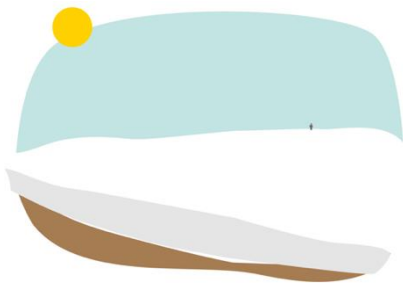


Melting Ice

Ice is melting at accelerated rates in the Arctic, Antarctica, Greenland, and across the globe due to human caused climate change.

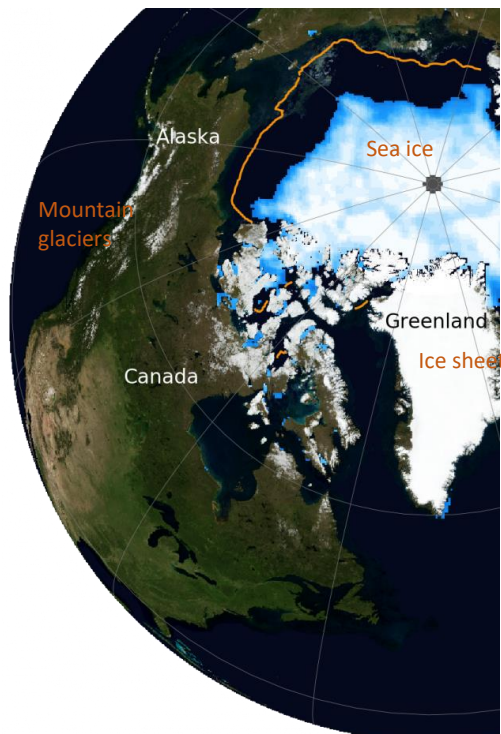
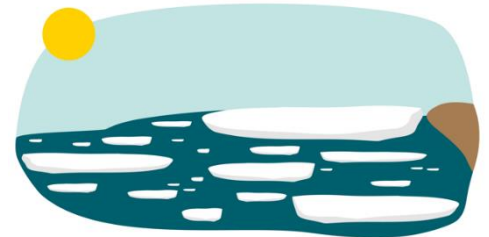
Glaciers, Ice Sheets & Sea Ice – What's the difference?

Glaciers are the accumulation of snowfall over many years that turns to ice under its own weight. Glaciers move over time as a result of gravity causing erosion of the rock beneath it and are found at the poles and mountains of every continent except Australia. Glaciers are sensitive to temperature changes and long-term trends show that about 90% of glaciers are shrinking worldwide.

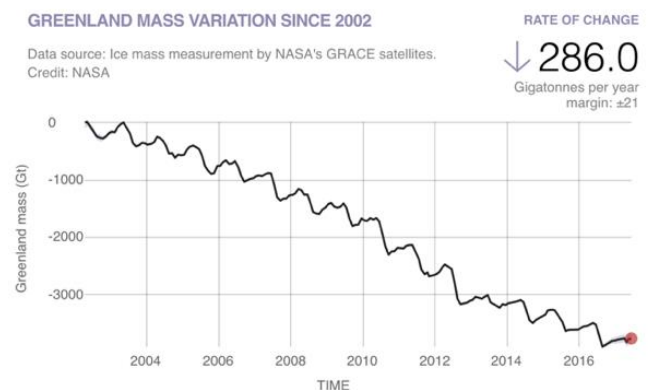


Ice sheets are a type of glacier. They are a thick layer of ice covering a large area of land for a long period of time. Ice sheets form when falling snow does not melt completely in the summer and accumulates over the years because of colder temperatures. The only ice sheets on Earth are in Antarctica and Greenland, and they are shrinking.

Sea ice is any form of ice found at sea that has come from the freezing of seawater. Sea ice can be chunks that move on the ocean surface by wind and currents, or a motionless sheet attached to the coast. Sea ice is mainly found in the North Pole between Canada and Russia and at the South Poles surrounding Antarctica. Sea ice less than one year old is called first-year ice, and sea ice that has survived at least one summer melt season is called multi-year ice.



