National Weather Service Medford

May 2017 Climate Summary

*These data are preliminary and have not undergone final QC by NCEI. Therefore, these data are subject to revision. Final and certified climate data can be accessed at the National Centers for Environmental Information (NCEI).

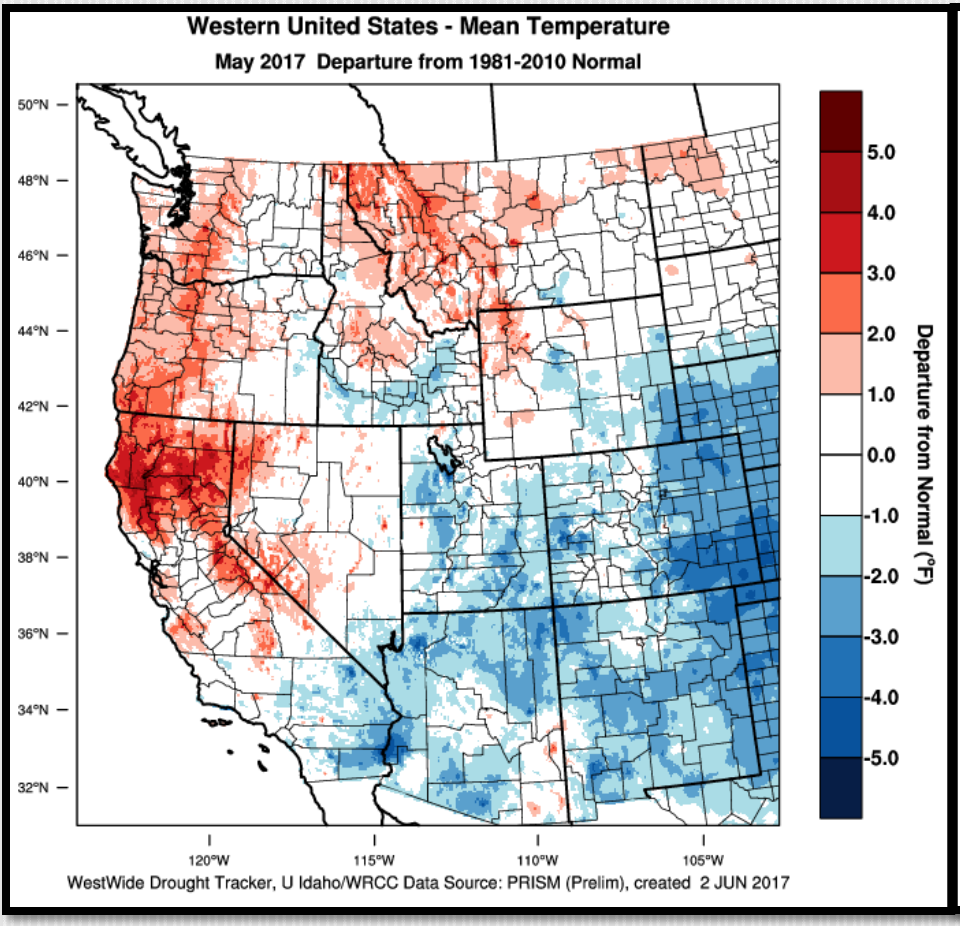
May 2017 Weather Review

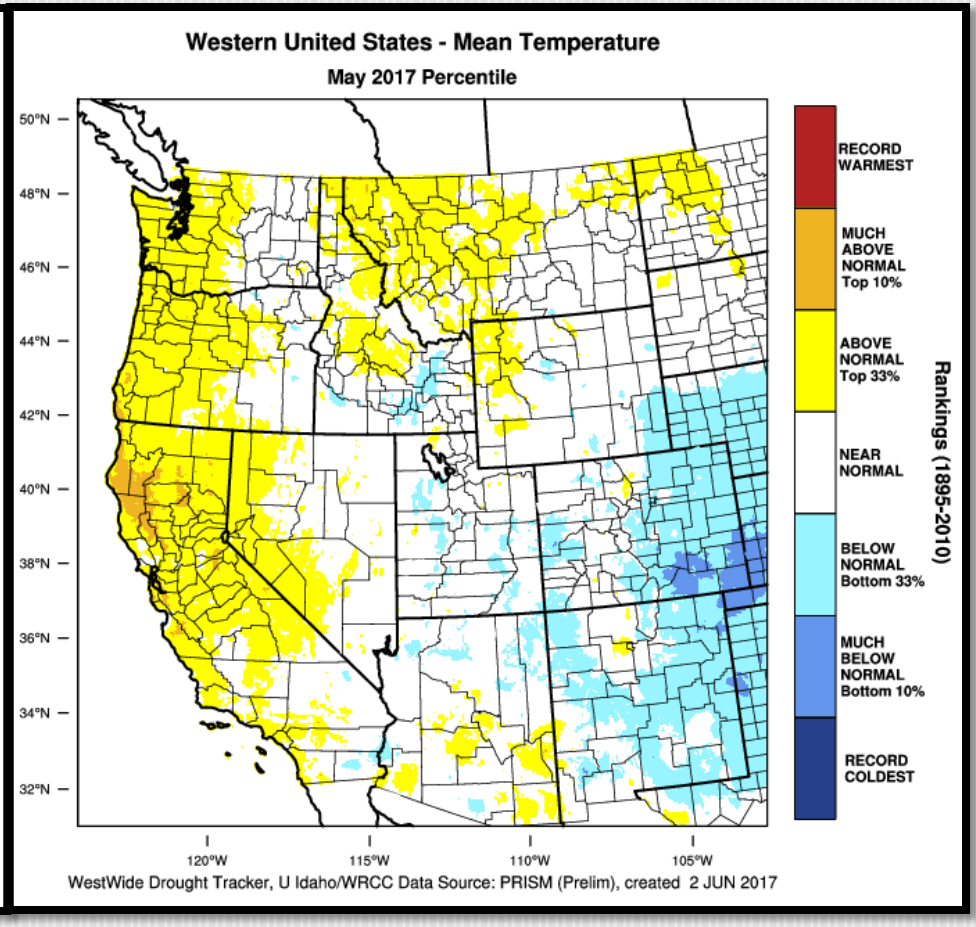
Spring-like weather continued during May 2017, with the typical swings between hot, dry weather to cooler weather with some rain. Aside from locations north of the Umpqua Divide and along the coast, the majority of the forecast area finished the month with below average precipitation, continuing the drying trend that began in April.

The month began with near normal temperatures before quickly rising under high pressure on the 3rd. Many locations saw the warmest temperatures of the year so far on this day. On May 4th, a trough progressing inland helped trigger widespread thunderstorms. Many of these thunderstorms became severe with multiple warnings issued, including two tornado warnings! These were the first tornado warnings issued since 2005 and were only the second and third ever issued for this office! The tornado warnings were issued based on radar signatures over northeastern Jackson and western Klamath Counties, in the Prospect/Crater Lake area. Although a few people reported a funnel cloud sighting, the office was unable to obtain any verification of a tornado touching the ground either through spotter reports, likely due to the remoteness of the location, or through an aerial damage survey.

After a very exciting first week of May, the weather pattern became a cool, showery pattern for roughly two weeks. Afterwards, another high pressure settled over the area, and high temperatures quickly rose, surpassing the high temperatures experienced during the beginning of the month. On Memorial Day, another round of thunderstorms moved through the area, although none were severe like those during the first week of the month. The unsettled weather continued into the beginning of June.

