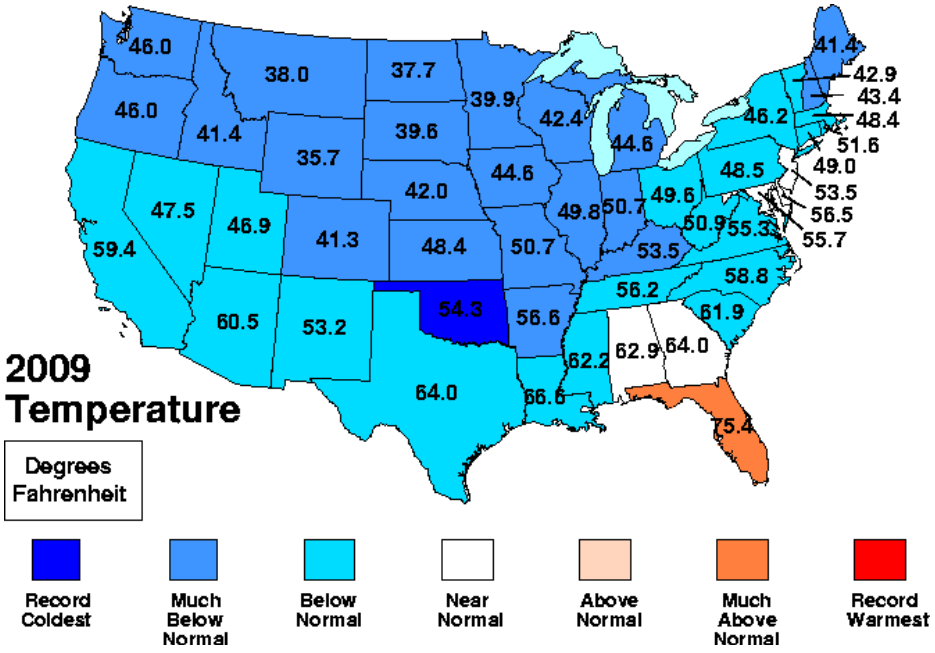
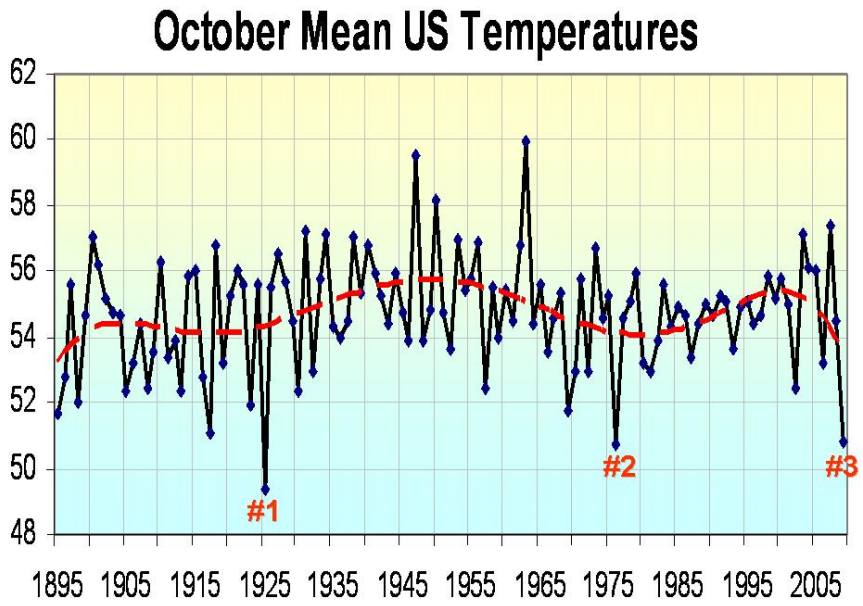
EXTREME OCTOBER, YEAR (AND UPCOMING WINTER?)

By Joseph D'Aleo

October state by state data is in and we see virtually the whole country ended up below normal (only warm state was Florida) with an average US temperature an amazing close to 4F below the normal.

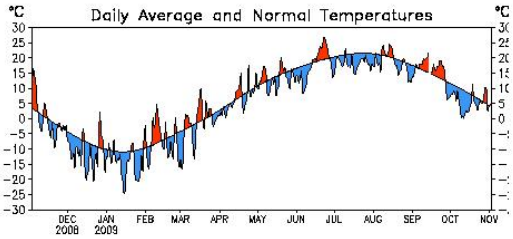


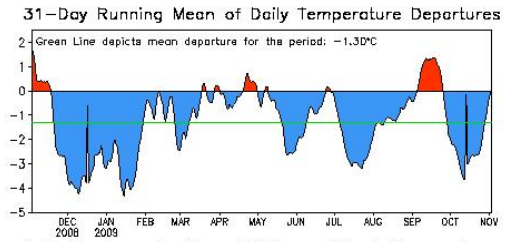


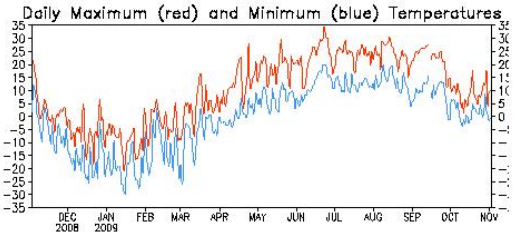
October with a mean of 50.8F was behind only 1976 with 50.7F and 1925 with 49.4F.

