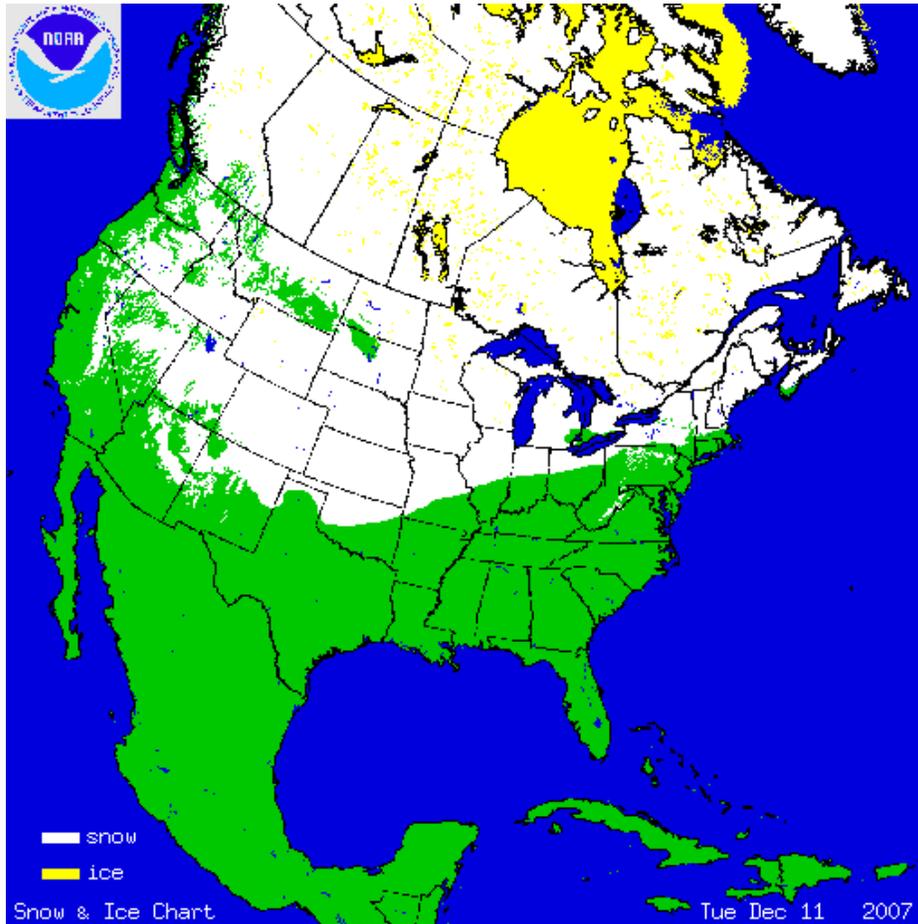*SNOW AND ICECOVER TO SPREAD SOUTH THE NEXT WEEK*

A persistent strong boundary between cold air across Canada and the northern tier states and mild air to the south and southeast has produced a series of ice and snow events that have left nearly a million in the dark across at least 7 states. You can see the large area covered by snow and ice Tuesday morning.

Over the next week two more systems will bring precipitation across this same area and in the end expand the area of snowcover to the south.

Colder air will build in behind last nights fast moving system which was the warmest of the series and then be reinforced later this week with another precipitation event, this one mainly frozen with areas including Cleveland, Pittsburgh, Philadelphia, New York City and perhaps Providence and Boston. The third system this weekend could become quite a major snowstorm for many areas depositing a foot or more of the white stuff. It is a little early to determine exact track and where the heaviest snow will fall but places from the nation's capitol to New York City and Boston could be included although chances are greatest inlandas is often the case with December storms. Very cold air will follow in the storm's wake into the east well into next week.

The snowcover by Monday could look like this.

