

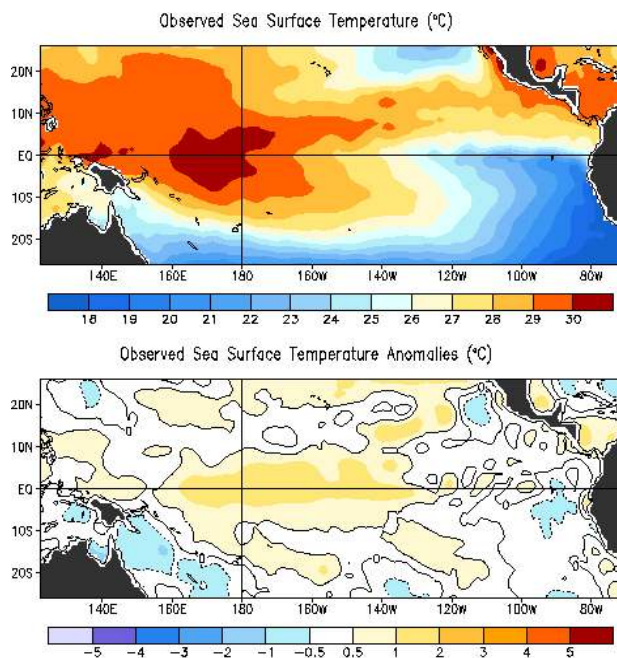
# 2004-2005 Winter Weather Outlook Discussion for Central and Southeast Illinois

Last Updated: September 28, 2004  
Based on Climate Prediction Center Outlooks

Initially it is important to remind ourselves that climate is a long-term composite of daily weather. Therefore, we can certainly have an above normal temperature for the season and set several record low temperatures on specific days. Likewise, a major snow storm is possible even in a below normal precipitation season. Seasonal climate focuses on the overall character of the period.

One of the primary influences on the weather for Illinois during the wintertime is a phenomena known as El Nino. El Nino is an above normal warming of the waters of the Equatorial Pacific Ocean which can lead to changes in the climatological storm track and intensity across North America. Although there are of course other influences on our seasonal weather, El Ninos of moderate or strong intensity often dominate much of the effects from these other influences.

Trends over the past several months have indicated that an El Nino event is in the formative stages in the Central Pacific. The areal coverage and depth of above normal water temperatures have been increasing and spreading eastward (Figure 1). Indications from past patterns of this type and forecast models indicate that this warm pattern will continue into early 2005 and will likely have some influence on the weather of Illinois. The strength of the warming is still uncertain, but we are expecting a weak to moderate El Nino pattern centered on the Central Pacific.



7-day Average Centered on 22 September 2004

Figure 1. Observed Sea Surface Temperature and Anomalies - Middle to Late September 2004. Source: Climate Prediction Center.

A weak to moderate El Nino of the Central Pacific variety often leads to a more common northwest to southeast storm track over the Midwest. This type of pattern brings more frequent storms, however the speed of storm passage coupled with their inability to tap the warmth and moisture of the Gulf of Mexico makes heavy precipitation events less likely. Reinforcing shots of cold air would come more frequently than normal behind these systems, but the progressive nature of the air masses in the wake of these storms prevents very cold air from developing in the source region before spreading into the Midwest.

