



Kitoy sillimanite deposit (Eastern Siberia): an example of Neoarchaean-Paleoproterozoic paleoweathering crust

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We present the first reliable geochronological data on the age of the Kitoy sillimanite deposit (south-western Siberian craton) composed by andalusite-sillimanite, garnet-sillimanite and essentially sillimanite rocks intercalated with quartzite. These rocks experienced metamorphic reworking under amphibolite facies condition. Geochemical data indicates that hydrolysate clay rocks with kaolin, kaolinite and metalaterite or pyrophyllite have been a protholites of the high-alumina Kitoy rocks. Thus the Kitoy deposit high-alumina schist corresponds to mature paleoweathering crust (laterite and bauxite) with negligible amount of clastic material.

U-Pb zircon geochronological investigations were undertaken for leucocratic biotite gneisses directly subjacent productive high-alumina suite as well as for migmatitic orthotektite vein cutting the andalusite-sillimanite rocks. Both samples contain typical magmatic zircon which was dated at 2578 \pm 16 Ma in the biotite gneisses and at 2483 \pm 4 Ma in the veined orthotektite. Pb-Pb age of sillimanite from high-alumina rocks is at 2536 \pm 27 Ma (Levchenkov et al., 2009) that is in good correspondence with our data.

Results of our study allow to bracket the formation of the Kitoy deposit in the age interval 2536-2483 Ma and consider the high-alumina rocks of this deposit as example of the ancient paleoweathering crust recognized in the Eastern Siberia.