Hornblende Ar-Ar and zircon U-Pb evidence for provenance of eastern Weddell Sea glaciogenic sediments, Antarctica

E. Steponaitis[1]*,G. E. Gehrels[2], S. R. Hemming[3], S. L. Goldstein[3], T. van de Flierdt[3], and S. A. Brachfeld[4]

[1]Dept of Environmental Sciences, Barnard College, New York, NY 10025 (*correspondence es2596@barnard.edu)
[2]Dept of Geosciences, University of Arizona, , Gould-Simpson Building #77, Tucson, AZ 85721
[3]Dept of Earth and Environmental Sciences, LDEO of Columbia University, 61 Rt. 9W, Palisades, NY 10964
[4]Dept of Earth and Environmental Studies, Montclair State University, Upper Montclair, NJ 07043

Most of Antarctica's geology is obscured by ice, and evidence is based on using remote methods to extend observations of rock outcrops around the perimeter to the continental scale. More data on the age and geological history of East Antarctica would help to resolve questions about Antarctica's role in ancient continental configurations [1,2,3,4]. To characterize the geology under the ice, we have taken proximal glaciogenic samples in the area. The application of both U-Pb zircon dates and Ar-Ar hornblende dates provides a more comprehensive thermochronological perspective of the eastern Weddell Sea margin, as well as indicating possible pathways of sediment transport via glacial flow.

Ar-Ar hornblende ages and U-Pb zircon ages vary along the margin, but collectively show peaks at 500 and 1000 Ma (consistent with [5]). Additionally, IWSOE70 3-17-2 contains significant 3 Ga populations of both zircon and hornblende grains.

References

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