

ADEM Briefing

# *2014 Wildfire Season*



*Arizona State Forestry Division*

# *Briefing Topics*

- Fire Season Factors
- 2014 Wildfire Assessment
- Wildfire Resources
- Wildfire Mitigation



# *Factors affecting Fire Potential*

- Drought
- Fine Fuel Condition
- Seasonal Temperature and Precipitation
- Spring and Early Summer Weather
- Monsoon

## Fire Season 2014: Drought

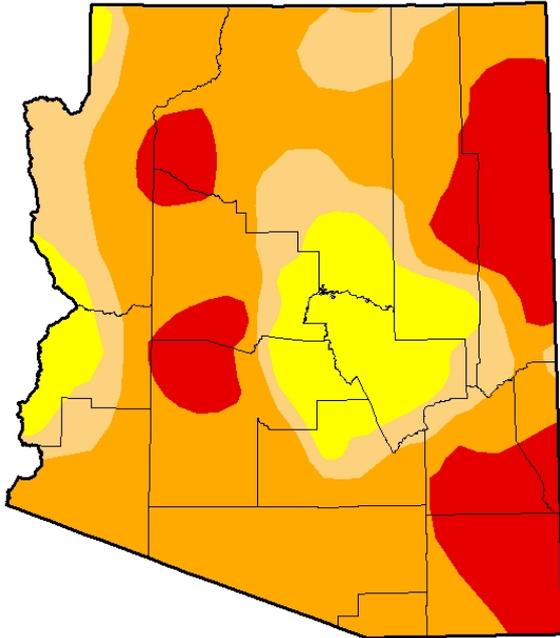
- Severe+ long term drought still ongoing across much of the region, despite some relief from a fairly robust monsoon
- Drought outlook calls for drought to persist, develop or worsen through the spring
- Long term drought impacts now semi-permanent in our outlook methodology
- Best we can hope for is temporary mitigation of drought impacts with any wetter periods
- “Increased severity & volatility during fire season”

