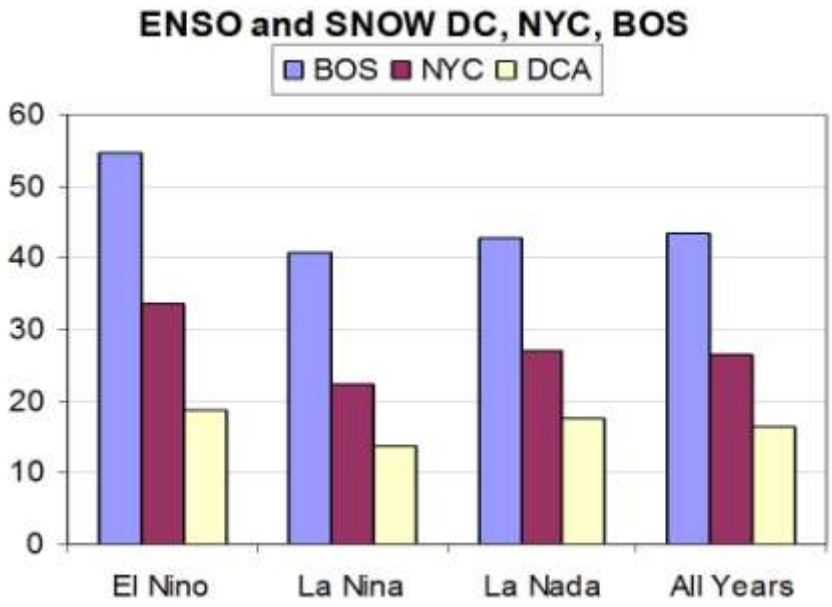
SNOW DROUGHT EARLY SEASON PART OF A TREND?

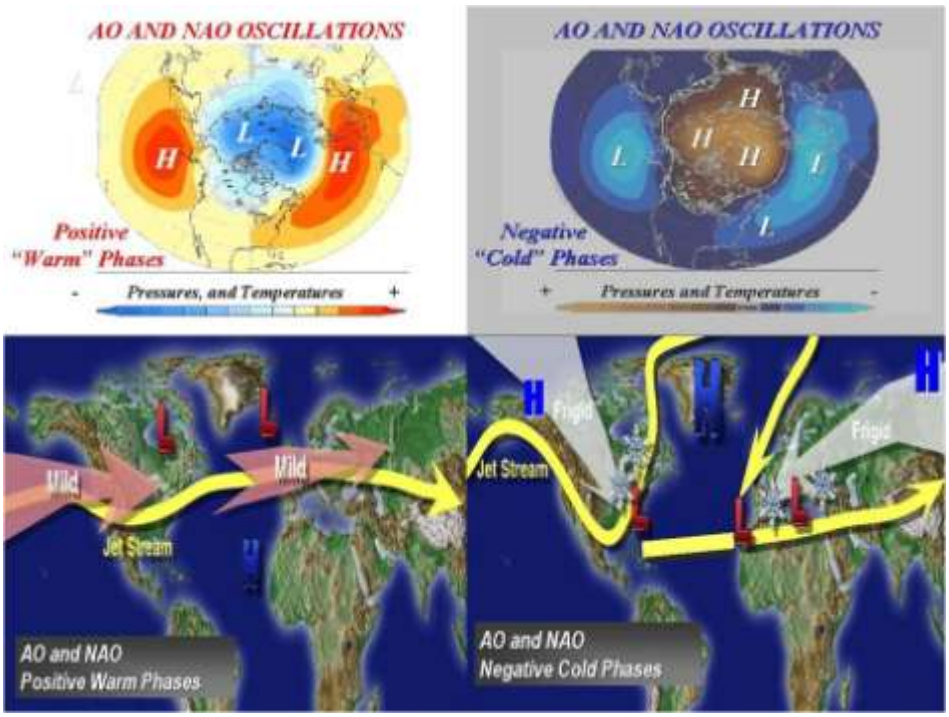
By Joseph D'Aleo, Weatherbell Analytics

A persistent Pacific jet stream has pounded Alaska but kept winter at bay in the early winter in the lower 48 states.

