

Recent Cold Weather Records Prove What?

March 2008

The winter of 2007 / 2008 was a sure-nuf old time winter. Daily low temperature records were broken, schools were closed and January thaw floodwaters froze solid. But does this mean that global warming is a myth?

Remember back in the early 80s when global warming was just beginning to get attention? The contrarians all said that it would take decades to tell for sure whether or not global warming was real. Well, decades have come and gone and global warming is real. As the years pass, our science becomes more and more accurate, and we can tell with greater certainty that yes indeed, 6.5 billion people can change the climate of a planet.

The global average January temperature was the 31st warmest since 1880. U.S temperatures in January were the 49th coolest ever recorded similar to global land temperatures that were below average in January for the first time in 25 years. The average ocean temperature in January was 17th warmest, even with the significant cooling effect of a strong, mature La Nina. We all heard about the long string of severe storms in China, the worst in half a century, but few of us heard about Australia's hottest January ever at 1.23 degrees C above normal and this followed by the 7th coolest February ever recorded at 1.12 degrees C cooler than normal. How many of us have heard that last year's winter (2006/7) in China was the warmest winter in 55 years?

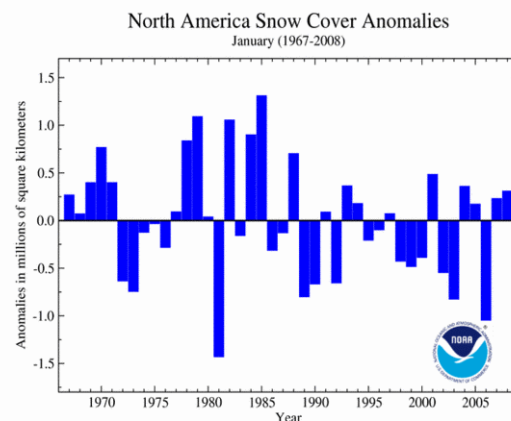
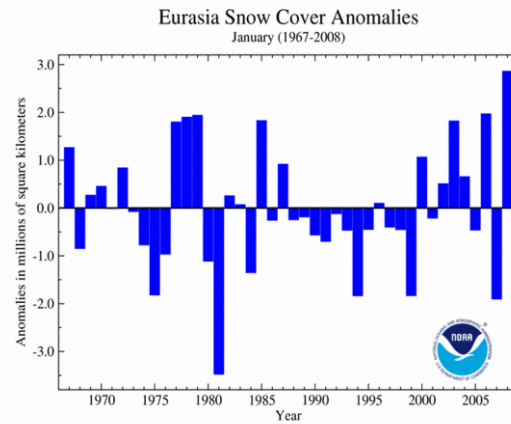
An article from the AFP, on January 29 (the oldest news agency in the world) states that Wang Qiwei, a climatologist with the China Meteorological Administration, wrote in an online forum set up to answer public questions about the cold weather that;

"There is no doubt (climate change is to blame) for such weather events, and it's a reminder that mankind must protect this globe of ours and pay more attention to how we impact our environment."

These National Climatic Data Center graphs of snow cover for North America, Eurasia and the Northern Hemisphere shows how seasonal snowfall varies drastically on a season-to-season basis. Seasonal snowfall is related to the weather, not to climate. It takes many, many seasons of weather to make climate.

Climate change increases the variability of the weather. We have all heard that there will be more violent weather because of climate change – more severe thunderstorms, bigger floods, more severe droughts. This increase in extreme weather includes cold weather too.

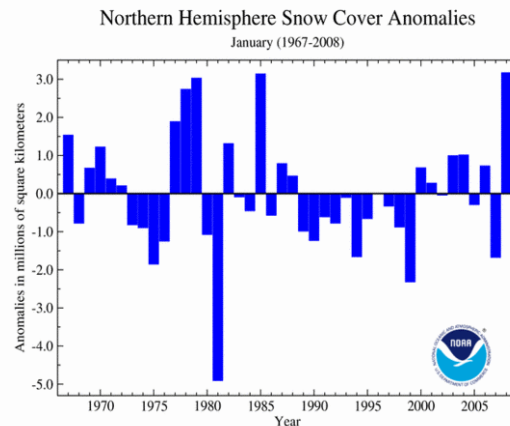
While the number of cold weather events overall is diminishing because of the steady rise in average temperature across the globe – as would logically be



expected - storm events at the extreme end of the scale still occur.

Many regions across a large portion of the northern U.S. saw all-time record or near all-time record snowfalls for the season. Why is this? Two reasons (maybe more).

Reason One: Weather is chaotic. Using the same logic that climate contrarians used in the 180s and 90s to downplay the certainty of climate change - we won't know if this winter was abnormal for some time – until we have enough data to determine if this winter was an outlier. An outlier is an event that does not conform to the average statistics. In this case an outlier would be a weather event (or a seasons worth of weather) that does not behave like the regular climate and therefore can be attributed to climate change. We won't know for several decades whether or not climate warming is dead and climate cooling has begun, or that the recent three decades of warming was a big natural upward swing, because it takes decades to determine the validity of climate change.



