SPOTTER NEWSLETTER

NWS PHOENIX SKYWARN NEWSLETTER

APRIL/MAY 2023

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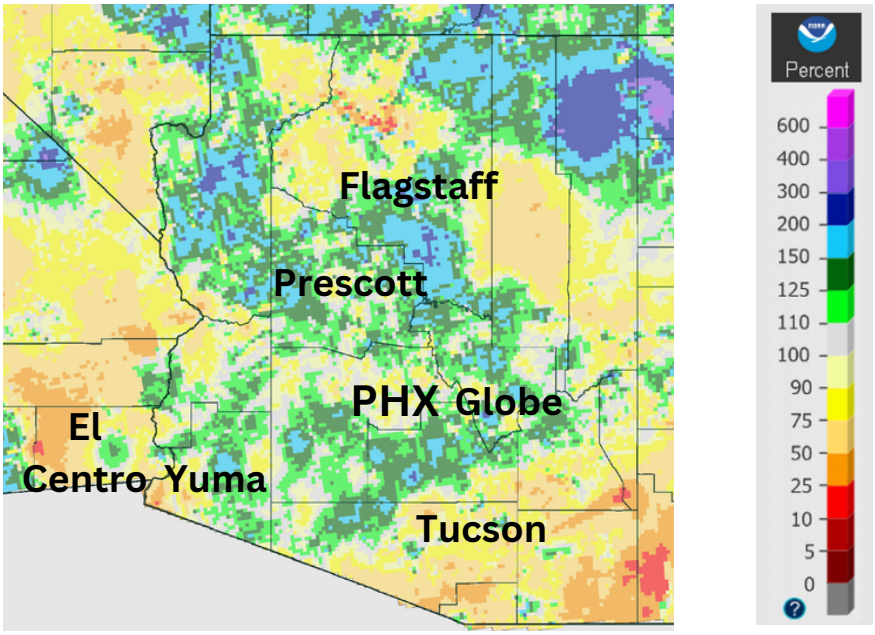
Winter Review

As we know, the past several months has had a lot of cool and even wet days. In fact, there was enough precipitation to produce long lived runoff in some of the mainstem rivers of Arizona - not unheard of but unusual. We will take a look at precipitation from recent months, the impact on the drought status, and impact on reservoir storage levels.

Winter Review - Continued

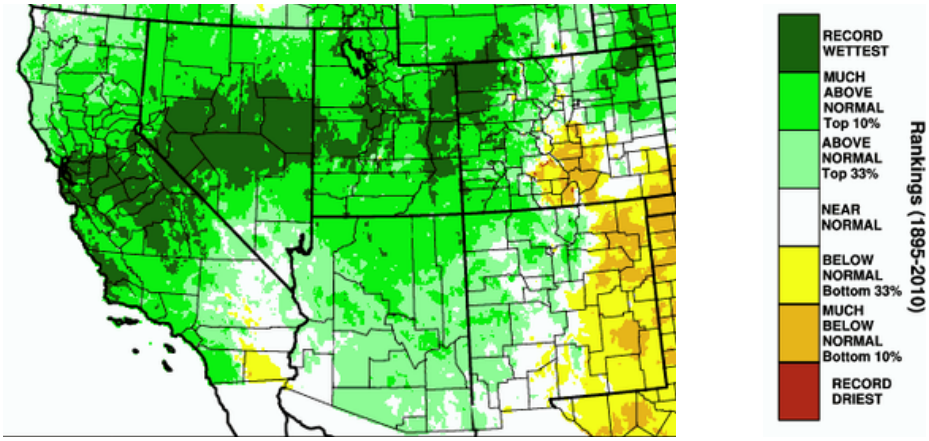
Cool season precipitation is very important to water supply because it tends to be more widespread compared to summer showers and it doesn't evaporate nearly as fast - especially where it has fallen as snow. Runoff over the higher terrain contributes to reservoir levels. On the lower deserts, healthy amounts of rain contribute to desert wildflowers! The map below shows the percent of normal for a 180 day period ending April 7th. That way we can have something of an apples-to-apples comparison across elevation ranges. Some places fared well (green/blue/purple) but there were some places well below normal (tan/orange/red).



180 day precipitation percent of normal (ending 4/7/23)

Winter Review - Continued

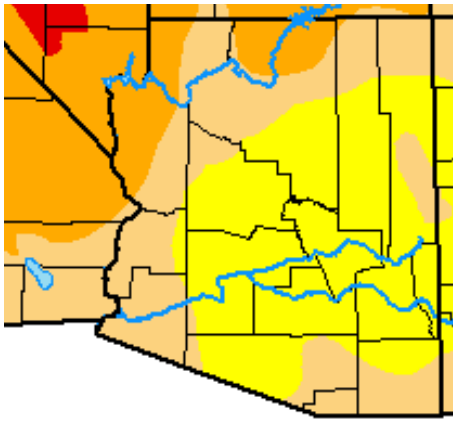
Now we will look at a shorter period of time - meteorological winter (December - February). This is a key period of time for mountain snow accumulation which can provide a timed release of moisture to soils and vegetation. This is also a key period of time for rain that contributes to desert wildflower development. The map below shows a broader geographic area as well as a longer term perspective looking at percentiles for the period of 1895 - 2010. You can see much of AZ was above normal as you would have expected. Notice the swath of record wettest over portions of California and the Great Basin! Notice also the contrast across California going from record wettest over central CA to below normal over far southeast CA. There is good news for the Colorado River Basin but this will be far short of being able to refill Lake Powell and Lake Mead.



