



STUDY GUIDE

CLIMATE CHANGE: WHAT'S SO ALARMING

KEY TERMS:

carbon emissions
models

climate change
alarmism

policies
subsidizing

NOTE-TAKING COLUMN: Complete this section during the video. Include definitions and key terms.

The latest study from the United Nations Intergovernmental Panel on Climate Change found how much less temperature rise than predicted?

How much have the death rates from floods, extreme temperatures, droughts and storms declined since the last century?

According to the International Energy Agency, how much of global energy consumption comes from solar photovoltaics and windmills?

CUE COLUMN: Complete this section after the video.

What are the problems with climate change alarmism?

What is the data actually showing about climate change and associated concerns?

DISCUSSION & REVIEW QUESTIONS:

- Dr. Lomborg explains that, “Facts like this are important because a one-sided focus on worst-case stories is a poor foundation for sound policies.” Why do you think that some policy-makers are so quick to accept worst-case stories rather than to rely on factual evidence? What do you think sound policies should be based on?
- Dr. Lomborg goes on to state, “This does not mean global warming is not real or a problem, but the one-sided story of alarmism makes us lose focus. If we want to help the world’s poor who are most threatened by natural disasters, it is less about cutting carbon emissions than it is about pulling them out of poverty.” Do you agree with Dr. Lomborg’s conclusion? Why or why not? Do you think that the ‘alarmist’ approach does more harm than good in regards to helping to solve the problems associated with climate change? Why or why not?
- Later in the video, Dr. Lomborg shares with us that, “...for at least the next two decades, solar and wind energy are simply expensive, feel-good measures that will have an imperceptible climate impact. Instead, we should focus on investing in research and development of green energy to lower its costs, so everybody will want it, including China and India.” What do you think Dr. Lomborg means by the phrase ‘feel-good measures?’ Why do you think it is so important for the green energy market in China and India to grow?
- Dr. Lomborg concludes the video by asserting that, “We urgently need a more balanced climate conversation if we are to make sensible choices and pick the right climate policy that can actually help fix climate change.” What do you think would constitute a ‘balanced climate conversation?’ What do you think would constitute ‘sensible choices’ in choosing climate policy?

EXTEND THE LEARNING:

CASE STUDY: Antarctic Ice

INSTRUCTIONS: Read the article “This is climate skeptics’ top argument about Antarctica — and why it’s wrong,” then answer the questions that follow.

- What conclusions does the article present regarding the ice in the Antarctic? What does Mr. Turner contend is causing the current conditions in the Antarctic, and how does his supposition differ from what Dr. Greenbaum thinks is causing the ice conditions found in the Antarctic?
- Do you think that this article is ‘alarmist?’ Why or why not? Does the article have a bias?
- How might this article contribute to or confuse the climate change debate? Do you think that this article could contribute to helping to solve issues associated with climate change? Why or why not?



QUIZ

CLIMATE CHANGE: WHAT'S SO ALARMING

1. All climate change is worse than expected.
 - a. True
 - b. False

2. Who are the most threatened by natural disasters?
 - a. People living on the Florida coast.
 - b. Europeans.
 - c. The world's poor.
 - d. People without homeowner's insurance.

3. Death rates from floods, extreme temperatures, droughts, and storms have dropped _____ in the 2010s.
 - a. 7%
 - b. 21%
 - c. 65%
 - d. 97%

4. What do we urgently need to pick the right climate policy?
 - a. More government funding for solar panels.
 - b. Stronger focus on the bad news to make sure the public understands its importance.
 - c. A more balanced climate conversation.
 - d. Quarterly climate summits.

5. The narrative that the world's climate is changing from bad to worse is _____.
 - a. unhelpful alarmism
 - b. a helpful warning
 - c. undisputed
 - d. None of the above.



