I. Background Information

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This comment focuses on the Northeast Region of the United States that the document has incorrectly captured past conditions by cherry picking start time of the data period in clear violation of the Federal Information Quality Act (IQA) which demands an honest assessment as the starting point for any analysis. Further since it has been admitted by the IPCC modeler lead authors such as Kevin Trenberth that the models show no skill in predicting regional weather, there is no basis for any projections of impacts for any region when starting with an inaccurate initial assessment.

Whatsmore in your rush to publish anything before the elections, and before all the support documents were completed, you neglected to count states and left out West Virginia and Maryland. You have 2 less states (8 less than one of the Presidential candidates).

The Statement in question is on page 120. Totally bogus impacts were also shown on tourism for this region on page 47.

"NORTHEAST
The Northeast has significant geographic and climatic diversity within its relatively small area. The character and economy of the Northeast have been shaped by many aspects of its climate including its snowy winters, colorful autumns, and variety of extreme events such as nor'easters, ice storms, and heat waves. This familiar climate has already begun changing in noticeable ways.

Since 1970, the annual average temperature in the Northeast has increased by 2°F, with winter temperatures rising twice this much. This warming has resulted in many other climate-related changes, including:

- *More frequent days with temperatures above 90°F*
- *A longer growing season*
- *Less winter precipitation falling as snow and more as rain*
- *Reduced snowpack and increased snow density*
- *Earlier breakup of winter ice on lakes and rivers*
- *Earlier spring snowmelt resulting in earlier peak river flows*
- *Rising sea-surface temperatures and sea levels"*

All of these observed regional changes are consistent with ones expected to result from global warming. The Northeast is projected to face continued warming and more

extensive climate-related changes, some of which could dramatically alter the region's economy, landscape, character, and quality of life.

Over the next several decades, temperatures are projected to rise an additional 2.5 to 4°F in winter and 1.5 to 3.5°F in summer. By mid-century and beyond, however, today's emissions choices generate starkly different climate futures, with a lower emissions scenario resulting in much smaller climatic changes and resulting impacts.

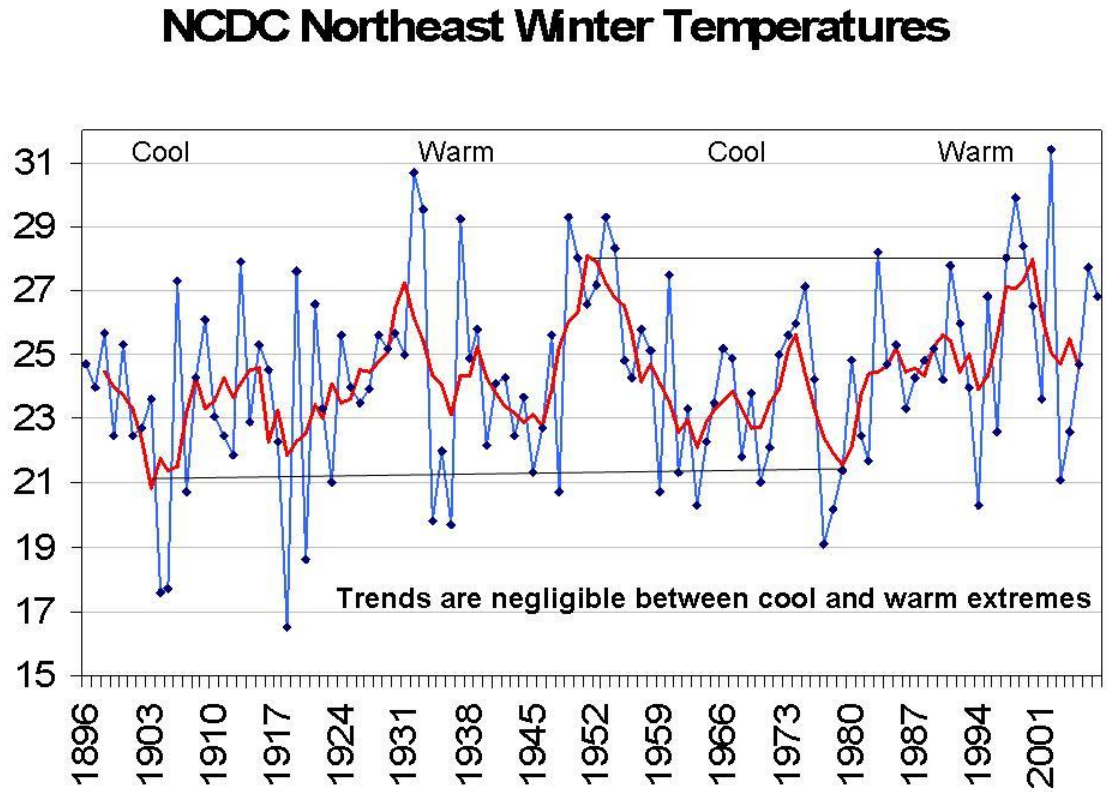
By late this century, under a higher-emissions scenario:
• Winters in the Northeast are projected to warm by 8 to 12°F and summers by 6 to 14°F.
• The length of the winter snow season would be cut in half across northern New York, Vermont, New Hampshire, and Maine, and reduced to a week or two in southern parts of the region.
• Cities that today experience few days above 100°F each summer would average 20 such days per summer, while certain cities, such as Hartford and Philadelphia, would average nearly 30 days over 100°F.
• Short-term (one- to three-month) droughts are projected to occur as frequently as once each summer in the Catskill and Adirondack Mountains, and across the New England states.
• Hot summer conditions would arrive three weeks earlier and last three weeks longer into the fall.
• Global average sea level is conservatively projected to rise one to two feet, with the potential for much larger rises."

WINTER TEMPERATURES

I have addressed serious data issues including big cities (New York's Central Park) and small (Ripogenus Dam, Maine) in a separate document and will not repeat them here. Refer to my document on Data Integrity Issues.

The first complaint here has to do with cherry picking starting and end times to get the desired result, in this an apparent warming to justify claims that greenhouse gases are to blame. You can who almost anything with cyclical data patterns. Your biased team members are masters at this deception in clear violation of the IQA. It appears the authors of this and pother regional sections were not qualified meteorologists or climatologists as the information provided could not be done by anyone with those qualifications.

The climate of the northeast has shown a cyclical temperature and precipitation pattern in line with cyclical changes in the oceans (PDO and AMO). There is no sign of any net warming in winters which the document claims has had the greatest warming from maximum to maximum or minimum of the cycles. The plot below has as a source NCDC regional temperatures. The report chose 1970 as the starting point of the analysis to show warming that is not present in long term trends. These temperatures in the northeast cycle with both the PDO and AMO which influence relative frequency El Nino and La Nina and the frequency and strength of North Atlantic blocking (NAO).



