

Long range weather outlook for northeast Montana:

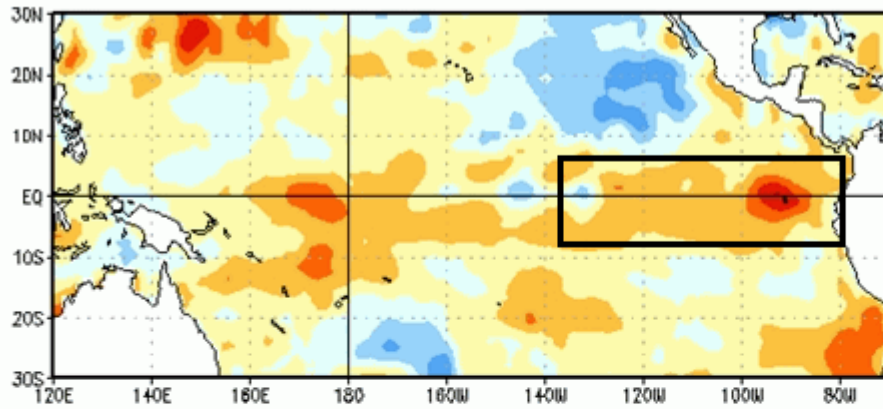
You may have heard that there was an El Nino this past winter. An El Nino is a periodic warming in sea-surface temperatures across the central and east-central equatorial Pacific. Across the United States one of the strongest correlations during an El Nino episode is warmer than normal temperatures across the northern high plains, which includes northeast Montana. Temperatures in December and January were well to at times well above average across northeast Montana. Although not the record warmth experienced in January of 2006 it was an unusually warm January.

It is not uncommon to quickly transition from an El Nino to a La Nina pattern. La Nina is just the opposite of El Nino and is a periodic cooling of ocean surface temperatures in the central and east-central equatorial Pacific that usually occurs every 3 to 5 year. The last La Nina occurred during the winter of 2000-2001. Below is a figure (fig. 1) with the sea surface temperature anomalies across the equatorial Pacific Ocean at the end of January and February. You can see an area of red shading (warmer than average) off the coast of South America at the end of January. This was consistent with the El Nino event that first developed late last summer. By the end of February the warmer than average conditions were rapidly replaced by an area of blue shading (colder than average). So far as of late April this area of cooler than average temperatures has continued to persist. If these colder than average conditions continue into the summer it is possible that a La Nina event could develop. Most of the long range computer models are indicating that there will be additional cooling this spring, and some of the forecast models indicate a transition to La Nina conditions. The colder than average conditions need to continue

for a five month period before a La Nina event becomes official.

SST Anomalies (°C)

31 JAN 2007



28 FEB 2007

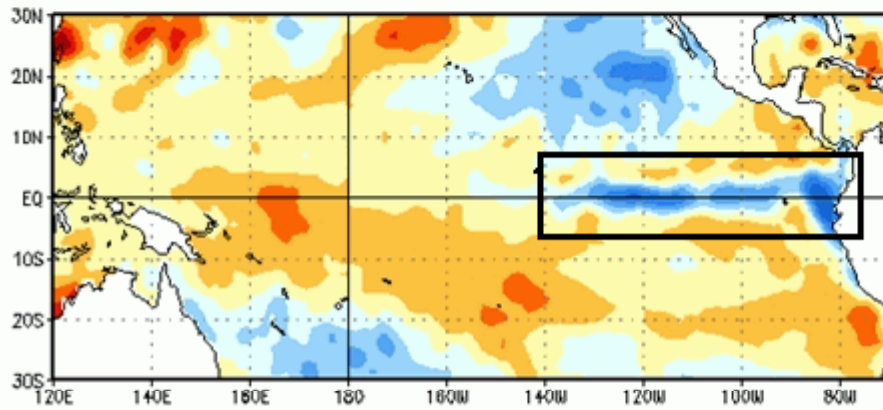
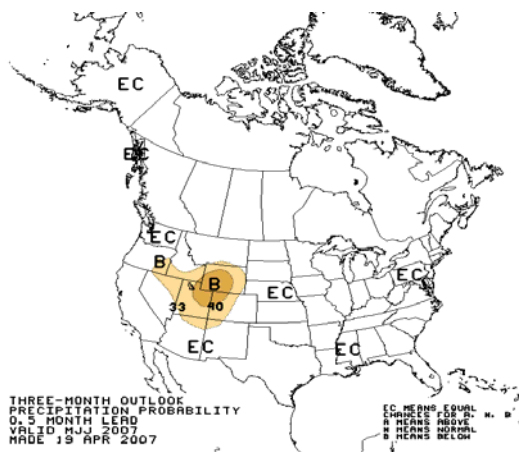
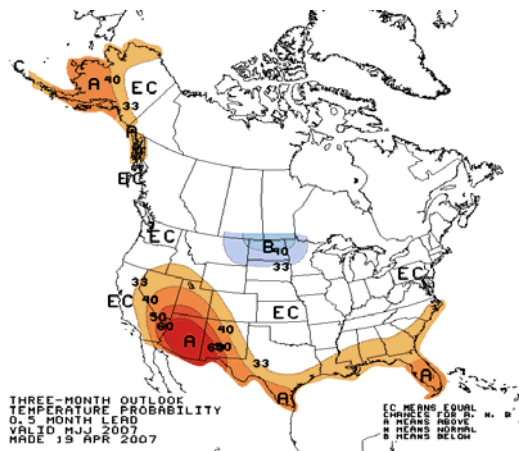


Figure 1. SST anomalies (°C) for the weeks centered on 31 January 2007 (top) and 28 February 2007 (bottom). The SST anomalies are computed with respect to the 1971-2000 base period means (Xue et al. 2003, *J. Climate*, **16**, 1601-1612).

So, what does all this mean for the weather across northeast Montana in 2007? In the short term, there will probably be little impact if a full fledged La Nina event develops this summer. Historically there is little correlation to the weather across northeast Montana during the summer during a La Nina Episode. There are many other climate factors that come into play during the spring and summer months that determine temperature and precipitation patterns across the area.

Should the La Nina develop it may very well have an impact on our weather next winter. There is a strong correlation for colder than average temperatures during the winter months during a La Nina. El Nino events typically last for less than a year. La Nina events typically last from 1-3 years, so if a La Nina event does form there would be the potential for some colder weather next winter.

Here are the current temperature and precipitation outlook from the Climate Prediction Center for April through June.



From the above figures one can see that there is the possibility of below average temperatures across northeast Montana this spring. There is an equal probability of either above average...below average...or average precipitation during this time. The Climate Prediction Center issues long range outlooks for both temperatures and precipitation for the next 6 to 10 days as well as very long range outlooks for the next 12 months. The climate outlooks for the next 6 to 10 days are issued daily. The longer range outlooks are updated on the 3rd Thursday of the month. You can access their web site at: www.cpc.noaa.gov