

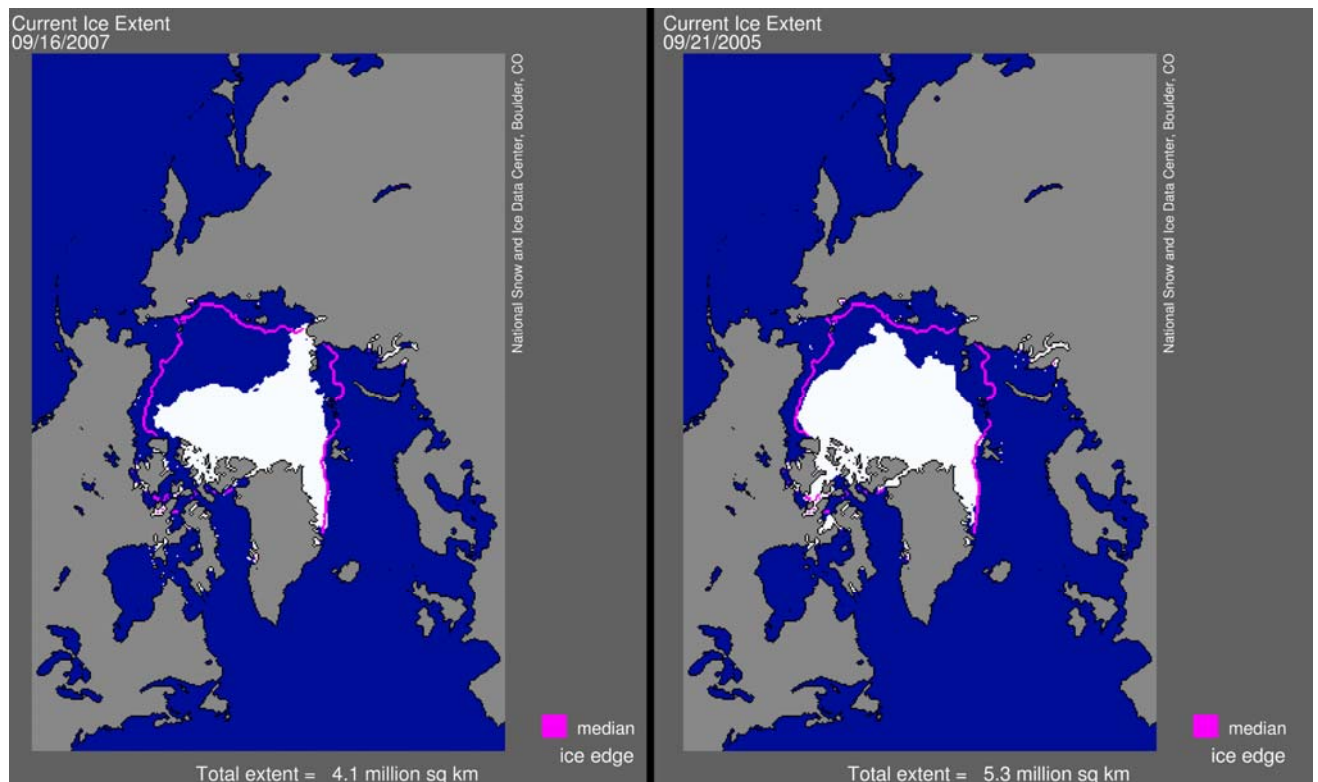
COMMENTS ON NEW ARCTIC ICE MINIMUM

There have been and will continue to be stories on the new record minimum of arctic ice and how this is further proof of anthropogenic global warming. As we have blogged, the authors of the papers and media reporting on them have no sense of history and of the real factors involved in the global cycles of temperatures and arctic ice.

In the following we will use the [excellent discussions](#) of the NSIDC updated weekly on the sea ice extent and some of our own analyses previously blogged to show you this is a cyclical change. We will remind you that the ice extent data records used are satellite based and extend only back to 1979, a time of the Great Pacific Climate Shift that started the upleg of the latest cycle.