It has been persistently cold across the northern tier over much of the past 12 months.

WAUSAU/MUNI, WISCONSIN



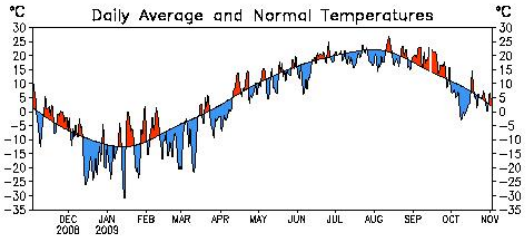


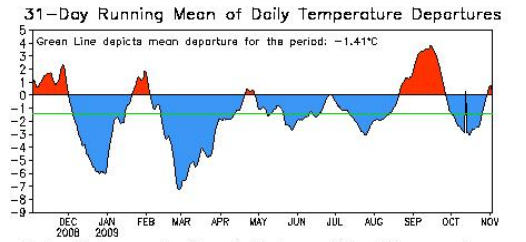


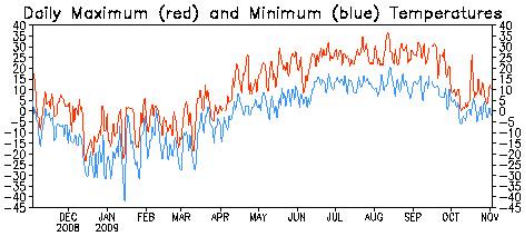
Data updated through 02 NOV 2009

CLIMATE PREDICTION CENTER/NC

BISMARCK, NORTH DAKOTA







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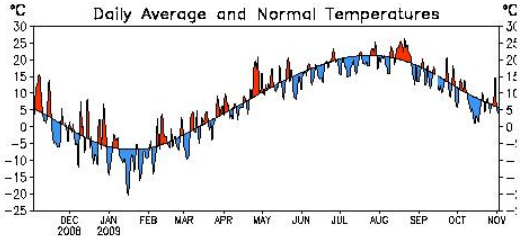
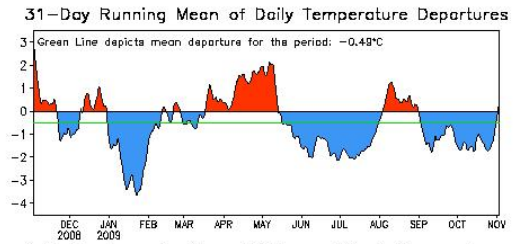
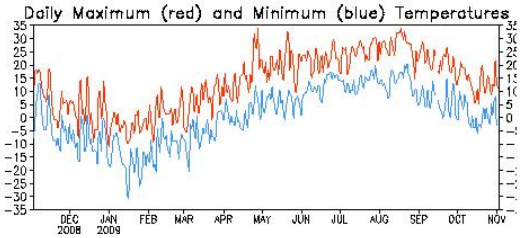
CLIMATE PREDICTION CENTER/NCEP

CONCORD, NEW HAMPSHIRE







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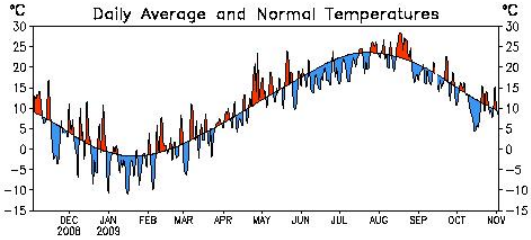
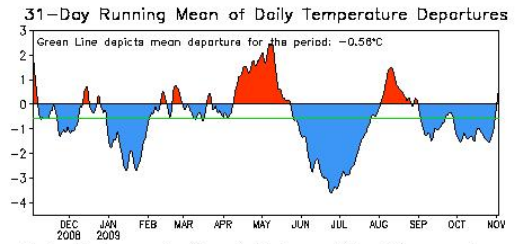
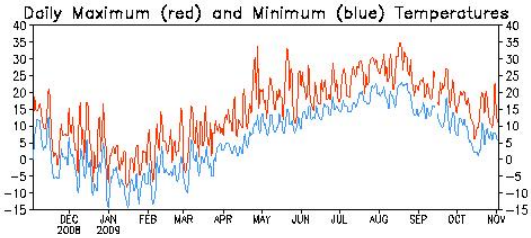
CLIMATE PREDICTION CENTER/NC

