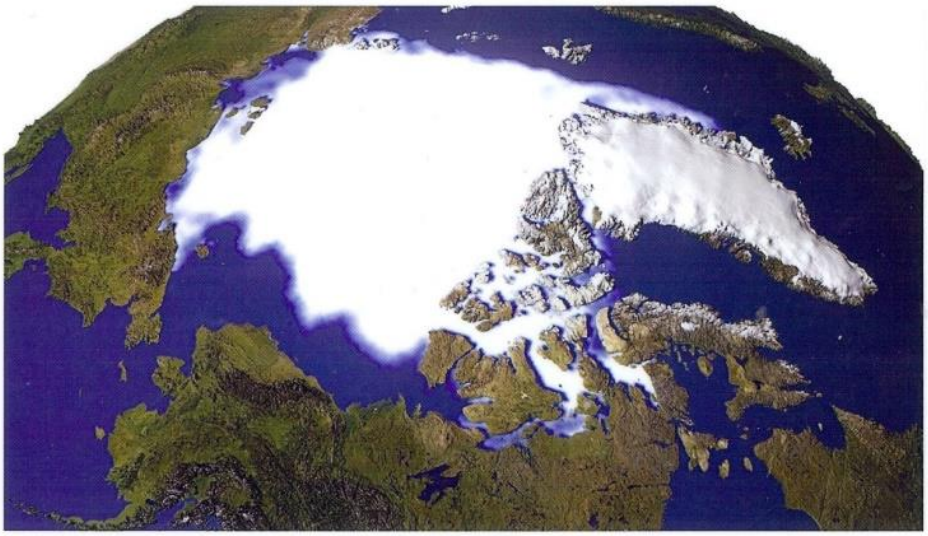
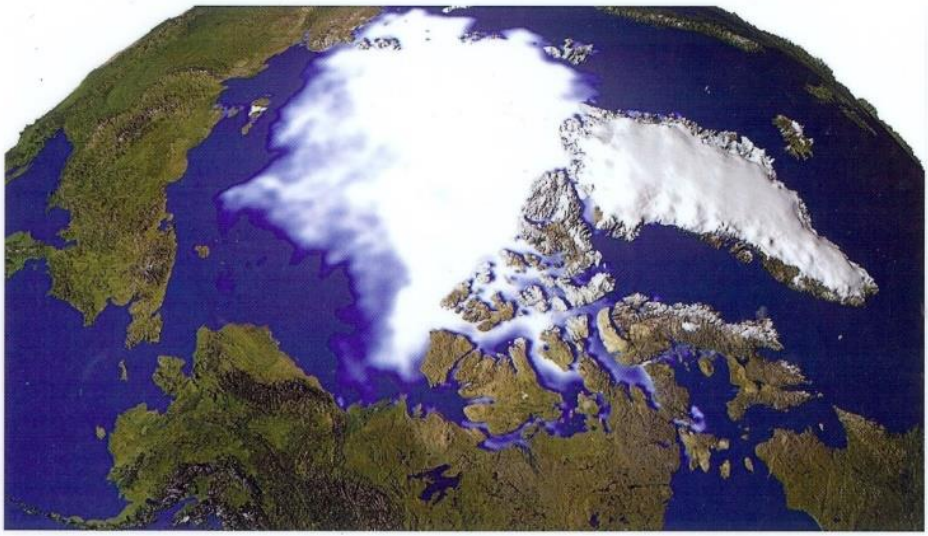
4 Arctic Ice and Climate Change
NASA Arctic sea ice image



Source: NASA GSFC Scientific Visualization Studio

1979

4 Arctic Ice and Climate Change
NASA Arctic sea ice image



Source: NASA GSFC Scientific Visualization Studio

2003

GLACIERS

This type of land ice is thick and permanent, formed by accumulating snowfall over many centuries. In Canada, glaciers and icefields cover about 200,000 square kilometres, about 2 per cent of Canada's landmass. Like polar ice caps, glaciers are melting because of climate change and are expected to contribute to rising sea levels.

