

U-Pb dating of zircons from Paleozoic lamprophyric dykes of Western Sangilen (CAOB)

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Western Sangilen is a part of the Tuvino-Mongolian Massif (TMM). The TMM has been considered as a Precambrian continental block within the Central Asian Orogenic Belt (CAOB). However, recent zircon U-Pb geochronology of the TMM demonstrated that the earliest magmatic and metamorphic events occurred at ca. 530 Ma [1]. On the other hand, *in-situ* Re-Os dating of sulfides in mantle peridotite xenoliths gave a major peak at 1.1 Ga (Gibsher et al., unpubl. data).

Paleozoic lamprophyric dykes of Western Sangilen represent natural “drill holes” that have captured mantle and crustal materials derived from disaggregated mantle–crustal section. Fifty-three zircon grains were extracted from lamprophyres and were dated U-Pb ages using a LA-ICPMS.

Based on internal texture of zircons, U-Pb ages, Th/U ratios, we define three age populations: 432–446 Ma, 448–477 Ma, and 489–532 Ma. The youngest population can be interpreted as a timing of magmatic zircon crystallization in a lamprophyric magma, according to our previous results of Ar-Ar age of the lamprophyric dykes [2]. The older age populations were attributed due to magmatic disaggregation of zircons from their parent gabbroic/granitic basement which lamprophyric rocks intruded. New zircon U-Pb results do not show any finger prints on the Mesoproterozoic continental basement beneath Western Sangilen. Thus, our data confirmed that there is no simple lithospheric mantle and overlying crust relationship in the TMM [1].

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[1] Salnikova *et al.* (2001) *Precambrian Research* **110**, 143–164. [2] Gibsher *et al.* (2012) *Russian Geology and Geophysics* **53**, 763–775.