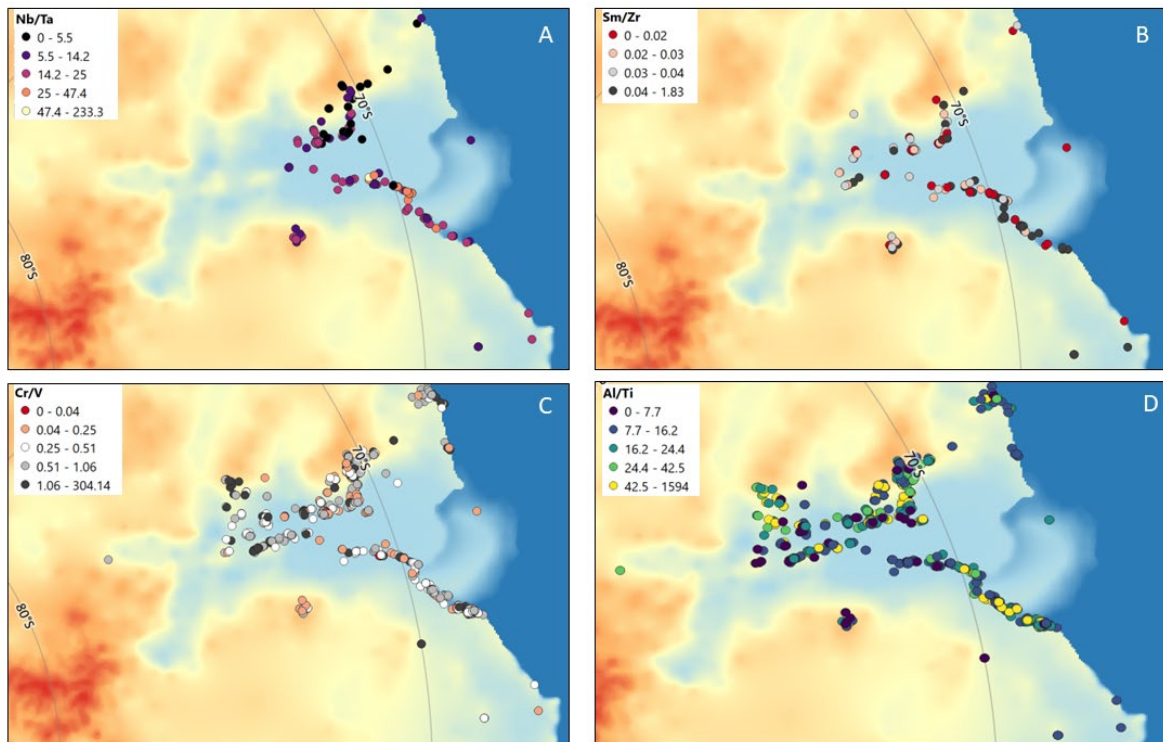


Supplemental materials to:

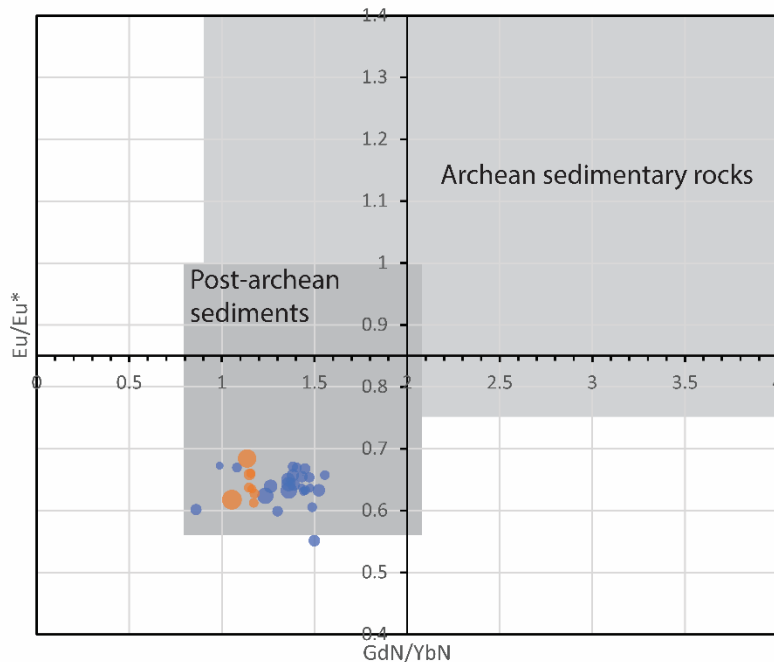
Eocene to Oligocene Cooling and Ice growth based on the Geochemistry of Interglacial Mudstones from the East Antarctic Continental Shelf

by

Jennifer J. Light and Sandra Passchier in *Antarctic Science* (2023)



Supplemental Figure 1. Maps of elemental ratios in source rocks around Prydz Bay projected onto the median topography at 34 Ma of Paxman et al. (2019); A) Nb/Ta ratios; B) Sm/Zr ratios; C) Cr/V ratios; D) Al/Ti oxide wt. % ratios. Data from Munksgaard et al., 1992; Sheraton et al., 1996; Liu et al., 2007, 2014, 2016; Sanchez et al., 2021.



Supplemental Figure 2. Comparison of Site 1166 and U1360 mudstone compositions to Archean and post-Archean sedimentary rocks using the Europium anomaly and chondrite-normalized Gd_N/Yb_N ratios.

Additional references:

- Munksgaard, N. C., Thost, D.E., & Hensen, B.J. 1992. Geochemistry of Proterozoic granulites from northern Prince Charles Mountains, East Antarctica. *Antarctic Science* 4, 1, 59-69.
- Sheraton, J. W., Tindle, A.G., & Tingey, R.J. 1996. Geochemistry, origin, and tectonic setting of the Prince Charles Mountains, Antarctica. *AGSO Journal of Australian Geology and Geophysics* 16, 345-370.
- Liu, X., Jahn, B.M., Zhao, Y., & Zhao, G. 2007. Geochemistry and geochronology of high-grade rocks from the Grove Mountains, East Antarctica: evidence for an Early Neoproterozoic basement metamorphosed during a single Late Neoproterozoic/Cambrian tectonic cycle. *Precambrian Research* 158, 1, 93-118.
- Liu, X., Jahn, B.M., Zhao, Y., Liu, J. and Ren, L., 2014. Geochemistry and geochronology of Mesoproterozoic basement rocks from the Eastern Amery Ice Shelf and southwestern Prydz Bay, East Antarctica: Implications for a long-lived magmatic accretion in a continental arc. *American Journal of Science*, 314(2), 508-547.
- Liu, X., Zhao, Y., Liu, J., Chen, H., Cui, Y. and Song, B., 2016. Early Mesoproterozoic arc magmatism followed by early Neoproterozoic granulite facies metamorphism with a near-isobaric cooling path at Mount Brown, Princess Elizabeth Land, East Antarctica. *Precambrian Research*, 284, 30-48.
- Sanchez, G., Halpin, J.A., Gard, M., Hasterok, D., Staal, T., Raimondo, T., Peters, S. and Burton-Johnson, A., 2021. PetroChron Antarctica: A geological database for interdisciplinary use. *Geochemistry, Geophysics, Geosystems*, 22(12), p.e2021GC010154.