

Sea ice melting





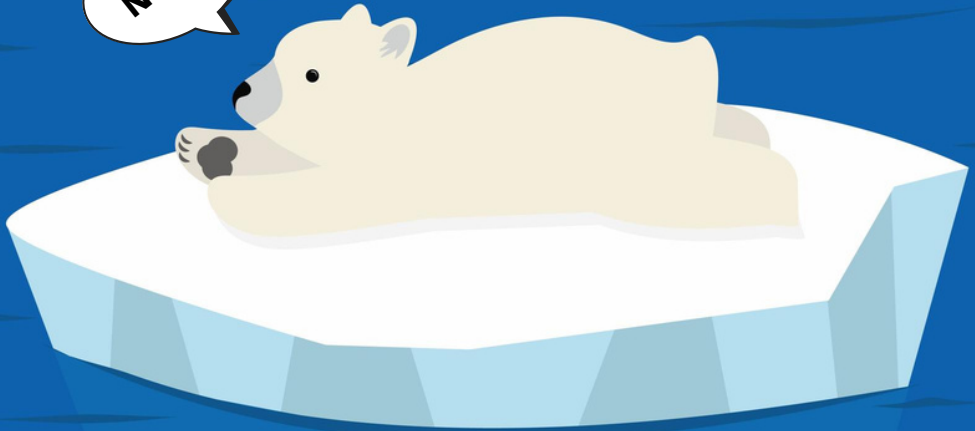
Sea ice melting is a natural consequence of the warming of our planet. Today, sea ice is at its lowest point in 1,500 years, with a portion the size of South Carolina already lost.

Depleting Arctic sea ice triggers a host of other devastating consequences.

Let's discover what are these...

Local fauna

Nooo



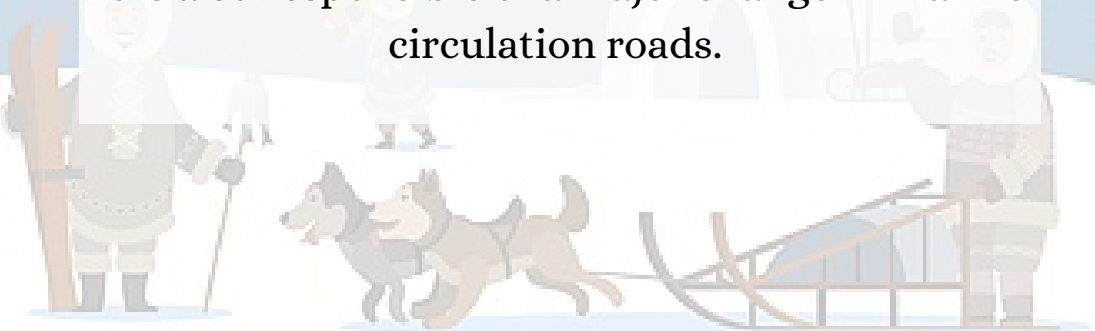
Lots of animals are threatened by sea ice melting as their habitats are being destroyed.

Furthermore, the evolution of sea water composition disrupts marine wildlife, which is the main food of sea ice species and inhabitants

