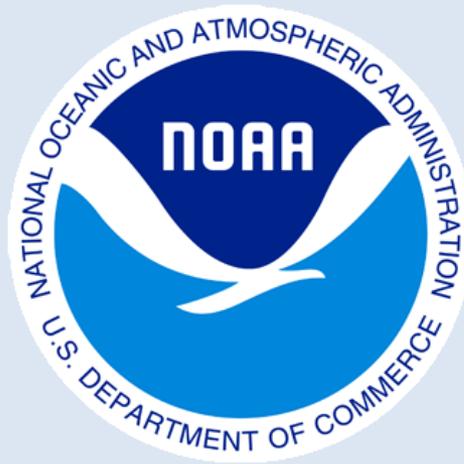


NOAA Climate Science & Services

Monthly Climate Update

A look back at March and a preview of April through July



Jake Crouch

Climate Scientist, Climate Monitoring Branch,
NOAA's National Climatic Data Center

Alan Haynes

Service Coordination Hydrologist
National Weather Service – CAVN River
Forecast Center

Huug van den Dool

Seasonal Forecaster, Operations Branch
NOAA's Climate Prediction Center

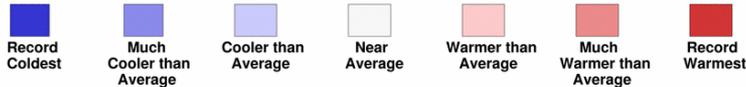
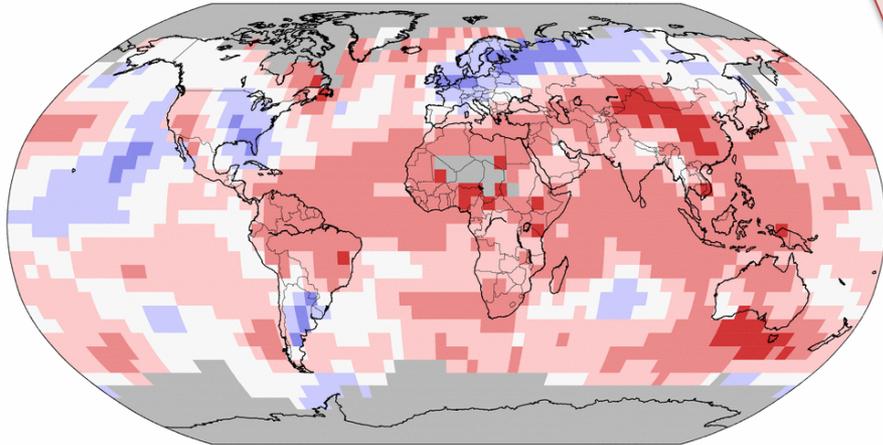
April 18, 2013

Global Climate Highlights

Land & Ocean Temperature Percentiles Mar 2013

NOAA's National Climatic Data Center

Data Source: MLOST version 3.5.3



Mon Apr 15 08:15:18 EDT 2013

March 2013 Temperatures:

- 10th warmest March globally (+0.58°C/+1.04°F)
- Land: 11th warmest ; Ocean: 9th warmest
- N. Hemisphere: 10th warmest
- S. Hemisphere: 10th warmest

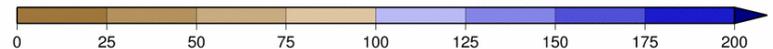
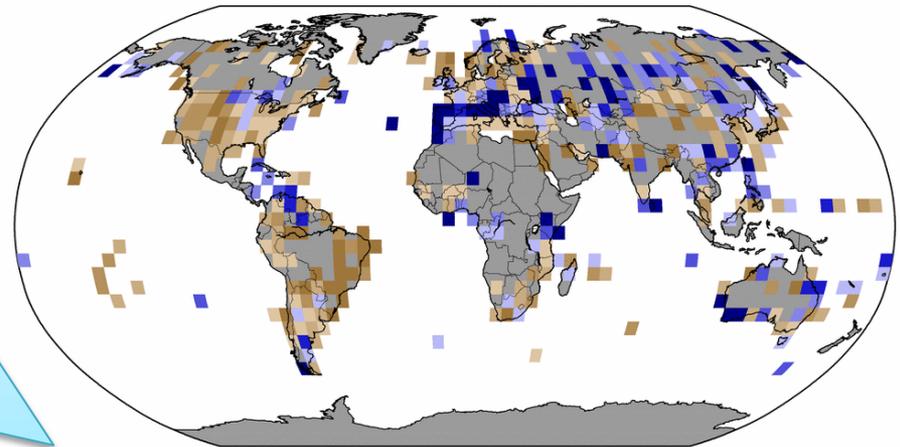
Regional Analysis:

- U.K.: 2nd coldest March, coldest since 1962
- Germany: 5th coldest March, second coldest in 50yrs
- China: 2nd warmest March, many locales record warm

Land-Only Precipitation Percent of Normal Mar 2013

(with respect to a 1961–1990 base period)

Data Source: GHCN–M version 2



NOAA's National Climatic Data Center
Mon Apr 15 07:48:42 EDT 2013

Percent

Please Note: Gray areas represent missing data
Map Projection: Robinson

- Spain has wettest March on record
- Hungary precipitation 400% of normal
- New Zealand dry, drought declared on North Island

