

**SPECIAL SHELL CANADA SEASONAL WEATHER DISCUSSION  
ISSUED BY TRUE NORTH WEATHER CONSULTING INC  
MONDAY OCTOBER 2, 2006**

**EL NINO RETURNS**

The Climate Prediction Center (CPC) of the US National Weather Service is one of the main organizations that monitors and predicts the state of the equatorial Pacific waters. In its most recent diagnostic discussion, dated September 13, 2006, the CPC stated that: "El Nino conditions have developed and are likely to continue into early 2007"<sup>1</sup>.

Indeed, sea-surface temperature anomalies of greater than 0.5<sup>0</sup>C were noted throughout most of the equatorial Pacific, with even greater anomalies noted in some zones. As well, a marked increase in ocean heat content and lower than average easterly equatorial winds have been witnessed since early July. These factors, collectively, as well as several others, have led the National Weather Service to conclude that this pattern is highly consistent with a traditional "developing warm phase" (or El Nino) in the tropical Pacific.

The trend toward warmer than normal sea-surface temperatures has continued in the equatorial Pacific throughout the remainder of September. In an update released today, October 2<sup>nd</sup>, 2006, the National Weather Service has stated that "based on recent trends and most statistical and coupled model forecasts, El Nino conditions are likely to persist until April-May 2007"<sup>2</sup>

The latest analysis/prediction from the CPC/National Weather Service indicates that this episode will be weak to moderate, however that analysis is due to be updated later this week.

Nonetheless, this is noteworthy as the development of El Nino conditions will **most certainly affect the weather/climate over Alberta during the next six months**. Indeed, in its update of September 13, the CPC/National Weather Service projected that typical El Nino conditions will likely develop over North America during the 2006-2007 winter season, including warmer-than-average temperatures over western Canada.

The effects of this season's El Nino have already been noted over portions of the Southern Hemisphere. Much of Australia experienced a significantly warmer than normal winter, with some regions receiving heat that has not been seen in over 50 years. In addition to the very warm winter, much of Australia has also experienced a severe over-winter drought.

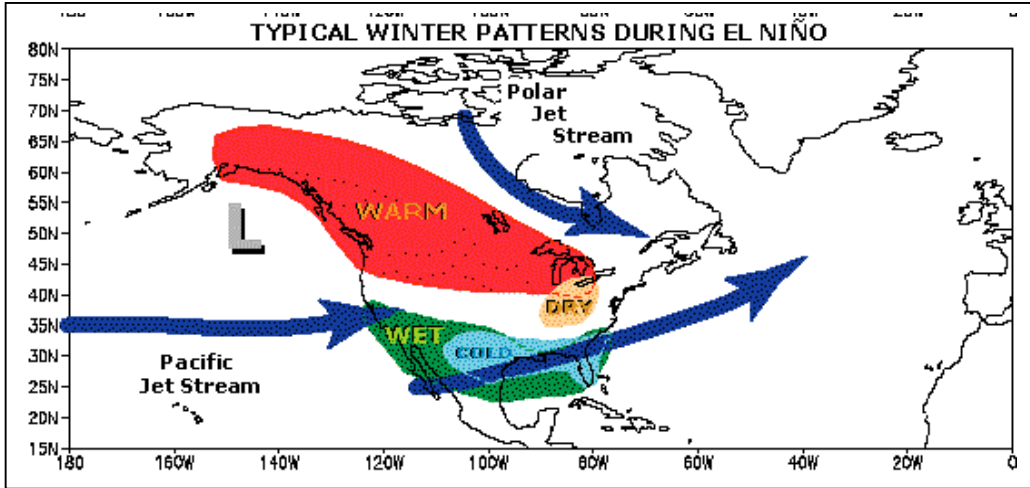
**THE IMPACT OF EL NINO**

While the prediction of warm/cold ocean phases is an emerging science, the effects of such phases over North America are well documented. In general, significantly above average daily temperatures dominate across western North America, including Alberta, during a strong warm phase or El Nino.