Snow & Ice Chart — Tue Dec 11 2007
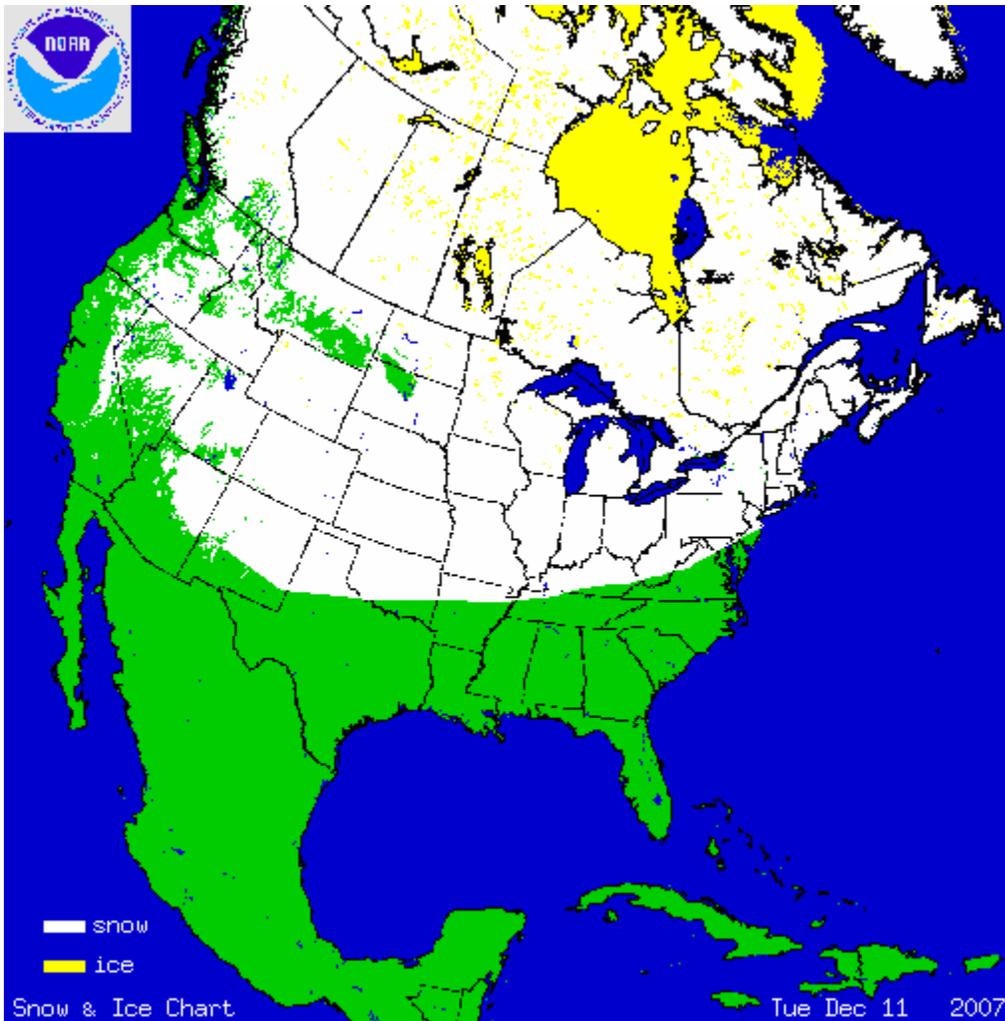
snow
ice

A warm-up may try and follow starting in the central later next week but warm –ups after a good snowpack develops in December with feeble sunshine often disappoint.

LOOKING AHEAD

La Nina's often are either characterized by a strong warm, southeast ridge when they are strong and by some wild swings when weak. This event is an oddball La Nina from a number of standpoints. The coldest water has been found in the easternmost Pacific since the summer.