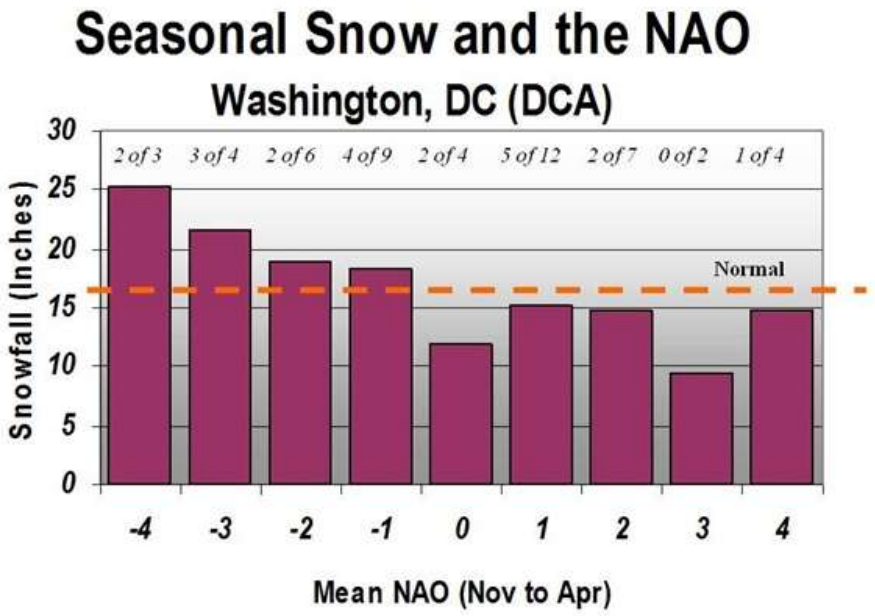
In the Washington Post, they reported on this lack of snow drought so far this season and admitted it was typical of La Ninas. All the cities of the east do well in El Nino winters, with major snowstorms.



This year winter started with a strong polar vortex. This strengthens the westerlies and pumps Pacific Maritime air in to North America and mild Atlantic air into Europe. In 2009/10 in contrast, a very weak polar vortex allowed warmer air can penetrate into the polar high atmosphere and buckle the jet stream in ways that allows cold air to dump to middle latitudes. Big snows resulted.



A negative NAO (and AO) leads to heavy snow in the major cities including DC.



2009/10 had record blocking negative NAO and an El Nino. The combination produced all-time record snows.

All-Time Record Snowfall

City	Snowfall (in)	Previous Record (Year)
Baltimore	79.9	62.5" (1995-1996)
Washington (Dulles International Airport)	72.8	61.9" (1995-1996)
Washington (Reagan National Airport)	55.9	54.4" (1898-1899)
Wilmington, Del.	66.7	55.9" (1995-1996)
Philadelphia	71.6	65.5" (1995-1996)
Atlantic City, N.J.	49.9	46.9" (1966-1967)

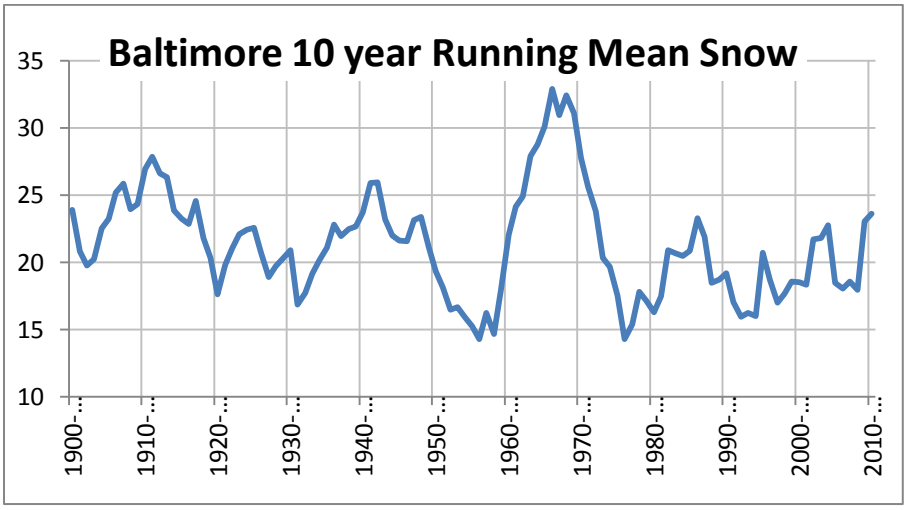
Central Park: new single month record in February 36.9 inches (30.5 inches, March 1896)