BOSTON/LOGAN, MASSACHUSETTS







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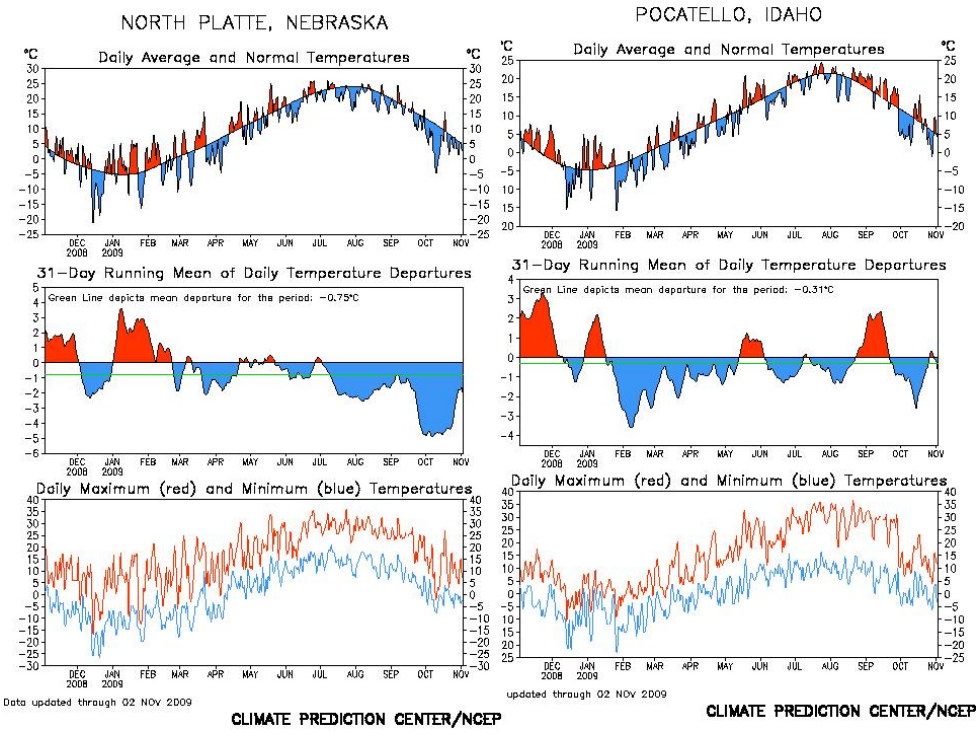
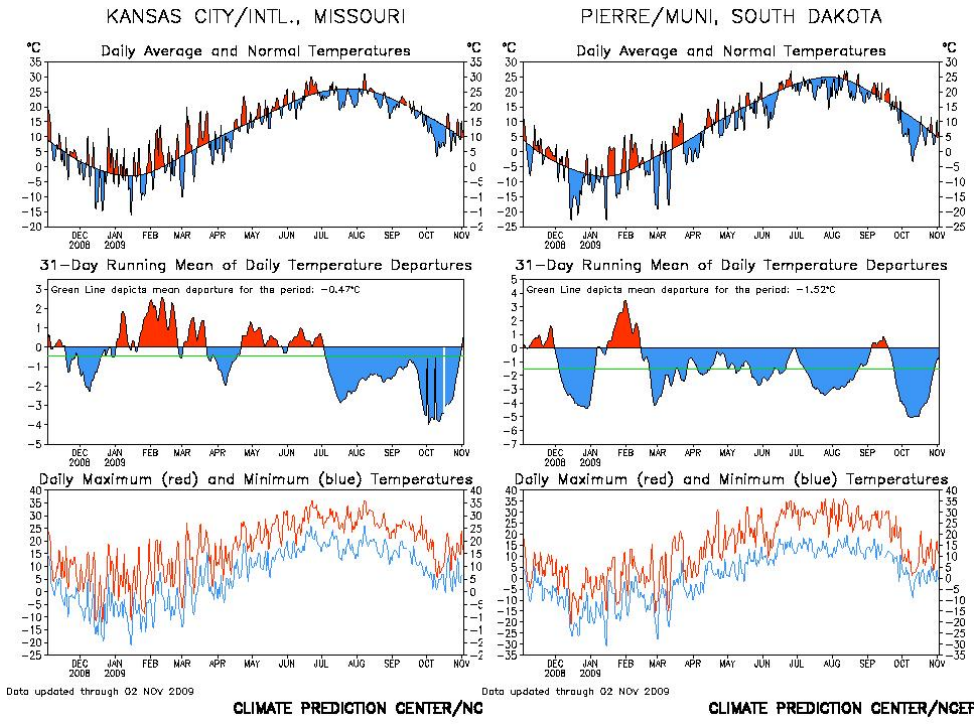
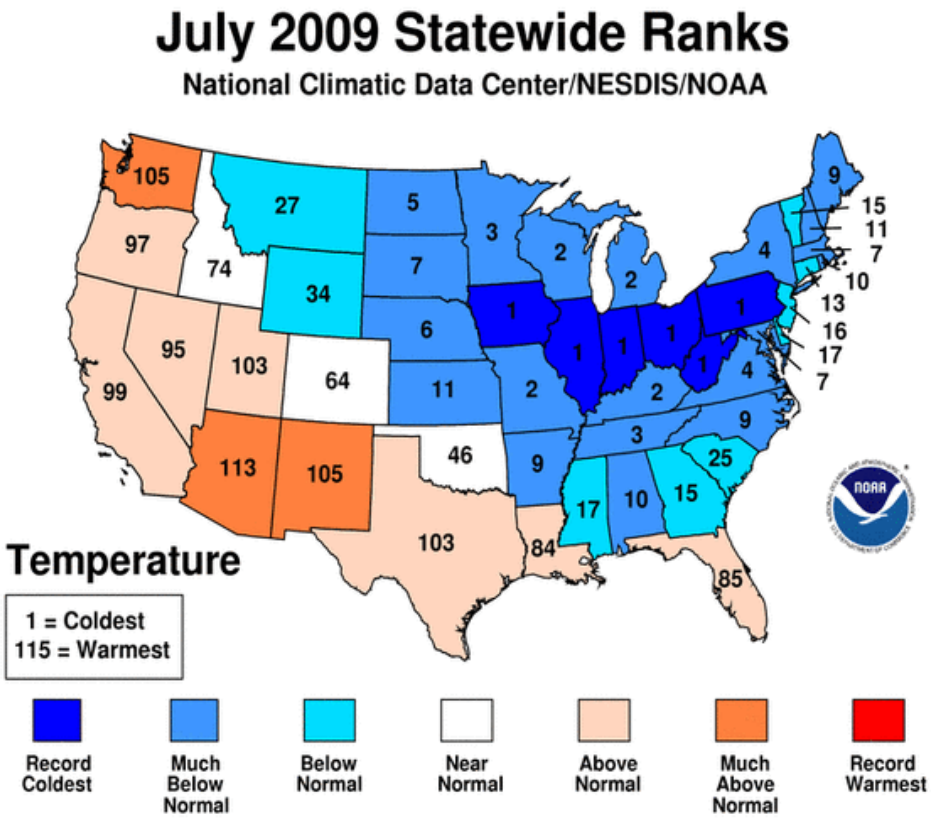