Local population

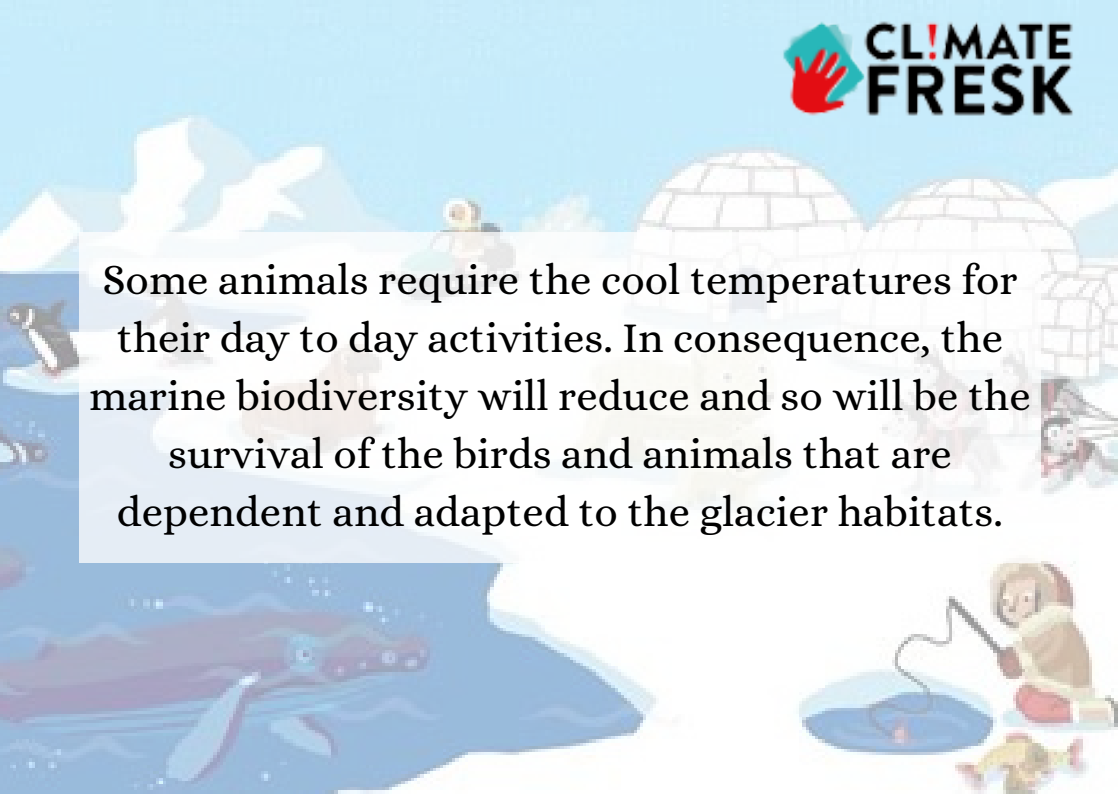


Sea ice melting disrupts many activities of the local population, such as fishing and hunting. It is also responsible of a major change in marine circulation roads.



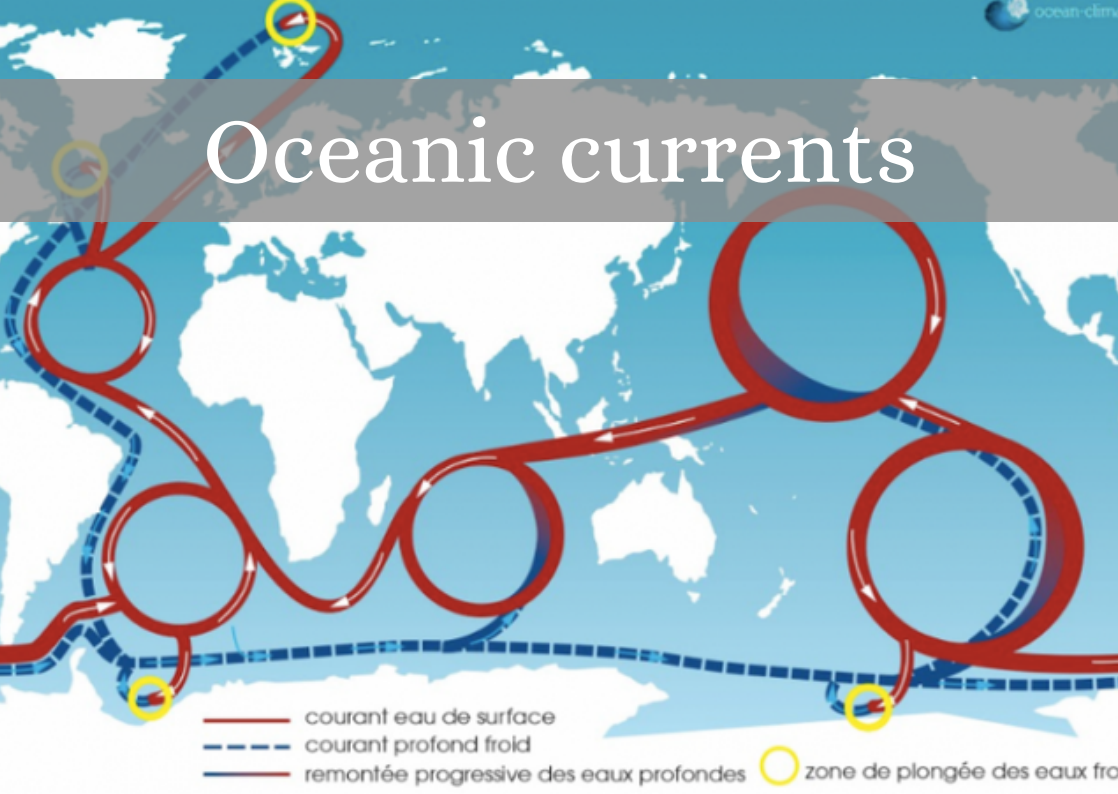
Consequences on biodiversity



The background is a colorful illustration of an Arctic scene. It includes a penguin on an ice floe, a walrus in the water, a person in a brown parka sitting on an ice floe, and several igloos in the distance. The sky is light blue, and the water is a darker blue with white bubbles.