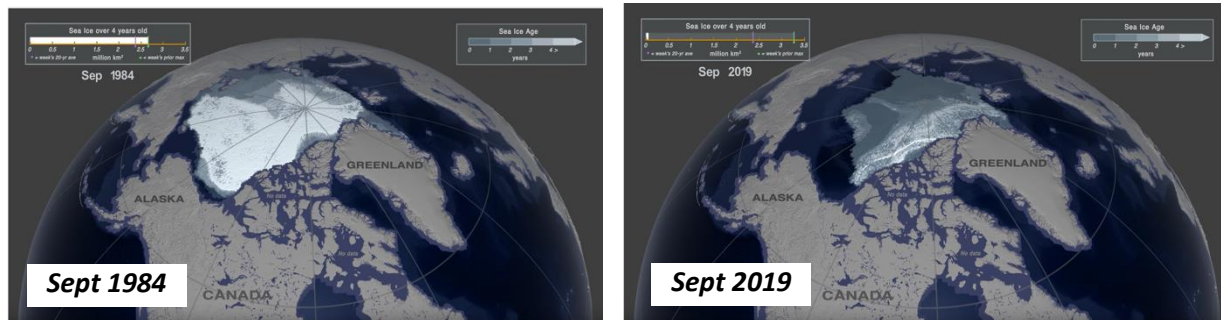
←Left image: Ice cover including sea ice, ice sheets and glaciers on Sept 18, 2019, the day of minimum amount of ice for the year. The average extent of sea ice for 1981-2000 is indicated as an orange line. <https://nsidc.org/arcticseaicenews/>



Greenland ice sheet mass variation in billions of tons, source: <https://climate.nasa.gov/vital-signs/ice-sheets/>

Northern Arctic Sea Ice Visualization: <https://svs.gsfc.nasa.gov/4750>

In this visualization of the North, sea ice less than one-year old is shown in a dark shade of blue, and sea ice that is four years old or older is shown in white. In recent years, there has been a rapid decline in multi-year ice, which is the portion of sea ice that survives the summer melt season. Multi-year ice may have a lifespan of nine years or more and represents the thickest component of the sea ice; it can grow up to four metres thick!



Weekly Arctic Sea Ice Age, Sept 1984 and 2019, source: <https://svs.gsfc.nasa.gov/4750>

Ice is melting, so what?

- Glaciers are an important natural resource; they hold the largest reservoir of fresh water on the surface of the planet and many people all over the world rely on the meltwater for drinking.
- As sea ice melts, darker patches of the ocean start showing which absorb more heat instead of reflecting it like the white snow and ice. Changing ocean temperatures and warmer air temperatures disrupt normal patterns of ocean circulation and the jet stream. Watch this illustrative video to learn more: <https://www.youtube.com/watch?v=TuHdPvnu3Ds>
- Melting ice sheets contribute to rising sea levels that can lead to coastal flooding. Hudson and James Bay coasts may not experience flooding because glacial rebound is happening more quickly than sea level rise. Sea level rise can also increase coastal erosion and elevates storm surge as warming air and ocean temperatures create more frequent and intense coastal storms. Melting ice sheets also add freshwater to the ocean and can change ocean currents impacting weather patterns worldwide. This will impact fisheries, coastal communities and animals that depend on sea ice.
- Far north communities may experience more polar bear encounters as they wander into communities looking for food due to lack of ice for hunting.

What can we do?

Number one, we can prepare for the changes that will come with melting ice, and number two, we need to cut our greenhouse gas emissions. Individually we can make changes that will reduce our emissions, but even more important, we need to demand action from local, provincial and federal governments to cut greenhouse gas emissions.

Global Ice Viewer: Try this interactive tool to learn more about how climate change is affecting glaciers, ice sheets and sea ice worldwide: <https://climate.nasa.gov/interactives/global-ice-viewer/#/>.

Read more here: <https://skepticalscience.com/melting-ice-global-warming-intermediate.htm>