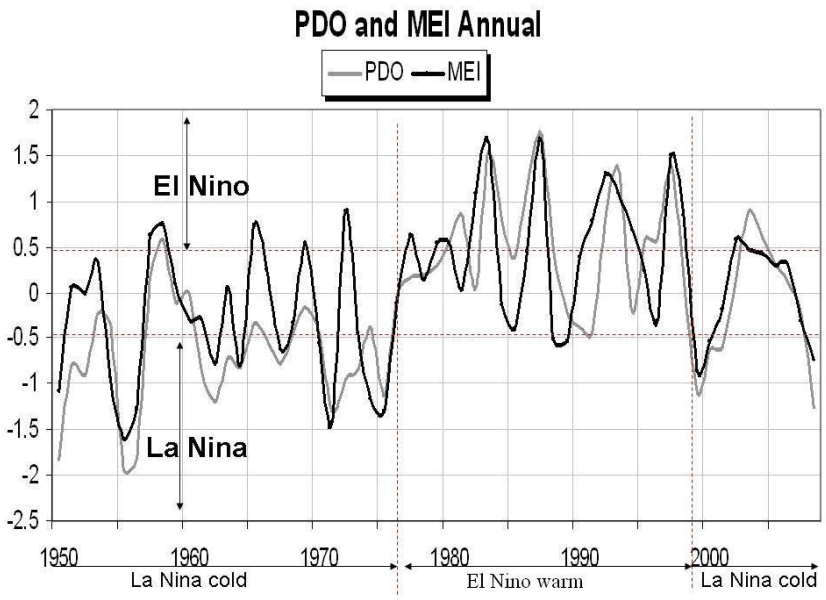


July recall was the coldest ever in 6 states, 2nd coldest in 4 states and 3rd coldest in 2 states.



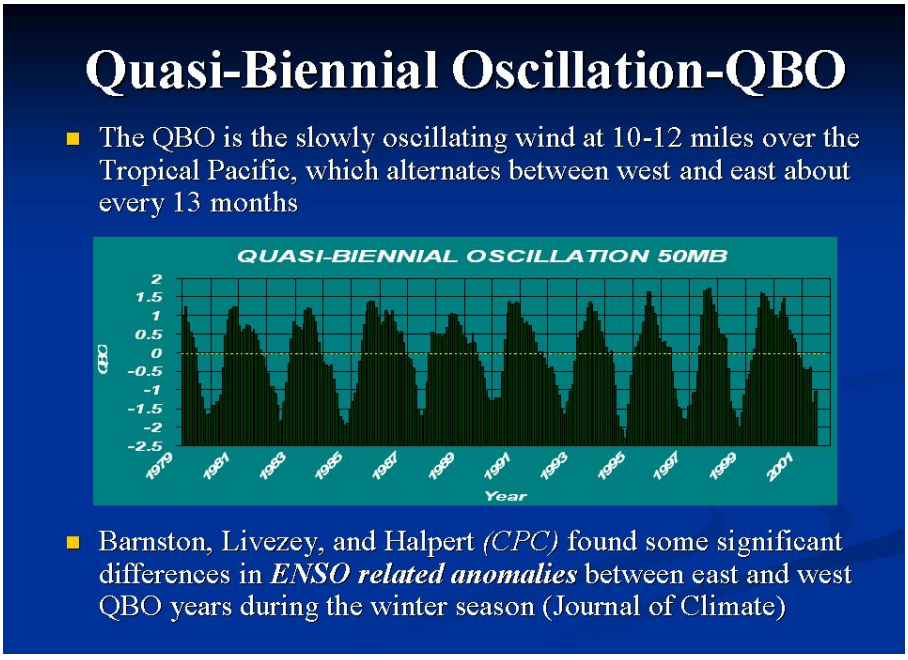
Last week, we presented the latest ESNO conditions and likely prospects. We expected the second El Nino surge thanks to a westerly wind burst driven by a spike in the Southern Oscillation Index thanks to a progressive Madden Julian Oscillation which also later drove the development of Hurricane Ida in the Caribbean. The warm pool (actually suppression of the thermocline in the tropical Pacific) will likely fade as it comes east and mixes with the cold water much as we found with the first warm surge in July. We anticipate the second peak will occur in early December.

The PDO which turned cold (negative) after the super El Nino of 1997/98 but then bounced positive in the El Nino of 2002/03 and stayed neutral to positive til 2006 has been mainly negative, at times extremely so til the El Nino this fall. The PDO tends to track with the ENSO Indices (here the Multivariate ENSO index of MEI). Note how however they PDO tends to be negative or positive for decades at a time.

