



Fast Facts

Check out these fast facts for a snapshot of Earth's evolving climate.

* There is little doubt that the planet is warming. Over the last century the average temperature has climbed about 1 degree Fahrenheit (0.6 of a degree Celsius) around the world. The spring ice thaw in the Northern Hemisphere occurs 9 days earlier than it did 150 years ago, and the fall freeze now typically starts 10 days later.

* The multinational Arctic Climate Impact Assessment (ACIA) report recently concluded that in Alaska, western Canada, and eastern Russia, average temperatures have increased as much as 4 to 7 degrees Fahrenheit (3 to 4 degrees Celsius) in the past 50 years. The rise is nearly twice the global average. In [Barrow, Alaska](#) (the U.S.'s northernmost city) average temperatures are up over 4 degrees Fahrenheit (2.5 to 3 degrees Celsius) in 30 years.

The United Nations' Intergovernmental Panel on Climate Change (IPCC) projects that global temperatures will rise an additional 3 to 10 degrees Fahrenheit (1.6 to 5.5 degrees Celsius) by century's end.

* Over the last million years the Earth has fluctuated between colder and warmer periods. The shifts have occurred in roughly 100,000-year intervals thought to be regulated by sunlight. Earth's sunlight quota depends upon its orbit and celestial orientation.

* Rising temperatures have a dramatic impact on [Arctic ice](#), which serves as a kind of "air conditioner" at the top of the world. Since 1978 Arctic sea ice area has shrunk by some 9 percent per decade, and thinned as well. ACIA projects that at least half of the Arctic's summer **sea ice will melt** by century's end, and that the Arctic region is likely to warm 7 to 13 degrees Fahrenheit (4 to 7 degrees Celsius) during the same time.

* Over the very long term, Greenland's [massive ice sheet](#) holds enough melt water to raise sea level by about 23 feet (about 7 meters). ACIA climate models project significant melting of the sheet throughout the 21st century. The present volume of the Earth's glacier ice, if totally melted, represents about 80 meters in potential sea-level rise. Most research indicates that sea level is rising approximately 2mm/year.

* Vast quantities of fresh water are tied up in the world's many melting glaciers. When [Montana's Glacier National Park](#) was created in 1910 it held some 150 glaciers. Now fewer than 30, greatly shrunken glaciers, remain. Tropical glaciers are in even more trouble. The legendary snows of Tanzania's Mount Kilimanjaro 19,340-foot (5,895-meter) peak [have melted](#) by some 80 percent since 1912 and could be gone by 2020.

* Sea levels have risen and fallen many times over the Earth's long geological history. Average global sea level has risen by 4 to 8 inches (10 to 20cm) over the past century according to the IPCC. The IPCC's 2001 report projects that sea level could rise between 4 and 35 inches (10 to 89cm) by century's end. Such rises could have major effects for coastal dwellers. A 1.5-foot (50-centimeter) sea level rise in flat coastal areas would cause a typical coastline retreat of 150 feet (50 meters).

Worldwide some 100 million people live within 3 feet (1 meter) of mean sea level. Rises of just 4 inches (10 centimeters) could promote flooding in many South Sea islands, while in the U.S. [Florida and Louisiana are at risk](#). The Indian Ocean nation of [Maldives](#) has a maximum elevation of only 8 feet (2.5 meters). Construction of a sea wall around the capital, Male, was driven by vulnerability to the rising tides.

* The ocean's circulation system, known as the [ocean conveyor belt](#), moderates global temperatures by moving tropical heat around the planet. Global warming could alter the balance of this system, via an influx of freshwater from melting ice caps for example, creating unforeseen and possibly fast-paced change.

Climate models suggest that global warming could cause more frequent extreme weather conditions. Intense [hurricanes](#) and storm surges could threaten coastal communities, while heat waves, fires and drought could also become more common.

* In the Arctic the impacts of a warming climate are being felt already. Coastal [Indigenous communities](#) report shorter periods of sea ice, which fails to temper ocean storms and their destructive coastal erosion. Increased snow and ice melt have caused higher rivers while thawing permafrost has wreaked havoc with roads and other infrastructure. Some communities have had to move from historic coastline locations. Sea ice loss is also devastating for species that have adapted to the environment, such as [polar bears](#) and ringed seals in the Arctic and Antarctic [penguins](#).

* By 2050, rising temperatures exacerbated by human-induced belches of carbon dioxide and other greenhouse gases could send more than a million of Earth's land-dwelling plants and animals down the road to extinction, according to a [recent study](#).

* Where do scientists find clues to past climate change? The tale is told in remnant materials like [glacial ice](#) and moraines, pollen-rich mud, stalagmites, the rings of corals and trees, and ocean sediments that yield the shells of microscopic organisms. Human history yields clues as well, through records like ancient writings and inscriptions, gardening and [vintner records](#), and the logs of historic ships.

http://news.nationalgeographic.com/news/2004/12/1206_041206_global_warming.html