**Seasonal Forecast – Temperatures (Figure 2)**

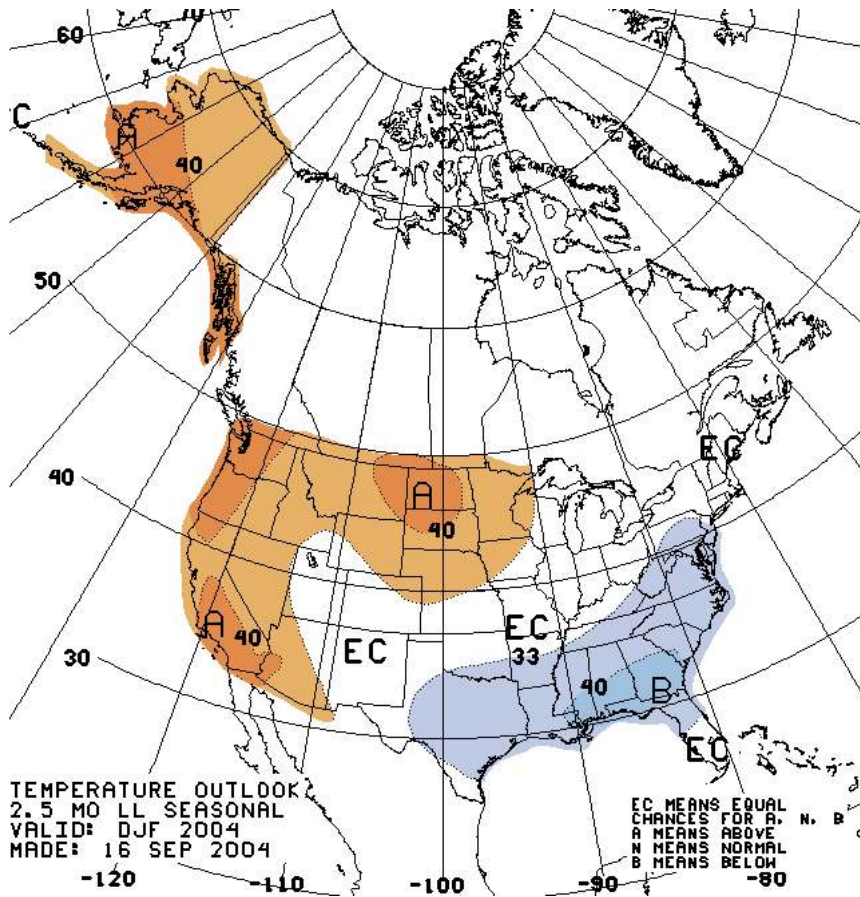


Figure 2.  
Temperature Outlook  
for December-  
February 2004-5.  
Source: Climate  
Prediction Center.

Comparisons with past El Nino events indicate significant differences between weak and moderate warming (see figure 3). These suggest the strength of this year's El Nino will have a definite bearing on what we can expect for temperatures. However, it should be noted that there is much variability when compositing past weak El Nino events. Winters such as 1976-77 and 1977-78 were very cold across much of the nation and tended to skew the results. With a weak El Nino it is likely that other less-predictable climate factors may contribute more significantly to

the overall temperature character of the season than the actual El Nino. If the El Nino signal is dominate, a northwest to southeast storm track should lead us to expect less extremes this winter. Since there remains uncertainty with respect to the expected strength of this current event and the past compositing is so different between weak and moderate El Nino, the Climate Prediction Center is forecasting an equal chance of above normal and below normal temperature for Central and Southeast Illinois. The stronger the El Nino, the more likely we would see above normal temperatures and less uncertainty.