Some animals require the cool temperatures for their day to day activities. In consequence, the marine biodiversity will reduce and so will be the survival of the birds and animals that are dependent and adapted to the glacier habitats.

Oceanic currents



In the North Atlantic, water heated near the equator travels north at the surface of the ocean into cold, high latitudes where it becomes cooler. As it cools, it becomes denser and, because cold water is denser than warm water, it sinks to the deep ocean where it travels south again. More warm surface water flows in to take its place, cools, sinks, and the pattern continues.



Albedo decreasing

Black body

Perfect mirror

0

1

Sea water :
0,05 - 0,15

Sea ice :
0,7- 0,9

When warming weather gradually melts sea ice over time, fewer bright surfaces are available to reflect sunlight back into the atmosphere. More solar energy is absorbed at the surface and ocean temperature rises.

Black body

Perfect mirror

0

Sea water :
0,05 - 0,15

1

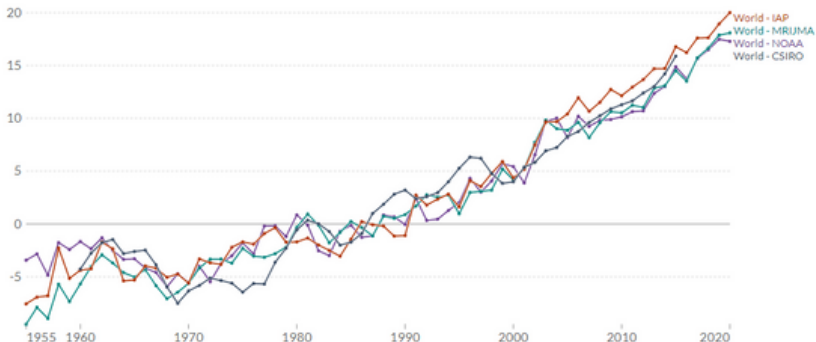
Sea ice :
0,7- 0,9

Water temperature increasing

Global warming: heat content in the top 700 meters of the world's oceans

Ocean heat content is measured relative to the 1971-2000 average, which is set at zero for reference. It is measured in 10^{21} joules. For reference, 10^{21} joules are equal to approximately 17 times the amount of energy used globally every year.

Our World
In Data



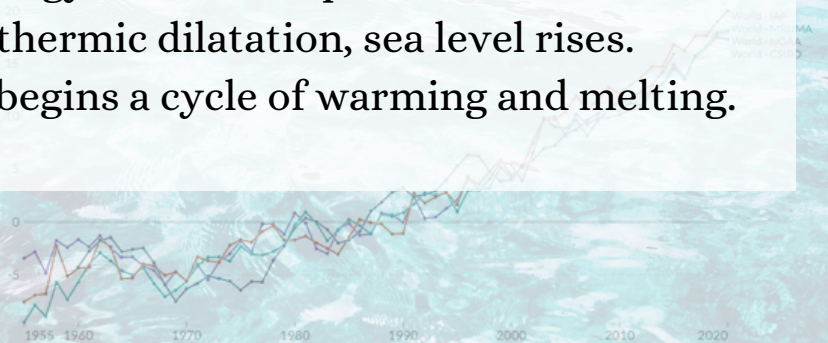
Source: United States Environmental Protection Agency (EPA)

Note: Heat content is shown for four sources: Commonwealth Scientific and Industrial Research Organisation (CSIRO); Institute of Atmospheric Physics (IAP); National Oceanic and Atmospheric Administration (NOAA); and Meteorological Research Institute (MRI).

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Albedo decreasing involves more absorption of solar energy. Ocean temperatures rise and, with thermic dilatation, sea level rises. This begins a cycle of warming and melting.



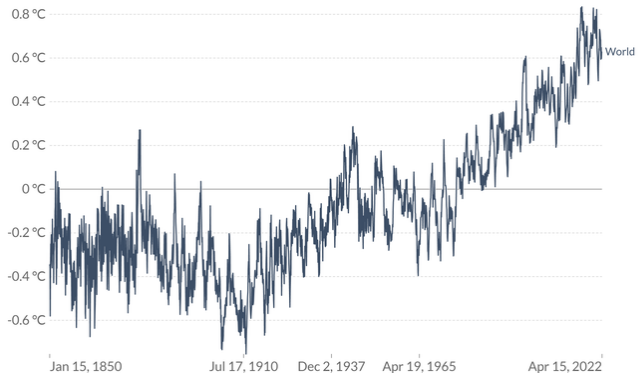
Weather disruptions



Global warming: monthly sea surface temperature anomaly

This is measured at a nominal depth of 20cm, and given relative to the average temperature from the period of 1961 - 1990.

