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WET EARLY MARS

Warmed by volcanism

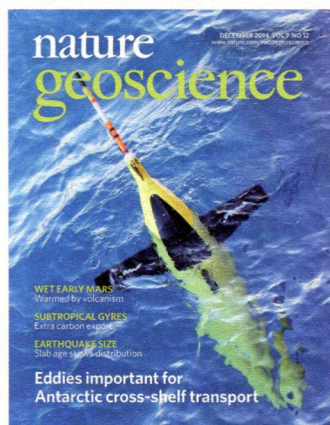
SUBTROPICAL GYRES

Extra carbon export

EARTHQUAKE SIZE

Slab age skews distribution

Eddies important for Antarctic cross-shelf transport

**COVER IMAGE**

The exchange of water across the Antarctic continental shelf break brings warm waters towards ice shelves and glacier grounding lines. Ocean glider observations reveal that eddy-induced transport contributes significantly to this exchange. The image shows the deployment of a Seaglider in the northwestern Weddell Sea in January 2012.

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IMAGE: ANDREW THOMPSON

COVER DESIGN: DAVID SHAND

ON THE COVER**Wet early Mars**

Warmed by volcanism
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Subtropical gyres

Extra carbon export
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The release of carbon dioxide during biological carbonate production counters carbon uptake by phytoplankton. The carbon chemistry of sinking particles in the Southern Ocean suggests that iron availability stimulates this carbonate counter pump. (Image: Ian Salter and Ralf Schiebel) Letter p885



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