

Study warns of “unstoppable” West Antarctic ice shelf melting

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A new study by NASA and the University of California, Irvine warns that a section of the West Antarctic Ice Sheet has reached a stage of “unstoppable” melting over the next several centuries. The study concludes that this melt will cause the world sea level to rise significantly higher than earlier predicted by the Intergovernmental Panel on Climate Change (IPCC).

On Monday, NASA held a telephone news conference to call attention to the significance of the findings. Eric Rignot, leader of the glaciological team at UC Irvine, told the conference that “today we present observational evidence that a large sector of the West Antarctic ice sheet has gone into irreversible retreat... it has passed the point of no return.”

Dr. Rignot announced the finding that the melting of the six glaciers they studied, alone, could cause a global sea level rise of four feet over many years. Additionally, he said that this melt could produce a chain reaction and destabilize other parts of the West Antarctic ice sheet, tripling the effect on sea levels.

The glacial melt from the Antarctic comes alongside the melting of other glaciers, as well as the polar ice cap. Cumulatively, these effects are predicted to cause up to a 14-foot increase in sea level within the next few centuries, and as much as a three-foot increase by the end of this century. The impact for coastal areas will be devastating.

The *World Socialist Web Site* spoke to Kurt Cuffey, a UC Berkeley Professor and leading glaciologist, about the ice melt in Western Antarctica. Cuffey explained several mechanisms that have produced the melting process. (Also see this video from the NASA Jet Propulsion Laboratory explaining the process)

Cuffey first explained a “short term process” that is speeding up the glacial melt in Antarctica. “As a result

of changes to the winds around the Antarctic continent, warmer ocean water is being circulated under the ice shelves, the floating masses of ice that fringe that part of the continent.” This warm water, flowing underneath the ice shelves, “causes melt of the ice that is flowing off the continent.” In turn, Cuffey said, “that melt thins the ice, and, as a consequence, the outflowing ice speeds up.”

The stretching and thinning of the ice sheet, which reduces frictional resistance for the ice flow, creates a positive feedback loop, as the reduced resistance further accelerates the flow of ice. Moreover, as the point of floatation of the ice shelf moves further inland, it moves into a bowl like geographic feature on the continent, and thus deeper water, where it will melt faster.

Cuffey said that he is 90 percent certain that this process is irreversible, due to all these feedback mechanisms.

An increased sea level would lead to a host of problems other than sheer physical displacement. The world would see a rise in extreme flooding. Also, with flooding, the salinized water could seep into farmlands, such as in California’s Bay Area, ruining the soil with salt. A report assessing a 10-foot sea level rise from the group Climate Central predicts that such a rise would cause nearly a trillion dollars’ worth of property damage in Florida alone.

The scientists’ findings that this melting is “unstoppable” underscores the danger posed by climate change and the need for urgent action—rendered impossible by the division of the world into nation-states and the subordination of all decisions to private profit. However, what actions are in fact possible to stop ice melting and halt climate change can be determined only when economic and social life is

determined by considerations of human need, and when the immense resources of society can be mobilized on the basis of a rational and global plan.



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