National Weather Service Medford

February 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).

February 2017 Weather Review

The active winter continued into February with system after system delivering rain and even snow down to valley floors. February started out mild and wet thanks to the tropical origins of the storm systems that affected the area.

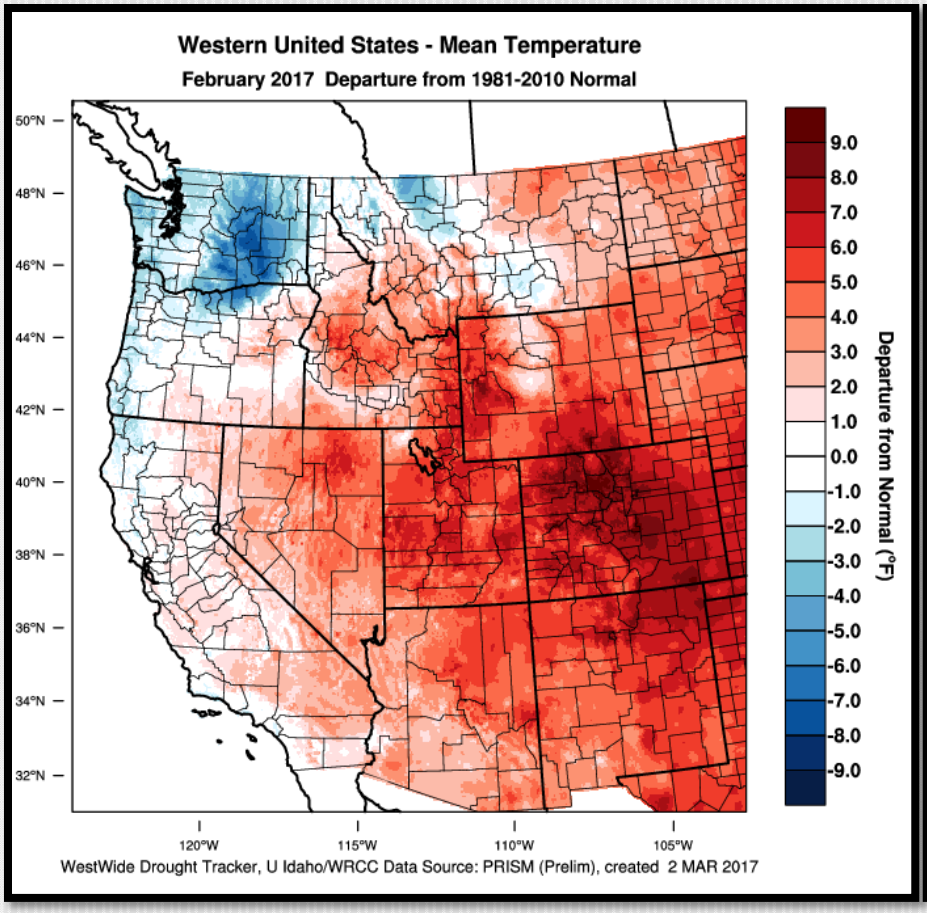
A series of atmospheric rivers moved into southern Oregon and northern California the week of the 5th – 10th, and the wet weather continued with a six day deluge of rainfall across the area. Because of the high snow levels associated with these systems, several areas saw significant flooding. Siskiyou and Modoc counties nearly had to issue evacuations of homes due to the flooding. In the end, Modoc County estimated a little over a half million dollars worth of road damage from flooding.

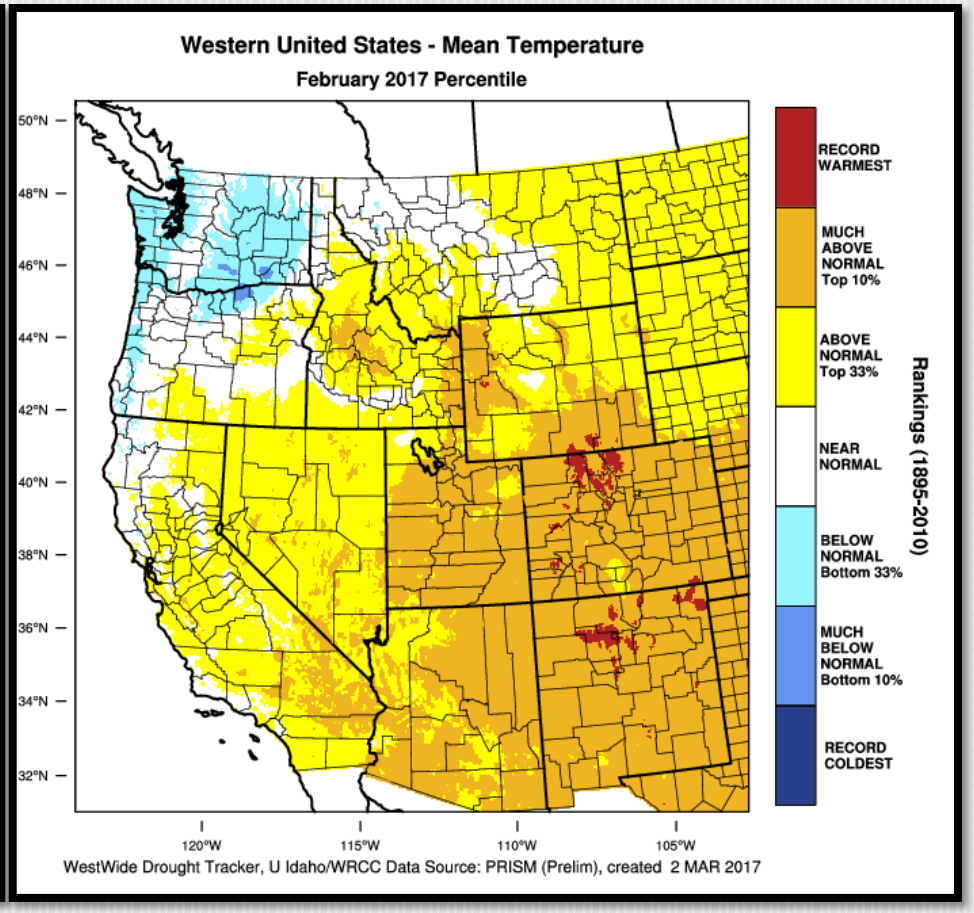
There was a brief break in the weather to allow conditions to dry out before the next big system came through. During this time, the weather pattern transitioned from the warmer, southwesterly flow aloft, to a more north-northwesterly flow. This brought below average temperatures for the remainder of the month and much colder storm systems. The next system to come through was stronger than the one that brought the significant flooding. However, due to the colder nature of the storm, snow levels were lower which helped stifle some of the flooding. By the 22nd, snow levels dropped to the valley floors and the first snow of February was recorded at the Medford Airport. The next system continued to push in over southern Oregon, and heavier showers brought snow levels down to the valley floors. Ground temperatures, however, were warm enough to preclude any snow accumulation at the Medford airport. Thus, there were several days where a trace of snow was reported.

Overall, February only saw a handful of dry days. By the end of February, the majority of our climate sites recorded water year to date totals within the top ten on record! Many locations west of the Cascades and in northern California exceeded the average water year *total* precipitation!

In addition to the rain, a few of these systems brought significant winds to southern Oregon and northern California. The strongest winds were along the coast and across the higher elevations east of the Cascades, and into Siskiyou and Modoc Counties; but even the Rogue Valley saw a few impacts. Finally, North Bend probably saw the most exciting phenomenon this month on the 26th as a waterspout was spotted near the boardwalk of the Oyster Dock.