DROUHGTS PEAKED IN THE COLD 1960S

The document has no sense of history (or of much else) as the greatest drought have occurred in cold eras like the 1960s.

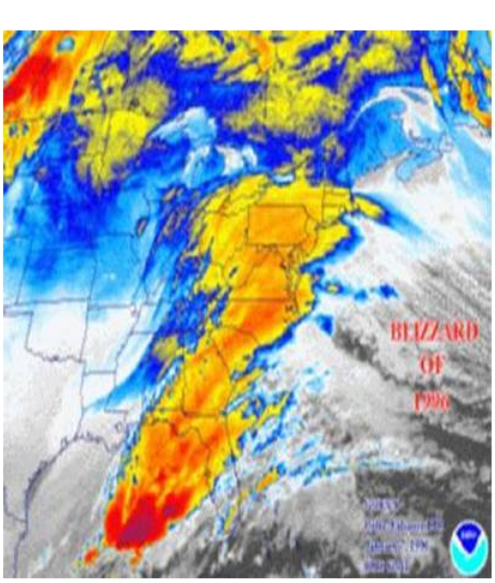
SNOWFALL MOVED TO THE CITIES DURING THE WARM PDO, NOW MOVING BACK TO SKI COUNTRY WITH COLD PDO

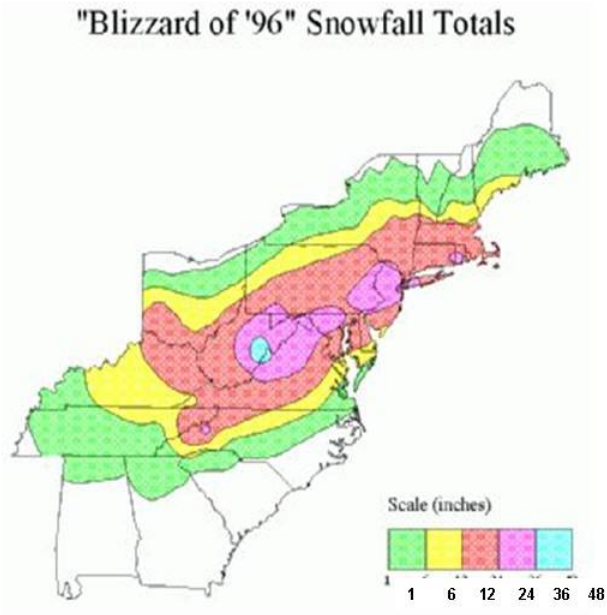
Snowfall in the northeast is affected by the PDO/ENSO and NAO. During the period from 1979 to 1998 when there was a positive PDO there were more El Ninos. The PDO popped positive again in the 2002-2005 winters with 3 relatively weak El Ninos.

El Ninos, especially weak ones have a suppressed southern storm track that favors snow for the coastal cities with generally less in northern New England ski areas. The snowstorms are especially likely when the NAO is negative (Atlantic blocking exists) which has been more frequent after 1995 when the AMO went into its warm mode. A warm AMO favors a negative NAO.

Despite all the claims of disappearing snow and ice due to global warming, the last dozen years or so has been among the snowiest ever here in parts of the US and in other parts of the world with numerous all-time storm, season and multi-season snowfall records broken.

It started in March of 1993, when the “Storm of the Century” brought heavy snowfall (1 up to 4 feet) from Alabama to New York and New England (2-4 feet) with losses that totaled $7.6 billion and approximately 270 deaths. Then in January of 1996, the “Blizzard of ‘96” deposited again 1-4 feet of snow over the Appalachians, Mid-Atlantic, and Northeast; followed by severe flooding in parts of same area due to rain and snowmelt inflicting approximately $3.5 billion damage and 187 deaths.





“Blizzard of '96” January 1996. Very heavy snowstorm (1-4 feet) over Appalachians, Mid-Atlantic, and Northeast; followed by severe flooding in parts of same area due to rain and snowmelt; approximately $3.5 billion damage/costs; 187 deaths.

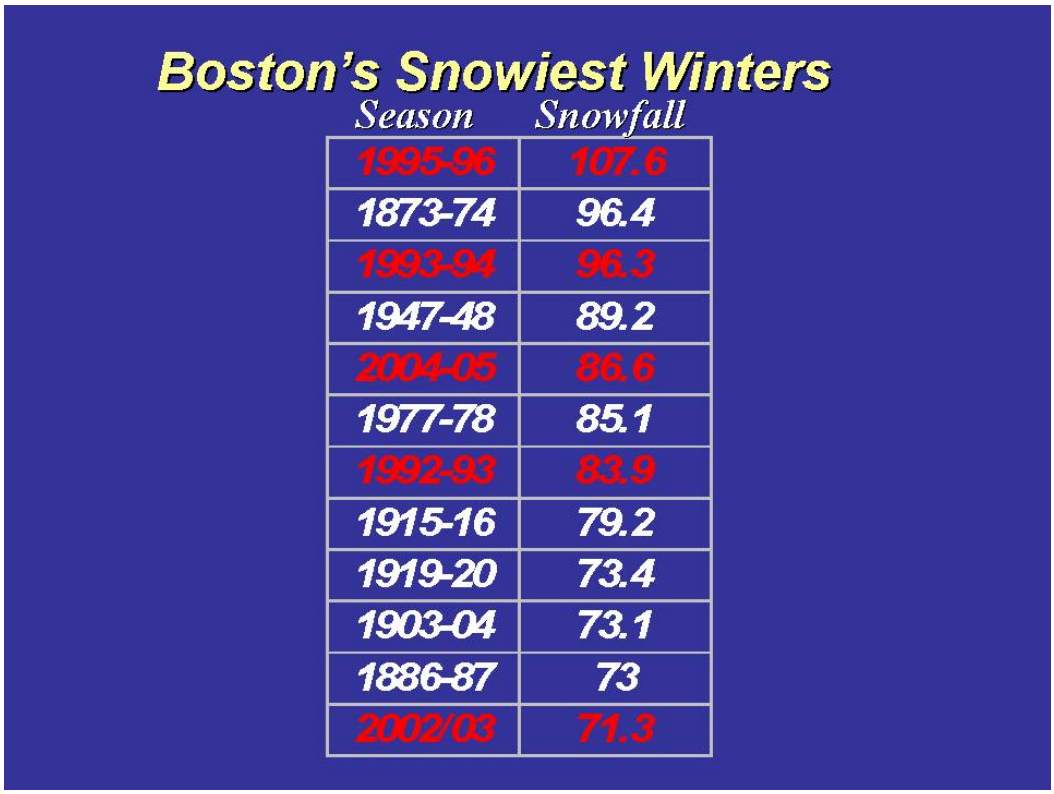
That winter, with strong blocking suppressing the storm tracks, the snows started early and never stopped coming. All-time seasonal snowfall records were set in dozens of cities in the east and central states including Boston (107.6” or 286% of normal), New York

