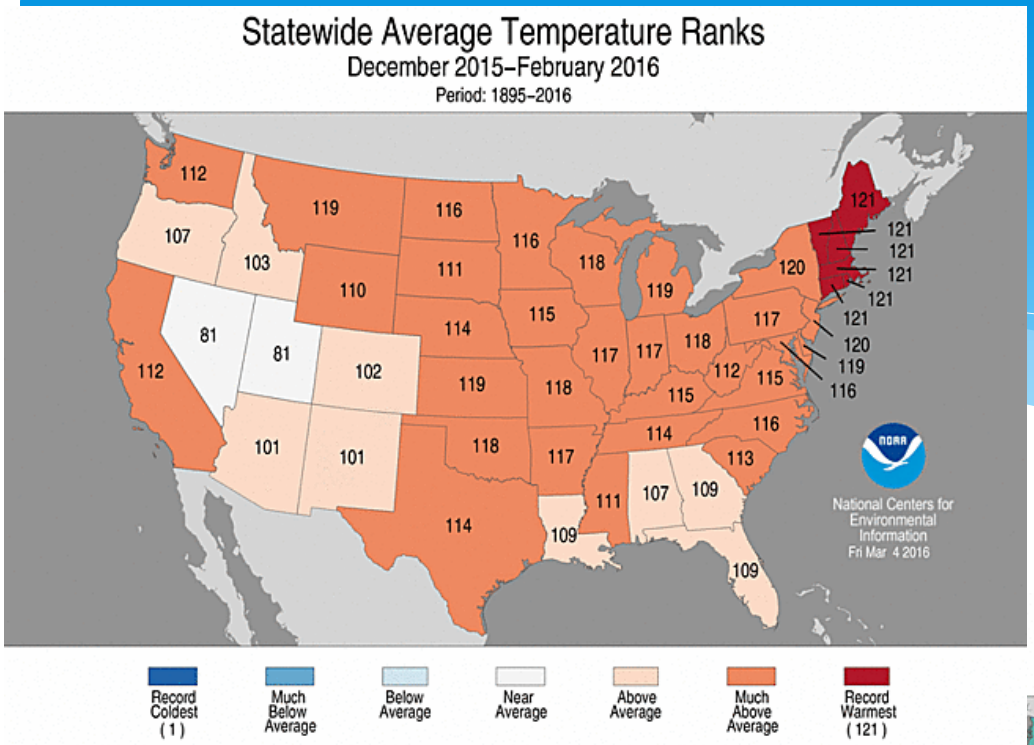
Wettest in the eastern part of the region

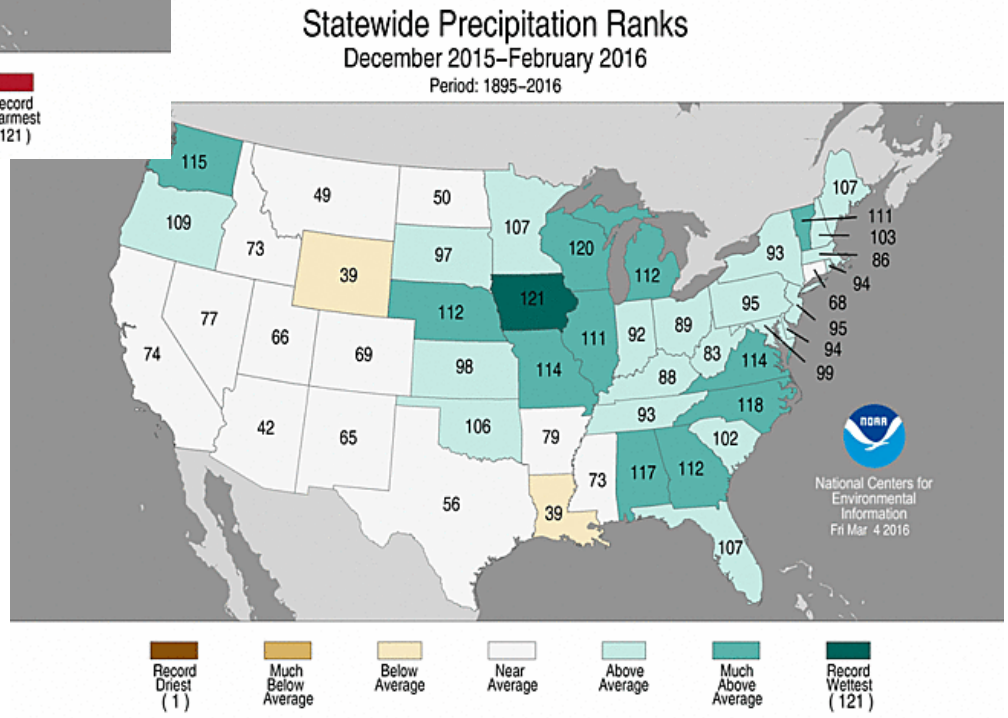
Moderate conditions north central



http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

90 day temperature and precipitation ranks



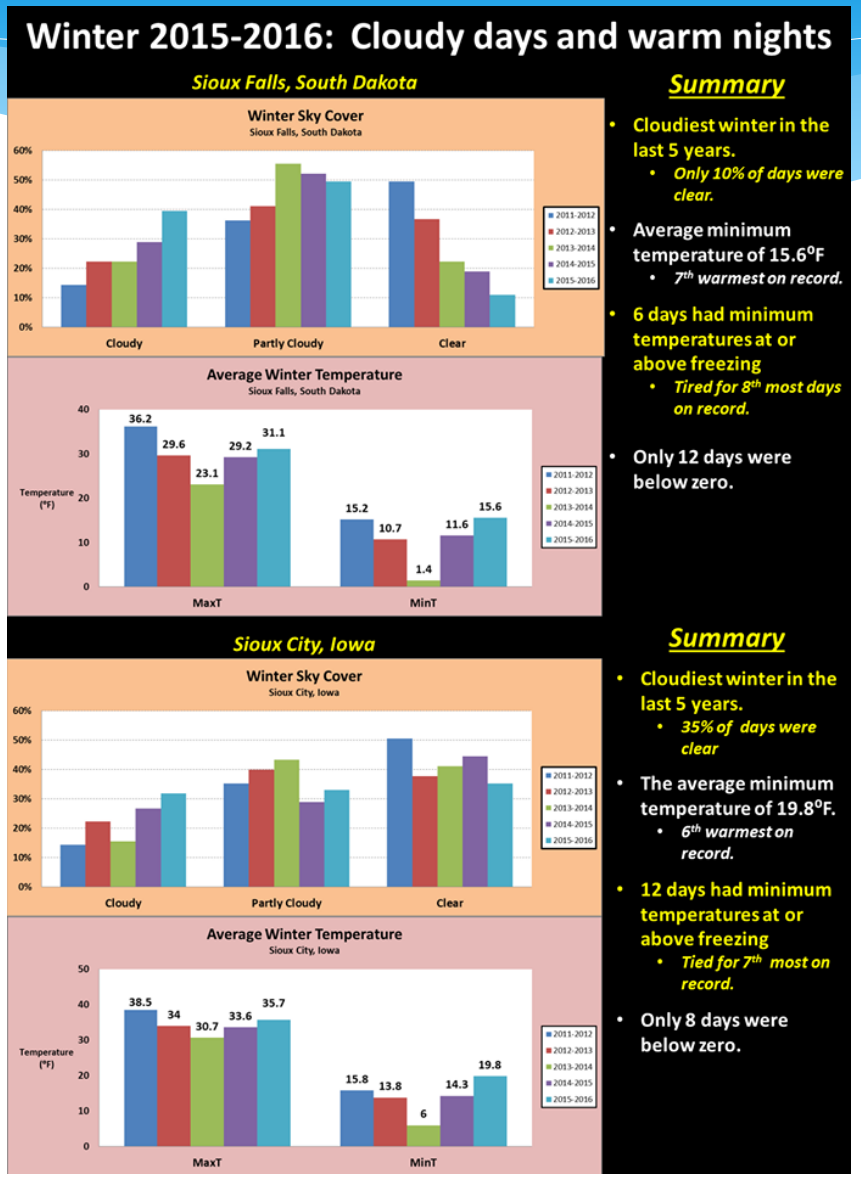


Winter cloudiness – temperature impact

Winter temps –lows ranked higher than highs in 121 year rankings

Part of the issue – cloudiness Keeps warmer at and less warming in the day

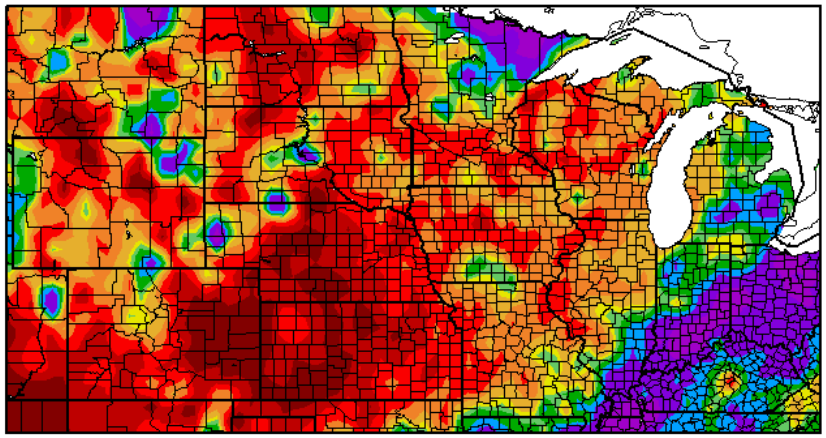
Sioux Falls only 10% clear days – least in last 5 years



Graphic courtesy NWS – Sioux Falls

Most recent 30 and 90-day precipitation

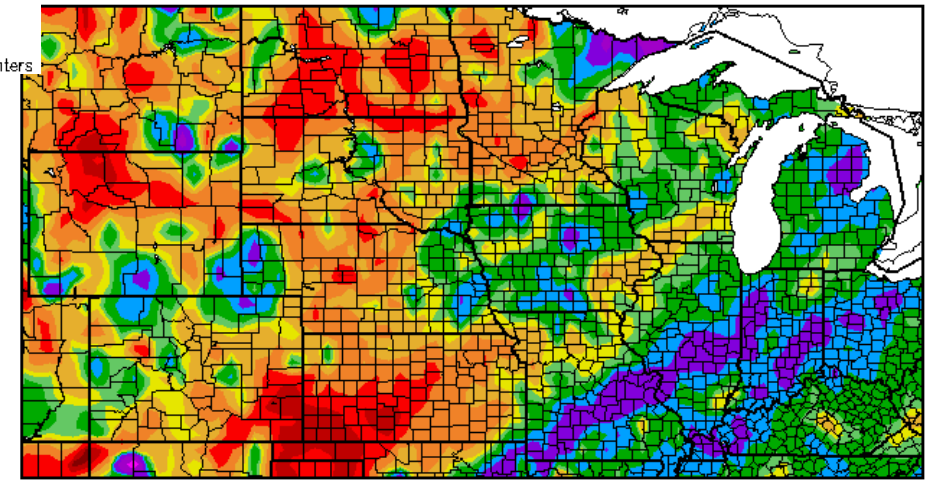
Percent of Normal Precipitation (%)
2/15/2016 – 3/15/2016



