Timing of the Quaternary volcanism in the Baikal and Olekma-Stanovaya mobile systems: application for geodynamics in Central and East Asia

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According new K-Ar and ^{40}Ar-^{39}Ar ages, volcanism took place at about 1.9, 1.4-1.3, 1.15-1.0.3, 0.72-0.68, 0.43-0.33 Myr and during the Holocene in the western Baikal mobile system (East Tuva volcanic field), at 1.7-1.6, 1.2-0.79 and 0.6 Myr in its central part (Tunka-Dzhida and Vitim volcanic fields), and at 1.8-1.7, 0.64-0.38, 0.18 and during the Holocene at the junction of the Baikal and Olekma-Stanovaya systems (Udokan volcanic field). Farther to the east, volcanism occurred at 0.58-0.28 Myr in the central Olekma-Stanovaya mobile system (Tokinsky Stanovik volcanic field).

Volcanism reflects collision-derived dynamics in the East Tuva due to processes at the Indo-Asian boundary and in the Tokinsky Stanovik due to those at the Izu-Bonin-Honshu as well as the North-American-Eurasian boundaries. The central Baikal mobile system was dominated by rifting. Volcanic episodes at the Baikal and Olekma-Stanovaya mobile system junction were due to both collision and rifting. Various combinations of the collision- and rifting-derived intraplate processes appeared to be responsible for episodic Quaternary volcanic eruptions in other volcanic fields of East Asia.

Grant of the Russian Science Foundation for Baisic Research 98-05-64285.