Peripheral East Antarctic ice core sites as unique recorders of climate variability

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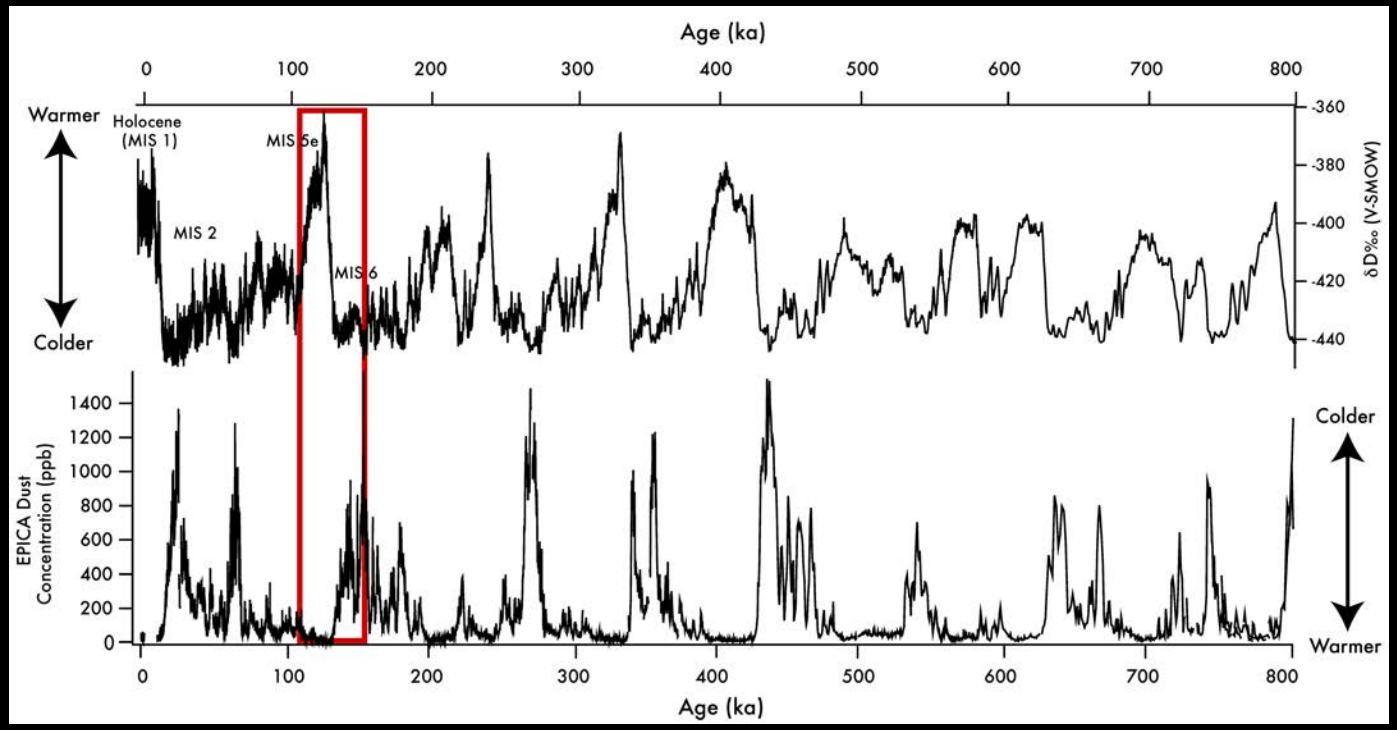
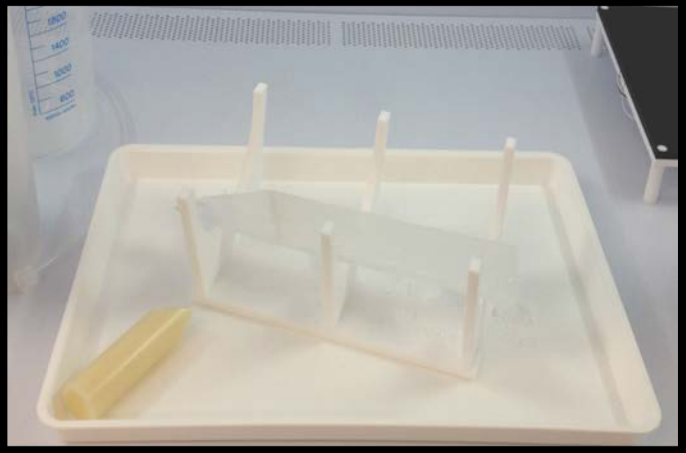
Driving questions for Antarctic LIG ice records

