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Late Paleozoic Granitoid Magmatism of Kara block

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The Taimyr Peninsula lies on the northern edge of the Siberia, between the Laptev and Kara Seas. This area is divided into three tectonic domains: Northern, Central and Southern Taimyr. Northern Taimyr domain represents the southern part of the Kara block. The studied granitoid intrusions are located within the Northern Taimyr Zone on the northern and northwestern coast of the Taimyr Peninsula.

The studied intrusions are mainly represented by muscovite–biotite granites, biotite granites and biotite–muscovite leucogranites. Less common are hornblende-biotite granites and medium-grained leucogranites. According to the geochemical data, the granitoids are magnesian, peraluminous, alkali–calcic and calc–alkalic rocks. They show a negative correlation between P2O5 and SiO_2 which is akin to I-type granites. The initial 87Sr/86Sr ratio of granitoids range from 0.70287 to 0.71027, εNd(t) varies from -3.4 to 1.8. The petrographic, chemical and isotope composition of the studied intrusions is typical for I-type granites. An Andean-type continental margin is the most probable setting for the studied granites.

U-Pb zircon age of intrusions varies from 300 to 345 Ma. Ar-Ar micas ages confirm part of the U-Pb zircon ages but for most of the samples Ar-Ar isotopic system was reset in the Middle Permian.

Obtained data indicate that the active margin at the southern edge of the Kara block started to evolve in the Early Carboniferous and existed till the end of Late Carboniferous. This active margin is characterized by multistage evolution reflected in U-Pb zircon and Ar-Ar ages.

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