QUIZ - ANSWER KEY

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<https://www.washingtonpost.com/news/energy-environment/wp/2015/03/18/stop-using-antarctic-sea-ice-to-claim-nothings-wrong-at-the-south-pole/>

This is climate skeptics' top argument about Antarctica — and why it's wrong

By [Chris Mooney](#) March 18, 2015



The Russian ship MV Akademik Shokalskiy was trapped in thick Antarctic ice 1,500 nautical miles south of Hobart, Australia, on Dec. 27, 2013. (AP Photo/Australasian Antarctic Expedition/Footloose Photography, Andrew Peacock)

On Monday we [learned some troubling news](#) about the continent at the bottom of the world — Antarctica. Most of Antarctica is covered with a vast, thick sheet of ice, an area larger than the continental United States and over two miles thick in some places. The smaller, western part of this ice sheet was already believed to have been destabilized — potentially triggering over 10 feet of sea level rise. But now it [looks like](#) one key sector of the far larger eastern region (known as the Totten Glacier) may be going through a similar ice loss.

That's not good.

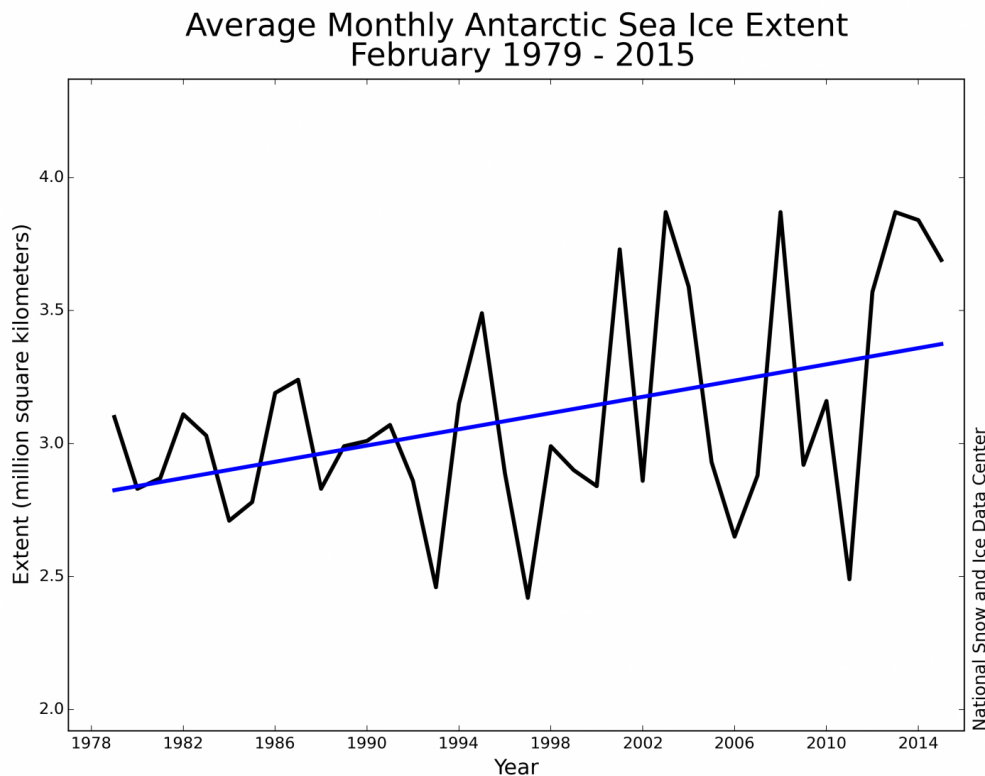
However, as climate skeptics are quick to note, there's something odd and seemingly paradoxical about Antarctica's ice. Even as oceanfront glaciers in key areas seem to be retreating, potentially awakening the vast ice sheets behind them, Antarctic sea ice — ice

floating atop the oceans surrounding the continent — has actually been increasing. And this has often [been cited](#) as a supposed anomaly in the global warming story.

So, is a rise in Antarctic sea ice any reason to discount the latest news about east Antarctica, or climate concerns more broadly? The answer is no.

First, the facts: Antarctic sea ice has indeed been increasing. The trend has been noted for some time, but here's [the latest](#) from the National Snow and Ice Data Center (NSIDC) in Boulder, Colo., which reports that Antarctic sea ice recently reached its “fourth highest summer minimum” ever. That means that in the southern hemisphere summer, when seasonal Antarctica sea ice tends to be the lowest, there was nonetheless more of it than in any other year except for 2003, 2008 and 2013. (At the other end of the seasonal cycle, Antarctic sea ice also hit a [new record](#) for its overall winter maximum extent last September.)