# Drought

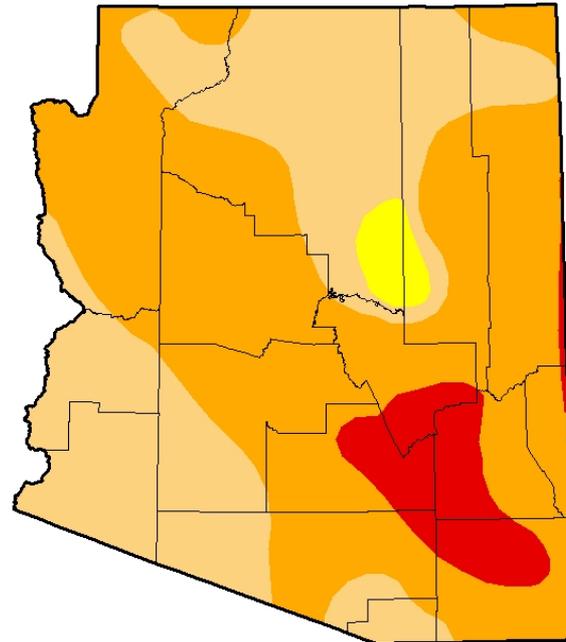
May 2013

May 2014

*U.S. Drought Monitor*  
**Arizona**



*U.S. Drought Monitor*  
**Arizona**



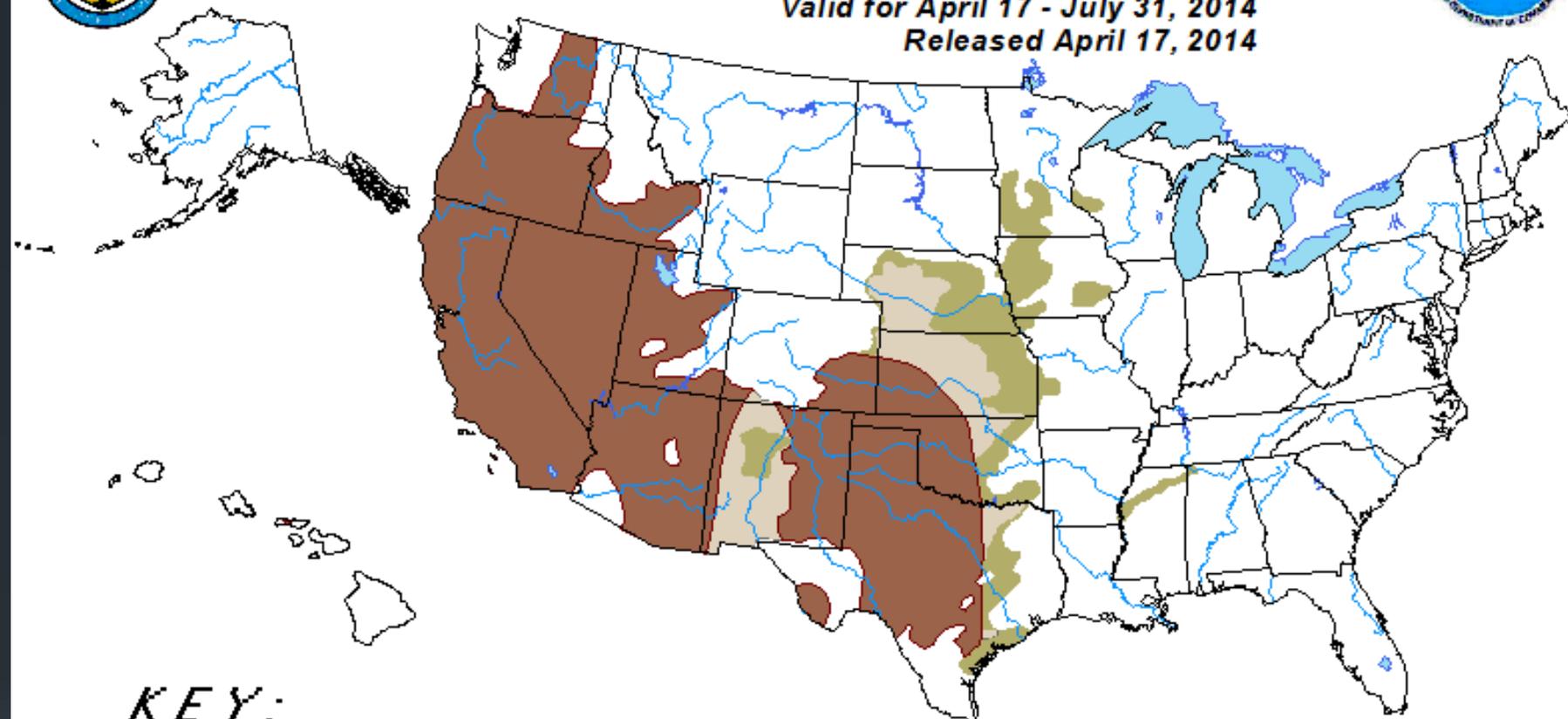


# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for April 17 - July 31, 2014

Released April 17, 2014



### KEY:



**Drought persists or intensifies**



**Drought remains but improves**



**Drought removal likely**



**Drought development likely**

**Author: Brad Pugh, Climate Prediction Center, NOAA**

[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/season\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html)

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 tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.