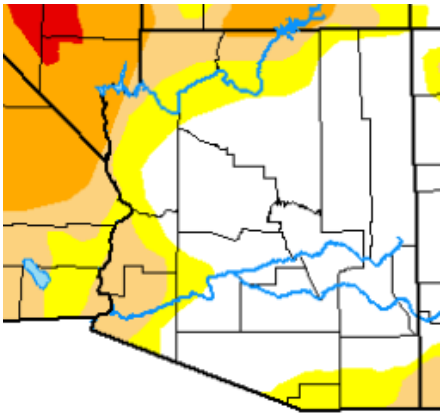
Winter/Drought Update - Continued

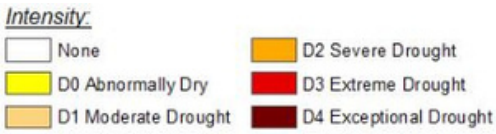
As would be expected, the winter precipitation brought continued improvement to the drought situation. The maps below show the drought status for two points in time enabling a before and after comparison. Nearly all of Arizona had at least a one category improvement. A large swath is not even in the Abnormally Dry condition. Meanwhile, the Mohave Desert region had less improvement. There was additional improvement in March - especially for the Mohave Desert.

November 29th



February 28th





Winter Review - Reservoir Status

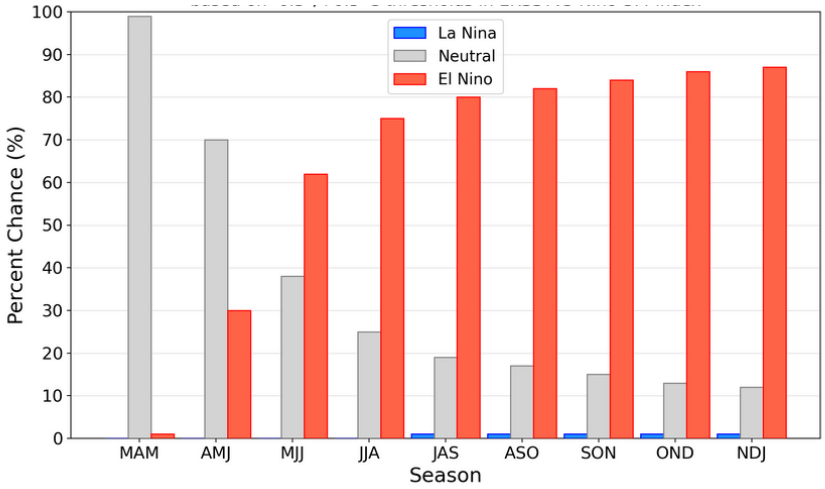
With runoff from rain and melted snow, how are the reservoirs doing? The Salt-Verde system is practically full at 99% (2.270 million acre-feet) and will remain essentially "full" for some time as runoff/inflow continues. A year ago at this time, the system was at 71% full with a lot less inflow to come. Check this link for the latest numbers. The San Carlos Reservoir on the Gila River has had a tremendous change over the past year. A year ago, the storage was about 11,000 acre-feet (AF) and now it is about 529,000 AF. Meanwhile, the Colorado River reservoir system is a different story. The main portion of the system, which accounts for 95% of the capacity and includes Lakes Mead and Powell, is only at 35% full (link). It is a much larger system than the Salt-Verde so it's total is 20.71 million acre-feet (MAF).

The runoff season for the Colorado River goes deeper into Summer than the Salt-Verde however. The forecast inflow to Lake Powell is 11.3 MAF with 8-10 MAF anticipated to be passed down to Lake Mead. This will be far short of filling those reservoirs. Between the two of them, there is about 35 MAF of available storage left. This is important because the amount of water in Lake Mead determines whether or not allocations are reduced and by how much. Currently, we are in a Tier 2 Shortage. But, there is good news. The projected inflow is anticipated to improve Lake Mead enough to improve things to Level 1 Shortage conditions later this year. That would mean Arizona would see smaller cuts to its allocation in 2024.

El Nino Watch

You may have heard that El Nino is forecast to return later this year. By the way, La Nina has subsided and things are currently in a neutral status. To review, El Nino refers to the temperature of the surface waters in the Pacific (close to the Equator) being above average and La Nina is the reverse (learn more). This can affect the thunderstorm patterns in a key area of the Pacific which in turn can influence jet stream patterns in mid-latitudes (learn more). Of note, the climate system is very complex and El Nino and La Nina (collectively, ENSO) don't explain all of the variability in weather patterns.

