

## What's Really Happening In Antarctica?

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Environmentalists and some climate scientists are now attributing much of Antarctica's rapidly growing sea ice coverage to a processing error in the satellite data.

The massive growth of Antarctica's ice sheets has confounded scientists for years now, as global warming was expected to shrink the polar ice caps. But while the Arctic has shrunk some, Antarctic sea ice coverage has broken hundreds of records this year alone. On July 25, the South Pole sea ice reached 702,770 miles above the 1981 to 2010 average — the 127th daily record for the year.

But a new study by scientists from NASA and Scripps Institution of Oceanography found that a processing error originating from a recalibration made to satellite readings made in 1991 resulted in an artificial jump in Antarctic sea ice extent that was not apparent until the data was reprocessed in 2007.

This means that Antarctic sea ice coverage may have not been accelerating as fast as was previously thought, according to the study's authors.

“Here, we show that much of the increase in the reported trend occurred due to the previously undocumented effect of a change in the way the satellite sea ice observations are processed for the widely used Bootstrap algorithm data set, rather than a physical increase in the rate of ice advance,” writes lead author Ian Eisenman, a climate researcher at Scripps Institute of Oceanography, and others.

“Specifically, we find that a change in the intercalibration across a 1991 sensor transition when the data set was reprocessed in 2007 caused a substantial change in the long-term trend,” the study continues.

The study's authors, however, only go so far to say that “a substantial error” exists in the current data sets, but do not know if the 1991 recalibration removed an error from previous data or added a new error.

“The results of this analysis raise the possibility that much of this expansion may be a spurious artifact of an error in the processing of the satellite observations,” the study's authors write.

The study reignited debate over the fate of Antarctica in a supposedly warming world. Environmentalists touted the study as evidence the Antarctic was not growing as fast as global warming skeptics liked to think.

“The most important thing to know about Antarctica and ice is that a large part of the South Pole’s great sheet of land ice is close to or at a point of no return for irreversible collapse,” ThinkProgress’s Joe Romm wrote in his piece about the new study. “Only immediate action to sharply reverse CO2 emissions could stop or significantly slow that.”

“And that really matters since 90 percent of Earth’s ice is in the Antarctic ice sheet, and even its partial collapse could raise sea levels tens of feet (over a period of centuries) and force coastal cities to be abandoned,” Romm added.

But does the study really show that “much” of Antarctica’s sea ice expansion is due to a “spurious artifact of an error in the processing of the satellite observations” as the study’s authors suggest?

Scientists with the libertarian Cato Institute have criticized the study for suggesting a large portion of the South Pole’s sea ice growth is a data glitch when in reality the growth attributable to data processing errors is a “molehill.”

“If the reason that the shift was undetected is because the data is so noisy, how important can it be?” Cato scientists Patrick Michaels and Chip Knappenberger asked, pointing out that the term “much” used by the study’s authors only refers to about 200,000 square kilometers (about 124,274 miles).

“The change since the turn of the century is about 1.3 million square kilometers, a mountain of ice,” wrote Michaels and Knappenberger. “The step change is about 200,000, a molehill. That doesn’t sound like ‘much’ to us.”

“But, hey, if you don’t look too close — and we are sure our greener friends (or the reviewers) won’t (or didn’t) — you might believe that everything is OK with the reigning, model-based paradigm. In fact there’s ‘much’ that is wrong with it,” Michaels and Knappenberger added.

Scientists with NASA, who developed the disputed algorithm to calculate sea ice extent, also challenged Eisenman’s view, including the scientist at NASA’s Goddard Space Flight Center in Greenbelt, Md., who developed the algorithm that is being criticized in the study.

“The apparent expansion is real and not due to an error in a previous data set uncovered by the Eisenman et al paper,” NASA’s Josefino Comiso told Live Science. “That error has already been corrected and the expansion being reported now has also been reported by other groups as well using different techniques.”