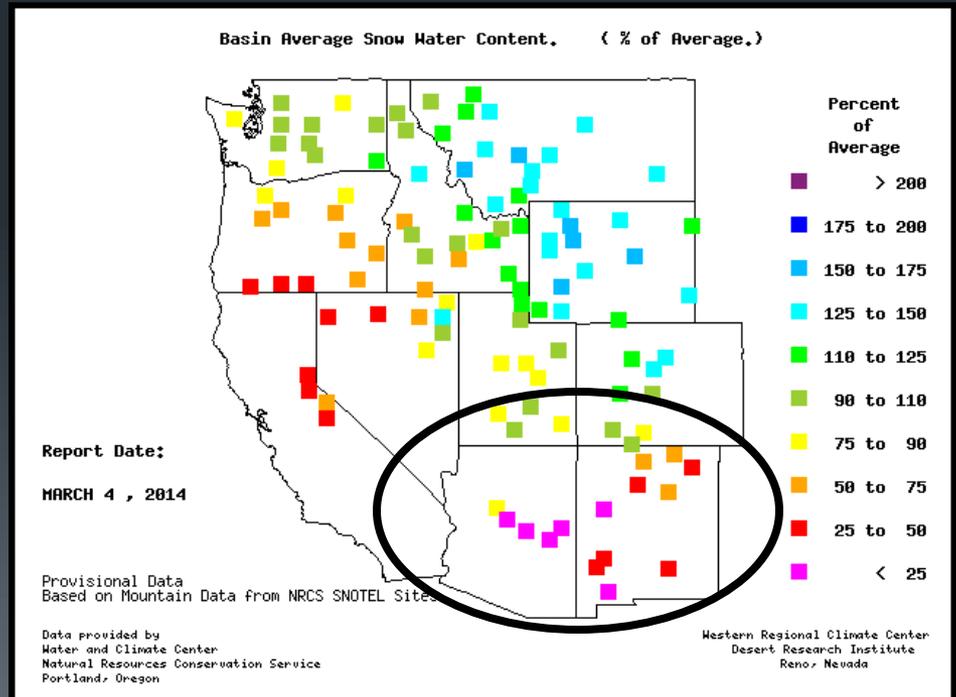
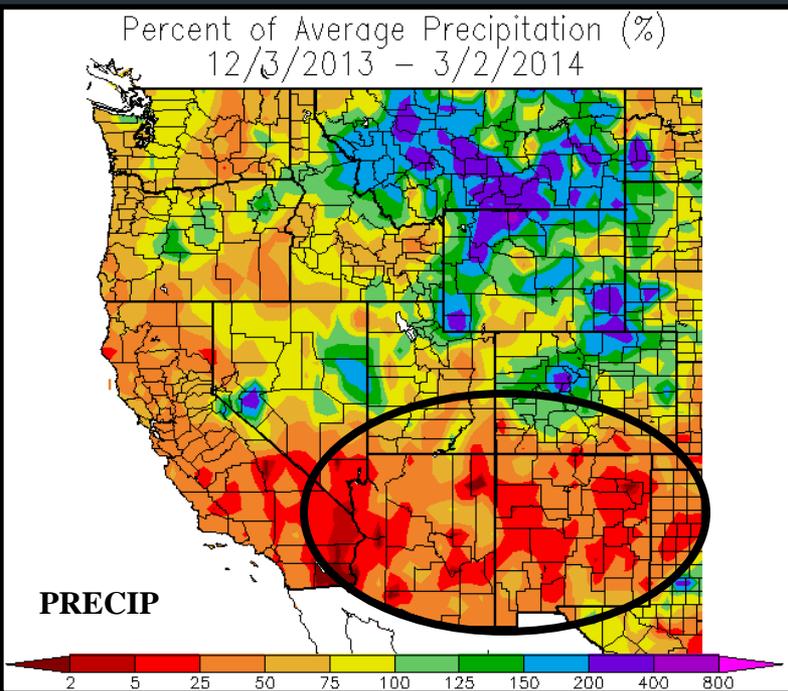
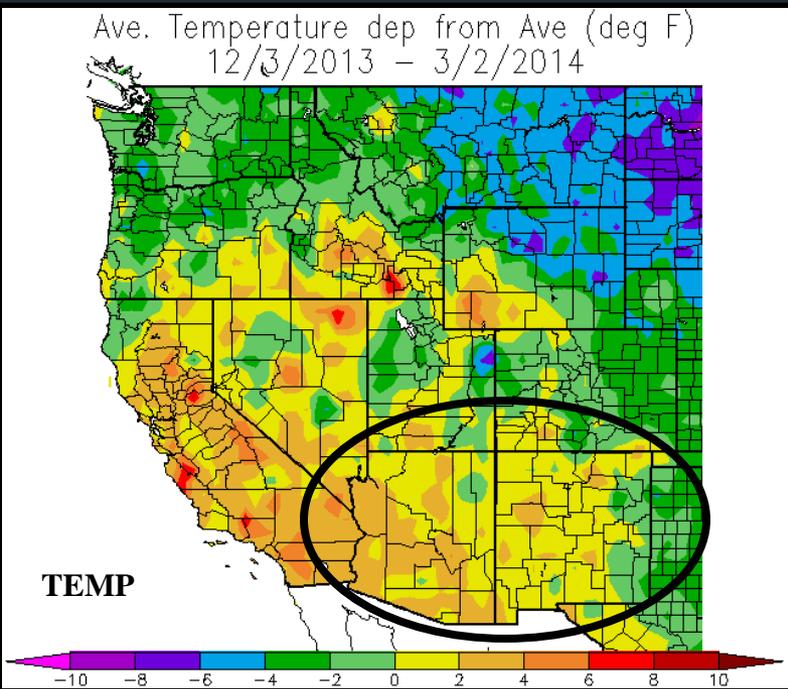
The Green areas imply drought removal by the end of the period (D0 or none)