February 2017 *Observed Temperatures*





Average Temperatures

	Average (°F)	Departure from Normal	Average Max (°F)	Departure from Normal	Average Min (°F)	Departure from Normal
North Bend	47.6	+1.2°	53.1	+0.4°	42.1	+1.9°
Roseburg	45.7	+0.4°	52.2	-1.3°	39.2	+2.0°
Medford	45.3	+1.1°	53.6	-0.7°	36.9	+2.8°
Klamath Falls	36.3	+2.1°	44.2	-0.6°	28.3	+4.6°
Montague, CA	40.1	+1.0°	50.1	-0.4°	30.2	+2.5°
Mt. Shasta City, CA	39.0	+0.8°	46.5	-2.1°	31.4	+3.5°
Alturas, CA	36.1	+2.2°	45.3	-0.8°	27.0	+5.2°

Monthly Max & Min Temperatures

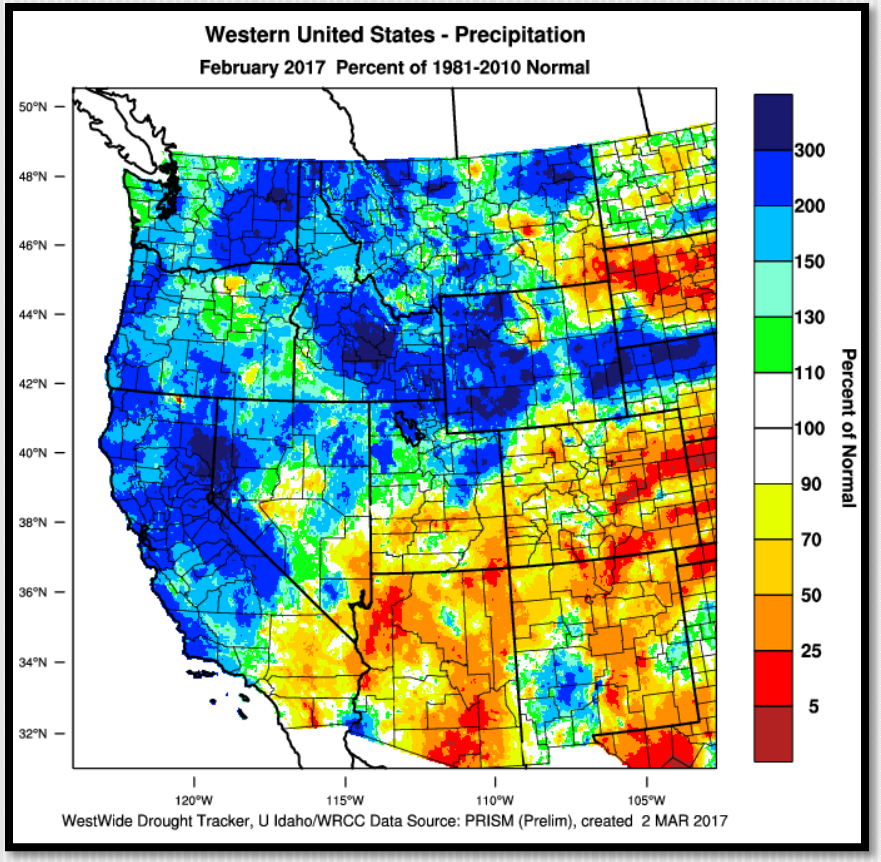
	Max (°F)	Date(s)	Min (°F)	Date(s)
North Bend	64°	15th	32°	25th
Roseburg	67°	15th	32°	24th & 27th
Medford	67°	15th	27°	24th & 26th
Klamath Falls	61°	14th	17°	24th
Montague, CA	60°	15th	15°	26th
Mt. Shasta City, CA	63°	14th	15°	27th
Alturas, CA	58°	14th	10°	27th

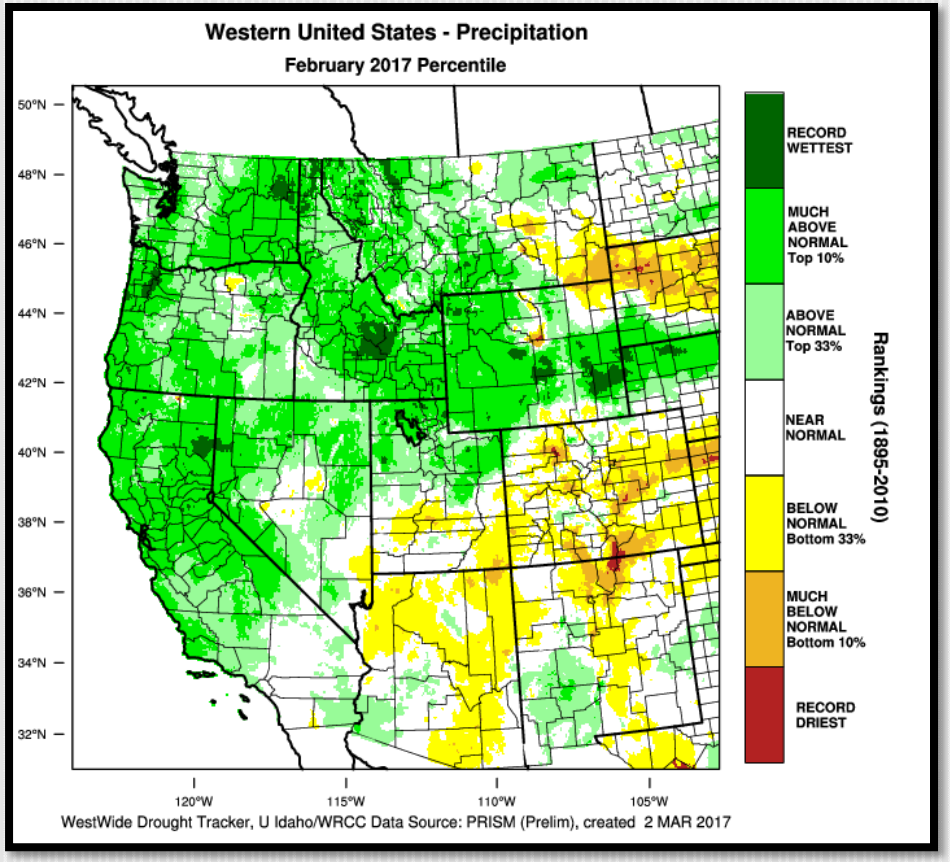
Record Temperatures

	Record High Temperature / Date	Old Record/Year
Roseburg	67° / 15th	Ties with 2016

	Record Low Temperature / Date	Old Record/Year
Montague, CA	16° / 24th	Ties with 2015

February 2017 *Observed Precipitation*





Precipitation

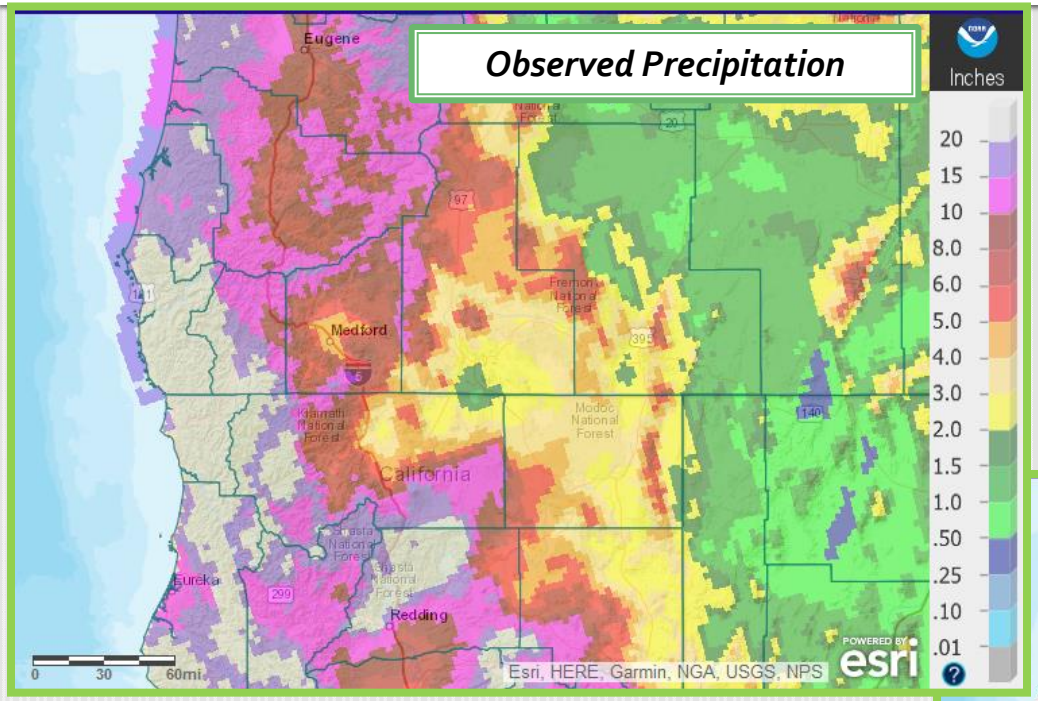
	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	14.77"	+7.18"	1.85"	16th
Roseburg	8.26"	+4.31"	1.67"	15th – 16th
Medford	4.12"	+2.11"	0.86"	15th – 16th
Klamath Falls	1.87"	-0.05"	0.55"	6th – 7th
Montague, CA	2.68"	+0.67"	0.67"	6th – 7th
Mt. Shasta City, CA	11.05"	+3.82"	2.74"	8th – 9th
Alturas, CA	3.23"	+1.78"	0.95"	6th – 7th