Our World
in Data



Source: Met Office Hadley Center

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Hot sea surface temperature (SST) increases air temperature, which causes a lot of weather disruptions, such as typhoons or more intense El Niño's episodes, and is also a cause of sea ice melting.

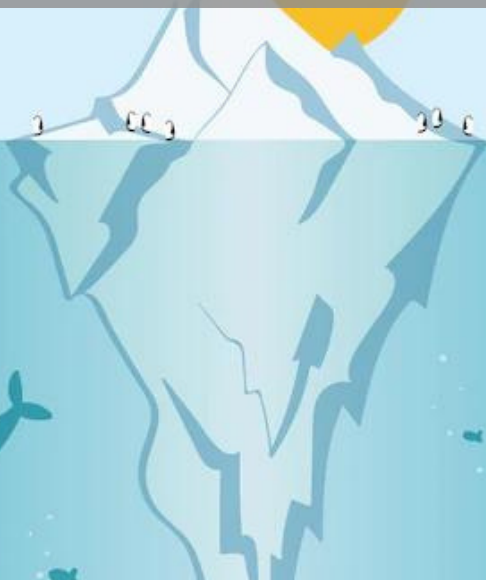


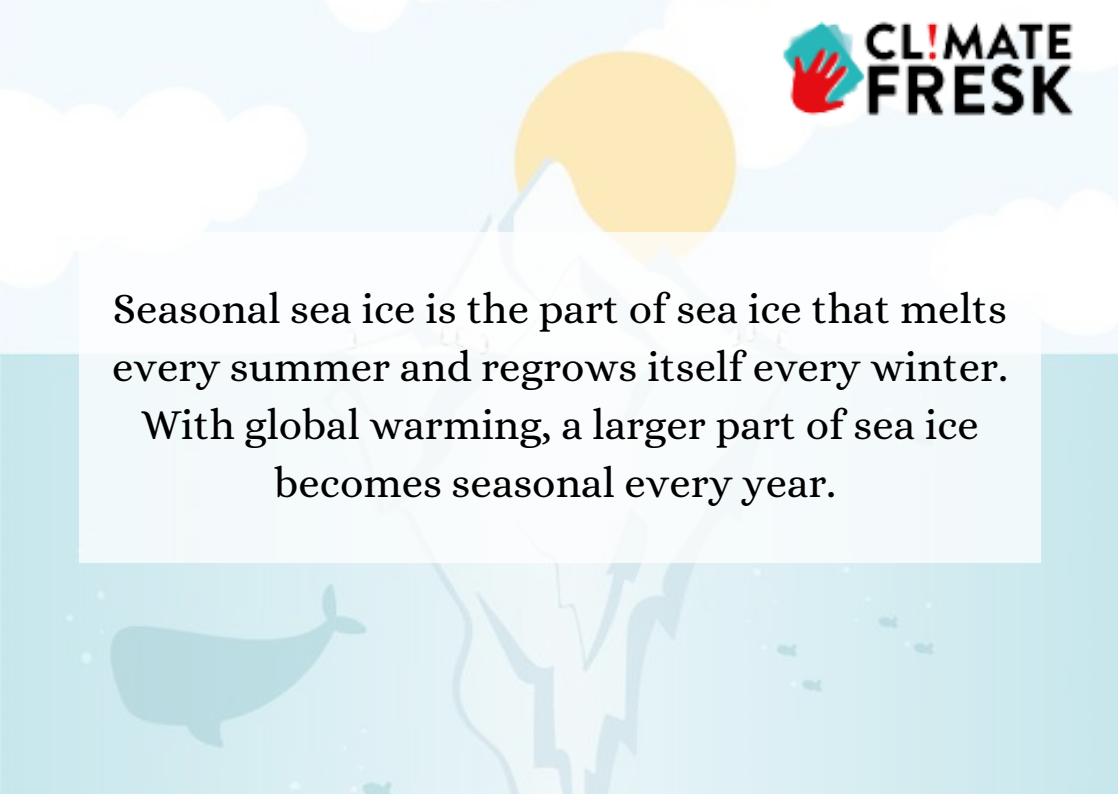
Perennial sea ice



The perennial sea ice designed the part of sea ice that is supposed to be "eternal". But with global warming, perennial sea ice starts to melt more and more

Seasonal sea ice



The background of the slide is a light blue sky with soft, white, fluffy clouds. A large, bright yellow sun is partially obscured by a white, jagged silhouette of a mountain range. In the lower portion of the slide, there is a light blue silhouette of a whale swimming in the water, and a faint, light blue outline of a map of the Arctic region is visible in the background.

Seasonal sea ice is the part of sea ice that melts every summer and regrows itself every winter. With global warming, a larger part of sea ice becomes seasonal every year.