# Fine Fuel Conditions

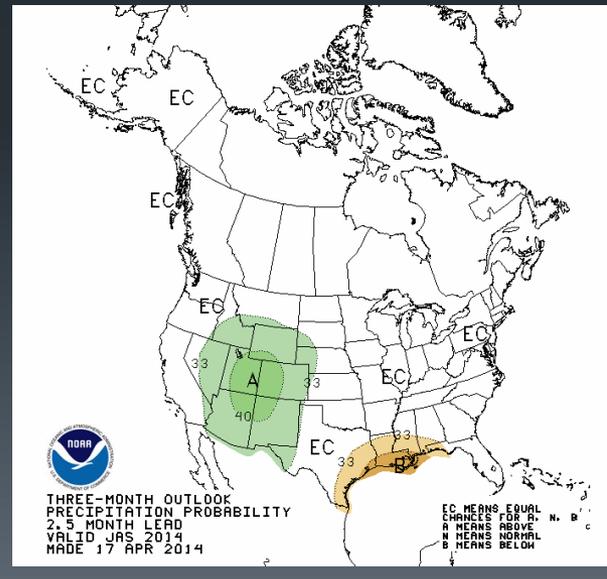
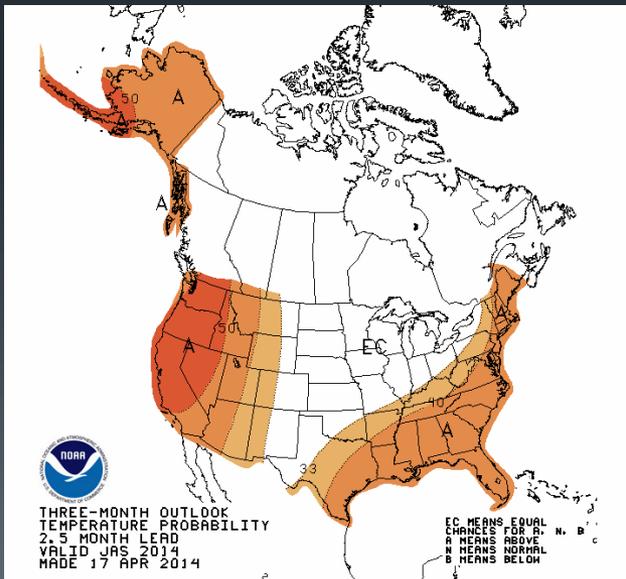
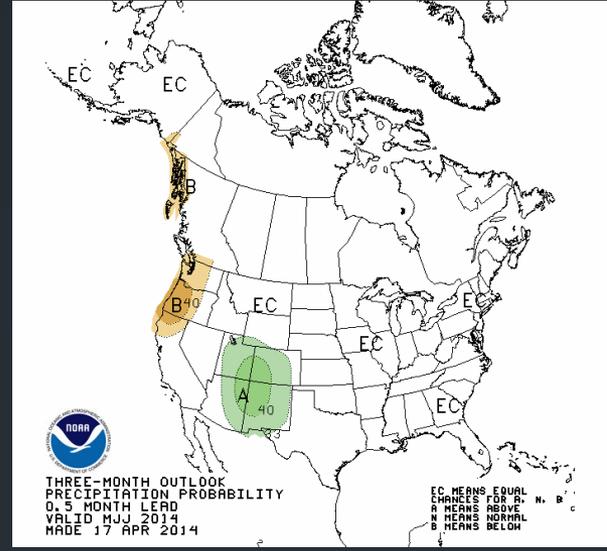
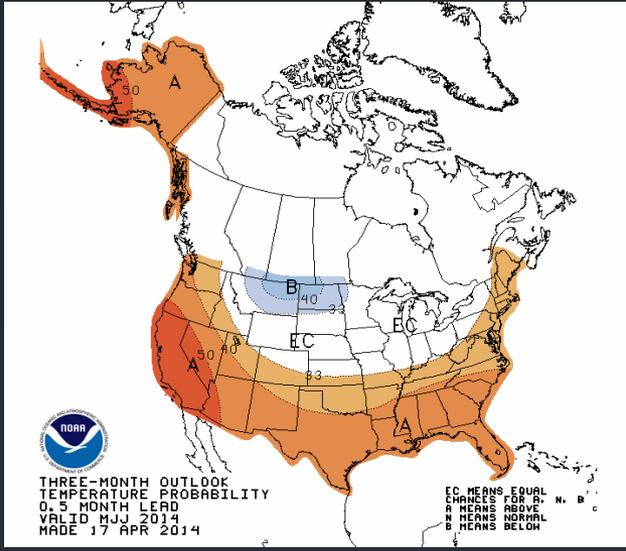
- Overall drought means not a lot of excessive, continuous fine fuels in general within the desert areas
- Non-desert areas have higher than normal fine fuel loads
- Dealing with areas of residual fine fuels from previous monsoon

# Fire Season 2014: DEC-FEB 2014 Temperature & Precipitation

- Dry, with warmth west and coolness east.
- Snowpack below normal.
- Ongoing dryness a likely contributor to the seasonal drought outlook shown previously.

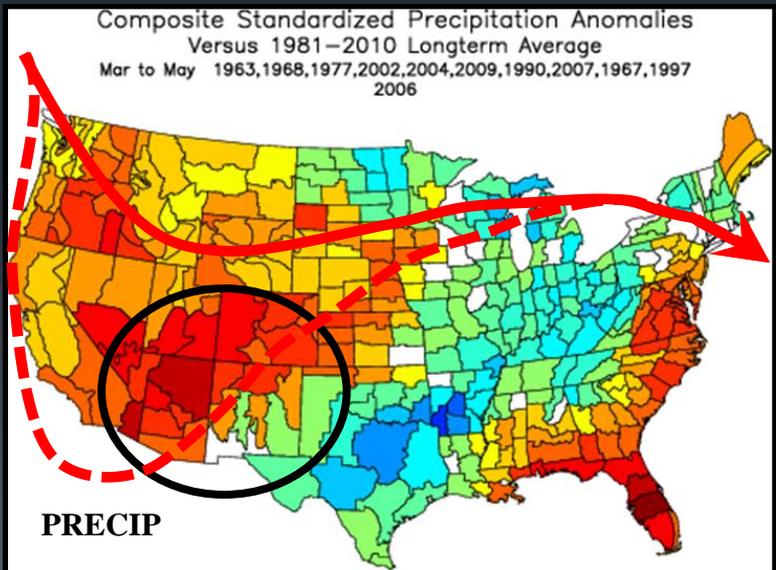
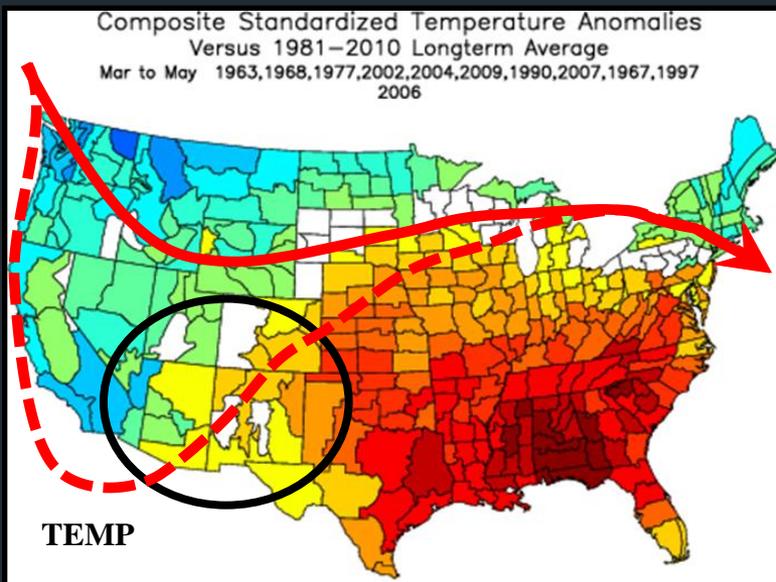