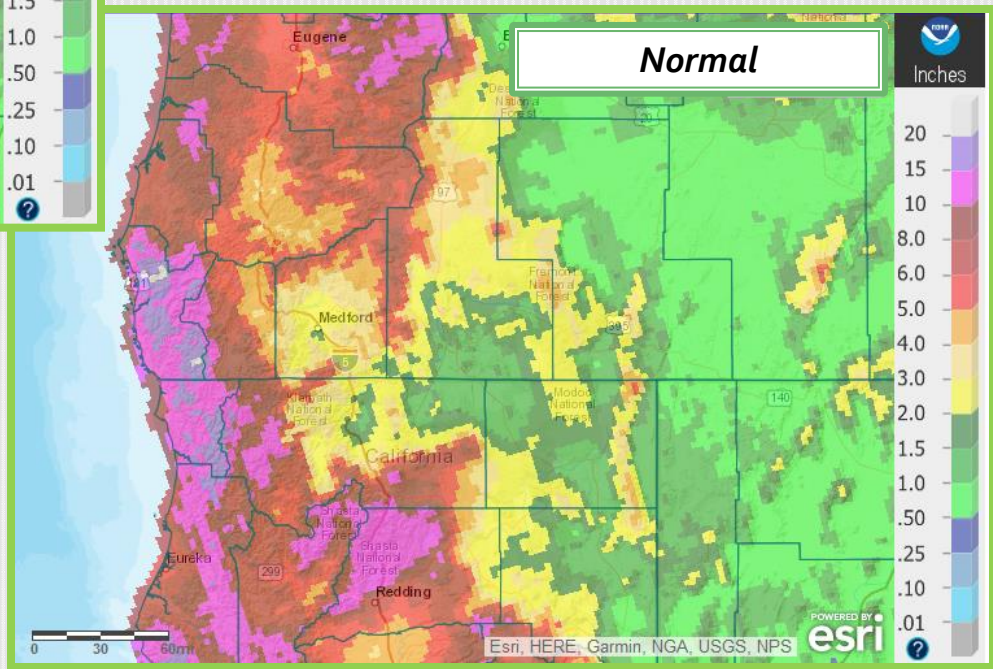
Record Daily Precipitation

	New Record	Date	Old Record	Year
North Bend	1.63"	5th	1.41"	1953
Roseburg	0.99"	16th	0.97"	1990
Mt. Shasta City	2.13"	9th	1.90"	1919
Alturas	0.66"	6th	0.62"	1942

Record March Precipitation	Feb 2017	Ranking	Record Value	Year
Roseburg	8.26"	6th	9.71"	1940*
Medford	4.12"	10th	5.67"	1983
Klamath Falls	1.87"	7th	2.75"	1962
Montague	2.68"	2nd	3.18"	2015
Mt Shasta City	11.05"	6th	17.60"	1958
Alturas	3.23"	1st	Old record: 2.06"	1999