City (75.6 inches of 276% of normal), Philadelphia (63.1 inches or 303% or normal) and Baltimore, MD (63.5 inches or 303% of normal)

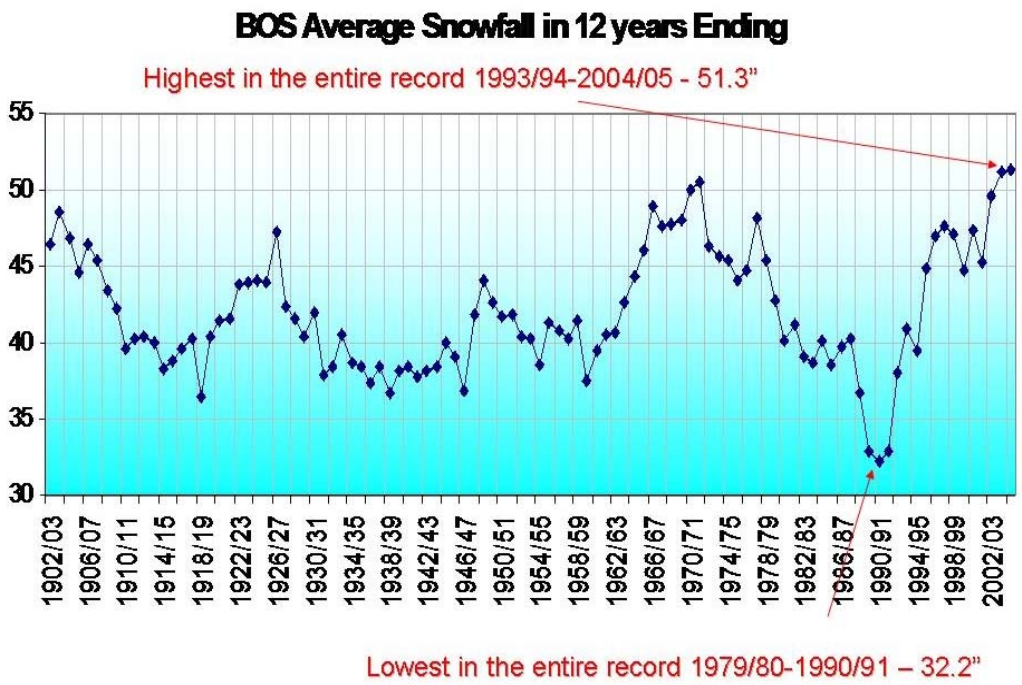
THE LOCATIONS WHERE 1995/96 SNOWFALL EXCEEDED ALL-TIME RECORDS			
Station	**Total**	**Norm**	**%Norm**
Marquette, MI	**250.8**	**129.0**	**194%**
Sault Ste. Marie, MI	**216.3**	**115.5**	**187%**
Blue Hill Observatory, MA	**143.8**	**59.6**	**241%**
Elkins, WV	**136.6**	**76.3**	**179%**
Duluth, MN	**135.4**	**78.2**	**173%**
Binghamton, NY	**133.4**	**82.9**	**161%**
Worcester, MA	**132.9**	**68.5**	**194%**
International Falls, MN	**116.0**	**64.2**	**181%**
Windsor Locks, CT	**115.2**	**48.0**	**240%**
Boston, MA	**107.6**	**41.7**	**258%**
Providence, RI	**106.1**	**36.1**	**294%**
Charleston, WV	**105.9**	**32.6**	**325%**
Mansfield, OH	**90.5**	**41.8**	**217%**
Williamsport, PA	**87.7**	**41.8**	**210%**
Newark, NJ	**78.4**	**27.5**	**285%**
Bridgeport, CT	**76.8**	**25.6**	**300%**
N.Y.- Central Park, NY	**75.6**	**28.4**	**266%**
N.Y.- JFK Airport, NY	**69.0**	**23.0**	**300%**
Philadelphia, PA	**63.1**	**20.8**	**303%**
Jackson, KY	**62.7**	**21.9**	**286%**
Baltimore, MD	**62.5**	**20.6**	**303%**
Dulles Airport, VA	**61.9**	**22.5**	**275%**
Lynchburg, VA	**56.8**	**17.9**	**317%**
National Airport, VA	**46.0**	**16.4**	**280%**

In the last few years, all time single storm records were shattered in the northeast cities. On February 11-12th 2006 a blizzard set new all-time snowstorm record for Central Park in New York City with 26.9 inches. On February 17-18, 2003, a snowstorm set new all-time snowfall record for Boston with 27.5 inches. Another blizzard on January 24-25 2005 brought 22.5" at Boston's Logan Airport, along with high winds, 6 foot drifts and bitterly cold temperatures. Many measurements however near Logan were 27-28" and the storm was compared by many to the blizzard of '78.

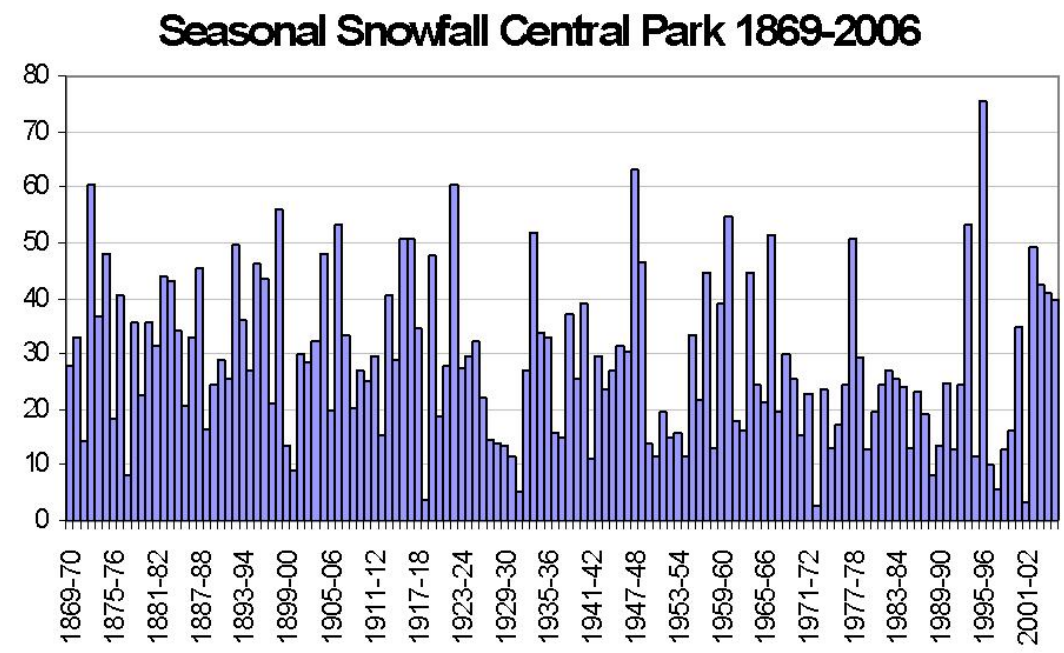
Despite the CCSP and IPCC claim in their 4th Assessment that cities with winter average temperatures near 32F are seeing less snowfall and more rainfall, this is not the case in the eastern United States. Boston has an average winter temperature of 32F. Boston since 1992/93 had had 5 years that rank among the top 10% snowiest winters in over 130 years of record, including numbers 1, 3, 5, and 7 (source Boston NWS).