# Temperature and Precipitation 2014 Spring/Summer Forecast



# Fire Season 2014: MAR-MAY Temperature & Precipitation

- Storm track highly variable: Retreating towards the Canadian border over time, but still occasionally dropping into the southern U.S.
- May average out to warmer & drier than normal many areas, but tendency for cooler conditions far west and perhaps moisture intrusions into the east.
- Lack of clear alignment of warmth & dryness points to a mosaic of conditions



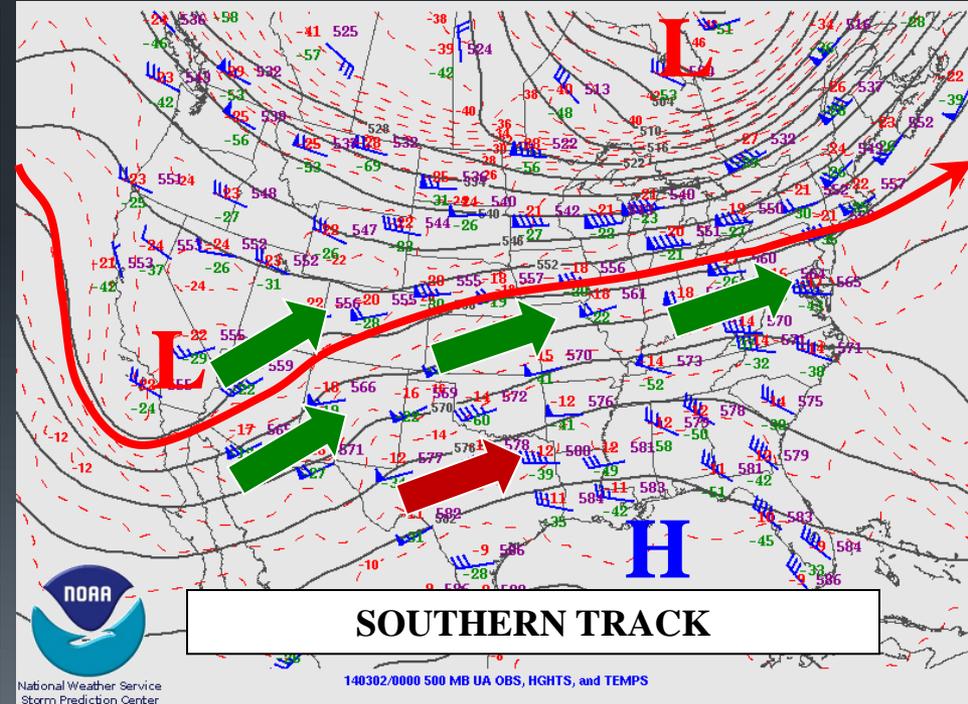
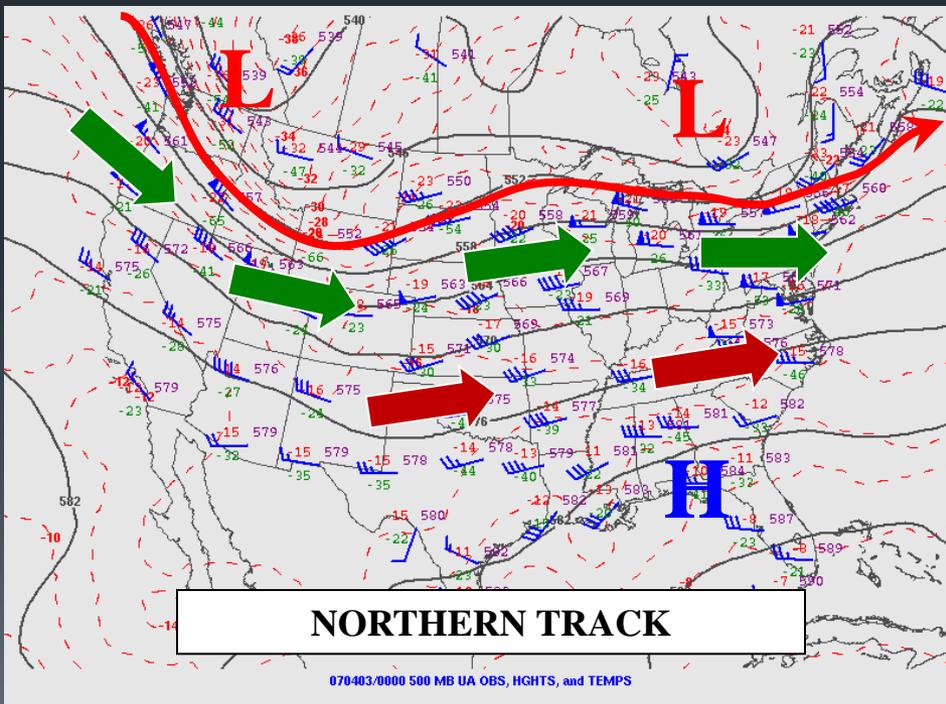
→ = General Storm Track

