

Comparison of climate simulations with proxies suggests Arctic sea ice could vanish in summer sooner than expected

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A team of researchers affiliated with several institutions in South Korea

and one from the U.S. has found evidence that Arctic sea ice in the summer could vanish sooner than climate models suggest. In their paper published in the journal *Science Advances*, the group describes comparing their simulations with real-world proxies and what they found.

As the planet continues to warm unabated, scientists attempt to predict what will happen with the planet and wildlife in coming years. In this new effort, the researchers focused on [ice melt](#) in the Arctic. Currently, there is so much sea ice in the Arctic and temperatures are cool enough in summers that the ice does not completely melt. Climate models suggest that at some point in the near future, all of the Arctic sea ice will melt each summer. In this new effort, the researchers suggest that it will be sooner than [climate models](#) have been suggesting. The work involved exploring why [proxy](#) data shows the planet heating up more during a prior global warming period 6,000 to 8,000 years ago (called the Holocene thermal maximum) than current climate models. Proxies are things such as preserved pollen or ice cores from a given time period that give hints about temperatures during that period—since humans were not able to record temperatures at the time, scientists use these proxies instead.

The work by the researchers in Korea involved running 13 climate models to learn more about the thermal maximum, and then comparing what they showed with proxies. They report that they found that the most up-to-date simulations showed a bigger decline in Arctic sea ice than older models (because the ice would have continued melting into early winter), possibly explaining the discrepancy between proxy data and older simulations. They further suggest that their findings do not bode well for the current warming trend, because it suggests that Arctic sea ice will begin vanishing sooner than older climate models have predicted—and less ice means less energy reflection, contributing to faster global warming.

More information: Hyo-Seok Park et al. Mid-Holocene Northern Hemisphere warming driven by Arctic amplification, *Science Advances* (2019). [DOI: 10.1126/sciadv.aax8203](https://doi.org/10.1126/sciadv.aax8203)

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