SST Anomalies

**NINO 4**

NINO 3.4

NINO 3

NINO 1+2
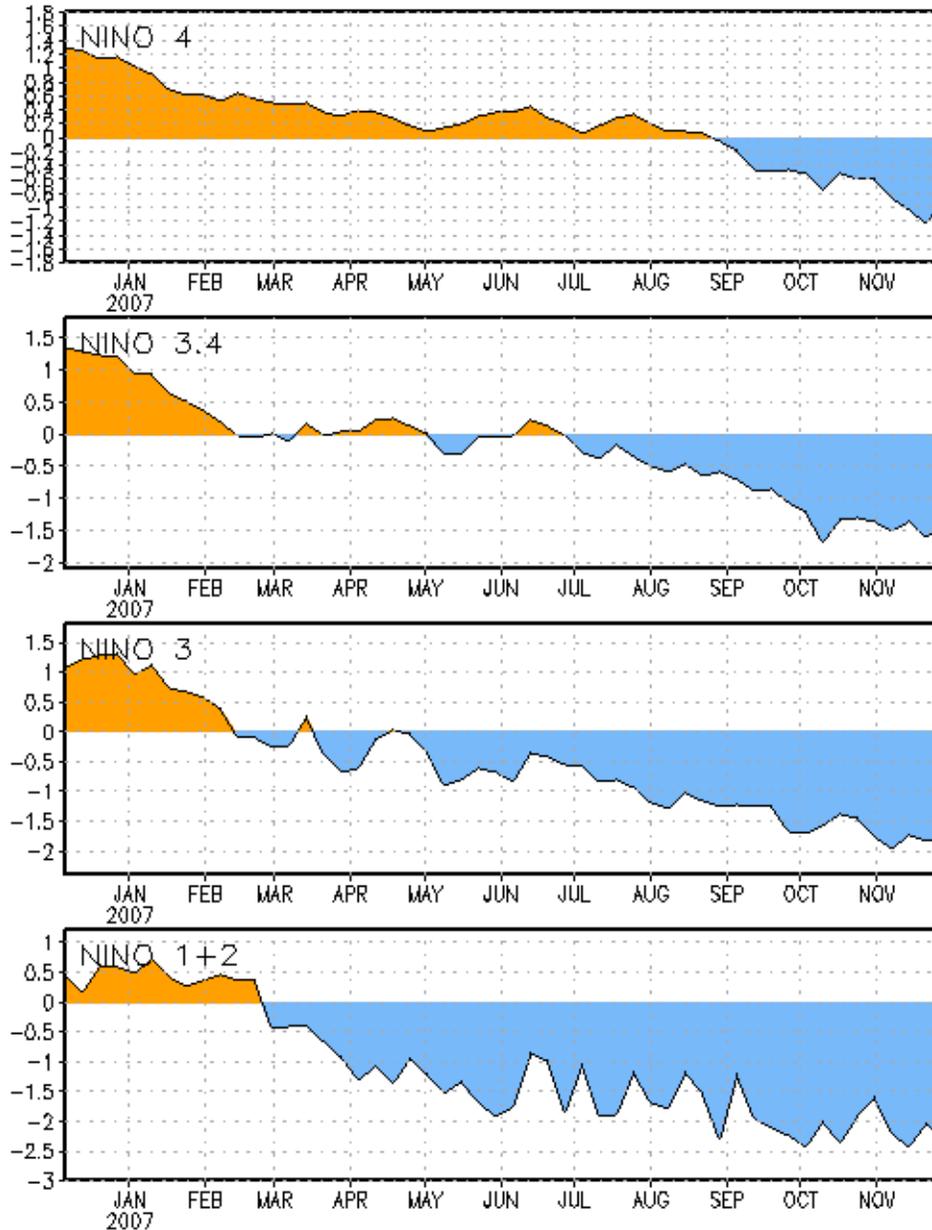
Usually strong La Ninas have the coldest waters in the central tropical Pacific. This has biased the traditional measures of ENSO which focus further west (Southern Oscillation Index, Multivariate ENSO Index, ONI (NINO34)) towards a weaker La Nina despite the very cold eastern tropical Pacific ocean.

Also La Ninas with the other factors in play this year (oceans, sun, stratospheric winds and temperatures) all suggest a colder than normal La Nina through January and even February especially across the northern tier but extending further south than typical for a La Nina.

The current models show variability over upcoming weeks. Historically the amount of intraseasonal variability varies with strength of ENSO: the stronger the El Nino or La Nina, the steadier the pattern while the weaker events mean more variability.

