

**GROUNDING-LINE RETREAT INTO THE
SOUTHERNMOST ROSS SEA –
A COMPARISON BETWEEN SCOTT AND
LOWER REEDY GLACIERS**

John Stone, Claire Todd & Howard Conway

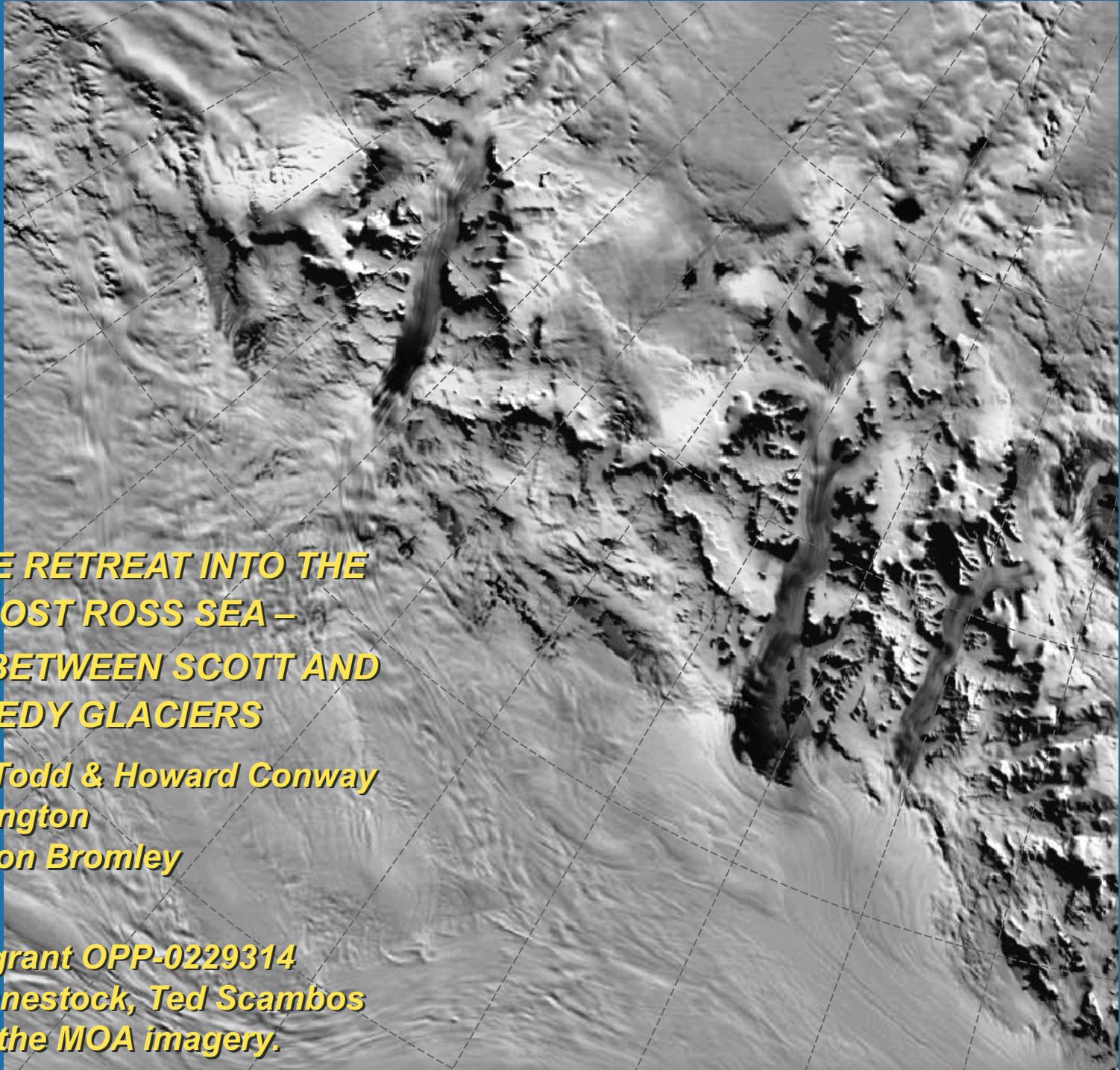
University of Washington

Brenda Hall & Gordon Bromley