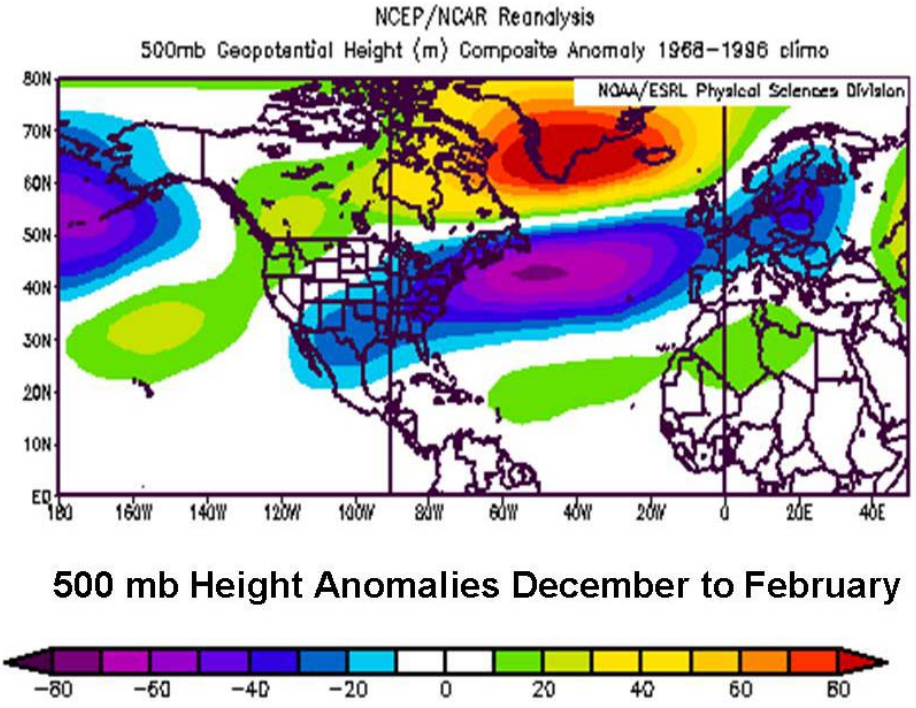


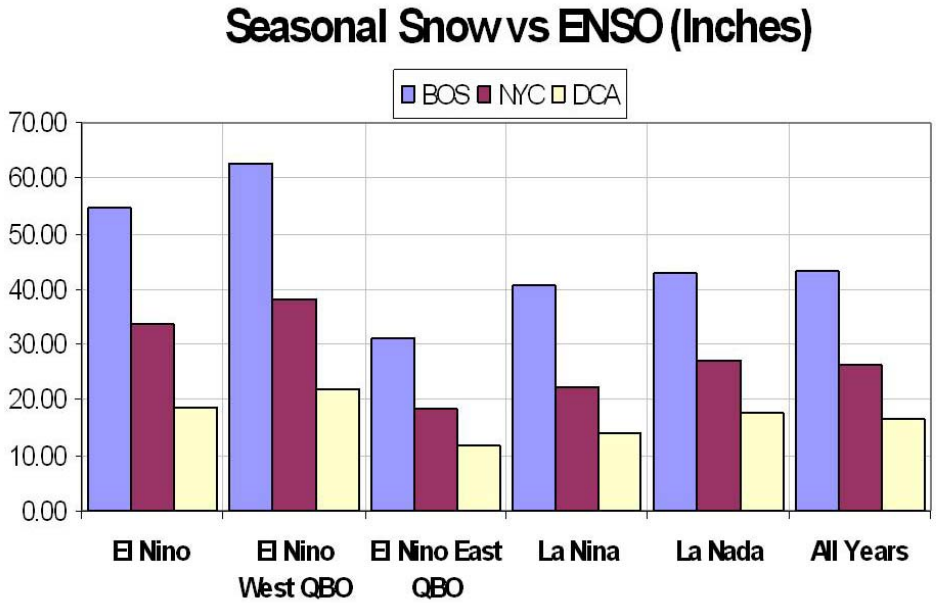
As we showed last week, the dynamic height suggests conditions subsurface are still in the negative PDO mode and it should turn back negative by late winter or spring if it pops this winter.

The Quasi-Biennial Oscillation (QBO) is another factor we track because research by NOAA's Climate Prediction Center in the late 1980s and early 1990s noted that the QBO modulated both the ENSO and solar effects during winter. The QBO flips between east and west every 13 months or so. This year we have been westerly but are transitioning towards easterly. Westerly QBOs usually in El Nino favor the western ridge (warmth) and eastern trough (cold) with a suppressed storm track from California to Texas and Florida and up the east coast.