4 Arctic ice and climate change
Arctic ice cards

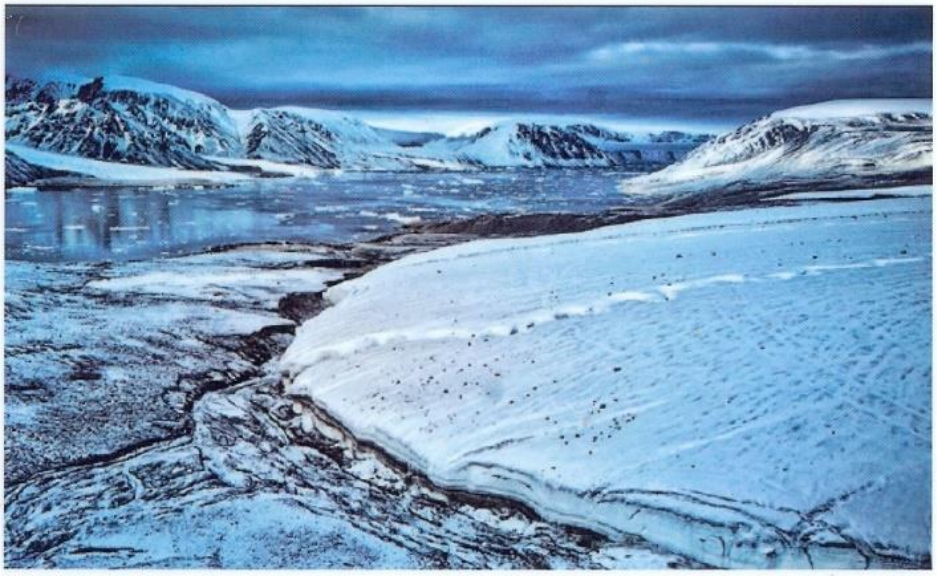


Photo: Martin Fortier/ Arcticnet

ICE SHELF

This type of land ice is a floating ice sheet, two or more metres above sea level and partly attached to the coast. It is formed from a glacier and sea ice. Northern coastal areas like Ellesmere Island and northern Greenland have some of the largest ice shelves in the Northern Hemisphere.

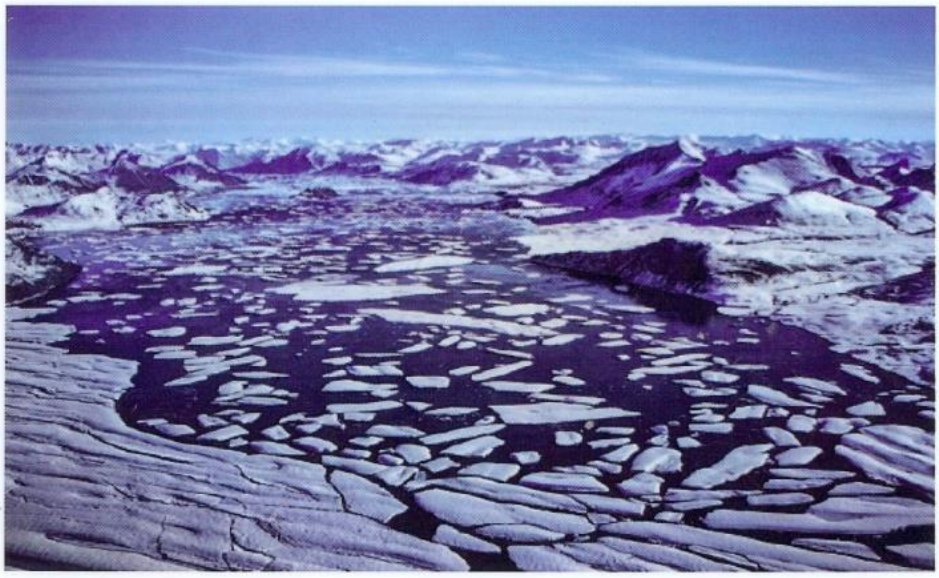


Photo: Denis Sarrazin /Arcticnet

ICEBERGS

This type of freshwater ice is a piece of a glacier that has broken away from the mass and has a height of five metres or more above the surface of the water. They can be any shape, from dome to flat-topped to ones with spires. Since 90 per cent of its mass is underwater, icebergs travel by water currents, not wind.