If you do a running mean of average snowfall over dozen years, the period from 1993/94 through 2004/05 for Boston, the average is the highest in the entire record dating back to the 1880s.



New York City (with annual snowfall data back to 1869) has an average January temperature (their coldest month) of 32F. New York City for the first time EVER ending 2005/06, had four successive years with over 40 inches of snow the last four winters. Its four-year running mean was the highest its entire 137 year record.



New York's Central Park had 40" of snow for four straight years for the first time since records began in 1869. $ year running mean also was the highest in the record

WHAT IS BEHIND THIS SNOWFALL BLITZ?

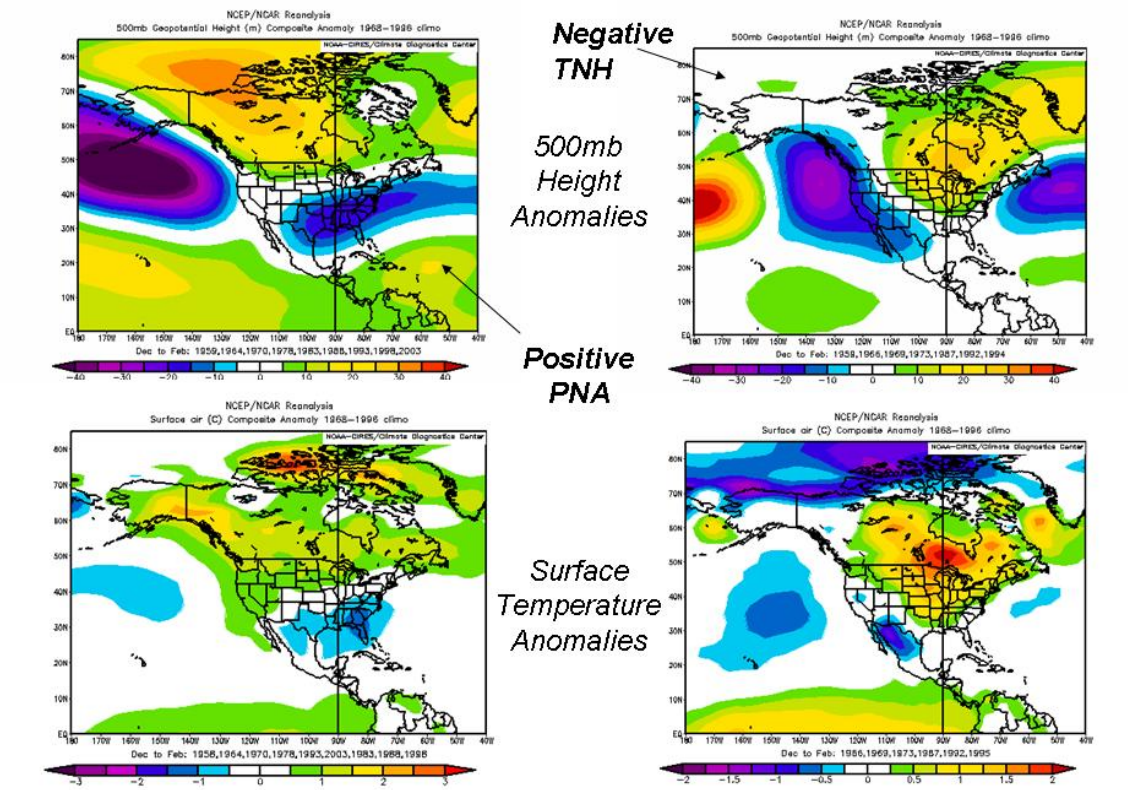
Snowfall here in the Northeast relate to decadal scale cycles in the Pacific, Atlantic and Arctic.

When the Pacific Decadal Oscillation flipped from its cold to warm mode in the Great Pacific Climate Shift in 1977, El Nino frequency increased. In the warm mode, more El Ninos are favored (two to one over La Ninas), and when they are weak to moderate this often translates into heavy snows in the eastern United States especially when the Quasi-Biennial Oscillation (QBO) is west.

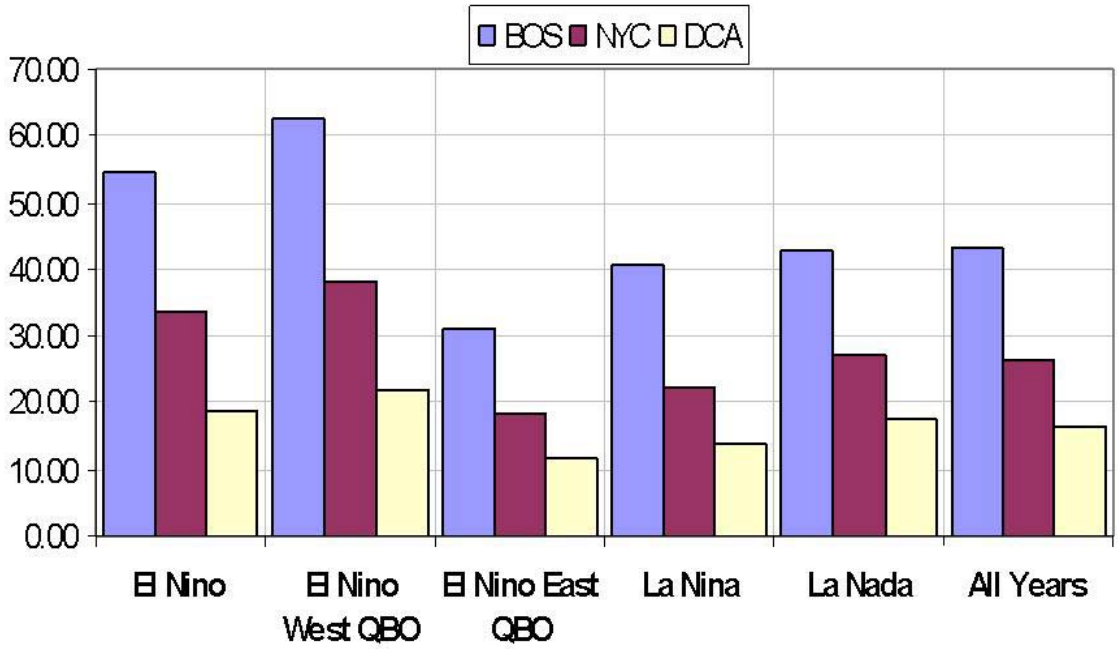
CPC research by Livesey, Barnston and Halpert showed how a west QBO El Nino favors the positive PNA pattern with an eastern trough which predisposes the east to east coast storms. Indeed 2/3rds of the top dozen heaviest snow years since the 1870s for Boston were El Nino West QBO seasons.

