

National Weather Service Medford

March 2018 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 \(NCEI\)](#).

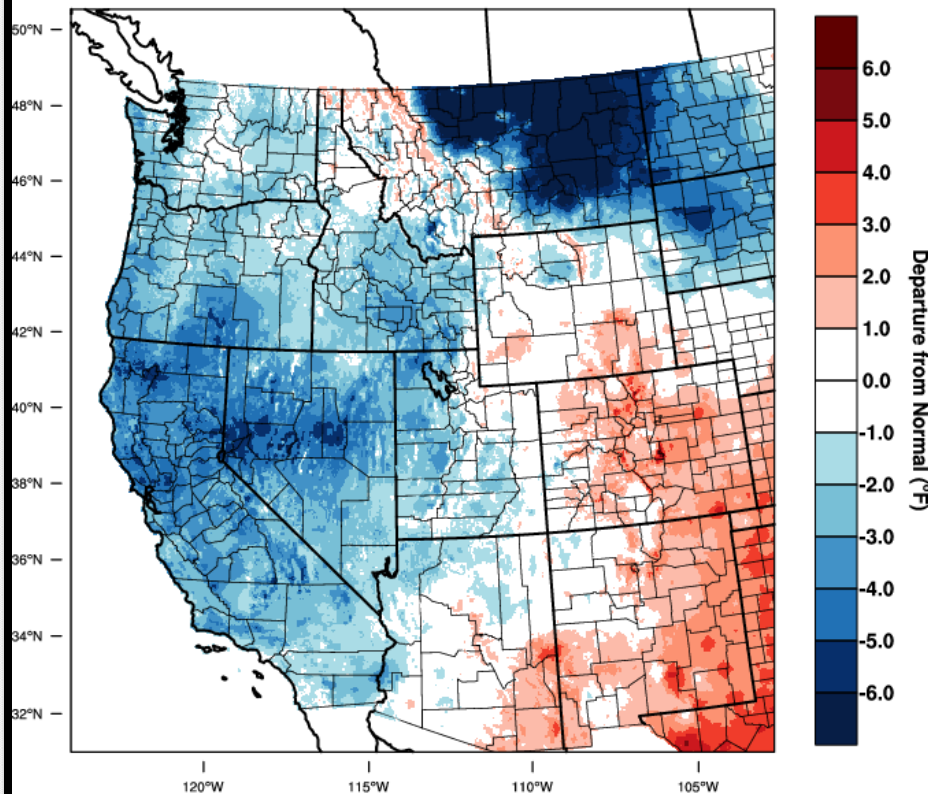
March 2018 Weather Review

As the old saying goes, "March comes in like a lion and leaves like a lamb." March 2018 lived up to this proverb this year, beginning with wind, rain, and snow on the 1st. Then after a month of cooler than normal temperatures and multiple periods of rain and low elevation snow, it ended with warm temperatures and sunny skies on the 31st.

The windy, wet, and cool start to the month arrived due to a potent cold front that swept quickly through the area on the 1st and 2nd. High pressure then kept the region dry and cool for about a week before another quick moving storm system passed through the region on the 8th and 9th. Both systems produced beneficial rain, but only the first front managed to bring snow down to valley floors. Following a few quiet days, a deep, slow moving upper level trough took up residence over southern Oregon on the 13th, resulting in a week of cool, wet weather for the area. The trough finally weakened and exited to our east by the 19th, but high pressure lasted only a day or two before another large upper level trough dug in overhead on the 21st. This trough dumped multiple feet of snow in higher elevations, including the mountains of the Kalmiopsis and western Siskiyou county above 2,000 feet. Another week of cool and wet weather followed, fully securing a cooler than normal month with enough rain to push some areas above normal March values. Other areas fell below normal values for March precipitation. Behind the departing trough, high pressure was finally able to take control, producing several warm and sunny days and a much calmer end to the month of March.

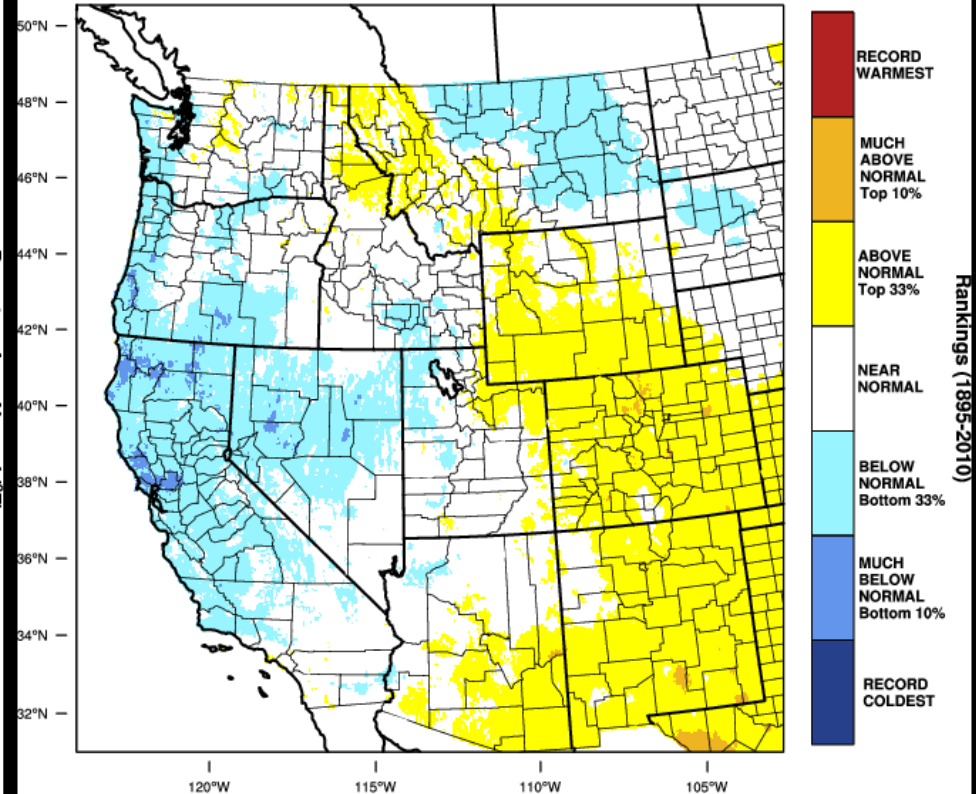
March 2018 *Observed Temperatures*

Western United States - Mean Temperature
March 2018 Departure from 1981-2010 Normal