Reason Two: Warmer air holds more moisture. More snow comes from warmer weather, because warmer air holds more moisture. Overall, continental land masses are shown to have reduced moisture by climate model projections, and in general, the weather record is proving this theory. But that doesn't mean that chaotic weather patterns won't send storm tracts across the area from time to time. It doesn't mean anything really, it takes 20 to 30 years of weather to mean anything in climate analysis.

But moisture does increase with warmer temperatures. The moisture content of the atmosphere doubles with an increase of roughly 18 degrees F. An increase in temperature from 21 to 29 degrees F allows a storm to have a possible increase in moisture of 40% percent. While a given storm may not be any warmer than usual, the moisture source for the storm may be warmer than usual and thus transfer a greater than normal amount of moisture to any given point.

Threadex - Old Records are not Records Anymore: NOAA, the National Oceanic and Atmospheric Administration, has recently reset the goalpost for weather records analysis. The National Climatic Data Center (a division of NOAA) has been updating weather records across the country at 255 major weather stations to gain a better understanding of climate across the US. Their efforts roughly extend the average weather database from 60 years to 104 years. Washington's Reagan National Airport record was extended 75 years with the following results:

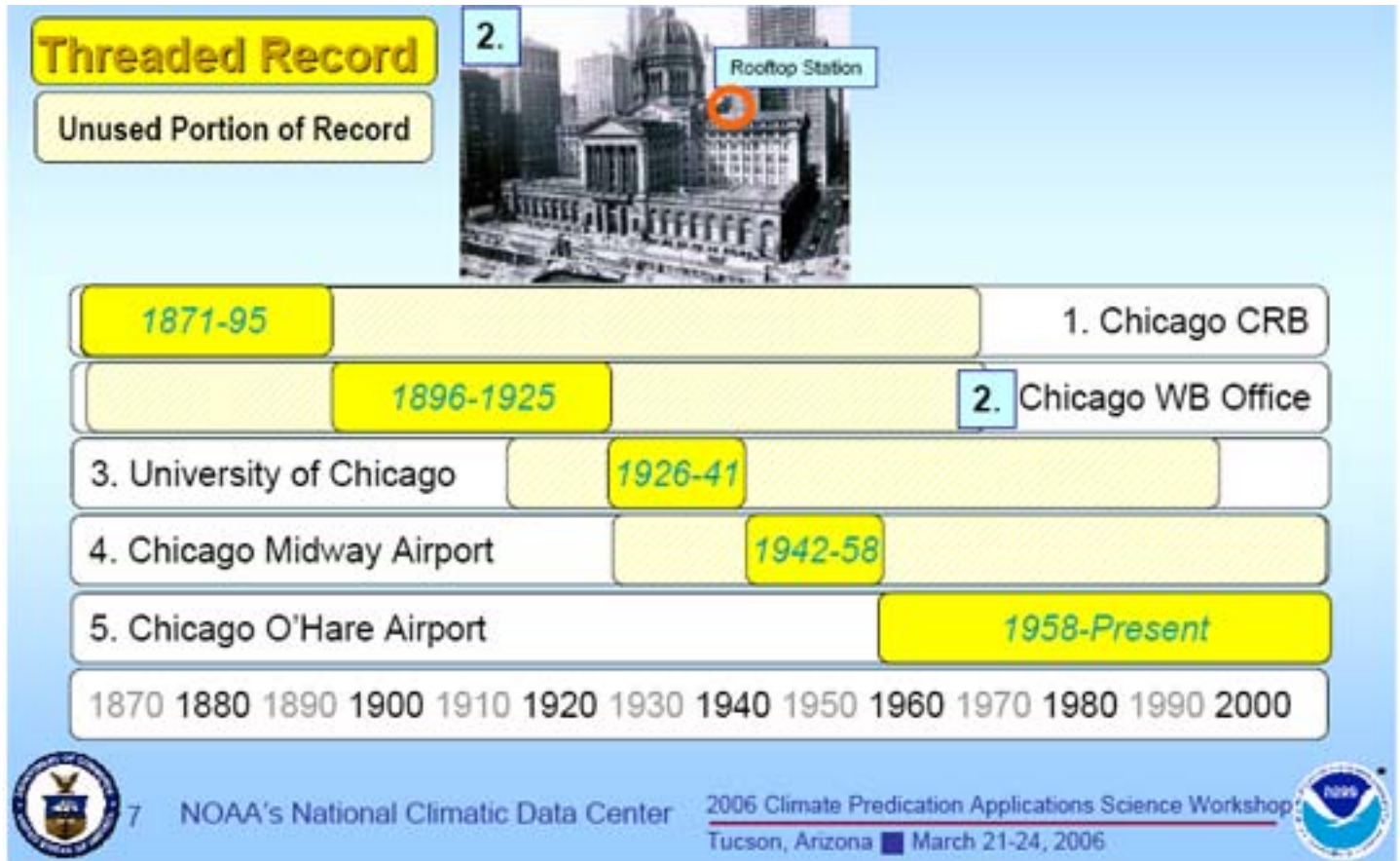
Washington Reagan National Airport:

Highest daily maximum temperature for January 20

	Old record	New Record
Rank	1948 – 2005	1873 - 2005
1	70 (1951)	70 (1951)
2	60 (1954)	64 (1907)
3	60 (1952)	64 (1890)
4	59 (1963)	64 (1880)

NOAA's National Climatic Data Center's program for this effort is called ThreadEx: Long-term Station Extremes for America. The project is intended to address the fragmentation of weather records

that has occurred as our society progresses. Weather station locations change leading to a discontinuous climate record. Using common sense, statistical and smoothing methods, the NCDC has been able to significantly increase the length of the weather record. Below is an example of how different weather reporting stations in the Washington DC area were “threaded” together to make a comprehensive long-term weather record:



Another Example: In the Twin Cities in Minnesota Minneapolis / St. Paul), the record was extended 20 years from 116 to 136 years (1889 to 1872). Eighty-five new cold temperature records and 21 new high temperature records were added to the record. Thirty-eight of the new records were from the months of December through January.

New Records:

City	Old record	New Record
Twin Cities MN	-34 (1970)	-41(1888)
Fargo-Moorhead SD	-39 (1996)	-48 (1887)
La Crosse WI	-37 (1951)	-43 (1873)
Rochester MN	-35 (1996)	-42 (1887)
Duluth MN	-39 (1972)	-41 (1885)

Further study of the records lead to thought provoking assumptions. International Falls Minnesota was awarded the honor of being called “The Icebox of the Nation” by the US Patent and Trademark Office on February 10. On the 11th, International Falls hit a new all time record low for the day of -40, beating the previous record of -37 set in 1967 and 1981. There were 7 days after February 10 that beat that record and one that tied. There were 31 days before February 10 that beat that record and 15 that tied it

(extending back through December). The three coldest records were -50 , -54 and -55 , all set in 1909. The period of record extends back to 1897 in International Falls, all of these records were after 1907.

In the twin cities of Minneapolis–St. Paul, Minnesota the record extends back to 1872. Half of the coldest 40 low temperature records were set before 1897 and the six lowest records were all set prior to 1897. In Fargo, North Dakota, the record extends back to 1881. All 8 records of -40 or below were set prior to 1888. At Bismark, ND, the record extends back to 1874. Seven of seventeen records are prior to 1897. In Aberdeen, SD where the record starts in 1893, half of the 8 records of -40 or lower were set between 1893 and 1896. And is Lansing Michigan, where the temperature records go back to 1866, all but 6 of the lowest 40 minimum temperature records were set prior 1895.

So, was there record cold in International Falls this year? Of course there was; for the day, in a localized area and it was nowhere near all-time record status by any means.

Average Global and North American Temperatures: This winter has by no means been a record breaking cold year. There have been some cold anomalies, as would be expected on a warming planet as projected by super computer climate models. But by no means was this a record breaking cold year. The average global temperature was the 21st warmest ever recorded – in the top 24% - in 127 years of the instrument record.

Global Top 6 Warm Years Anomaly °F

2005	1.08
1998	1.04
2002	1.01
2003	1.01
2007	0.99
2006	0.97

The rate of global warming in the last 30 years has been three times greater than the rate of average global warming for the last 100 years.

La Nina: El Nino and La Nina undoubtedly have an effect on global weather patterns. The super El Nino of 1998 helped to raise the average global temperature for that year above all previous global average annual high temperature records to become the warmest year ever recorded up until that year. The current La Nina event is categorized as strong and mature with central equatorial Pacific sea surface temperatures much below normal and equatorial heat content much below normal.

Tipping Point? On the other hand, we could at any point dive off into an abrupt climate change in the opposite direction. This has happened over and over again in our climate past. Is it not possible that it may happen again? Could the tipping point start with a substantial long term change in the El

Nino / La Nina pattern? It has happened repeatedly in the past. Joe Bastardi at the Weather Channel thinks this could be the beginning of such a flip. It would mean an extended period of cooler than average global temperatures and colder winters.

The climate change theories that explain these abrupt climate coolings in the past don't exactly understand the process, but some of the theories do target the El Nino / La Nina pattern as a basic thermostat for world climate.

References:

Australian Government Bureau of Meteorology

National Climatic Data Center, National Oceanic and Atmospheric Administration