May 2017 *Observed Temperatures*





Average Temperatures

	Average (°F)	Departure from Normal	Average Max (°F)	Departure from Normal	Average Min (°F)	Departure from Normal
North Bend	54.4	+1.5°	60.5	+1.6°	48.4	+1.4°
Roseburg	61.3	+2.8°	74.1	+4.2°	48.5	+1.3°
Medford	63.3	+3.5°	78.4	+5.1°	48.3	+2.1°
Klamath Falls	53.3	+2.4°	70.2	+4.9°	36.4	-0.2°
Montague, CA	57.1	+1.0°	75.3	+3.6°	38.8	-1.6°
Mt. Shasta City, CA	57.6	+3.2°	73.5	+4.4°	41.7	+2.0°
Alturas, CA	54.3	+2.6°	71.8	+4.0°	36.8	+1.2°

Monthly Max & Min Temperatures

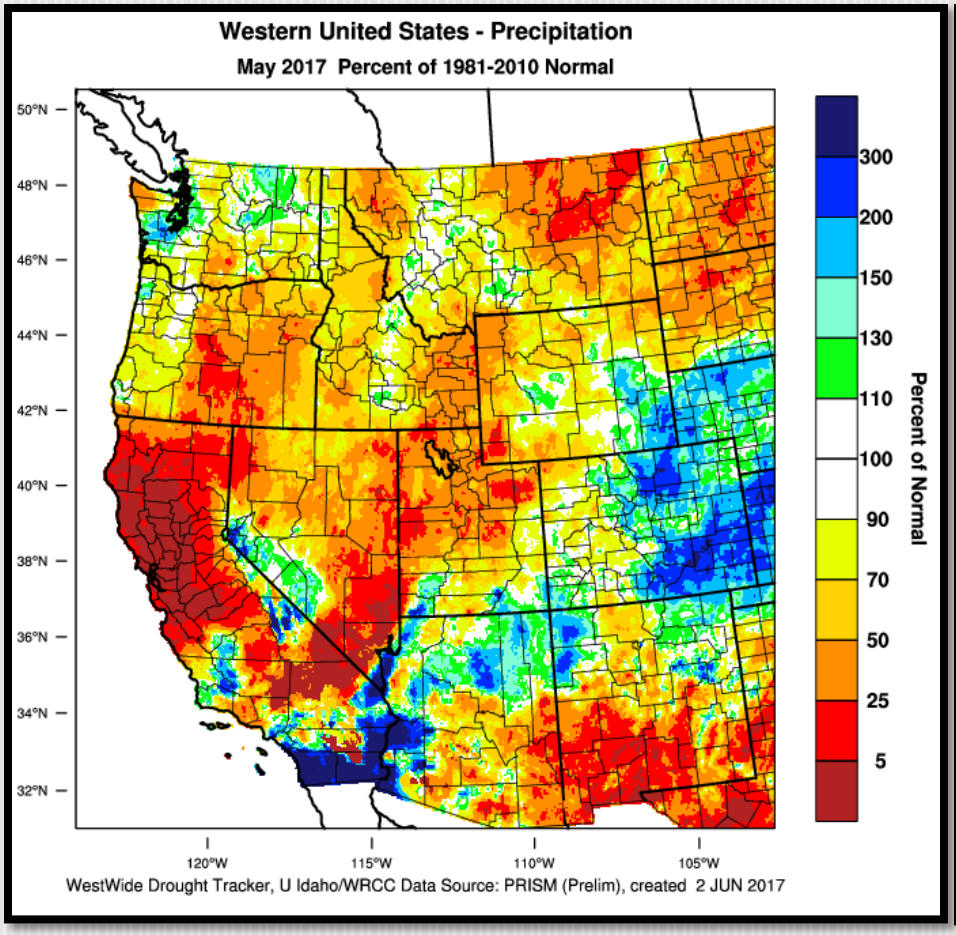
	Max (°F)	Date(s)	Min (°F)	Date(s)
North Bend	75°	22nd	41°	1st & 8th
Roseburg	94°	22nd	40°	7th
Medford	97°	22nd	35°	7th
Klamath Falls	86°	23rd	22°	14th
Montague, CA	93°	23rd & 29th	29°	17th
Mt. Shasta City, CA	92°	23rd	31°	13th
Alturas, CA	88°	23rd	25°	14th

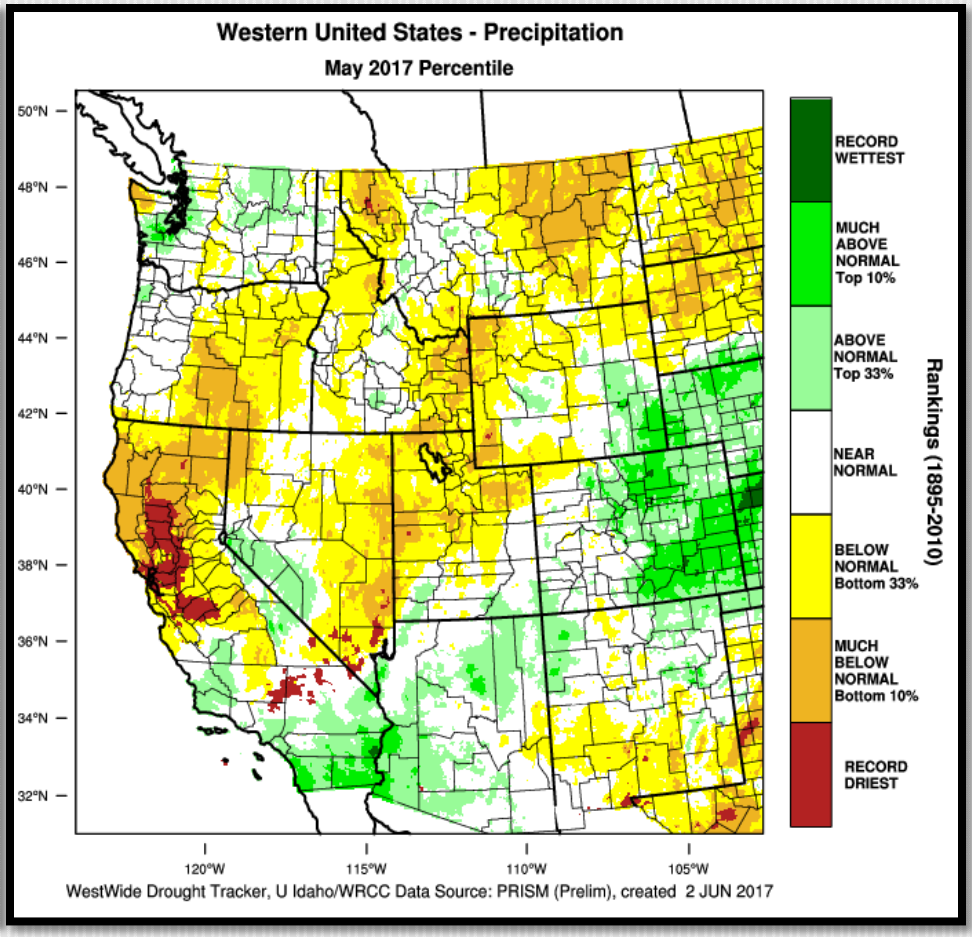
Record Temperatures

	Record High / Date	Old Record/Year
Roseburg	90° / 27th	Ties with 2005
Medford	96° / 23rd	95° / 2001
Mt Shasta City	85° / 3rd	83° / 2004
Mt Shasta City	92° / 23rd	90° / 2003