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 2 APR 2018

Western United States - Mean Temperature
March 2018 Percentile



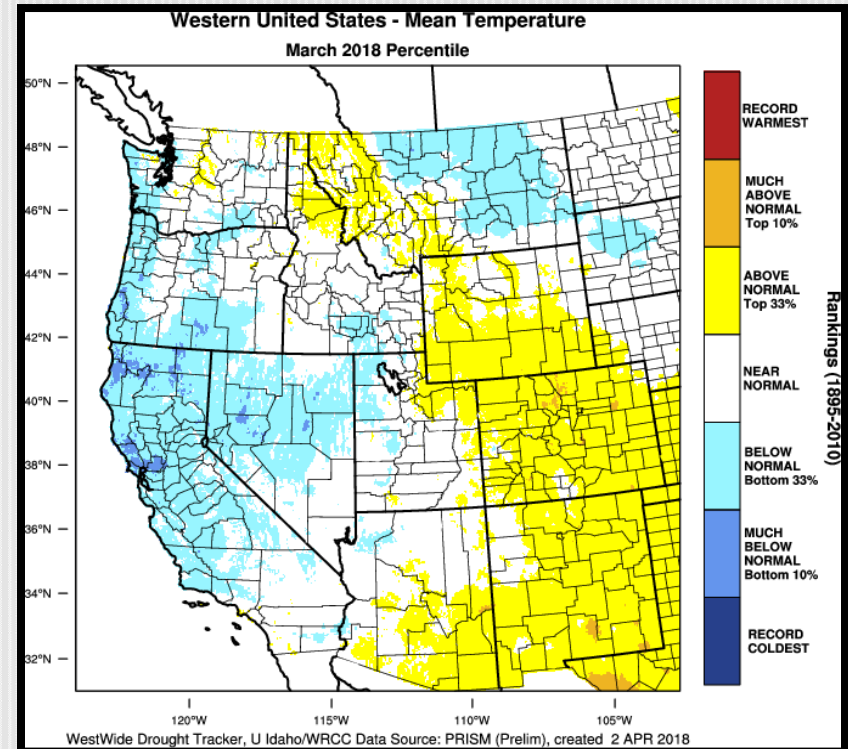
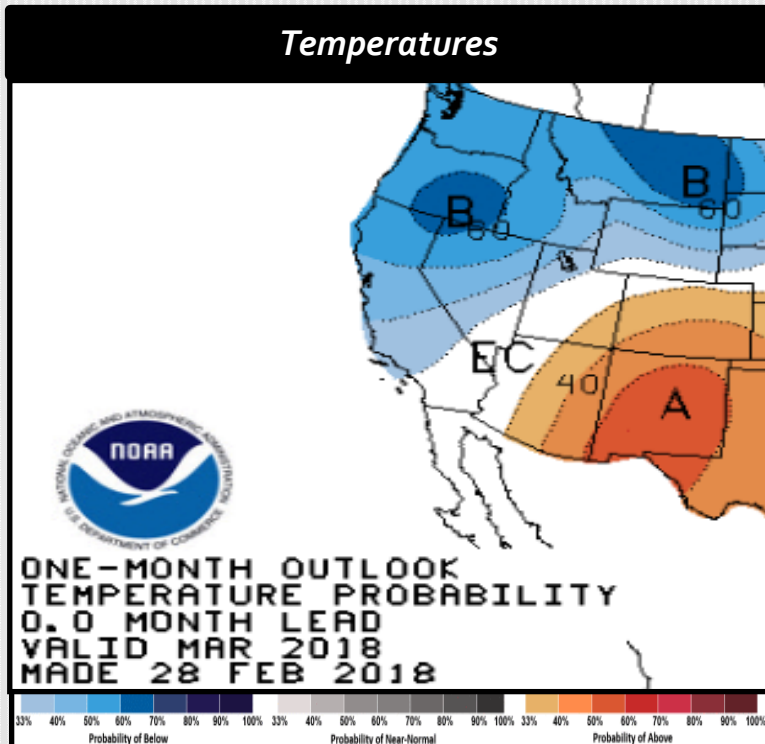
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 2 APR 2018

Average Temperatures

	<i>Average (°F)</i>	<i>Departure from Normal</i>	<i>Average Max (°F)</i>	<i>Departure from Normal</i>	<i>Average Min (°F)</i>	<i>Departure from Normal</i>
<i>North Bend</i>	46.5	<i>-1.1°</i>	53.5	<i>-0.3°</i>	39.5	<i>-2.0°</i>
<i>Roseburg</i>	47.5	<i>-1.1°</i>	57.6	<i>-0.2°</i>	37.5	<i>-1.8°</i>
<i>Medford</i>	46.9	<i>-1.4°</i>	58.9	<i>-0.6°</i>	34.9	<i>-2.2°</i>
<i>Klamath Falls</i>	37.1	<i>-1.4°</i>	49.5	<i>-1.1°</i>	24.8	<i>-1.6°</i>
<i>Montague, CA</i>	41.9	<i>-1.1°</i>	55.5	<i>-0.8°</i>	28.4	<i>-1.3°</i>
<i>Mt. Shasta City, CA</i>	39.7	<i>-2.6°</i>	49.9	<i>-4.5°</i>	29.6	<i>-0.6°</i>
<i>Alturas, CA</i>	37.0	<i>-1.4°</i>	49.8	<i>-2.2°</i>	24.2	<i>-0.6°</i>

A Look Back at the March 2018 Temperature Outlook

- **Was the forecast anomaly correct?** Yes. CPC's forecast was correct in indicating temperatures were most likely to be below normal across the forecast area. The localized outlook indicated temperature anomalies were most likely to be 1 to 5 degrees below normal. The preceding slide with the actual anomalies on it indicates that this was the range observed.
- **Was the expected impact correct?** Yes. It was correctly indicated that snowpack would grow, no additional drought designation would occur in March, and that precipitation deficits for the season would be reduced.
- **Did our forecast improve upon the CPC forecast?** Our localized forecast did generally improve CPC's already good temperature forecast for the month. While we accurately indicated southerly downslope warming would diminish cold anomalies across portions of Jackson and Douglas counties, it did not do so in Coos County as we had indicated, and it did in NW Klamath County. Our more detailed forecast of the anomalies through various portions of the month did provide more detail to the forecast.



Monthly Max/Min & Record Temperatures

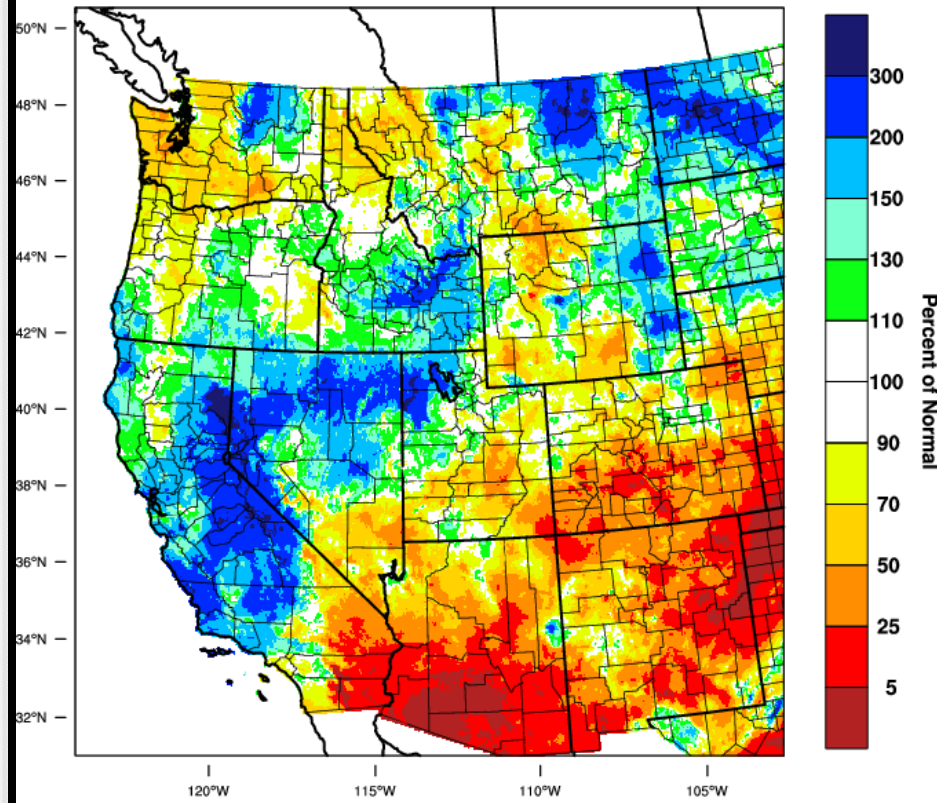
	<i>Max (°F)</i>	<i>Date(s)</i>	<i>Min (°F)</i>	<i>Date(s)</i>
<i>North Bend</i>	<i>71°</i>	<i>12th</i>	<i>34°</i>	<i>5th</i>
<i>Roseburg</i>	<i>74°</i>	<i>12th</i>	<i>29°</i>	<i>6th</i>
<i>Medford</i>	<i>73°</i>	<i>29th & 31st</i>	<i>25°</i>	<i>5th</i>
<i>Klamath Falls</i>	<i>69°</i>	<i>30th</i>	<i>11°</i>	<i>2nd</i>
<i>Montague, CA</i>	<i>73°</i>	<i>29th</i>	<i>15°</i>	<i>5th</i>
<i>Mt. Shasta City, CA</i>	<i>71°</i>	<i>30th & 31st</i>	<i>16°</i>	<i>5th</i>
<i>Alturas, CA</i>	<i>69°</i>	<i>30th</i>	<i>11°</i>	<i>5th</i>