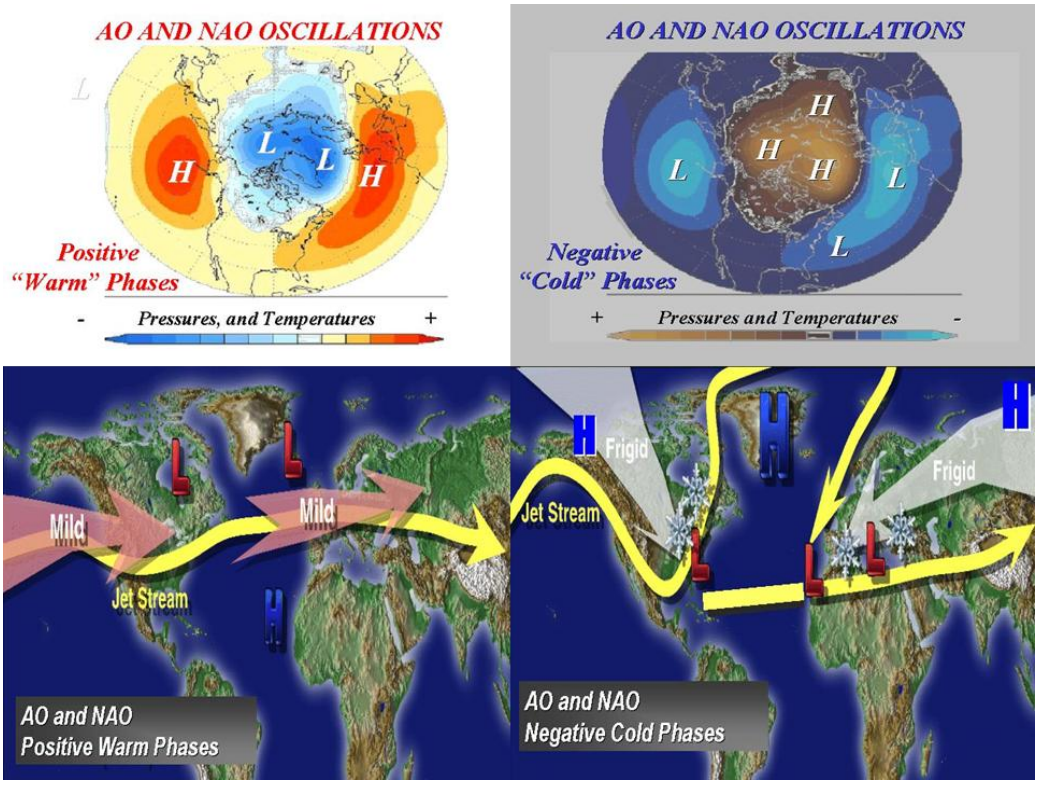
In easterly QBOs, we still get the southern storms especially Texas to Florida. The storms along the east coast tend to move out to sea with best chance for snows for mid-Atlantic coast (Norfolk) but below normal snows in DC, New York City and Boston. Notice in the most similar (analog) winters, the troughiness in the east stretching across to northern Europe and blocking high pressure (negative NAO).