Dry: Brazil, Mexico, Argentina, N. China, Middle East

Wet: Central and Southern Europe, Russia

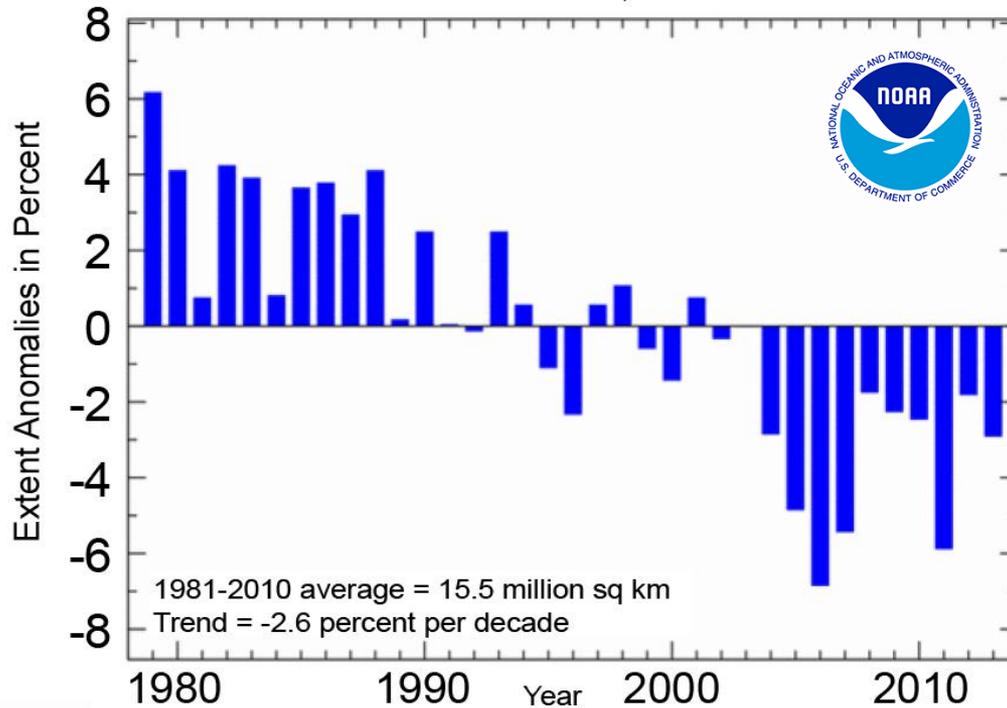
Snow Cover: N. Hemisphere snow cover 16th largest on record – North America 6th largest, Eurasia 22nd largest

Global Climate Highlights

March Arctic Sea Ice: 5th smallest on record

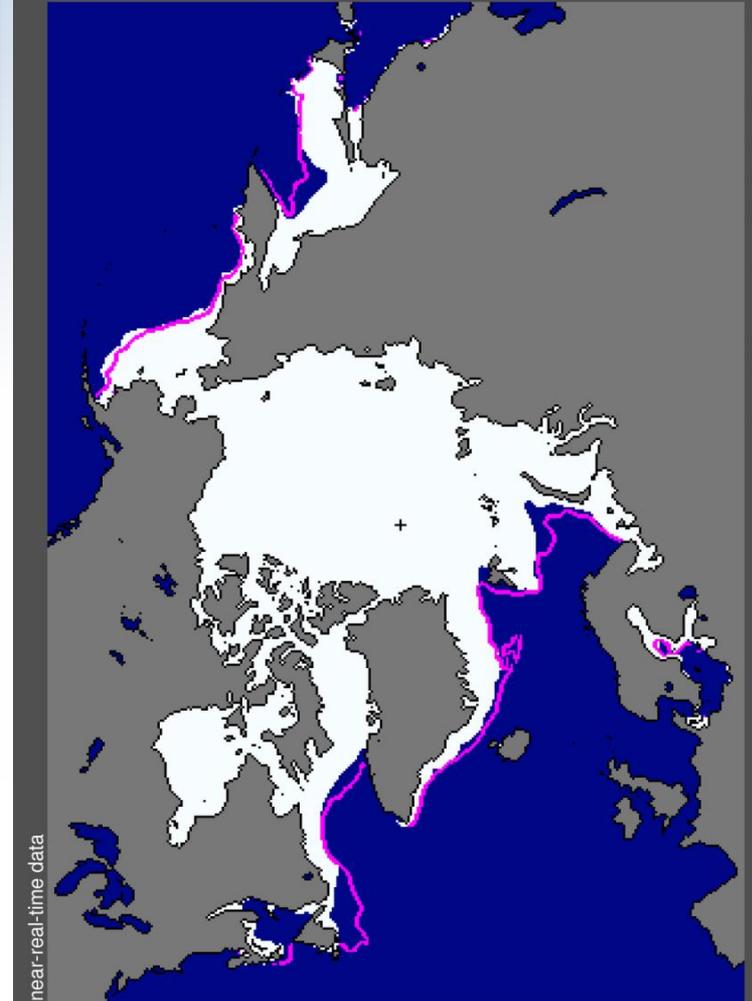
- Arctic sea ice reached its annual maximum extent
- Above-average ice in Bering Sea
- March 2013 sea ice 2.9 percent below average

Northern Hemisphere Sea Ice Extent March Anomalies, 1979-2013



Data provided by the National Snow and Ice Data Center (NSIDC)

Sea Ice Extent
Mar 2013



Total extent = 15.0 million sq km

National Snow and Ice Data Center, Boulder, CO

U.S. Climate Highlights - March

Cooler and drier than average nationally

Drought continues for 47.8% of contiguous United States

Temperature: 0.9°F below average – 43rd coolest

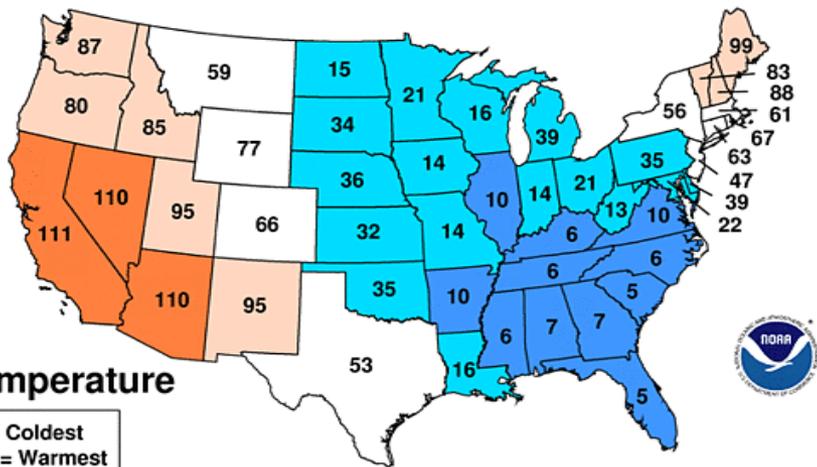
- **Cool:** Eastern US. 11 states top ten cool. AL, FL, GA, NC, SC cooler in March than January 2013
- **Warm:** West – AZ, CA, NV top ten warm

Precipitation: 0.72” below average – 5th driest

- **Dry:** LA and WY top ten dry. CA had driest Jan-Mar on record, 26% of normal precipitation
- **Wet:** MN only state with above-average precipitation