NSIDC OVERVIEW OF SEA ICE CONDITIONS (9/20/07)

Arctic sea ice extent now stands at 4.18 million square kilometers (1.61 million square miles). This represents an increase of 50,000 square kilometers (19,000 square miles) compared to the value of 4.13 million square kilometers (1.59 million square miles) five-day running mean extent, observed on September 16, which appears to be the 2007 minimum.



Sea ice conditions at the annual minimum on September 16, 2007

The above figure compares the five-day mean sea ice extent on September 16, 2007, this year's apparent minimum, with minimum sea ice extent on September 20–21, 2005, the previous record low. The magenta line indicates the mean September extent based on data from 1979 to 2000.

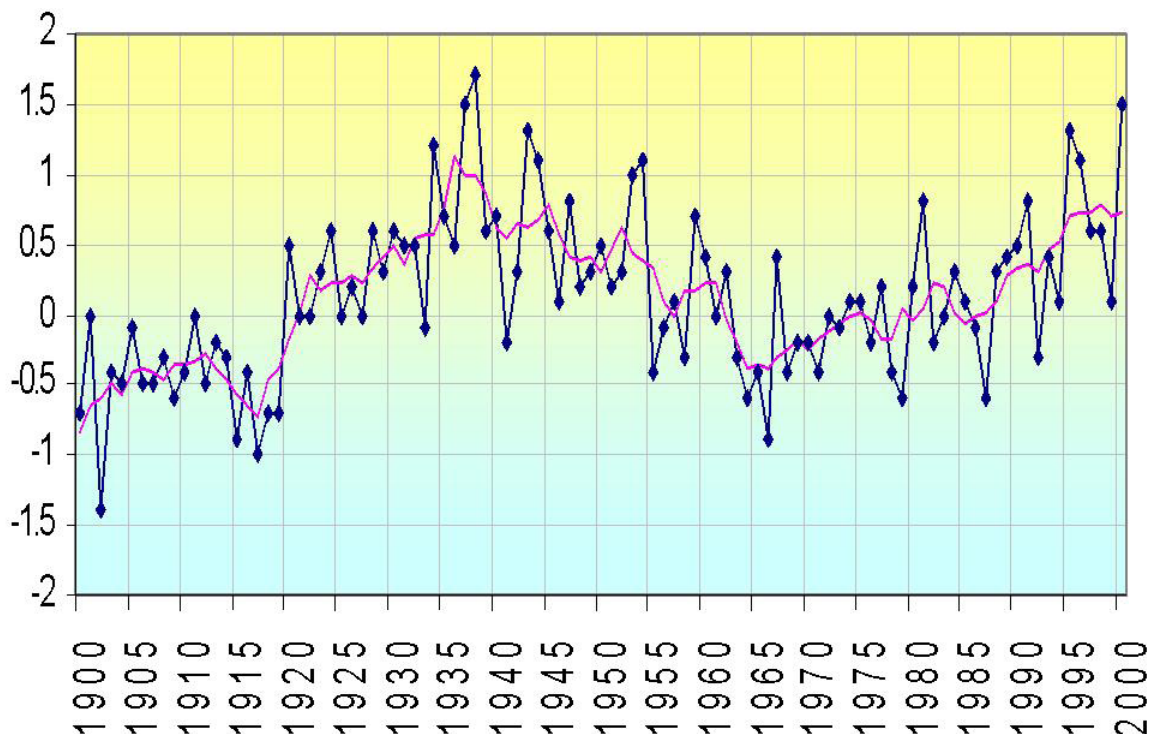
LONGER TERM TRENDS

As we (ICECAP) described in [this paper](#), the longer term changes in the arctic are cyclical and relate far better with cycles in solar activity and multidecadal ocean cycles than carbon dioxide.

