

# Arctic Report Card 2016

Persistent warming trend and loss of sea ice are triggering extensive Arctic changes

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## 2016 Headlines

**Persistent warming trend and loss of sea ice are triggering extensive Arctic changes.**

Observations in 2016 showed a continuation of long-term Arctic warming trends which reveals the interdependency of physical and biological Arctic systems, contributing to a growing recognition that the Arctic is an integral part of the globe, and increasing the need for comprehensive communication of Arctic change to diverse user audiences.

## Highlights

- The average **surface air temperature** for the year ending September 2016 is by far the highest since 1900, and new monthly record highs were recorded for January, February, October and November 2016.
- After only modest changes from 2013-2015, **minimum sea ice extent** at the end of summer 2016 tied with 2007 for the second lowest in the satellite record, which started in 1979.
- **Spring snow cover extent** in the North American Arctic was the lowest in the satellite record, which started in 1967.
- In 37 years of **Greenland ice sheet** observations, only one year had earlier onset of spring melting than 2016.
- The Arctic Ocean is especially prone to **ocean acidification**, due to water temperatures that are colder than those further south. The short Arctic food chain leaves Arctic marine ecosystems vulnerable to ocean acidification events.
- Thawing permafrost releases **carbon** into the atmosphere, whereas greening tundra absorbs atmospheric carbon. Overall, tundra is presently releasing net carbon into the atmosphere.
- Small Arctic mammals, such as **shrews**, and their parasites, serve as indicators for present and historical environmental variability. Newly acquired parasites indicate northward shifts of sub-Arctic species and increases in Arctic biodiversity.

## Video



<http://www.arctic.noaa.gov/Report-Card>