University of Maine

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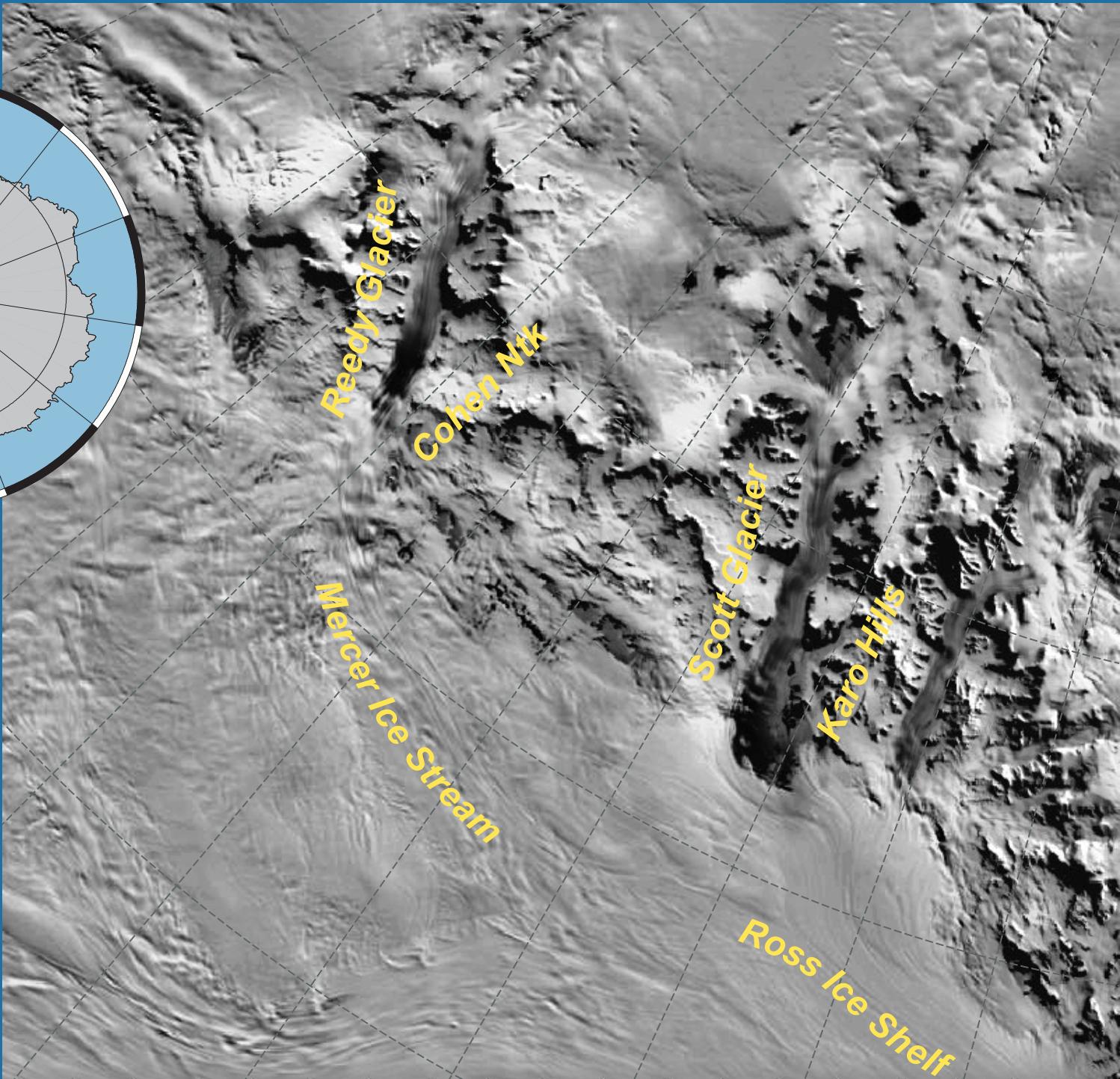
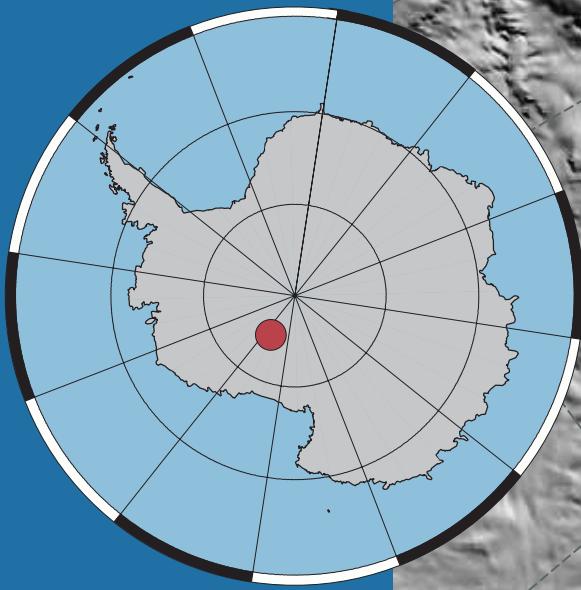
**Thanks to Mark Fahnestock, Ted Scambos
and the creators of the MOA imagery.**