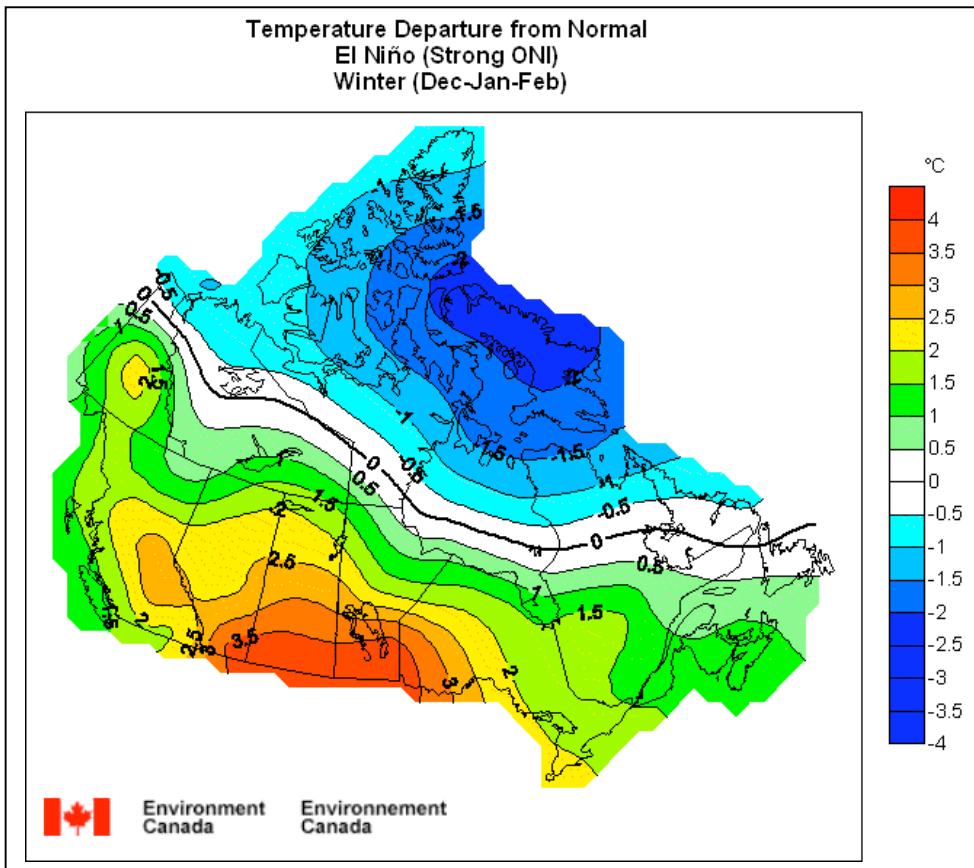
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<sup>1</sup> "El Nino/Southern Oscillation (ENSO) Diagnostic Discussion". Climate Prediction Center/National Weather Service. September 13, 2006. [www.cpc.noaa.gov/products/analysis](http://www.cpc.noaa.gov/products/analysis)

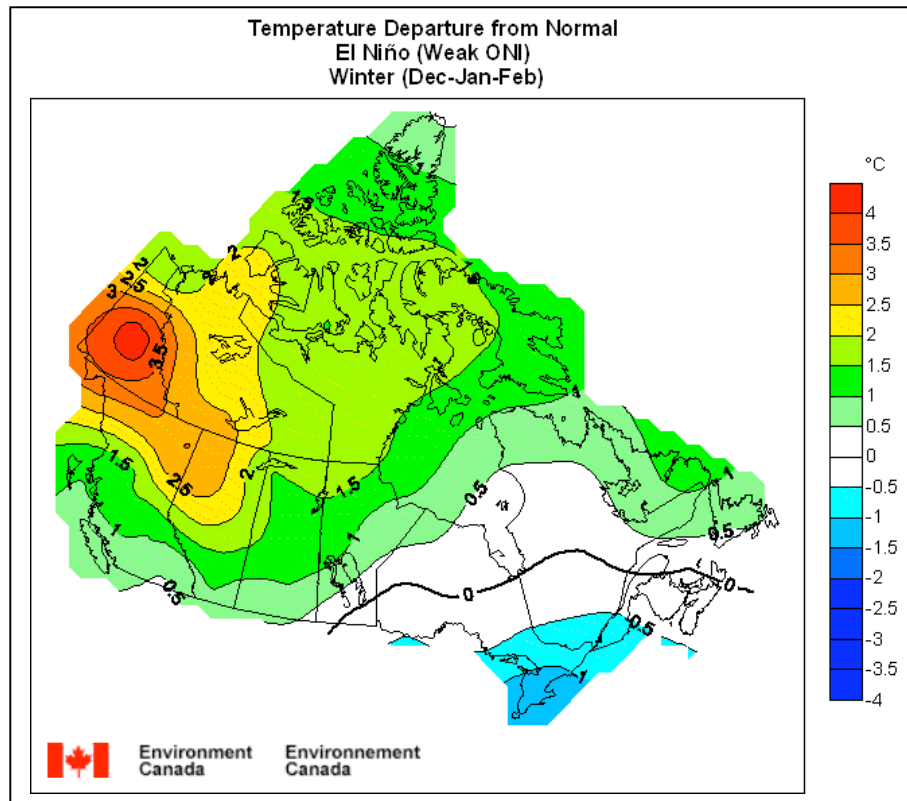
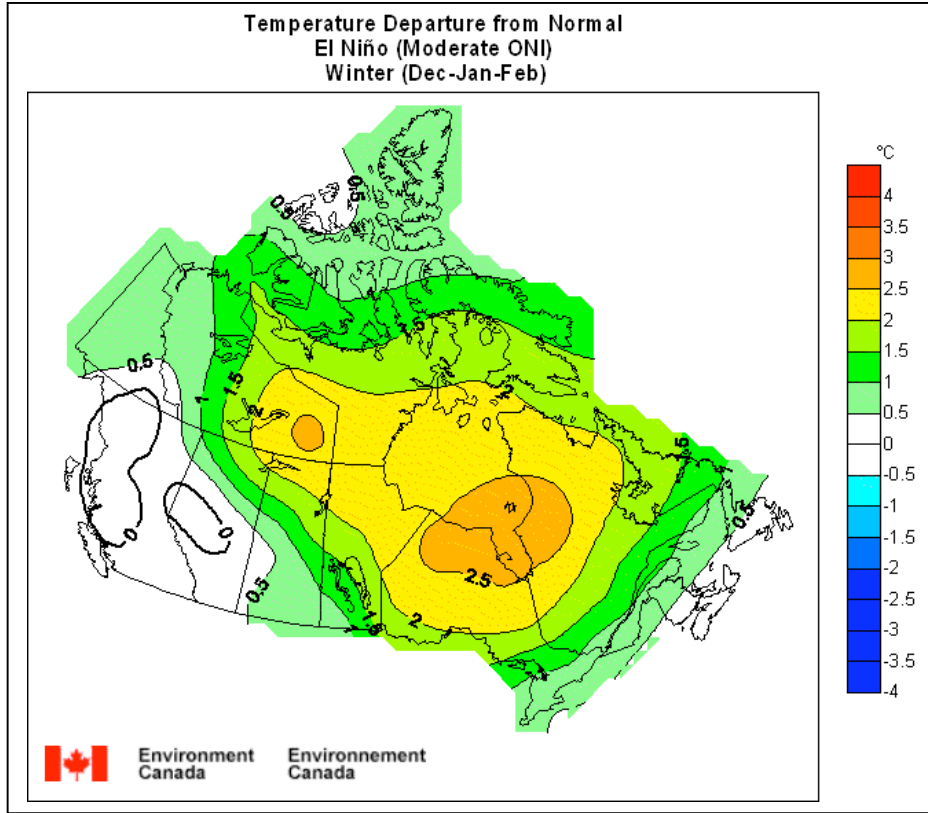
<sup>2</sup> "ENSO Cycle: Recent Evolution, Current Status and Predictions"(PowerPoint presentation). CPC/National Weather Service. October 2, 2006.



