

Melting of Greenland ice shelf likely caused by global warming

Bryan Dyne
2 August 2012

The surface of the Greenland ice shelf had a flash melting from July 8 to July 12. About 97 percent of the country experienced surface thawing, increasing from 40 percent over the span of four days. The last time such an event occurred was in 1889.

Toward the end of July, temperatures spiked again after a brief freeze. On July 28, nearly three quarters of the surface of Greenland had ice sheet melting. This compares to an average melting of only about 25 percent during the month of July.

Typically, up to 50 percent of Greenland's surface has melt during the hottest points of the summer. It then refreezes when the arctic winter comes again. This year, scientists using satellite imagery to study Greenland observed and confirmed with three separate instruments that almost all of Greenland's ice shelf, including its highest point, showed some degree of melting.

The suspected cause of the rapid melting is a phenomenon known as a "heat dome." This occurs when a high pressure system keeps the cooler air of the jet stream farther north, which also brings north the heat and humidity from the Gulf of Mexico. The high pressure also keeps clouds from forming in the area, thus preventing precipitation. This atmospheric pattern is what has been responsible for the drought across the US this summer.

This same heat dome then moved to the east, which was the cause of the ice shelf melting. This has also caused, more generally, a high level of arctic ice melting.

The high temperatures have also led to a section of the Peterman glacier, located in northern Greenland, to break off. This iceberg is 130 square kilometers (50 sq mi). The sheet was already floating on water, and so

will not add to global sea levels. However, if this is the beginning of a trend of ice sheets melting off of Greenland and falling into the Atlantic Ocean, it is only a matter of time before ice from inland falls into the ocean, raising ocean levels worldwide.

Disturbingly, the collected scientific data does point to an increase of ice melting off Greenland. The data collected from 1979 to 2002 show a 16 percent increase in ice melting, mostly from coastal glaciers which do not increase ocean levels. More recent data collected by NASA's GRACE (Gravity Recovery and Climate Experiment) satellite, launched in 2002, show that from 2003 and 2008, Greenland lost an average of 195 cubic kilometers (47 cu mi) per year.

These events, combined with the projection that Greenland's local temperature will increase by as much as 9°C (16.2°F) during this century, make clear that there is a growing risk of a massive melting of Greenland. The most conservative estimates predict that such an event would occur over centuries, while other models do not rule out the ice shelf melting over a few decades once a certain critical melting point has been reached. If the entire shelf, 2,850,000 cubic kilometers (683,751 cu mi) worth of ice, melted, global sea levels would rise 7.2 m (23.6 ft).

More generally, instances of extreme weather events, such as the drought in the US Midwest this summer, are examples of what can be expected with a general increase of global temperatures. While such weather is not guaranteed in any part of the world, global warming makes the chances of such local extremes occurring higher with each passing year.

In spite of the clear evidence of global warming caused by carbon emissions, world governments remain incapable and unwilling to take any serious measures to address climate change. The most recent climate

summit, held in June in Brazil, produced nothing of value. World governments, led by the US, are determined to defend corporate profits and geopolitical interests, and are bitterly divided among themselves.

The inability of the world's governments to resolve the impacts of climate change on human life and Earth in general flows directly from that fact that all considerations of such a nature are subordinated to the interests of the global financial elite.



To contact the WSWWS and the
Socialist Equality Party visit:

wsws.org/contact