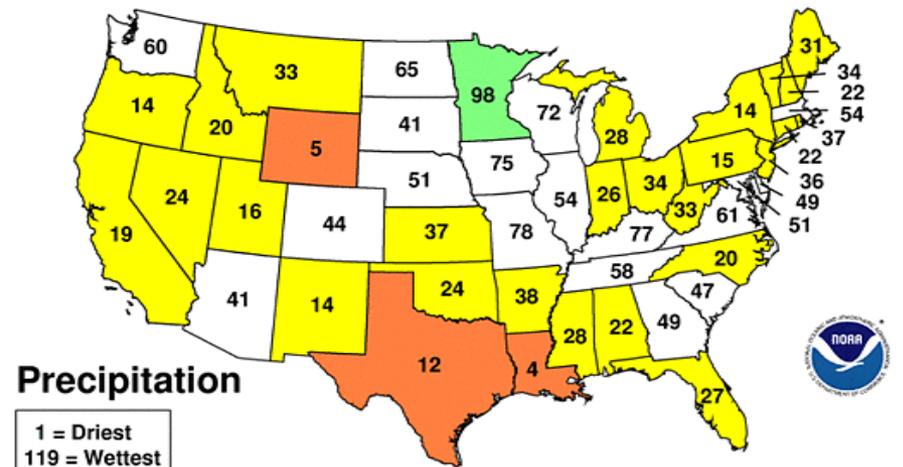
March 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



March 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

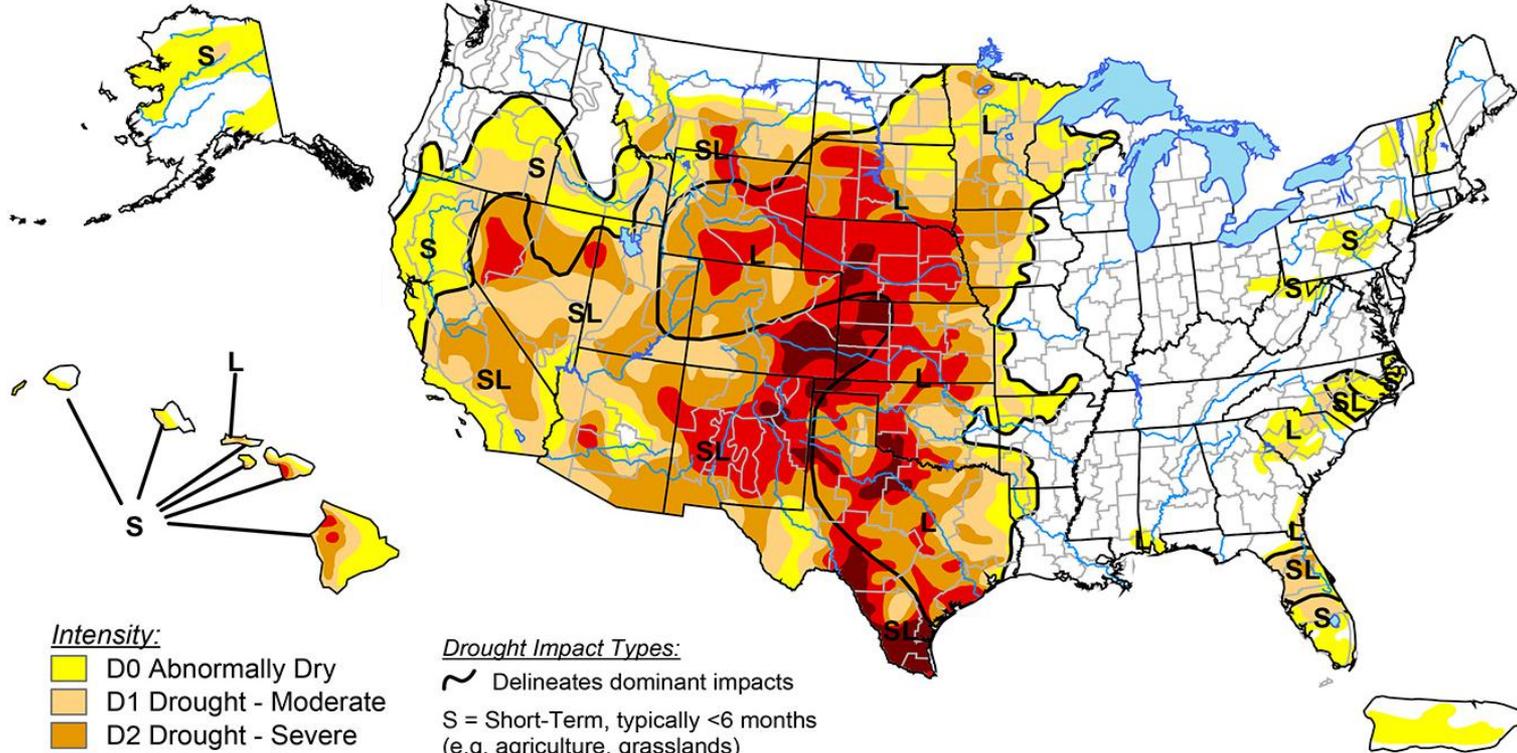


U.S. Drought Monitor

U.S. Drought Monitor

April 16, 2013

Valid 7 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

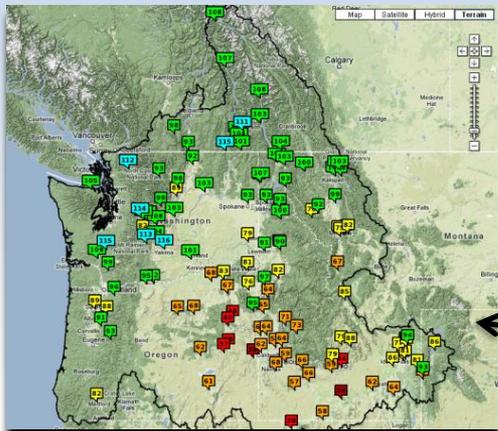
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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