	Record Low Temperature / Date	Old Record/Year
Roseburg	31° / 26 th	Ties with 1953
Klamath Falls	18° / 24 th	19° / 2014
	14° / 25 th	19° / 2002

	Record Low Temperature / Date	Old Record/Year
Montague	15° / 5 th	17° / 2008
	22° / 24 th	Ties with 2005
	21° / 26 th	Ties with 1995

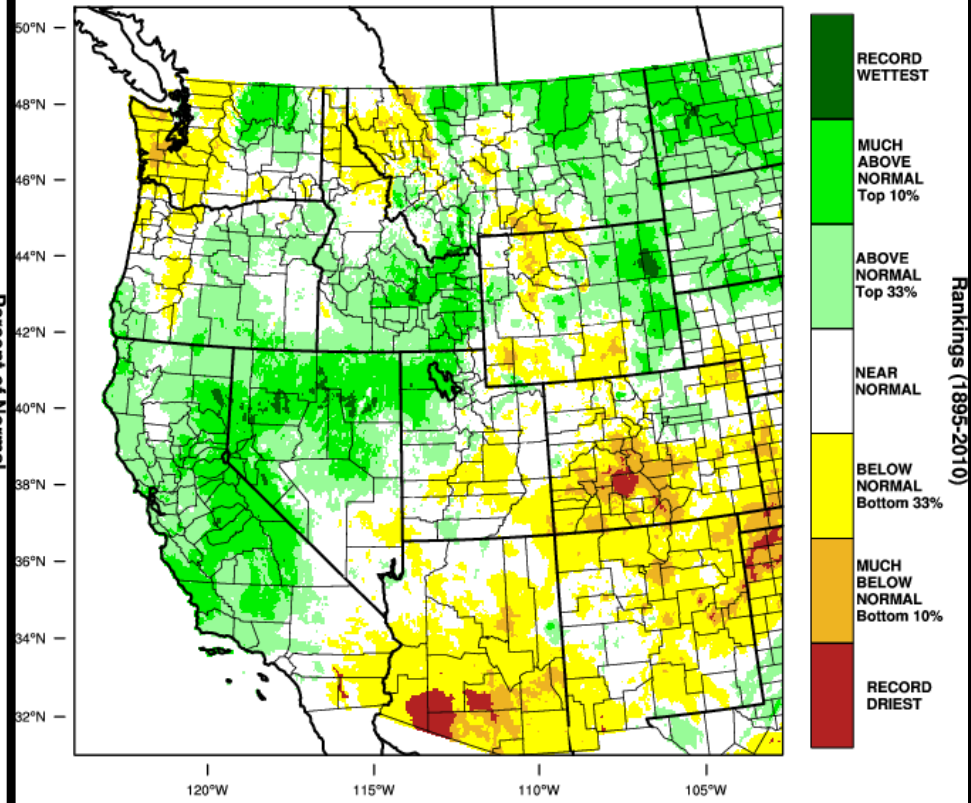
March 2018 *Observed Precipitation*

Western United States - Precipitation
March 2018 Percent of 1981-2010 Normal



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 2 APR 2018

Western United States - Precipitation
March 2018 Percentile



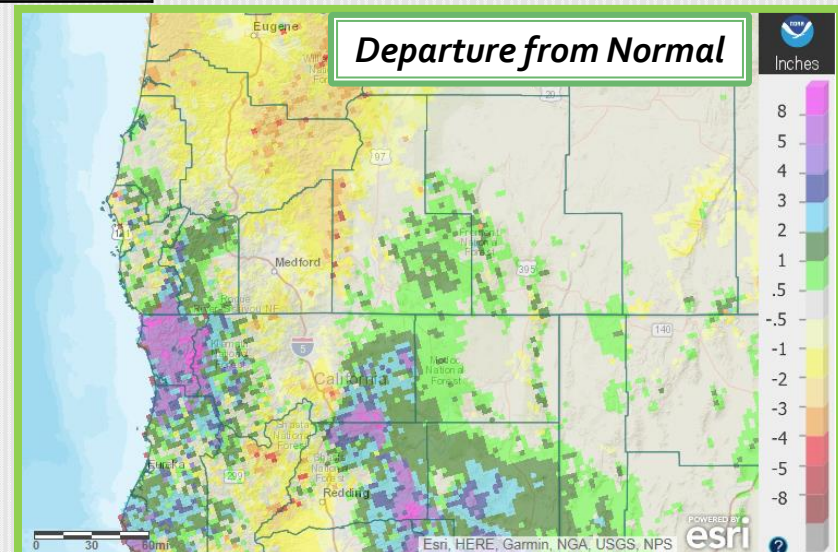
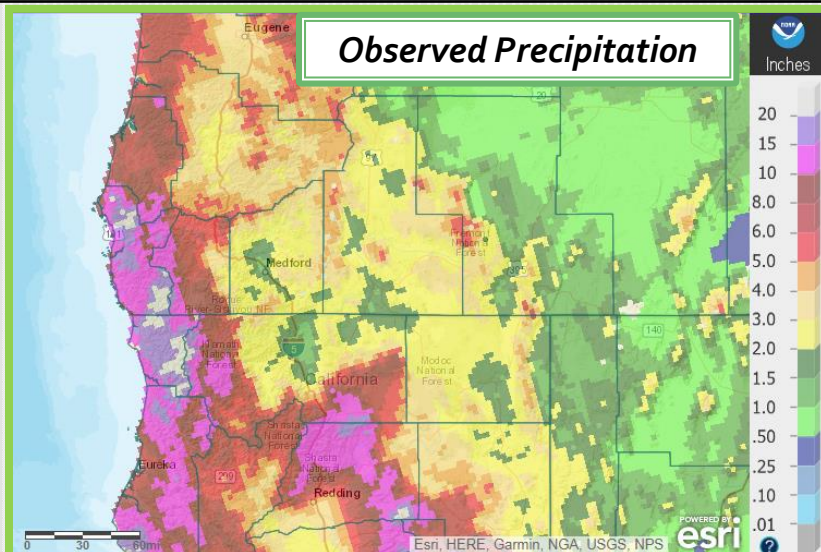
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 2 APR 2018

Precipitation

	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	7.60"	-0.23"	1.39"	23 rd
Roseburg	4.11"	0.61"	1.56"	23 rd
Medford	1.68"	-0.03"	0.36"	13 th
Klamath Falls	1.52"	0.25"	0.38"	13 th
Montague, CA	1.18"	-1.13"	0.49"	9 th
Mt. Shasta City, CA	5.06"	-0.90"	1.11"	13 th
Alturas, CA	1.59"	0.07"	0.56"	22 nd

