Sea-floor snaps offer clue to sea-level rise

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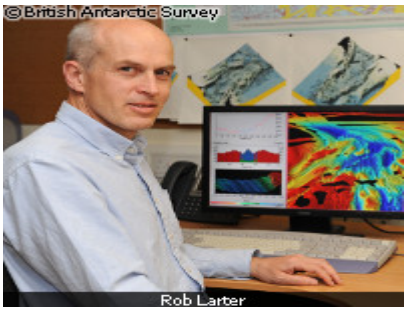

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The continent of Antarctica is swathed in an immense layer of ice up to 5,000 metres thick. Over time, the ice moves towards the sea, where it breaks away in the form of icebergs and eventually melts. Because it lies on rock that is above sea level, the ice sheet covering the eastern half of the continent is fairly stable. In contrast, the West Antarctic Ice Sheet (WAIS) lies on rock that is below sea level, making it much less stable.

If the Antarctic ice sheet melts, it will contribute massively to sea level rise. Yet, as the Intergovernmental Panel on Climate Change (IPCC) has pointed out, our poor understanding of the dynamics of massive ice sheets is hampering efforts to predict future sea-level rises.

In this latest study, scientists from the British Antarctic Survey and the Alfred Wegener Institute for Polar and Marine Research in Germany used sonar technology to investigate the sea bed of the Amundsen Sea embayment. Much of the WAIS drains into this area, and scientists have pinpointed it as a likely site for the initiation of the collapse of the ice sheet.

In total, the scientists scanned almost 10,000 square kilometres of sea floor (roughly equivalent to half the size of Wales). Their images shed new light on what happened

10,000 years ago, when the ice sheet shrunk to its current size at the end of the last ice age.

The pictures reveal three 17- to 39-km-wide troughs running away from the current edge of the ice, giving the scientists new insight into the rate of ice loss during that period. However, the researchers warn that the mechanisms controlling the flow of ice into the sea may be more complex than expected.

'One of the greatest uncertainties for predicting future sea level rise is Antarctica's likely contribution. It is very important for scientists and our society to understand fully how polar ice flows into the sea,' commented Rob Larter of the British Antarctic Survey. 'Our research tells us more about how the ice sheet responded to warming at the end of the last ice age, and how processes at the ice-sheet bed controlled its flow. This is a big step toward [an] understanding of how the ice sheets are likely to respond to future warming.'

Countries

Antarctica, Germany, United Kingdom

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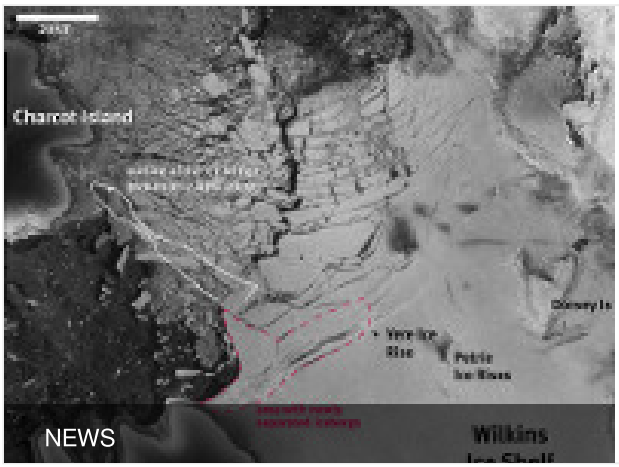

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