5 25 50 70 90 100 110 130 150 200 300

Generated 3/16/2016 at HPRCC using provisional data. Regional Climate Centers

Percent of Normal Precipitation (%)
12/17/2015 – 3/15/2016



5 25 50 70 90 100 110 130 150 200 300

Generated 3/16/2016 at HPRCC using provisional data. Regional Climate Centers

Drying has occurred late winter across much of the plains.

http://www.hprcc.unl.edu/maps/current/

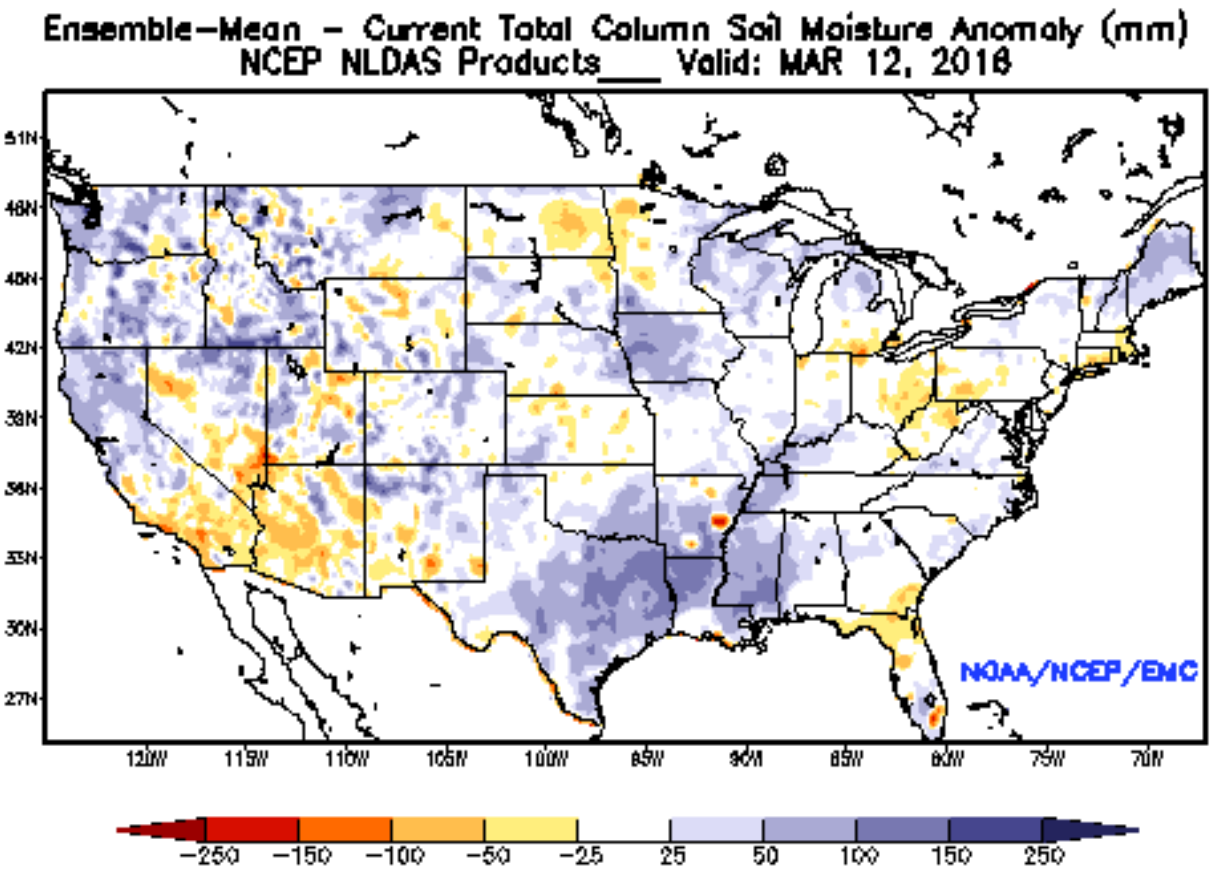
HPRCC – Regional Climate Centers

Soil Moisture

Some dryness showing up in northern plains and spotty other areas.

Still wetness showing in IA

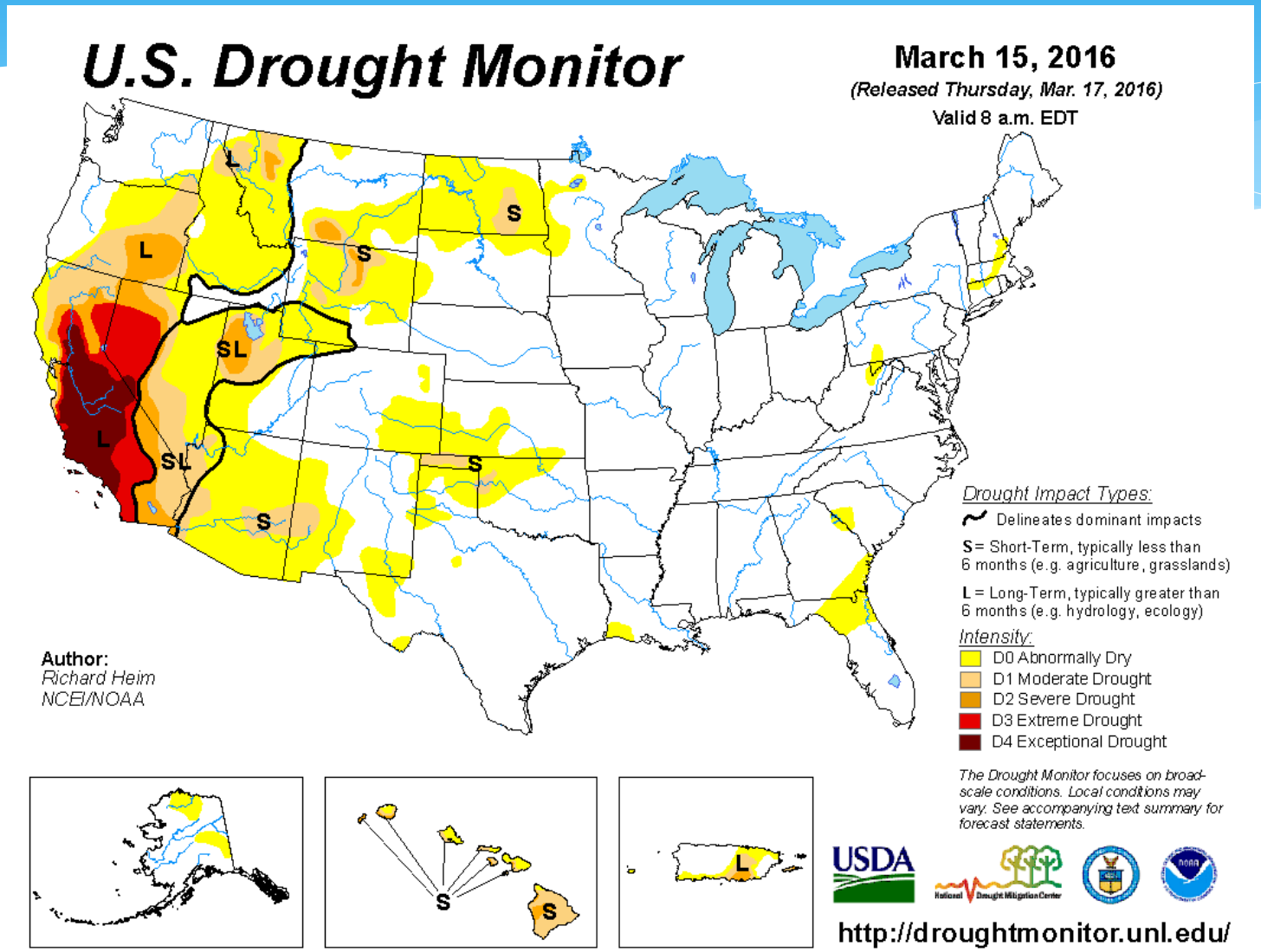
Will it delay planting?



Soil Moisture Anomaly in millimeters

http://www.emc.ncep.noaa.gov/mmb/nldas/drought/

US Drought Monitor



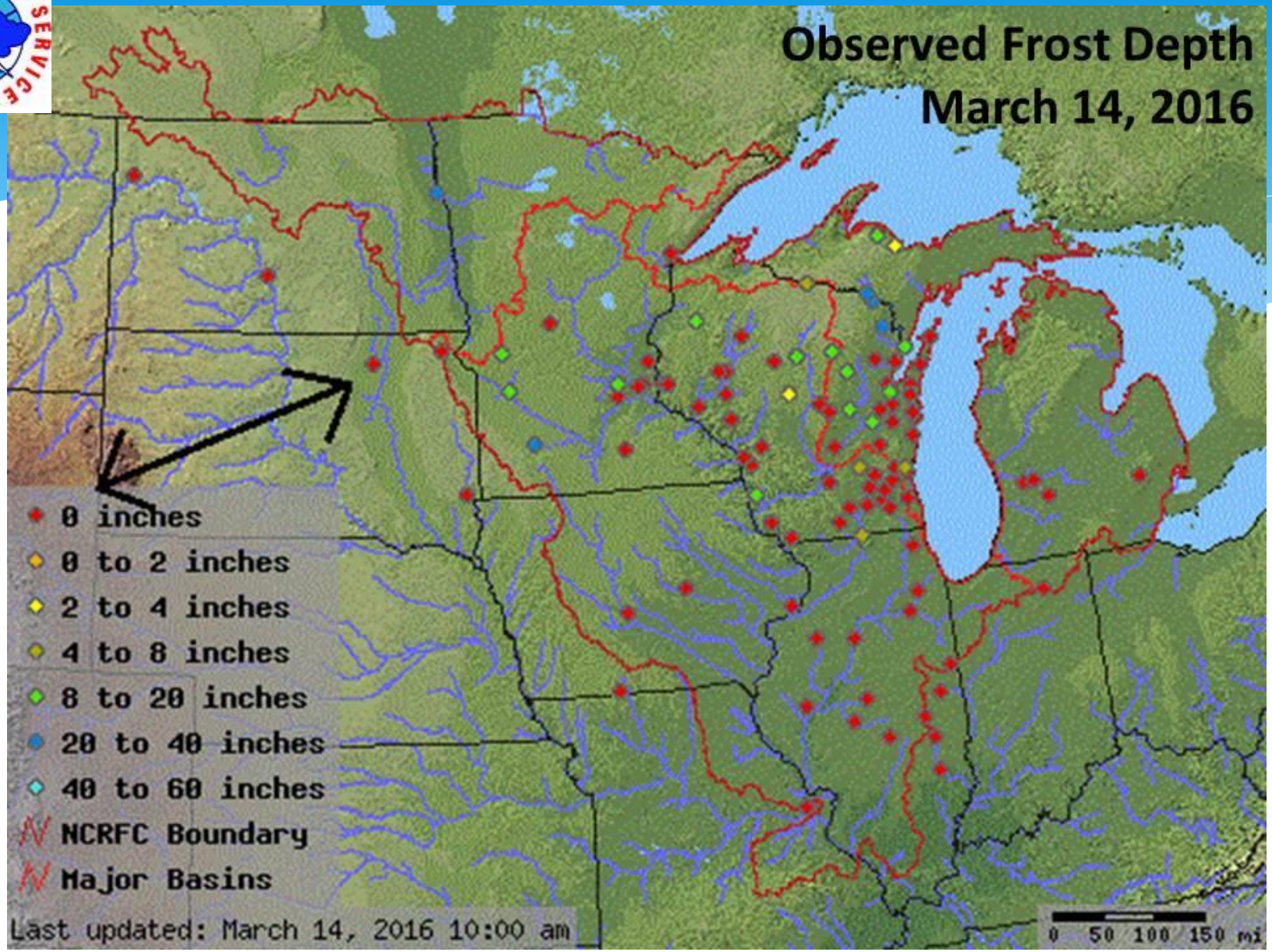
Impacts

Potpourri

* Very warm early March
* Cheyenne Feb. 20 days of 40 mph or more (tied for most in Feb.)
* Mississippi River and Great Lakes open for shipping early
* Reduced winter road maintenance IL area.

