TRAP ROCKS MAGMATISM ON EAST-EUROPIAN PLATFORM AS RESULT OF THE HEATING OF ASTENOSPHERE BY GALAXY COMETS

Barenbaum A.A., Shilovskaya T.I., Shilovskiy A.P. (IOGP RAS)
azary@mail.ru; fax: (499) 135-54-65; phone: (499) 135-72-21

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Trap rocks magmatism manifestations on East-European platform were not well known till recent time. Although, in the core of some Moscow and Mezen syneclises wells there were magmatic rocks of basic composition (dolerites, basalts and so on). However, it was taken as granite gneisses rocks of Archean basement which spread under the sediments of middle Devonian. That is why the prospecting drilling which aims fist of all at oil and gas resources was finished after reaching the roof of these crystalline rocks [1].

Our investigations of the wells drilled on Moscow and Mezen syneclises core materials gives possibilities to suppose that these magmatic rocks are not the Archean basement but it is Devonian trap rocks, which were injected on East-European platform 400 million years ago. For example, in Nijnepeshskaya well drilled by chance till more profound 550 m thickness of dolerite had opened [2]. Below the high Proterozoic sediments laid the same as in Moscow and Mezen syneclises limits. Dolerite thickness is variable: In the limits of Tokmovskiy Dome of 12.5 Mkm^2 of area it reaches, apparently, about 1000 m. Whereas in the southern part of Moscow syneclise, in Pachelma depression there were not at all any magmatic rocks in sediments.

Important arguments in favor of our Devonian trap magmatism on East-European platform hypothesis are the paleogeodynamics reconstructions. It is known [3] that modern Eurasian oplate (created as a result of East-European plate with Siberian and Kazakh plates association at high Paleozoic) moves slowly at Nord-Western direction in Fanerozoj duration. Herewith it is drifting above one of heat field (super-plum) which causes basaltic magma effusion from time to time [4]. As example of this may be use the formation of enormous trap volume (more than 10^8 km^3) at the boundary of Permian and Triassic 250-253 million years ago. Plum magmatism process on Eurasian plate took place in course of Fanerozoj almost everywhere: There is distinct space-temporal zone of it demonstration thanks to drift of this plate [5] (fig.1).

