



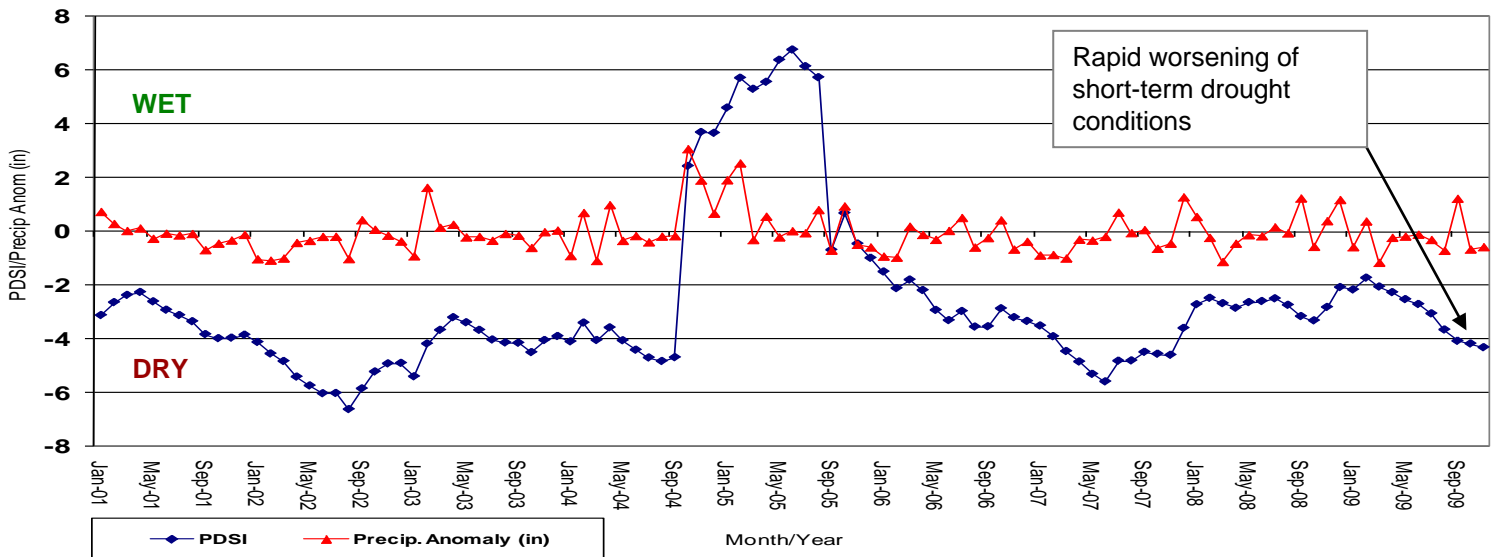
# Northwest Arizona Climate Summary Winter 2010



**December 23, 2009** – Below-average precipitation has plagued northwestern Arizona for the past several months, leading to rapid worsening in short-term drought conditions. The North American Monsoon system, which normally brings moisture and thunderstorm activity to much of Arizona during the summer retreated into Mexico after a decent start in early July. The weaker-than-average monsoon circulation left Arizona with hot and unusually dry conditions from mid-July through the end of September when thunderstorm activity normally wanes. August was northwest Arizona’s 7<sup>th</sup> driest on record with much of the region observing less than 10% of average precipitation for the month. The dry summer gave way to a warm and dry fall with October bringing very few opportunities for precipitation. A strong ridge of high pressure dominated weather across northern Arizona during much of October and November. This weather pattern blocked fall storms from moving across the state, leaving Arizona with warm and dry conditions and worsening short-term drought conditions. The July through November period was the driest summer/fall period on record since 1930 for northwestern Arizona. Moderate to severe drought conditions have expanded rapidly across northern Arizona since late this summer according to the National Drought Monitor and Arizona Governor’s Drought Task Force.