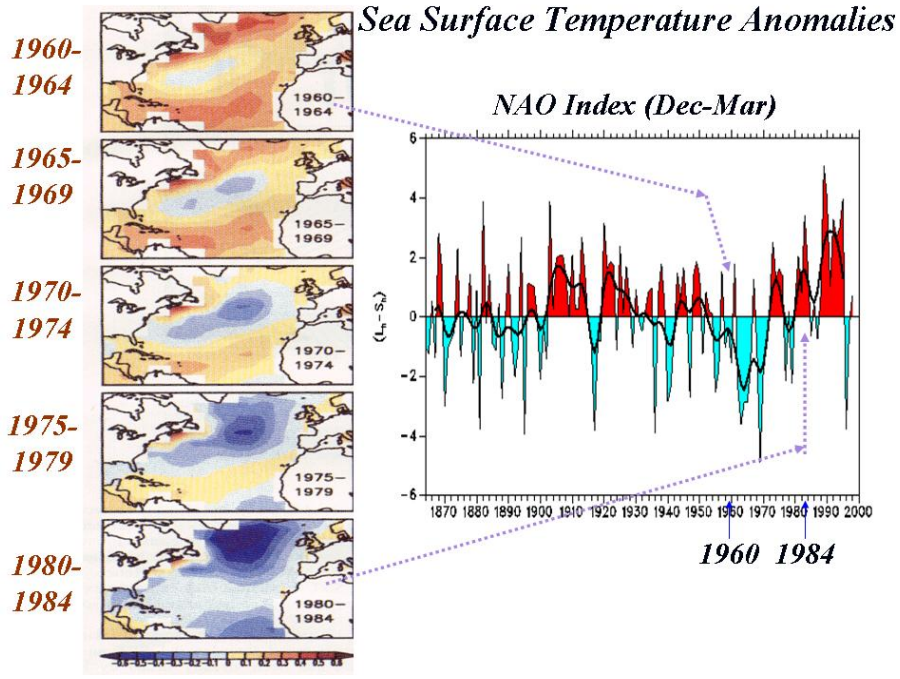


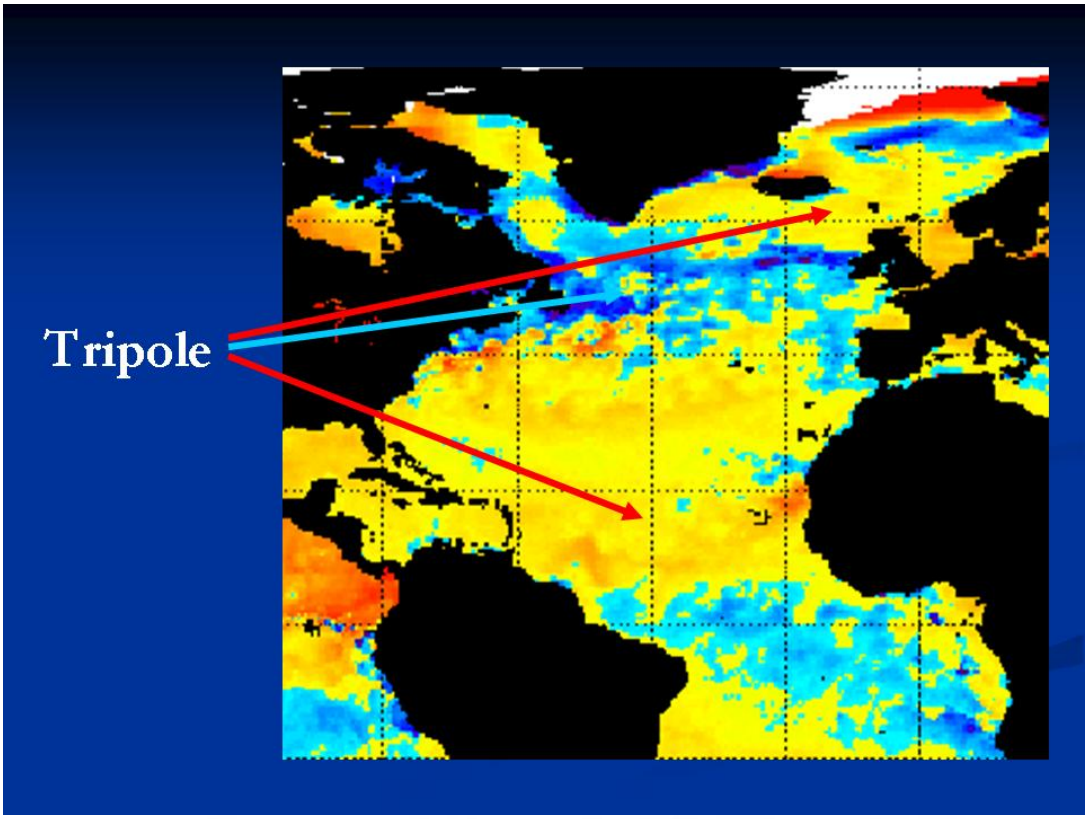
The North Atlantic Oscillation and Arctic Oscillation have been persistently negative the last few years and this summer and in October. This is in part due to the high latitude volcanoes (Mt. Redoubt and Sarychev) which Oman and Robock (2005) showed often resulted in high latitude blocking (negative NAO/AO).

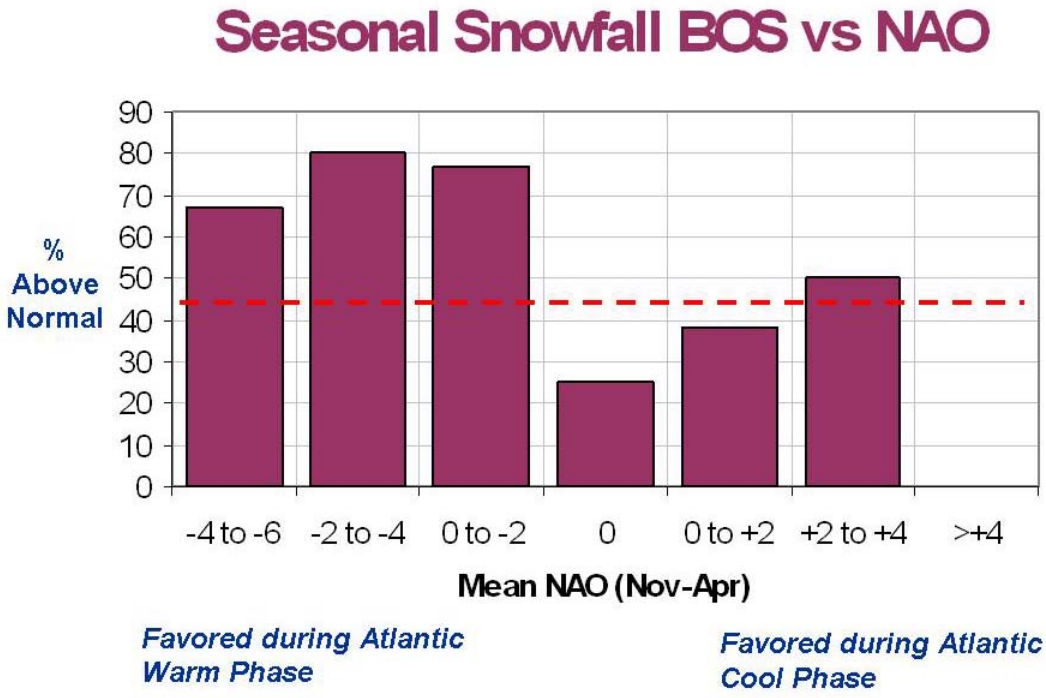
The negative phases of the NAO/AO causes cold weather for the eastern US and western Europe.



A negative NAO is favored also with a warm Atlantic tripole (as in the 1960s), a positive when the Atlantic is cold (the 1980s and early 1990s)