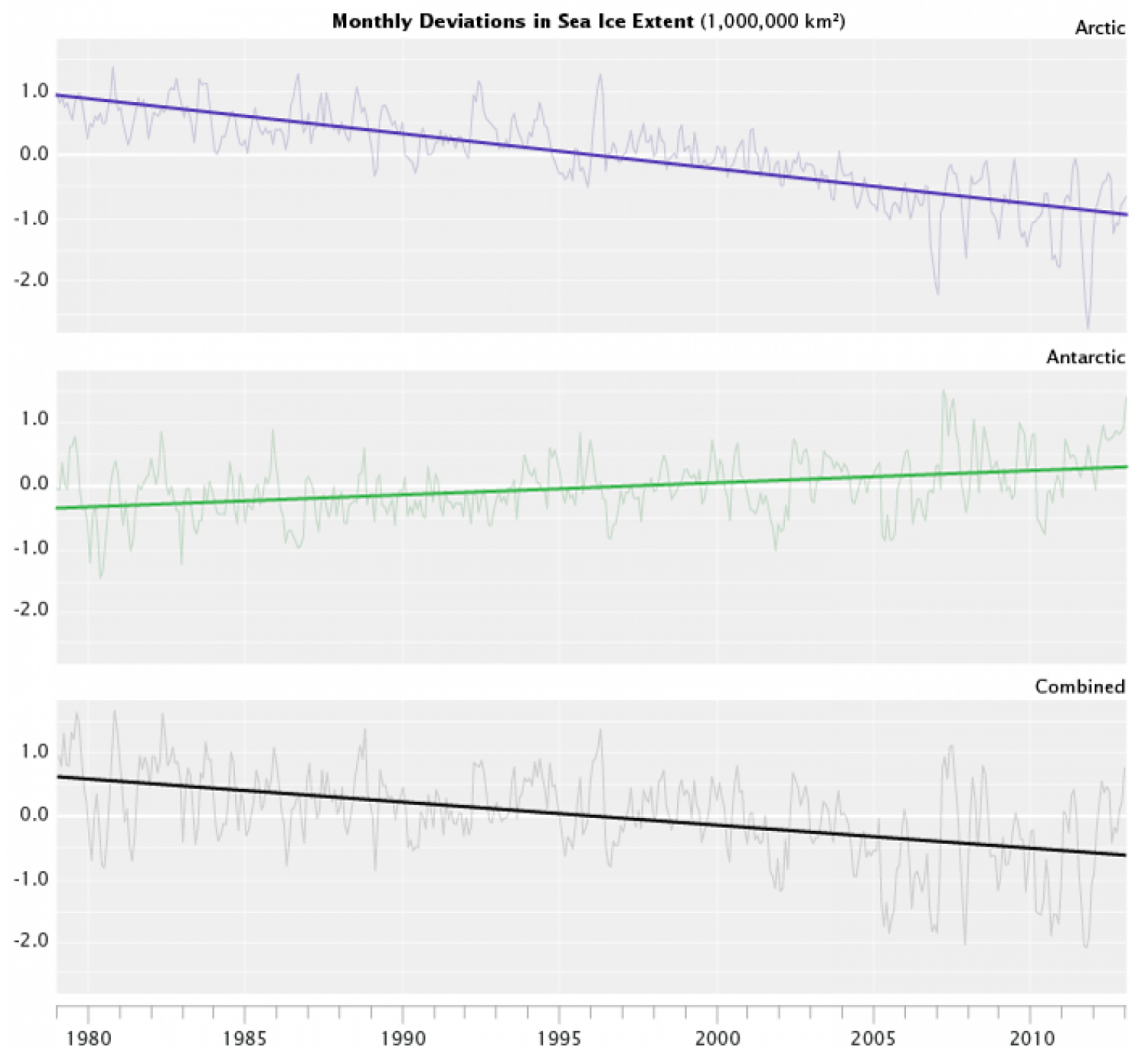
In calling this new fourth-place record, NSIDC noted “a remarkable recent uptick in [sea ice] extent year-round for Antarctica.” It also presented this figure of sea ice for Antarctica in February, showing an upward trend:



National Snow and Ice Data Center.