This season we have a La Nina and started the season with a very positive NAO and AO. That is why snow has been so hard to come by. The NAO and AO are turning negative. This will help but especially in the northeast.

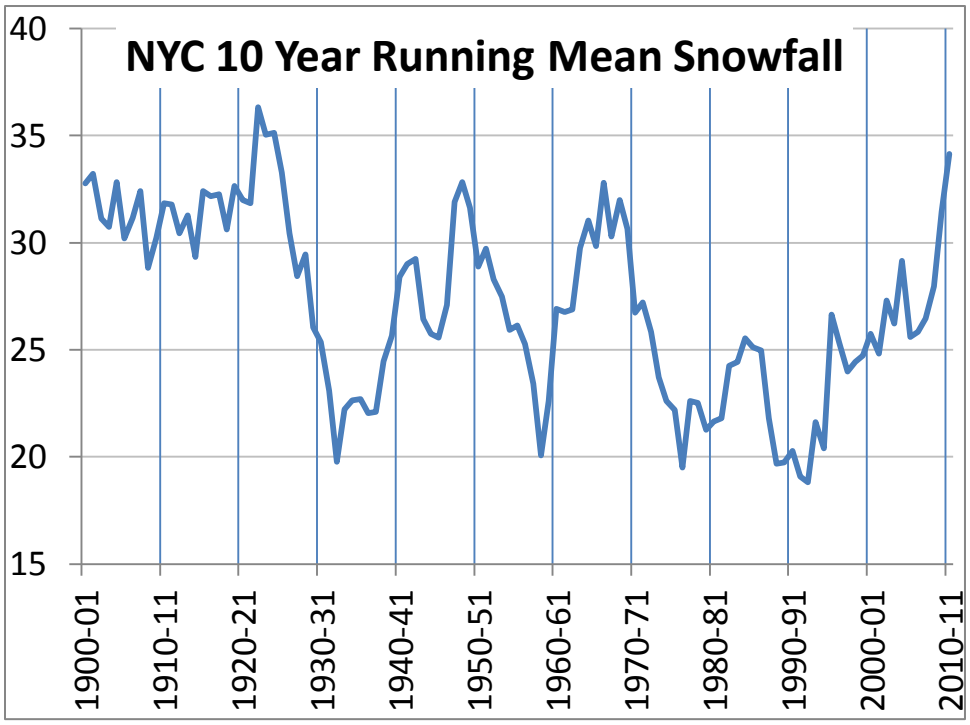
TRENDS DOWN?

In the Post, Jason Sabenow reported that the DC airports have seen a decline in snowfall of about an inch a decade.

