Arctic Oscillation Hit New Low in Winter of Al Gore's Discontent

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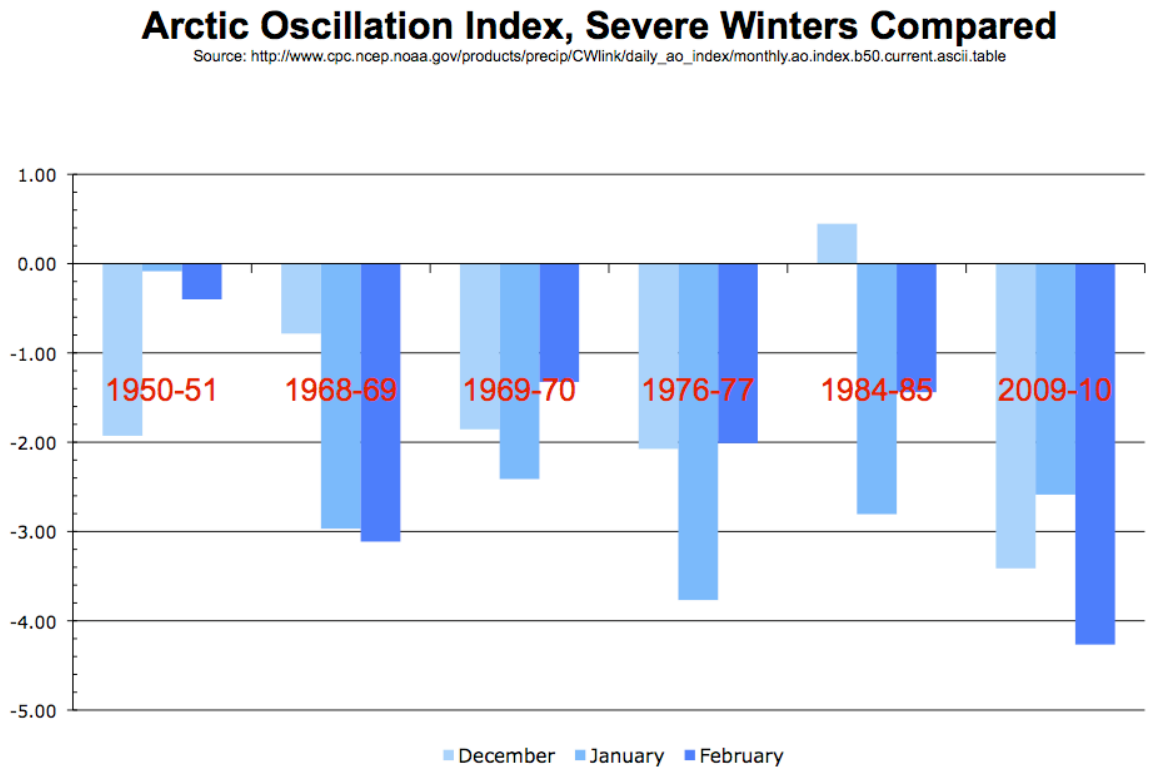
March 15, 2010

Behind the winter that silenced Al Gore and turned global warming claims into a laughing stock, was a drop in the Arctic Oscillation Index to record-breaking lows. The index, which measures the difference in surface atmospheric pressure between polar and mid-latitude regions in the Northern Hemisphere, fell to all-time monthly lows in December and February, and the third lowest January on record.



While the cause of the pressure variation remains unknown, a correlation between the surface pressure and

North Atlantic storms had been noted since the 1920s. From that time, a measure known as the North Atlantic Oscillation, which tracks the difference in surface pressures at Iceland and Azores weather stations, has correlated well with North Atlantic weather patterns. In the 1990s, meteorologists at the University of Washington proposed that the North Atlantic Oscillation was part of a larger atmospheric pattern encompassing the entire Arctic, now known as the Arctic Oscillation (AO).

It had long been known that the cold air mass over Antarctica is hemmed in by a swirling vortex of winds which marks the sharp but changing boundary of the Southern Ocean, in the region known as the Antarctic Convergence. A sudden drop in temperature of up to 5 degrees F can be experienced at the convergence, a phenomenon known to sailors since the 17th century, and described in Edgar Allan Poe's *The Voyage of Arthur Gordon Pym*. In the Northern Hemisphere, North American and Eurasian land masses prevent the formation of such a clear boundary. However, improved atmospheric sensing capabilities have demonstrated the presence of a less regularly shaped, circumpolar wind pattern surrounding the Arctic as well.

When the circumpolar wind velocity increases, a low-pressure region forms over the Arctic, and the cold air masses are contained. A reduction in the circumpolar wind velocity corresponds to a higher pressure over the pole, and a southward descent of the polar jet stream. This is known as a negative state of the Arctic Oscillation (AO). The monthly measure for February 2010 of -4.266 was the lowest ever recorded. Combined with January's (-2.587) and December's (-3.413), the three-month running mean was by far the lowest winter AO index on record.

Increased snowfall patterns over the central and eastern

United States was precisely that to be expected, as moist, low-pressure air masses forming over the Atlantic and Gulf of Mexico met up with the Arctic air carried southward by the jet stream. Similar sorts of patterns occurred over Britain, western Europe, and parts of Eurasia, bringing severe winter storms and record snows. February saw a record extent of snow cover over the United States, and the second greatest snow cover extent over the Northern Hemisphere as a whole. Century-old snowfall records were broken in a number of eastern states of the U.S.A. Cold Siberian northerlies brought severe ice accumulation as far south as China's Bohai Bay (37 degrees N latitude), and extended the sea ice in most of northeastern Asia beyond the 1979-2000 median extent. The Baltic region also experienced record sea ice extent.

According to the Rutgers University Global Snow Laboratory, 2001-2010 was the snowiest decade on record since the start of satellite measurement in 1978.