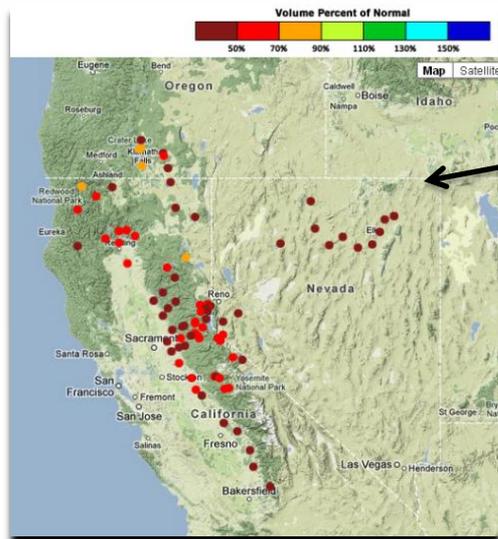


Released Thursday, April 18, 2013
Author: David Miskus, NOAA/NWS/NCEP/CPC

Western Water Highlights

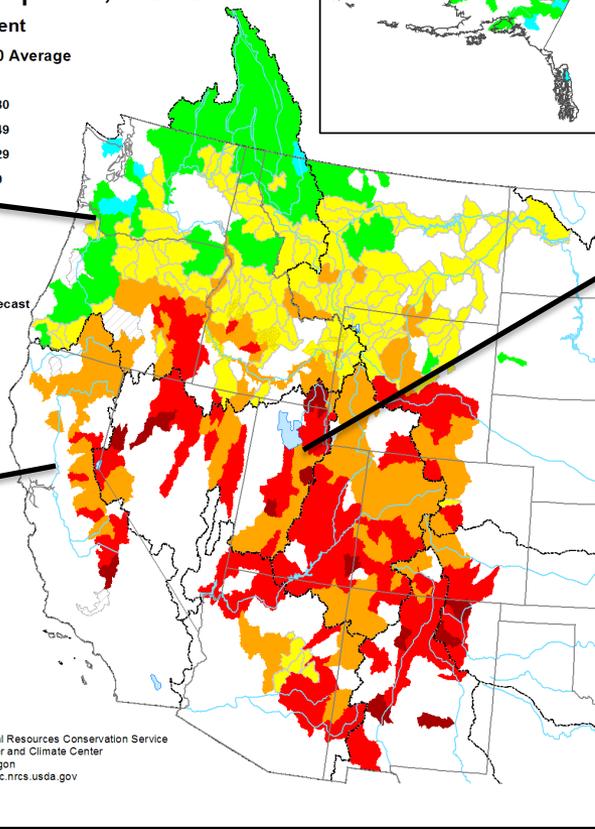
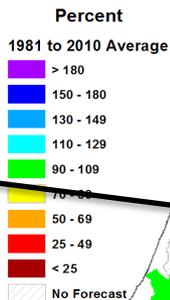


<http://www.nwrfc.noaa.gov/ws/>



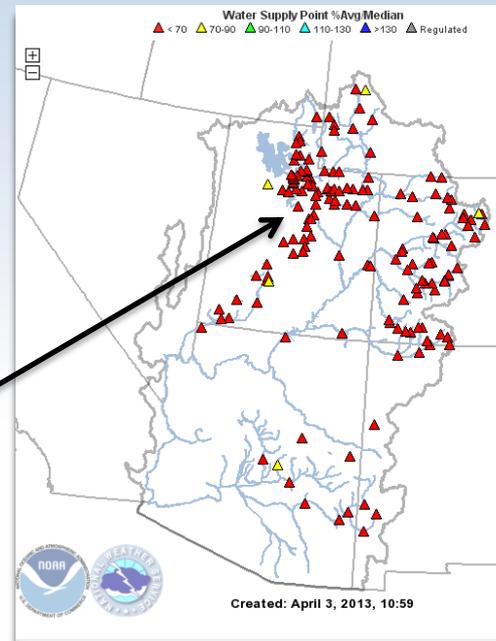
http://www.cnrfc.noaa.gov/water_resources_update.php

Spring and Summer Streamflow Forecasts as of April 1, 2013



Prepared by
 USDA, Natural Resources Conservation Service
 National Water and Climate Center
 Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

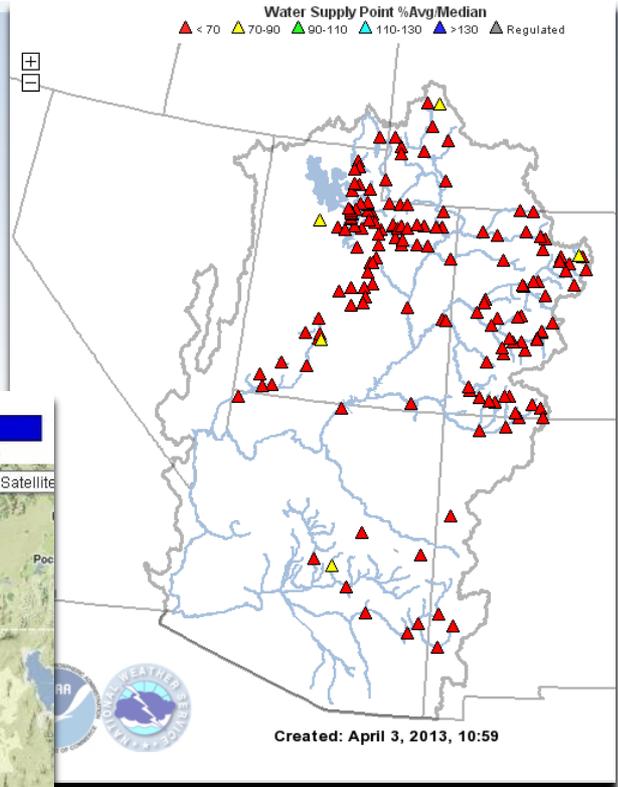
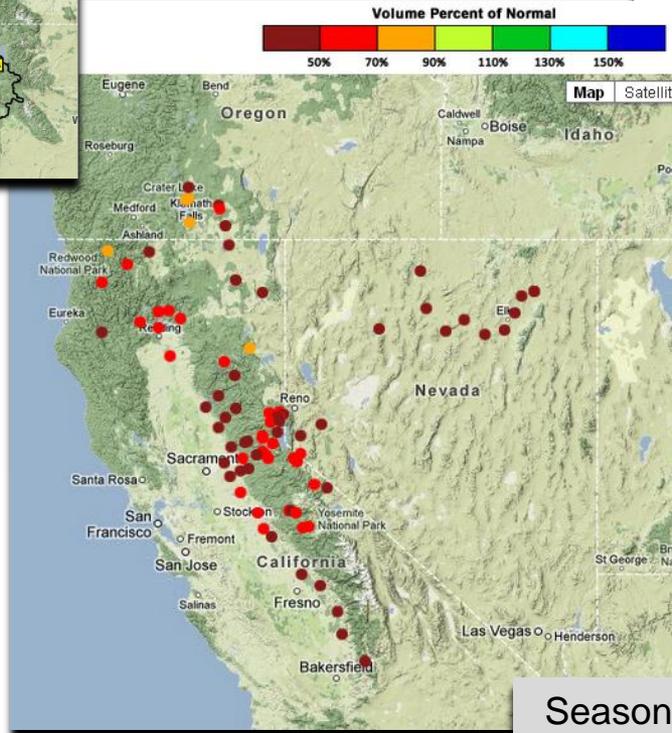
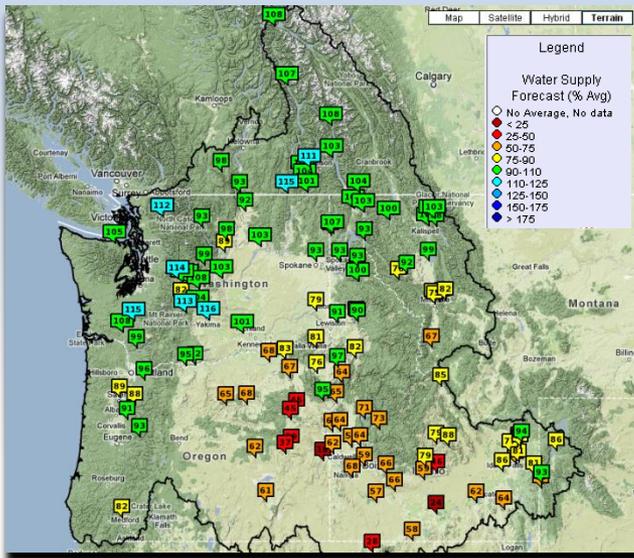
Seasonal Volume Forecasts



