

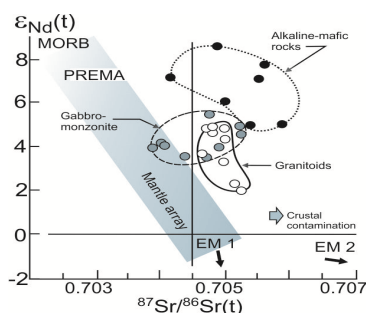
Mantle plume and island arc lithosphere prints in Cambrian granitoids and mafic rocks from the Kuznetsk Alatau Orogen, Siberia

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The Cambrian (510–490 Ma) granitoids, gabbromonzonite and alkaline-mafic plutons are localized of the Kuznetsk Alatau accretionary-collisional orogen, which is involved in the western Central Asian fold belt. The igneous rocks have K–Na alkalinity and similar trace element and Nd–Sr isotope geochemistry. They are characterized by the enrichment of LILE and partly Th, U, La and Ce relative to OIB-like “intraplate” source, but general HFSE spectra most correspond to the distribution of IAB-“subduction”source with typical Nb-Ta and Zr-Hf minima. This suggests a mixing of rock material from an earlier island arc with a mantle plume.

The observed wide range of $\epsilon_{Nd}(t)$ from 8.7 to 2 in rocks may be due to the interaction scale of depleted PREMA-like and enriched lithospheric mantle (EM-type) components by the parent melts generation. Probably the amount of EM-components is increased in magma sources of gabbromonzonite and granitoid series [1, 2]. On the other hand, igneous rocks have increased isotope ratios of $^{87}Sr/^{86}Sr(t)$ 0.7039–0.7058 and $\delta^{18}O$ to 7–13 ‰ that are usually associated with crustal contamination of melts.



Geochemical peculiarities and convergence of the Cambrian magmatic derivatives in the Kuznetsk Alatau assume their complex tectonic setting when a mantle plume interacted with earlier active margin lithosphere of the Paleo-Asian Ocean. The study was supported by the Russian Science Foundation (project no 18-17-00240).

[1] Vrublevskii *et al.* (2016) *Rus Geol Geophys* **57**, 225-246. [2] Vrublevskii *et al.* (2018) *Rus Geol Geophys* **59**, 718-744.