	Record Low / Date	Old Record/Year
Klamath Falls	22° / 14th	26° / 1999
Montague	29° / 17th	Ties with 1974
Montague	30° / 18th	Ties with 1959

May 2017 *Observed Precipitation*



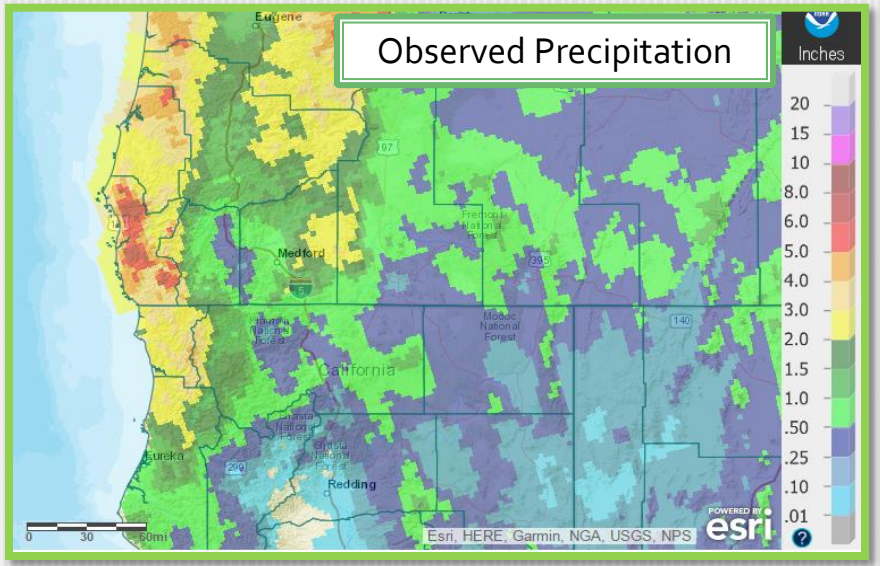


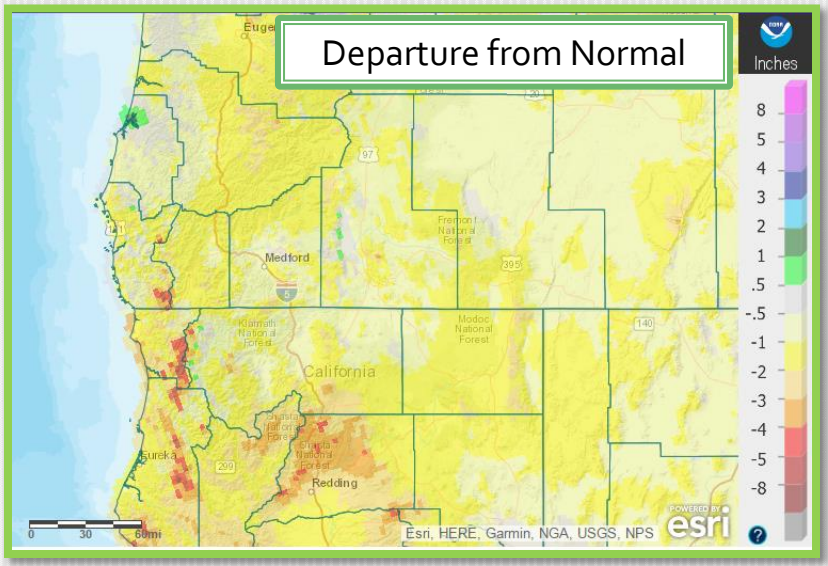
May Precipitation

	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	4.62"	+1.23	1.11"	13th
Roseburg	1.14"	-1.13	0.27"	16th
Medford	0.58"	-0.73	0.37"	16th
Klamath Falls	0.29"	-1.09	0.19"	31st
Montague, CA	0.56"	-0.86	0.18"	11th
Mt. Shasta City, CA	0.46"	-1.76	0.29"	31st
Alturas, CA	0.19"	-1.17	0.19"	16th

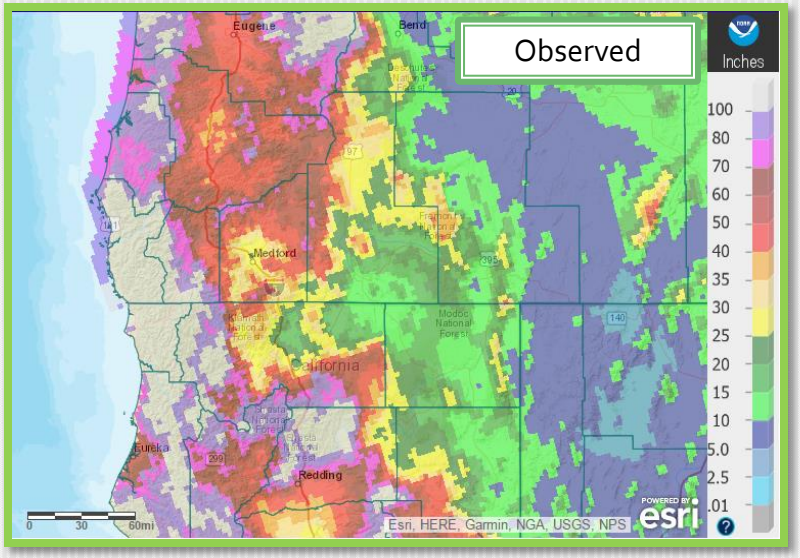
Record Daily Precipitation

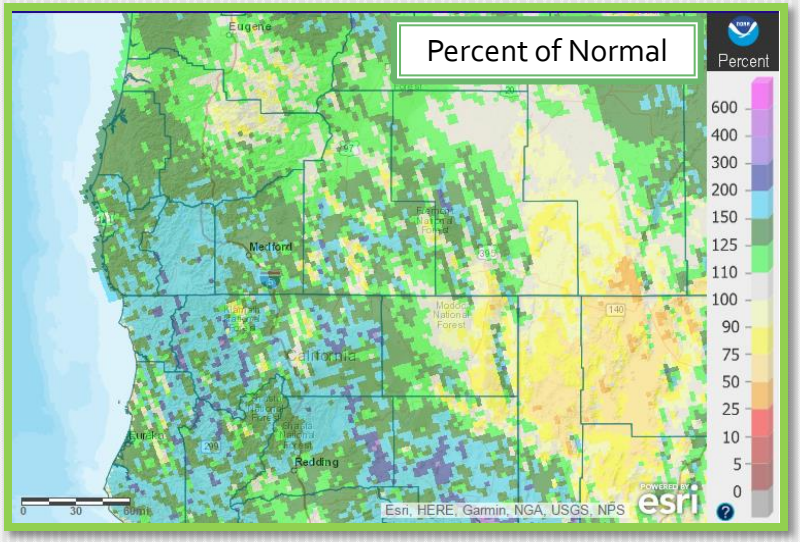
	New Record	Date	Old Record	Year
North Bend	1.11"	13th	0.96"	1945
North Bend	1.00"	16th	0.82"	1948