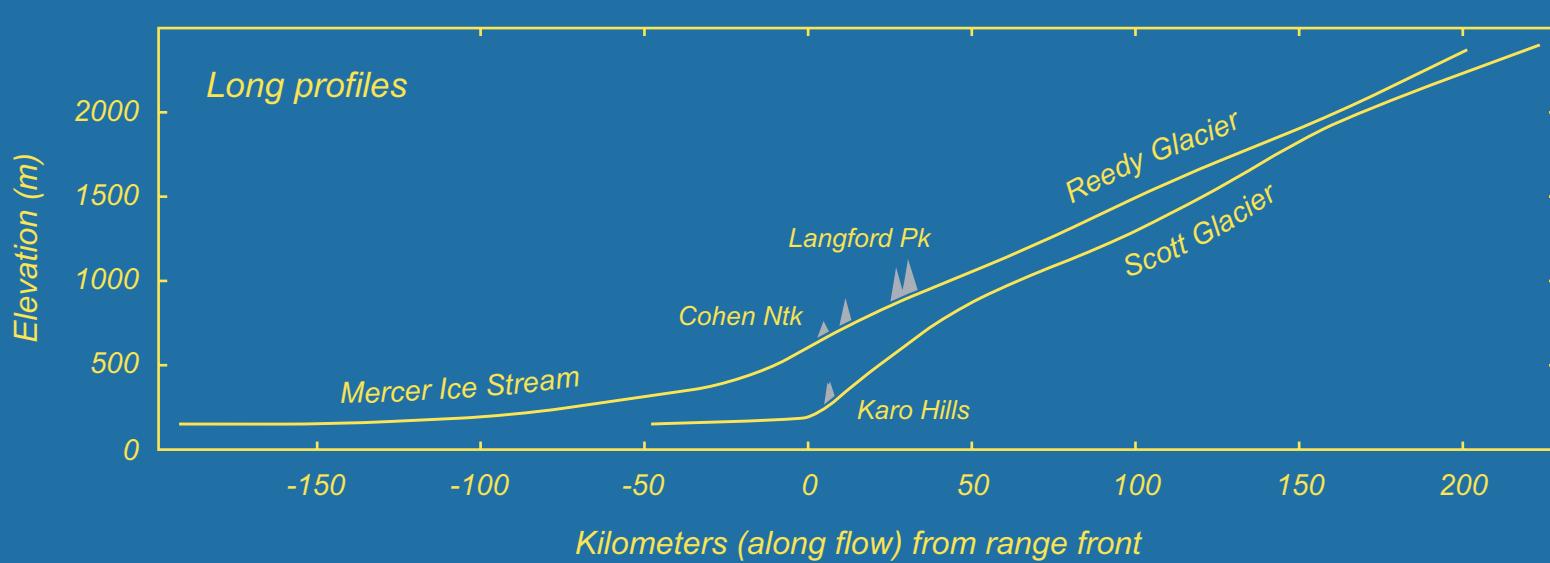
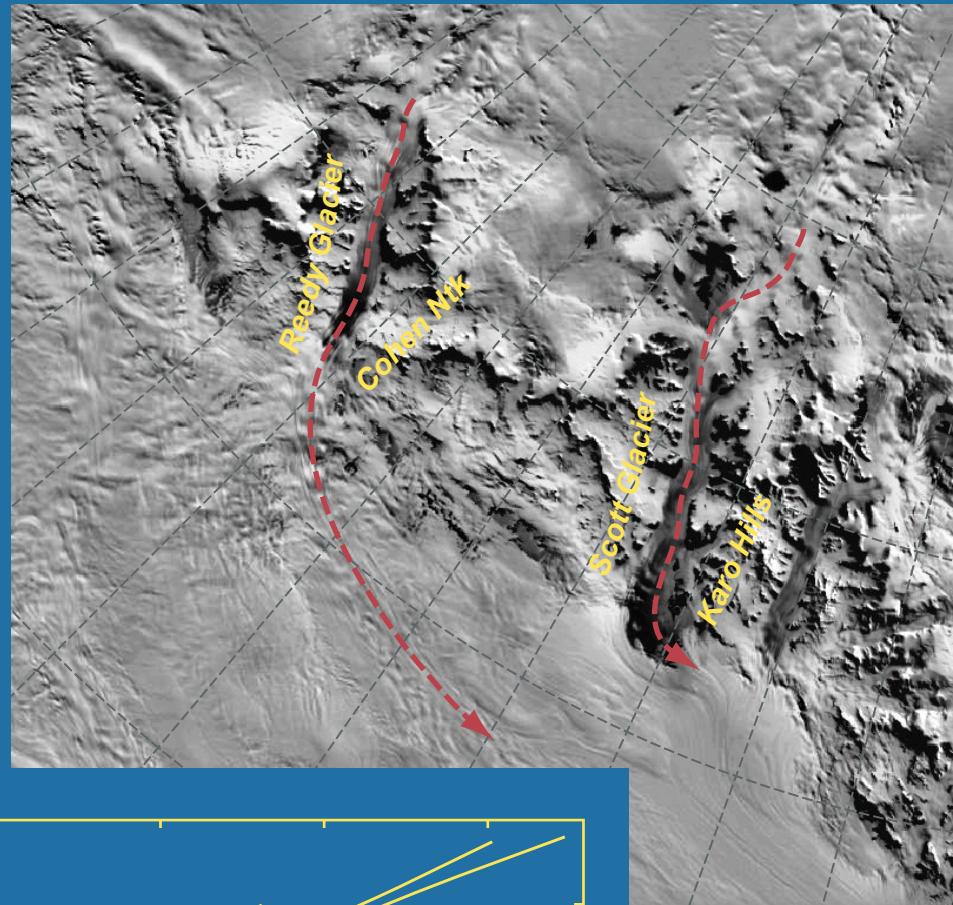


