Antarctic ice sheet rapidly collapsing, new studies indicate

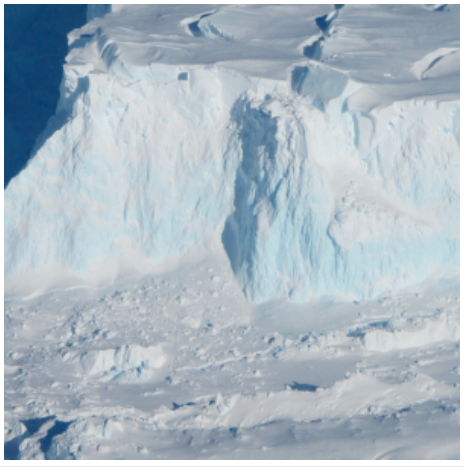
Posted by: **Jennifer Guay** Posted date: **May 14, 2014** In: **Ecosystems** | comment : **0**

UNITED NATIONS, UNEARTH News – Research released Monday by two independent teams of scientists suggest that the melting of the majority of western Antarctica's ice sheet is inevitable, and that the process could lead to higher sea level rise than anticipated in the coming centuries.

Both studies found that the West Antarctic glaciers have retreated enough to spur instability in neighboring ice sheets. Global warming caused by human-induced release of greenhouse gases has contributed to the glacier's destabilization, but other factors may also have been involved.

"In the '80s and '90s, landmark papers were suggesting that West Antarctica's marine ice sheet was unstable," Ian Joughin, Senior Principal Engineer at the University of Washington, told **UNEARTH News.**

As the lead author of one of the concurrent studies, published in Science, Joughin took the theory to task by analyzing one of Antarctica's most crucial glaciers, Thwaites. Joughin and his colleagues found that Thwaites is likely in the early stages of collapse, and that total collapse is nearly unavoidable.



The Thwaites glacier is in the process of destabilizing, new study finds. Photo credit: NASA/James Yungel

Thwaites is not destabilizing due to warmer air temperatures. Temperate water deep in the ocean is being pulled to the surface of the water by an intensification of the powerful winds that have encircled Antarctica over the past few decades, which is causing more rapid thawing of the glacier.

"This is going to be very significant for coastal populations," Joughin told **UNEARTH News**. "They're very directly affected by how much melt there is. If the glaciers are getting melted away quickly, we can't stabilize them. Anything we can do to slow the melt will slow the rate of loss."

A second study published the same day demonstrated that six glaciers are pouring ice into the sea at an increasing rate, which will lead to four feet of sea level rise.

Seaside cities such as New York, Miami, New Orleans, and Boston are all at risk. According to Joughin, these new findings are further reason to take quick action against human-induced climate change.

The United Nations' Intergovernmental Panel on Climate Change (IPCC) has predicted that by 2100, sea levels could rise up to 3.5 feet in the United States – a number that does not take into account recent research on western Antarctica.

The sea level rise is likely to move slowly for the rest of the twenty-first century, but could intensify in the future, which would have a disastrous effect.

For example, high levels of sea rise mean more flooding, especially during storms. Big low-pressure systems, such as 2012 Sandy, bring a surge of water inland from the ocean. A rise in sea level increases the size of the surge. In Sandy's case, it caused devastating flooding in lower Manhattan.

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