

## Global warming worst in Arctic, report says

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Edmonton — A comprehensive scientific study of the Arctic climate has confirmed that the North is melting, and faster all the time.

The four-year study produced by 250 scientists from eight circumpolar countries and released on Monday concludes that global warming is affecting the Arctic more heavily than any other region on earth.

"Earth's climate is changing, with the global temperature now rising at a rate unprecedented in the experience of modern human society," the Arctic Climate Impact Assessment report says. "These climate changes are being experienced particularly intensely in the Arctic."

"The polar regions are essentially the earth's air conditioner," Michael McCracken, president of the International Association of Meteorology and Atmospheric Sciences, told a news conference Monday. "Imagine the earth having a less efficient air conditioner." Susan Joy Hassol, the report's lead author, said the Arctic probably would warm twice as much as more southerly areas. A region of extreme light and temperature changes, the Arctic's surfaces of ice, ocean water, vegetation and soil are important in reflecting the sun's heat.

The long-awaited report, to be discussed at this month's meeting in Iceland of the eight-country Arctic Council, lists 10 key findings:

- The average Arctic temperature has increased twice as much as that of the rest of the world over the past few decades, likely bringing heavier precipitation, shorter and warmer winters and much reduced snow and ice cover that will last centuries.
- Arctic climatic changes will affect the rest of the world, as the melting of highly reflective snow and ice increases the overall heat absorption of the planet and glacial meltwater raises the sea levels and disrupts ocean currents.
- The treeline will move northward.
- Habitat for marine animals will shrink, threatening some species such as polar bears with extinction by the end of the century, while other species will move north. Arctic fisheries may become more productive.
- Coastal communities will face increasing erosion from heavier storm seasons and melting permafrost.
- Reduced sea ice could lead to heavier marine traffic and increased access to some resources.
- Thawing permafrost will damage northern roads, buildings and infrastructure.
- Aboriginal lifestyles will face major economic and cultural adjustments.
- Increased ultraviolet radiation will affect people, animals and plants, with the current Arctic generation expected to receive about 30 per cent more UV than their mothers and fathers.
- Climate change is occurring in a context of increasing chemical pollution, land overuse and population increases.

The report is full of alarming statistics.

Temperatures in Canada's western Arctic have already increased by three to four degrees Celsius over the past 50 years, with larger increases projected. Snow cover across the Arctic has decreased by about 10 per cent over the last three decades, with another 10-to-20 per cent decline expected.

Permafrost has warmed up by two degrees, and to an increasing depth. The southern permafrost limit is expected to shift northward by hundreds of kilometres this century.

The past 30 years has seen sea ice decline by 15 to 20 per cent – equivalent to an area almost the size of Ontario. The area of melting of the Greenland ice cap surpassed all previous records last year, and Alaskan glaciers have retreated so rapidly that they make up about half the glacier melting for the entire world.

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Despite the attention likely to be focused on the report, little of it will come as a surprise to the Inuvialuit, Dene and Inuit of Canada's North.

From Tuktoyaktuk in the Northwest Territories, where melting permafrost is washing a community into the ocean, to Baffin Island, where elders can no longer predict weather or follow ancient hunting routes, they are already living with climate change.

The member countries of the Arctic Council – Canada, the United States, Russia, Norway, Denmark, Sweden, Finland and Iceland – will officially receive the report on Tuesday at their meeting in Reykjavik.

The council's official response is expected on Nov. 24.

Most climate scientists believe global warming is at least hastened by the increased concentration of greenhouse gases in Earth's atmosphere. Greenhouse gases such as carbon dioxide are produced in the burning of fossil fuels, the source of about 80 per cent of the world's energy.



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