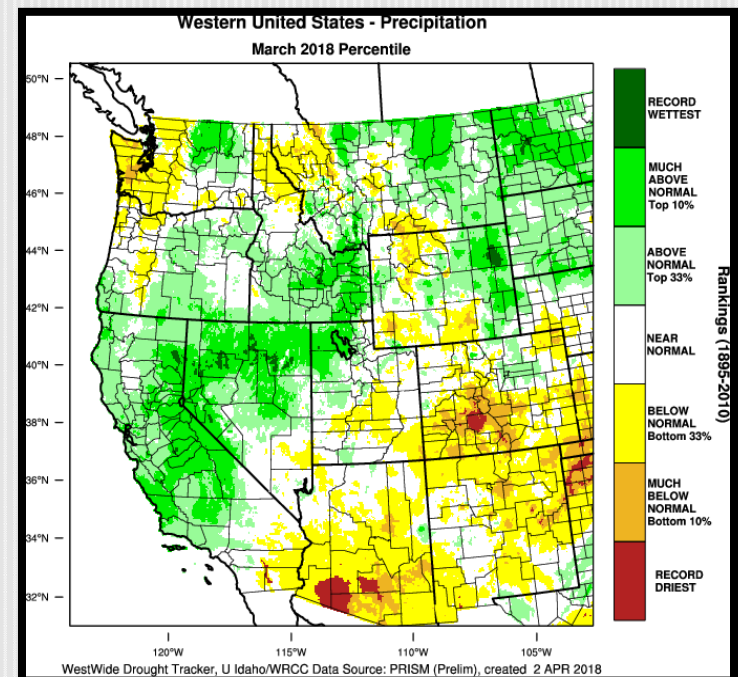
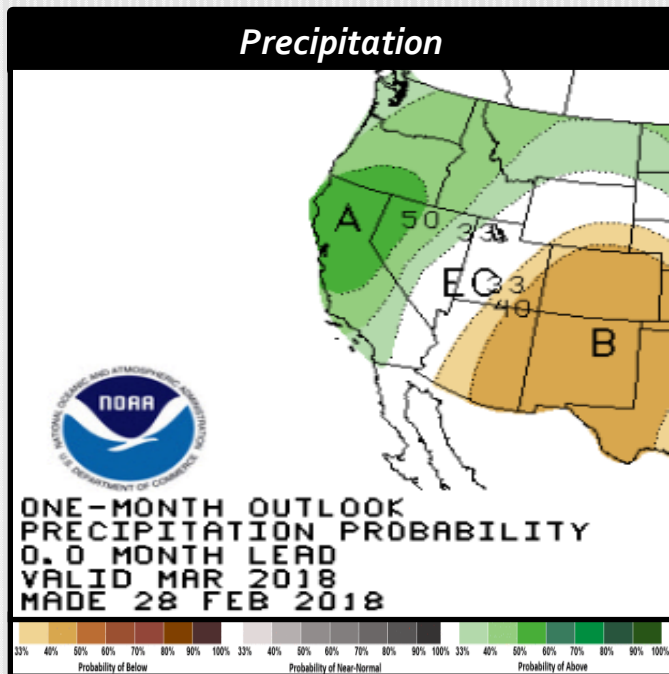
Record Daily Precipitation

	New Record	Date	Old Record	Year
Roseburg	1.56"	23 rd	0.88"	1998
Alturas	0.56"	22 nd	Tied	1994



A Look Back at the March 2018 Precipitation Outlook

- **Was the forecast anomaly correct?** Yes. CPC's forecast indicated increased chances for above average precipitation across the forecast area. While some areas on the middle portions of the forecast area ended the month below normal for precipitation, their forecast indicated this to be a possibility. Our localized forecast correctly identified the potential for below normal precipitation due to downslope flow in Douglas and Jackson County.
- **Was the expected impact correct?** Yes, the general improvement to water storage and snow pack was accurately predicted.
- **Did our forecast improve upon the CPC forecast?** Yes. We were able to provide more details regarding the timing of precipitation anomalies. Additionally, we correctly indicated the downslope flow reducing precipitation in portions of Jackson and Douglas Counties. However, it did not reduce precipitation anomalies in Coos County, as we had said might occur, and portions of Siskiyou and Klamath County experienced more downslope drying than anticipated. Overall, the month outlook is a good success story, while also indicating the complexity of forecasting anomalies in complex terrain.



March Significant Weather

...Snowfall Reports...

Location	Amount	Time/Date	Provider
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...California...

...Modoc County...

Jess Valley	4.0 in	0700 AM 03/02	COOP
9 E Alturas	2.4 in	0700 AM 03/02	COCORAHS

...Siskiyou County...

3 SSW Weed	5.0 in	0700 AM 03/02	COCORAHS
Mc Cloud	2.0 in	0800 AM 03/02	COOP
5 N Weed	0.7 in	0800 AM 03/02	COCORAHS
Fort Jones Rs	0.5 in	0800 AM 03/02	COOP
10 E Orleans	0.1 in	0830 AM 03/02	COCORAHS

...Oregon...

...Douglas County...

10 W Steamboat	0.5 in	0815 AM 03/02	COCORAHS
4 NW Green	0.5 in	0800 AM 03/02	COCORAHS
Lookingglass	0.3 in	0700 AM 03/02	COOP

...Jackson County...

1 NE Applegate	1.8 in	0700 AM 03/02	COCORAHS
5 SE Ruch	1.6 in	0700 AM 03/02	COCORAHS
5 NNW Gold Hill	1.6 in	0700 AM 03/02	COCORAHS
7 WSW Prospect	1.0 in	0700 AM 03/02	COCORAHS
1 SE Ashland	0.5 in	0800 AM 03/02	COCORAHS
3 W Phoenix	0.5 in	0800 AM 03/02	COCORAHS
Ashland	0.3 in	0700 AM 03/02	COCORAHS
Ruch	0.2 in	0800 AM 03/02	COOP
4 NNW Rogue River	0.2 in	0700 AM 03/02	COCORAHS
Rogue River	0.2 in	0700 AM 03/02	COCORAHS
1 WNW Ashland	0.2 in	0730 AM 03/02	COCORAHS

...Josephine County...

1 SW Obrien	12.8 in	0700 AM 03/02	COCORAHS
5 NW Wilderville	7.3 in	0700 AM 03/02	COCORAHS
1 NNW Merlin	4.2 in	0800 AM 03/02	COCORAHS
1 W Wilderville	3.5 in	0715 AM 03/02	COCORAHS
1 SW Provolt	1.5 in	0800 AM 03/02	COCORAHS
2 ENE Murphy	1.5 in	0830 AM 03/02	COCORAHS
2 N Provolt	0.8 in	0700 AM 03/02	COCORAHS
3 W Grants Pass	0.7 in	0900 AM 03/02	COCORAHS

...Klamath County...

Crater Lake National Park Hq	7.2 in	0800 AM 03/02	COOP
Keno	4.0 in	0700 AM 03/02	COOP
Odell Lake-east	4.0 in	0800 AM 03/02	COOP
1 NE Altamont	2.7 in	0900 AM 03/02	COCORAHS
Klamath Falls	2.0 in	0830 AM 03/02	COCORAHS
Keno	2.0 in	0700 AM 03/02	COCORAHS
Altamont	2.0 in	0701 AM 03/02	COCORAHS
1 SSW Olene	1.5 in	0800 AM 03/02	COCORAHS
Chemult	1.0 in	0830 AM 03/02	COOP

Observations are collected from a variety of sources with varying equipment and exposures. We thank all volunteer weather observers for their dedication. Not all data listed are considered official.

Multiple rounds of Low Elevation Snow & Significant Accumulations in the Mountains

...Snowfall Reports from Friday/Friday night...

Location	Amount	Time/Date	Provider
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...California...

...Modoc County...

9 E Alturas	1.1 in	0700 AM 03/24	COCORAHS
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...Siskiyou County...

Tennant	8.0 in	0939 AM 03/24	Trained Spotter
3 SSW Weed	3.4 in	0700 AM 03/24	COCORAHS

...Oregon...

...Douglas County...

Camas Mountain Pass (1450')	8.0 in	0100 AM 03/24	ODOT
4 WNW Sutherlin	1.2 in	0700 AM 03/24	COCORAHS

...Jackson County...

Mt Ashland Ski Road	10.0 in	0949 AM 03/24	ODOT
Siskiyou Summit Pass (4310')	3.0 in	0949 AM 03/24	ODOT
5 NNW Gold Hill	1.2 in	0700 AM 03/24	COCORAHS
1 NE Applegate	0.6 in	0700 AM 03/24	COCORAHS

...Josephine County...

Sexton Summit Pass (1960')	6.0 in	0100 AM 03/24	ODOT
5 NW Wilderville	1.5 in	0700 AM 03/24	COCORAHS
1 SW Obrien	1.3 in	0700 AM 03/24	COCORAHS
6 ESE Selma	1.3 in	0800 AM 03/24	COCORAHS
Cave Junction	1.1 in	0800 AM 03/24	COCORAHS
3 E Cave Junction	0.5 in	0700 AM 03/24	COCORAHS
Selma	0.5 in	0800 AM 03/24	COCORAHS

...Klamath County...

Crater Lake N.P.	12.2 in	0800 AM 03/24	COOP
Odell Lake-East	7.5 in	0800 AM 03/24	COOP
Keno	1.0 in	0700 AM 03/24	COOP
1 SSW Olene	1.0 in	0800 AM 03/24	COCORAHS
Keno	1.0 in	0700 AM 03/24	COCORAHS

...Lake County...