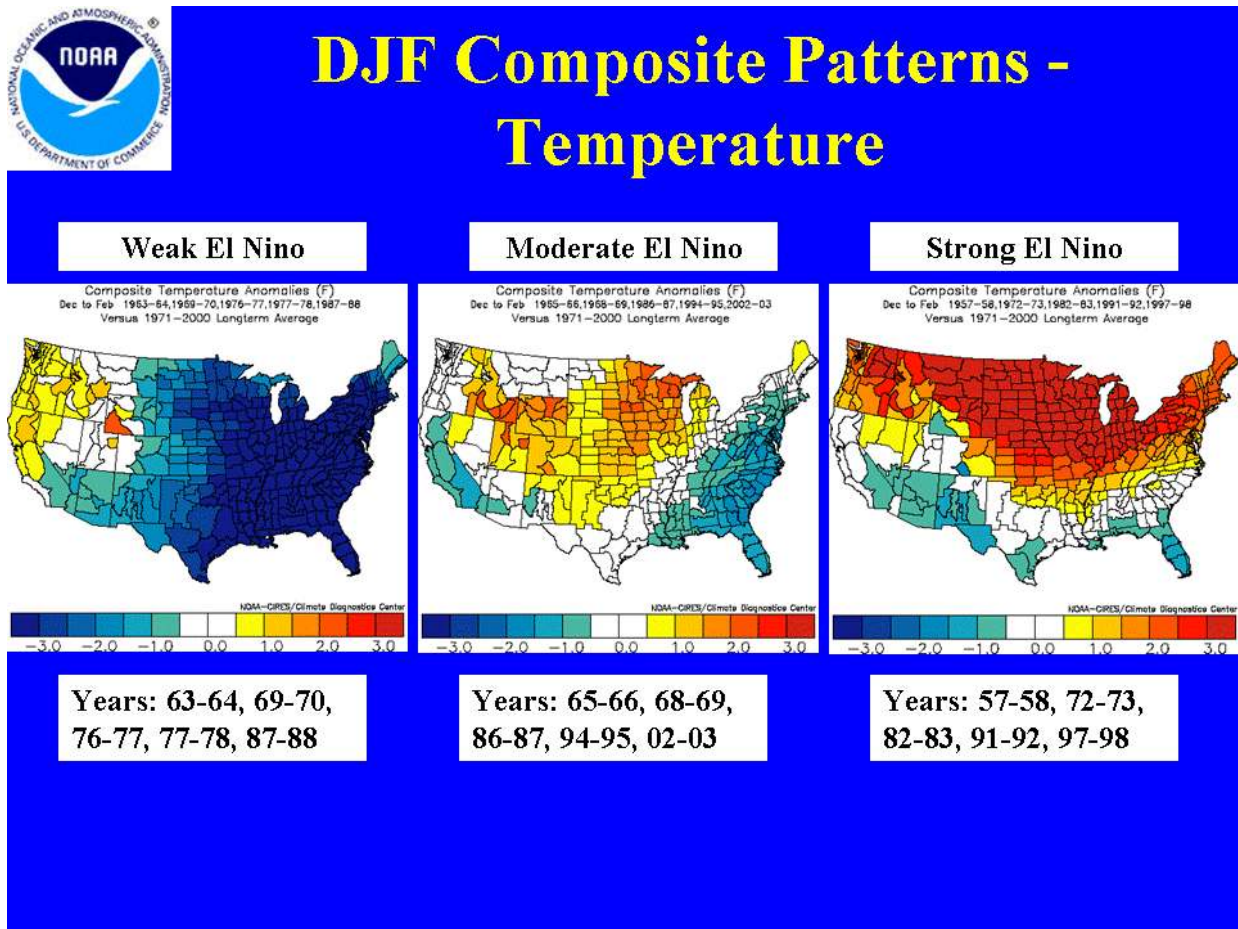


Figure 3. Comparison of Temperature Anomalies Associated with Weak, Moderate, and Strong El Niño Events. Source: Climate Prediction Center.

With equal chance forecasted, the center of the probability distribution remains at normal for the season (Figure 4).

Outlook Shift of Center of Probability Distribution from Climatology  
 Temperature Anomaly (degr F) Outlook, 2.5 Month Lead for DJF 2004

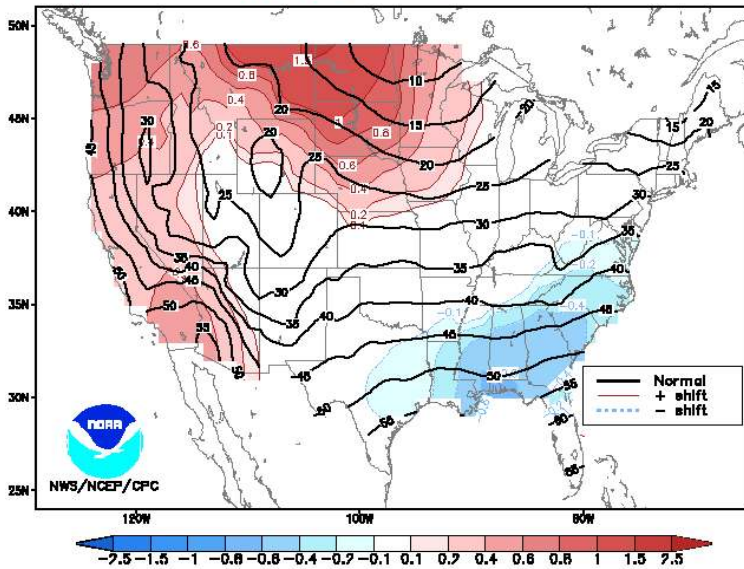


Figure 4. Shift of Center of Probability Distribution of Temperature from Climatology based on the Winter Precipitation Outlook. Source: Climate Prediction Center.