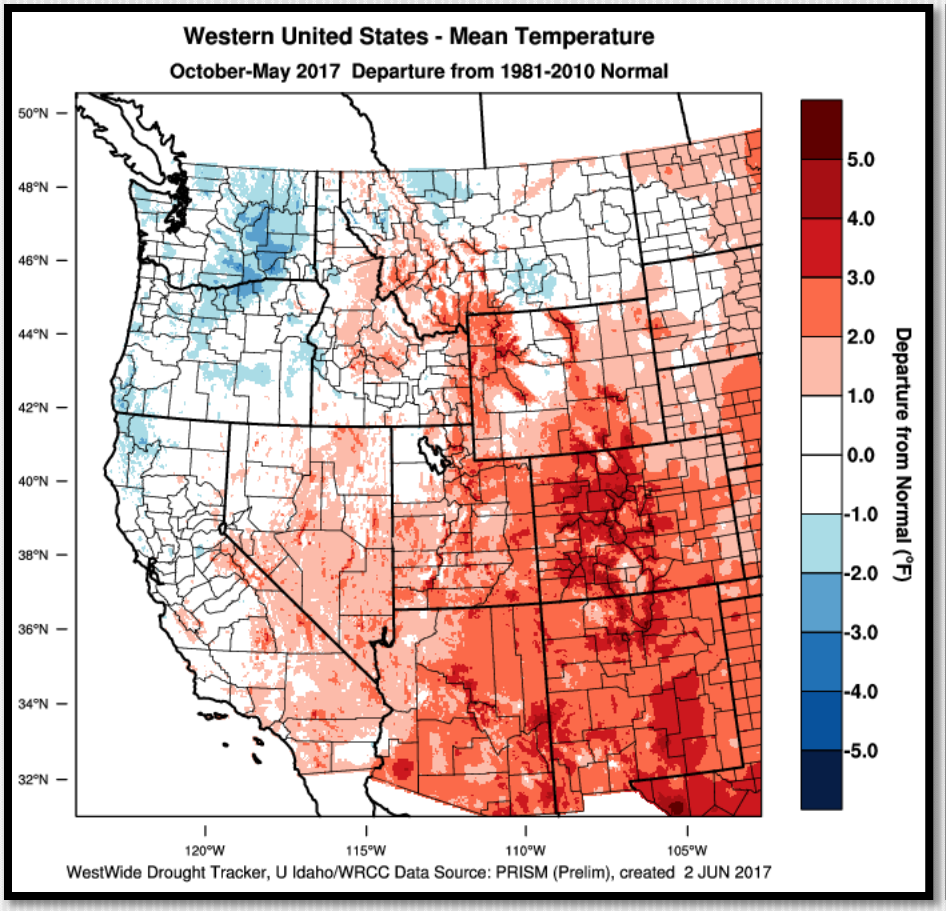
Record Wet Season (Oct 1st – May 31st)

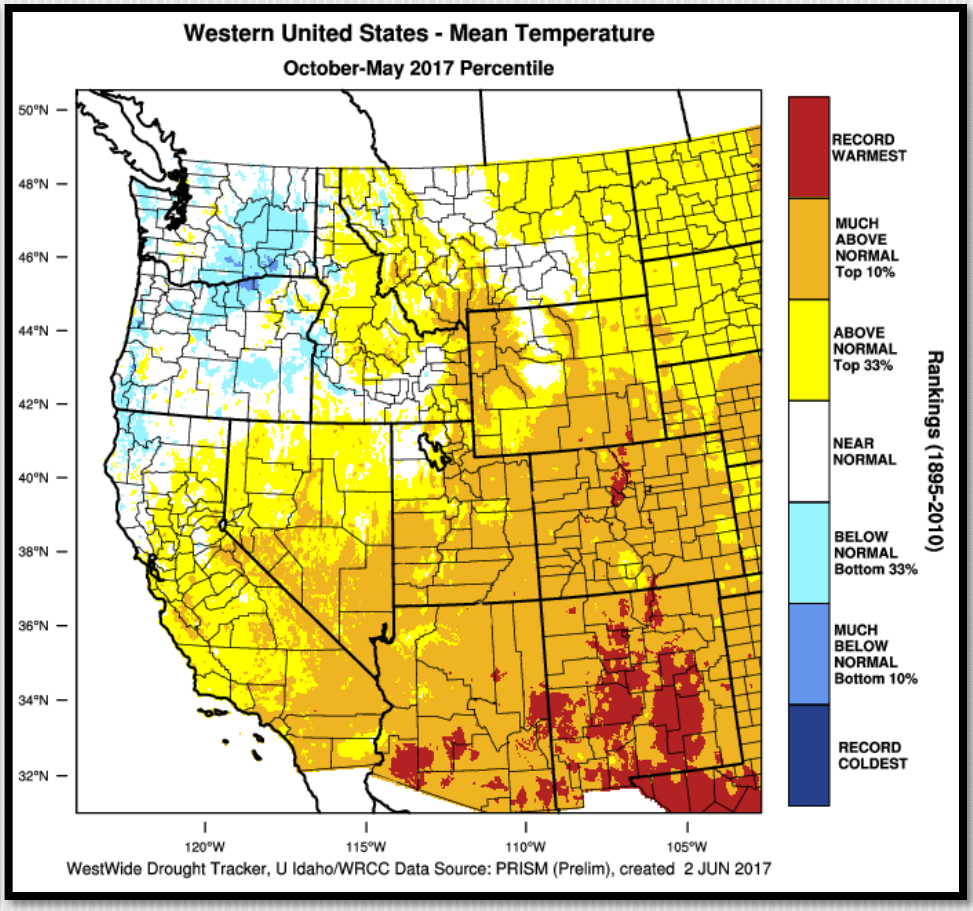




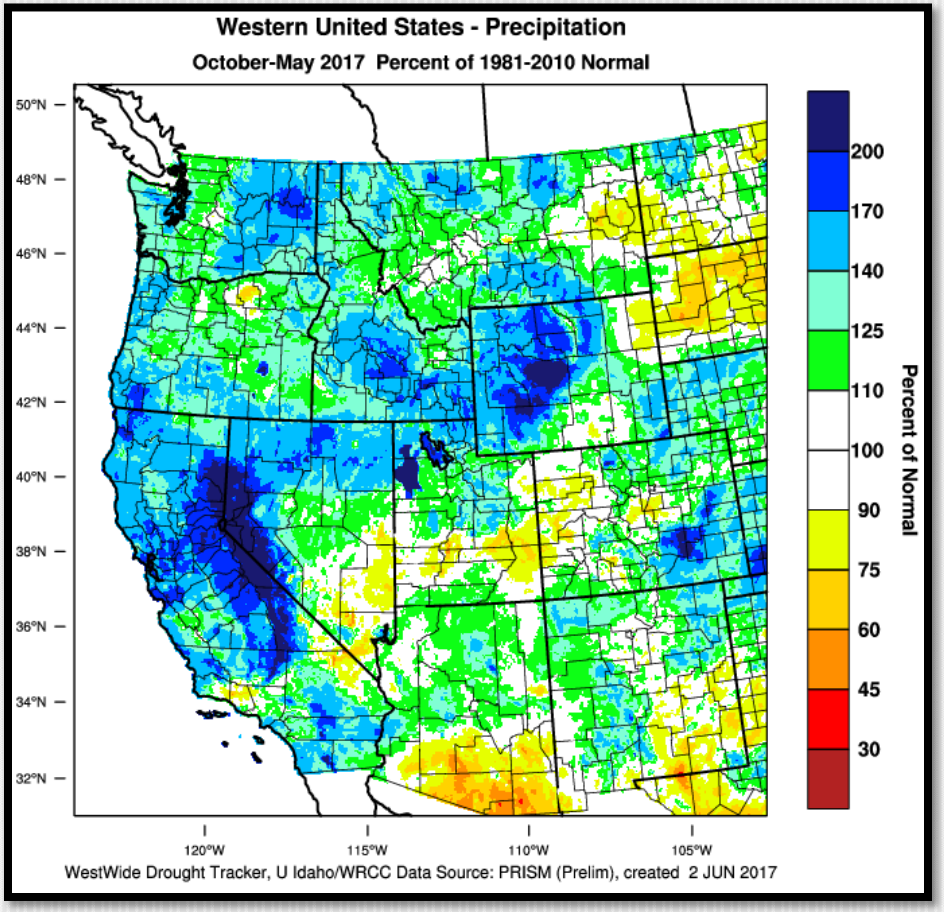
Year to Date: 10/1/2016 – 5/31/2017	Rank	Value	Normal	First Place	Value
North Bend	7th	78.97"	*60.26"*	1994-1995	83.63"
Roseburg	4th	41.55"	*33.28"*	1955-1956	47.66"
Medford	10th	24.27"	*16.48"*	1955-1956	31.77"
Klamath Falls	16th	10.97"	*12.48"*	2005-2006	15.76"
Montague	2nd	15.46"	*16.33"*	2005-2006	18.75"
Mt Shasta City	3rd	58.40"	*40.61"*	1982-1983	63.79"
Alturas	2nd	13.12"	*12.05"*	2010-2011	13.21"