The following shows the month to month variability during the winter (December through February). The moderately strong El Nino explained the persistent cold east in 2002/03, the weakness of the following events explained the increased variability month-to-month in the years that followed.
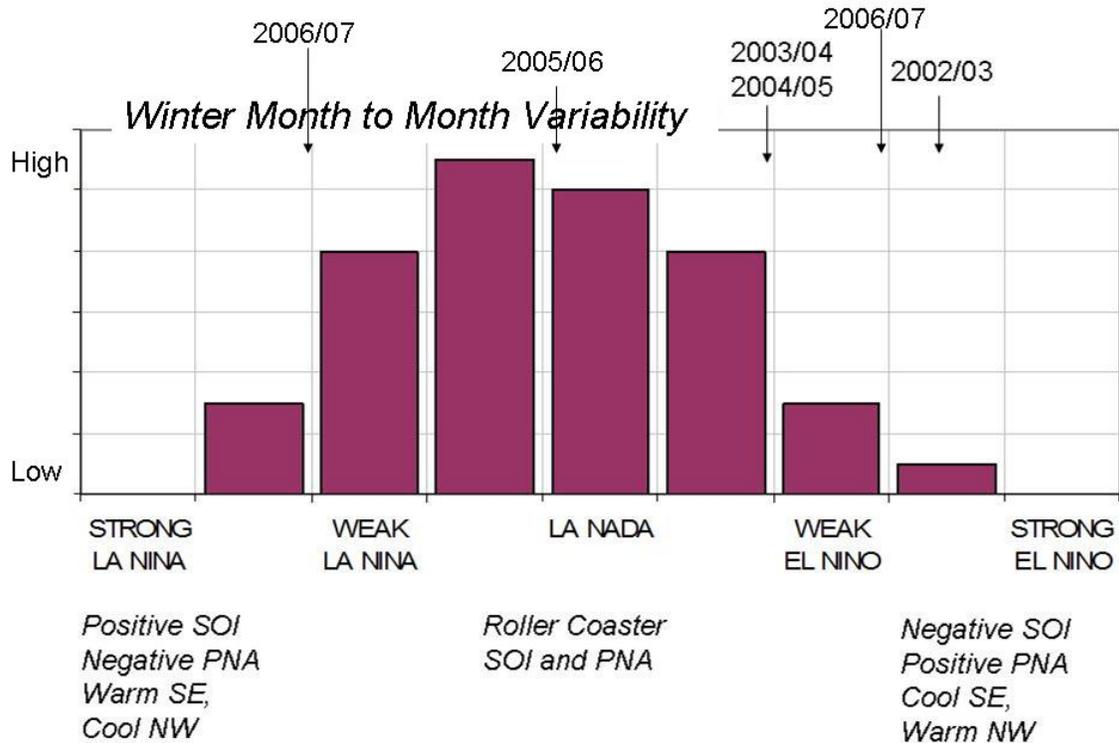
The current La Nina strength would suggest a fair amount of month-to-month variability. However, the year that seems to match the major atmospheric, oceanic and solar factors best (1962/63) had a major high latitude blocking event develop in late December and linger into February. This led to persistent cold. This can be seen with the daily Arctic Oscillation plot that year (blue) and this year to date (purple).

AO 1962/63 vs 2007/08
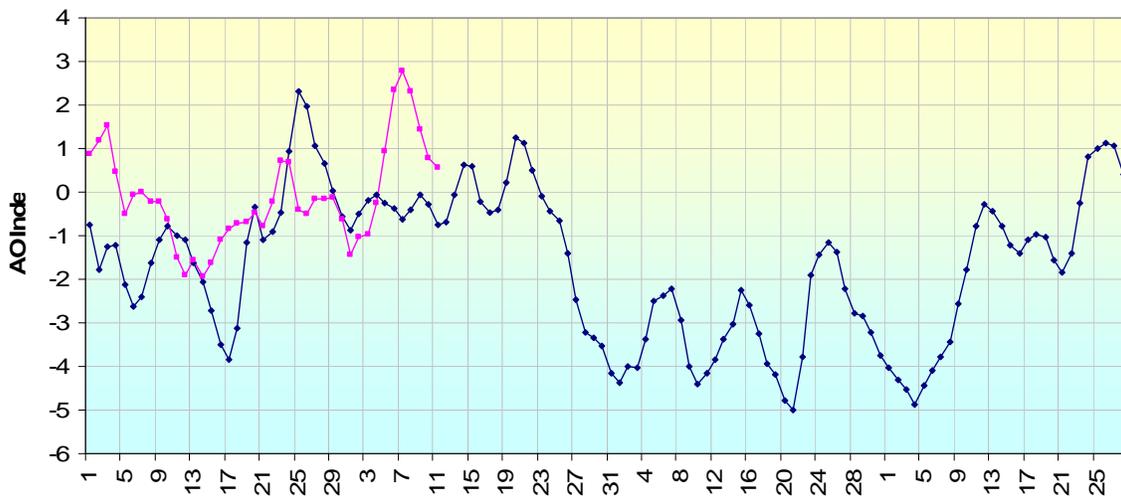
This year the excursion negative in November into the first week of December led to the extreme cold over Canada and the northern tier. The AO popped positive in the last week and the cold eased some. Will it go into a similar decline late in the month? That would ensure the cold continues. Right now the models do not see that occurring yet. Stay tuned.