Obduction of ophiolites in the Kuznetsk Alatau, Siberia: an evidence of multi-stage formation of ancient ocean crust

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Ophiolites of the Kuznetsky Alatau Ridge are corresponding to the suture zone formed as a result of the collision of few arc island terrains during the Late Cambrian time (~500 Ma). One of typical ophiolite fragment is the association of ultrabasic and basic rocks of the Barkhatnaya, Zayachiya, Severnaya, and Zelenaya mountain apexes. It is an arc-like structure, where ultrabasites are in the rims and basites are in the core. According to regional geological conclusions, the temporal range of ophiolite forming is from Early Cambrian to Late Riphean time. Our new geochronogical data are close to the most ancient time for a melting of mantle matter but correspond to multi-stage of metamorphism of these rocks during the obduction [1].

Sm-Nd isotope ages of mantle hyperbasites of the Barkhatnaya massif and crust rock of this ophiolite association.

The slope of Sm-Nd isochron based on the two whole rock samples and two mineral separates of diabasites corresponds to the age 679±34 Ma at MSWD = 1.86 and εNd (*T*) = +8,2. Harzburgites of the Severnaya and Zelenaya apexes are characterized a wide diapason of Nd-isotope ratios that show a contamination of mantle substrate by crust fluid matter during the recrystalization of these obuction in upper crust. Acording to the rate of syntectonic recrystalization of rocks the range of εNd (*T*) parameters are changed from +7.96 to –6.51.

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[1] Gertner *et al* (2013) *Mineralogical Magazine*. **77**, 1159