



Possible Precambrian sources of diamonds in alluvial placers of Kutungde river basin, (North-East of the Siberian platform)

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Nowadays in Siberian platform practically all diamond-bearing kimberlites are Devonian (Agashev et al., 2018; Sobolev, 1977; Sun et al., 2018). Commonly in diamond placers near the pipes there are several types of indicator kimberlite minerals in the placers – pyropes, microilmenites, chromites, Cr-pyroxenes (Afanasiev, 2001). In the alluvium of the rivers Ulakhan-Yuttek, Kuchagay-Yuttek – the right tributaries of the river Kutungde located to the North the amount of diamonds exceeds amount of pyropes and other indicator minerals are not found. More than 25-60% of pyropes belong to the diamond association. The diamonds and most of pyropes are completely without the signs of the abrasions and corrosion. Diamonds mostly have different colors: yellow, brown, greenish, pink which also not common for Devonian kimberlites (Afanasiev, 2000). In case, the diamonds in the samples are ordinary, corresponding to kimberlites, but their number is twice the number of pyropes. This situation is absolutely not typical for placers associated with kimberlites of the Siberian platform.

The placers to the south of the South of Kutungde river contain conventional pyropes, which are typical of the Siberian Devonian kimberlites (Afanasiev, 1991). The proportion of pyrope of diamond association is much less 7-8%, and amount of diamonds is significantly less than pyropes, middle Paleozoic kimberlite field and already found in this region with the first kimberlite pipe. Ulakhan-Yuttek, Kuchagay-Yuttek rivers are located on the ledge of the Precambrian rocks on the southern slope of the Olenek uplift.

We suggest that the source of the placers with unusual associations of pyropes and a large number of diamonds are diamond-bearing rocks of Precambrian age. This assumption was supported by the work of E. Shamshina (1986) who found pyropes in the basal horizons of the lower Cambrian sedimentary rocks strata, where they could only appear from Precambrian sources. This makes it possible to expand the understanding of the diamond content of the Siberian platform, including the Precambrian era of diamond-bearing magmatism.

The structure of the mantle keel of the studied region reconstructed with the mineral thermobarometry and trace elements spectra of the pyropes and diamonds will be discussed.

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