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3.5 Ga old zircons and Nd-model ages in the Taratash Complex, Middle Urals: evidence for Archean and Proterozoic crustal fragments

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The Taratash Complex in the Middle Urals is known as one of the oldest pre-Uralian crustal fragments in the Urals. In its western and central part the Taratash Complex is composed of several granulite to amphibolites facies units separated by greenschist facies shear zones.

U-Pb dating of zircons and Nd model ages of gneisses from different of these units was obtained using ion probe SHRIMP-II and ID-TIMS. Zircon analyses define a discordia (MSWD = 0.95) with an upper intercept at 3498 $\pm$ 210 Ma and a lower intercept at 2459 $\pm$ 36 Ma. The date of c. 3.5 Ga represents the oldest stage within the geological history of the Taratash Complex known so far on the Urals. This can only be explained if one states that the different units of the Taratash Complex are crustal fragments of different, either Archean or Proterozoic, origin amalgamated during subsequent events. Some of these fragments show evidence of a HT event, characterized by the formation of migmatites. For this event the new SHRIMP-II analyses yield ages of 2056 $\pm$ 19 and 2077 $\pm$ 14 Ma obtained for samples from Mount Shigir and the Radostny quarry respectively. Such results agree with Nd-model ages between 3.6 and 2.0 Ga for the same and different rocks from another unit of the Taratash Complex [2, 3]. This is within the range of age data of other authors [1-4]. The HT event is recorded in most units of the Taratash Complex, independent of the probable protolith age.

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