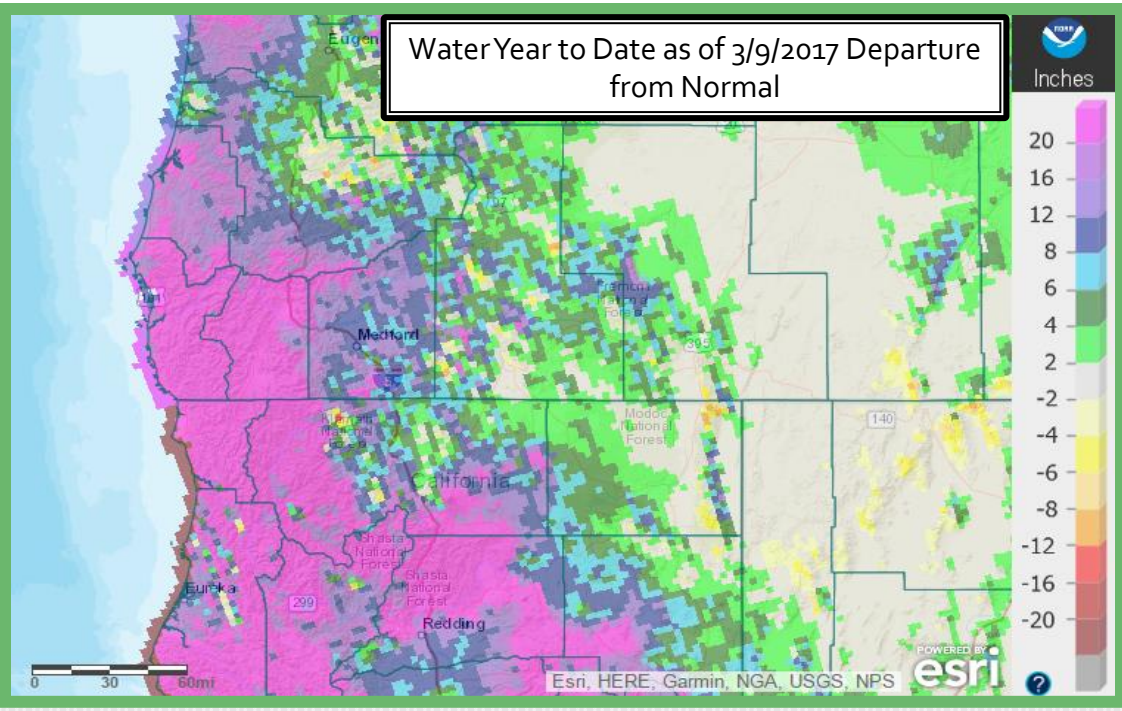
Precipitation





February Significant Weather Events

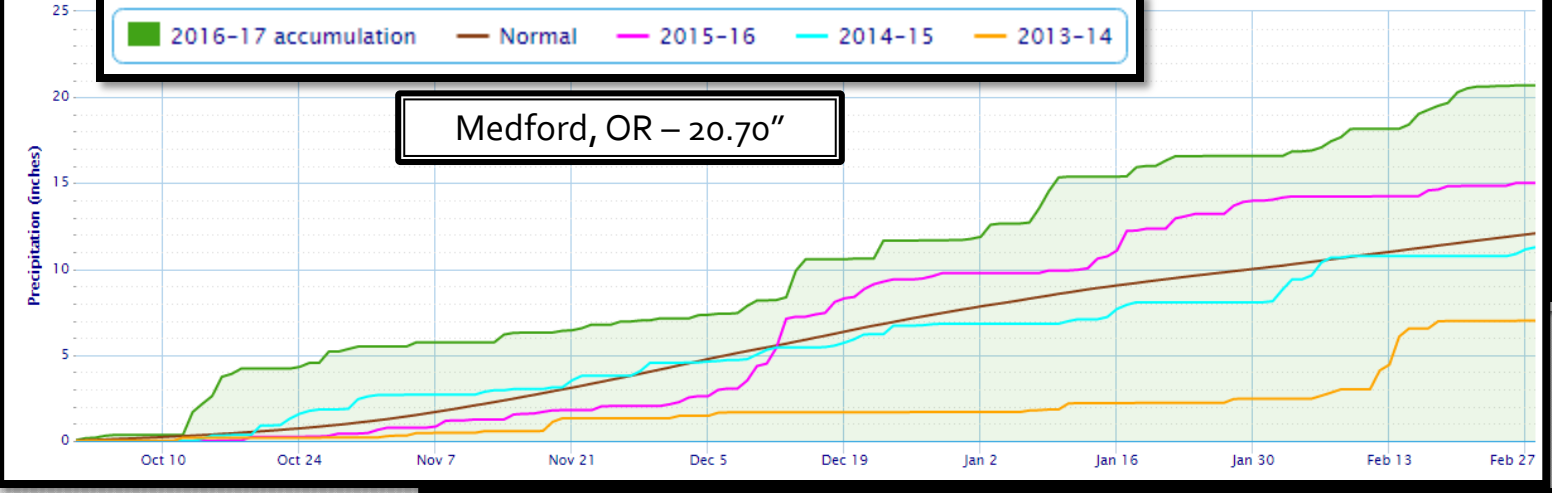
Record Wet Water Year To-Date

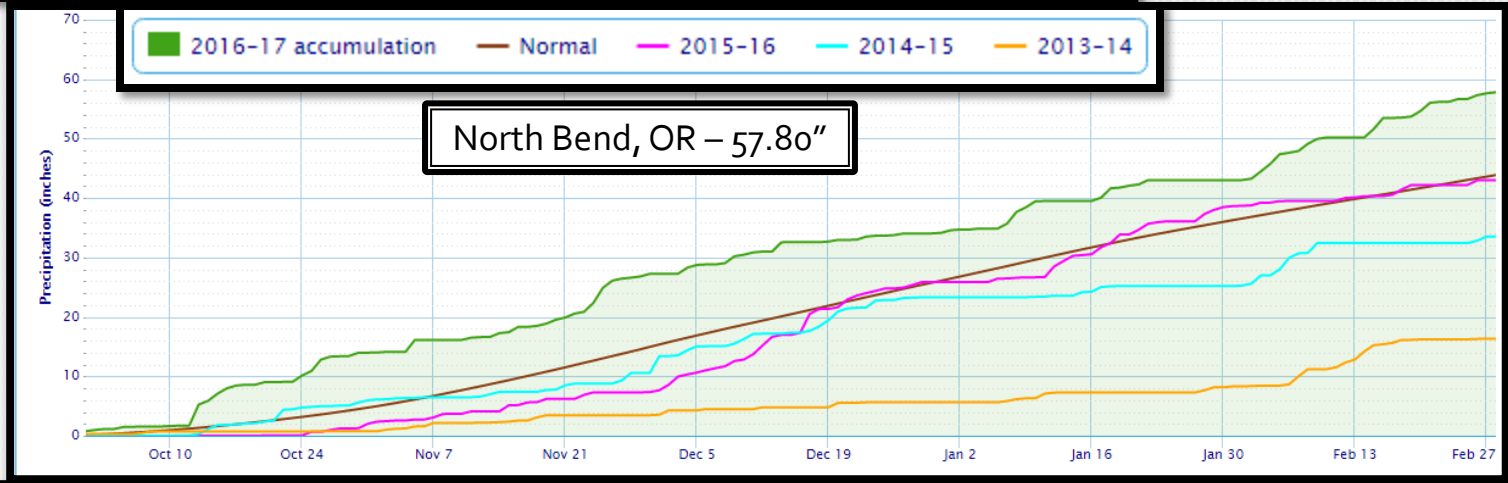


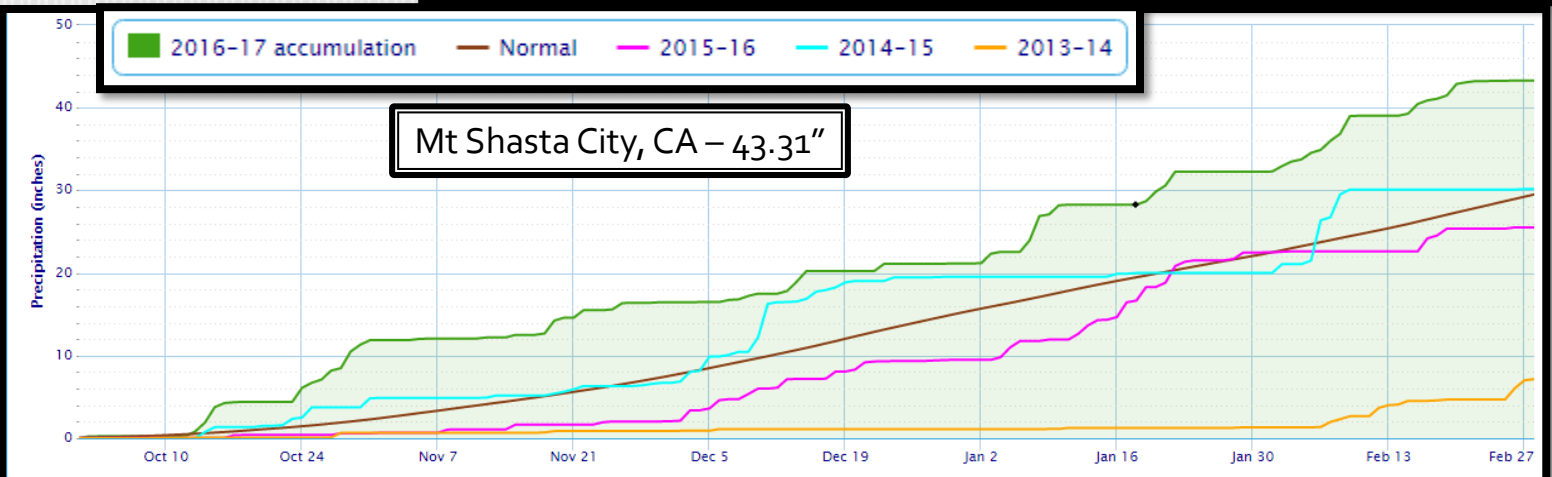
This wet season has definitely been one for the books; especially compared to the previous three years. The majority of our climate sites are recording water year to date (as of the end of February) totals within the top ten on record! Many locations west of the Cascades and in northern California have already exceeded the average water year ***total*** precipitation!

Record Wettest Water Year To Date 10/01 – 02/28	*Ranking*	*Value (as of 2/28)*
North Bend	*9th*	*57.80"*
Roseburg	*5th*	*32.65"*
Medford	*6th*	*20.70"*
Klamath Falls	*14th*	*7.97"**
Montague	*2nd*	*12.52"*
Mt Shasta City	*4th*	*43.31"**
Alturas	*1st*	*10.24"*

*Indicates values that are missing a few days of precipitation during the month of January. The sensors at these stations were overwhelmed by heavy snowfall and the heated gauges were unable to function properly. More precipitation fell than indicated and the numbers above should be higher in value. These values should be considered as estimates and should not be considered true/absolute values.