Created: April 3, 2013, 10:59

<http://www.cbrfc.noaa.gov/gmap/cmap2.php?con=wsup>

Western Water Highlights



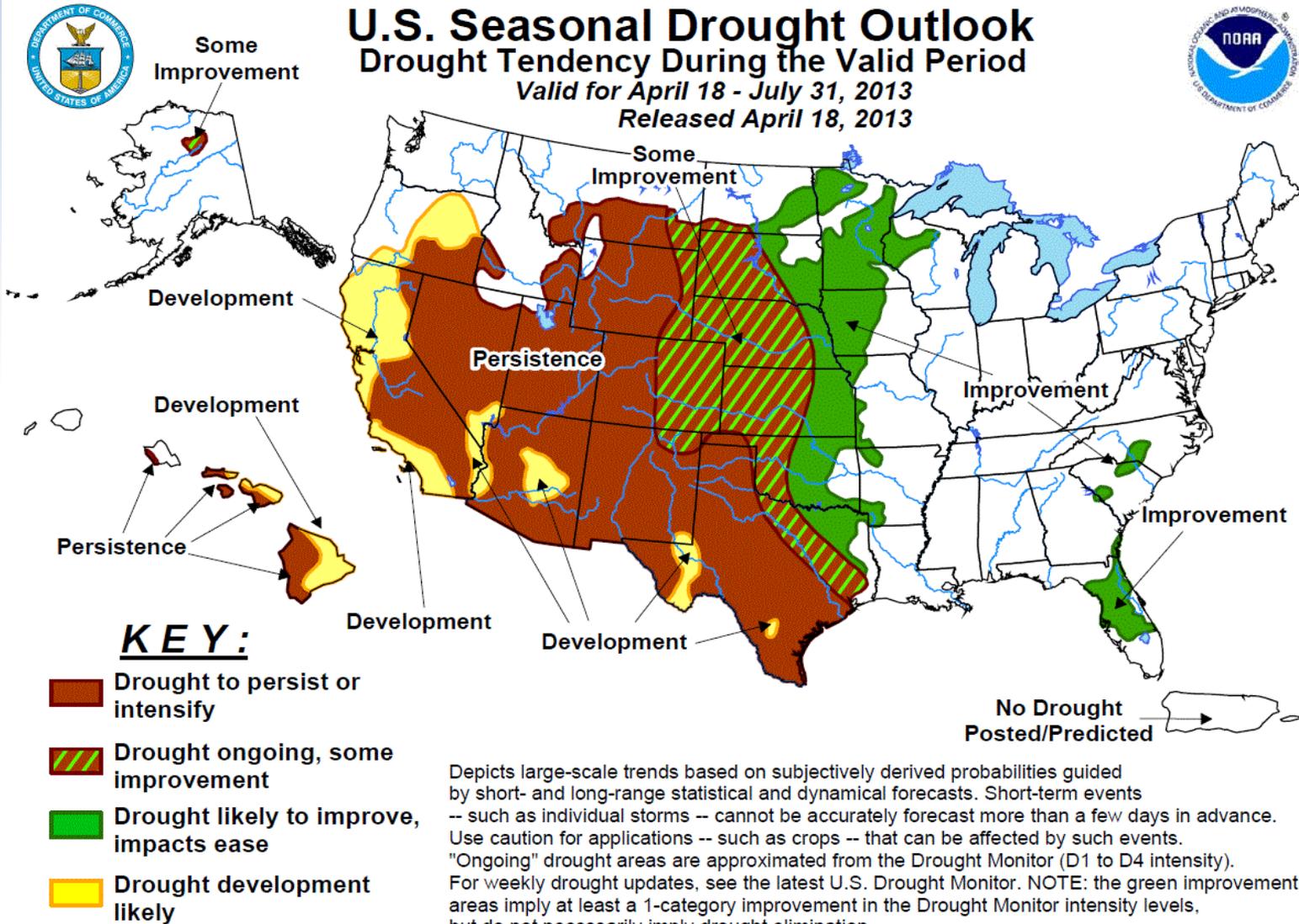
Seasonal Volume Forecasts
(as of April 2013)

Western Water Highlights

- **Seasonal runoff volume forecasts range from near 100% far northwest to 25% south**
 - Light snowpack in Sierra, Great Basin and Central Rockies due to dry conditions during Jan and Feb
- **Big reservoirs okay in the Pacific NW, but some deficit areas are expected in the Great Basin, Southern Sierra NV, and Desert SW**
 - Warm and wet conditions early in the season helped fill reservoirs in Northern and Central CA – some ag contractors in CA south of the Delta may only receive 25% of contract allotment
 - Dry soils underlying UT/CO snowpack will reduce runoff efficiency in the Colorado Basin
 - Many reservoirs in southern areas will need abundant precipitation next season to recover