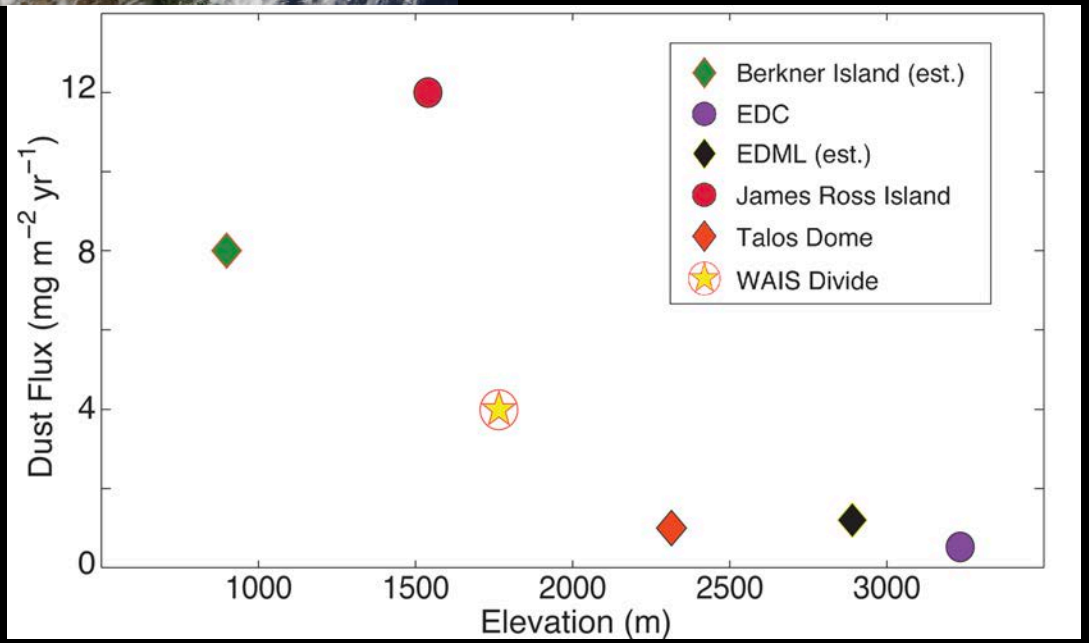
- Were there major differences in temperature, atmospheric circulation during LIG?
- What was the response of climate to a warmer LIG world?
- Was the WAIS diminished or completely collapsed?