2 ENE Valley Falls	2.0 in	0700 AM 03/24	MESOWEST
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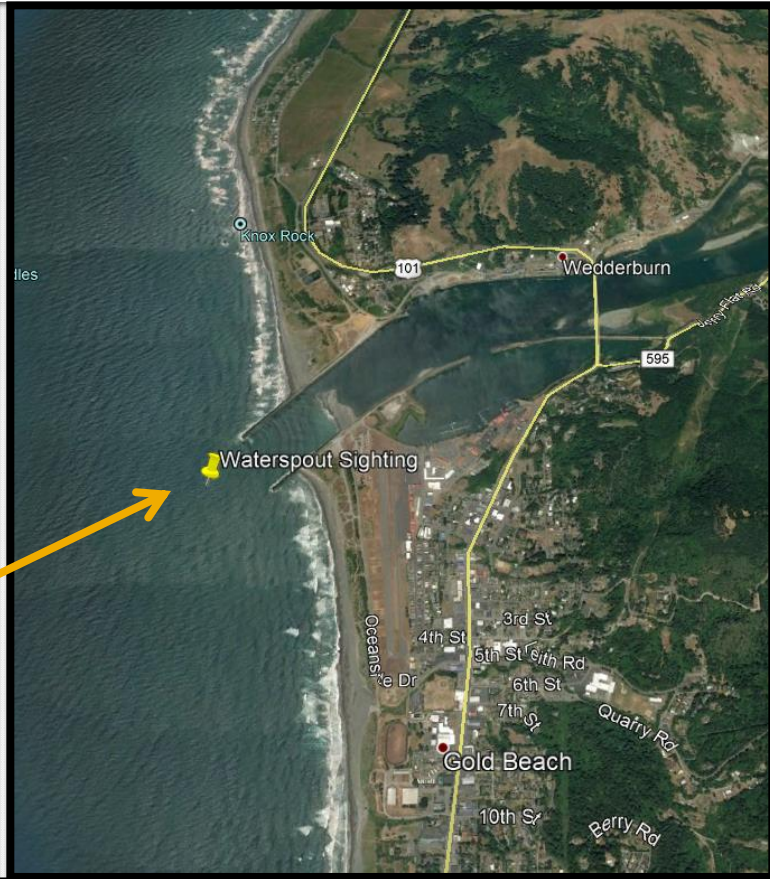
Observations are collected from a variety of sources with varying equipment and exposures. We thank all volunteer weather observers for their dedication. Not all data listed are considered official.



Waterspout near Gold Beach



Photo: Lisa Ridley



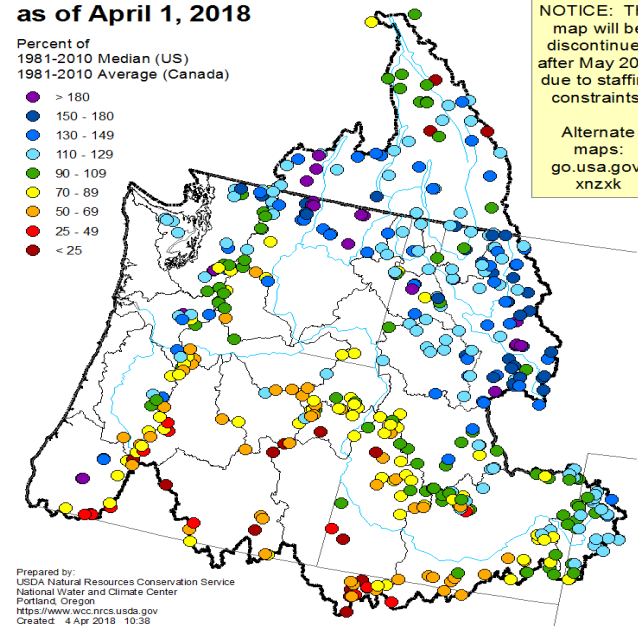
3/3/2018: Waterspout reported by our weather spotter, Don Weissert at around 12:30 pm PST at the mouth of the Rogue River near Gold Beach. He said it moved south to north offshore about 300 yards for about a half mile, then it dissipated about 50 yards offshore. The photo was submitted to us by Lisa Ridley.

Snowpack Status

Columbia River and Pacific Coastal Basins Mountain Snowpack as of April 1, 2018

Percent of 1981-2010 Median (US) 1981-2010 Average (Canada)

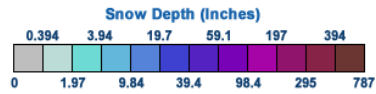
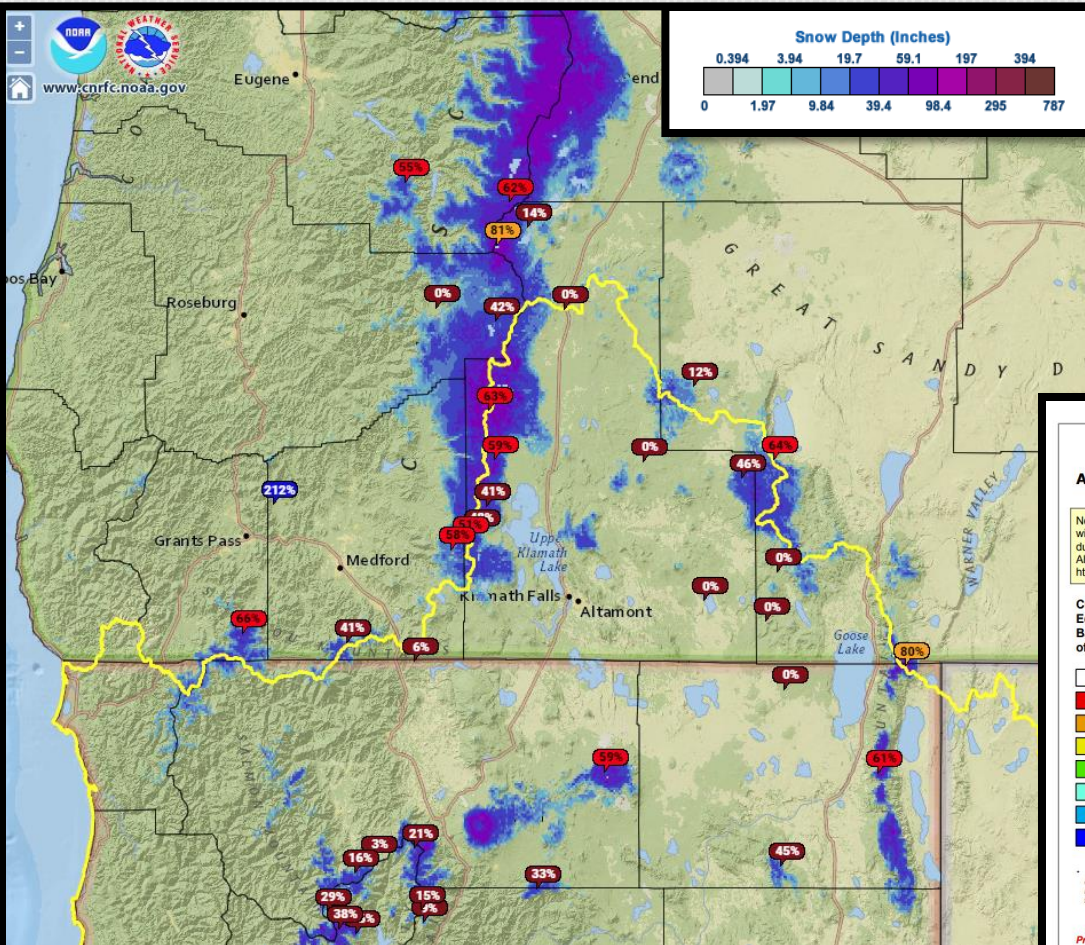
- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



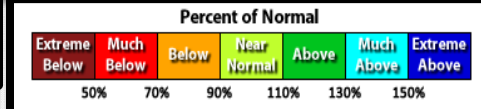
NOTICE: This map will be discontinued after May 2018 due to staffing constraints.

