Notable Weather and Climate in Nevada

Across much of Nevada, wet conditions continued into the summer, although it was not a consistently damp season. Where you live dictated when it was wet and when it was dry. A few parts of the state – northern Nye County and the northernmost parts of the state – had quite dry summers.

After a really hot June, average temperatures during the rest of the summer were generally unremarkable, with above normal temperatures in July and August. In fact, Nevada’s June-August average temperature was the highest on record. Across the state, 18 weather stations set new records for consistently high nighttime temperatures. Half of those stations have been operating for more than 30 years. Reno set a record for the longest run of days at or over 90°F – 51 consecutive days. The runner-up hot spell was 35 days. Cooler than normal temperatures prevailed in September. A cold spell impacting most of the state in late September set many 1- and 3-day cold records and even brought snow to a few stations, including 8.1” at the COOP station at Ruth.

The generally high precipitation and moderate temperatures mean that little of Nevada is currently in drought. Please let us know if you’re still experiencing impacts from the last drought, so we can better help with future drought response.
Three-month outlook

There is a pretty good chance that autumn will be warmer than average. There is also a 50% chance that precipitation could be above normal in northern Nevada. Currently we under what is called a La Niña-watch. That means that it looks like a La Niña might develop over the next weeks or months, but it hasn’t happened yet. When there is a La Niña, the northwestern U.S. tends to experience cooler than temperatures and above normal precipitation. That is one thing driving the slight chance of above normal precipitation across the northern-most part of Nevada. Unfortunately, as we saw with the big El Niño in 2015-2016, the tropical Pacific only sets the stage for the fall. It doesn’t make for a slam-dunk forecast, especially in Nevada.

In depth

How useful are seasonal forecasts?

Weather and climate forecasters keep track of how often they’re right or wrong. They do that to improve forecasting skill. It’s also helpful to understand what to expect from different kinds of forecasts, so that you can use them intelligently.

The easiest way to see how often a forecast verified is to count up the number of times forecasts were right and wrong. For example, were temperatures actually above normal when there was a forecast for above normal temperatures? You can also get fancier and take into account the forecast confidence, but for now, let’s look at the easy option to see how reliable the CPC’s seasonal forecasts are for Nevada.

If you recall from the last report, there are four potential forecasts in the tercile system Above Normal, Normal, Below Normal and Equal Chances (EC).

There are two ways to get at whether or not a forecast is useful and reliable. The first question is how often the forecast is not EC. That may be a perfectly reasonable and scientifically defensible forecast. But for most of us a forecast of, “Could be wet, could be dry” is not terribly helpful.

The second question is how often a non-EC forecast verifies. Verifies is forecaster lingo for "the forecast was right". The CPC provides all this information (and then some) for 1995 - 2014 at http://www.vwt.ncep.noaa.gov. So that’s where I turned to get these seasonal forecast stats.

In Nevada, there are four large forecast regions: Northwest (NW), Northeast (NE), Central (CN), and the Las Vegas (LV). For each region, season and year, we can see what was forecast for temperature relationships between El Niño or La Niña and precipitation in Nevada – especially the central and northern parts – are weak. For example, there have been 18 years since 1900 when La Niña conditions have developed during the fall. In eight of those years, Elko had above average October - December precipitation. In a few cases, twice the average precipitation fell during La Niña autumns. In nine La Niña years, Elko had below average precipitation, and some of those seasons had less than half the usual precipitation.

For more information check out the Nevada State Climate Office webpage http://www.unr.edu/climate
and precipitation – Above, Below or Normal (we can assume EC if there is no forecast given) – and what actually happened that season. I went pulled information on how skillful seasonal forecasts issued two weeks in advance were for four seasons: October - December, January - March, April - June and July - September.

The first thing to know is that EC forecasts are really common in Nevada. Across regions and seasons, about 23% of the temperature outlooks are for Equal Chances, as are 62% of the precipitation outlooks. That is because, worldwide, the single best seasonal forecasting tool is the El Niño-Southern Oscillation, and it doesn’t influence precipitation in Nevada, except in the southern part of the state during the winter.

The other important thing to know is that forecasting out almost four months is hard. The graphs in the next column show that, on average, the seasonal outlooks are right about half the time. Some places and seasons have routinely better forecasts than others, and temperature forecasts are usually a bit better than precipitation forecasts. In comparison, weather forecasts in Nevada are right more than 75% of the time, according to www.forecastadvisor.com.

Why is seasonal forecasting so hard? After all, we have really smart people working on it with really fancy computers. In places like Nevada, that don’t have strong links to ENSO, much of the variability comes from what atmospheric scientists call internal atmospheric dynamics. In regular language, this is probably best translated as “dumb luck.” How many atmospheric rivers form and where do they hit? Does a tropical storm make its way into southern Nevada? Basically, seasonal forecasting works well when what happens depends on the large-scale set-up of the atmosphere and ocean. It works less well when the outcome depends on forecasting two or three storms months in advance. It’s like budgeting. A few months in advance, you probably know about what the gas, electric, phone, etc. will cost. While you know that there could be a major problem with the car, it’s hard to know, months in advance, what exactly it will be and how much it’ll cost to fix. While it still makes sense to budget, we all know that there are always surprises. In this analogy, let’s just say Nevada has a lot of unexpected car repairs.

Stay tuned for January and our first installment of Dear NSCO.

For more information check out the Nevada State Climate Office webpage  http://www.unr.edu/climate