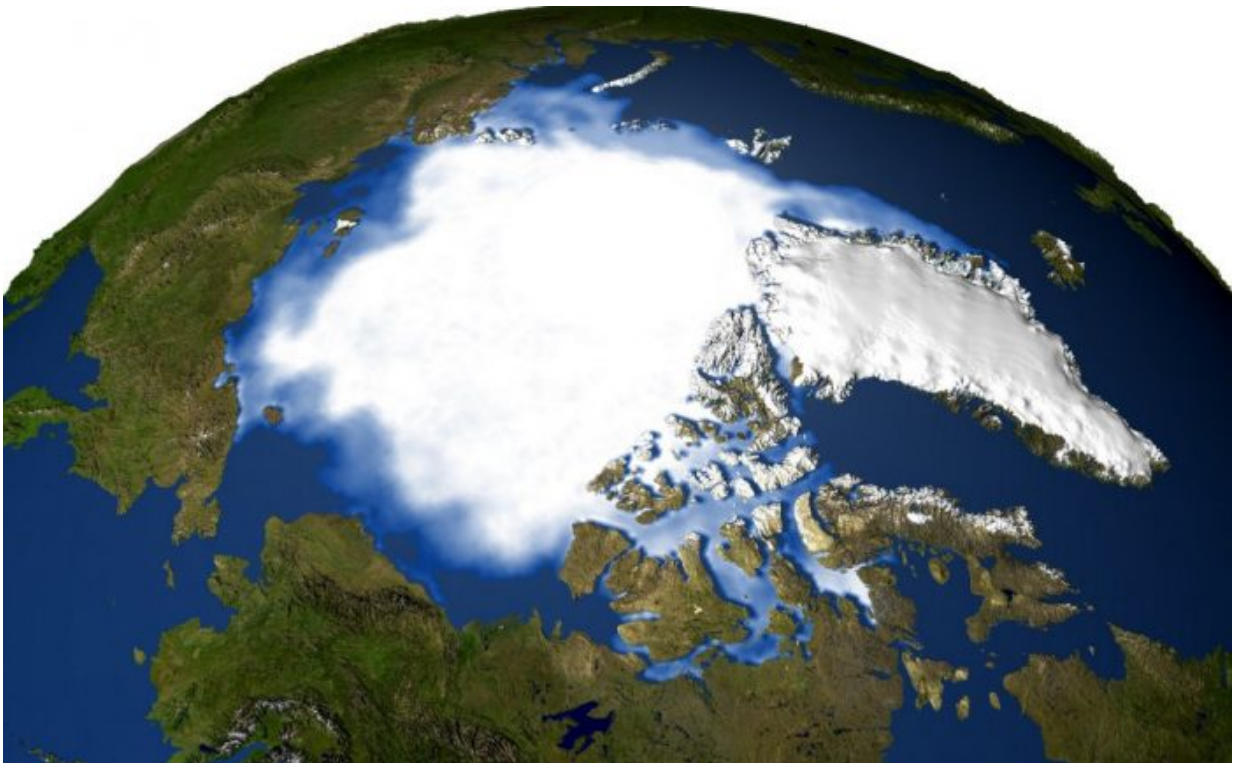


# It might be possible to refreeze the icecaps to slow global warming

February 24 2017, by Matt Williams

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Credit: NASA icecap data

One of the most worrisome aspects of climate change is the role played by positive feedback mechanisms. In addition to global temperatures rising because of increased carbon dioxide and greenhouse gas emissions, there is the added push created by deforestation, ocean