El Nino West QBO Years

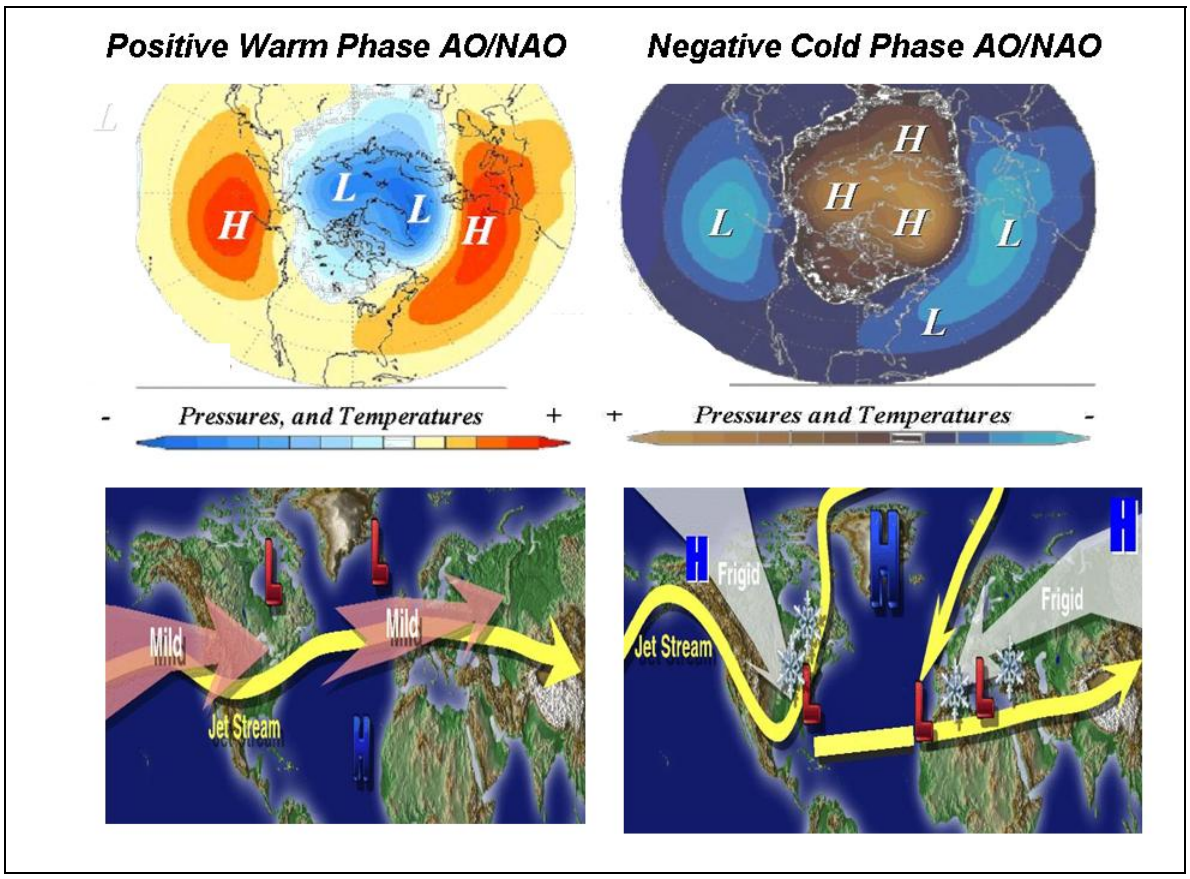
El Nino East QBO Years



Seasonal Snow vs ENSO (Inches)