U.S. Drought Outlook

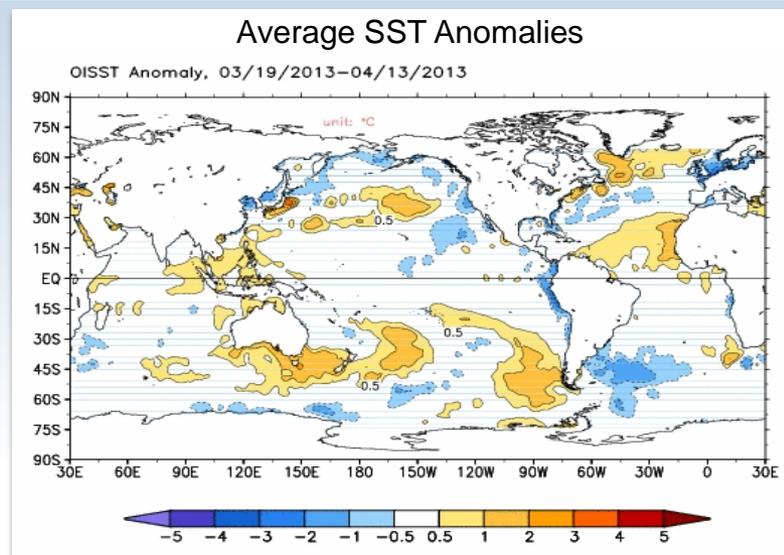
3-month forecast



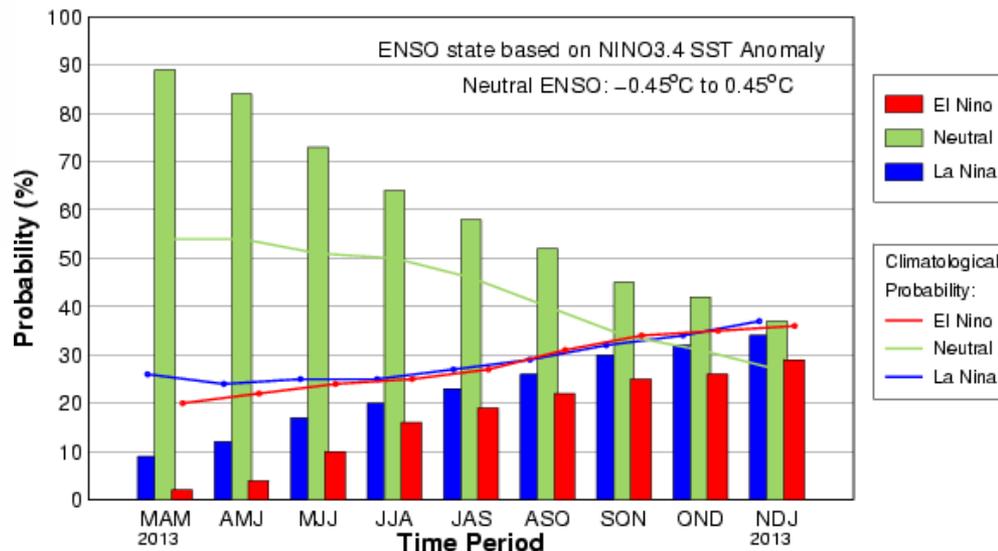
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- 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 green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

El Niño/La Niña Southern Oscillation (ENSO) Sea Surface Temperature Update

- ENSO-neutral conditions continue
- Equatorial sea surface temps. are close to average
- Atmospheric circulation over tropical Pacific is near average
- ENSO-neutral favored through the N. Hemisphere summer 2013