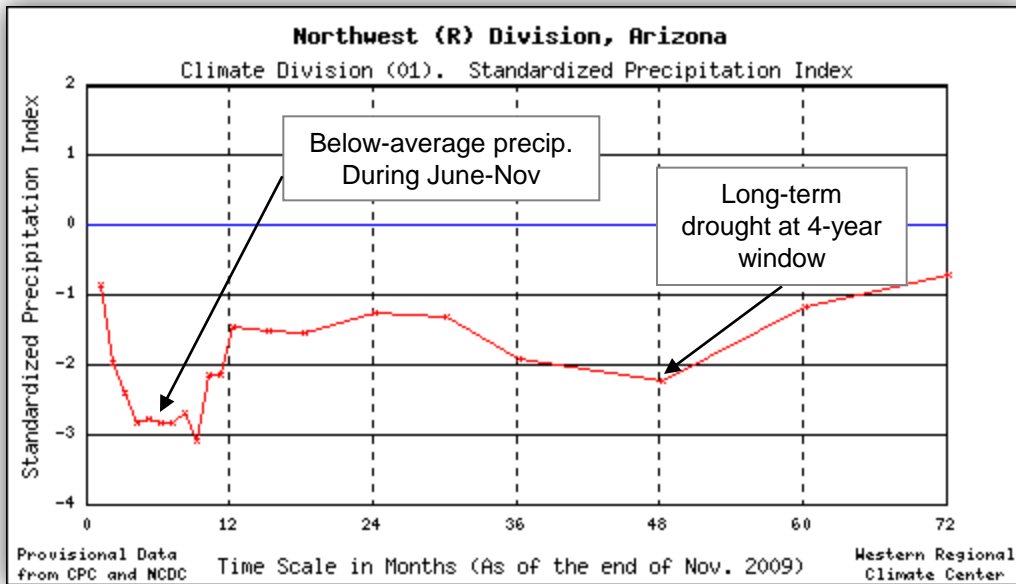
The current El Niño event in the Pacific Ocean may spell some drought relief for the Southwest during the upcoming winter storm season. Winter (January-February-March) precipitation forecasts issued by the NOAA Climate Prediction Center continue to indicate an increased chance of above-average precipitation across much of Arizona. This is due primarily to expected impacts with the moderate strength El Niño event underway. El Niño events typically produce an enhanced subtropical jet stream that can steer moisture and storms across the southern U.S. from California to Florida. This can bring a parade of storms across Arizona and New Mexico during the mid to late winter period leading to potentially above-average precipitation. The current El Niño event is expected to persist and impact weather patterns until the spring, leading to a higher confidence forecast of above-average precipitation for Arizona over the next several months Stay tuned to forecast updates at <http://www.cpc.noaa.gov>.

**Northwest Arizona Palmer Drought Severity Index and Precip. Anomaly: Jan. 2001 - Nov. 2009**



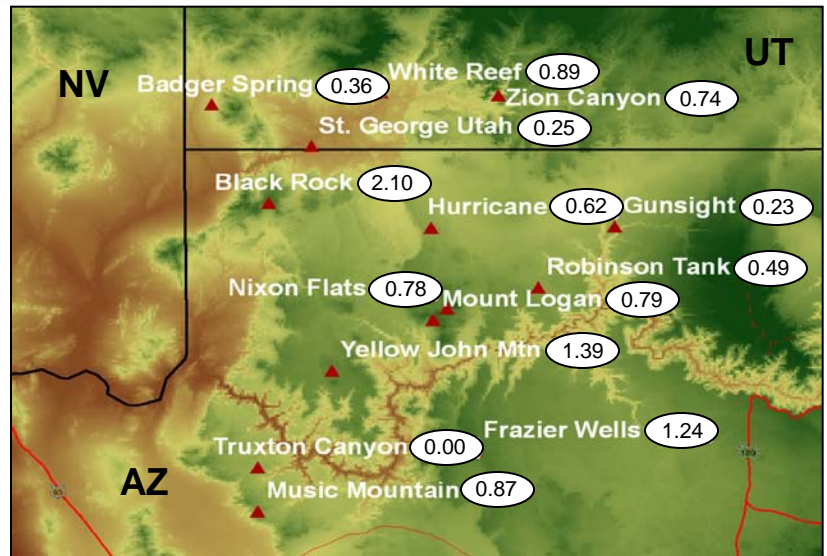
Below-average precipitation over the past several months has led to a rapid decline in Palmer Drought Severity Index values indicative of worsening short-term drought conditions. The November PDSI value for northwest Arizona dipped to below -4 for the first time since the fall of 2007. Moderate to severe drought conditions exist across northern Arizona and southern Utah according to the current National Drought Monitor map (<http://www.drought.unl.edu/dm/monitor.html>)