2016-17 accumulation
Normal
2015-16
2014-15
2013-14
Medford, OR – 20.70"
Precipitation (inches)
0
5
10
15
20
25
Oct 10
Oct 24
Nov 7
Nov 21
Dec 5
Dec 19
Jan 2
Jan 16
Jan 30
Feb 13
Feb 27

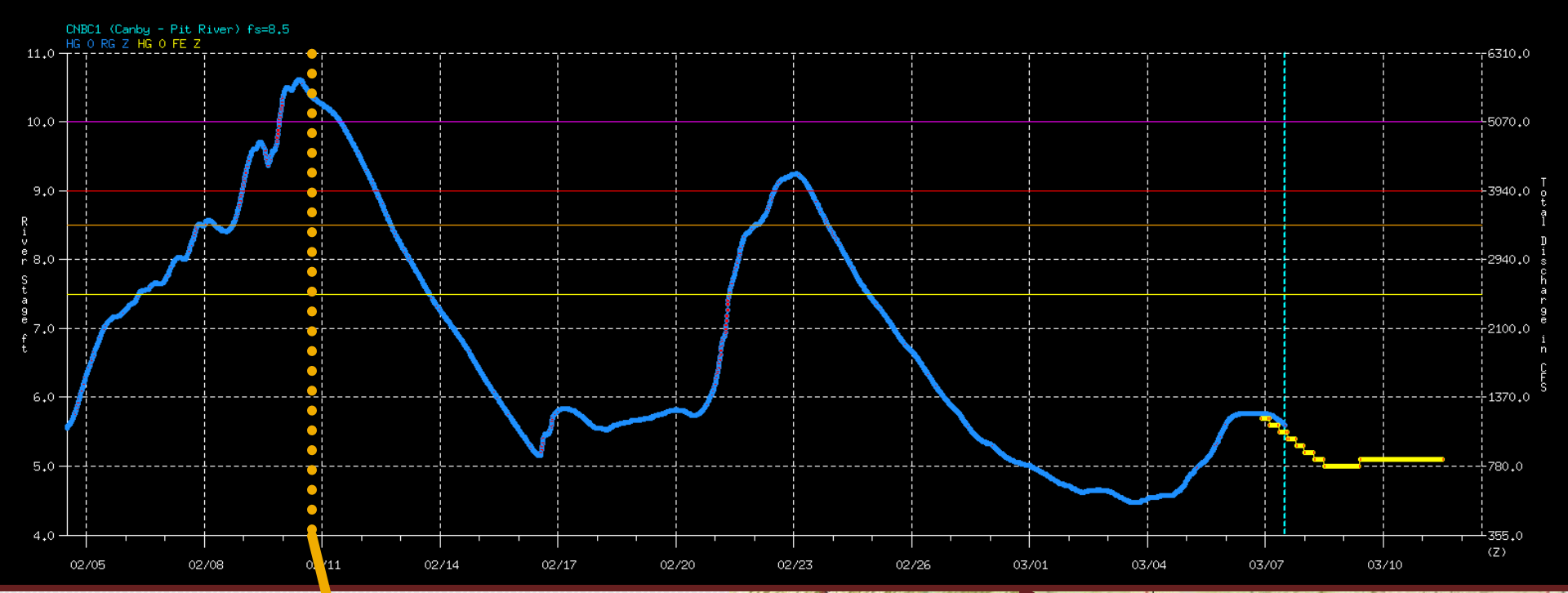

2016-17 accumulation
Normal
2015-16
2014-15
2013-14
North Bend, OR – 57.80"
Precipitation (inches)
0
10
20
30
40
50
60
70
Oct 10
Oct 24
Nov 7
Nov 21
Dec 5
Dec 19
Jan 2
Jan 16
Jan 30
Feb 13
Feb 27

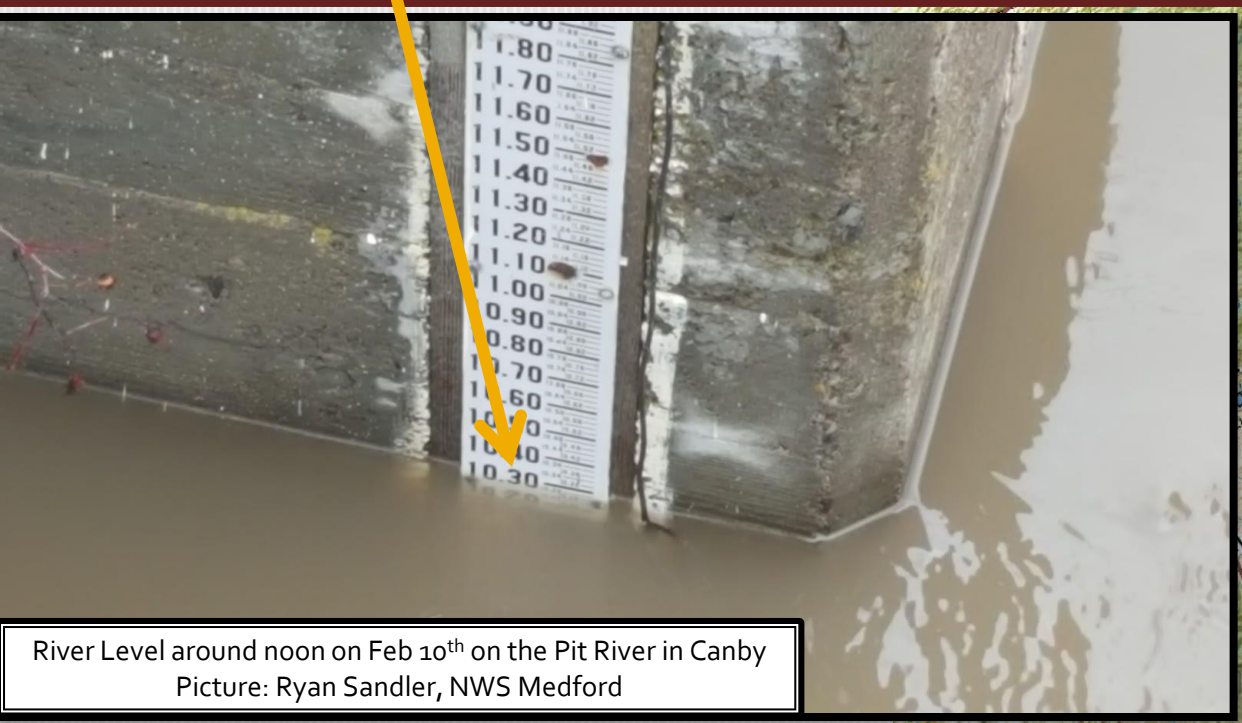

2016-17 accumulation
Normal
2015-16
2014-15
2013-14
Mt Shasta City, CA – 43.31"
Precipitation (inches)
0
10
20
30
40
50
Oct 10
Oct 24
Nov 7
Nov 21
Dec 5
Dec 19
Jan 2
Jan 16
Jan 30
Feb 13
Feb 27

Flooding in Northern California and East of Cascades

A strong frontal system with a deep tropical origin near the Hawaiian Islands moved across the region on February 8-9th. Ahead of this system, there was heavy to moderate snow depth across much of Siskiyou, Modoc and Lake counties. The combination of deep tropical moisture and favorable south to southwest upslope flow resulted in heavy rain across Siskiyou County as well as rain across areas east of the Cascades. Snow levels were very high during this event, 8000+ feet. The rain, south wind, and warm temperatures brought significant snow melt to much of Siskiyou, Modoc and Lake counties. Rain and snow melt with this system led to widespread flooding, including urban, small stream, and river flooding.