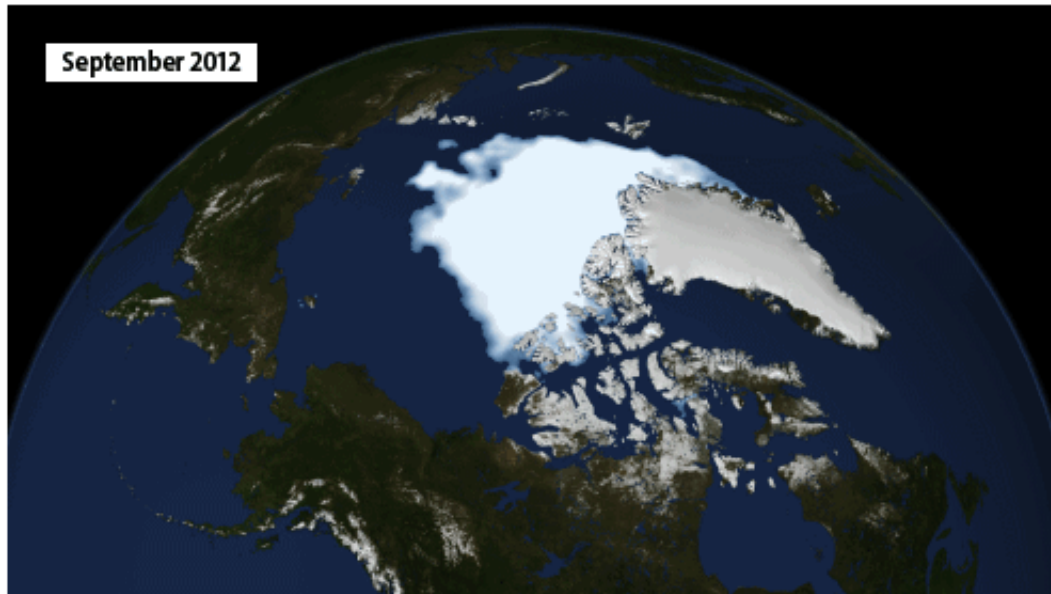
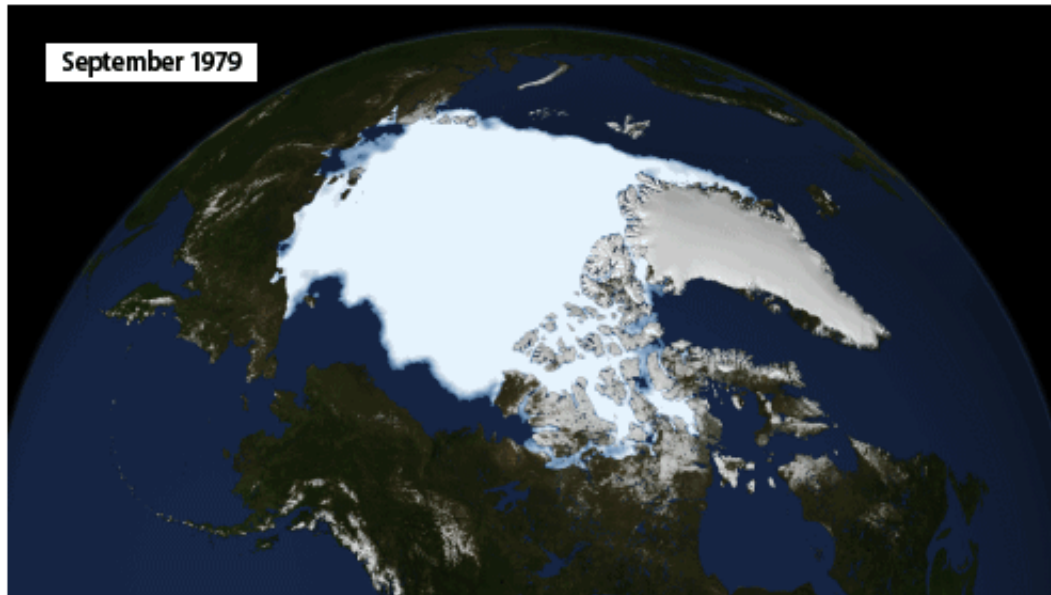
acidification, and (most notably) the disappearance of the Arctic polar ice cap.

However, according to a new study by a team of researchers from the School of Earth and Space Exploration at Arizona State University, it might be possible to refreeze parts of the Arctic ice sheet. Through a geoengineering technique that would rely on wind-powered pumps, they believe one of the largest positive feedback mechanisms on the planet can be neutralized.

Their study, titled "Arctic Ice Management", appeared recently in *Earth's Future*, an online journal published by the American Geophysical Union. As they indicate, the current rate at which Arctic ice is disappearing is quite disconcerting. Moreover, humanity is not likely to be able to combat rising global temperatures in the coming decades without the presence of the [polar ice cap](#).

Of particular concern is the rate at which [polar ice](#) has been disappearing, which has been quite pronounced in recent decades. The rate of loss has been estimated at being between 3.5 percent and 4.1 percent per decade, with an overall decrease of at least 15 percent since 1979 (when satellite measurements began). To make things worse, the rate at which ice is being lost is accelerating.

## Dwindling Arctic Sea Ice



A drastic decrease in arctic sea ice since satellite imaging of the polar ice cap began. Credit: NASA

From a baseline of about 3 percent per decade between 1978-1999, the

rate of loss since the 2000s has climbed considerably – to the point that the extent of sea-ice in 2016 was the second lowest ever recorded. As they state in their Introduction (and with the support of numerous sources), the problem is only likely to get worse between now and the mid-21st century:

"Global average temperatures have been observed to rise linearly with cumulative CO<sub>2</sub> emissions and are predicted to continue to do so, resulting in temperature increases of perhaps 3°C or more by the end of the century. The Arctic region will continue to warm more rapidly than the global mean. Year-round reductions in Arctic sea ice are projected in virtually all scenarios, and a nearly ice-free (

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