Accreted terranes of southern Mongolia and adjacent areas

Badarch G and Orolmaa D

Accreted terranes of southern Mongolia and adjacent areas Badarch G and Orolmaa DInstitute of Geology and Mineral Resources, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia Southern Mongolia and adjacent areas are a geologically complex region, containing 20 lithotectonic terranes accreted during the Paleozoic and Mesozoic. The terranes are classified into island arc, accretionary wedge, cratonal, passive continental margin, turbidite basin, and metamorphic terranes.

The island arc terranes are composed chiefly of Ordovician to Devonian tholeiitic to calc-alkaline volcanics, volcaniclastic rocks, lower Carboniferous flysch sediments and dismembered ophiolite and serpentinite melanges. The accretionary wedge terranes are an intensely deformed complex consisting of Ordovician to Lower Carboniferous turbidite deposits, fragments of pillow lavas, chert, and olistostrome. The cratonal and passive continental margin terranes occurred in the southern part of the region and contains Proterozoic schist, amphibolite, migmatite, marble, quartzite, limestone and metasandstone, unconformably overlain by Silurian to Permian shallow marine sediments. These terranes can be interpreted as displaced fragments of the Tarim and Sino-Korean cratons.

The turbidite basin terrane consists of Ordovician-Silurian flysch series, covered by Devonian subduction related volcanic rocks, associated shallow marine sediments, and granite plutons.

The metamorphic terranes are structurally complex polymetamorphosed and polydeformed assemblages which include tonalite gneiss, amphibolite, schist with relics of granulites. The tectonic evolution of the region is interpreted as a result of accretion of island arcs and cratonal blocks during Paleozoic and early Mesozoic and formation of continental margin arc in the Carboniferous.