

Hercules Dome Update

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Herc Dome Summary

Two promising areas to drill:

West Dome

- good stratigraphy to bed
- likely frozen
- helpful info on depth-age
- ~1600 m, possibly deeper

South Dome

- good stratigraphy to bed
- ~2000 m thick

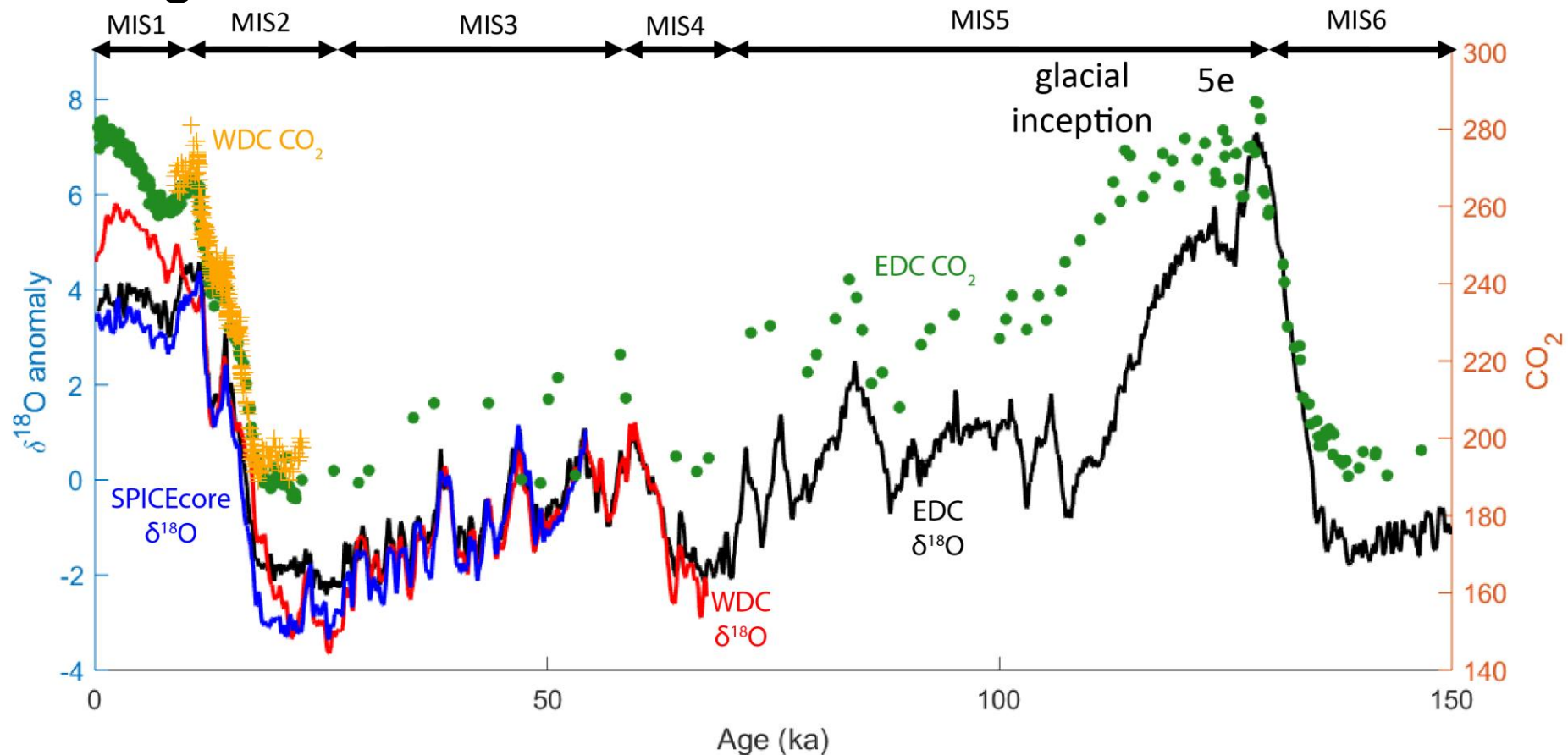
