

Vendian and Permian-Triassic plagiogranitic complexes of Ust'-Bel'sky and Algansky terranes, West-Koryak fold system, NE Russia: U-Pb zircon data, geochemistry and geodynamic setting

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The region of Ust-Belaya Mountains has fold-and-thrust structure where allochthon complexes comprise Ust'-Bel'sky (UB) terrane and paraautochthon complexes, Algansky (AL) terrane. The nappe system is unconformably overlain by Albian and Cenomanian-Turonian deposits.

Vendian and Permian-Triassic plagiogranitic complexes are present as blocks, veins in ultrabasic blocks and dikes in basaltic blocks in serpentinite melanges of UB and AL terranes. Lense-like bodies or veins of plagiogranites, leucodiorites cut UB ultrabasic-gabbroic massif of UB terrane.

Concordant zircon ages, calculated for 8 samples of Vendian plagiogranites (U-Pb SIMS) range from 548 ± 3 to 559 ± 4 Ma. Concordant age for one sample (LA-ICP-MS) is 538 ± 7 Ma. For one sample of Triassic plagiogranite we obtained concordant zircon age 235 ± 2 Ma (U-Pb SIMS).

Vendian and Permian-Triassic plagiogranites are mainly low-K and low-Al ones. Sr-Nd isotopic composition and style of REE patterns allow classifying them as formed during partial melting of primarily mantle substrate or fractional crystallization of basic magma.

Vendian plagiogranites may have formed in ensimatic island arc setting simultaneously with deposition of sedimentary-volcanic complex of one of tectonic slice of UB terrane. Permian-Triassic plagiogranites formation occurred within Koni-Taigonos arc on the margin of Asian continent as a result of partial melting of ophiolite material, presenting as a fragments of accretionary structure of this arc or due to fractional crystallization of basic magma, melted from such substrate.