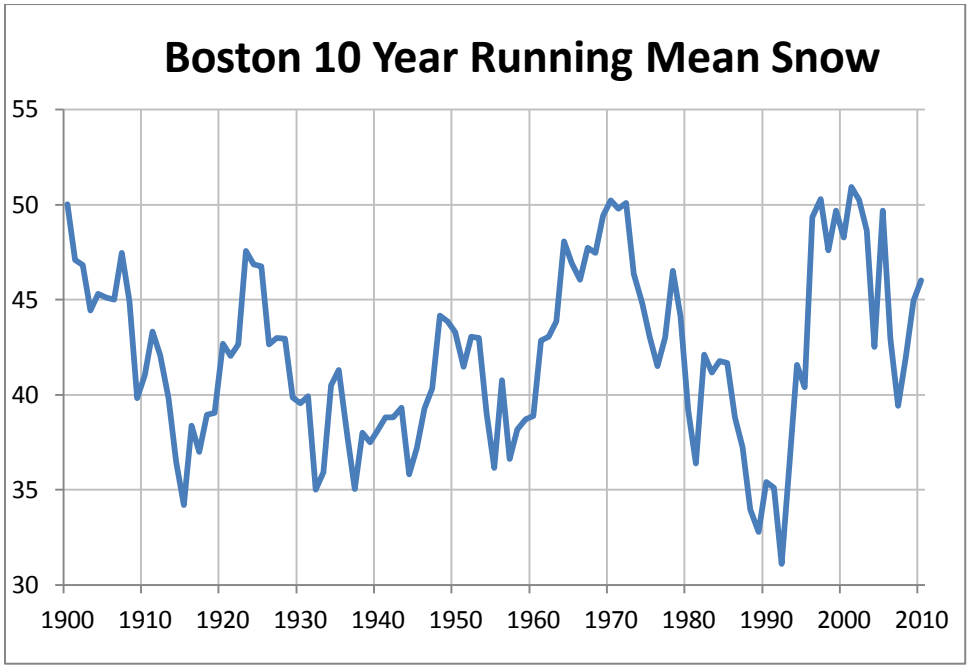
Doing a 10 year running mean of seasonal snowfall does not confirm this claim. Baltimore showed a big spike in the 1960s, a cold decade with very negative AO/NAO and 4 cold El Ninos. It declined in the La Ninas of the 1970s but then has increased slightly the last 35 years.



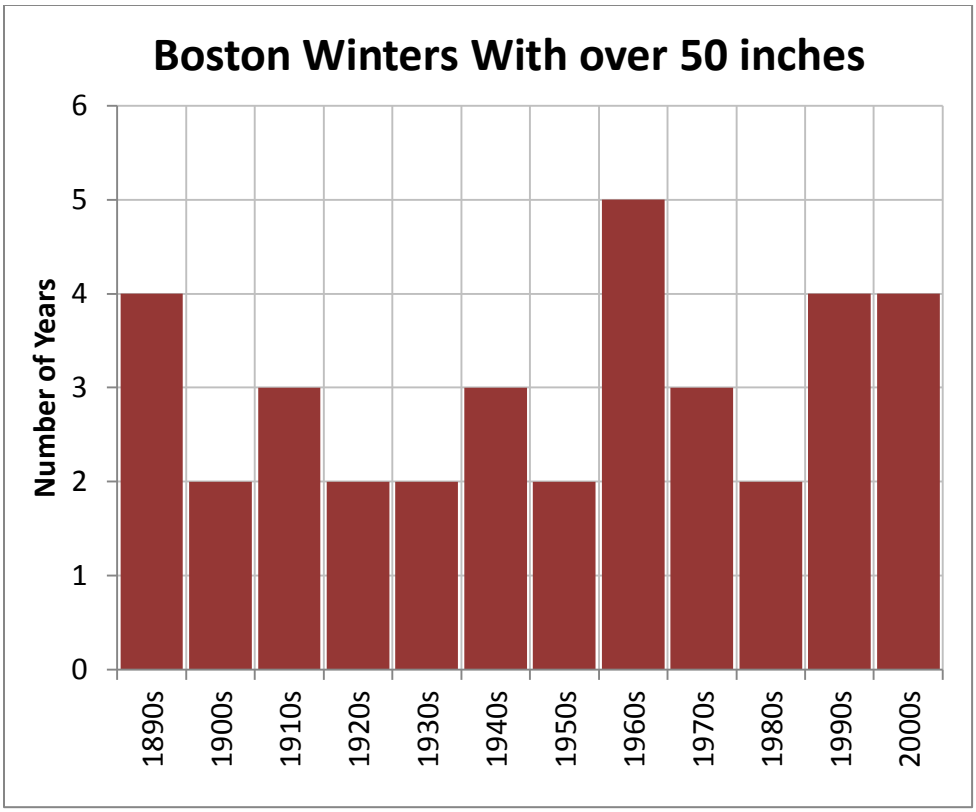
New York City running means show ups and downs but current values are the largest since the 1910s and 1920s. Spikes also were seen in the 1940s and 1960s.