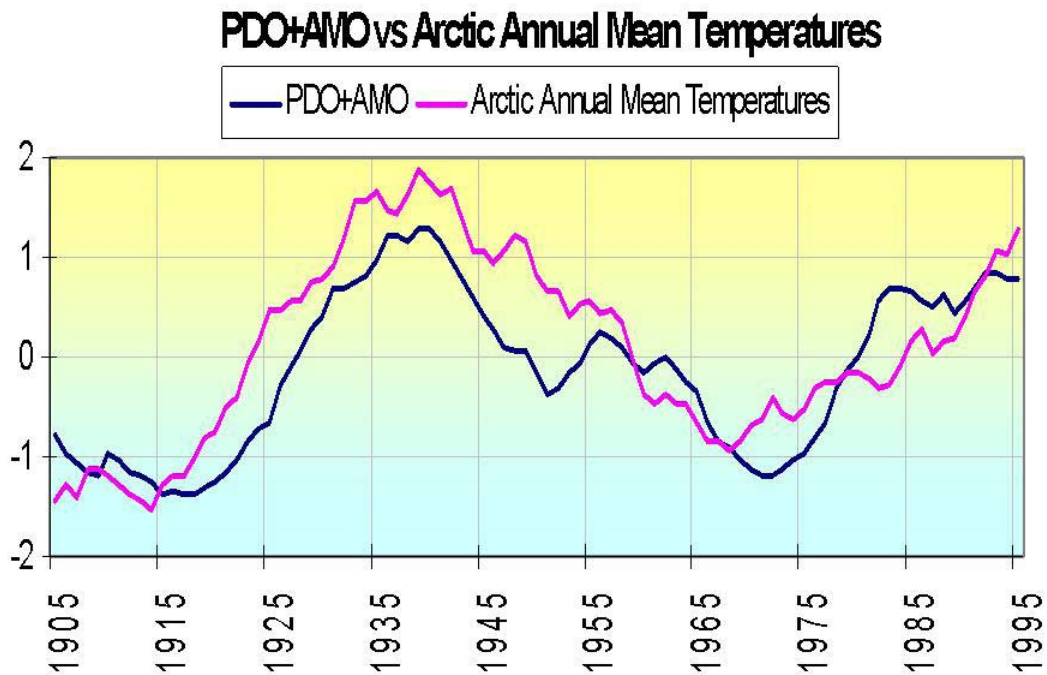
The Pacific has been in its warm mode most of the time since 1979 and the Atlantic since 1995. A warm Atlantic and Pacific favors a warmer Arctic.

The following is the plot of the annual arctic basin wide temperatures since 1900 from Polyakov.