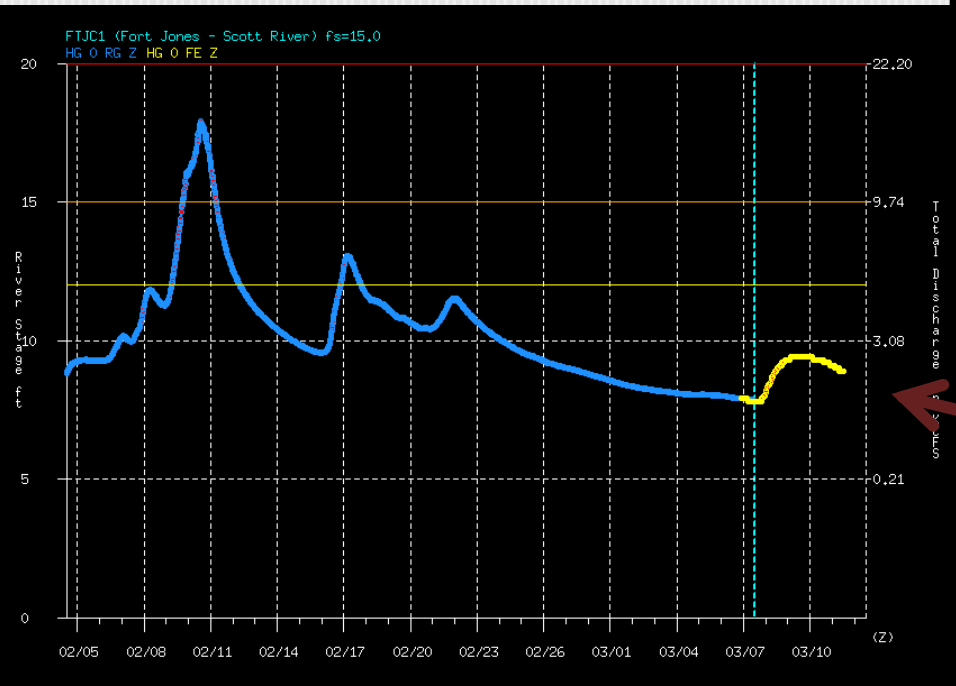
Flooding from the Pit River in Modoc county.
Pictures: Ryan Sandler, NWS Medford





River Level around noon on Feb 10th on the Pit River in Canby
Picture: Ryan Sandler, NWS Medford

Flooding on the Scott River in Siskiyou county, CA. These images were taken off of Quartz Valley Rd, west of Fort Jones on February 9th, 2017. Pictures: Spencer Higginson, NWS Medford Hydrologist.



Waterspout near North Bend 2/26/2017

Charles Dell submitted these photos to KVAL and we were contacted by them to confirm that these were pictures of a waterspout. In the picture to the right, you can see a faint funnel reaching down from the cloud and the classic spray ring. Considering that the rest of the bay is calm, as well as the duck in the bottom left of the picture, this waterspout was likely a weak one. We spoke with Charles about the details of what he saw. He said the spout occurred south of the Oyster loading dock at North Bend. The spout was 1/3rd of the way across the bay from where he was and he and many others, to include his coworkers, watched it travel about a half mile across the bay over the course of about 15 minutes before it diminished. He said it was amazingly calm except for right under it, and that it left a trail as it went across. It was visibly sucking up a lot of water and making the cloud above it darker. He said it was narrow and estimated winds in the core at 75 mph. He's worked in that area for 22 years and he said the last one he saw was on April 12th, 2016. He said the one last year caused seas in the bay to go from calm to 5 feet!