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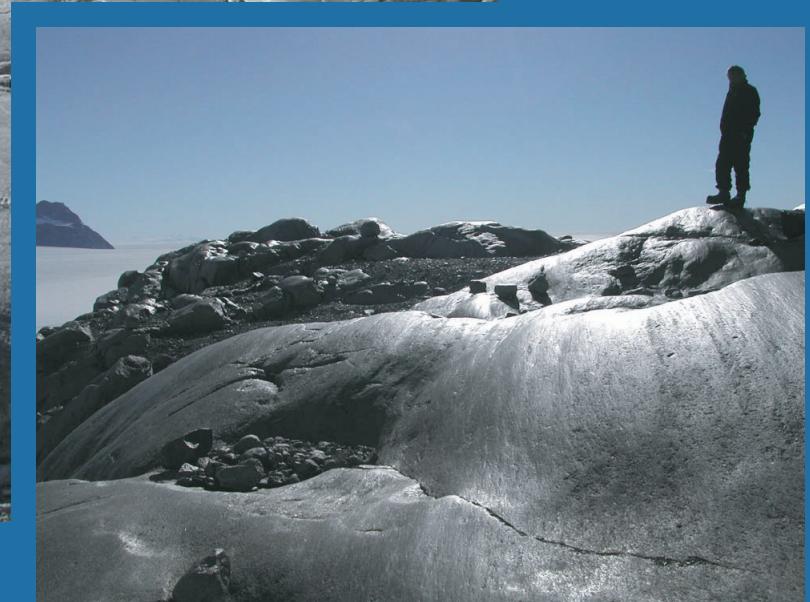
- *The West Antarctic Ice Sheet in the southeastern Ross Sea reached its present size ~ 2000 years ago.*
- *Reedy Glacier, and the grounding zone at the foot of Mercer Ice Stream, have been fairly stable since then.*
- *Changes in the width and discharge of Mercer Ice Stream over the last 500 - 1000 years have not involved much overall retreat of the grounding zone, but their effects may be evident up-glacier.*