### Seasonal Forecast – Precipitation (Figure 5)

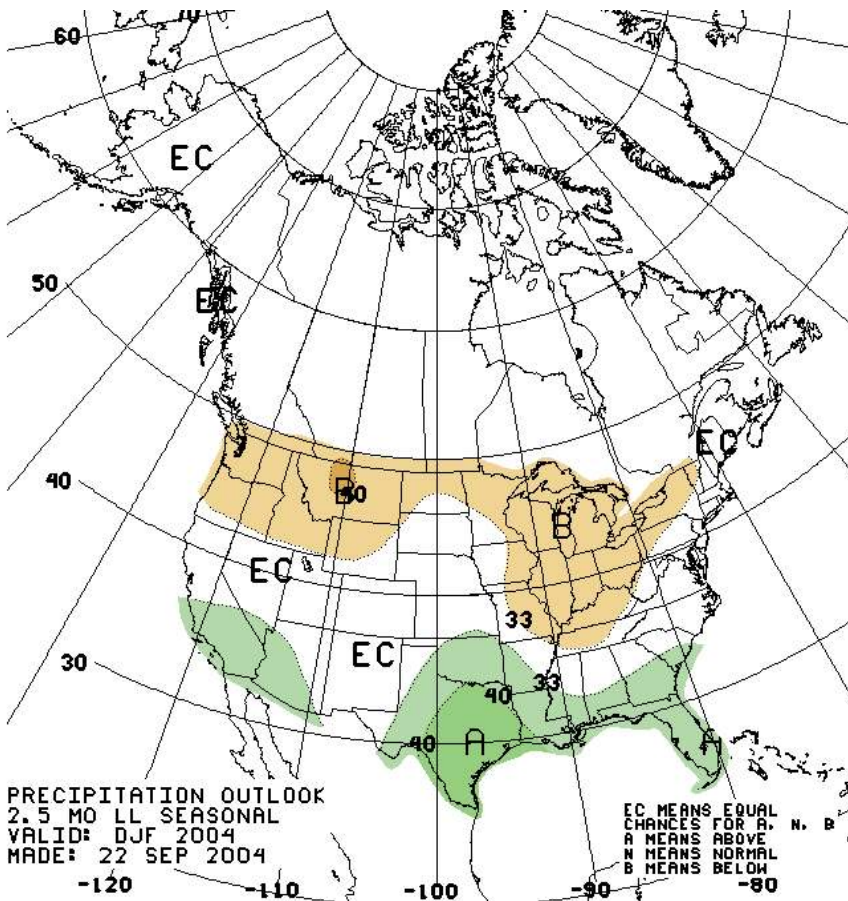


Figure 5. Precipitation Outlook for December-February 2004-5. Source: Climate Prediction Center.

Once again we can look at past El Ninos (Figure 6) to help us forecast the 2004-2005 season. In a northwest to southeast flow typical of Central Pacific El Nino events, the frequency of storms may increase but their ability to tap Gulf of Mexico moisture is reduced. This would lead to more common lighter precipitation events. As mentioned above, this pattern certainly does not rule out the possibility of major winter storms, but it does make multiple heavy precipitation events less likely than in a typical winter. Given these indications, the Climate Prediction Center is forecasting a better chance of a drier than normal winter compared with the possibility of a wetter than normal season.