Data from Jouzel et al., 2007; Lambert et al., 2008

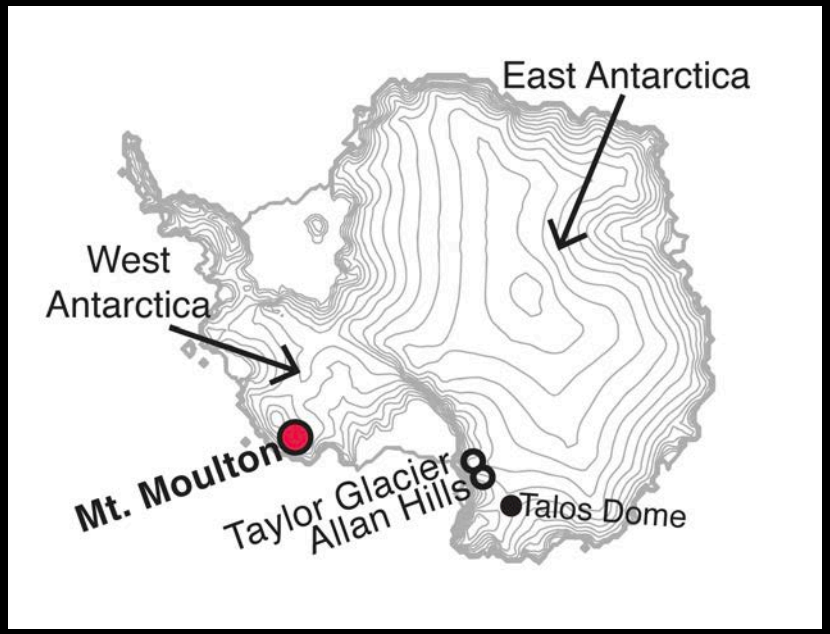
Dust in the ice core record



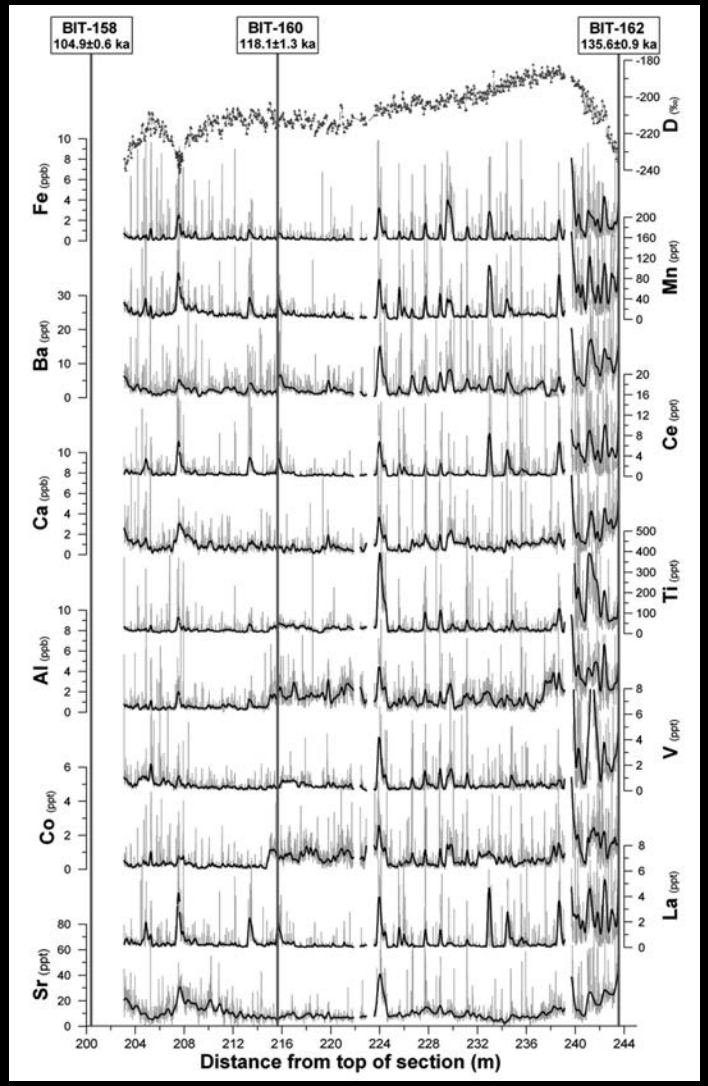


Koffman
& Kreutz, 2014

Mt. Moulton (W. Antarctica)