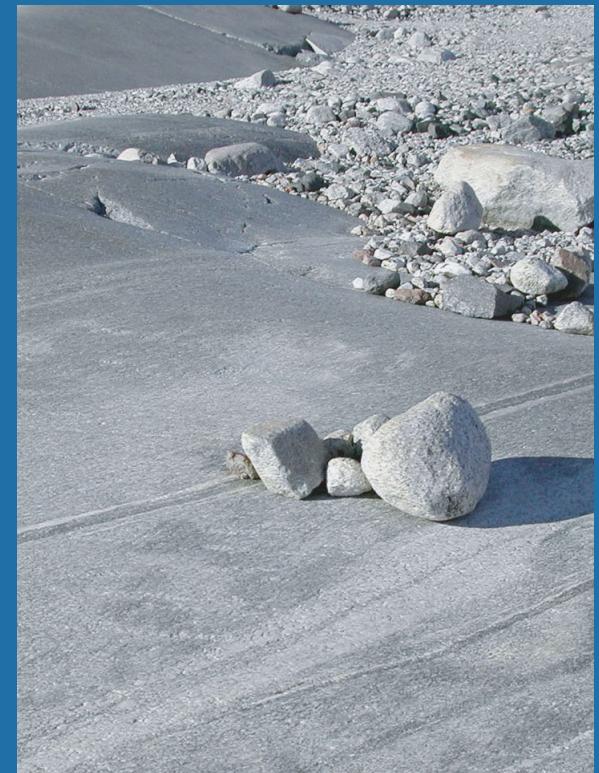
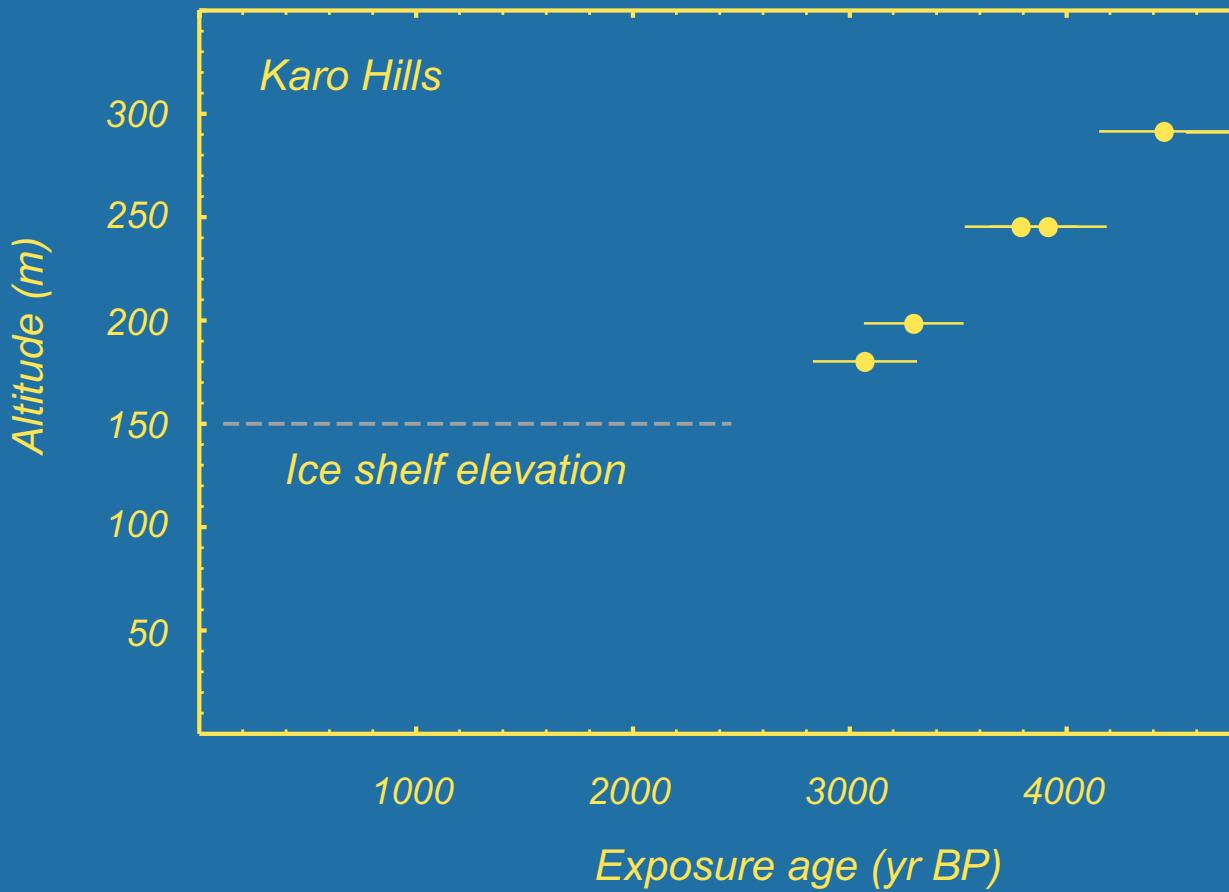