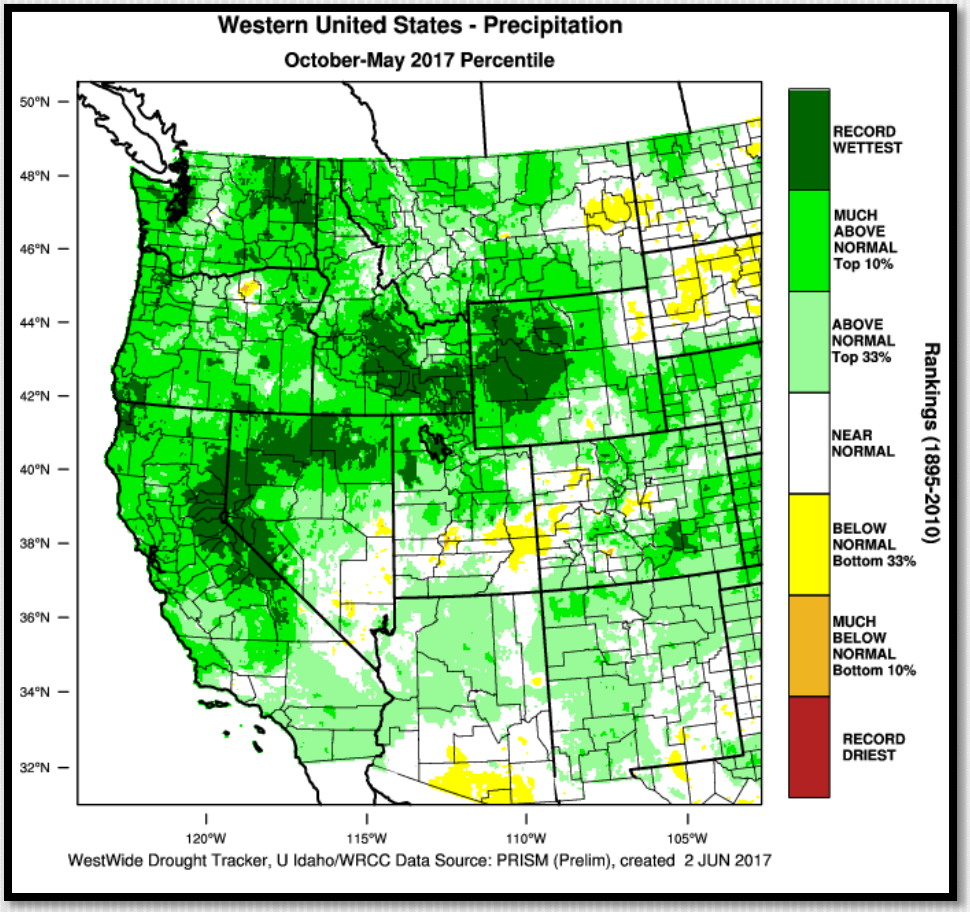
Water Year to Date – Regional Temperatures





Water Year to Date – Regional Precipitation

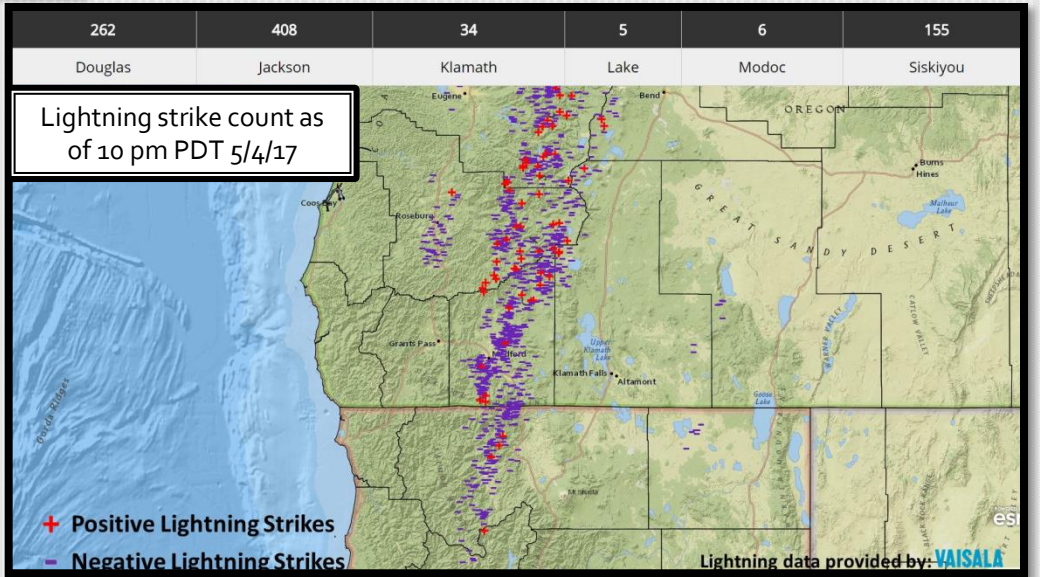




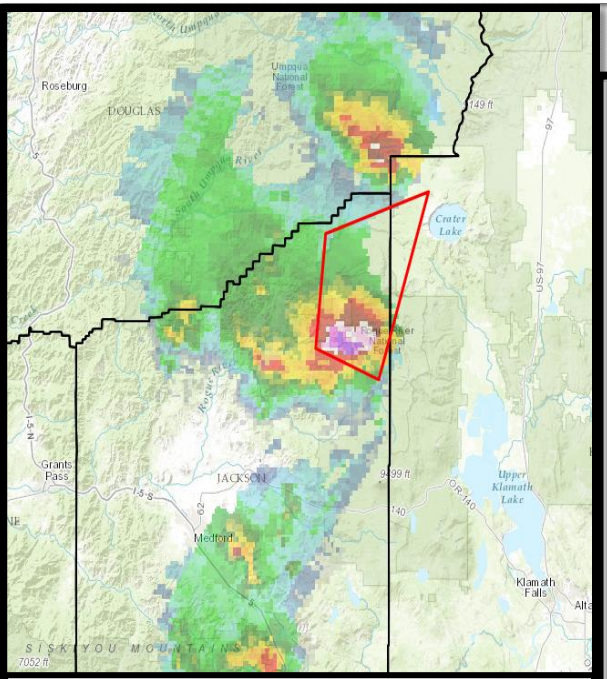
May 4th Severe Weather

Thunderstorm on May 4th taken at the Medford WFO, looking NE towards Eagle Point

Upper level flow ahead of an approaching system, ushered in a moist, unstable air mass over the area. This brought the ingredients necessary for thunderstorms to develop and disturbances in the atmosphere ahead of this system acted as the trigger to set off the instability. The result was an outbreak of thunderstorms over southwestern Oregon and northern California. Several storms became severe, and one storm cell even prompted the second Tornado Warning ever issued by the Medford weather forecast office, and what would have been the first tornado recorded in Jackson County, Oregon. Unfortunately, many of these storms occurred over the wilderness along the western foothills of the Cascades and western Siskiyou County, making it difficult to verify warnings that were issued.