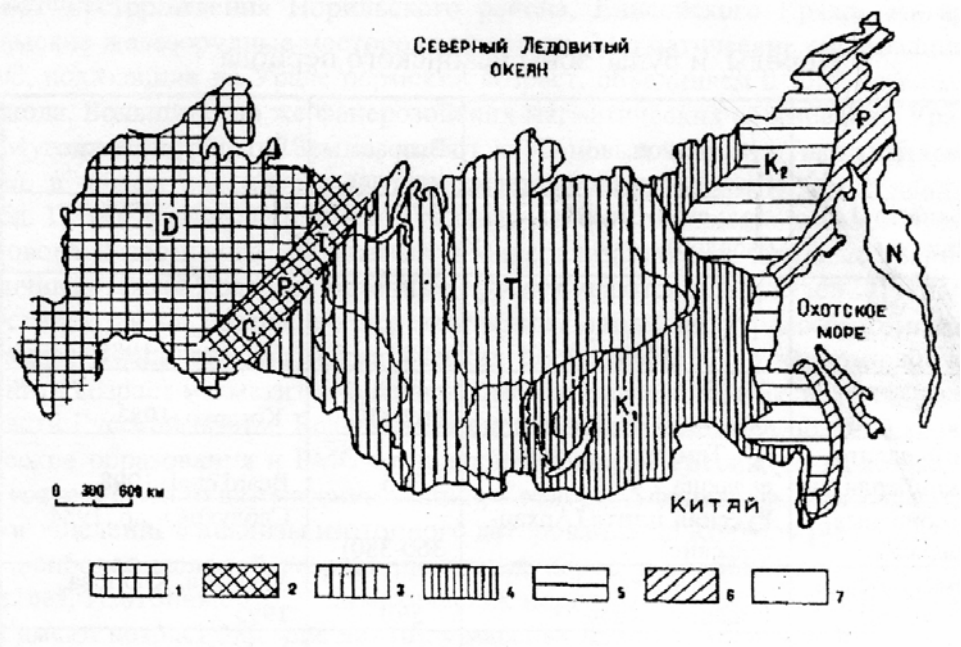

Fig.1. the space-temporal zone on Eurasian plate reflects tectonic-magmatic process periods by [4]. Zones: 1. Devonian (D); 2. Combine successive zones of Ural: Carboniferous (C), Permian (P), Triassic (T); 4. Low Cretaceous (K_1); 5. High Cretaceous (K_2); 6. Paleogene; 7. Neogen

Magmatic process rejuvenates periodical from West to East: fig. 1 reflects it clear. Its demonstration maximum on East-European plate at that took place at Devonian. They point that magmatism and

metamorphism process on Eurasian plate activation took place at tectonic phase Shtile epochs which has period of about 30 million years [6].

By [7] shown that trap magmatism process culmination may be explicated by galaxy comets dropping on Earth surface. Moving in Galaxy our Sun transacts jet flows of gas-dust substance flowing out from Galaxy kernel each 20-37 million years by [8]. At these times which during about 2-5 million years the planets of Sun system are bombed by galaxy comets. At Earth history these times connected with the most nature catastrophes (geological, climatic and biotic) which became the boundaries of Fanerozoj scale [9].

Galaxy comets are non known before space bodies type drops on the planets when Sun is in Galaxy jet flows only. Today these bodies are absolutely not accessible by astronomical observations. Every thinks what we know about it received by studding the events initiated by it dropping on Earth and other planets.

It is established that Galaxy comets dropping looks like comet downpour when during Sun is in jet flowers on Earth (and other planets) may fall about 10^4-10^7 such space bodies. It composed generally by water ice and frozen hydrocarbon gas with admixture of more heavy elements. The kernels of these comets measures about 100-3500 m, its mass changes like 10^{12}-10^{17} gr. and its energy is about 10^{20}-10^{25} J [10].

In Earth atmosphere Galaxy comets destroys totally [11] founding hypersonic impact wave penetrates profound in planet entrails to which transmits most part of comet energy. Overcoming hundreds kilometers of rocks and reduced till seismic speed impact wave transmits its energy to the rocks provokes its heating and smelting (peculiar to the astenosphere layer).

Tectonic consequences of comets impact waves dropping on "thin" ocean lithosphere and on "thick" continental plates are different [12]. In second case, we suppose, there are partial destruction of continental crust and its replacement by less solid and hotter astenosphere. By the calculations [13] replaced lithosphere layer thickness is about 100 km. Viscosity of substance in replaced layer decreases till $\leq 10^{16}$ Pa·sec and its temperature increases up hundreds degrees.

Single comets dropping on ocean creates submarine mountains [14]. These are active volcanoes of height $\geq$ 500 m of total number about 10^6 covering even enough ocean bottoms [15]. At this case under ocean bottom on not big depth of 10-50 km magmatic chamber from which magma flows out. Volume of the chambers is 10^4-10^5 km^3 and part of smelted substance reaches $\leq$10% [16]. Thanks to viscosity difference between rock and melt excessive pressure creates in the chamber: It forces the magma move up through the channel of weakening rocks created by impact wave. As conductive heat takes off is not considerable, the chamber life time and magma moving up can continue hundred million years [16].

Estimations, made with consideration of Galaxy comets dropping intensity, shows that during comets bombing on our planet arrives and dissipates in atmosphere energy which is enough to explain observed trap explosives [6].

It is necessary to note that a commercial precious and non-ferrous metal deposit connects with trap effusions [17]. That is why our trap magmatism on East-European plate hypotheses has a practical profit as for discovering new as metal deposits and oil and gas fields: Trap rocks are sure cover for hydrocarbons in Proterozoic sediments.

We suppose that detailed geological prospecting on East-European plate, still not enough studied, will confirm these conclusions.

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