Karo Hills, lower Scott Glacier



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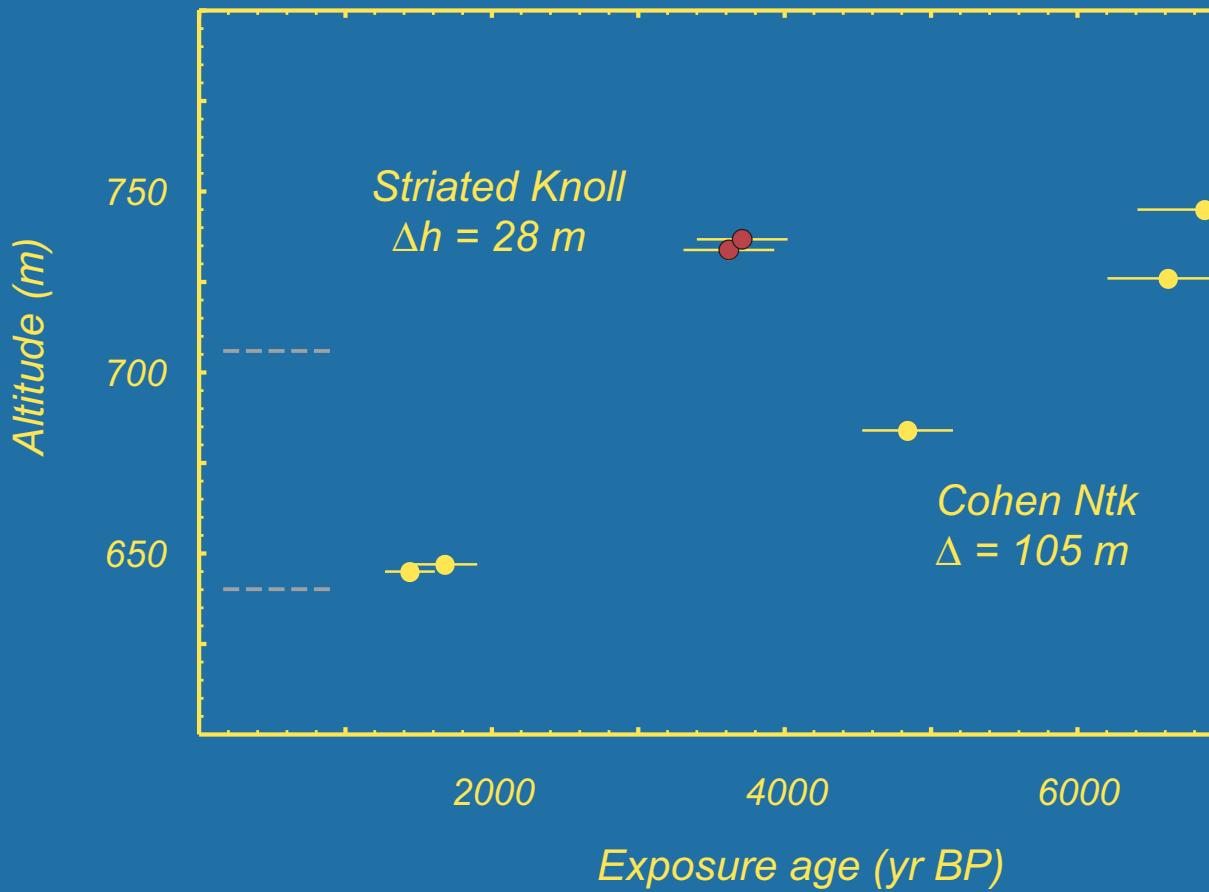


