T12C-05 Evolution of the Mongol-Okhotsk orogenic belt: New constraints from the boundary zone of the Ereendavaa and Adaatsag terranes in NE Mongolia

Monday, 11 December 2023

14:02 - 14:12

153 - South (Upper Mezzanine, South, MC)

Abstract

Suturing between Mongolian terranes and the Siberian craton resulted from closure of the Mongol-Okhotsk ocean (MOO), the details of which regarding timing, mode of closure, polarity and number of the subduction zone(s) are still debated. We present new field, (micro)structural, and $^{40}Ar/^{39}Ar$ data from the boundary zone between the Adaatsag and Ereendavaa terranes, interpreted as an accretionary wedge and an early Paleozoic active margin that developed above subducted MOO lithosphere, respectively. The Ereendavaa metamorphic core complex (EMCC) developed along a section of this boundary during the Early Cretaceous. New $^{40}Ar/^{39}Ar$ age data extend the range of Early Cretaceous ages obtained from mylonites to both the NE and SW along strike of the EMCC. Many of the rocks in the EMCC and its apparent extent are metasedimentary lithologies. In the Duch Gol basin to the NE, rocks mapped as Permian sediments are metamorphosed and deformed at greenschist-conditions; white mica yielded an apparent age spectrum with an Early Jurassic–Late Triassic age gradient, which may help constrain the timing of burial and metamorphism along the that segment of the suture. Late Paleozoic and Early Mesozoic ages were obtained from samples in the hanging wall of the EMCC, as well from deformed granitoids and gneisses on the northern flank of the Ulz Gol basin to the SW. Ordovician granitoids spatially associated with mylonitic, olivine-

bearing marbles in both the Ulz Gol region and the EMCC record metasomatism that is likely Carboniferous in age based on the $^{40}Ar/^{39}Ar$ dating of biotite observed to be replacing hornblende. Rocks flanking both the Onon and Ulz Gol basins to the NE and SW of the EMCC, respectively, preserve evidence for multiple phases of deformation. Minimum $^{40}Ar/^{39}Ar$ ages obtained from samples along these structural corridors that display brittle overprints suggest mid-Cretaceous and Cenozoic phases of fault reactivation.

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First Author

W

Laura Elaine Webb
University of Vermont

Authors

T

Justin Tully
University of Utah

P

Jarret Pidgeon

University of Vermont

P

Gavin Pirrie

University of Vermont

O

Gerel Ochir

Mongolian University of Science & Technology, Geoscience Center

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