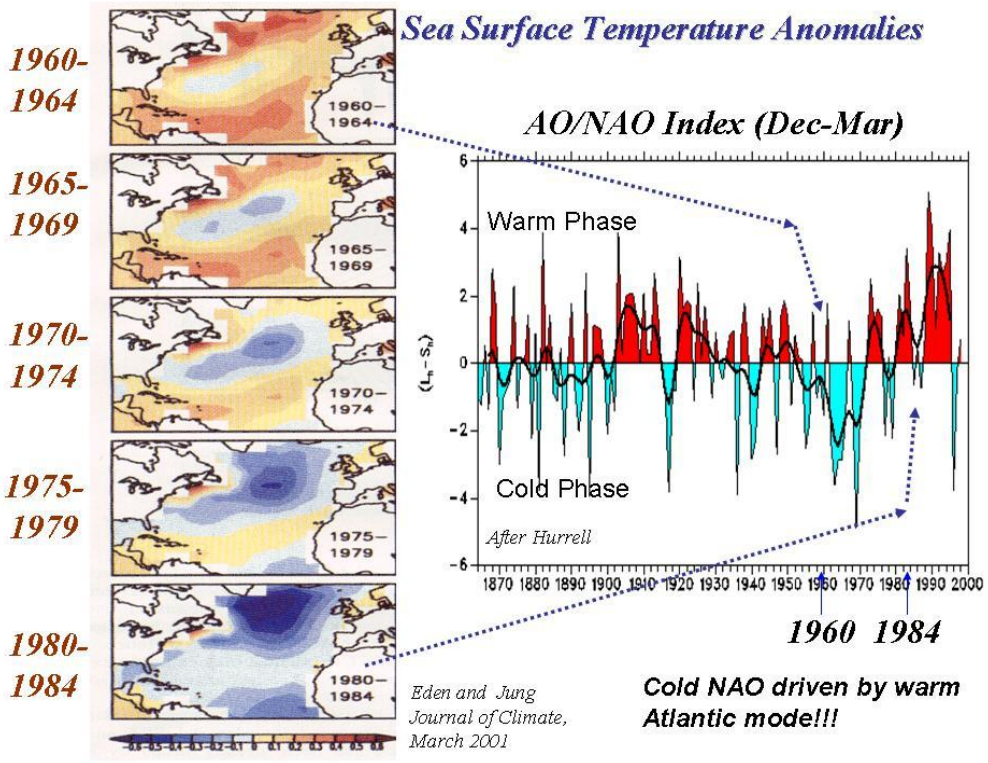


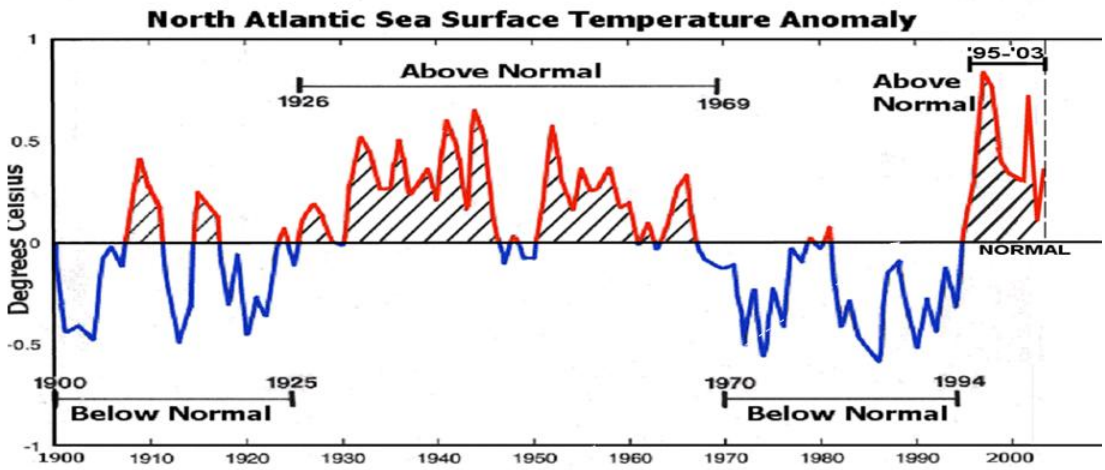
Also important to the snow increases has been a shift of two atmospheric oscillations, which generally operate in tandem, the North Atlantic Oscillation (NAO) and Arctic Oscillations (AO). These oscillations have significant control over the weather pattern including winter storm tracks and temperatures in both Europe and the eastern United States.

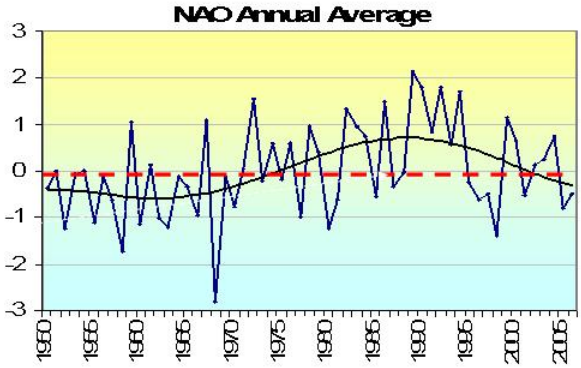


Since the middle 1990s, these oscillations have more often been in the phase that favors cold and snow (the negative or 'cold' phases) in both Europe and the eastern United States. Like the PDO, the NAO and AO tend to be predominantly in one mode in the other for decades at a time.

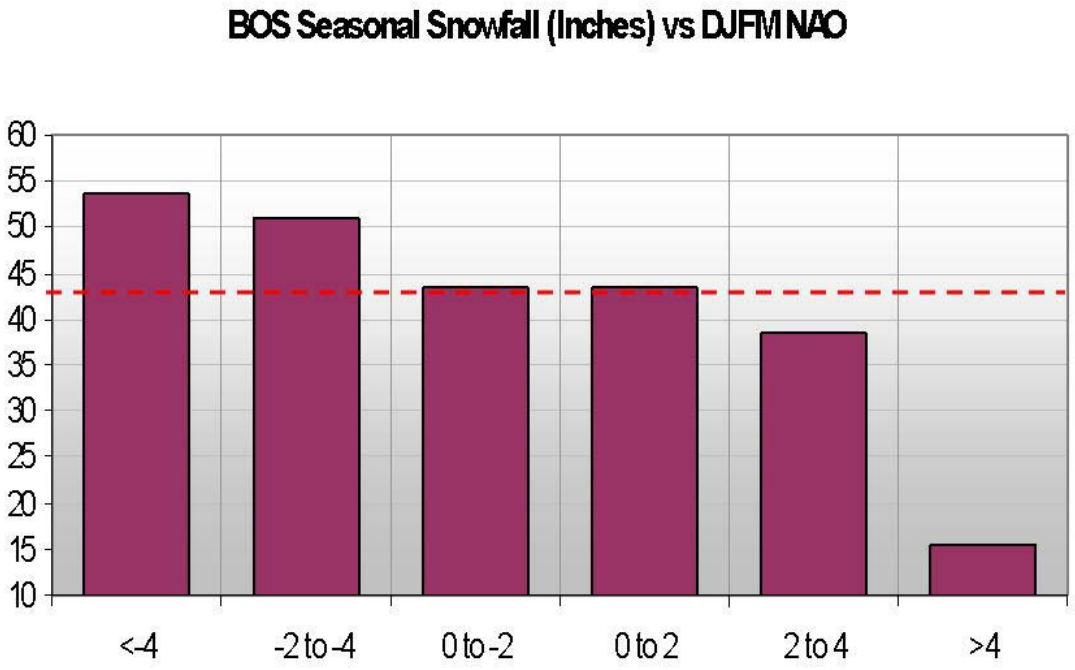
The Atlantic Multidecadal Oscillation is responsible for the NAO/AO decadal tendencies. When the Atlantic is cold, the AO and NAO TEND towards the positive state, when the Atlantic is warm on the other hand, the NAO/AO TEND to be often negative. This means high latitude blocking and enhanced coastal storm activity in the United States and Mediterranean storms that bring snows to Europe.


Sea Surface Temperature Anomalies
1960-1964
1965-1969
1970-1974
1975-1979
1980-1984
1960–1964
1965–1969
1970–1974
1975–1979
1980–1984
AO/NAO Index (Dec-Mar)
Warm Phase
Cold Phase
After Hurrell
1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000
1960 1984
Eden and Jung
Journal of Climate,
March 2001
Cold NAO driven by warm Atlantic mode!!!





North Atlantic temperatures went above normal and NAO turned more negative starting in 1995



Meanwhile northern New England gets shortchanged when the major cities get heavy snows in many El Nino winters. La Nina and a cold PDO is the recipe for above normal northern area snowfall. This was clearly seen in the frigid and very heavy snow La Nina winter of 2000/01 which had strong blocking when the northern half of New England was paralysed by major snowstorms early and especially again late (March). This winter that same recipe was served with a strong La Nina and cold PDO and all-time snow records were set in areas Concord New Hampshire north and east, in some places where 120 plus years of records were kept.