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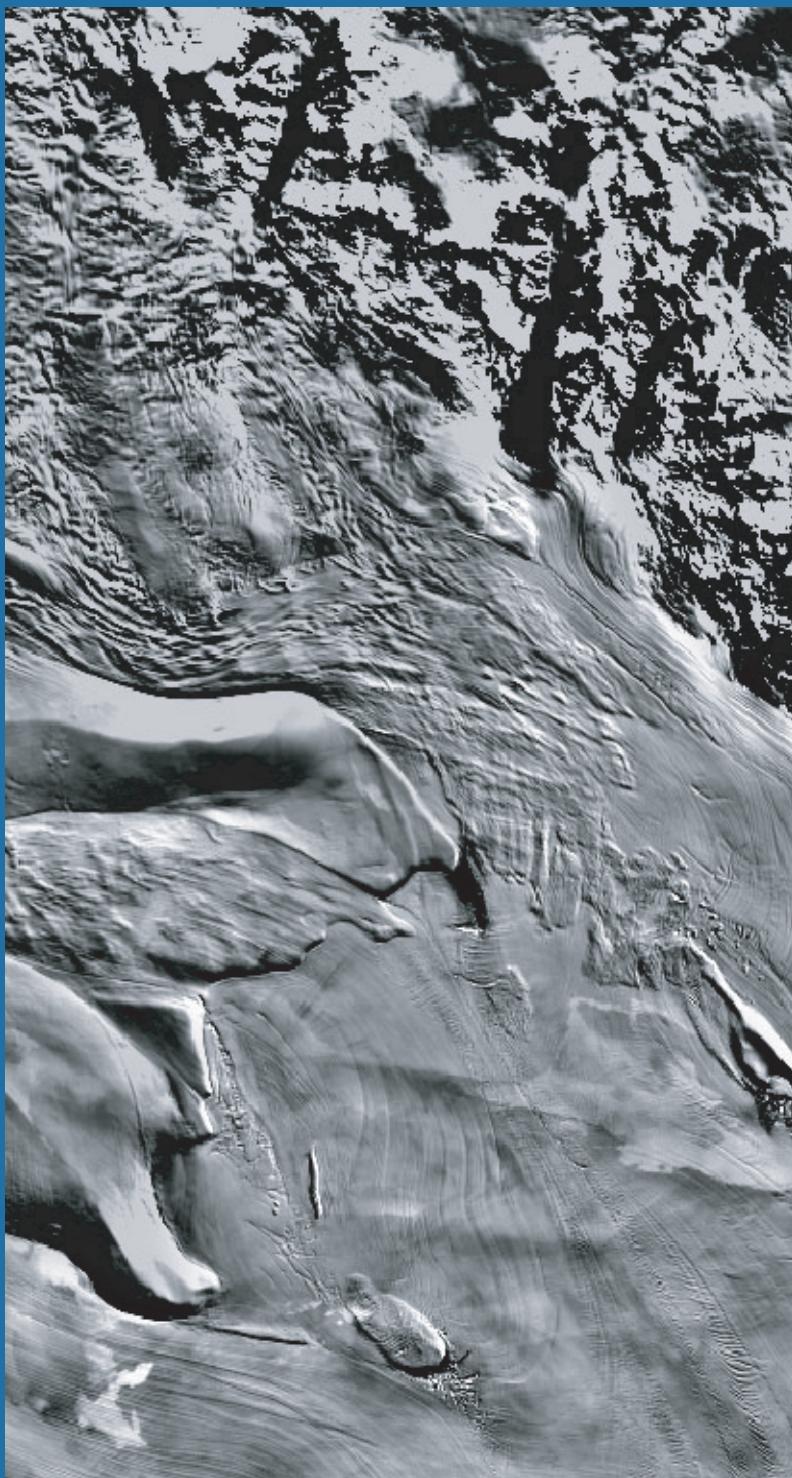


Cohen Nunatak and nearby peaks, lower Reedy Glacier

- *Reedy Glacier, and the grounding zone at the foot of Mercer Ice Stream, have been more or less stable for the last ~ 2000 years.*



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*Changes in Mercer Ice Stream have not
involved much retreat of the grounding zone ...
But their effects may be evident upstream*