There is considerable event-to-event variability with any El Niño, however, which greatly affects the departures from normal. The Meteorological Service of Canada has tried to show the effects of strong, moderate, and weak El Niño events throughout Canada<sup>3</sup>:



<sup>3</sup> “Canadian Effects – El Niño”. Meteorological Service of Canada. [http://www.smc-msc.ec.gc.ca/education/el\\_nino/canadian](http://www.smc-msc.ec.gc.ca/education/el_nino/canadian)



## **CONCLUDING REMARKS**

The strongest El Nino of recent memory occurred during the winter/spring of 1997/1998. A warm winter was followed by a very early, warm and dry spring in Alberta.

According to the Meteorological Service of Canada charts above, weak El Nino events have the most adverse affects on the Chinook Ridge area. The MSC provides a much more in-depth analysis of the effects of El Nino across Canada on its web-site ([www.smc-msc.ec.gc.ca/education/el\\_nino/canadian](http://www.smc-msc.ec.gc.ca/education/el_nino/canadian)).

It is very difficult to provide seasonal weather/climate forecasts. Nonetheless, El Nino is a well-documented phenomena that traditionally brings anomalously warm and dry weather to Alberta during the winter months. While most literature tends to highlight the mild winter weather associated with El Nino in Western Canada, it has been our experience that of equal importance in Alberta may also be the high potential for anomalously warm and dry spring weather.

Interestingly, however, El Nino is not solely responsible for weather extremes in Canada. To this end, the winter of 2005/2006 was the warmest winter Canada has experienced since nationwide records began in 1948. All of Canada experienced above normal temperatures, with most of the country at least 2°C above normal and with Alberta, Saskatchewan and the Northwest Territories all experiencing temperatures greater than 6°C above normal. Statistically, in an unchanging climate, Canada could expect a winter anomaly like that of 2005/06 about every 100 years<sup>4</sup>. While certainly a phenomenally warm winter, the 2005/06 season is not listed as an El Nino year. Indeed, we could not find a climatological “explanation” surrounding the events of last winter across Canada, yet the weather was record-shattering in many instances.

To be sure, however, if the prediction of the CPC/National Weather Service is correct, and the current El Nino event persists throughout the winter, one can anticipate warmer than normal conditions over the Chinook Ridge area during the winter of 2006/07, with a high potential for a relatively mild and early spring in 2007.

While it is not that unusual for El Nino events to peter-out as the winter progresses, there is evidence through the short term that sea-surface temperatures are warming, not cooling. As a result, the event is, as predicted by the CPC, in its early developmental phase as opposed to a decaying or neutral phase.

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<sup>4</sup> Adapted from “Climate Trends and Variation Bulletin – Winter 2005/06”. Meteorological Service of Canada.