

This research investigates metamorphism and deformation in rocks of the Tavan Har basement block, southeastern Mongolia, integrating observations ranging from a micron- to kilometer-scale. The geology of Tavan Har records a complicated history of Paleozoic-Mesozoic growth and modification of continental crust associated with continental arc magmatism and collisional orogenesis during the early stages of the growth of the Asian continent. In particular, this research seeks to constrain the distribution of rock types and metamorphic conditions associated with partial melting of arc lithologies. Classification of igneous rocks and analysis of metamorphic assemblages of rock samples will assist in determining where the samples plot in pressure-temperature space. The analysis of the spatial distribution of these lithological and metamorphic classifications will then be utilized in the creation of a geologic map and north-south cross-section through the eastern portion of the basement block showing zones and boundaries of rock lithologies. This work is important because it will assist in deducing the conditions of peak metamorphism in the region by comparing the derived mineral assemblages with case studies conducted on partial melting of metavolcanics, with broader implications for the evolution of continental crust during continental growth.