So, Antarctic sea ice is indeed rising. However, it's important to keep this in perspective — it isn't rising as much as sea ice in the Arctic (which gets a lot more attention) is declining. Such was the finding of a [recent NASA study](#), which used satellites to look at

sea ice in both areas, finding a global downward trend despite the relatively modest rise in the Antarctic region:



Nonetheless, NASA, like NSIDC, confirms the uptrend in Antarctic sea ice. But why is it happening? And what's the significance of this trend in the climate system?

The answer seems to be that, while scientists aren't entirely sure what's causing increasing Antarctic sea ice, they have some plausible explanations for it. But no matter what the cause turns out to be, understanding it is unlikely to give us any reason to worry less about what's happening to the land-based ice of Antarctica — which, unlike sea ice, presents the true concern due to its potential for driving very dramatic sea level rise.

In its latest update on Antarctic sea ice trends, the National Snow and Ice Data Center added the following:

The debate continues regarding the cause of the recent Antarctic trends, but the best explanation so far involves a combination of strengthening low pressure in the eastern Ross Sea (the Amundsen Sea Low) and the eastern Weddell Sea, and a persistently positive phase of the [Southern Annular Mode](#). The freshening of surface seawater around Antarctica may also play a role.

A [recent blog post](#) at RealClimate by Eric Steig, a glaciologist at the University of Washington, reaches a similar conclusion. Steig explains that what's crucial to Antarctic sea ice is wind patterns, since if winds blow sea ice away from the continent, more ice can form closer in as new areas of open water are created and then freeze over.

“We can explain sea ice trends in the Antarctic rather well if we take into account the full range of changes in winds that have occurred,” writes Steig. Critically, that includes stronger winds blowing from the west around the region (wonk term: [“circumpolar westerlies”](#)) that, Steig says, actually seem to be tied to more greenhouse gases in the atmosphere, and less ozone in the stratosphere — factors that humans are behind.

“Far from discounting climate change in the Southern Hemisphere, the apparent paradox of Antarctic sea ice is telling us that it is real and that we are contributing to it,” [adds](#) Guy Williams, an Antarctic expert at the University of Tasmania.

Moreover, though total ice extent may grow through this process, we shouldn't misinterpret what that means. “Antarctic sea ice is unrestricted in extent, unlike Arctic sea ice,” explains climatologist Kevin Trenberth of the National Center for Atmospheric Research. “As a result winds can blow it away from Antarctica and new ice forms in behind, but the ice then is very thin. So increases in Antarctic sea ice do not equate with increased volume.”

Not everyone agrees about a human role, though. John Turner of the British Antarctic Survey, for instance, opines that “the reason why sea ice is increasing around Antarctica is still being debated, but it seems likely that this is just natural climate variability, which is large in the Antarctic region as shown by the paleoclimate records we get from ice cores and other records.”

Energy and Environment newsletter

The science and policy of environmental issues.

So in sum: Scientists are working to explain recent Antarctic sea ice trends, and they're finding that there may actually be a role for humans in all this. Moreover, in the long run, they also [think](#) that warming overall temperatures will eventually eat into Antarctic sea ice, causing it to also decline.

What does this have to do with our concerns about Antarctic glaciers and ice sheets? The answer is relatively little or nothing, explains Jamin Greenbaum of the University of Texas, Austin, lead author of the new study about Totten Glacier in East Antarctica.

“Sea ice formation is a function of sea surface conditions but the water that rapidly melts glaciers is often found below several hundred meters of water (as we described in our latest paper),” Greenbaum explained. “So, while I do find patterns of sea ice extent interesting, increased sea ice extent doesn’t necessarily have a direct effect on coastal glacier melting as the processes that are increasing sea ice extent may be independent of anything that would affect glacier melt.”

You could have growing Antarctic sea ice and still have warm water sneaking underneath coastal glaciers and speeding up their retreat. In fact, the latest scientific understanding suggests we have just that — meaning that when we look at Antarctica, and especially look below the surface, there’s still great cause for concern.