East Dome

- deepest troughs have complicated stratigraphy

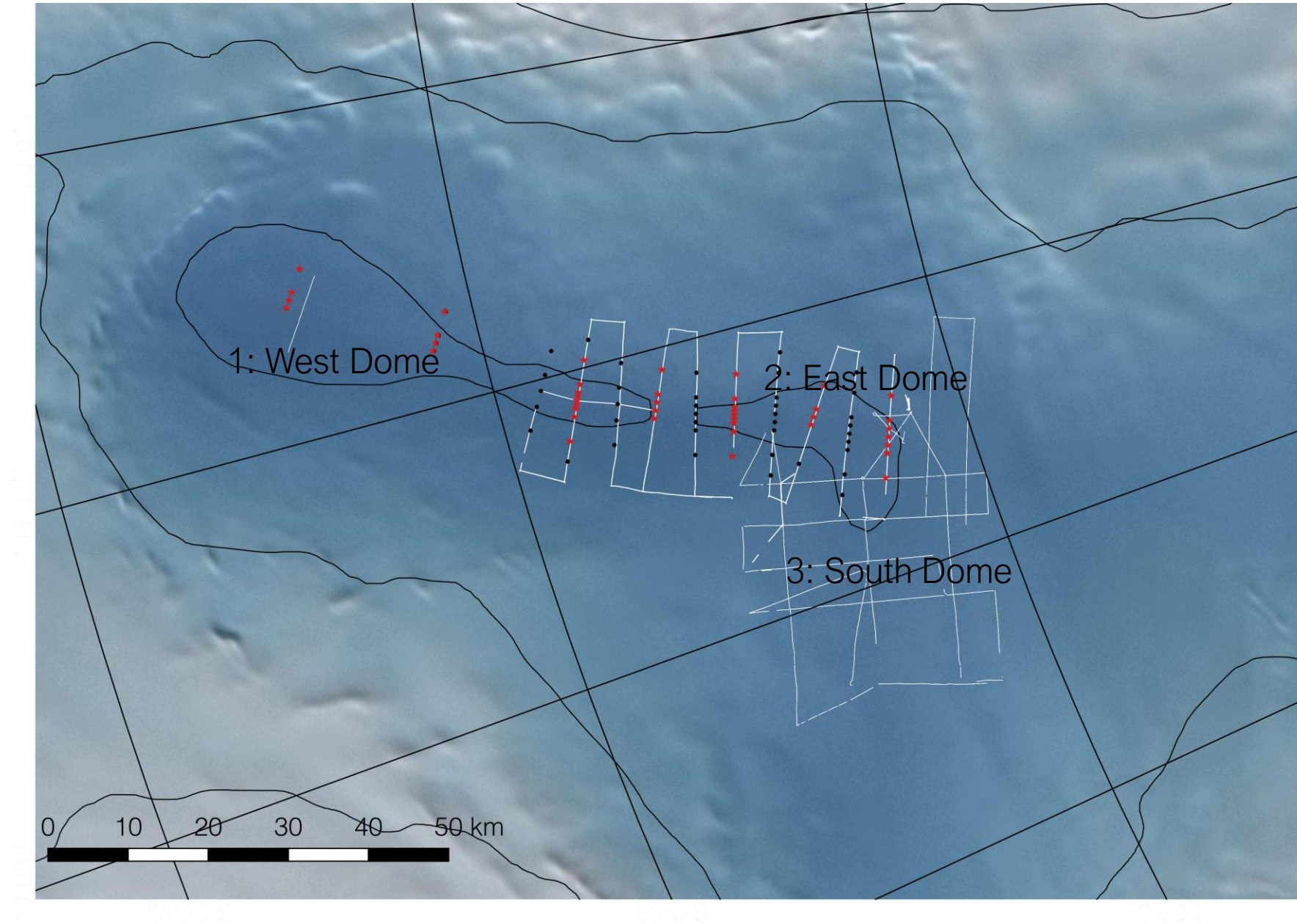


Motivations

- Holocene – ice sheet response and forcing
- Glacial-Interglacial – magnitude of temperature change
- Glacial Inception – the other phase of the carbon cycle
- Last Interglacial – the extent of WAIS