Impacts

* Ag –
  * Early green-up rangeland winter wheat
  * Always concern for potential freeze
  * S KS wheat nearing jointing
  * Field prep work
  * Various small grains being planted plains states
* Environmental
  * Early dormancy breaks flowers/trees
  * Early bird migration
  * Pheasant habitat questions
  * Early ice-out on lakes/ponds
  * Early frost out of ground (mixed)


Observed Frost Depth
March 14, 2016
0 inches
0 to 2 inches
2 to 4 inches
4 to 8 inches
8 to 20 inches
20 to 40 inches
40 to 60 inches
NCRFC Boundary
Major Basins
Last updated: March 14, 2016 10:00 am
0 50 100 150 mi

Missouri Vegetation

Report submitted on March 14, 2016 from central Missouri:
Michele Warmund, University of MO Horticulture Professor

- Cherries are past full bloom at New Franklin, peaches will be in full bloom likely by this weekend, apples likely in 2 weeks.

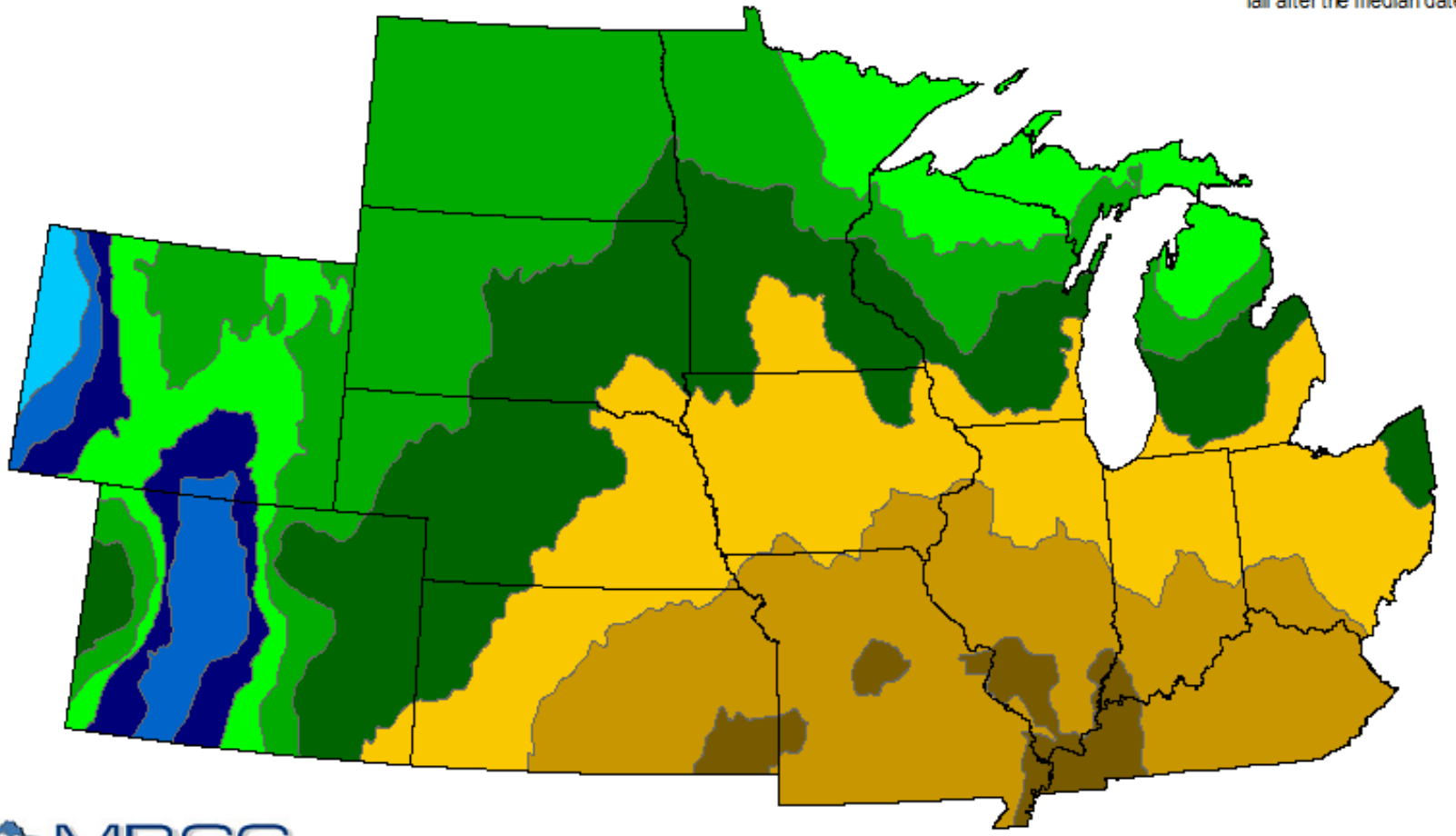
Report submitted on March 15, 2016 from southwestern Missouri, Greene county:
Pat Byers, Extension Horticulture Specialist, Southwest Missouri Region

- Peaches – pink to full bloom; 10% bud kill at 25-27F; 90% bud kill at 15-24F
- Apples – half inch green to tight cluster; 10% bud kill at 23-27F; 90% bud kill at 15-21F
- Blueberries – bud break to early bloom; expected flower bud damage at 20-28F
- Strawberries – tight buds in the crown; growers will protect with row covers
- Blackberry – green tip, expected bud damage at 15-20F
- Ornamental trees/shrubs in blossom – saucer magnolia, other magnolia, flowering pear, flowering plum, forsythia, quince, etc – freezing temperatures will impact ornamental value

