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The new petrographic data about the Maymecha-Kotuy area of the Siberian flood-basalt province

Anton Latyshev and Roman Veselovskiy
Moscow State University, Moscow, Russia(anton.latyshev@gmail.com)

The Maymecha-Kotuy area of the Siberian flood-basalt province is of great interest because of its exceptional composition of igneous rocks. Alkaline-ultramafic rocks prevail there over basalts. It seems to be the only such trap province in the world. Investigation of the magma evolution and revealing of sources of magma is the task of an immense importance.

Now there is a discussion about possible connections between the mass extinction on the boundary between Paleozoic and Mesozoic and magmatic activity expressed in formation of the largest Siberian flood-basalt province. Absence of the precise correlation of Maymecha-Kotuy area with other areas of the Siberian province does not allow estimating duration and volumes of the eruption of traps. Another question is if eruption of traps was uninterrupted or it had several pulses of magmatic activity. The solution of this problem will let estimate the degree of possible influence of the flood-basalt eruption to the environment.

The represented results of investigations comprise all five igneous suites of Maymecha-Kotuy area. Petrographic investigation included research of thin sections and microprobe analyzes. The most entire sequences of Arydzhangsky and Kogotoksky suites and partly sequences of Pravoboyarsky, Delkansky and Maymechinsky suites were studied. This research allowed to reveal that the section of “Truba” on the Kotuy River belongs to Onkuchaksky suite (former lower Kogotoksky subsuite) and to reconsider the petrography of Arydzhangsky suite. Also, the research of geochemistry based on data of Fedorenko et al. (1997, 2000) lets suggest the sources of magma and its evolution.

According to the new paleomagnetic data (Pavlov, Veselovskiy, Fetisova, EGU-2010), the new scheme of correlation of Maymecha-Kotuy trap section with Norilsk trap section was worked out and it became possible to estimate character of the magmatic activity in this region. In addition, it makes the contribution into the working out the magnitostratigraphic scheme of the region.
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