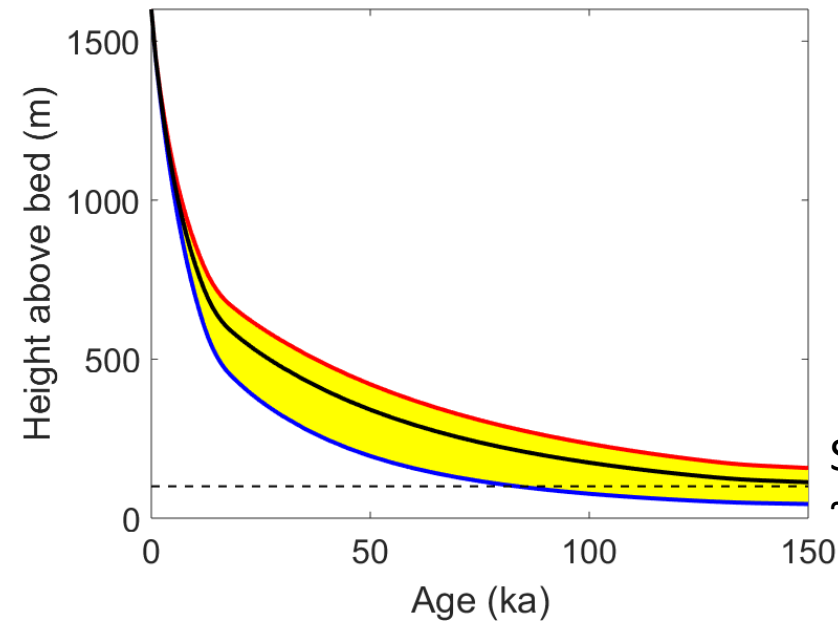
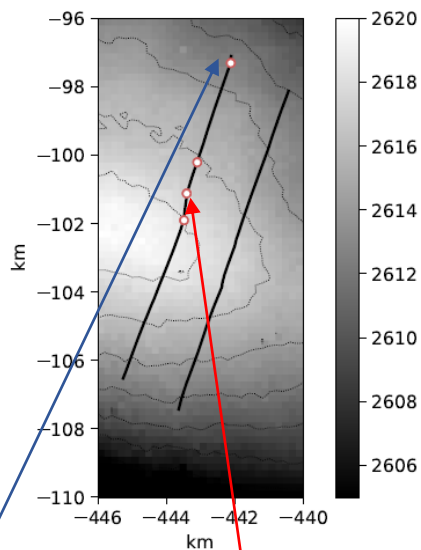