# Northwest Arizona Climate Summary – Winter 2010



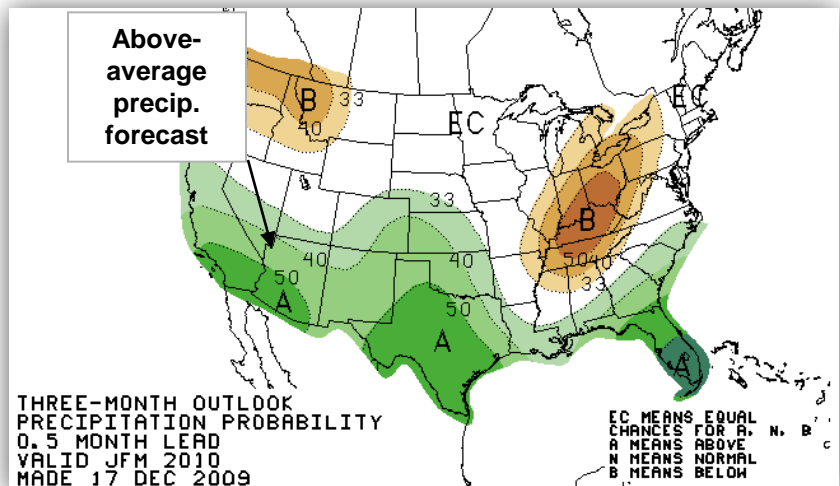
The SPI represents precipitation levels over different time-scales in standard deviation units. The time scales represent individual comparison periods (for example, 12-month time-scale represents total precip. over last 12 months compared to historical record of same period). The near -3 SPI value at 6-months indicates dry conditions over this past summer and fall (June-Nov) and the emergence of short-term drought conditions. Long-term drought conditions are also reflected in the negative SPI values out to 48-months.

Precipitation totals collected at Remote Automated Weather Sites (RAWS) across northwest Arizona and southwest Utah for the period of September through November were very low with most stations reporting less than 1 inch of rainfall during this period. Black Rock recorded an isolated amount in excess of 2 inches of precipitation, but most of that total came in September alone (1.68"). Truxton Canyon was the driest location with no recorded precipitation over this 3-month period. Stations in southern Utah also recorded very low precipitation amounts of less than 0.5" with October as the driest month. Find more information and data at <http://raws.dri.edu>.



Total precipitation from September– November from RAWS sites. Precipitation listed in inches at each location. Data from <http://raws.dri.edu>

The January-February-March seasonal precipitation forecast from the NOAA Climate Prediction Center indicates an increased chance (40-50% relative to chances of average and above average precipitation) of above average precipitation across all of the Southwest U.S. A moderate strength El Niño event is underway in the Pacific Ocean and is already impacting early winter weather patterns in the western U.S. These conditions are expected to continue for the next several months and are likely to produce a more southerly storm track through Arizona for the remainder of the winter season. This could result in above-average winter precipitation and significant relief from short-term drought conditions. Stay tuned to forecast updates each month at <http://www.cpc.noaa.gov>.



[http://www.cpc.noaa.gov/products/predictions/long\\_range/lead01/off01\\_prpc.gif](http://www.cpc.noaa.gov/products/predictions/long_range/lead01/off01_prpc.gif)