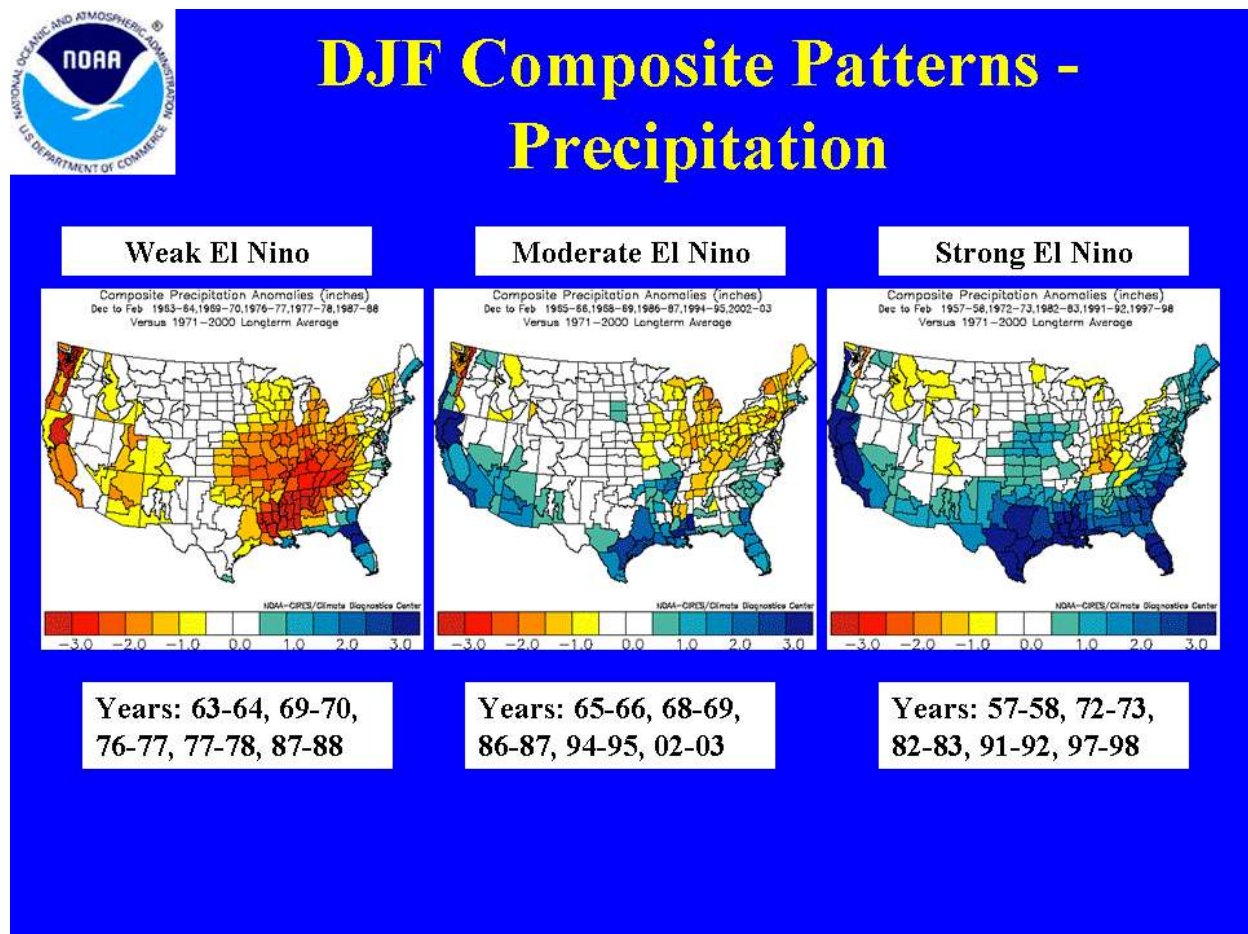


Figure 6. Comparison of Precipitation Anomalies Associated with Weak, Moderate, and Strong El Nino Events. Source: Climate Prediction Center.

It should be noted that below normal precipitation does not always correlate with below normal snowfall. If temperatures tend to be below normal in the long-term, a higher percentage of precipitation events may fall in the form of snow leading to a normal or possibly even an above normal snow season, but with a below normal precipitation season due to reduced precipitation falling in the form of rain.

The most likely deviation from normal ranges from just over a tenth of an inch of liquid equivalent in western portions of Central Illinois to over two tenths of an inch near the Indiana border (Figure 7).

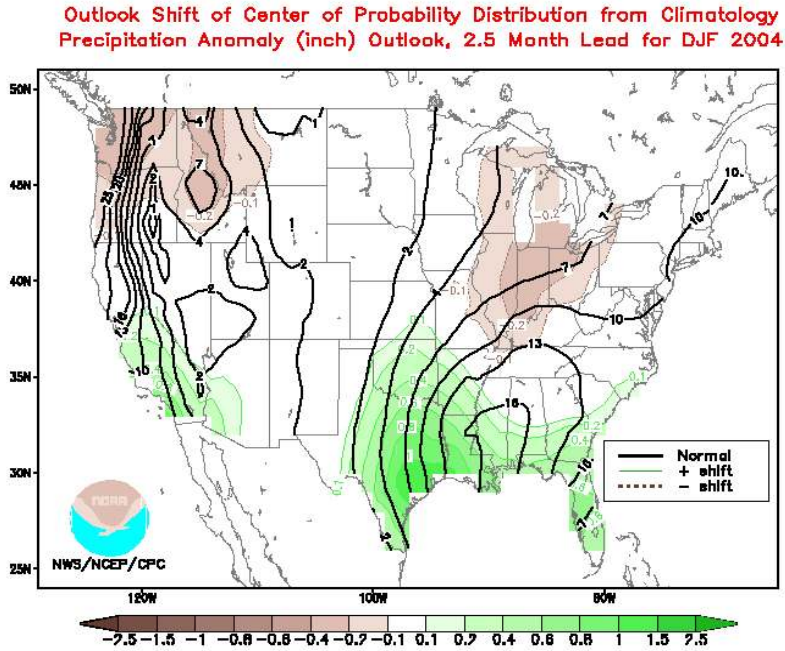


Figure 7. Shift of Center of Probability Distribution of Precipitation from Climatology based on the Winter Precipitation Outlook. Source: Climate Prediction Center.

More information on the seasonal outlook and other climate forecast information can be found at the Climate Prediction Center at <http://www.cpc.ncep.noaa.gov> .