Geographic Nomenclature for Hercules Dome

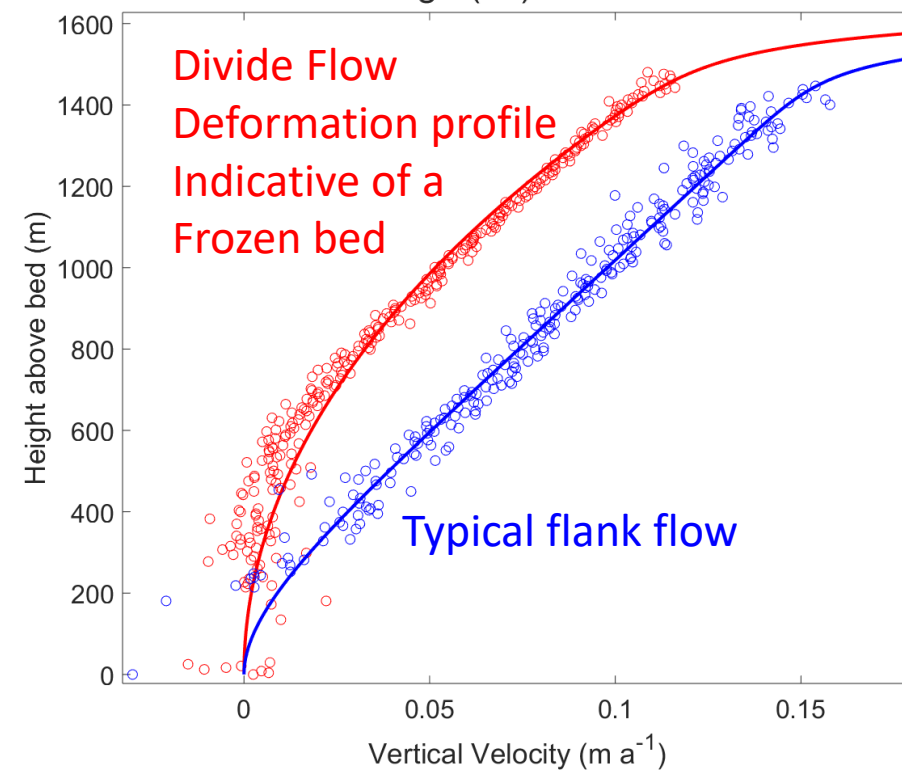
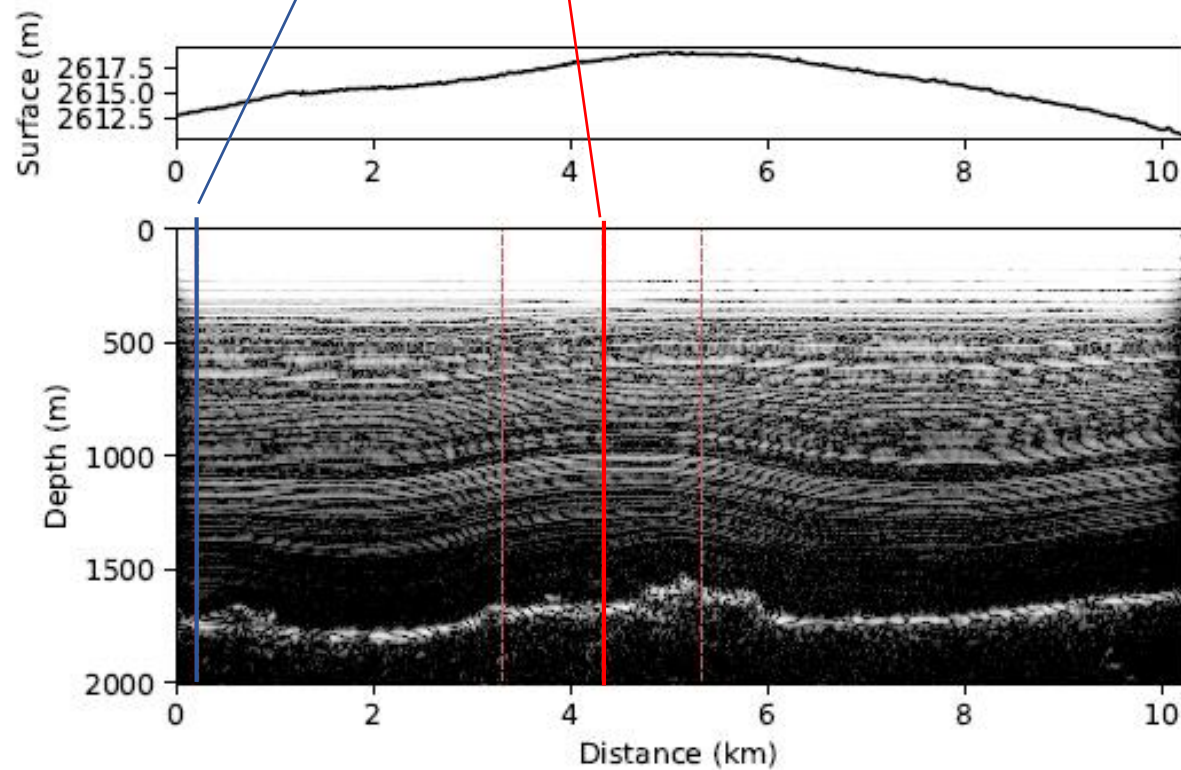