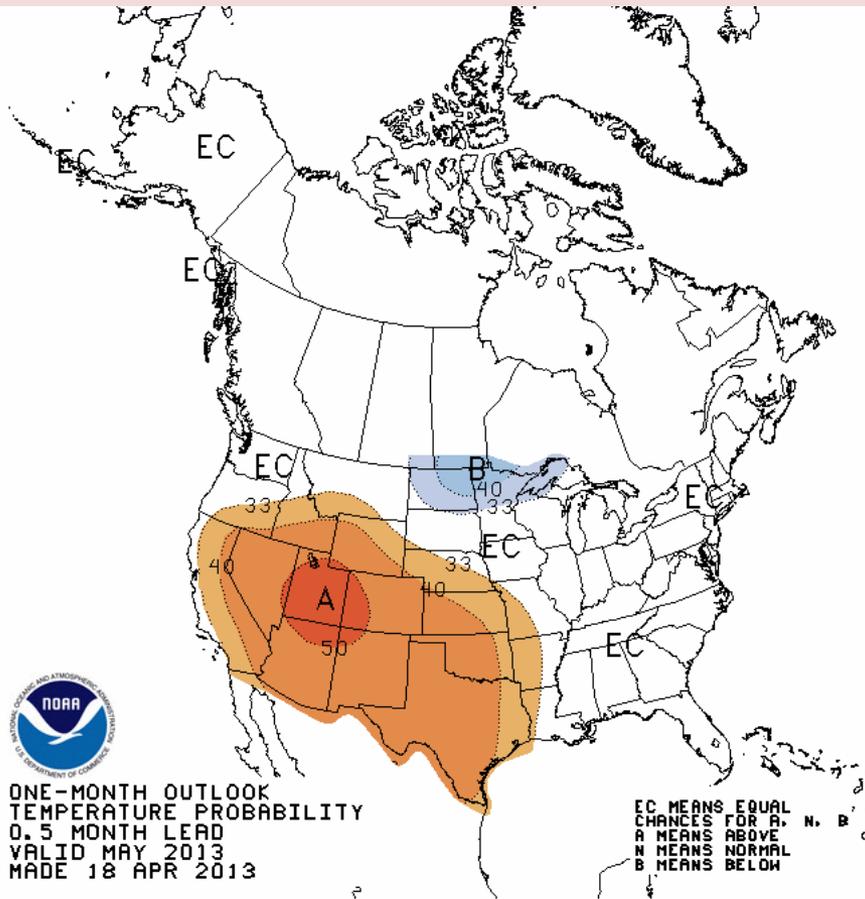


Early-April CPC/IRI Consensus Probabilistic ENSO Forecast

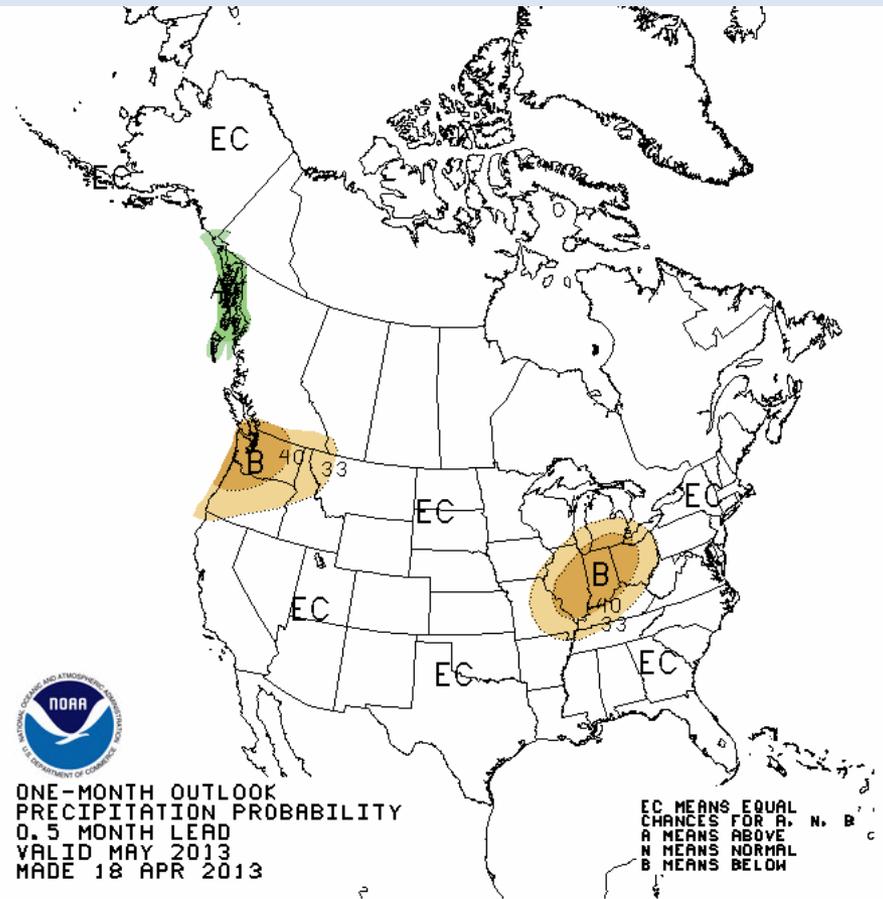


Monthly Forecast (May)