Alternate maps: go.usa.gov/xnzxk

Prepared by: USDA Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon
<https://www.wcc.nrcs.usda.gov>
 Created: 4 Apr 2018 10:38



Shaded: NOHRSC Snow Depth 4/02/2018
Bubble: Current SWE % of Normal 4/02/2018



Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Apr 01, 2018

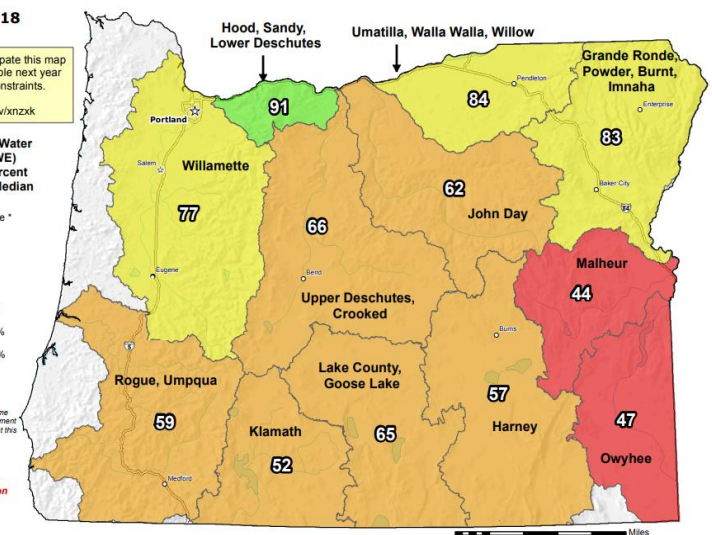
Notice: We anticipate this map will not be available next year due to staffing constraints. Alternate maps: <https://go.usa.gov/xnzxk>

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* Data unavailable at time of posting or measurement is not representative at this time of year.