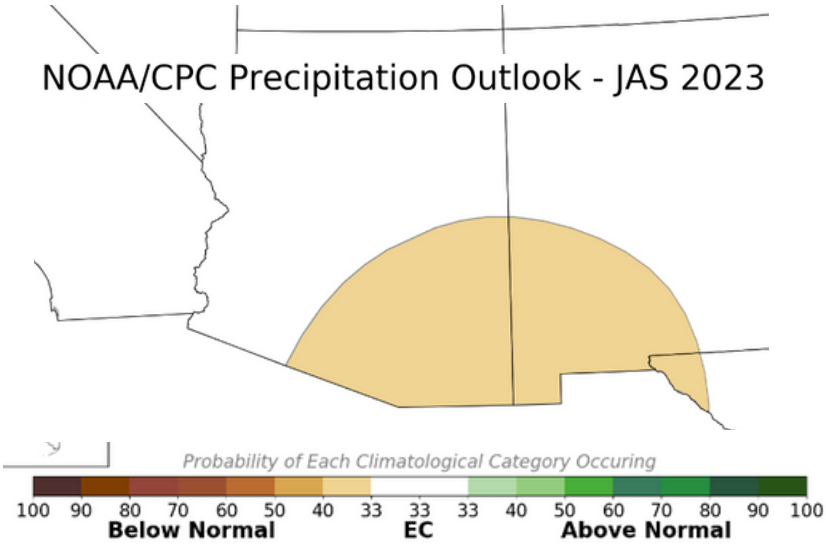
So, how is El Nino forecast to unfold? The Climate Prediction Center makes the long range forecasts of temperature and precipitation. They take El Nino (and other things) into account. The chart below shows the probabilities of El Nino, La Nina, and Neutral conditions for a series of overlapping three month seasons (e.g. "MAM" is March-April-May; "AMJ" is April-May-June). You can see the probability of conditions being in an El Nino state go up sharply as we head into Summer. A caveat is that climate (long range) forecasts during the Spring have the least skill.



El Nino Watch - Continued

Taking all things into consideration, what is the long range outlook for the Summer, specifically the Monsoon? Let's look at the parameter of most interest for the July-August-September time frame: precipitation. The map below is trying to depict the most likely outcome out of three categories: Above Normal, Near Normal, and Below Normal. You can see southeast AZ is shaded slightly toward the Below Normal category. The thinking is that the residual snow cover over the southern Rockies <u>might</u> tend to cause a slower evolution of the monsoonal circulation.

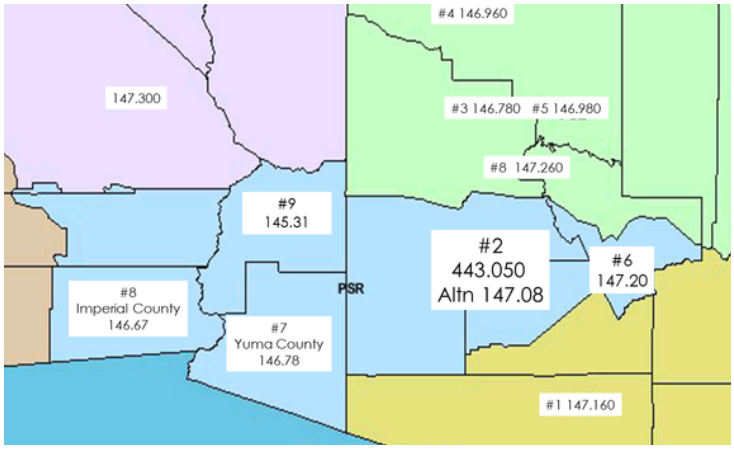
The rest of the area is "Equal Chances" (area not shaded). That means that each of the three categories (Above, Near, Below) all have the same probability of occurring. This is because there aren't any signals to latch on to in order to favor one outcome over another. In other words, 'anything goes.' These forecasts get updated every month and may very well change over time.



New Amateur Radio Sector

For Spotters who are also amateur radio operators ("Hams"), they can utilize the airwaves to communicate storm reports to us by means of a Skywarn Net. A Net is an arrangement wherein a particular repeater is used for a given geographic area and a designated person (Net Controller) relays the verbal reports to our office. Our forecast area is subdivided into several of these geographic areas known as Sectors.

For many years, Imperial County, CA was part of Sector 7 which included Yuma, La Paz, and eastern Riverside Counties. Last year, La Paz County and Blythe became Sector 9. This year, Imperial County is now Sector 8. See the map below for the Sectors. Our Net Controller is J Rollins, KM6NUY. There are multiple frequencies available and those are being tested on on the weekly routine Nets (Tuesdays, 7pm PT). Currently, the main repeater being used is the 146.67 Superstition repeater with an alternate at the Heber EOC (449.300 -offset with a PL Tone of 123.0).



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FORGOT YOUR SPOTTER ID?

It happens to the best of us! Send Austin an email he will email you back with your information.

AUSTIN.JAMISON@NOAA.GOV

NO LONGER WANT TO BE A SPOTTER?

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