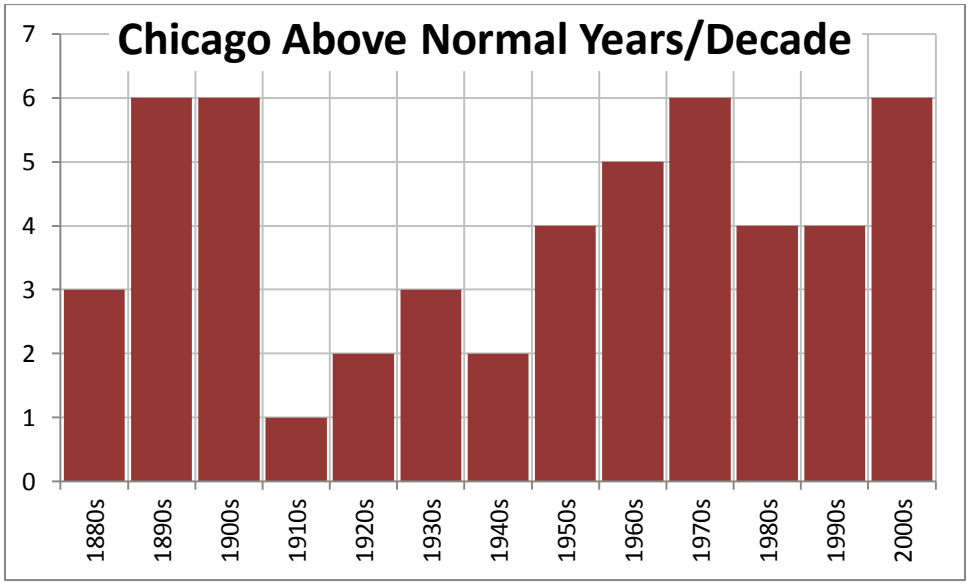
For Boston, the 1960s and 1990s/2000s were the peak snow years.



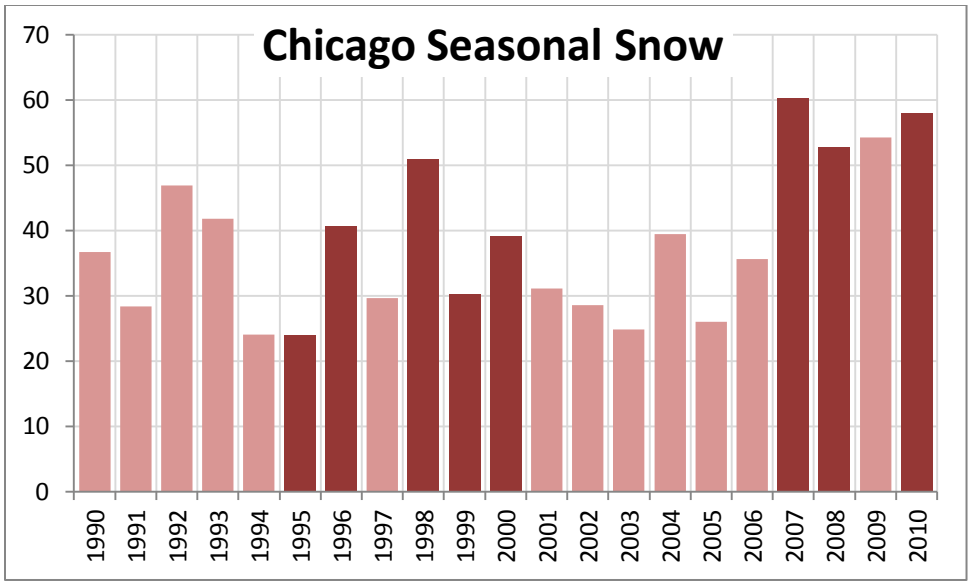
That is seen also in the number of years with over 50 inches of snow.



