



# Nevada CoCoRaHS Newsletter

Because every drop counts even in the driest state!

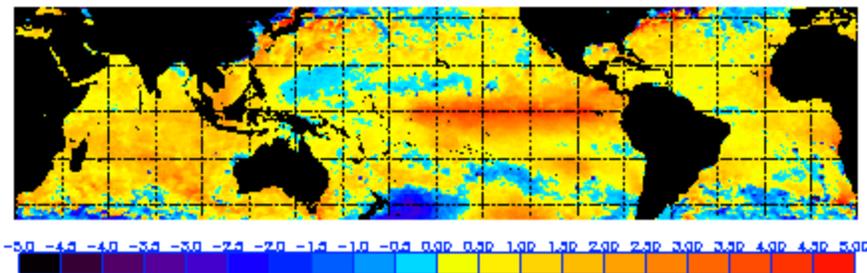
Winter 2015-2015

## The 2015-2016 El Niño So Far

With the historic drought in California and Nevada now in its fifth season, all eyes have been on El Niño this cool season. However, despite breaking or tying statistics set during the 1997-1998 El Niño episode, the current El Niño has certainly been atypical so far with respect to the weather pattern over Nevada this cool season.

El Niño is a large-scale ocean-atmospheric pattern linked to a warming of waters in the central and eastern Pacific Ocean near the equator. In a typical El Niño, the jet stream becomes suppressed further south and favors a storm track toward southern California and Arizona. Thus, for Nevada, El Niño does not really correlate into the guarantee of a wetter than normal cool season, especially in the northern half of the state. Further south in the Silver State, there is a better correlation for a wetter than normal cool season when an El Niño episode takes place since this area is closer to where the main storm track is located.

NOAA/NESDIS SST Anomaly (degrees C), 1/14/2016



This is a satellite image from NOAA/NESDIS of the sea surface temperatures (SST) and how warm or cold they are (known as an anomaly). Note the oranges off the coast of South America in the Pacific. This is clearly a sign of a strong El Niño.

The past few cool seasons, defined as the period from October through April, have seen a dearth of storms impact California and Nevada largely due to a persistent area of high pressure off the coast of California. This has helped to block storms from moving in from the Pacific and resulted in exceptionally dry

conditions especially in the 2013-2014 and 2014-2015 cool seasons in western Nevada. The drought in southeastern and east-central Nevada has been tempered somewhat by the monsoon season during the last few years which has been more active than normal.

This cool season, however, we have seen a mixed bag of precipitation totals across the Silver State largely as a result of the storm track. Since November, storms have largely originated from the northwest and moved southeast across Nevada. For much of the Silver State, this a

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dry trajectory as these systems lack any significant infusion of moisture. The heavier precipitation totals that are seen tend to be the result of the atmosphere being able to lift air and squeeze out precipitation due to a strong forcing mechanism. Often, this is the result of the mountainous terrain as the air is forced upward by the mountain and when moist enough, able to condense and trigger precipitation.

The impact of this weather pattern can be greatly seen in parts of Lincoln, White Pine and Elko Counties. Since November 1<sup>st</sup>, a total of 3.20 inches of precipitation has fallen at Caliente, Nevada, which is 1.03 inch above the long term average for this period. At Great Basin National Park, a total of 4.21 inches has fallen so far in this same time frame, which is 1.21 inch above the long term average. Equally impressive is the seasonal snowfall so far in northeastern and east-central Nevada. Elko has measured 38.1 inches of snow from November 1<sup>st</sup> through January 14<sup>th</sup>, which is nearly 16 inches above normal. Ely has recorded 53.4 inches of snow in this same time period, nearly 31 inches above normal.

However, many spots have largely seen a lack of precipitation due to the impact of shadowing, which occurs when mountains intercept much of the moisture storms bring, leaving clouds and little to no precipitation for areas to their south and east. For example, Las Vegas has only



**Snow falls at the National Weather Service in Elko on December 22, 2015.  
Photo Credit: NWS Elko.**

measured 0.51 inch of precipitation since November 1<sup>st</sup>, which is 0.61 inch below normal.

The ongoing El Niño has already broken the record for the warmest water temperature in the Niño 3.4 Region, a key area of the Pacific Ocean near the equator used to track El Niño. During December, the value in this area was 2.4°C above normal which broke the previous all-time record value of 2.2°C for any

month set in December 1997. However, El Niño is typically tracked using a three month time period average. For the October through December period in this same region, the record value of 2.3°C from 1997 was tied in 2015 based on preliminary numbers.

No two El Niño episodes are exactly the same, and in most cases the impacts of El Niño tend to ramp up in southern Nevada in the February through April period. So time will tell as to how this El Niño shapes up with respect to precipitation and other impacts in the Silver State. Either way, the severity of the drought in western Nevada is so great it will take several years of above normal precipitation to recharge soil moisture, vegetation, lakes, rivers, reservoirs and groundwater.

## 2015 Recap

With 2015 now over, the state CoCoRaHS coordinators would like to continue to thank everyone who continues to participate in the CoCoRaHS program in Nevada since it began in 2007! Below were the top 5 stations across the state for the 2015 calendar year who measured the most precipitation:

- NV-WH-108 New Washoe City 5.2 SW 23.05 inches
- NV-WH-19 Reno 9.0 W 18.55 inches (**Perfect score for precipitation – not a day missed!**)
- NV-DG-4 Garnerville 5.0 W 17.09 inches
- NV-WH-99 Reno 26.1 NNW 15.81 inches
- NV-EL-7 Spring Creek 1.5 ENE 15.66 inches

## Track Your Snowflakes!

Now you can not only track how much snow you received but also the type of snowflakes you observed! Within your CoCoRaHS account, you will notice an area under the left side menu under “FROST Reports” that says “Snowflake”. Click on it and you can select the type of snowflake(s) you observed during a storm! This can provide valuable information to researchers. The image shown is an example of the report form you will see to pick your snowflake.

\* Denotes Required Field

\***Observation Date** 

\***Observation Time** 

Yes  No **Report was taken at registered location?**

**Snowflake shapes were predominantly:**

<input type="radio"/> Stellar Dendrites 	<input type="radio"/> Sectored Plates 	<input type="radio"/> Hollow Columns 	<input type="radio"/> Needles 
<input type="radio"/> Spatial Dendrites 	<input type="radio"/> Capped Columns 	<input type="radio"/> Rimed Crystals 	<input type="radio"/> Other

**If present, select up to two (2) other snowflake shapes:**

<input type="checkbox"/> Stellar Dendrites	<input type="checkbox"/> Sectored Plates	<input type="checkbox"/> Hollow Columns	<input type="checkbox"/> Needles
<input type="checkbox"/> Spatial Dendrites	<input type="checkbox"/> Capped Columns	<input type="checkbox"/> Rimed Crystals	<input type="checkbox"/> Other

Click [here](#) see snowflake types

**Observation Notes:** (This will be available to the public) 

## Weather Wonder: What Is Diamond Dust?

Diamond dust is a ground-level cloud composed of tiny ice crystals and generally forms under a clear or mostly clear sky. It is most commonly observed near the Arctic or in Antarctica.



Diamond dust. Photo Credit: Wikipedia.

### CoCoRaHS Nevada Resources

<http://www.cocorahs.org/state.aspx?state=nv>

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