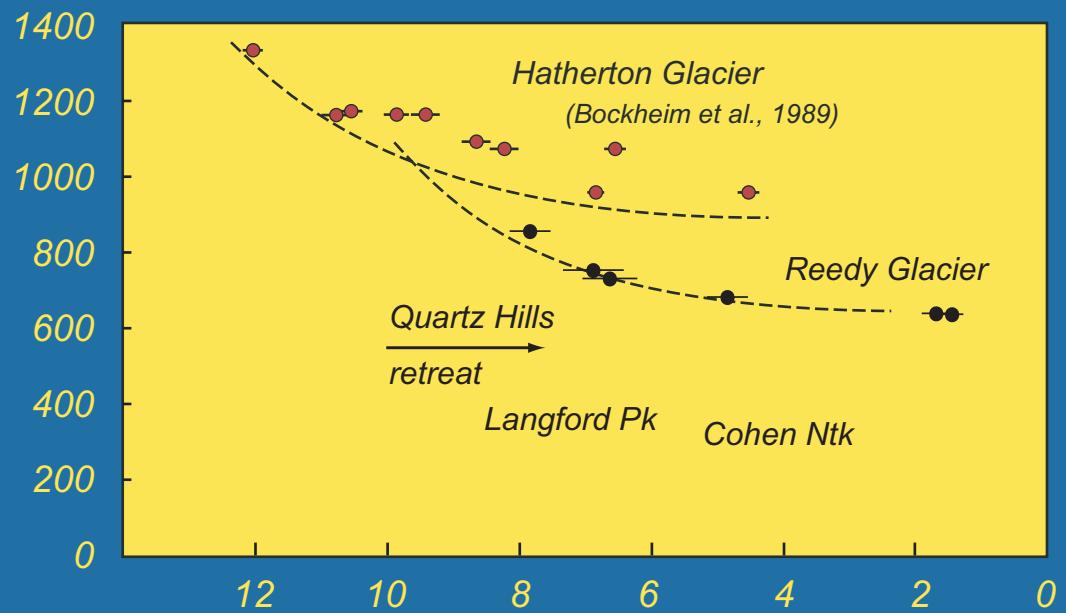
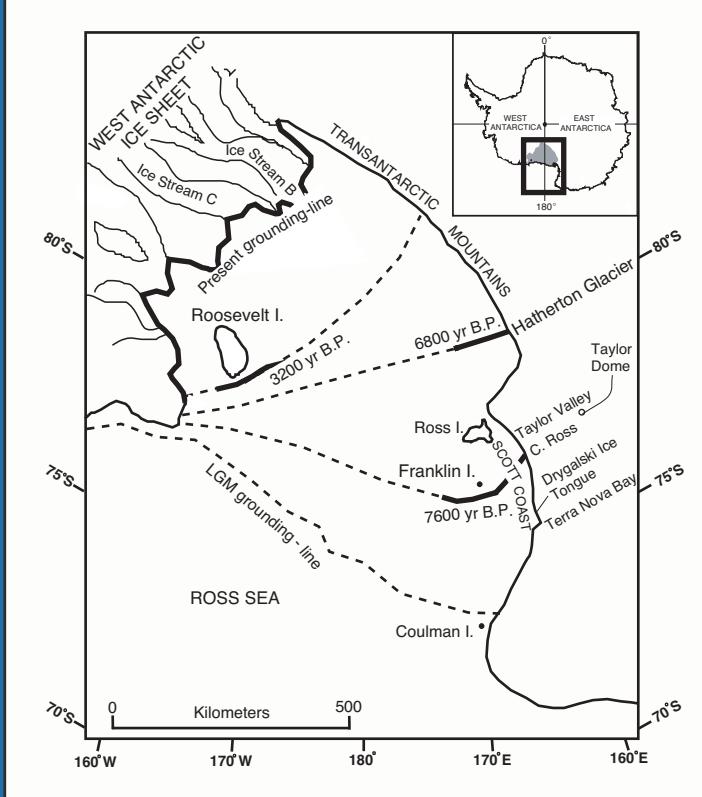


$670 \pm 60 \text{ yr}$ $(500 \pm 70 \text{ yr})$
 $\Delta h \sim 34 \text{ m}$ $\Delta h \sim 25 \text{ m}$)

$830 \pm 80 \text{ yr}$
 $\Delta h \sim 18 \text{ m}$

$520 \pm 50 \text{ yr}$
 $\Delta h \sim 8 \text{ m}$





Hatherton Glacier: Thinning commenced at ~12 kyr BP, and ended around ~ 7 kyr BP

Reedy Glacier: Thinning commenced at ~10 kyr BP, and ended around ~ 4 kyr BP

Is the time lag consistent with the "swinging gate" picture?

Or did grounded ice retreat earlier in the central Ross Sea?

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