

Climate change and glacial melting

[Environment](#), [Climate Change](#)



Erik M ENG 102 — 32816 8 Oct. 2008 Climate Change's Effects on Glacial Melting

On the sheltered slopes of the highest peaks in Glacier National Park, in Montana, the beautiful and majestic landmasses known as glaciers are quickly melting away. These giant landmasses are found all over the world, on both North and South Poles, on all seven continents, and even on the high peaks in the tropical regions near the equator. Over the past few decades, the global climate has been subject to vast changes throughout every square inch of the world. Temperature increases in the global atmosphere have led to the accelerated vanishing of glaciers on a significant scale. Hypothetically, the complete melting of all the world's glaciers would, at its highest impact, end the existence of every living organism on this planet, mainly due to the seventy meter rise in sea level! (Weimer). The uncontrollable floods, non-availability of fresh water for drinking and irrigation to grow food, and a colossal rise in sea level would not only depopulate coastal regions, but it would kill all of the animals that depend on glacial runoff water to survive. This, in turn, would destroy eco-systems that have made glaciers and their runoff water a part of their habitats and daily lives. By recognizing the potential for these catastrophic events to occur, people need to understand the characteristics of glaciers, climate change, and figure out why the two are not mixing, which in short, is the problem. The gigantic, beautiful, and majestic landmasses that are formed from thousands of years of snow and ice accumulation are called glaciers. Most of the time, glaciers move through valleys and large riverbeds in which the glacier carves through the rock like a knife slicing through hot butter. This comparison is not exactly true because most glaciers move at such a slow rate of speed, at only a meter or

even a half a meter per year, it takes many thousands of years to create the affects that are able to be seen in the landscape today. Others, however, move at over 30 meters per day; the rate of speed varies throughout the world and mainly depends on the amount of friction between the glacier and the type of surface or rock that it is sliding down (Wikipedia Online Encyclopedia). The other type of glacier is a continental glacier which is not going to visibly affect the landscape around it because these masses of ice are so large that they are practically continents in themselves. Examples of these glaciers are found in Greenland and Antarctica. The volume of freshwater contained in these glaciers is so large that if these glaciers and the ice caps in the polar regions melted, it would raise the global sea level about 230 feet (Retreat of Glaciers Since 1850). Glaciers need a relatively cold climate to continue their destructive path but, recently, the changing climate has started to unleash devastating effects on the world's glaciers due to immense changes in the Earth's atmosphere. Climate change must not to be under-estimated. Global warming is the main contributor to the changing of the climate. Added greenhouse gases have turned the Earth into a large greenhouse which is not letting the gases escape the atmosphere. Under normal conditions where the gas concentration is not affected by humans, the Earth would be able to manage and control the amount of, particularly, carbon dioxide in the atmosphere. Nature's natural checks and balances are starting to be disrupted by the increased amount of carbon dioxide in the air. This temperature rise has greatly accelerated the recession of glaciers. Because the melting and recession is happening at such a rapid rate, Rick Wessel and his colleagues at ASU think that global

warming is most likely the explanation for the loss of glacial ice (Wessel). A cumulative global sea rise of 1.6 ft. is predicted to occur by the end of the current century (Gordon 67). Since the glacial regions and ice sheets are melting at a notably faster rate than previous decades, comparing the two can obviously make the connection that the Earth's climate is changing, for the worst. Studies that have been conducted by the Global Land Ice Management from Space (GLIMS) project have proved that ice is melting at a much faster rate now than ever before. Temperature, precipitation, humidity, wind speed, and other factors such as slope and reflectivity of the glacial surface all affect the recession of glaciers. Most glaciers in the world, however, are more sensitive to temperature than to other climate factors (Eds J. T. Houghton 241). This makes perfect sense since glaciers need relatively cold climate to continue accumulating. Rising temperatures and glaciers do not mix for the above reason. In order to control the changing climate, people of the Earth need to change their ways. Although there might not be a way to undo the damage that has already been done, there are ways to keep it from getting any worse. Simple examples are to set household thermostats two degrees higher in the summer and two degrees lower in the winter which will save about 2000 lbs. of CO₂ from entering the air. Switching regular incandescent light bulbs to fluorescent light bulbs will save another 300 lbs. of CO₂ per bulb from entering the atmosphere. One of the most popular ways to save energy according to Conservation International is to use a clothes hanger instead of using a cloth's dryer. This will save an estimated 700 lbs. of CO₂ from entering our atmosphere (A Problem To Everybody: Top 50 Things to Do to Stop Global Warming). With

less and less CO₂ in the air, the glaciers will be able to continue growing and will be able to be seen by millions of people all over the world. There must be a solution. Children of future generations will never be able to see these amazing landforms at their prime. If the climate continues to change for the worst, the glaciers will certainly not be here for many more years. With the current information that scientists possess they can determine that the recession of the glaciers will not be stopping or slowing down any time soon. As more and more CO₂ gets released into the air, the global temperature will continue to raise creating problems for millions of people all over the world. Glacial runoff water would flood farming land, destroy homes, and just create many problems for everybody. By recognizing the potential for these catastrophic events to occur; it is imperative to learn the characteristics of glaciers, climate change, and realized that there is a solution for this problem. Humans need to work together to stop the release of CO₂ into the atmosphere and once everyone has realized the problem hand, only then will the glaciers be safe.

Works Cited

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