# Fire Season 2014: Spring & Early Summer Weather Pattern

- 'Feast or famine' storm track impacts on the Southwest Area
  - Northern Track: Dry, mild to warm, and breezy...with stronger winds north and east.
  - Southern Track: Variable clouds, increased moisture & precipitation chances, cooler...with periods of windy/dry conditions across the southeast half of the area.
- Variability, with lack of sustained critical fire weather conditions or patterns.

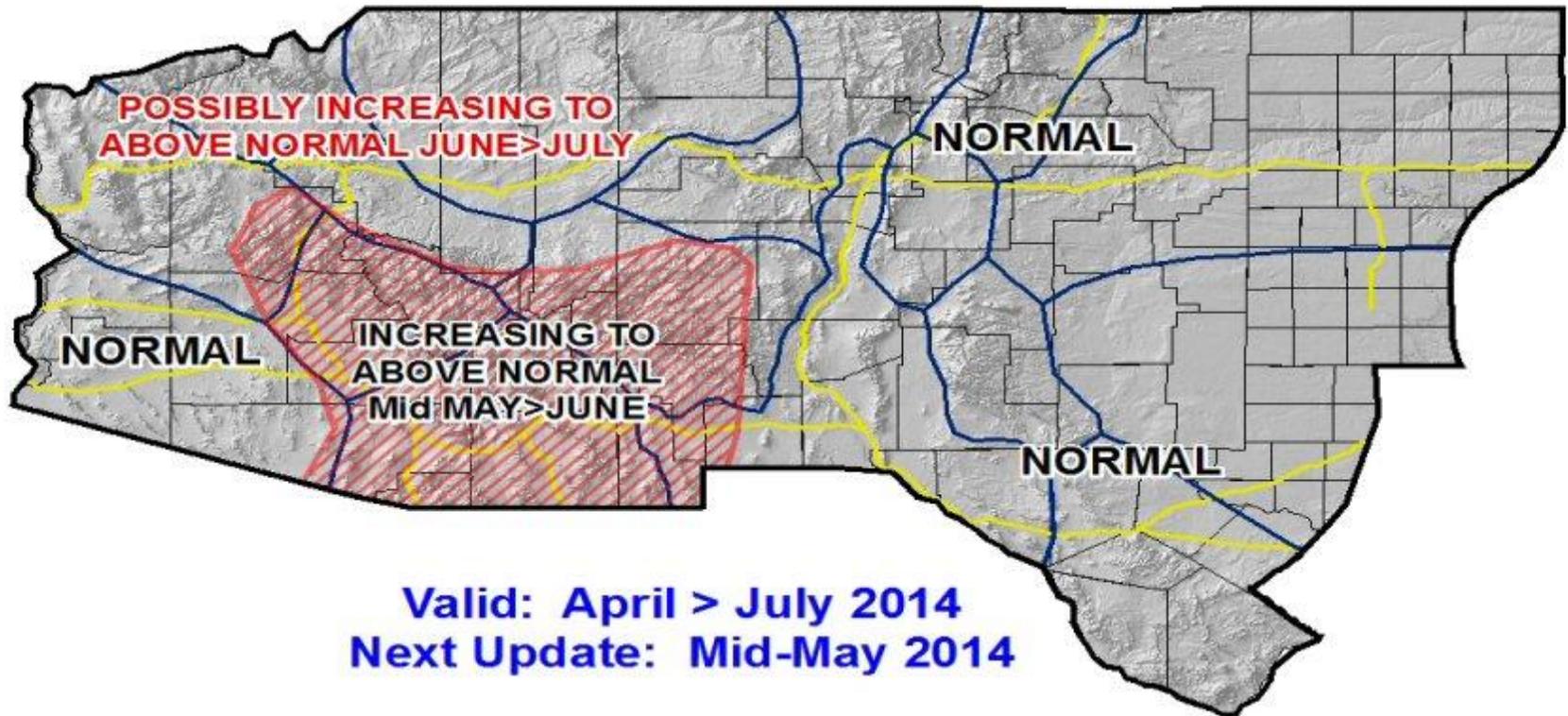
 = Windy/Dry Tendency

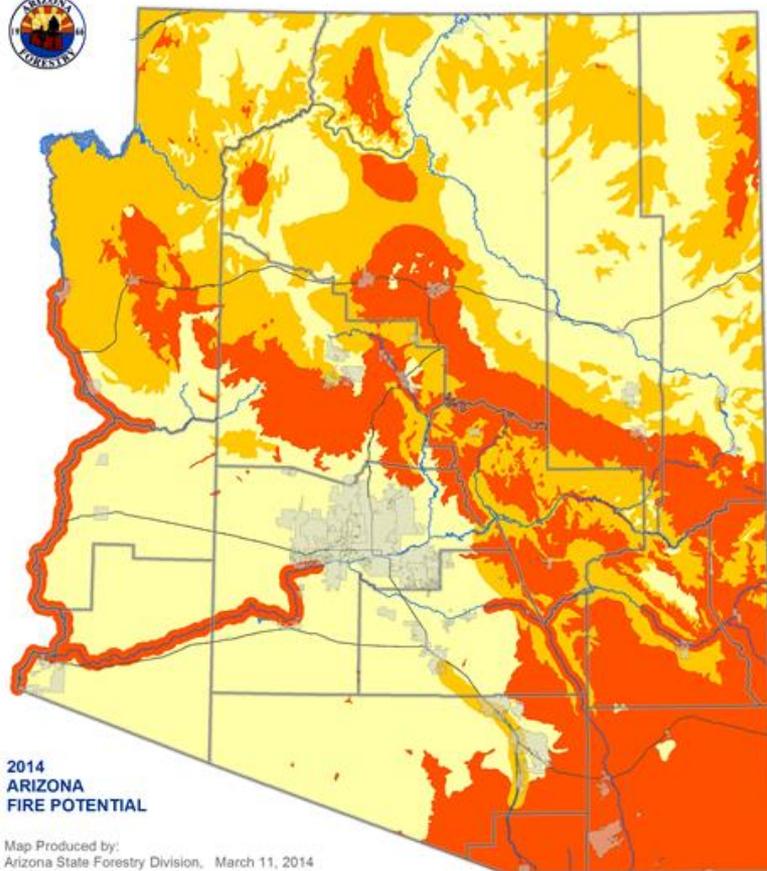
 = Moisture Transport Tendency



# Significant Fire Potential Outlook - Fire Season 2014

Updated: April 15, 2014

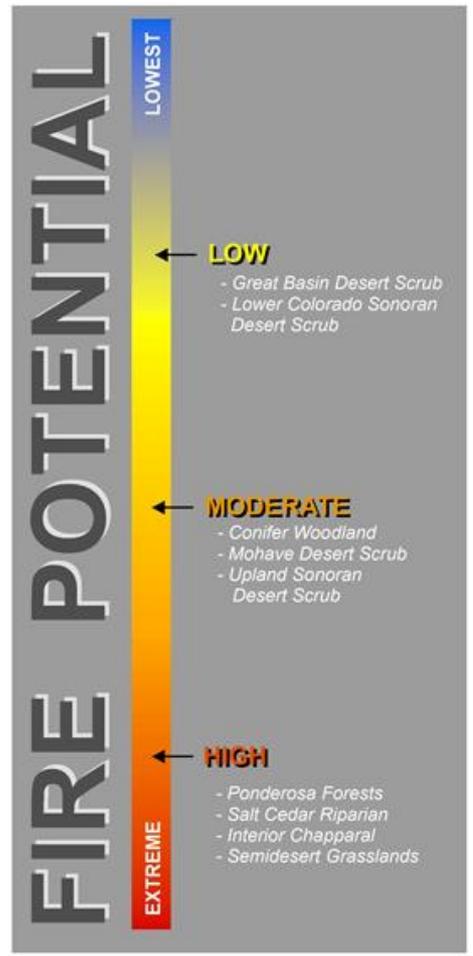
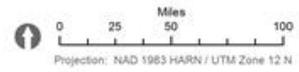




**2014  
ARIZONA  
FIRE POTENTIAL**

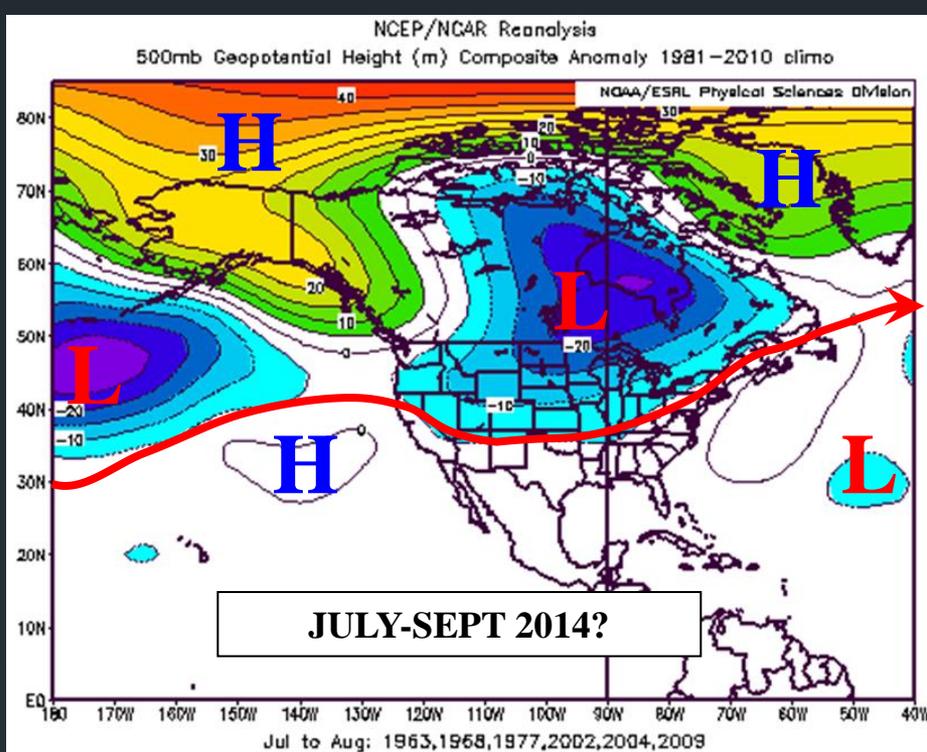
Map Produced by:  
Arizona State Forestry Division, March 11, 2014

