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Carboniferous granitic plutons of Nordensheld Archipelago (eastern part of the Kara Sea, Russian High Arctic)

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Nordensheld Archipelago is a relatively large cluster of islands in the eastern part of the Kara Sea located north of the Taymyr Peninsula. Belonging to the Northern Taymyr tectonic domain of the Taymyr-Severnaya Zemlya fold-and-thrust belt, this area in Late Paleozoic represented southern part of the Kara Terrane.

Samples were collected from outcrops across the Nordensheld Archipelago and shallow offshore wells in the close proximity to the archipelago and from offshore well located in Toll bay (eastern part of the Kara sea). Studied plutons are represented by coarse- to medium-grained biotite, two mica and hornblende-biotite granites. U-Pb dating of the granites yielded ages of ca. 334 and 326 Ma. The granitoids are high- to medium acidic, mainly calc-alkalic to alkali-calcic, ferroan and magnesian, metaluminous and peraluminous.

The U-Pb zircon age from the Toll Bay well is the first granite age obtained offshore within eastern part of the Kara Sea. Petrographic and geochemical features of the Nordensheld Archipelago and eastern Kara Sea Visean-Serpukhovian granites indicate their suprasubduction origin. This correlates well with data from Northern Taymyr and provides new evidence for the Uralian Ocean subduction magmatism within Taymyr-Severnaya Zemlya fold-and-thrust belt.

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