Spring Freeze

Median Date Of Last 32°F Freeze

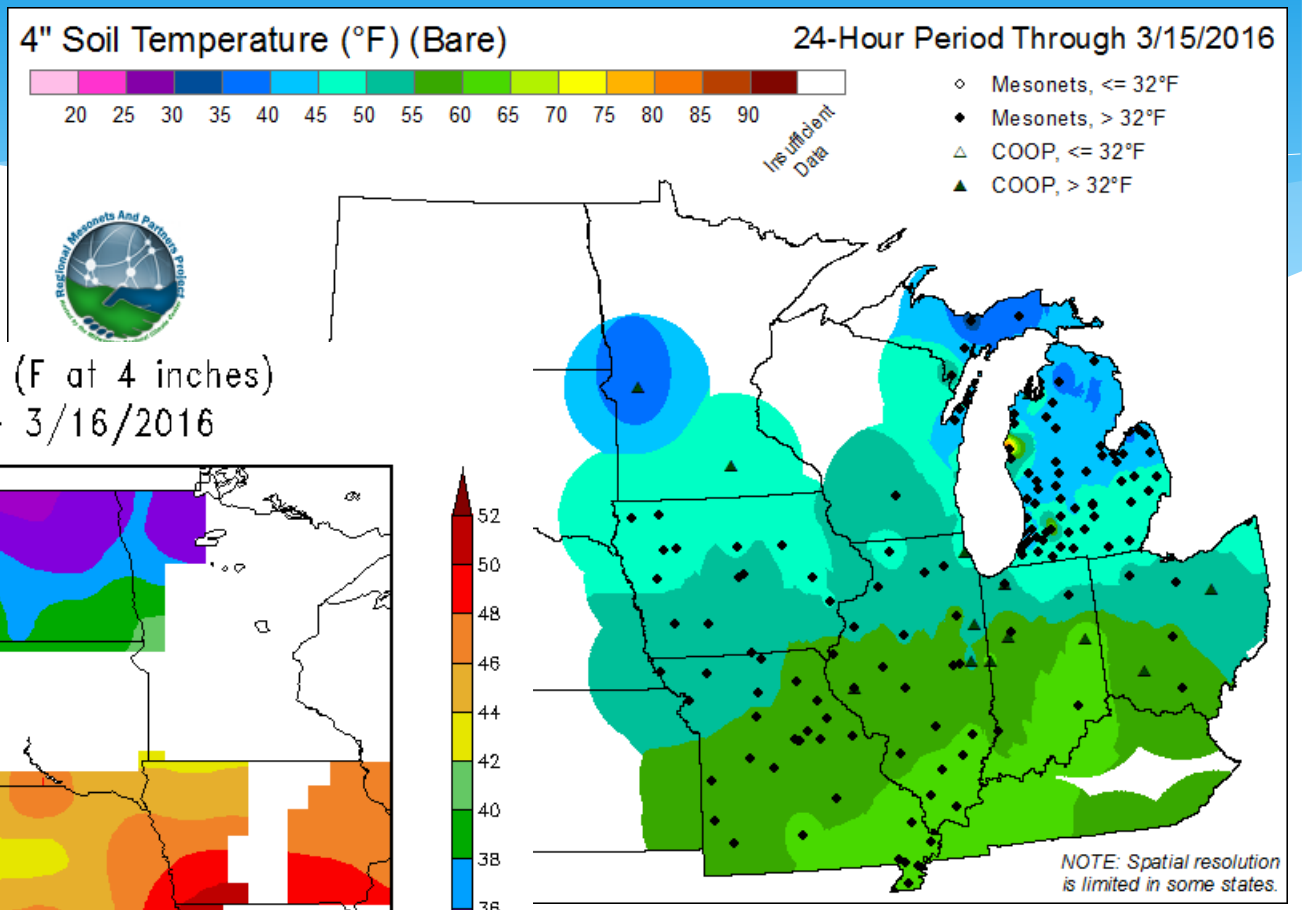
Based on 1981-2010 Average

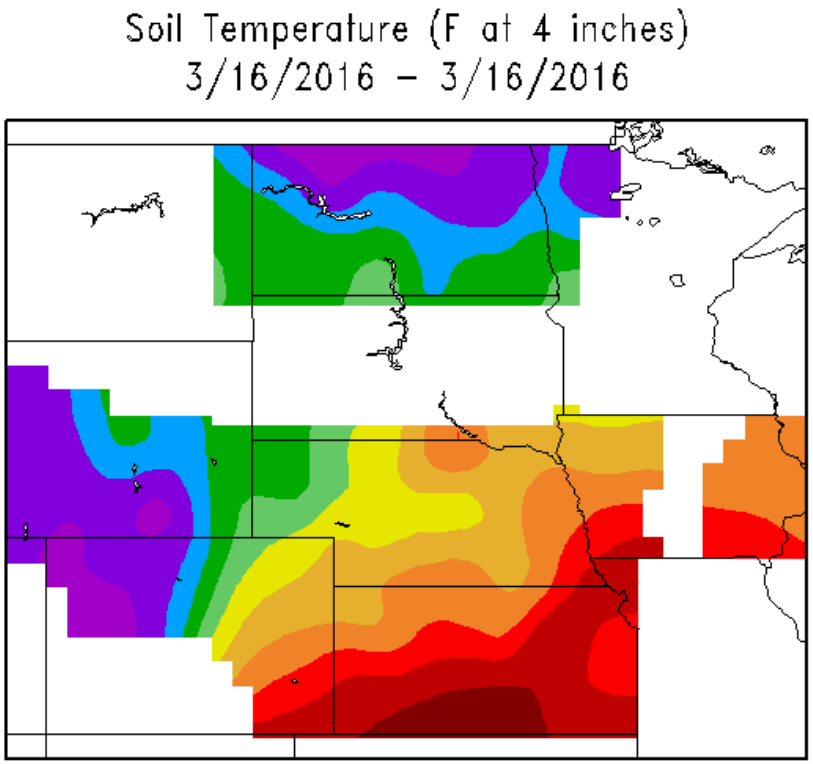


MRCC

Midwestern Regional Climate Center

Soil temperatures





U2U Decision Support Tools - Corn GDD

Map | Graph | Data | Animations

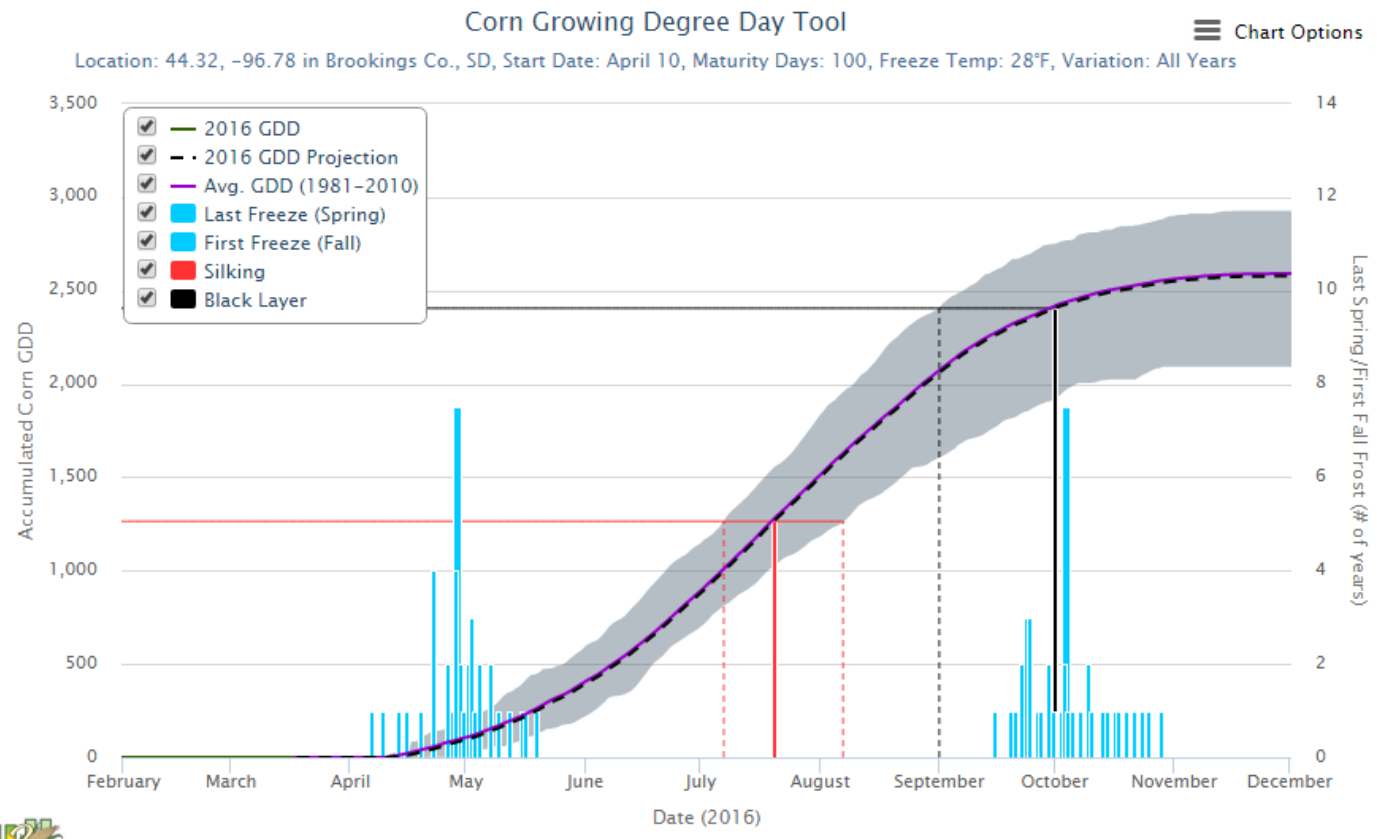
Feedback? About GDD

This tab allows you to put corn (86/50) GDD progress into a 30-year historical perspective. Customize your data:

- Choose your GDD start date, freeze temperature threshold and corn maturity rating
- Add up to 3 years from 1981 to previous year for comparison
- Adjust the variation of historical GDD and temperature data visible on the graph
- Add or remove silking, black layer and freeze dates for a comprehensive growing cycle snapshot

GDD Start: April 10 | Comparison Years: Choose a Year | Corn Maturity Days: 100 | Silking GDDs: 1246

Freeze Temperature (°F): 28 | Variation: All Years | Current Day: Today | Black Layer GDDs: 2401

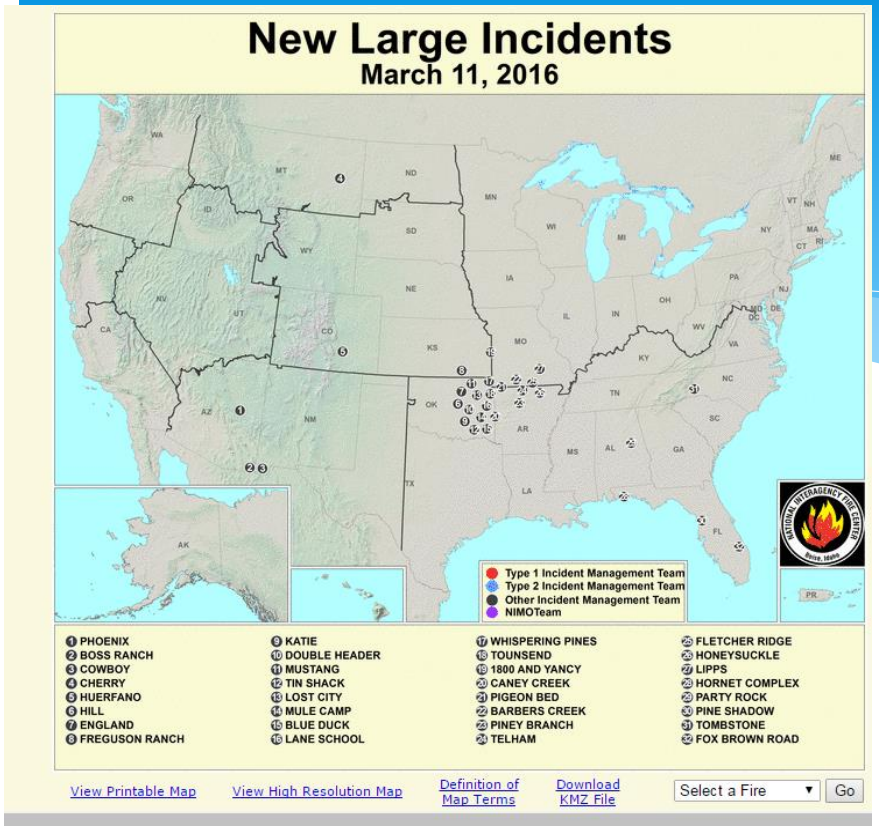


Tool Tips:

http?www.agclimate4u.org

Impacts

Fire



Fire Activity

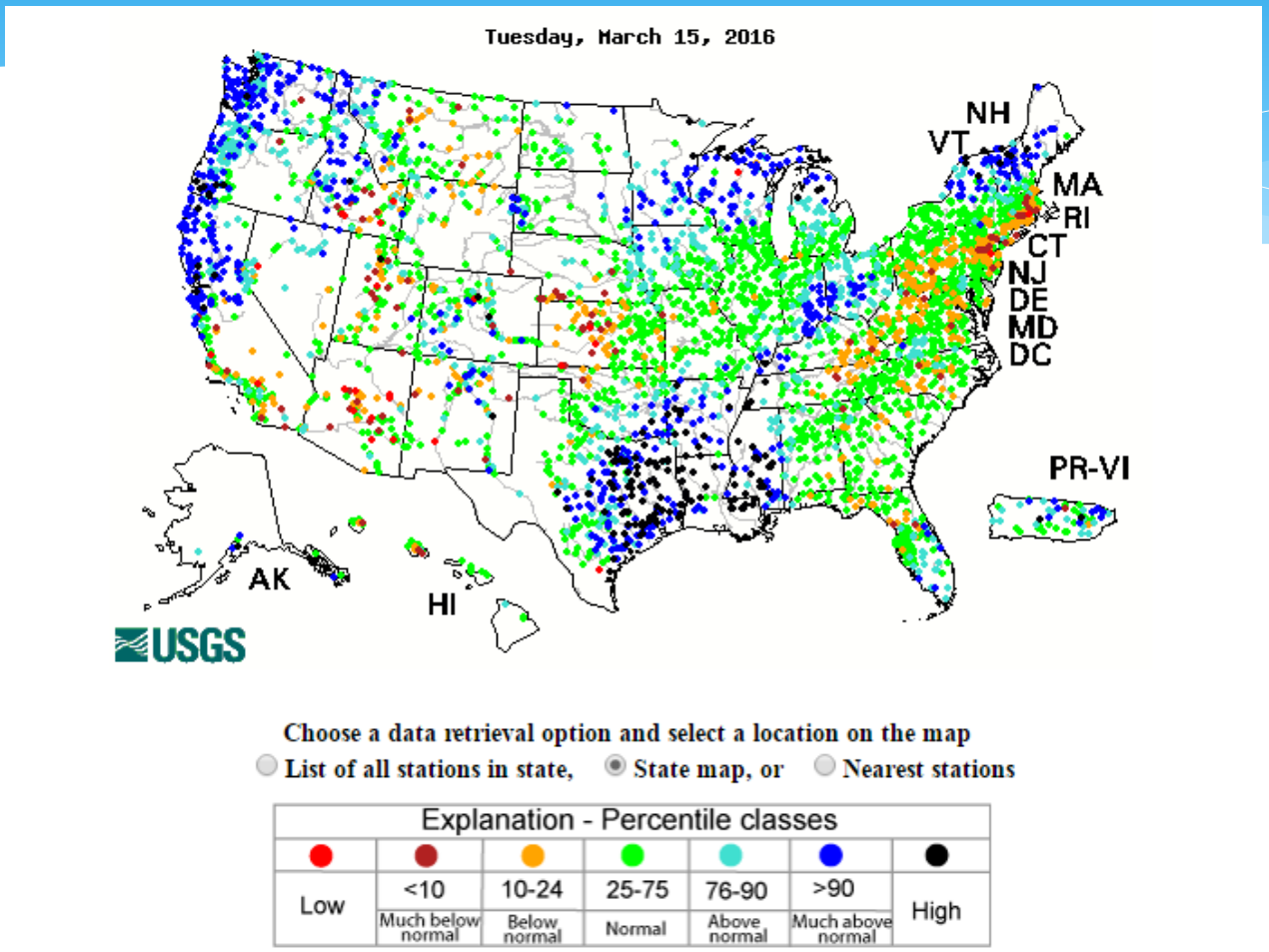
* Fewer big events
* Numerous smaller events
* Some burn bans
* Not uncommon this time of year.
  * Lack green-up
  * High T
  * Low RH
  * Winds……

USDA Forest Service
http://activefiremaps.fs.fed.us/current.php

Impacts

Missouri River/Streams

7-Day Average Streamflow

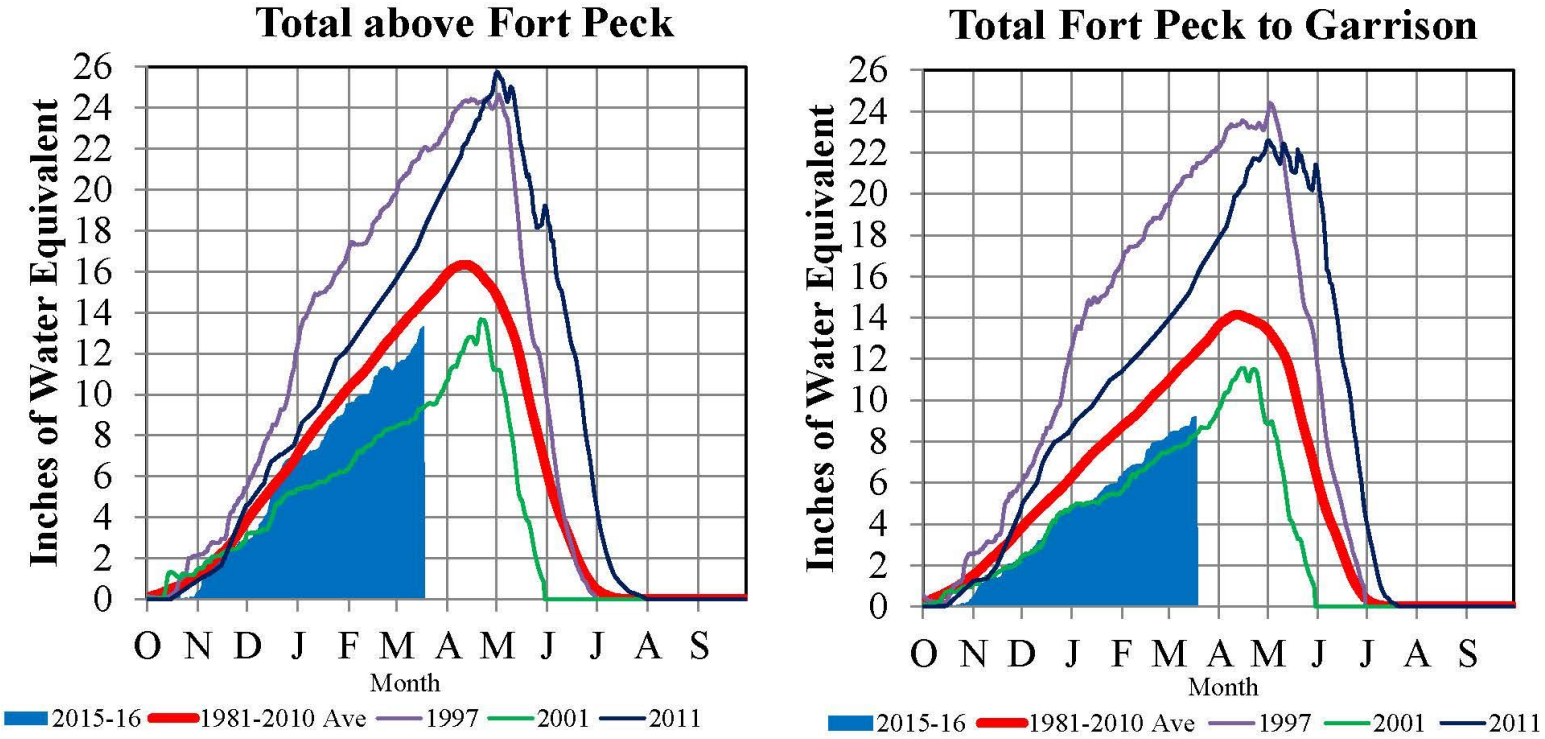


Wednesday, 16 March 2016
Wetter WI-MN
Dry in NE-KS

http://waterwatch.usgs.gov/index.php?id=pa07d

Missouri River Basin – Mountain Snowpack Water Content
2015-2016 with comparison plots from 1997*, 2001*, and 2011

March 17, 2016

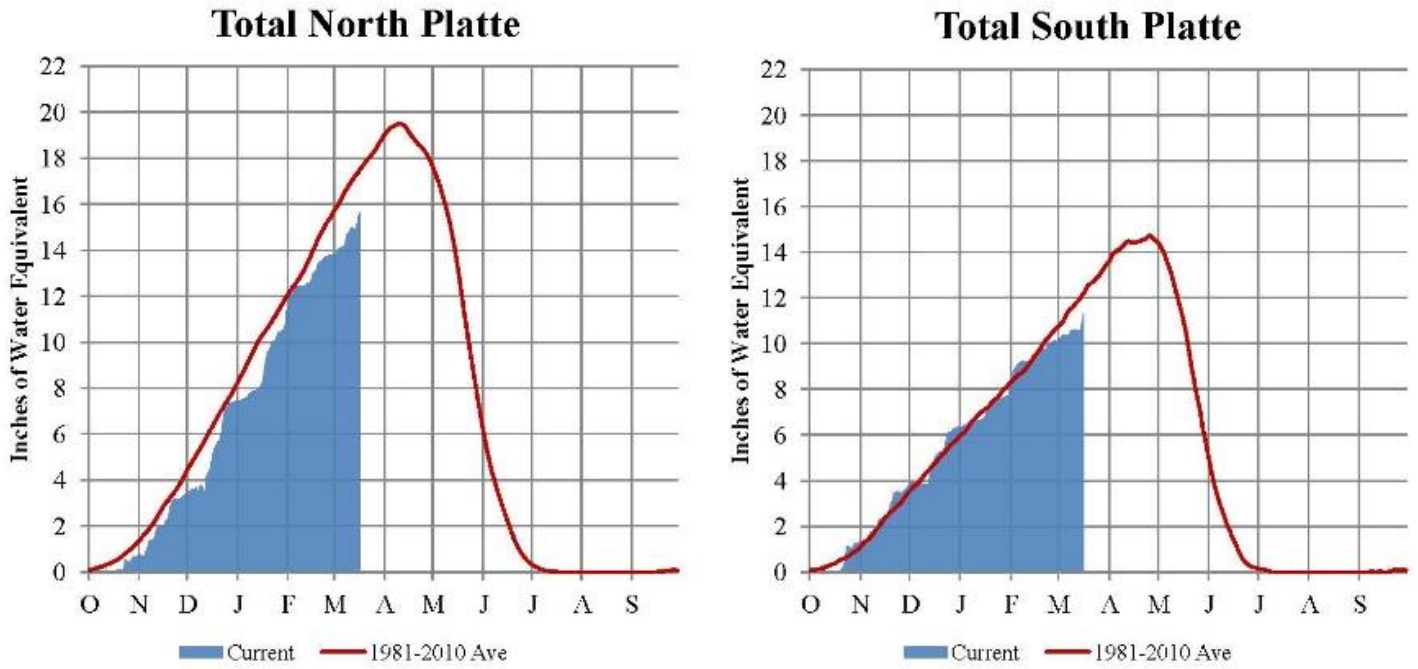


The Missouri River Basin mountain snowpack normally peaks near April 15. By March 15, normally 87% of the peak has accumulated. On March 10, 2016 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is currently 13.3", 92% of average. The mountain SWE in the "Total Fort Peck to Garrison" reach is currently 9.2", 74% of average.

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

Provisional data. Subject to revision.

Platte River Basin - Mountain Snowpack Water Content
Water Year 2015-2016
3/17/2016



The North and South Platte River Basin mountain snowpacks normally peak near April 15. As of March 16, 2016, the mountain snowpack SWE in the "Total North Platte" reach is currently 15.6", 89% of average. The mountain snowpack SWE in the "Total South Platte" reach is currently 11.3", 93% of average.

Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision


2016 U.S. Spring Flood Risk
Minor Flooding
Minor Flooding
Minor Flooding
Minor Flooding
Moderate Flooding
Moderate Flooding
Be prepared: Visit www.floodsafety.noaa.gov
and follow @NOAA and @NWS on Twitter

Outlooks

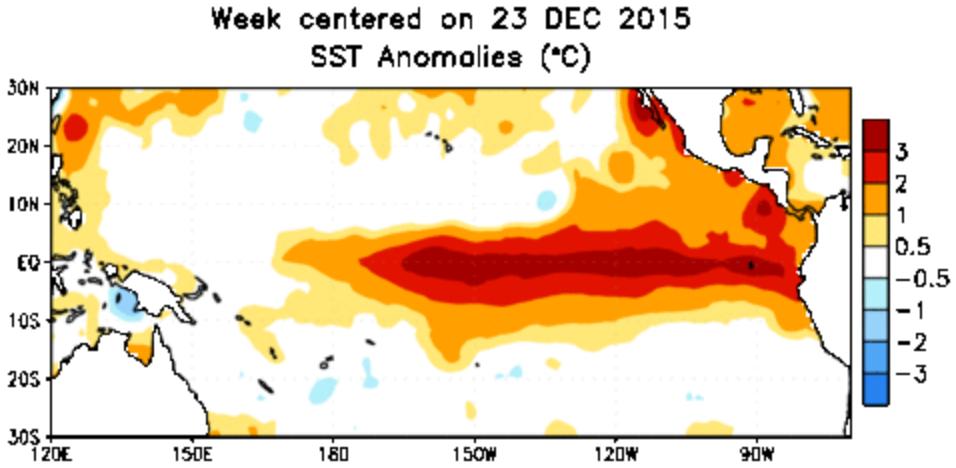
Climate Outlooks

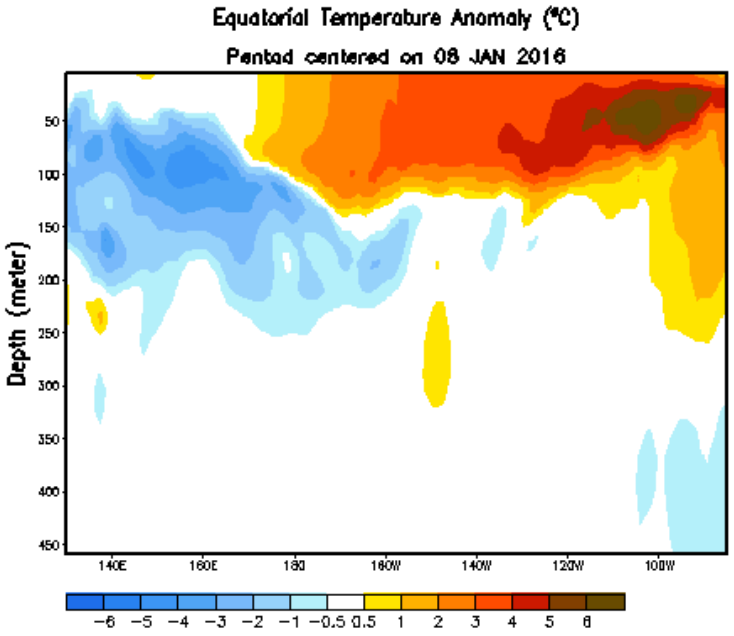
* El Niño
* 7-day precipitation forecast
* 8-14 day outlook
* April
* 3 Months (April - June)
* Seasonal Drought Outlooks
* Summer – a look ahead

Impacts

El Niño

Current El Nino Conditions



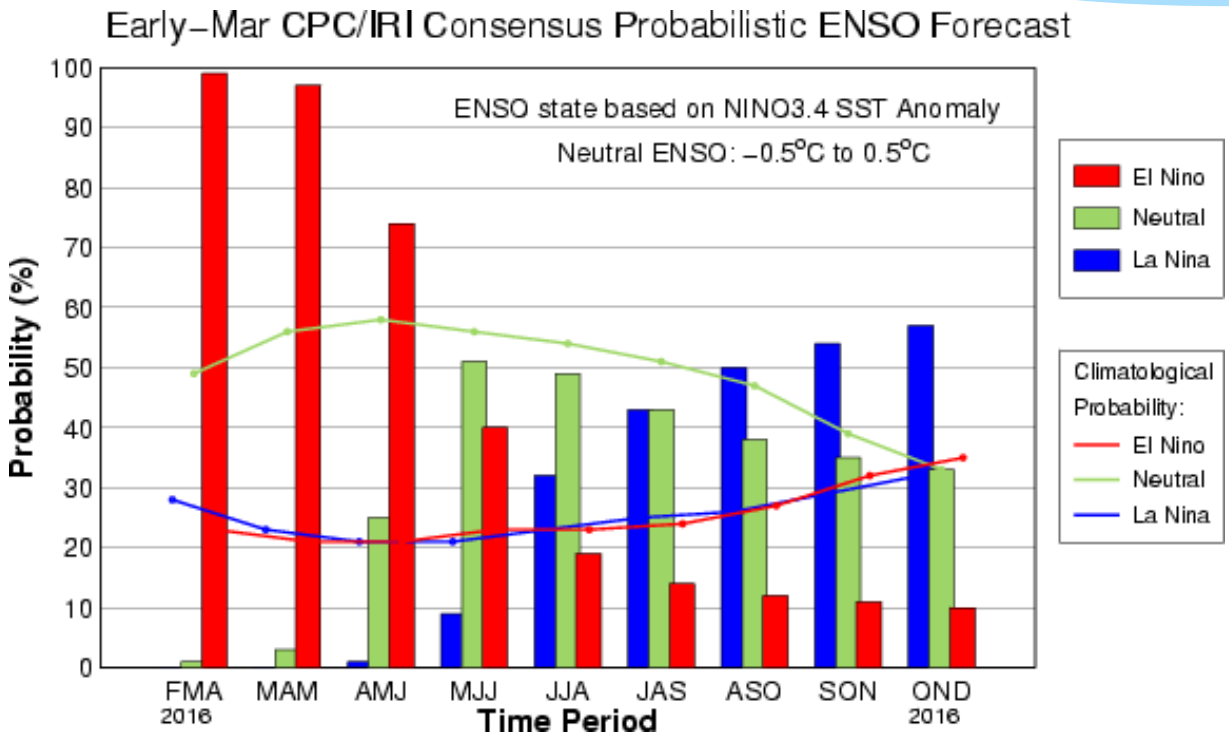


Warm SSTs
Very strong El Niño
Definitely weakening
Top 3 events in last 65 years

CPC/IRI Probabilistic ENSO Outlook

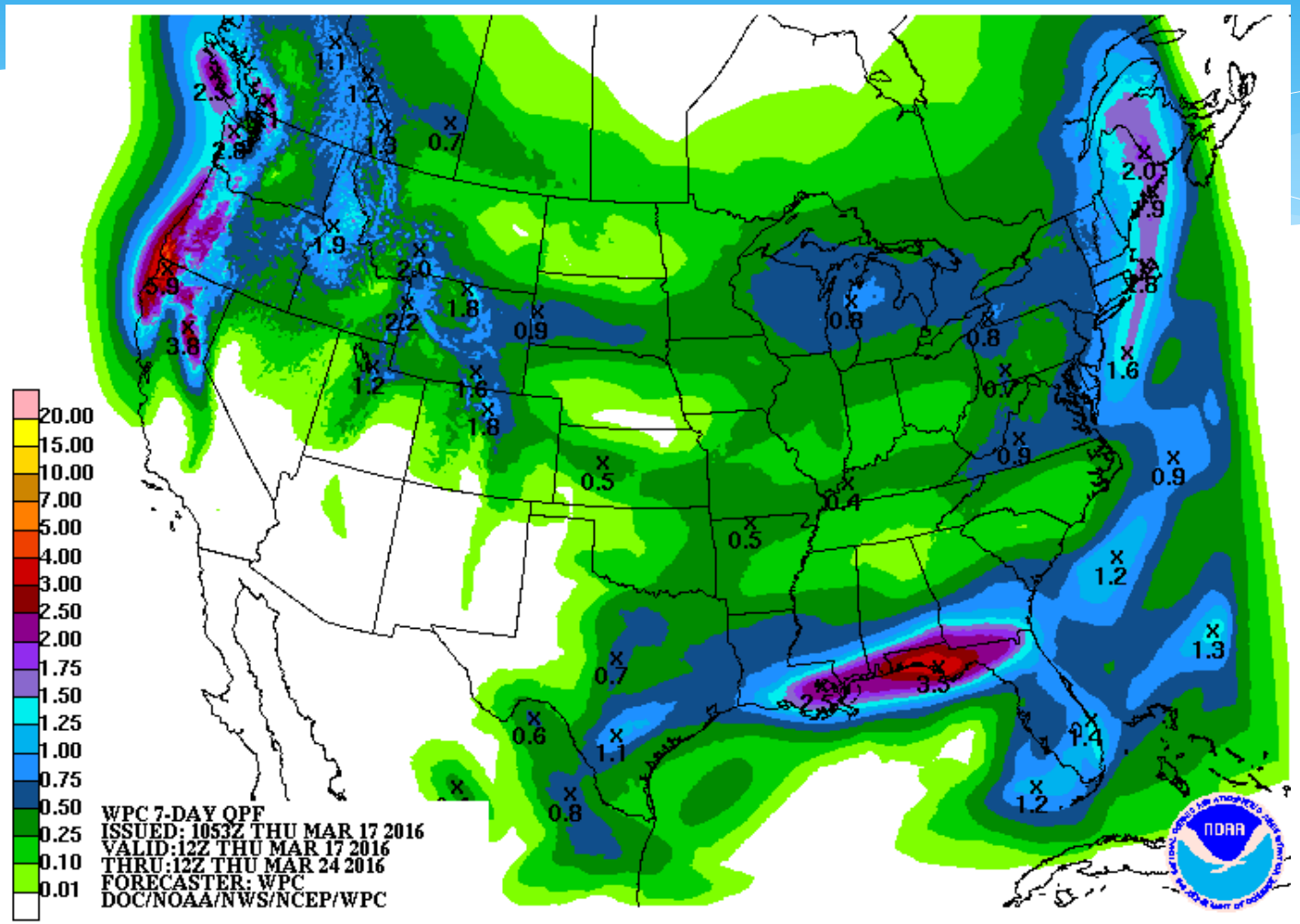
Updated: Early March 2016

The chance of El Niño gradually decreases into the spring and ENSO-neutral is favored by May-June-July (MJJ) 2016. Possible La Nina by fall.