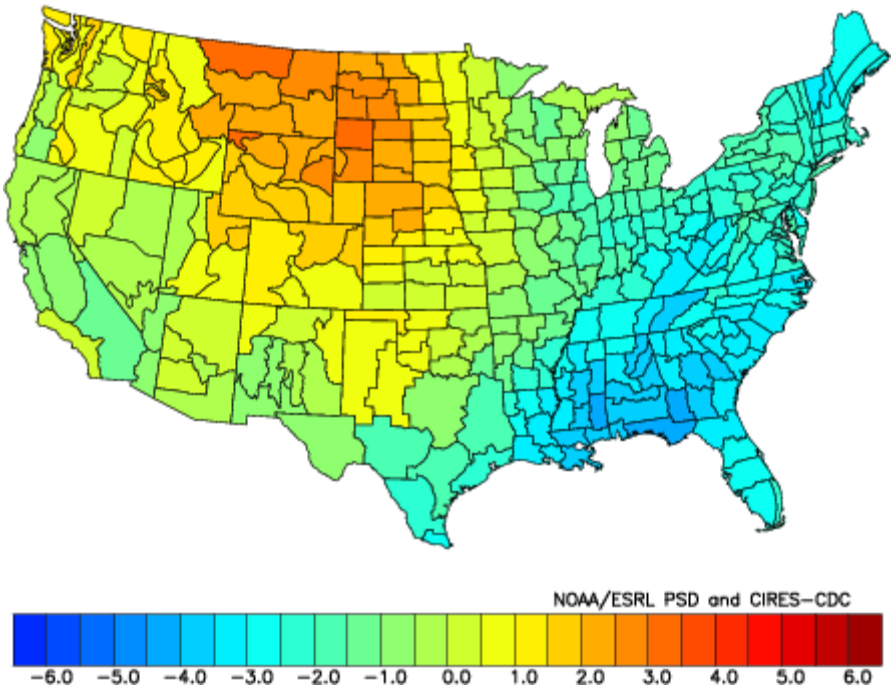




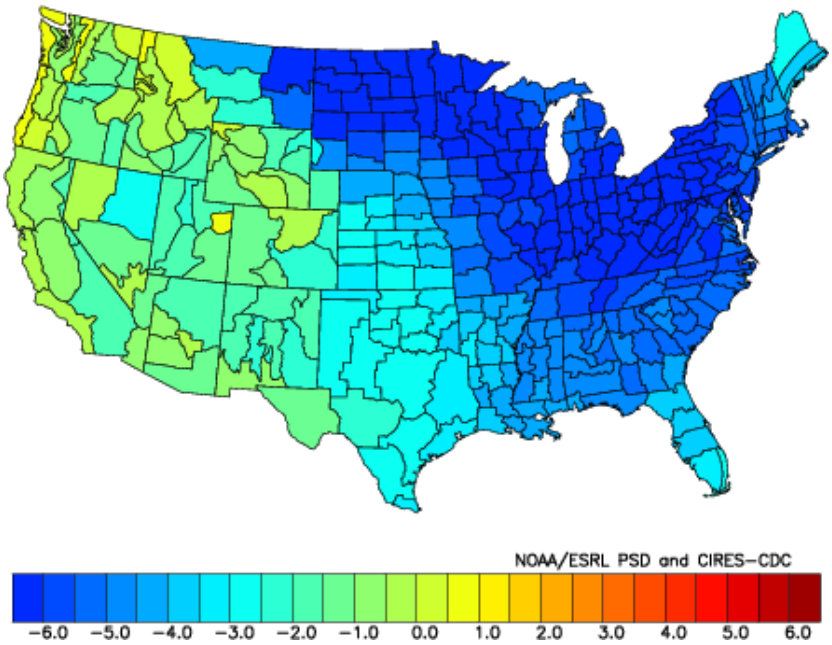
Similar results are found for DC and New York City.

Compiling all the factors and compositing the closest match years we get the following month-by-month.

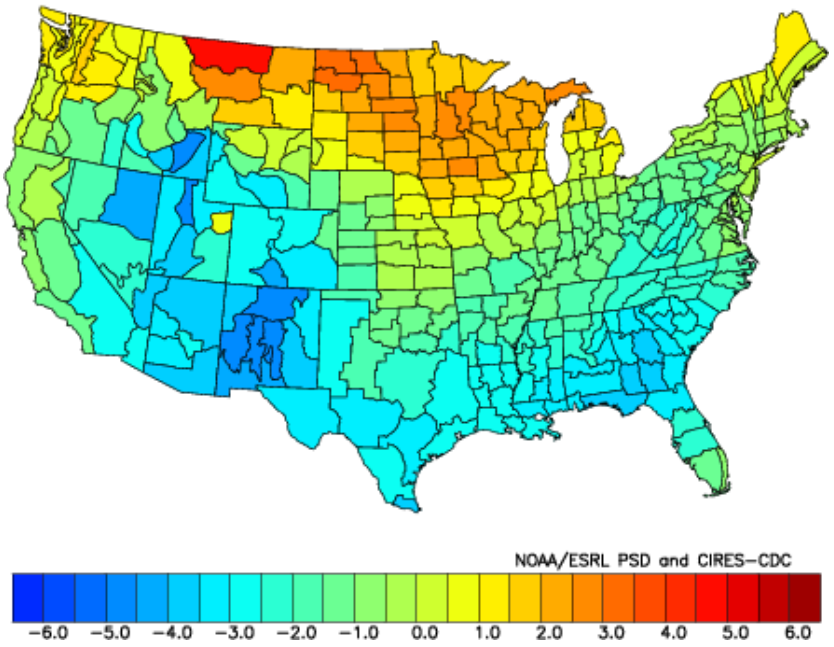
DECEMBER



JANUARY



FEBRUARY



Precipitation for the analogs winter though would suggest California and Texas would be disappointed this winter. The gulf and southeast coast up to Norfolk would be wetter than normal. Below normal winter precipitation doesn't necessarily mean below normal snowfall. If most of the precipitation occurs as snow, you can still have an above normal snow winter. Best chance for snow for the eastern cities might come early before the west QBO transitions and maybe late when El Nino gives way to neutral (La Nada).

PRECIPITATION ANOMALIES FOR WINTER 2009/10