

On January 1, 2009, an article by Michael Asher entitled “Sea Ice Ends Year at Same Level as 1979” appeared on the Daily Tech website. We have received many requests for confirmation and clarification on this article from media outlets and interested individuals regarding the current state of the cryosphere as it relates to climate change and/or global warming.

One important detail about the article in the Daily Tech is that the author is comparing the GLOBAL sea ice area from December 31, 2008 to same variable for December 31, 1979. In the context of climate change, GLOBAL sea ice area may not be the most relevant indicator. Almost all global climate models project a decrease in the Northern Hemisphere sea ice area over the next several decades under increasing greenhouse gas scenarios. But, the same model responses of the Southern Hemisphere sea ice are less certain. In fact, there have been some recent studies suggesting the amount of sea ice in the Southern Hemisphere may initially increase as a response to atmospheric warming through increased evaporation and subsequent snowfall onto the sea ice. (Details: <http://www.sciencedaily.com/releases/2005/06/050630064726.htm> )

Observed global sea ice area, defined here as a sum of N. Hemisphere and S. Hemisphere sea ice areas, is near or slightly lower than those observed in late 1979, as noted in the Daily Tech article. However, observed N. Hemisphere sea ice area is almost one million sq. km below values seen in late 1979 and S. Hemisphere sea ice area is about 0.5 million sq. km above that seen in late 1979, partly offsetting the N. Hemisphere reduction.

Global climate model projections suggest that the most significant response of the cryosphere to increasing atmospheric greenhouse gas concentrations will be seen in Northern Hemisphere summer sea ice extent. Recent decreases of N. Hemisphere summer sea ice extent (green line at right) are consistent with such projections.

Arctic summer sea ice is only one potential indicator of climate change, however, and we urge interested parties to consider the many variables and resources available when considering observed and model-projected climate change. For example, the ice that is presently in the Arctic Ocean is younger and thinner than the ice of the 1980s and 1990s. So Arctic ice volume is now below its long-term average by an even greater amount than is ice extent or area.