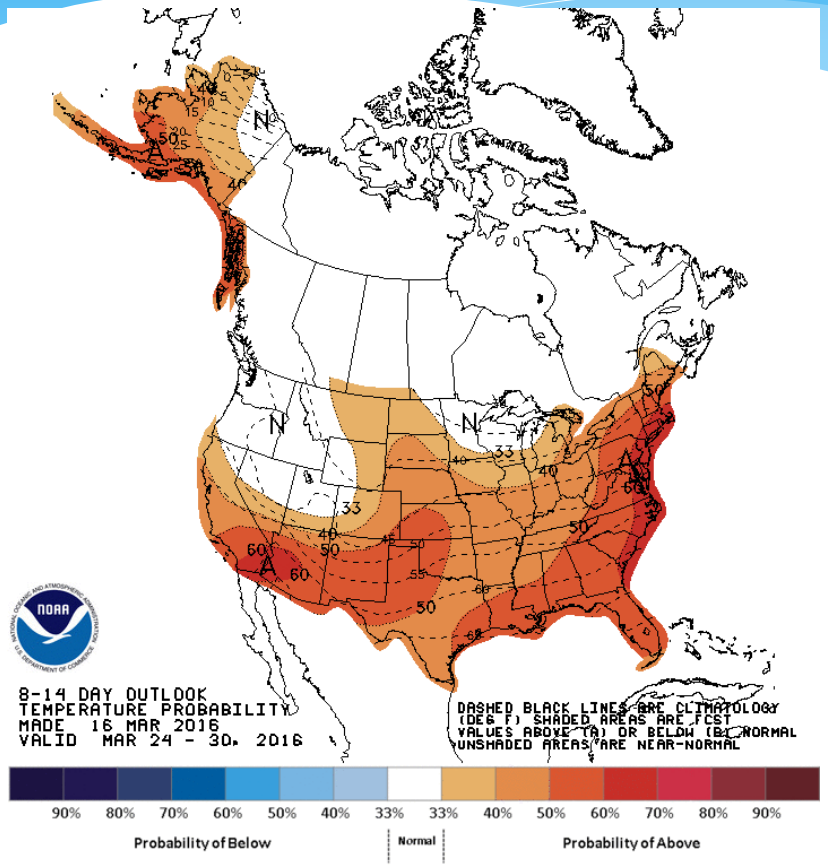
7-day Quantitative Precipitation Forecast

