



Evolution of large igneous provinces of the North Eurasia

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Was composition of large igneous provinces (LIPs) changed in time? We discuss this problem on examples of two Paleoproterozoic LIPs on the Fennoscandian Shield and Permian-Triassic Siberian LIP. The early Paleoproterozoic (2.55-2.35 Ga ago) Baltic LIP is composed by rocks of the siliceous high-Mg (boninite-like) series (SHMS) in form of lava sheets, dyke swarms and large mafic-ultramafic layered intrusions. The middle Paleoproterozoic (2.3-1.9 Ga ago) Jatulian-Ludikovian LIP evolved on the same territory and in the same form – lava sheets, dyke swarms and layered mafic-ultramafic intrusions. However, the character of magmatism was rather different – Fe-Ti picrites and basalts and their intrusive equivalents were dominated then, as well as rocks of tholeiitic affinities. It is coincide with situation on all other Precambrian shields, where within-continental magmatism of the SHMS was changed by typical for the Phanerozoic type of within-plate magmatism at the boundary 2.3-2.2 Ga (Sharkov, Bogina, 2006). The best example of the latter are late Permian-early Triassic Siberian traps which are less eroded compare to Precambrian ones. They also composed by lava sheets, dykes and sills (sometimes layered and contained unique PGE-Cu-Ni deposits in case of Noril'sk intrusions) and tuffs. On the rocks' composition Siberian LIP are close to the Jatulian-Ludikovian one: Fe-Ti basalts, alkali basites and plagiopicrites in the lower part of sequence are changed to predominated tholeiitic basalts in the upper parts (Dyuzhikov et al., 1988).

It is generally accepted that the LIPs origin was linked with ascending of the mantle superplumes. From this follows that in the middle Paleoproterozoic composition of the superplume matter was changed from depleted mantle material to geochemical enriched one.