

Report on 90-day Weather Projection for the Northern Half of New Mexico

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Introduction:

This 90-day weather forecast is for the northern half of New Mexico. The forecast area is bounded by the state borders on the north, west, and east, and Interstate 40 on the south.

The report contains a summary weather outlook for November through January (directly below), a review of the current El Nino Southern Oscillation (ENSO) condition, which is rapidly becoming an official El Nino, and an overview of current weather trends along with outlook maps for the next 90 days.

Summary, Ninety-day weather outlook for forecast area:

- *The El Nino condition continues to strengthen.* At this rate an official El Nino will be declared as soon as the ENSO region November temperatures are posted in the record.
- Long-range computer models agree that an El Nino condition will persist until Spring of 2010. Strangely, most of the computer models continue to predict average precipitation levels for the forecast area. Historical trends would indicate that higher than normal precipitation would be in order. There is confusion among experts as to the reason and I don't have a good explanation either.
- Precipitation throughout the forecast area during the past four weeks has been about average. However, it does appear, at least to me, that conditions are developing for a wetter than normal winter season.

Review of Current El Nino Southern Oscillation Situation and Discussion:

The Historic Oceanic Nino Index, which is the official metric from which a La Nina or El Nino is declared, is at +0.9C, 13% more positive than last month.

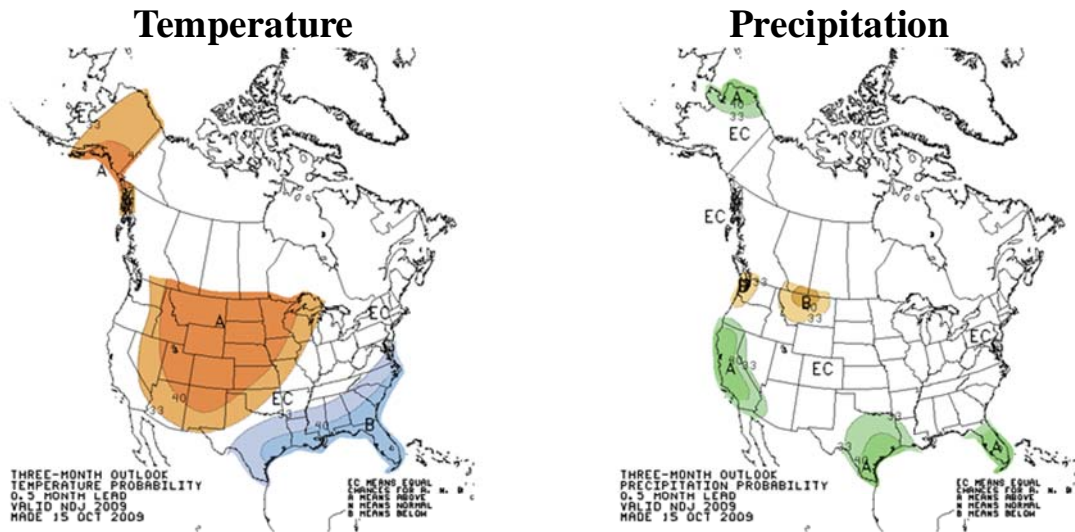
The majority of the of the 22 international computer models used to predict El Nino events suggest that it will last through next winter. Most of the models predict a moderate to strong event.

Last 30 days. Generally precipitation in the forecast area was about normal in October. The weather pattern that produced most of the precipitation was due to storms that traversed the area, typical for the season and similar to winter weather patterns. Based on historical trends of El Nino conditions, higher than normal precipitation was expected. However, expectations are based on averages of the conditions from previous years. And averages are made up of a range of observations, some of which are higher than the expectation and some lower than the expectation. So while this particular situation is noticeable, it is not significantly remarkable.

Next 90 days.

What is more remarkable is that prediction for the next 90 days, which can be seen below in the graphic from the National Climate Prediction Center. This prediction shows about normal precipitation for the forecast area, where higher than normal precipitation would be expected based on historical trends.

Outlook for Nov Through Jan 10



The climatologists are aware of this discrepancy and are trying to determine if there is any significance to it. The fact is that the models are far from perfect and there is a fairly large error range on every prediction. So this may not really be significantly unusual.

What makes this a bit different is the magnitude of the current El Nino, which bears a significant and growing signature. The more intense the El Nino conditions, the higher the expectation for patterns to follow the historical trends.

There is some speculation that the dynamical prediction models (those based on physical properties of the atmosphere rather than statistics) are picking up a special condition related to global warming and reflecting it in the prediction. I have been talking with some of the researchers in the Weather Service and we should have more information to report by next month.

However, as is typical with most El Nino events, temperatures might be higher than normal because some of the moisture that will be ushered into the area will originate in the warm subtropics to the south. This situation might create slightly higher than normal snow-elevation levels.

Recent Weather Trends

After a warm spell over the past couple of weeks, which is very traditional in the forecast area, we have the first significant storm and cold front move into the area last weekend. The storm, which is a closed, migratory low that was spawned out of the Aleutian low pressure system south of Alaska, brings in moisture and unstable conditions. By unstable, we mean generally low pressure and rising air. When air rises it cools and when it cools it loses some of its capacity to hold water, some of which condenses into rain.

When a cold front (a mass of cold air that breaks out of the polar region and heads south) is coincident with the storm, as was the case here, the uplift is accentuated. The cold air is denser than the warmer ambient air, so it slides below it and forces the warmer air upward into the storm. More precipitation is the result. As the precipitation falls to earth it passes through the colder conditions and freezes into snow pellets, called sleet, the soft, round pellets of snow that

fall in the fall and spring. The official name for sleet is grapple (pronounced 'GRAWpull'). Most precipitation begins as snow in the upper levels of clouds and melts on the way down to the ground. If the storm is sufficiently intense, as is typical in the winter, then the flakes do not melt before they encounter the cold air mass and fall through the cold air mass unscathed.

Next Report: Late December, 2009.