



## **Some Preliminary Results of Detailed Paleomagnetic Investigations of the Siberian Permian-Triassic Traps in the Kotuy River Valley**

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Now essential part of geological investigations is dedicated to revealing of reasons and time relation between the mass extinction on the Paleozoic-Mesozoic boundary and pulses of magmatic activity expressed in forming of the largest Permian-Triassic trap province on the Siberian platform.

Thus revealing of the dynamic of the magmatic activity caused formation of the Siberian traps will allow to obtain an important information for establishing of its relation with Permian-Triassic extinction. Recent years several reliable paleomagnetic results from the Siberian traps were obtained, but there is a problem of correlation of Maimecha-Kotuy traps with other trap sequences. Especially this problem is actual in a case of traps of Norilsk and Maimecha-Kotuy regions (Gurevich et al., 2004), because an absence of clearly magnetostratigraphic scheme of the Maimecha-Kotuy region traps. This problem doesn't allow to estimate volume of traps explosion of the Northern part of the Siberian platform.

In this work preliminary results of detailed paleomagnetic investigations of Maimecha-Kotuy traps are represented. The most complete and representative sequence of lava flows of Arydzhangsky suite (P2-T1) was exposed to the detailed paleomagnetic sampling. This sequence is situated on the left bank of the Kotuy river. Arydzhangsky suite overlays subhorizontally the eroded surface of the Permian sandstones (Fedorenko et al., 2000) and represents the sequence of lava flows of alkaline basaltic rocks, among which limburgites, augitites, melilite basalts, picrites and nephelinites are the most widely spread. Layers of tuffs are subordinated. Summary thickness of the Arydzhangsky suite in this outcrop is 240 m, and about 27 flows are distinguished there (section 1 in Fedorenko et al., 2000). 23 lava flows were sampled during our researches. 8-10 oriented samples were taken from each lava flow; all samples were obtained from the lower and middle parts in order to decrease the probability of remagnetization by overlaid flow. Orientation of samples was made with geological compass controlling absence of influence of the high-magnetic rocks.

In the outcrop on the right bank of the Kotuy river were investigated 4 subhorizontal layers of alkaline mixed tuffs. These tuffs are underlayed by Permian sandstones and they are situated lower then lava flows in relief. Resemblance of these tuffs and alkaline-ultramafic tuffs of Khardakhsky suite (Egorov, 1995) allows to correlate them. Khardakhsky suite is correlated with the Pravoboyarsky suite (P2-T1) (Egorov, 1995).

Paleomagnetic investigation revealed rather good paleomagnetic record in the studied samples. The quantity of steps of the thermal cleaning reached 20. Magnetization of tuff layers, correlated with Khardakhskaya suite, includes one or two (contemporary and characteristic) components, the second of them has only reversal polarity. Directions of distinguished characteristic components of magnetization tightly concentrated around their average meaning. Thermal demagnetization of the samples from all 23 sampled lava flows of Arydzhangsky suite showed that these rocks are magnetized in normal polarity. The quality of paleomagnetic record varies, but its interpretation is possible in almost flows: the average direction of magnetization and the corresponding paleomagnetic pole are calculated. Also measurements of the magnetic anisotropy were made.

Obtained paleomagnetic pole of the Arydzhangsky suite lies in the area of other trap poles of the Siberian platform: this fact can be considered as evidence of absence of the essential tectonic movements. It indicates the perspective of this suite for detailed paleomagnetic investigations. An essential difference in paleomagnetic poles from the tuffs of the Khardakhsky suite and the lavas of Arydzhangsky suite is explained by absence of averaging of secular variations of the geomagnetic field.

In the study (Gurevich et al., 2004) two variants of correlation of the Norilsk and Maimecha-Kotuy outcrops are offered. According to the first variant lower parts of the Arydzhangsky suite are correlated with lower parts of nor-

mal polarity Syverminsky suite. Obtained data about existence of the tuffs of the Khardakhsky suite with reversal polarity under Arydzhangsky suite is an argument in favor of that scheme. This preliminary conclusion testifies in favor of the assumption about rather short interval of trap magmatism on the Northern part of the Siberian platform.