West Dome

Visited in 18-19
Revisited in 19-20



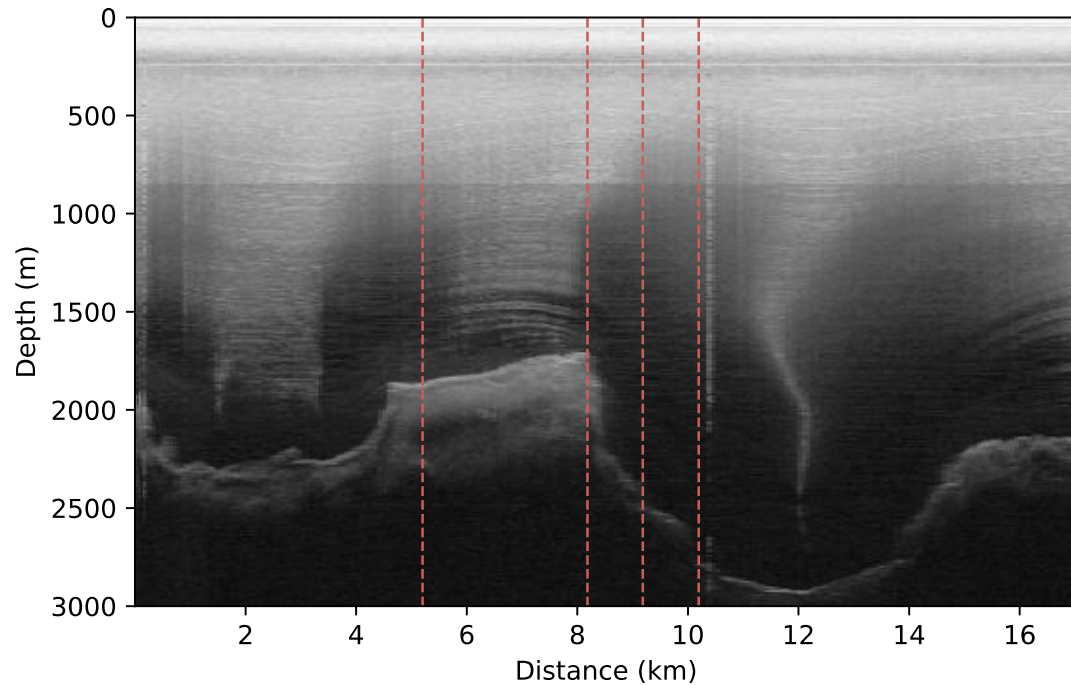
Start of Eemian at
~100m above bed



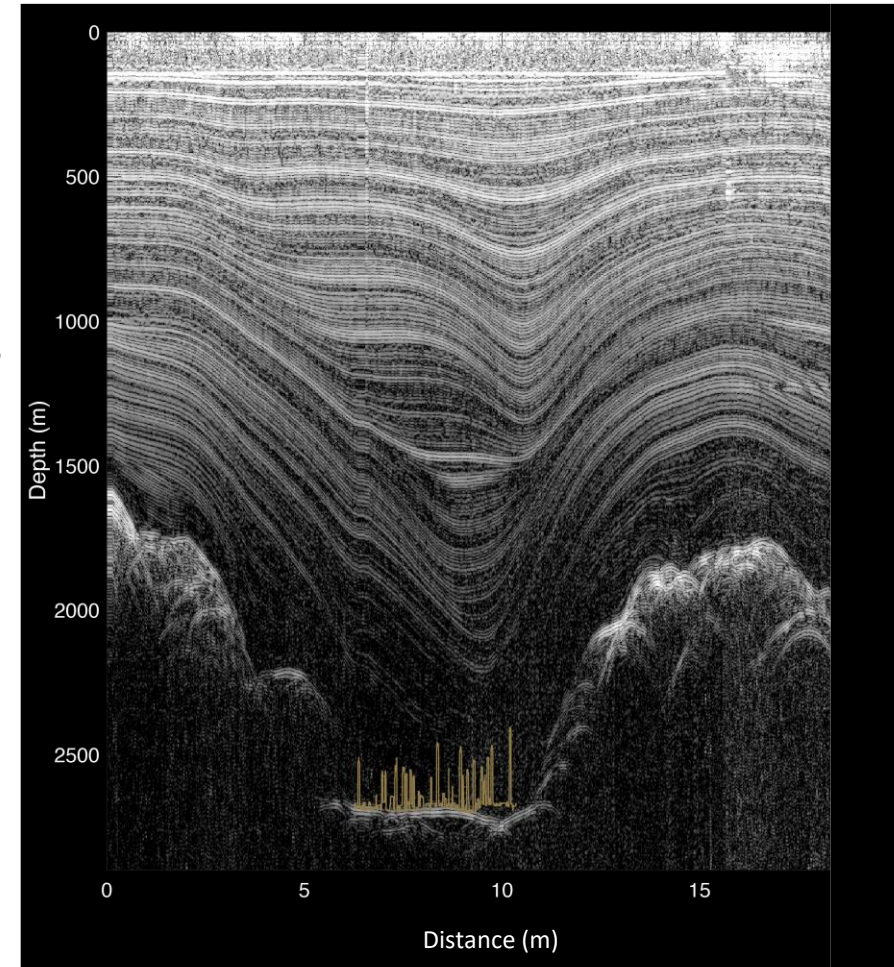
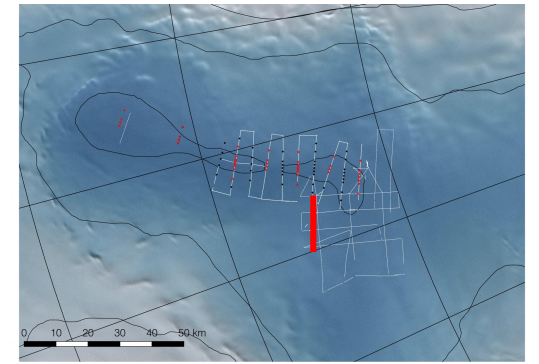
East Dome