Data Sources:  
- Basemap Data from Arizona Land Resource Information System (ALRIS)  
- General Fuel Types based on a summary of BLP codes developed by The Nature Conservancy in Arizona (Developed from Brown and Lowe's "Biotic Communities of the Southwest")  
- Supplemental Vegetation data and interpretation from Arizona State Forestry Division



This map is for informational purposes only and not intended as an authoritative document. The Arizona State Forestry Division makes no warranties, implied or expressed, with respect to information shown.

# Fire Season 2014: Monsoon



- Low confidence in this solution presently given distance in time and uncertainty of forcing factors (like El Niño/La Niña).
- *Trending* towards El Niño, which tends to lead to a weak monsoon system (note absence of ridge over/near Southwest)
- A pattern like this would favor rainfall east of mountain areas and cool/normal temps area-wide

# 2014 Fire Season Factors Summary

1. Drought – Redeveloping and/or worsening area-wide, with Severe+ widespread by the 2<sup>nd</sup> half of fire season. Increased severity & volatility overall, especially in heavier fuels with multi-year cumulative impacts.
2. Fine Fuels Condition – Normal to above normal loading and continuity overall. Mosaic of green-up will be a complicating factor.
3. Seasonal Temperature & Precipitation – Averaging out warmer & drier than normal most areas, but with significant variability through spring.
4. Spring & early Summer Weather Pattern – Pattern supports swapping periodically between *warm, dry, less windy than usual* and *cooler, more humid with some precipitation*. Distinct lack of focused critical fire weather patterns or conditions. (Likely focused SE half of area when they occur).
5. Monsoon – Trending potentially cooler/drier than normal, but still huge uncertainty (dependence on spring conditions as well)



# 2014 Fire Season Potential Summary

- Most all of the factors **up until recently** have pointed to above normal fire season potential and a potentially earlier onset area-wide.
  - Plenty of fine fuels across the region to facilitate fire ignition and spread, and spring green-up could be weak and/or short.
  - Drought to redevelop and worsen...persisting & worsening impacts which are already outside the historical frame of reference for the Southwest. Erratic and extreme fire behavior potential will need to be considered as a given in heavier brush & timber fuels, and at higher elevations than typical.
  - After a warm/dry winter & early spring, persistently warm, dry & breezy to windy conditions are expected going into fire season.
- **HOWEVER...the recent flip in solutions towards much less severe spring/early summer conditions presents significant complication!**
- **Unsure at this time where to focus any Above Normal, except southern/eastern lowlands until the spring pattern emerges.**



# 2014 Fire Season Potential Summary



- This overall scenario could play out in two main modes:
- Spring moisture variability could be similar to 2012/2013, when otherwise across the board severe conditions were mitigated by light/moderate moisture until mid-late MAY. Think 2012 or 2013, but with the fine fuels component that was absent those years.
- Spring moisture variability could be more like 2009, when we had “monsoon in MAY” and a meager overall large fire season.
- DUE TO LONG TERM DROUGHT: WATCH FOR RAPID DRYING AFTER ANY MOISTURE IMPACTS...OUTSIDE OUR TYPICAL HISTORIC FRAME OF REFERENCE.

# Flagstaff District Mohave County

18



# Flagstaff District Coconino County

19



- 11<sup>th</sup> driest winter on record with little to no snowpack in the higher elevations



# Flagstaff District

## Apache and Navajo Counties



# Phoenix District

- Area of concern is the brush belt between 3000 and 5000 ft.
- Some grass production in the desert areas
- Riparian areas a concern (ex. Salt and Gila River corridors)
- Continuous fine fuel production in the foothills

03/14/2013

New River Road

03/07/2014



# Tucson District

- Concern in the Mesquite and Oak woodlands
- Fine Fuel growth in the 3000 to 6500 ft elevation band
- Desert Fuels are sparse
- Heavier fuels and Live Fuels are Drought Stressed

Cody Loop in Oracle looking northeast 4800 foot elevation.



Texas Canyon, elevation 4400 feet, tall grass fuels





Questions?