Provisional Data Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

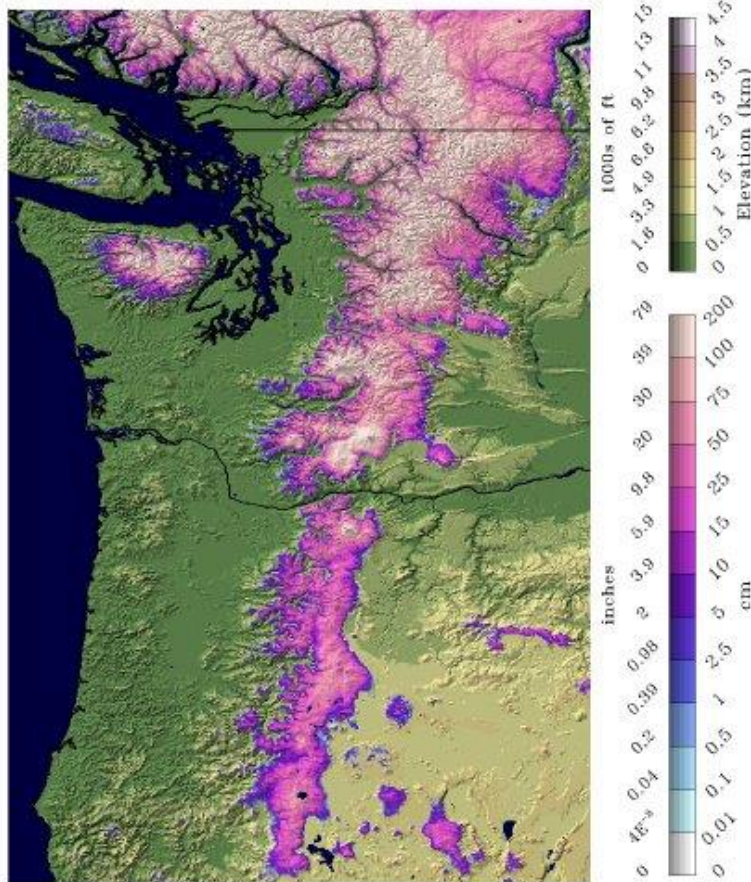
0 10 20 40 60 80 100 Miles

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

PacNW SWE & Snow Depth as of 4/1/2018

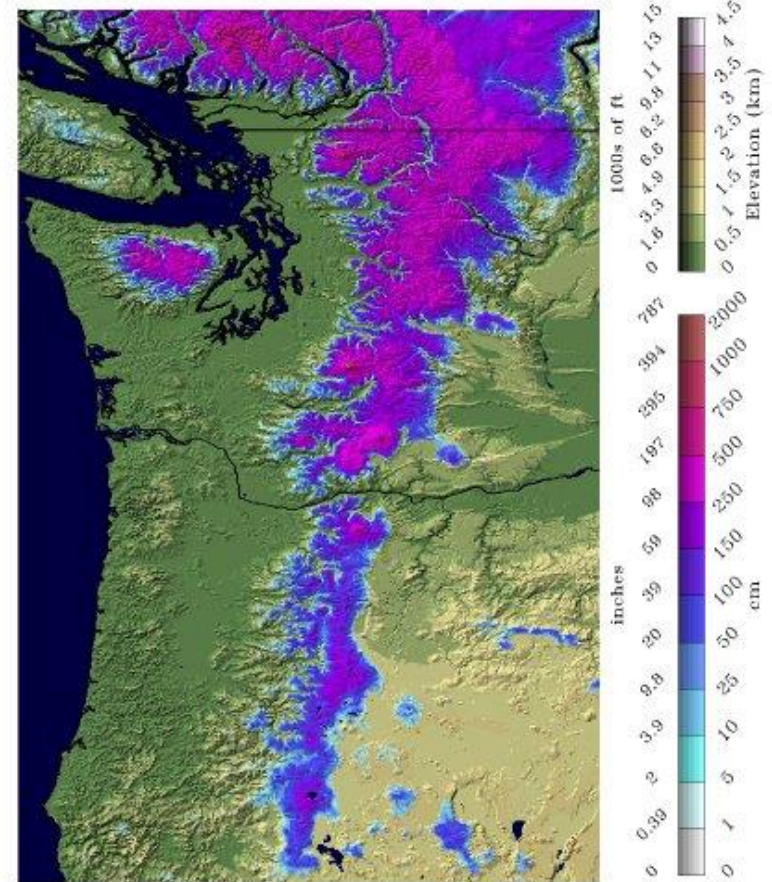
Snow Water Equivalent

2018-04-01 06 UTC



Snow Depth

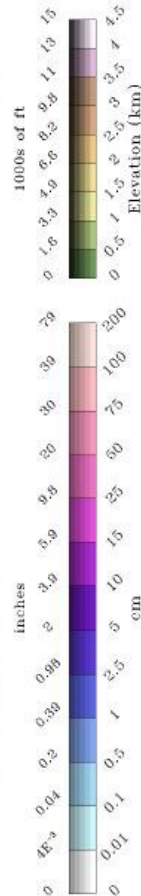
2018-04-01 06 UTC



California SWE & Snow Depth as of 4/1/2018

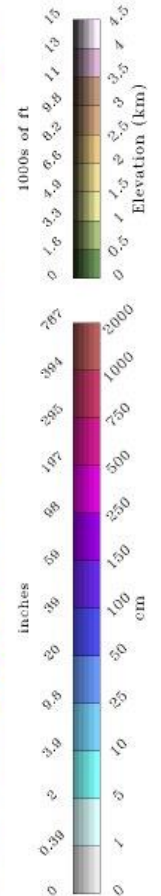
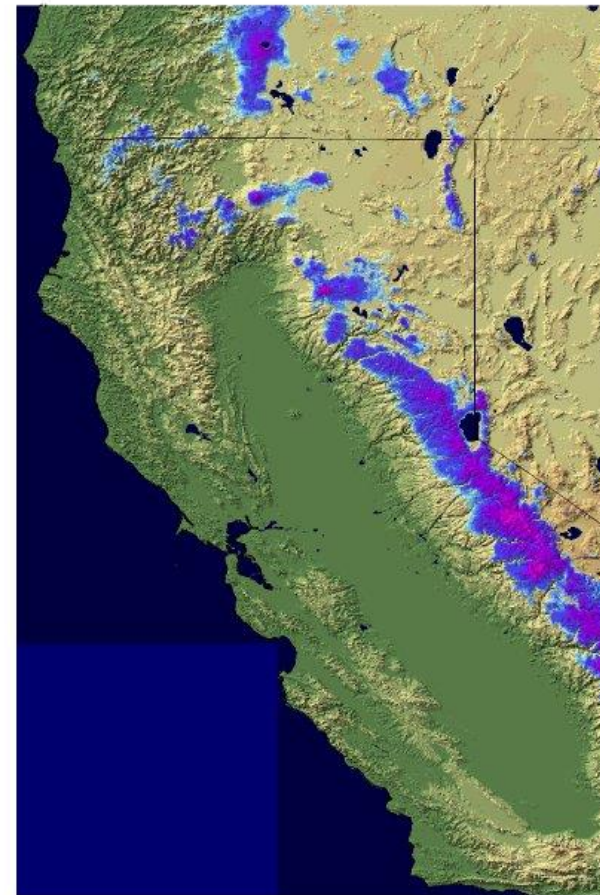
Snow Water Equivalent

2018-04-01 06 UTC



Snow Depth

2018-04-01 06 UTC



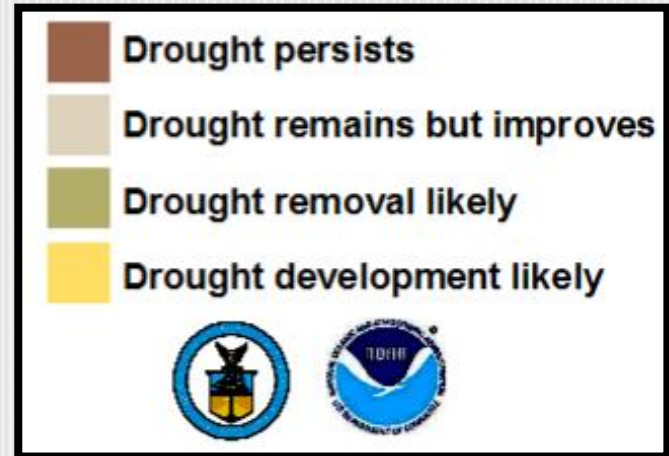
Crater Lake

Image Courtesy: NPS



	<i>Average Max Temp (°F)</i>	<i>Average Min Temp (°F)</i>	<i>Total Precipitation</i>	<i>Total Snowfall</i>	<i>Snow Depth as of: 03/31/18</i>	<i>Highest Max/ Lowest Min</i>
<i>March</i>	<i>31.8°</i>	<i>18.0°</i>	<i>6.16"</i>	<i>63.7"</i>	<i>71"</i>	<i>51° on 30th / 7° on 5th & 6th</i>
<i>Normal (1981-2010)</i>	<i>37.3°</i>	<i>19.4°</i>	<i>7.53"</i>	<i>73.2"</i>	<i>113.6"</i>	<i>N/A</i>

Drought Outlook: April



Valid for April 2018
Released March 31, 2018

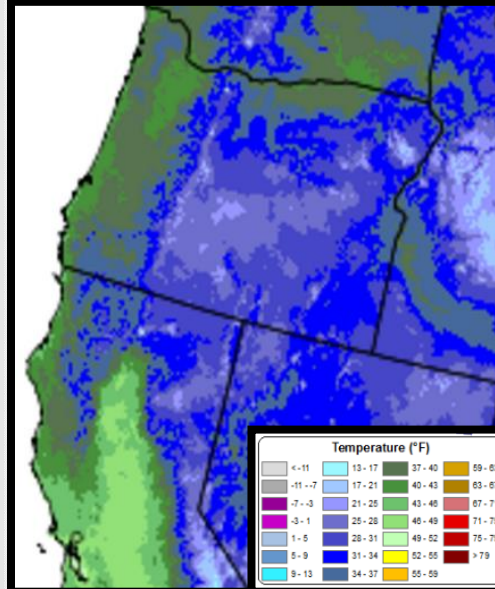
Looking Ahead: Normals for April (1981-2010)

Temperatures: Along the coast, lows are typically in the 40s with highs in the upper 50s to lower 60s. Valleys west of the Cascades usually experiences average lows in the mid 30s to mid 40s and highs 55 to 65 degrees. Lows in the upper teens to mid 20s occur across the higher, more typically snow packed mountains, with lows in the 20s to lower 30s for the valleys east of the Cascades. Highs in the higher terrain are typically in the upper 30s to mid 40s, while across the valleys east of the Cascades, highs are typically in the upper 40s to upper 50s.

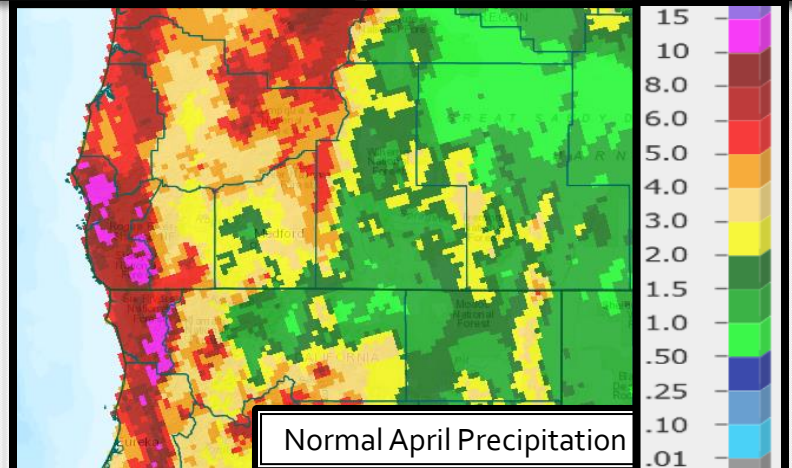
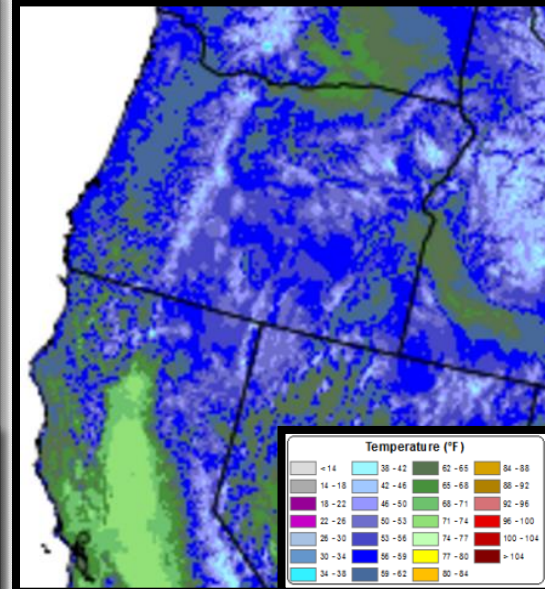
Precipitation: Curry County usually gets 6 to 15 inches of water. South and southwest flow favored areas of west of the Cascades, the Mount Shasta area, and the Cascades and Siskiyou typically get 4 to 8 inches. The remainder of the West Side has a wide range in normals, from as low as 0.50 to 4 inches. East of the Cascades, the drier portions of Lake County can expect 0.50" to an inch, while the remainder of the East Side gets 1 to 4 inches of water, with up to around 5 inches in the some of the mountains.

Snow: With peak snow water equivalent normally having occurred in mid-March, we expect the snowpack to begin melting off in April. In some years the snowpack peaks in April. Also, we do often get snow in April that slows the melting process. The snowpack typically melts off much faster on southerly aspects than northerly ones due to exposure and related temperatures. Crater Lake NP HQ normal snowfall for April is 46.7 inches.