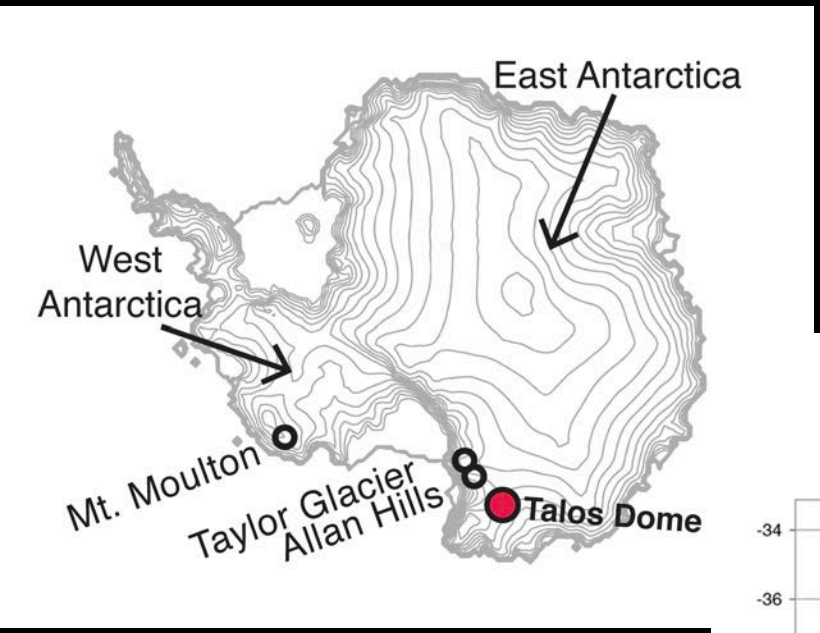


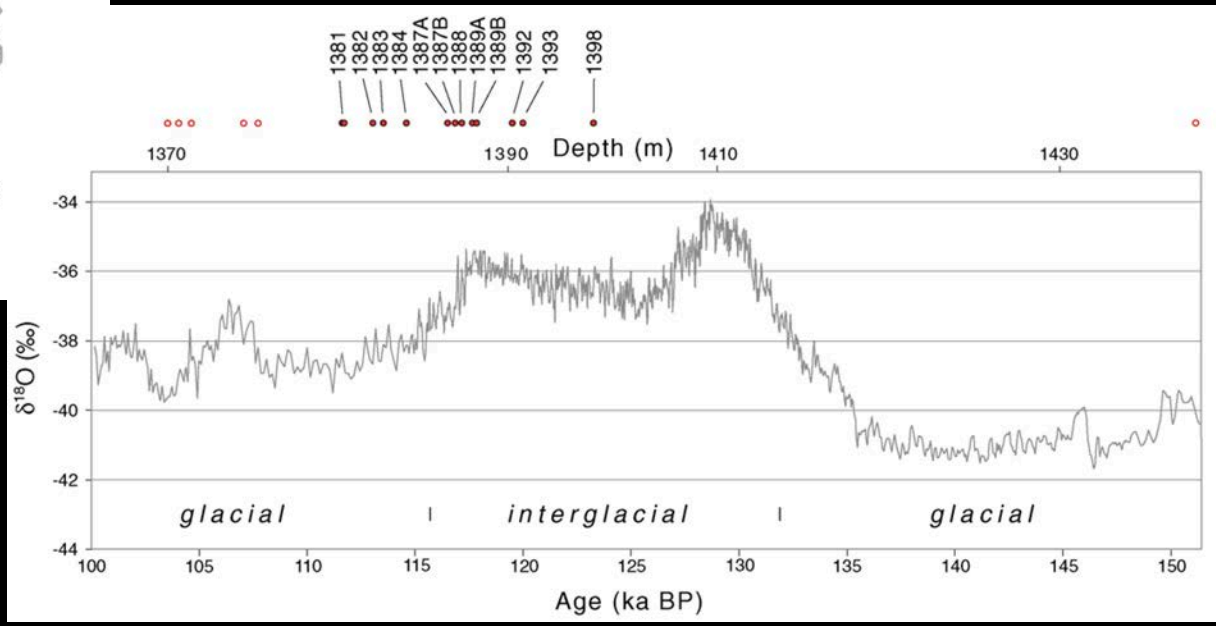
Map adapted from Steig et al., 2015



Korotkikh et al., 2011

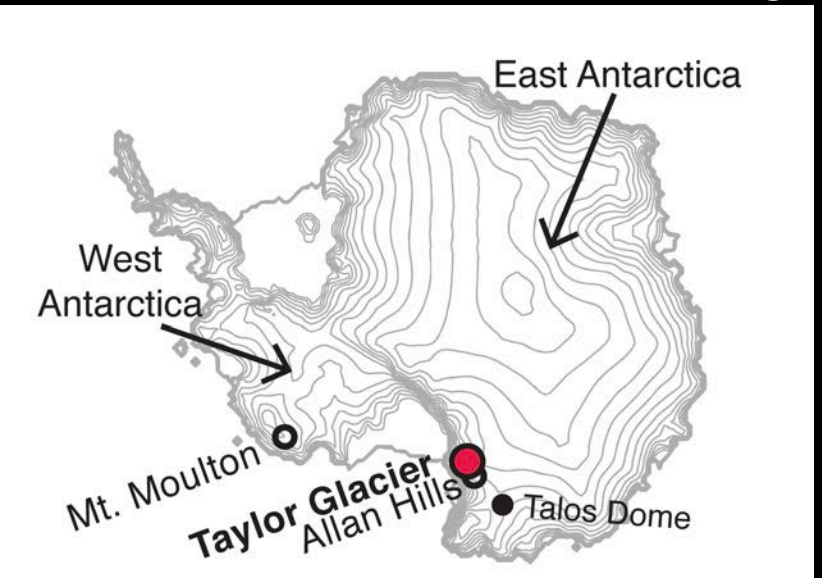
Talos Dome



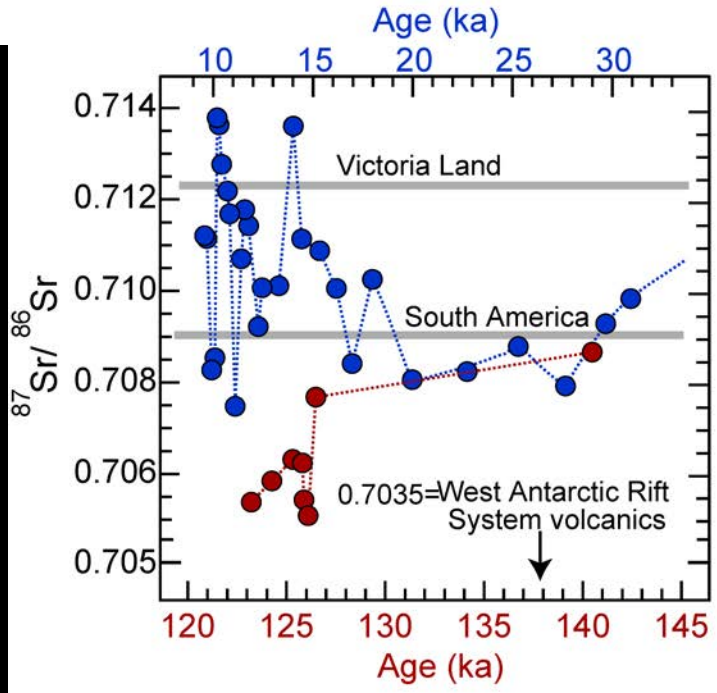


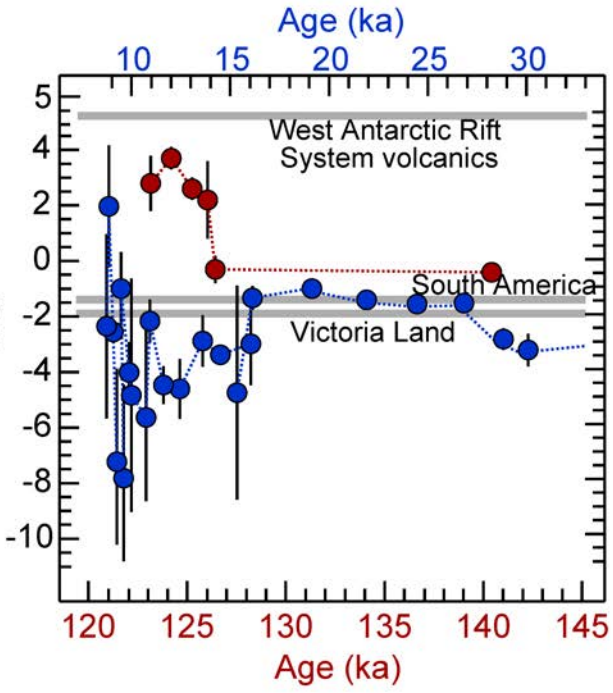
Narcisi et al., 2016

Taylor Glacier

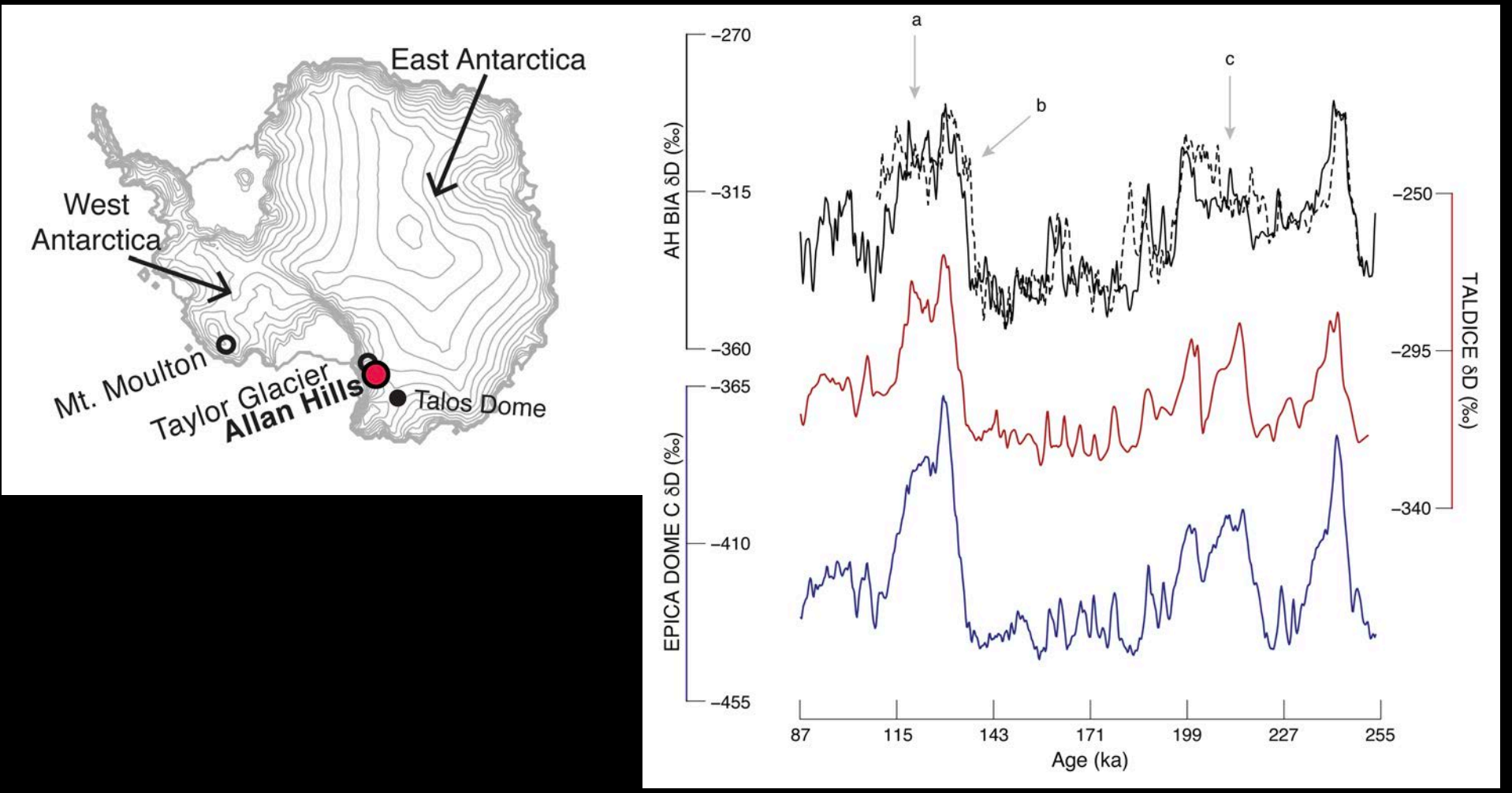


Aarons et al., 2019



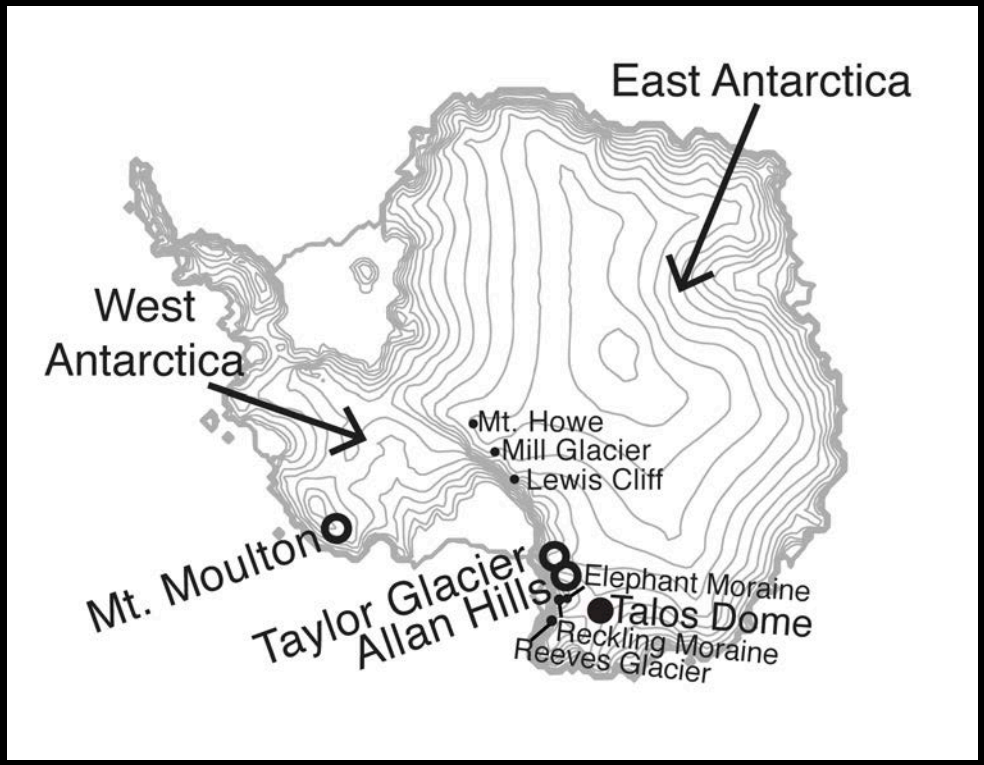


Allan Hills



Spaulding et al., 2013

Summary & future questions…



BIA locations adapted from Bintanja, 1999

- Records hint at increased volcanism or volcanic dust signature & perhaps variations in WAIS coverage?
- Expansion of BIA LIG records close to WAIS & EAIS boundary may provide spatially relevant paleoclimate information
- Continue exploring/testing BIA areas for LIG (and older) ice
- More BID drilling of LIG ice for continuous, high-resolution, large-sample size record for probing nuances in regional climate

Questions?

References

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3. Steig et al. (2015) Influence of West Antarctic Ice Sheet collapse on Antarctic surface climate, Geophysical Research Letters.
4. Koffman & Kreutz (2014) Evidence that local dust sources supply low-elevation Antarctic regions, PAGES Magazine.
3. Korotkikh et al. (2011) The last interglacial as represented in the glaciochemical record from Mount Moulton Blue Ice Area, West Antarctica, Quaternary Science Reviews.
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7. Bintanja, (1999) On the glaciological, meteorological, and climatological significance of Antarctic Blue Ice Areas, Reviews of Geophysics.