Comprehensive airborne mapping of the southern flank of Dome A: results of the COLDEX airborne program

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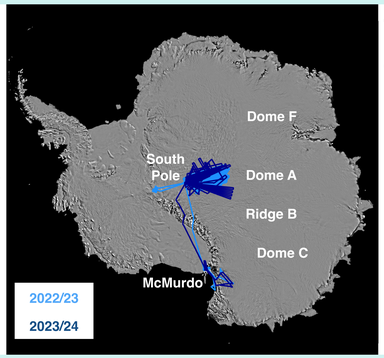
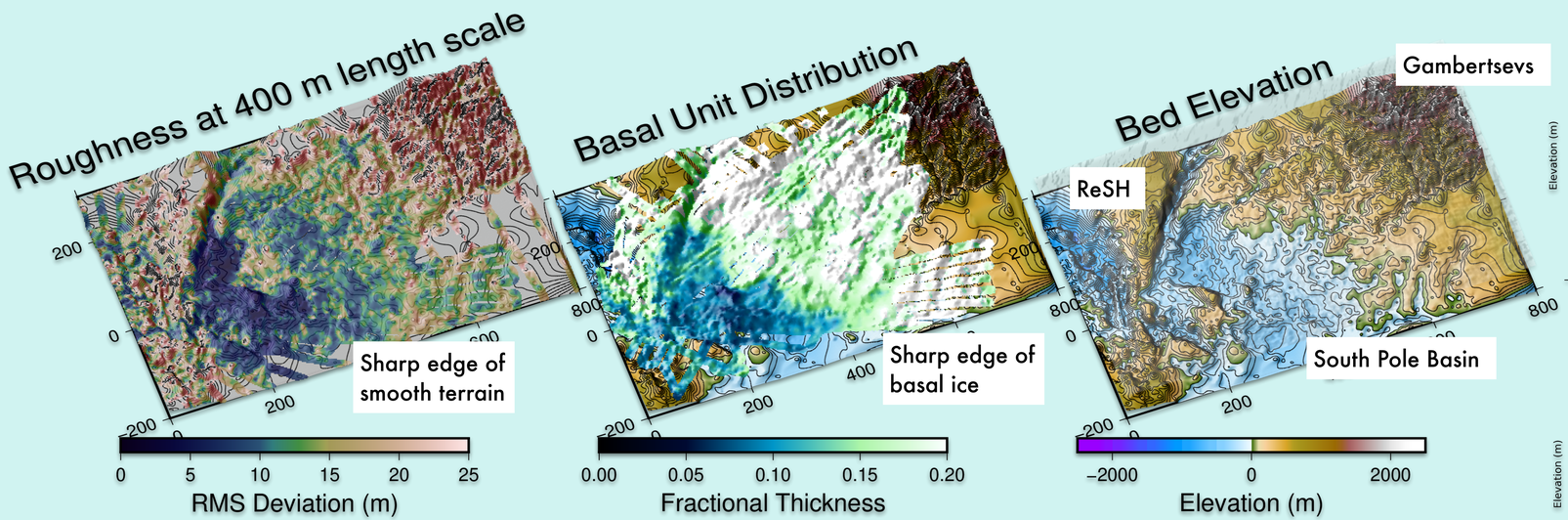
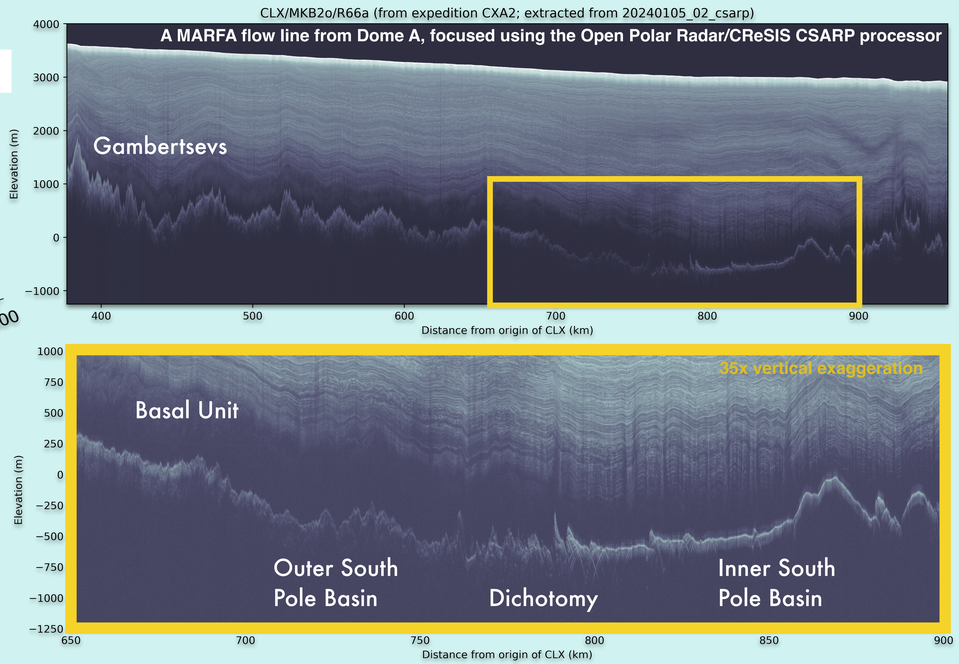
The Center for Oldest Ice Exploration is targeting the **Southern Flank of Dome A** for a site for continuous ice to obtain a climate record of the last 1.5 million years



Two seasons of **Basler-based aerogeophysics, operated from South Pole Station** have brought together the University of Texas Institute for Geophysics and the Center for Remote Sensing and Integrated Systems to engage in the first detailed mapping of this region. **30 successful survey flights** were conducted over two seasons, with most lines following **flow lines** from Dome A.

- UTIG's 60 MHz **MARFA radar** was used to map the **englacial stratigraphy** (see Shivangini Singh and Shuai Yan) and **basal properties.**
- A 687.5-747.5 MHz **UHF radar array** was developed by CReSIS to map detailed englacial horizon structure, and to enable repeat pass interferometry to track vertical ice motion.
- **Gravity and Magnetics** data was also collected for geologic constraints (see Megan Kerr)





Under the flank of Dome A lies the **South Pole Basin,** between the Recovery Subglacial Highlands (the ReSH) and the Gambertsev Subglacial Mountains. We find a glaciolgical-geomorpholoical **dichotomy** runs through the middle of the South Pole Basin. The southern South Pole Basin is **smooth, but lumpy;** while the northern South Pole Basin is rough and covered by a thick **basal ice unit.** We suspect **strong geologic control** on the distribution of geothermal heat flow, and thus 'old ice'. Follow up **ground campaigns** will investigate further.

Flight organized MARFA data has been made available through the Open Polar Data portal

Transect organized based MARFA data has been made available through the Texas Data Repository

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