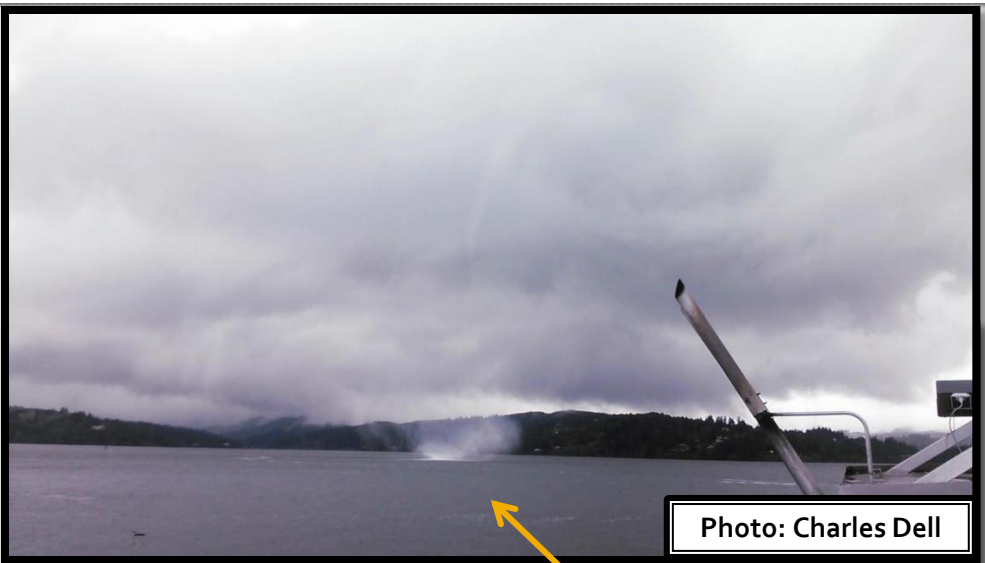


Photo: Charles Dell

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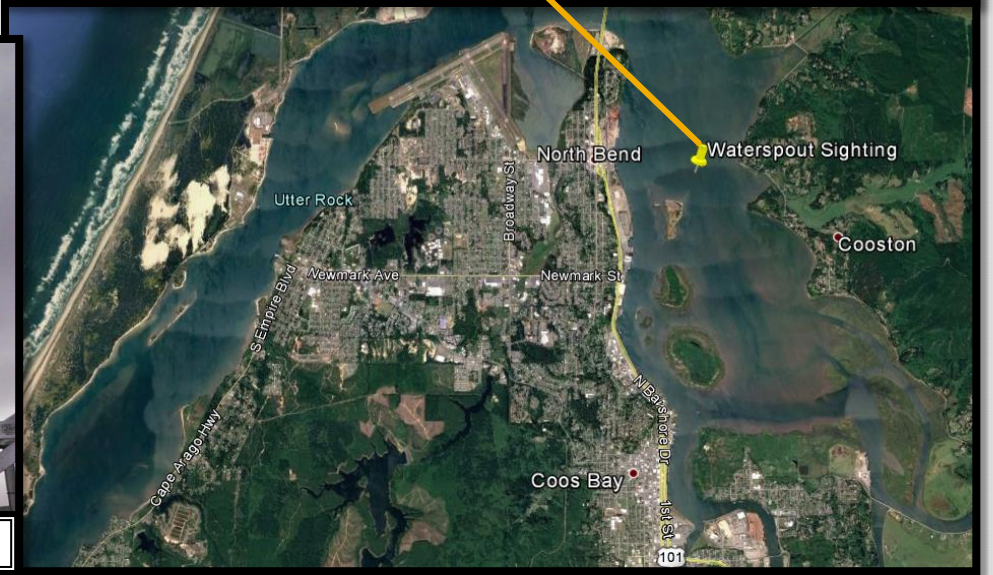
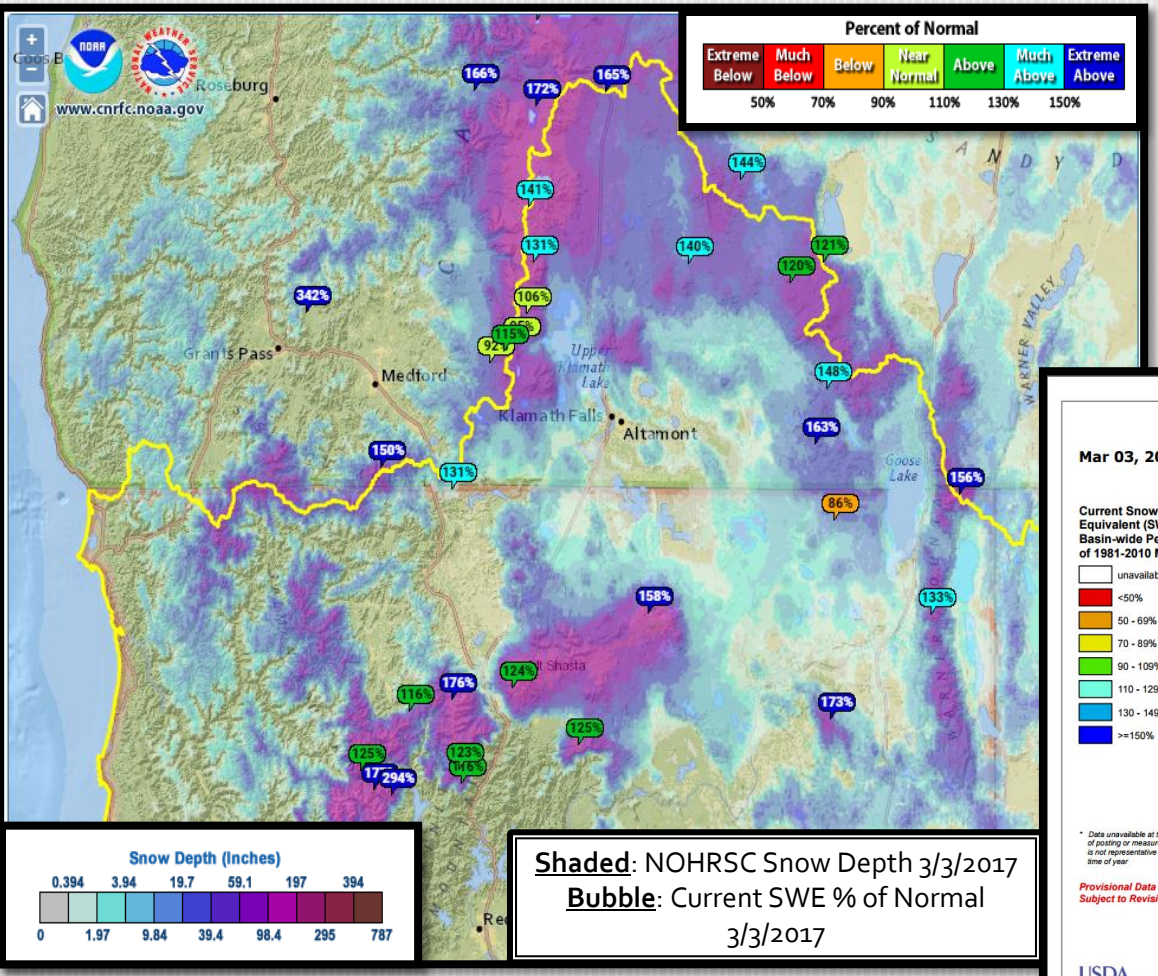
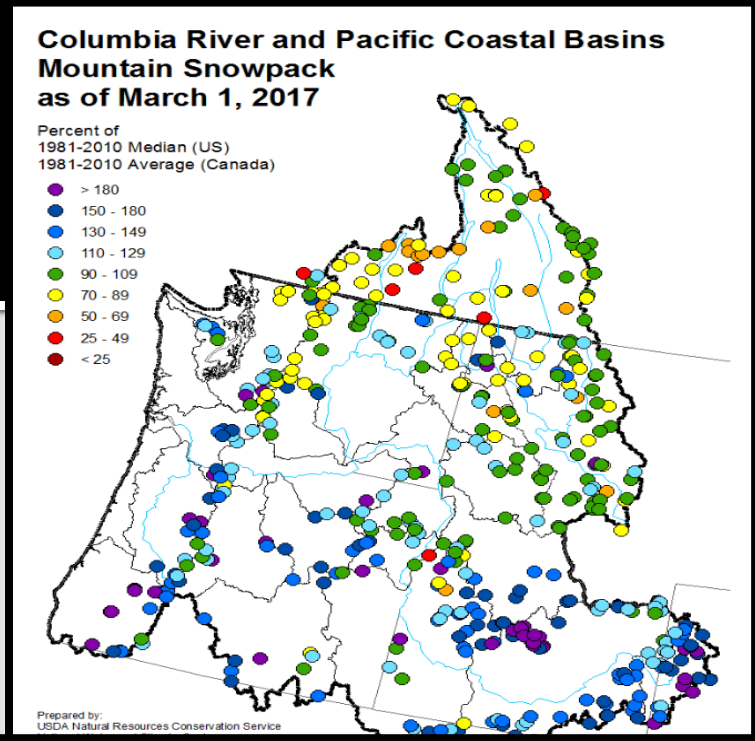
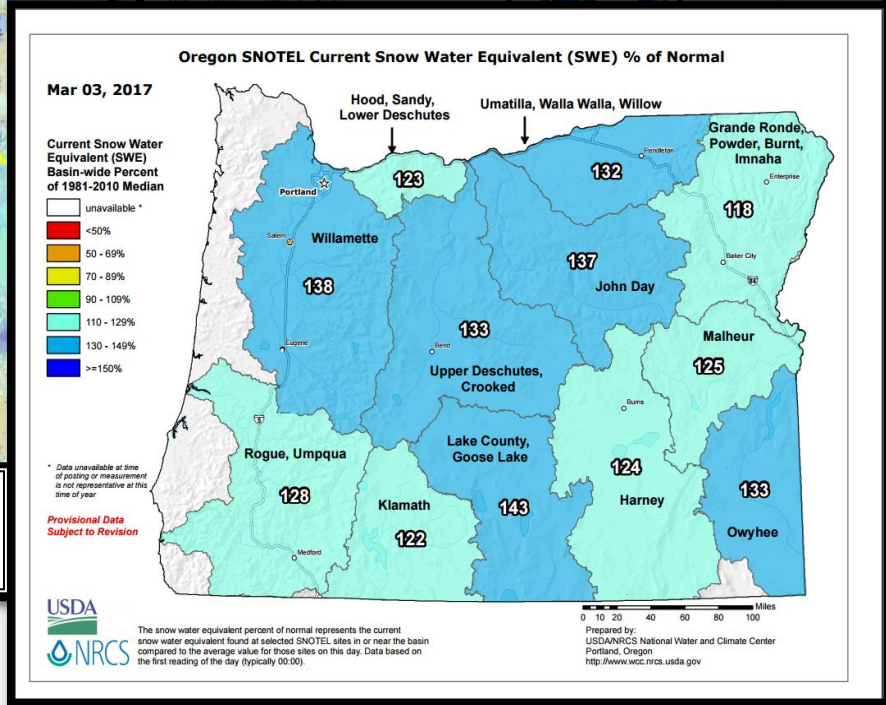


Snowpack Status



Shaded: NOHRSC Snow Depth 3/3/2017
Bubble: Current SWE % of Normal 3/3/2017





Crater Lake


Image Courtesy: NPS

	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 02/28/17	Highest Max/ Lowest Min
February	31.8°	19.4°	14.67"	104.3"	148"	48° on 15th / 4° on 24th
Normal (1981-2010)	34.8°	17.8°	7.72"	71.3"	105"	N/A

Drought Outlook: March

Drought persists

Drought remains but improves

Drought removal likely

Drought development likely

Valid for March 2017
Released February 28, 2017

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

Looking Ahead: Normals for March (1981-2010)

Temperatures:

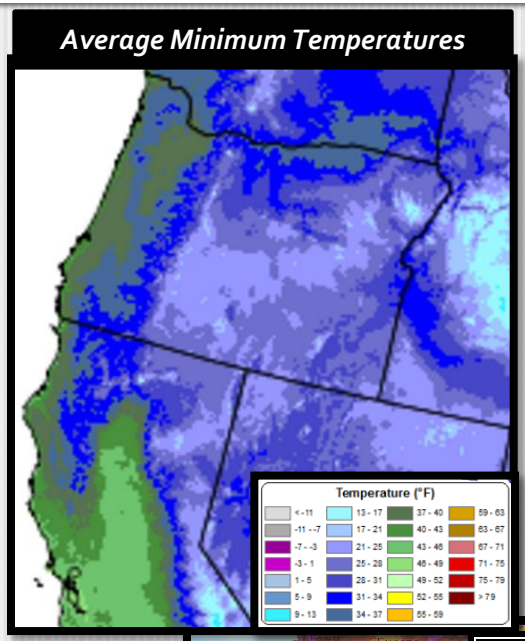
Along the coast, lows are typically in 40s with highs in the 50s to near 60F. The Interior West Side usually experiences average lows in the lower 30s to lower 40s and highs in the 50s to near 60 in the lower valleys. Lows in the upper teens to mid 30s occur across the higher, most typically snow packed mountains, and the East Side. Highs in those mountains and across the East Side are typically in the mid 30s to the 40s.