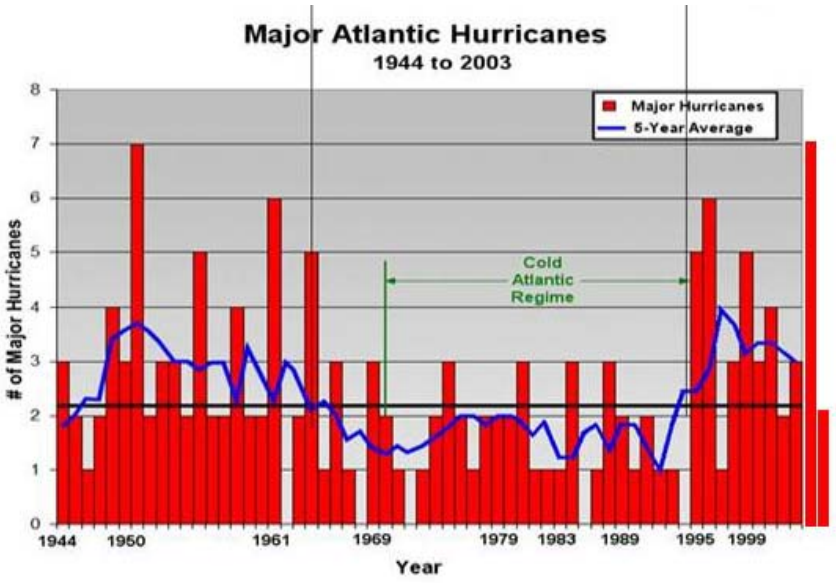
This was the best ski season on record for many areas from the west to the Midwest, Great Lakes and northeast. Ironically it came just months after a summit on Mount Washington which predicted a disastrous future for the winter sports and tourism industry much as this totally bogus report.

Given the switch to the cold PDO, continued warm AMO for another decade and a very low solar, the northeast will see colder snowier winters across the north and milder and drier winters in the mid-Atlantic on average. The occasional weak El Ninos will be cold and snowy in the cities down to the Mid-Altantic especially when the QBO is west and NAO negative. Temperatures will continue the slow decline seen in the last 8 years or so, perhaps accelerating if the solar cycles is a Dalton type minimum as many solar scientists project.

Instead of becoming more like the Carolinas, New Hampshire will become more like Quebec in the next few decades.

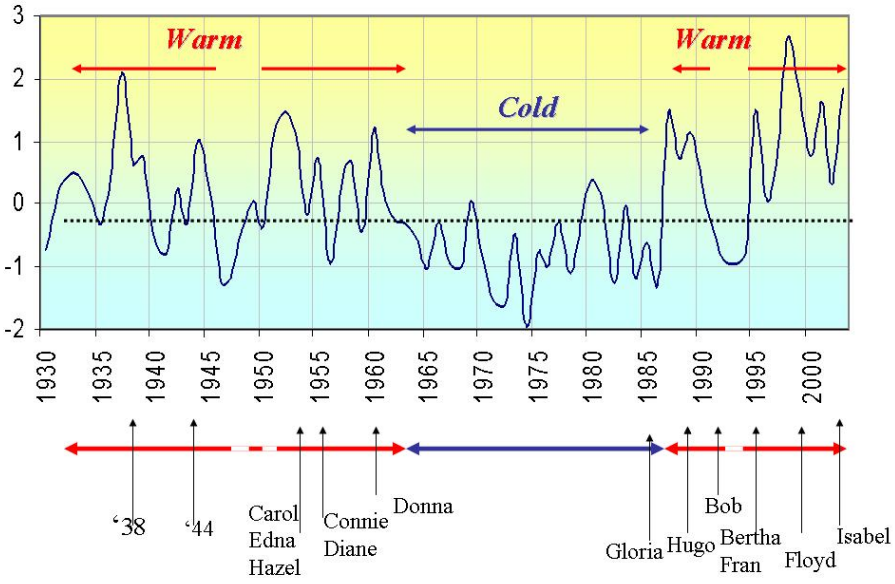
NO MENTION OF HURRICANES

Since 1995, the Atlantic has become twice as active on average as the prior 25 years, similar to the period from 1930s to 1960s. This is due to a shift to the 'warm" mode of the multi-decadal scale oscillation in the Atlantic Ocean Most of the storms making landfall during the past 12 years have impacted the Mid-Atlantic region, Florida and the Gulf of Mexico. However, though not yet realized, history tells us that the risk has also increased for more populated areas to the north New York City/(Long Island and New England).

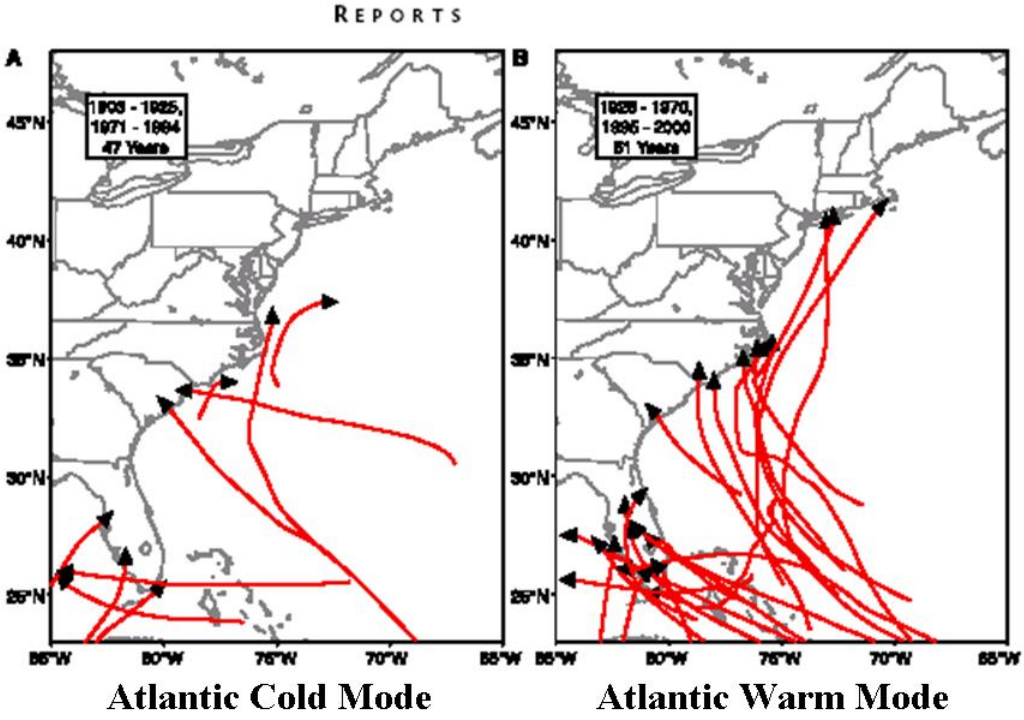


Number of CAT3-5 hurricanes in the Atlantic versus the AMO (Atlantic mean sea surface anomaly from 0 to 70N)