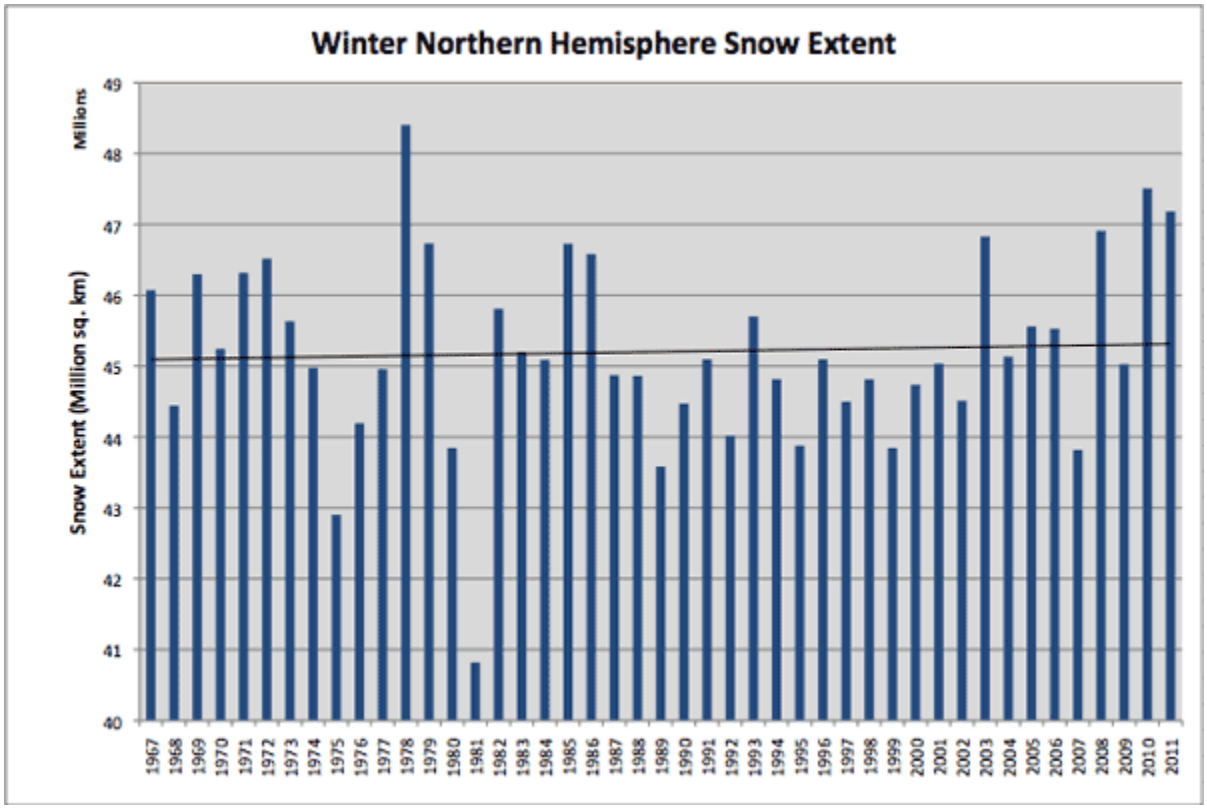
Chicago has had more recent above normal snow years like it did in the last cold PDO years (with more La Ninas) from the 1950s to 1970s.



Chicago snowfall is running below normal and after four big years, that would not be surprising even with La Nina.



As for northern hemisphere snow in winter, it has trended up since 1967. Behind 1977/78 we find 2009/10, 2010/22, 2007/08 and 2002/03.



This is likely to fall far short of the top 5 this year, but the trends in the big cities and hemisphere are up not down. AND the winter will turn more active given the redevelopment of blocking. Most of the traditional La Nina snowy areas will do better starting the rest of this month. Last winter most of the

action came early ending in early February. This year will be the opposite. DC will likely have to wait for the next El nino (2012/13?) to cash in. But then again AGWers have it covered either way.