

# Reconstruction of a large deep-crustal terrane: Implications for the Snowbird tectonic zone and early growth of Laurentia

K.H. Mahan\*  
M.L. Williams

Department of Geosciences, University of Massachusetts, Amherst, Massachusetts 01003, USA

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\*E-mail: kmahan@geo.umass.edu.

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<sup>1</sup>GSA Data Repository item 2005##, stereonet data, analytical methods, X-ray maps, silicate compositions, thermobarometry, and aeromagnetic anomaly map, is available online at [www.geosociety.org/pubs/ft2005.htm](http://www.geosociety.org/pubs/ft2005.htm), or on request from [editing@geosociety.org](mailto:editing@geosociety.org) or Documents Secretary, GSA, P.O. Box 9140, Boulder, CO 80301-9140, USA.

## **ABSTRACT**

The ~2800-km-long Snowbird tectonic zone is a well-recognized but still enigmatic feature in the western Canadian Shield. It has been interpreted as a Paleoproterozoic continental suture or an Archean strike-slip fault system but here, we suggest that the distinctive geometry of the central Snowbird tectonic zone is primarily due to the interaction of crosscutting Paleoproterozoic intracontinental thrust and strike-slip shear zones having a length scale on the order of hundreds of kilometers. First, a major zone of thrust-sense shearing, coeval with early continent-continent collision between the Superior and western Churchill provinces, accommodated uplift of a large exposure of granulite-facies lower continental crust. Younger strike-slip shear zones, perhaps analogous to Asian fault systems behind the Himalayan orogen, offset the thrust zone. Thus, the current geometry and distribution of deep-crustal rocks in this region represent a relatively late stage in the tectonic evolution of the western Churchill province rather than an accretionary one. Earlier structures oriented at a high angle to the Snowbird tectonic zone may record the fundamental accretionary history in this part of Laurentia.

**Keywords:** shear zones, deep crust, intracontinental, exhumation, Canadian Shield