Average Minimum Temperatures



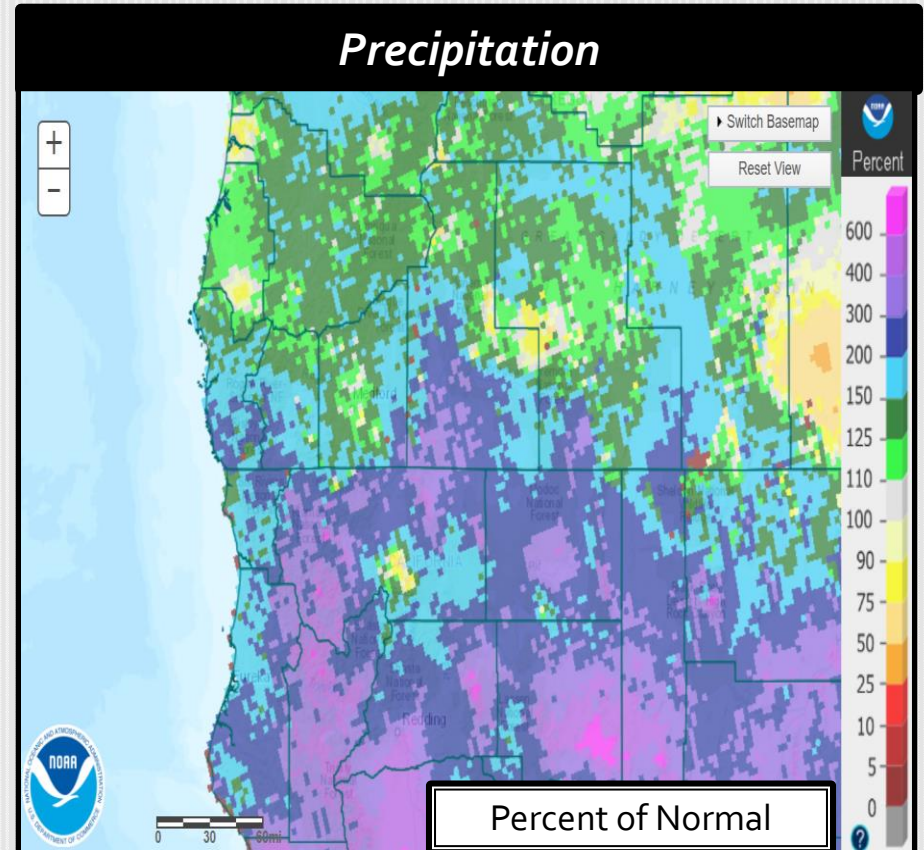
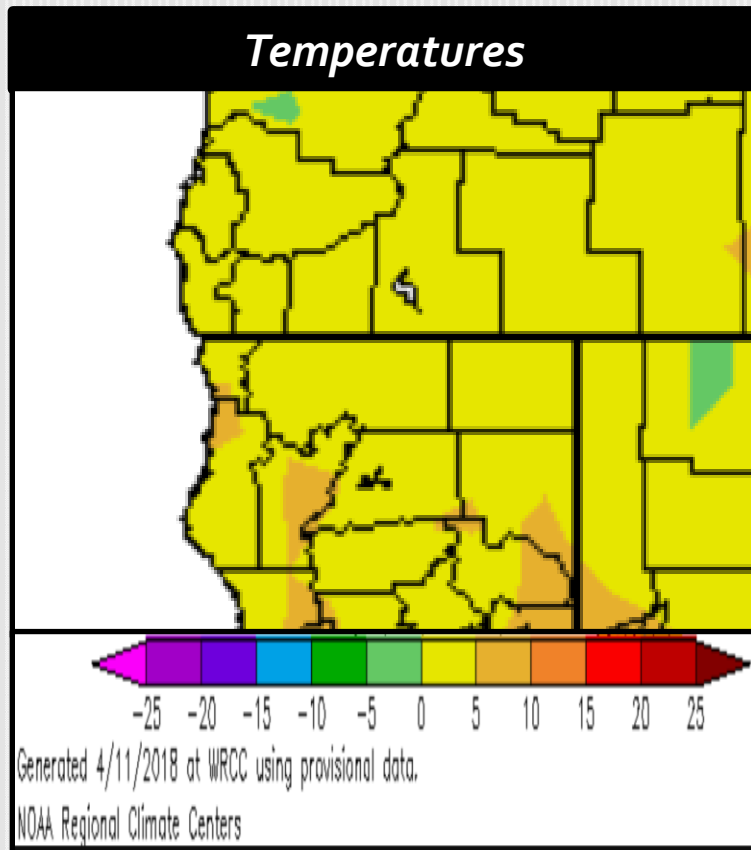
Average Maximum Temperatures



Normal April Precipitation

April 1-10th, 2018

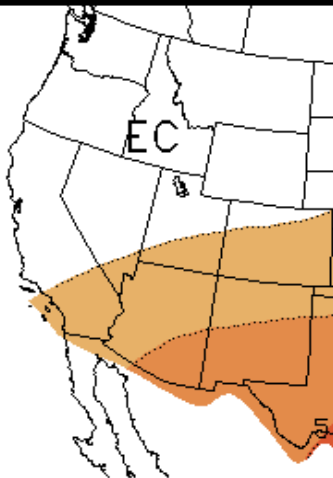
Temperatures for the first 10 days of April 2018 have been 0-5 degrees above normal and precipitation has been generally above normal, mostly 100-400% of normal.



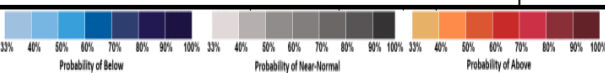
April 2018 Outlook

The official CPC forecast for temperatures for the month of April is for equal chances of below, near, and above normal temperatures (33% each). For precipitation the forecast is for increased chances (34-49%) of above normal precipitation west of about Modoc and Lake Counties. It's been 11 days since CPC issued their April forecast, and it still looks accurate for our area based on the latest information. Temperatures have begun the month above normal, but below normal temperatures are generally expected until approximately the last 7-10 days of the month, when they are most likely to go above normal again. Local expectations are that temperatures for all of April are most likely to be within 2 degrees of the 1981-2010 averages. Precipitation is most likely to be above normal across the forecast area, with the greatest chance of that occurring being across northern California and areas west of the Cascades. There is high confidence in a series of frontal systems moving through from the April 11-19th. Thereafter, there's not as much confidence in the forecast as guidance indicates weather systems are likely to focus more on California than Oregon. However, the GEFS is indicating colder low pressure returning, at least periodically, during the last 10 days of the month. Overall, the forecast for the remainder of April favors snowpack retention compared to normal. Above 6500 feet, we're likely to see the snowpack grow some from the 11th-19th.

Temperatures



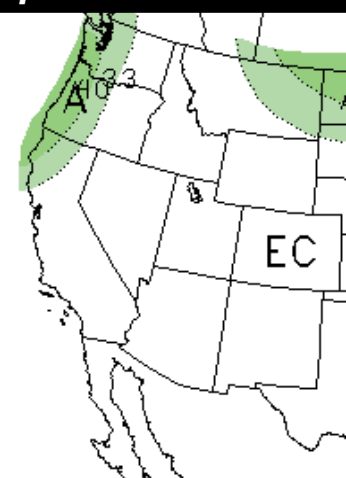
ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID APR 2017
MADE 31 MAR 2017



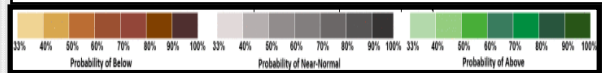
Expected Impact, April 2018:

We're expecting an average to even awesome April in terms of what it means to water supply and the flora and fauna of the forecast area. While snowpack is below normal, cooler than normal temperatures and above normal precipitation through at least April 19th should result in our snowpack sticking around longer than it otherwise would. Water deficits are still projected by water managers for portions of the Applegate and east side this irrigation season, but, the longer the spring precipitation hangs on, the lesser these deficits will be. There is some concern, through months end, of some damage to fruit trees from freeze, particularly in the April 12th-19th time frame. While gusty winds will occur, at times, we do not see any highly anomalous weather systems on the horizon. April is the time when thunderstorms become a bit more common, so there's always the possibility of some localized wind damage and hail with those, should they occur.

Precipitation



ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID APR 2017
MADE 31 MAR 2017



*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