Visited in 18-19
Revisited in 19-20

Deep troughs at East Dome
have complicated stratigraphy

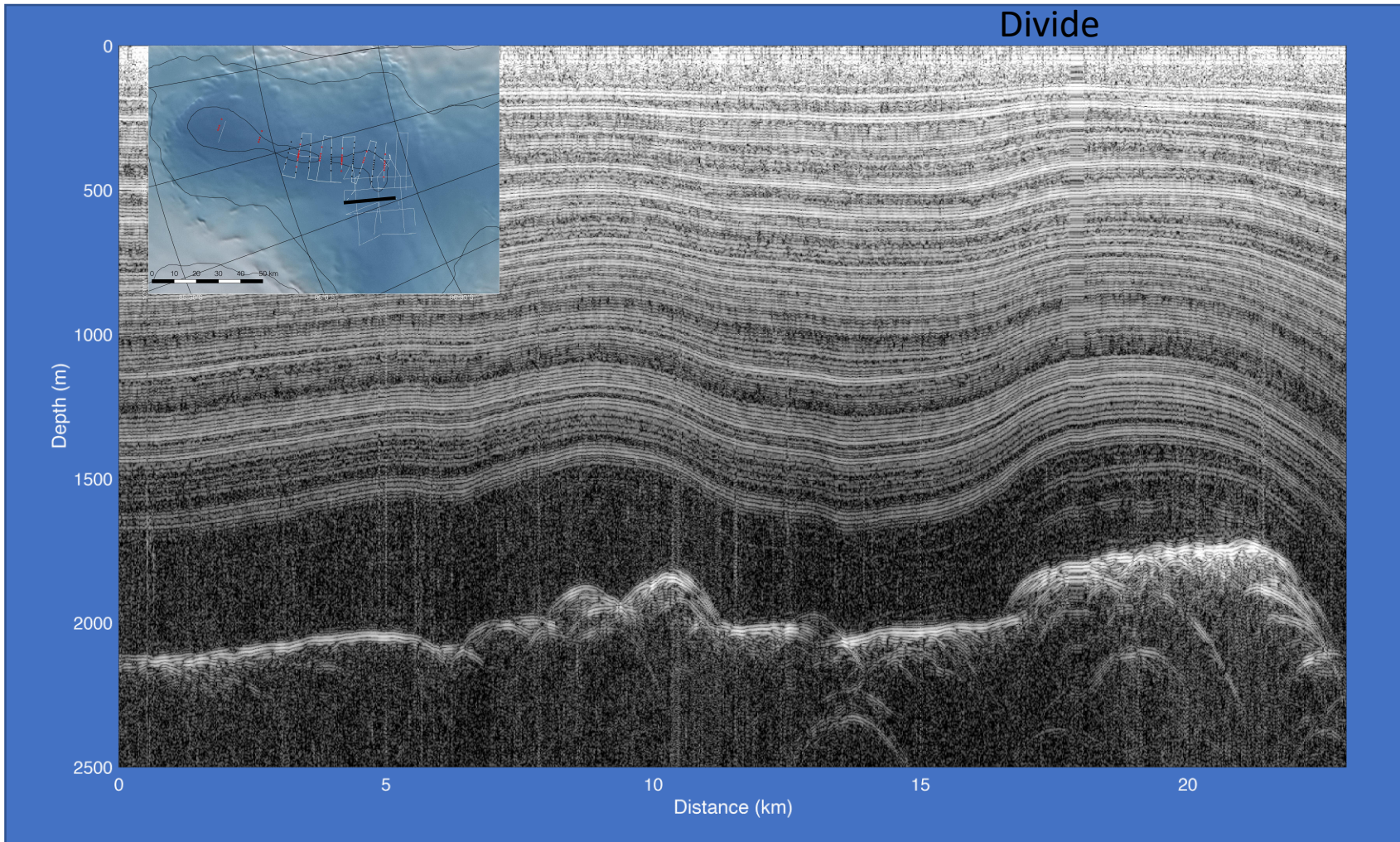


- Interesting for ice dynamics
- Confusing for ice cores



South Dome

Visited in 19-20



Promising site

Deeper than thus
far observed at
West Dome

Planned ApRES next
field season

Herc Dome Outlook

Site Selection*

- 2020-2021 field season
 - Survey West Dome to Saddle
 - Revisit pRES sites for vertical velocities

Deep Drilling*

- Funding for community and logistical planning anticipated by summer
- Drilling contingent on successful development of field support plan
- Earliest drilling start in 2022/2023
- Community planning beginning in autumn 2020
- Science proposal start dates of 2023, unless lab development work is needed ahead

* Coronavirus impacts may affect timeline

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East Dome

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