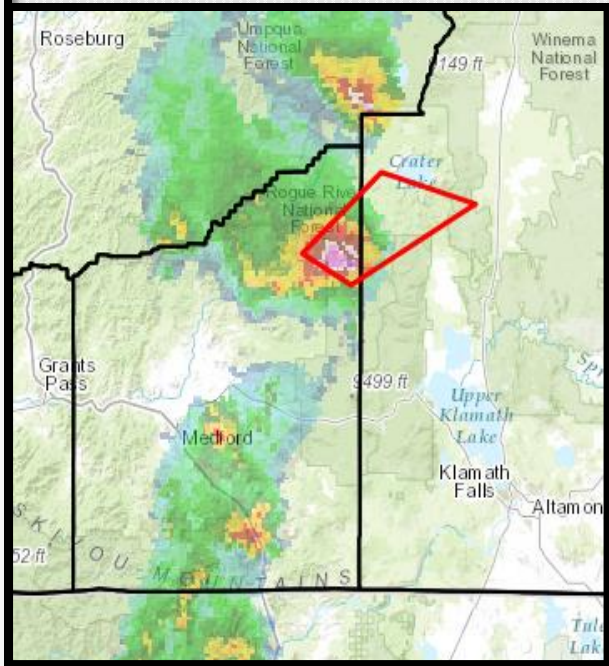


WFO Medford issues 1st Tornado Warnings since 2005



Radar and Tornado Warning Polygon @ 7:31 pm 5/4/17. Image courtesy of Iowa State.

```
WFUS56 KMFR 050231
TORMFR
ORC029-035-050245-
/O.NEW.KMFR.TO.W.0001.170505T0231Z-170505T0245Z/

BULLETIN - EAS ACTIVATION REQUESTED
Tornado Warning
National Weather Service Medford OR
731 PM PDT THU MAY 4 2017

The National Weather Service in Medford has issued a

* Tornado Warning for...
  Northeastern Jackson County in southwestern Oregon...
  West central Klamath County in south central Oregon...

* Until 745 PM PDT

* At 731 PM PDT, a severe thunderstorm capable of producing a tornado
  was located near Prospect, or 17 miles southwest of Crater Lake,
  moving north at 55 mph.

  HAZARD...Tornado and golf ball size hail.

  SOURCE...Radar indicated rotation.

  IMPACT...Flying debris will be dangerous to those caught without
           shelter. Mobile homes will be damaged or destroyed.
           Damage to roofs, windows, and vehicles will occur.  Tree
           damage is likely.

* This dangerous storm will be near...
  Natural Bridge Campground around 740 PM PDT.
  Thousand Springs Sno-Park, Rogue Gorge and Union Creek around 745
  PM PDT.

* This includes the following highways...
   Highway 230 in Oregon near mile marker 1.
   Highway 62 in Oregon between mile markers 44 and 69.
```



Radar and Tornado Warning Polygon @ 7:40 pm 5/4/17. Image courtesy of Iowa State.

Damage Survey Results

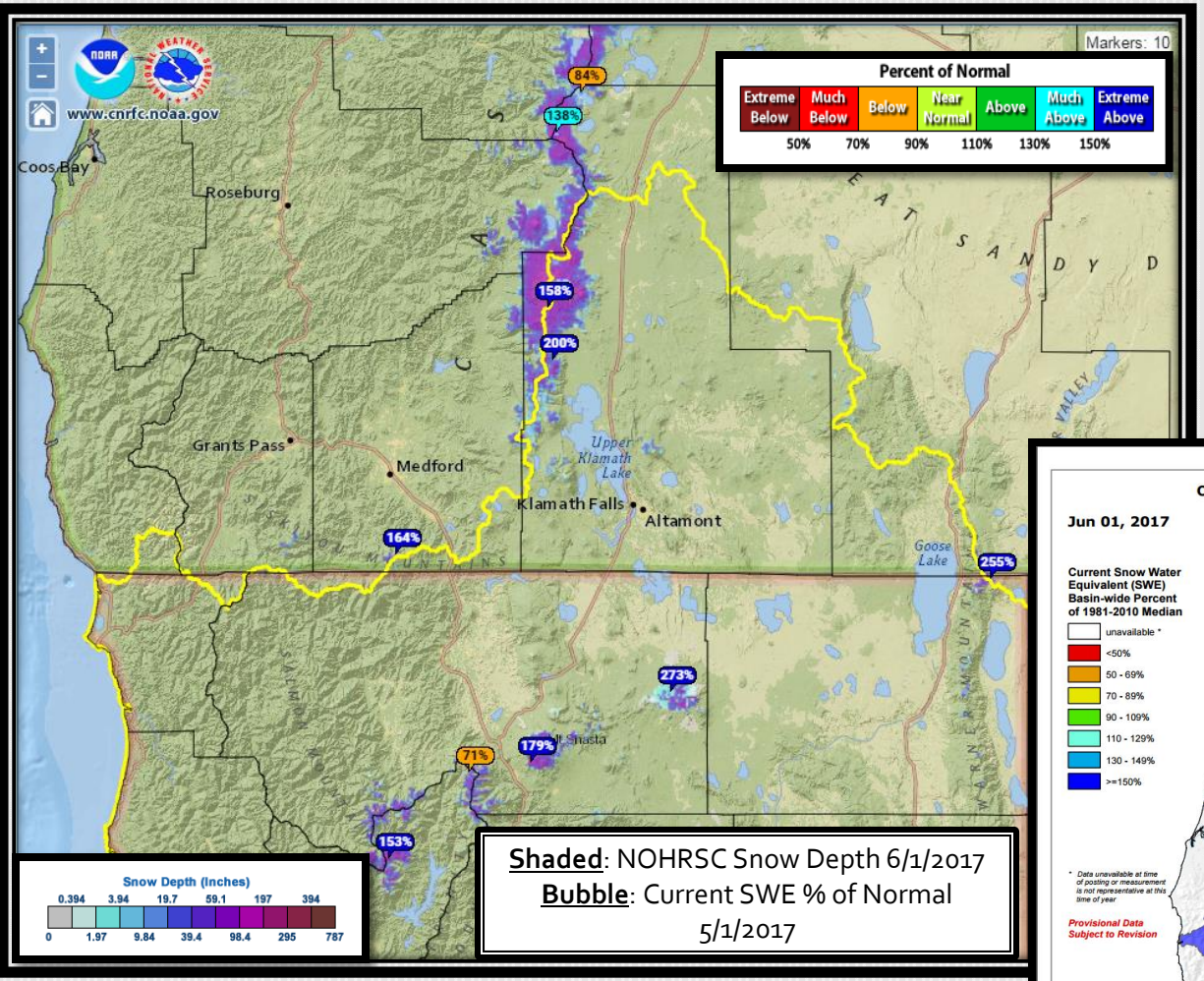
Hailstones and their craters within the snowpack