Arctic Average Annual Temperature Anomalies

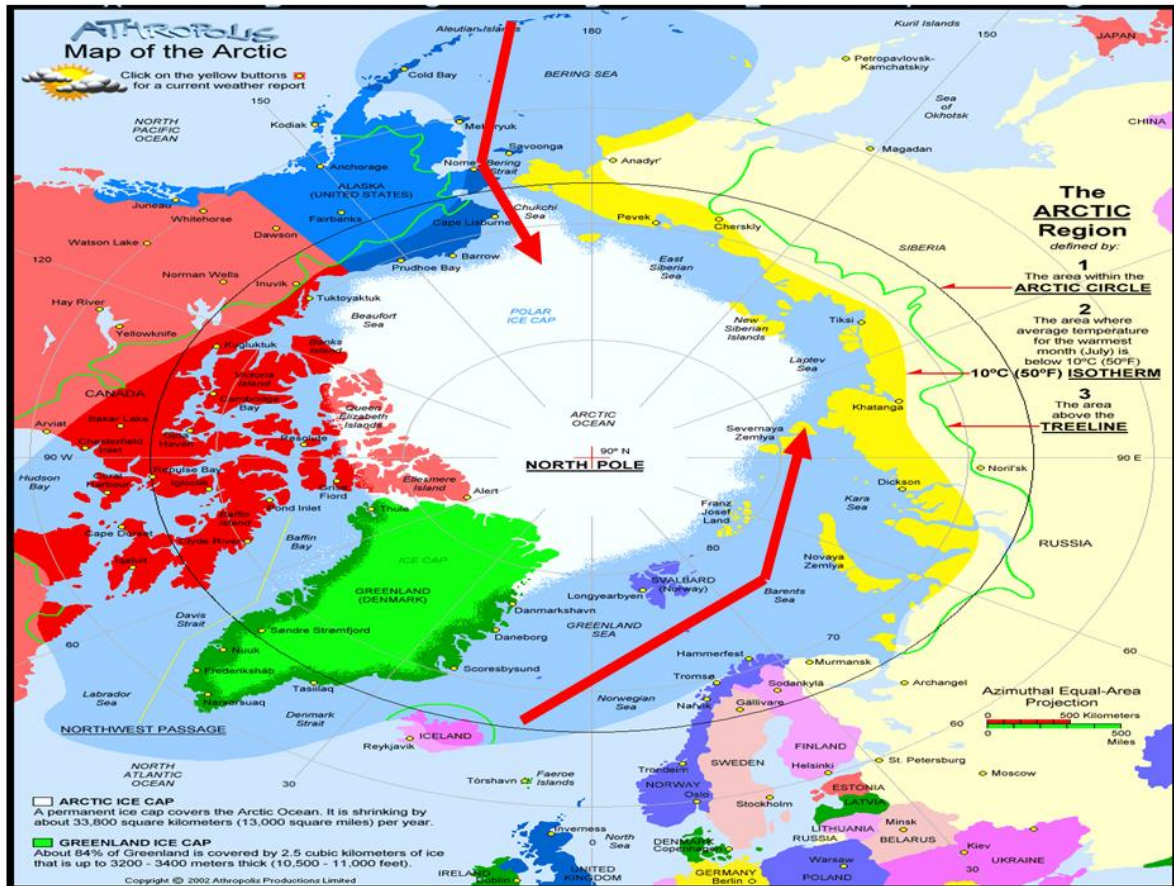


See how well the arctic ice correlates with Atlantic and Pacific temperatures (based on Pacific Decadal Oscillation and Atlantic Multidecadal Oscillation).



THE NISDC MAKES NOTE OF THIS IN THEIR SEPTEMBER 10 DISCUSSION

They wrote: “One prominent researcher, Igor Polyakov at the University of Fairbanks, Alaska, points out that pulses of unusually warm water have been entering the Arctic Ocean from the Atlantic, which several years later are seen in the ocean north of Siberia. These pulses of water are helping to heat the upper Arctic Ocean, contributing to summer ice melt and helping to reduce winter ice growth. Another scientist, Koji Shimada of the Japan Agency for Marine–Earth Science and Technology, reports evidence of changes in ocean circulation in the Pacific side of the Arctic Ocean. Through a complex interaction with declining sea ice, warm water entering the Arctic Ocean through Bering Strait in summer is being shunted from the Alaskan coast into the Arctic Ocean, where it fosters further ice loss.”



Arctic map courtesy of <http://www.athropolis.com/map2.htm>.

“Many questions still remain to be answered, but these changes in ocean circulation may be important keys for understanding the observed loss of Arctic sea ice.”

Jennifer Francis of Rutgers University detailed in a recent issue of the journal *Geophysical Research Letters* that the warming waters in the Barents Sea—which have risen about 3 degrees Celsius since 1980—are to blame for the reduction in [winter ice cover](#).” Two factors contribute to the warming of the Barents Sea: warming Atlantic waters funneled in by the Gulf Stream and solar heating of the open ocean as ice melts in the summer, both of which make it harder for new ice to form in the winter.

The latter factor, known as the ice-albedo (reflectance) feedback works like this: As ice melts in the summer, the open ocean warms up as it absorbs the solar radiation that the ice would normally reflect back to space; as global temperatures rise, more ice melts, so the ocean absorbs more heat, and less ice re-forms the next winter, which just keeps the cycle going.”