May Average Temperature Probability

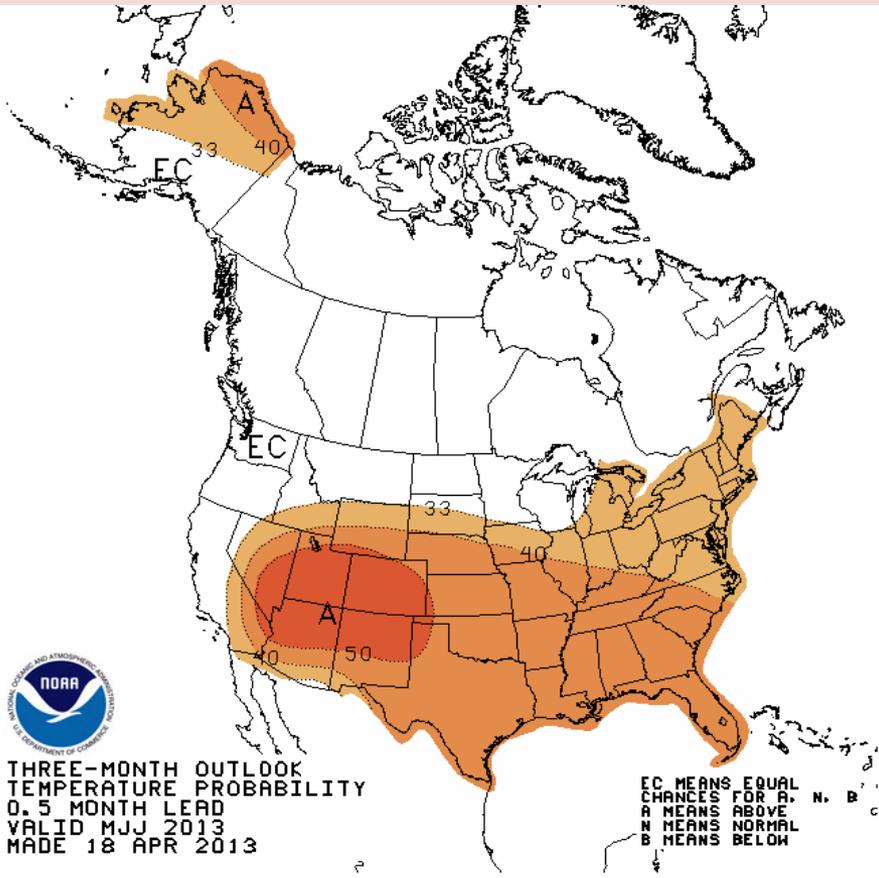


May Total Precipitation Probability

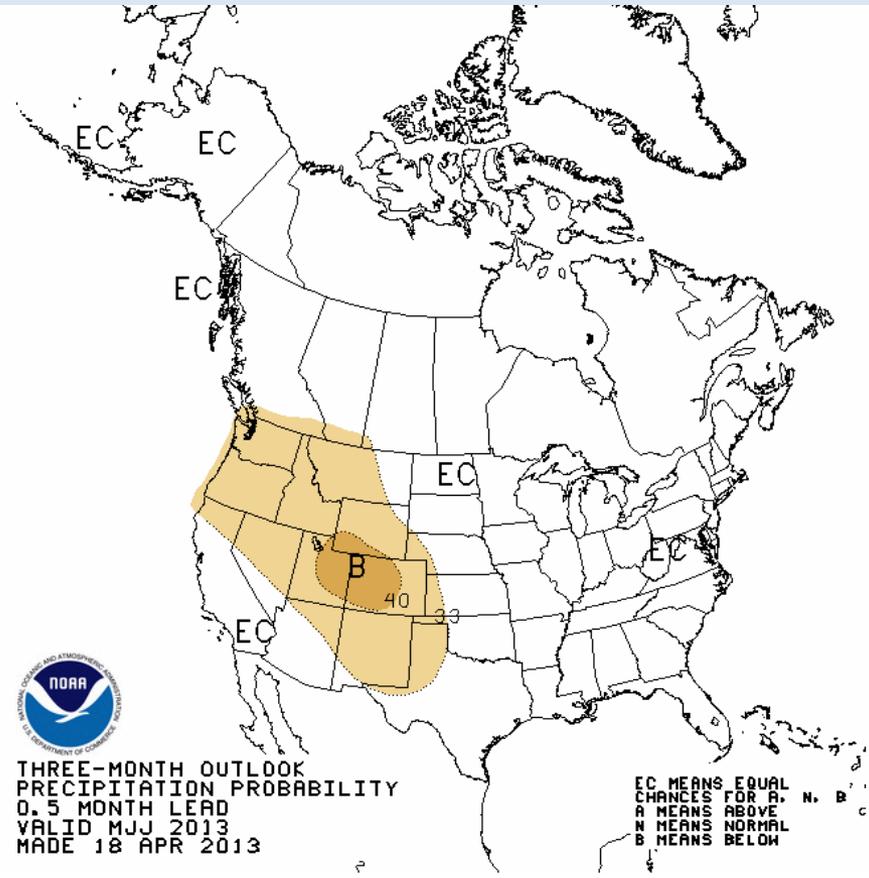


Seasonal Forecast (May-Jun-Jul)

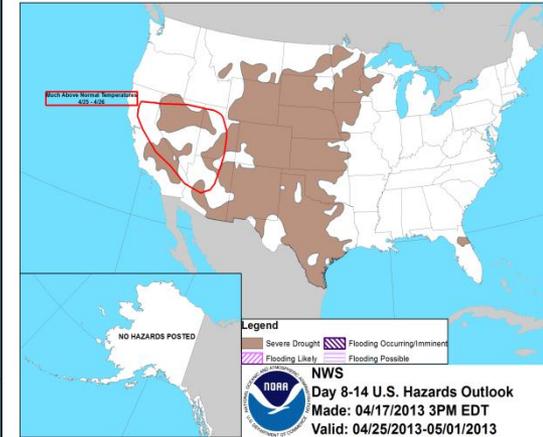
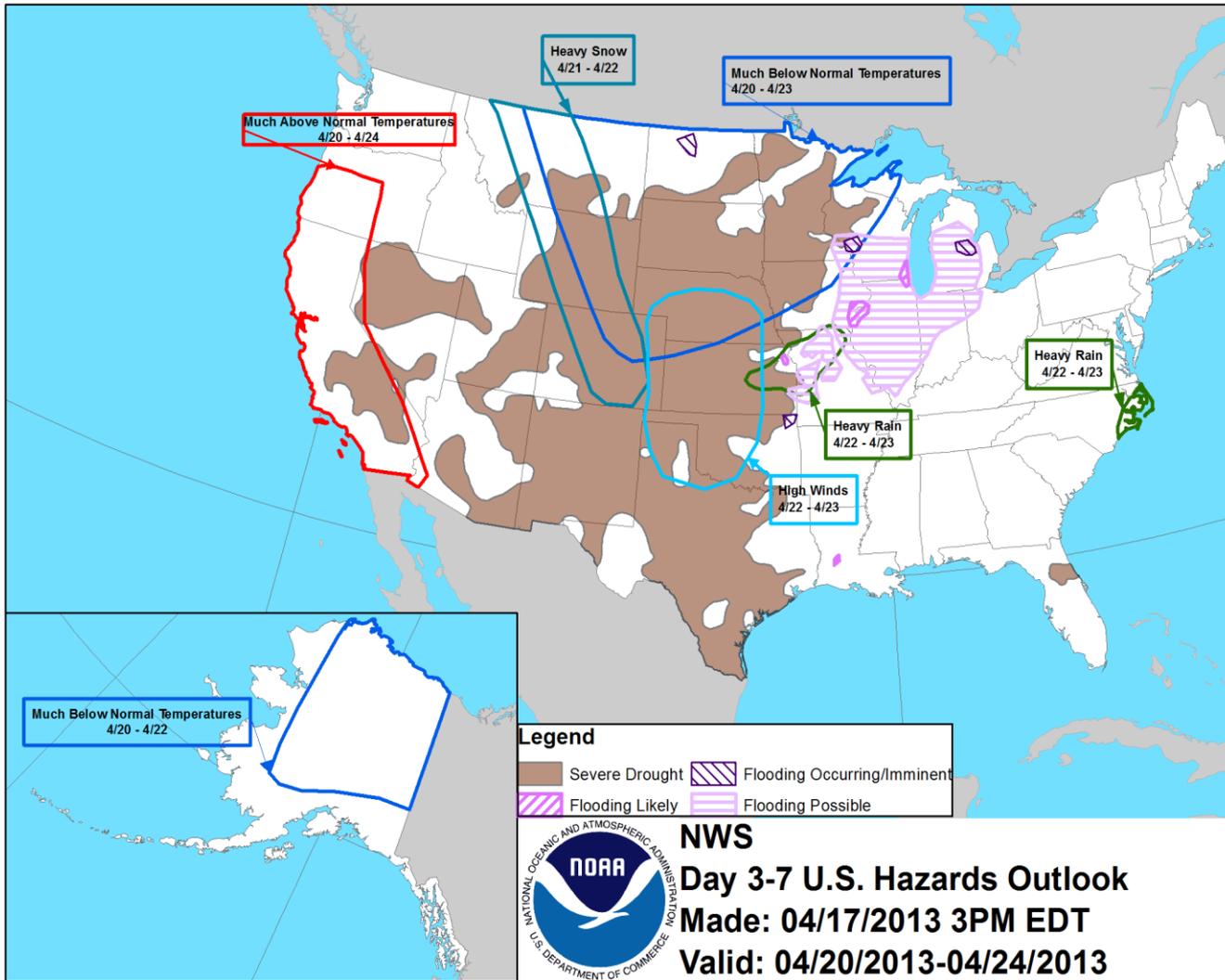
May-Jun-Jul Average Temperature Probability



May-Jun-Jul Total Precipitation Probability



U.S. Hazards Outlook



For More Information



Today's Presentation:

- <http://www.ncdc.noaa.gov/sotc/briefings>

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

U.S. Drought Monitor: <http://drought.gov>

Climate Portal: www.climate.gov

National Snow & Ice Data Center: <http://nsidc.org/arcticseaicenews/>

Media Contacts

- Brady.Phillips@noaa.gov, 202-407-1298 (NOAA/Comms)
- Katy.Vincent@noaa.gov, 828-257-3136 (NOAA/NCDC)