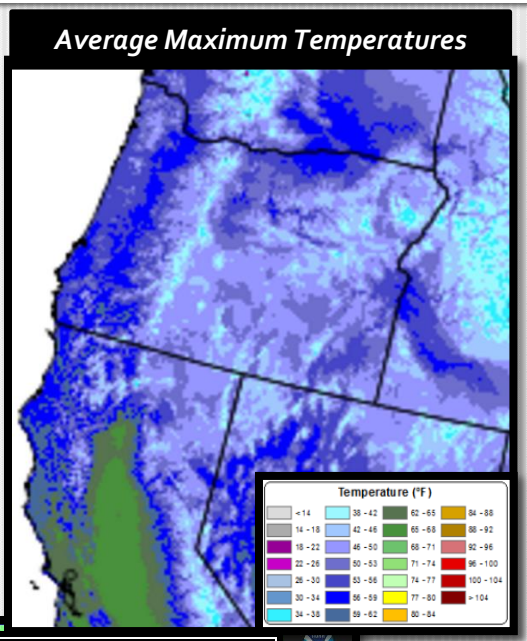
Precipitation:

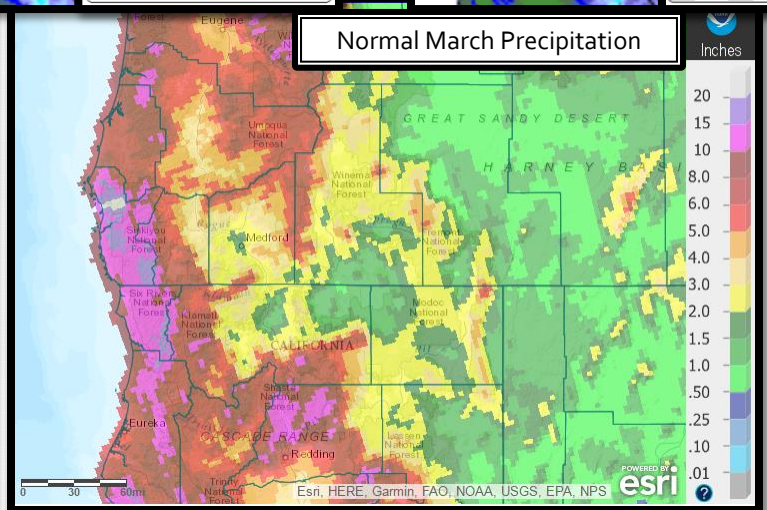
On the high side for March, Curry County usually gets 10 to 20 inches of water. South and southwest flow favored areas of west of the Cascades, the Mount Shasta area, and the Cascade and Siskiyou Mountains typically receive 5 to 10 inches. The remainder of the West Side has a wide range in normals, ranging from 1 to 5 inches. East of the Cascades, the drier portions of Lake County typically receive about a half an inch, while the rest of the area gets 1 to 3 inches of water, except up to around 5 inches in the some of the mountains.

Snow:

Peak snowpack, in terms of snow water equivalent, for the forecast area occurs approximately in mid-March. Thus, in early March we usually continue to add more water to the snowpack than is lost from melting and sublimation, whereas we start to melt off the net snowpack beginning the second half of March for most areas. Some years, however, the snowpack peaks in April. Our maritime snowpack usually yields depths of 7-12 feet above 6000 feet elevation in mid-March.







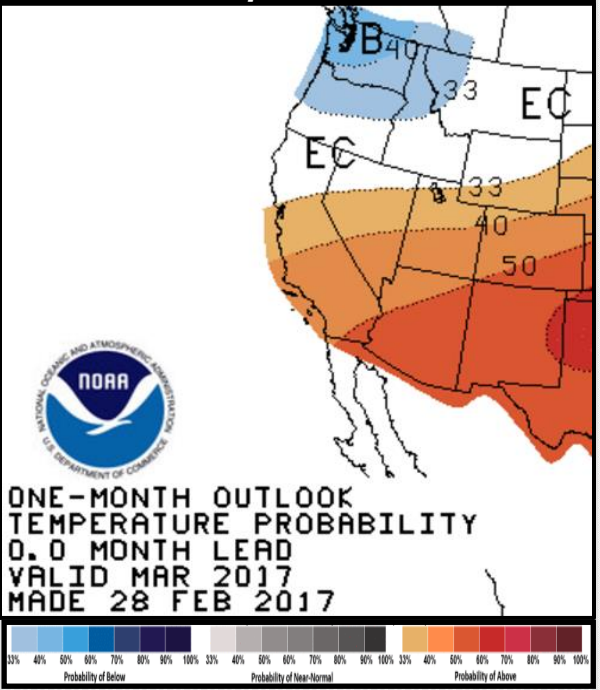
March 2017 Outlook

The official CPC forecast calls for equal chances of below average, near average, and above average temperatures for March, as a whole. Odds are increased for above average precipitation occurring for all of the forecast area.

Correlations to phase 3 of the Madden Julian Oscillation favor above average wetness early in the month, lingering through mid-month. Colder than normal temperatures are also expected for the first half of the month. There is much more uncertainty for the latter portion of the month, with near to above average temperatures favored beginning about mid-month, and precipitation at or below the median as high pressure is finally expected to take up residence off our coast. There is uncertainty as to how fast the storm track will shift north of our area such that precipitation rates will fall to below normal, with high confidence that it will take until at least mid month, and medium confidence that it will be before the 24th.

Overall, March appears as if it is most likely to be below normal for temperatures across the forecast area. This is also supported by the cold and early start to the month and the cooling effects of the above average snowpack. Precipitation does indeed now appear as if it will be above normal across the entire forecast area.

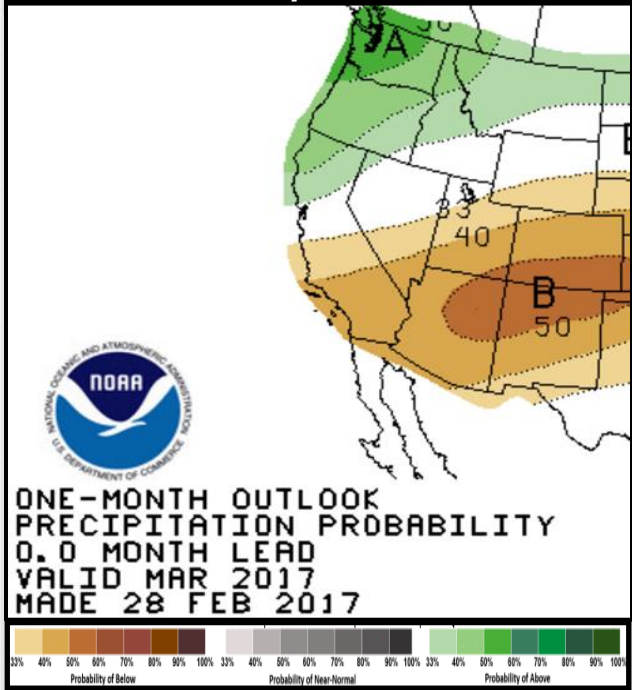
Temperatures



Expected Impact, March 2017:

We began the month with above average streamflows and reservoirs well on track along fill curves for the forecast area. With above average snowpack and the expected transition from first colder than normal to warmer than normal temperatures accompanied by above average additional precipitation through mid-month to as late as the 24th, there is an increased threat of more flooding across the forecast area. The window for this is wide, mainly between the 10th and the 20th due to uncertainties in snow levels and magnitude of individual storms. As we normally expect, trends do favor spring arriving in the form of green-up across the valleys, and flowers beginning to bloom. March also brings with it an increased risk of thunderstorms and squall lines with damaging winds. Winter can still pay us a visit, though impacts tend to be more brief due to stronger solar radiation, longer days, and resultant milder temperatures.

Precipitation



*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*