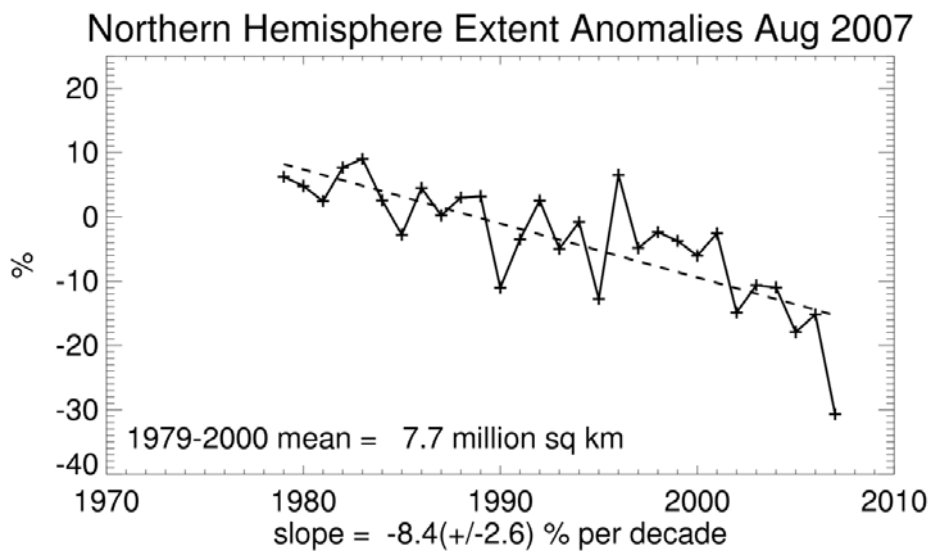
This research supports the notion that the natural cyclical warming Atlantic is partially responsible for the ice loss. How did that warm water get to the Barent’s sea? Well it was the natural thermohaline circulation cycling that warmed it in the last decade after cooling down the area for the previous 3 decades. In other words, the Atlantic

Multidecadal Oscillation. And Jennifer is exactly right, once the ice melts there is some positive feedback through that albedo effect.

AGW proponents want you to believe the whole melting thing is unprecedented and due to greenhouse warming when in fact it is cyclical, has happened before and will again but not before the oceans cool and the ice again increases.

REMINDER ICE EXTENT RECORD PERIOD IS JUST 29 YEARS

As Craig James in the [WOOD TV blog](#) reminded us, when they say that the ice extent is a new record, we must remind you that it is since ice records (satellite viewing) began (1979). Note that corresponds to the latest upleg in the 70 year cycle above observed in the arctic (according to the Russian scientists for hundreds of years).



ICE ON THE MOVE

In the NSIDC August 28 discussion there is an [excellent animation](#) that shows how the wind currents in the recent decades after the Great Pacific Climate Shift have led to a movement out of the arctic of thicker ice into the North Atlantic. They note: “Another aspect of the story for 2007 is the "memory" of the sea ice to changes over the past few decades. Specifically, there seems to have been a transition to younger, thinner ice beginning in the late 1970s. This reflects not only trends towards more summer melt and less winter ice growth, but changing winds that have transported fairly thick ice out of the Arctic Ocean into the North Atlantic, and decreased the length of time that ice is "sequestered" in the Arctic Ocean where it might have a chance to grow thicker.

The [animation](#) of ice age in the Arctic is from 1981 through 2007. The colors indicate the age of the sea ice in years; light blue is open water (OW). Areas in red are locations where the ice is five years or older, whereas the dark blue areas are first-year ice. The overall reduction in ice age over the past twenty-six years becomes evident as the

animation runs through the years. The animation also shows seasonal variations in the ice cover as the first-year ice melts in the summer and regrows in the winter”

AN UNUSUAL SUMMER

NISDC also notes this was an unusual arctic summer. As outlined in the August 14 and August 22 NSIDC reports, the atmospheric pressure pattern over the Arctic has been unusual this summer. Sea-level pressure over the Arctic Ocean has tended to be fairly high, while pressure has been fairly low over northeastern Siberia. This has given rise to a pattern of winds bringing in warm air from the south over the coastal seas of eastern Siberian, fostering strong melt and tending to push ice from the coast into the central Arctic Ocean. Melt has been further enhanced by the fairly clear skies under the high-pressure area, known to climatologists as an “anticyclone.”

The open water also favors warmer temperatures as can be seen here in the composite of lower atmospheric temperature anomalies from August 25 to September 4. For your reference, Alaska is at the bottom right, Siberia the bottom left.