With no spotters and very few people in the area to confirm the warnings, meteorologist Brian Nieuwenhuis and hydrologist Spencer Higginson set out on a damage survey to gain some ground truth. Limited by the wilderness, lack of roads, and deep snowpack, they were unable to make their way to the suspected tornado's path. However, the did find a curious phenomenon. Hail stones had embedded themselves into the snow the previous evening, where they were insulated from most of the effects of heavy rain and above-freezing temperatures. The hail had formed little craters, and, while rain and warm ambient air had melted away the exposed half of the stones, near perfect hemispheres were preserved for almost a full 24 hours before being found. Not only were the interior rings of the hailstones easily seen, they could also be measured to confirm the Severe Thunderstorm Warnings. The largest hail stone found in the snowbanks was just under 1 ¾ inches, but most were between 1 and 1 ½ inches. While the snow possibly prevented the confirmation of a tornado, it did provide the means to measure the size of the hail across an unpopulated area, and thereby confirm several Severe Thunderstorm Warnings.

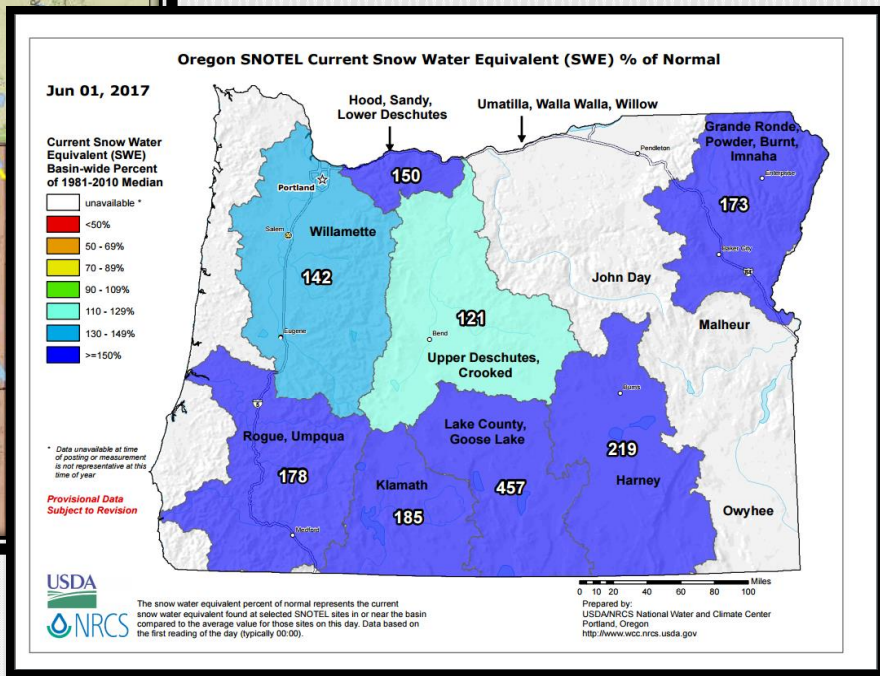
On the other hand, meteorologists were unable to verify the Tornado Warnings. In an attempt to bypass the snowbound roads, meteorologist Marc Spilde and Ryan Sandler (WCM) performed an aerial helicopter damage survey on May 9th, primarily looking for tornado damage. The Jackson County Sheriff's department provided this opportunity through Brim Aviation. After transecting the area of interest for over an hour, there was no obvious recent tree-top damage or downed trees observed, which are common indicators of a tornado touchdown in wilderness areas.

Left: Approximate path (blue line) of survey flight to search for tornado damage.
Right: Meteorologist Marc Spilde (left), WCM Ryan Sandler (right), and Ryan with Brim Aviation (center) just before flight.

Snowpack Status



Shaded: NOHRSC Snow Depth 6/1/2017
Bubble: Current SWE % of Normal 5/1/2017



Crater Lake

Image Courtesy: NPS

	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 05/31/17	Highest Max/ Lowest Min
May	53.5°	29.1°	3.60"	16.6"	85"	76° on 23rd / 16° on 14th
Normal (1981-2010)	49.2°	28.4°	3.57"	15.9"	48"	N/A

Drought Outlook: May

Drought persists

Drought remains but improves

Drought removal likely

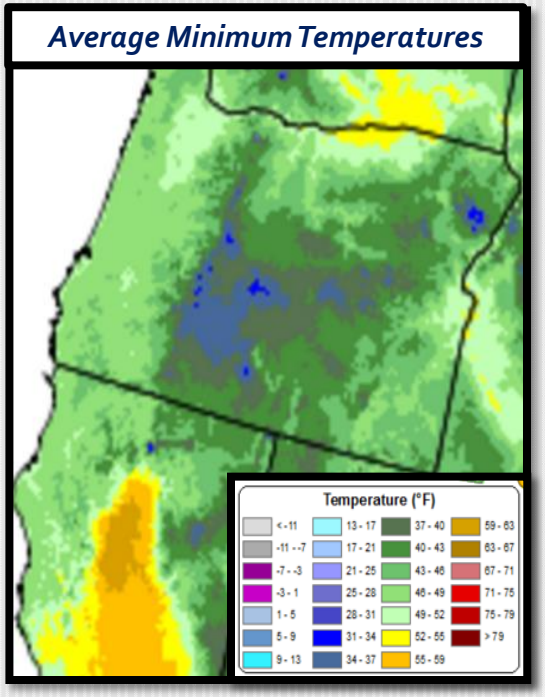
Drought development likely

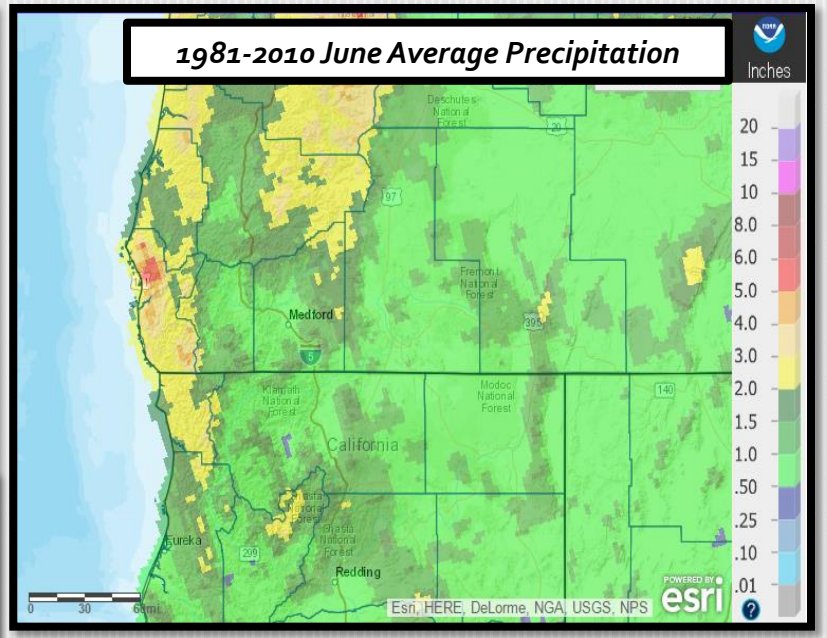
Valid for June 2017
Released May 31, 2017

