Geochronological evidences of three-stage tectonic evolution of the Dzhugdzhuro-Stanovoy fold terrane.

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Dzhugdzhuro-Stanovoy fold terrane (DSFT) is comprised of gneisses, crystal schists, migmatites and granites of Stanovoy complex. DSFT is separated from Aldan domain by Stanovoy suture (north) and by Mongolo-Okhotian suture from Mongolo-Okhotian foldbelt (south). DFST is a typical example of early Precambrian domain, survived multistage structural and magmatic alteration [1]. There are three main stages of DSFT tectonic evolution [2, 3]:

-Archaean collision of proto-Stanovoy terranes and consolidation of continental plate, which now represents DSFT Archaean basement.

-Proterozoic collision of this plate and Siberean craton.

-Phanerozoic collision of Mongolo-Okhotian foldbelt and Siberian craton.

Most ancient granitic gneisses (metavolcanics) of the Larbin block (central part of the DSFT) were undergone by three events of metamorphism and migmatization, which correlated with three above mentioned tectonic stages [3]. Mineralogical, fluid and U-Pb geochronological (SHRIMP) study of very complex zircons from the bulk Larbin granitic gneisses, reveals four zircon phases correlating with certain events of rock history.

1. Protolithic volcanic thin-zoned zircon cores with glass inclusions, 3010±15 My old (slightly discordant).
2. Metasomatic zircon phases within protolithic cores, 2790±15 My old (discordant).
3. Granulitic metamorphic zircon, as overgrowths, with fluid inclusions, high REE and Th/U, 2703±20 Ma (concordant).
4. Granulitic metamorphic zircon, as latest rims, with fluid inclusions, low REE and Th/U, 1915±7 Ma (concordant).

Zircons 2 and 3 geologically corresponds to the first leucosome generation and zircon 4 to the second generation.

Zircons from granite rocks, cutting the Larbin' orthogneisses and consistent with the youngest generation of leucosome, show concordant U-Pb age of 139±4 Ma.

Thus, at the first time, within single Larbin block of the DFST, three stages of tectonic evolution were precisely and reliably dated. This stages may sucessfully be correlated to the wide-spread regional metamorphic processes in other blocks of the DSFT.

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