

Sediment wedges not stabilizing West Antarctic Ice Sheet

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The stability of the West Antarctic Ice Sheet is uncertain as climate changes. An ice sheet such as the West Antarctic Ice Sheet that is grounded well below sea level on a bed that slopes toward the interior of the sheet is believed to be unstable: when the grounding zone, where the grounded sheet transitions into floating ice, retreats inland, it can potentially lead to massive amounts of ice becoming ungrounded and floating into the ocean, unless something such as a wedge of sediment stabilizes the ice sheet.

It has been proposed that such a sediment wedge stabilizes the grounding zone of the Whillans Ice Stream, one of the large ice streams flowing from the West Antarctic Ice Sheet. However, most understanding of ice sheet stability at grounding zones comes from models and remote observation rather than field-based observations.

Horgan et al. looked at [sediment deposition](#) at the current grounding zone of Whillans Ice Stream using seismic and kinematic GPS methods. They find that sedimentary deposits are present, but these sediments are not forming the wedge-shaped deposits thought to stabilize the grounding zone. They suggest that some other mechanism may be creating stability.

More information: Horgan, H. et al. Sediment deposition at the modern grounding zone of Whillans Ice Stream, West Antarctica, *Geophysical Research Letters*. [DOI: 10.1002/grl.50712](https://doi.org/10.1002/grl.50712) , 2013 onlinelibrary.wiley.com/doi/10.1002/grl.50712/abstract

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