Valid: 7 AM Thu 17 Mar– 7 AM Thu 24 Mar

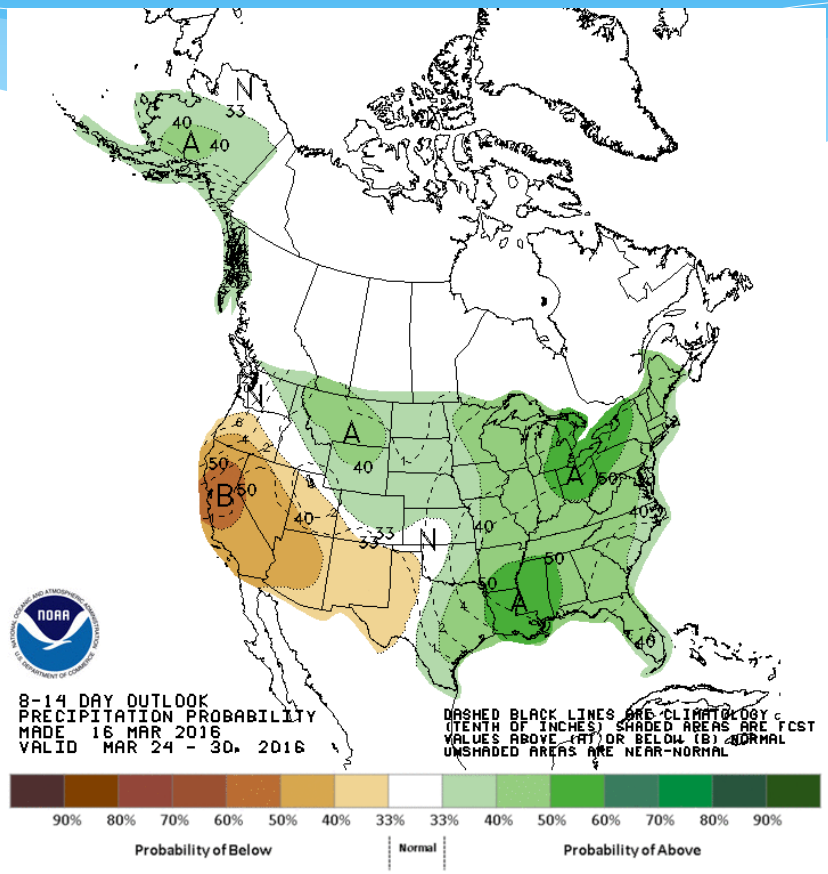


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

Temperature and Precipitation Probabilities for 24 Mar. – 30 Mar. 2016



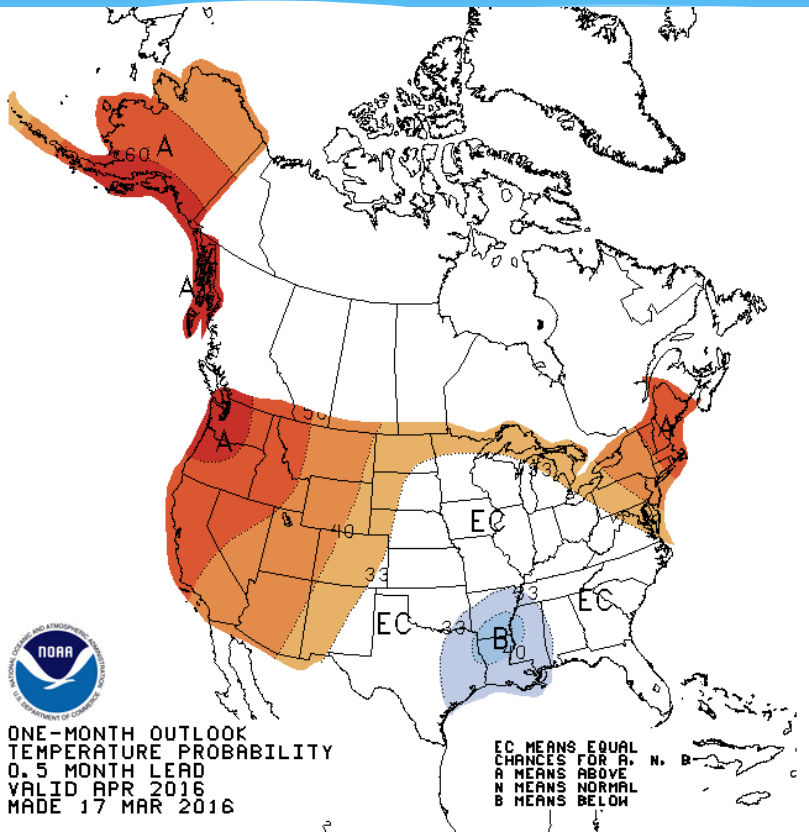
Temperature



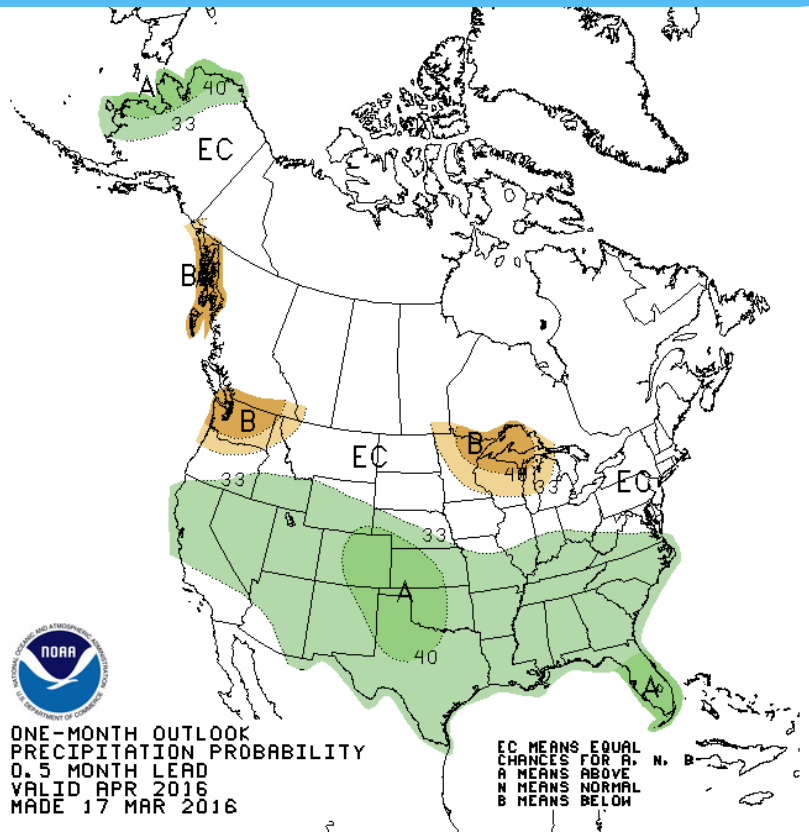
Precipitation

http://www.cpc.ncep.noaa.gov/products/predictions/814day/index.php

April Temperature and Precipitation Probabilities



Temperature

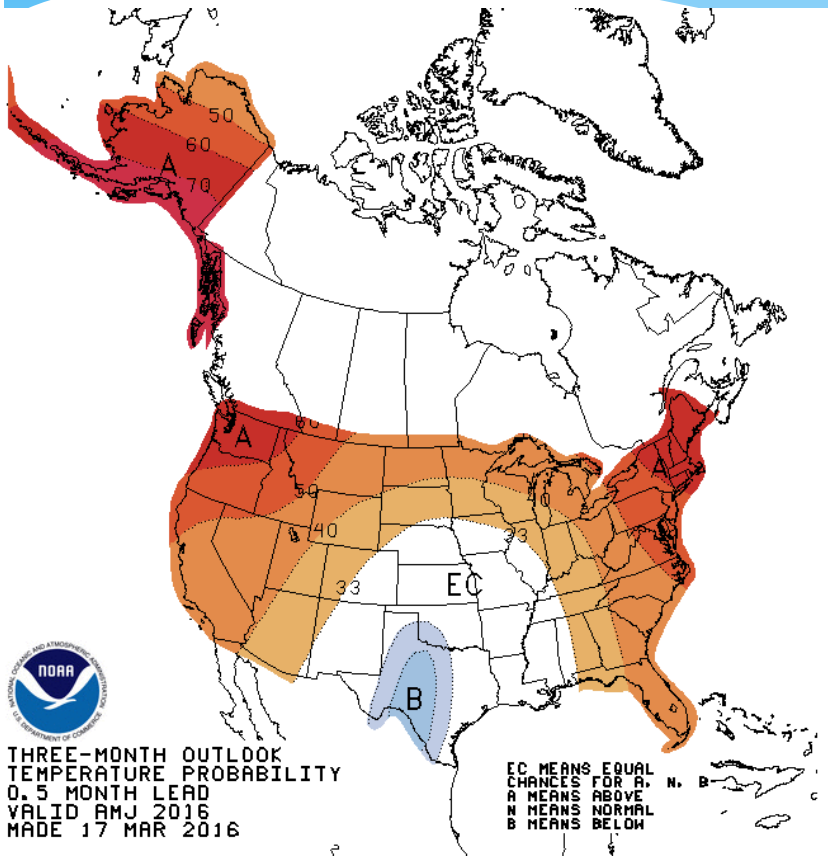


Precipitation

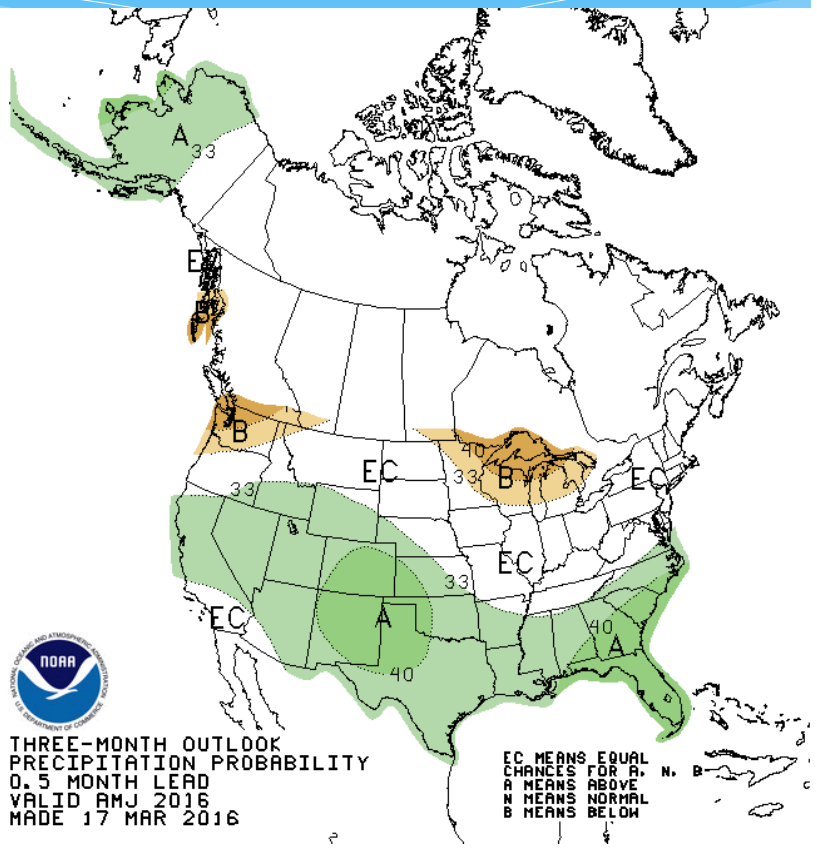
http://www.cpc.ncep.noaa.gov/products/predictions/30day/

3 Month Temperature and Precipitation Probabilities

(April – June)



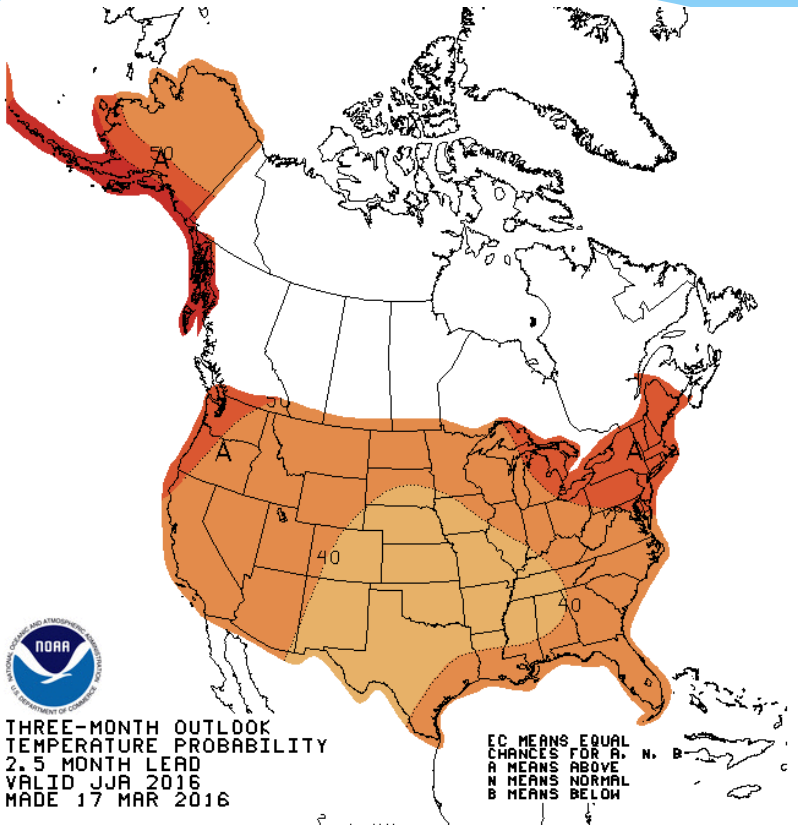
Temperature



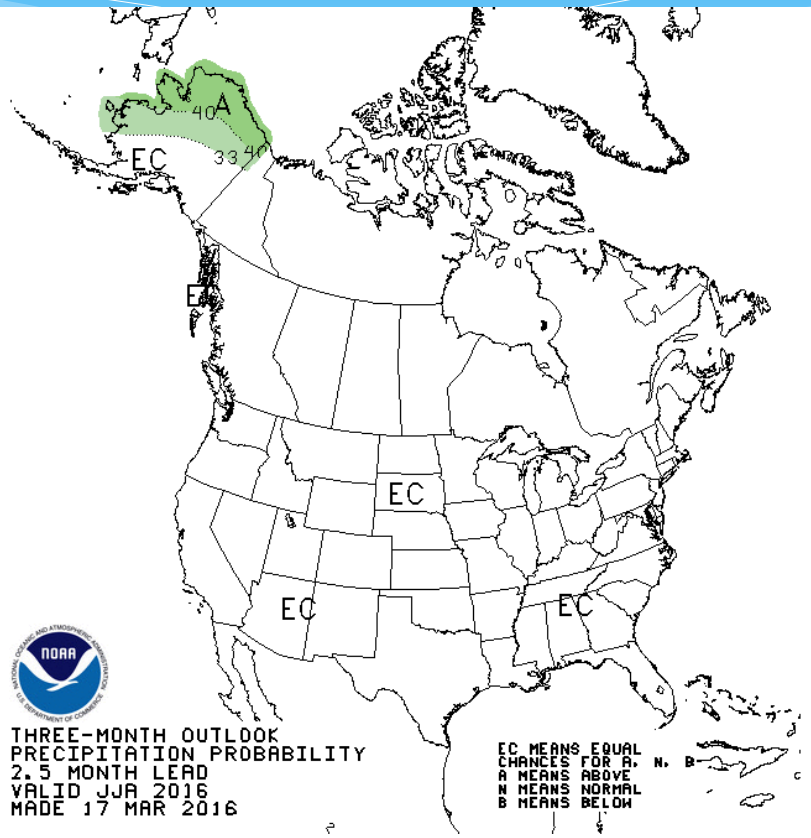
Precipitation

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

3 Month Temperature and Precipitation Probabilities (June – August)



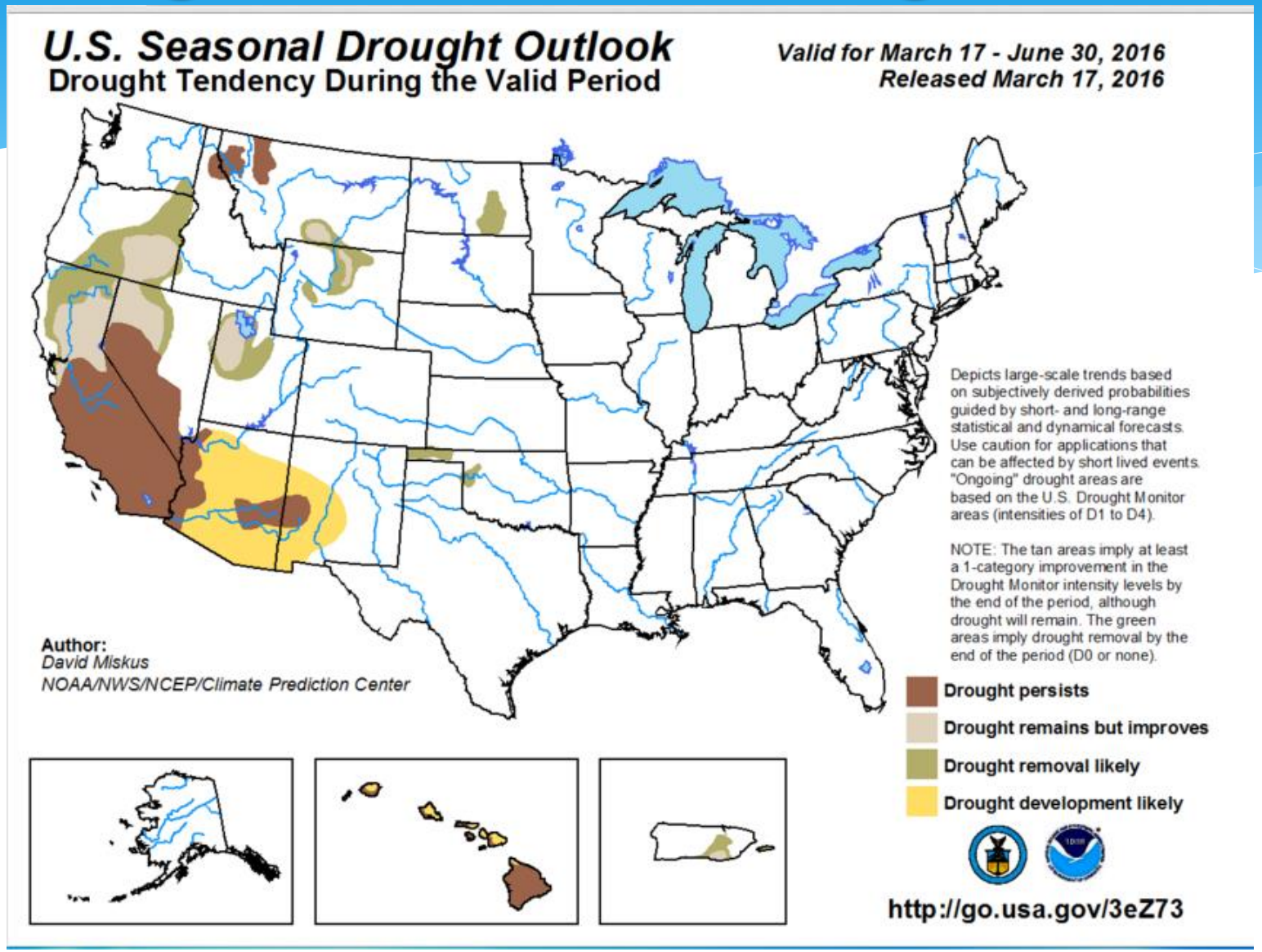
Temperature



Precipitation

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Drought Outlook through 30 June



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

Summary - Conditions

* Warmer nearly everywhere in the winter.
* More wet earlier and some drier late in the winter

* Early onset of spring – potential of freeze issues
* Allowing early ag activity
* Potential horticulture problem

Summary - Outlooks

* El Niño – advisory. Weakening.
* Transition out in spring/summer. La Niña by fall?
* Spring mixed
  * Warmer likely north
  * Wetter south
* Summer
  * Likely warmer whole region
  * Precipitation no strong indications

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:
  * **Climate:**
  * Dennis Todey: dennis.todey@sdstate.edu , 605-688-5141
  * Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
  * Mike Timlin: mtimlin@illinois.edu; 217-333-8506
  * Natalie Umphlett: numphlett2@unl.edu ; 402 472-6764
  * Brian Fuchs: bfuchs2@unl.edu 402 472-6775

  * **Weather:**
  * crhroc@noaa.gov