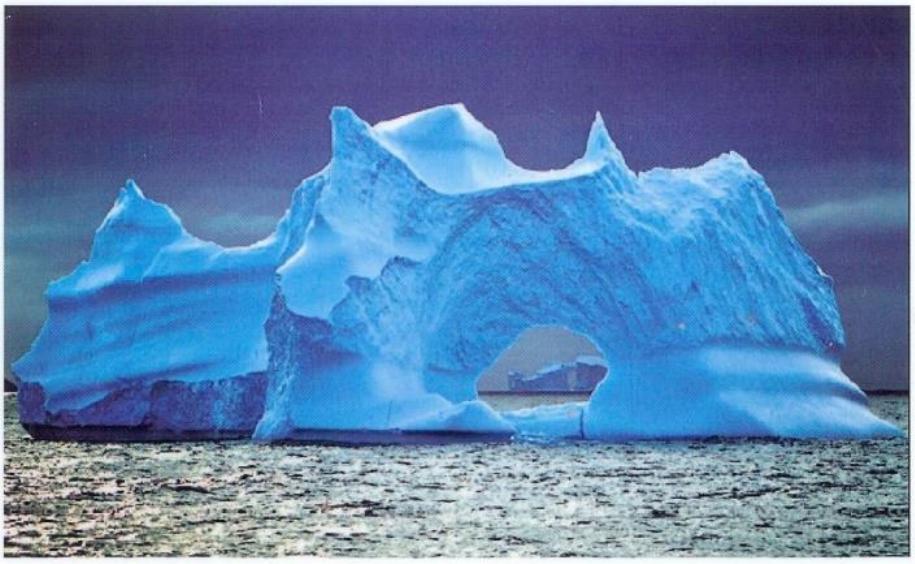


Photo: Martin Fortier/ Arcticnet

LANDFAST ICE

This type of sea ice is attached to land and is shaped by tides and storms. Hunters from northern communities use this type of ice as a platform for hunting seals and whales. Landfast ice can also protect northern shorelines from erosion and storm damage.

4 Arctic ice and climate change
Arctic ice cards

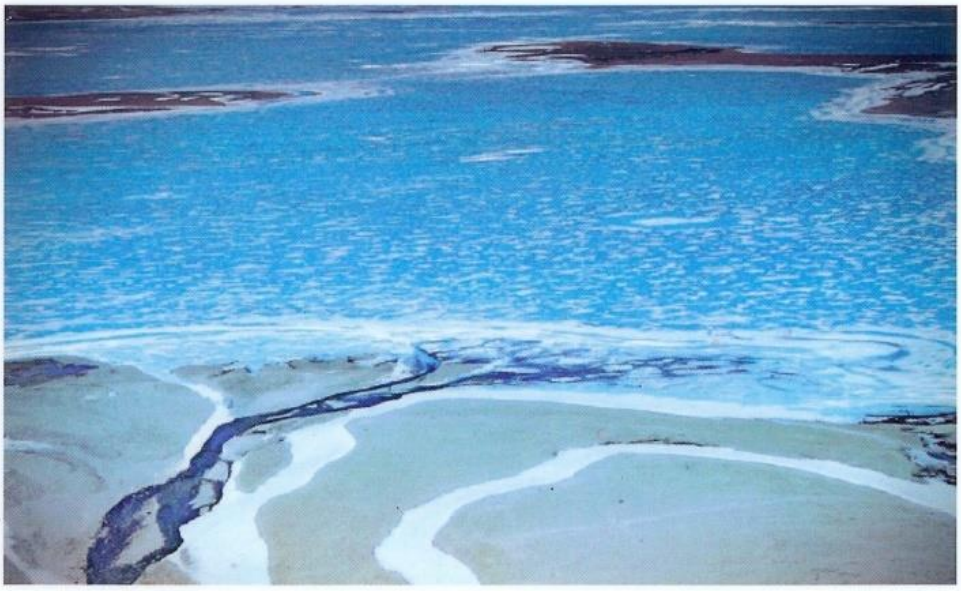


Photo: Dr. M. Johnston, NCR-CHC

MULTI-YEAR ICE

This type of sea ice is more than five metres thick and stays frozen year-round. The strength of the ice is determined by how it melts, not by its thickness. The more this ice collides with other multi-year ice, the stronger it becomes. Today, slightly less than half of the Arctic is covered by multi-year ice.

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Photo: Martin Fortier/ Arcticnet

PACK ICE

This type of sea ice floats freely and is not attached to the sea floor or land. If it is 20 metres or more in diameter, it is also known as an ice floe. If it is smaller, it is called drift ice. Pack ice is used as resting and birthing spots for seals and walruses.

Photo: Martin Fortier/ Arcticnet

PANCAKE ICE

This type of sea ice is characterized by its round, pancake-like shape ranging in size from 30 centimetres to three metres across. It is formed when rough waters create slushy ice cakes, which harden as more slush is created and then freeze.

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Photo: Martin Fortier/ ArcticNet

RIVER ICE

This type of freshwater ice is formed over northern rivers. Its formation and breakup influence erosion, contributing to the flow of the river and landscape.

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Photo: John De Visser/ Masterfile