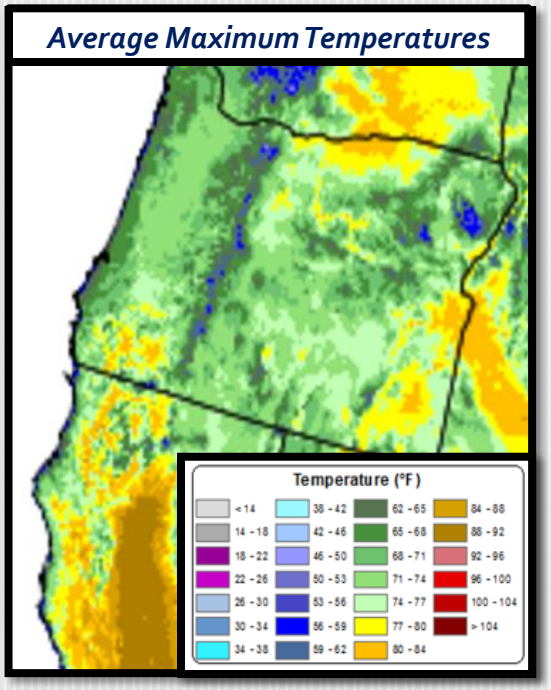
http://www.cpc.ncep.noaa.gov/products/expert_assessment/month_drought.png

Looking Ahead: Normals for June (1981-2010)

June is a dry season month, so it typically features mild temperatures and limited precipitation. Nearly half of the forecast area receives, on average, and inch or less of precipitation in June. Valley high temperatures are usually in the 70s and 80s. Nights are typically cool, with average minimum temperatures in the 30s and 40s in valleys east of the Cascades, and 40s to near 50s in the valleys west of the Cascades.



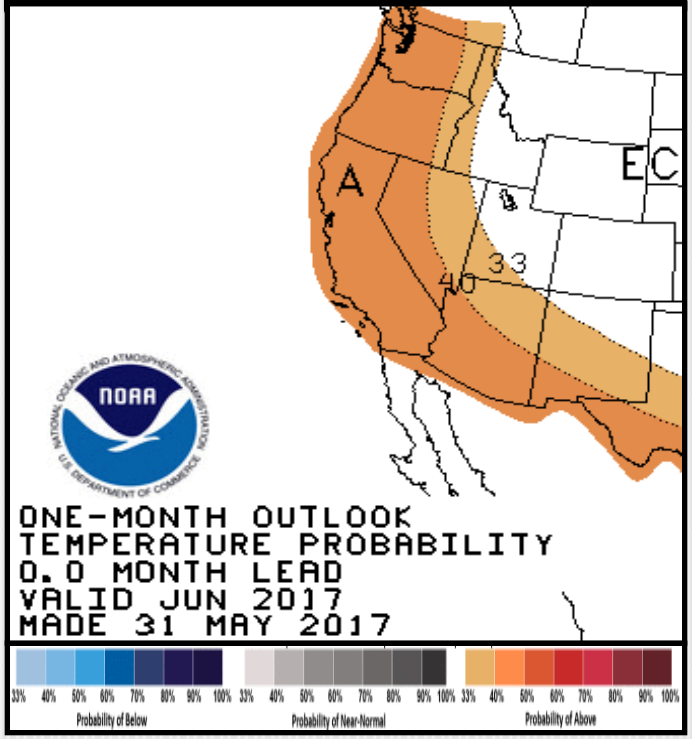




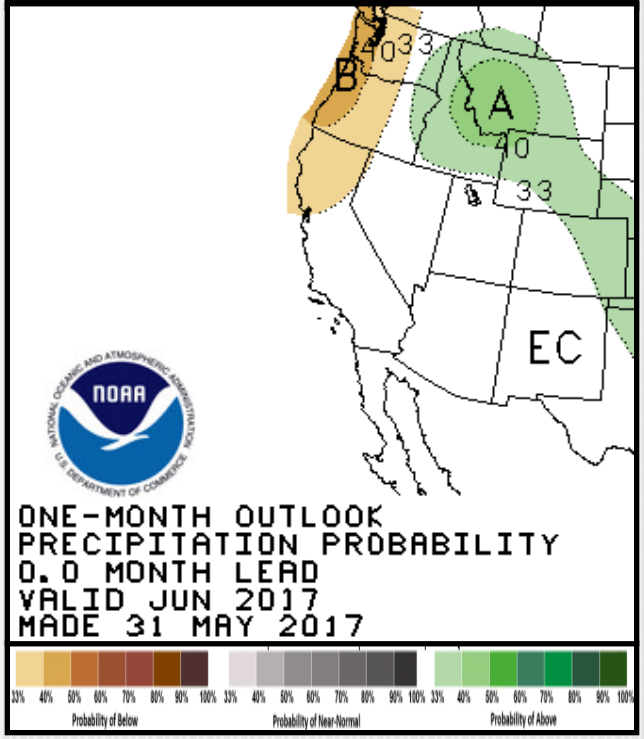
Outlook for June 2017

The official Climate Prediction Center Forecast for June 2017 is increased chances of above normal temperatures and below normal precipitation. Forecast confidence is lower than it usually is for this month due to significant variations in the model guidance that is used for the outlook. A cooler and wetter than normal period between June 8th and 14th is expected to give way to mostly near to above normal temperatures for the remainder of the month. Anomalous low pressure troughing is expected to give way to anomalous high pressure ridging as this warming occurs. Altogether, local expectations are for June to end up warmer than normal with precipitation mostly near normal as of June 8th.

Temperatures



Precipitation



Expected Impact, June 2017:

Grass and brush will continue to cure out after the cool and wet period ends on the 14th. Higher elevations will remain in green-up this month. Thunderstorm coverage is expected to be fairly typical. With a higher than normal grass and brush fuel load, the main concern from warmer than normal temperatures will be wildfire potential in grass and brush fuel types, especially at low-mid elevations.

*A note about Period of Record (POR)

When looking at record setting events, it's important to consider the length and completeness of the site's period of record (POR). For example, a site may have records back to the early 1900's, but if there is a significant portion of the record missing, it's possible that the POR is not encompassing another significant event that may have surpassed the event in question. Therefore, "record setting" should be considered relative to the completeness/length of POR. To help keep records in context, the POR for each climate site is listed below:

- **North Bend: 1/1/1902 – Present**
- **Roseburg: 4/1/1900 – Present**
  - *Missing:*
    - *05/1900-01/1901*
    - *03/1901-06/1902*
    - *08/1902-12/1930*
    - *10/1965-06/1997*
- **Medford: 3/11/1911 – Present**
- **Klamath Falls: 1/1/1948 – Present**
  - *Missing:*
    - *08-10/1970*
    - *1971-10/1997*
- **Montague, CA: 7/1/1948 – Present**
  - *Missing:*
    - *08-09/1952*
    - *02/1953-06/2000*
- **Mount Shasta City, CA: 4/15/1948 – Present**
  - *Missing:*
    - *10/1984-01/1985*
    - *10/1985-03/1986*
    - *09/1986-07/1997*
- **Alturas, CA: 6/1/1998 – Present**
  - *Missing:*
    - *08/1998*