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Journey to Antarctica: Is This What a Climate Catastrophe Looks Like in Real Time?

Scientists aboard the Nathaniel B. Palmer watch a 25-mile-wide section of ice crumble into the sea

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View from the deck of an ice strengthened ship on an expedition cruise to Antarctica, 2013.
Global Warming Images/REX/Shutterstock

The crew on the Nathaniel B. Palmer were packing up their equipment and pondering their discoveries on their way home from a two-month journey to Antarctica, where they

conducted research in the remote waters around Thwaites glacier. They were wondering if they saw the effects of climate catastrophe happen right before their eyes.

On March 3rd, oceanographer and key scientist aboard the Palmer, Bastien Queste, received a satellite image of the Thwaites glacier and surrounding waters from his colleague back home. Satellite images help scientists track the minute changes in the ice. The crew were only a few miles away, mapping the vast seabed in front of the glacier using the ship's sonar device. But the map he received that morning did not match up with what was in front of him. He noticed dark cracks in parts of the ice shelf, which floats out over the sea like a huge fingernail from the glacier itself.

The reason the scientists came to research Thwaites was to learn about the risk of a collapse that would suggest a consequential tipping point in the Earth's climate system. This would mean that we would no longer be able to prevent the course of climate change effects, including rising sea levels, rising temperatures, and increased chances of natural disasters.

Although Thwaites is an exceptionally large glacier, it's also the reverse slope of the ground beneath it and the way it dissolves in water that points to a vulnerability to rapid collapse. In other words, the glacier becomes smaller the deeper it goes into the water. As warm circumpolar waters circulate towards the base, the shelf melts and weakens. If Thwaites were to shatter, scientists worry that the entire ice sheet would disappear, raising sea levels more than ten feet.