East Coast Hurricanes and Atlantic Temperatures

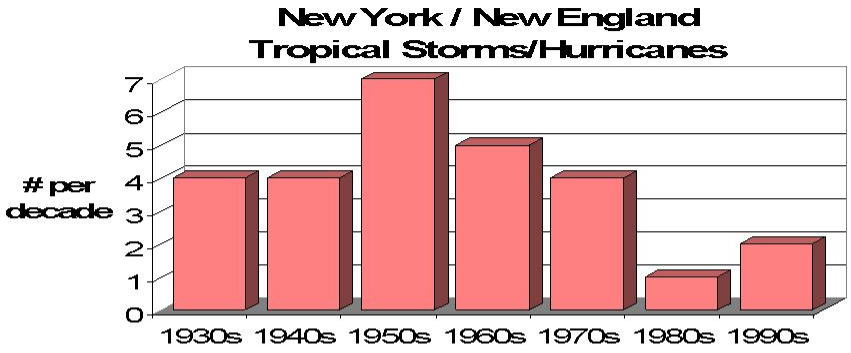


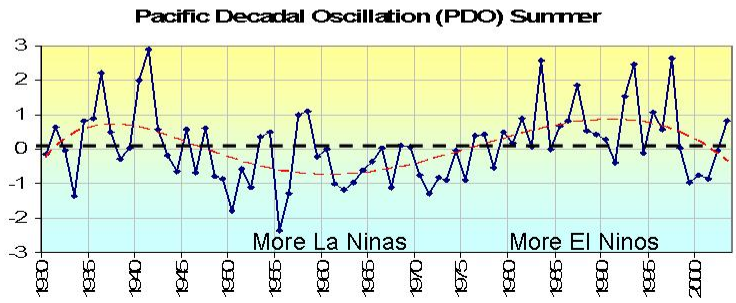
East Coast Landfalls



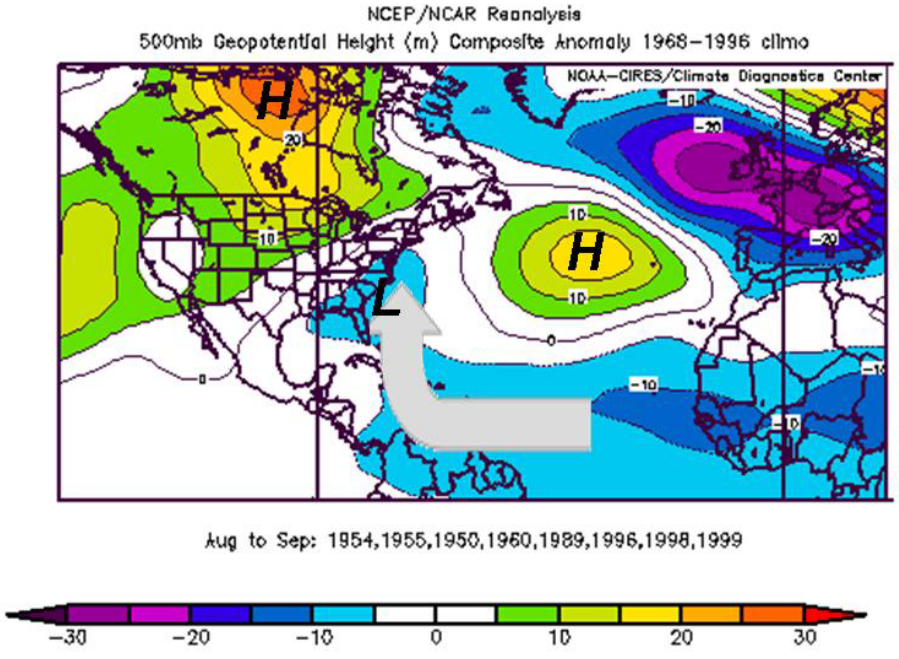
It appears the Pacific plays a role too. The cold mode of the PDO (in place this summer) favors New York and New England landfalls in large part because it favors La Nina. We had a strong La Nina this past winter into the early spring but it has in recent months, warmed in the eastern tropical Pacific. It is unclear whether that will save the east coast

and the northeast one more year.





La Nina Upper Steering Level



Aug to Sep: 1954,1955,1950,1960,1989,1996,1998,1999

You can see La Nina years when the Atlantic is warm produced 15 landfalling east coast storms in 9 years, 11 were major hurricanes, 9 affecting the northeast directly on on second or third landfall. The deadly 1938 hurricane was discussed here.

CORRECTION REQUIRED

Because of these serious misanalysis and errors of both commission and omission with cherry picking dates for current trends and lack of understanding of the real forcings at play, this entire section on regional climates clearly violates the data quality act and should be deleted or rewritten.

If you wish to correct these data issues and correctly show the historical changes and include a more accurate forecast, it is suggested that the following wording be substituted:

NORTHEAST
The Northeast has significant geographic and climatic diversity within its relatively small area. The character and economy of the Northeast have been shaped by many aspects of its climate including its snowy winters, colorful autumns, and variety of extreme events such as nor'easters, ice storms, and heat waves. Changes over the decades have proceeded in a predictable cyclical fashion and similar changes are expected this century.

Looking at cycles of temperatures over the century, there are peaks and valleys with little change in the magnitudes of the maxima and minima. The most recent maxima in the late 1990s was similar to that in the early 1950s. These changes relate to cycles in both the Atlantic and Pacific as well as solar. Local warming around cities is also evident due to land use and urban factors.

As we head into a low solar period with a negative PDO and for a while longer a positive AMO, we can expect

• More frequent and stronger La Ninas which can mean more extreme cold and more snow across northern areas and less in the cities and southern areas
• We can expect more thunderstorm days in spring and summer with some hot summers in La Nina onset years
• Increased snowpack across the mountains will enhance winter sports activity
• It will mean more spring melting and flood potential
• There will be later breakup of winter ice on lakes and rivers
• Increased chances of landfalling hurricanes in La Nina summers while the Atlantic stays warm for the next decade. In the 9 years when the PDO was negative and La Ninas occurred while the AMO was positive this past century, there were 15 landfalling storms along the east coast, 11 were major (CAT 3 to 5) and 9 affected the northeast directly or after landfall to the south.
• Land and oceans will cool and sea level rises will be minor. Temperature falls will be exaggerated if the Dalton Minimum scenario occurs.

All of these observed regional changes are consistent with ones expected to result from cyclical climate change. The cooling taken together with the unwise environmental plans now already in place in some states, will dramatically alter the region's economy, and quality of life for the worse.

Over the next several decades, temperatures are projected to fall an additional 2.5 to 4°F in winter based on past cycles. It could be larger in the Dalton scenario. By mid-century and beyond, however, we should emerge from the cold phase and return to a more acceptable climate for a few decades.

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