

GEODYNAMIC AND PETROLOGIC EVOLUTION OF MANTLE AND CRUSTAL MAGMATISM IN EACH 100-MYR CYCLE OF THE EARTH.

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100-Myr periodicity of crustal growth processes is typical for Precambrian and Phanerozoic history of the Earth. That it is possible to study alteration of mantle and crustal magmatic types in each 100-Myr cycle in order to recognize detail evolution of petrologic and geochemical parameters, depth and tectonic style of magma generation. For example, the first appearance of mantle alkaline volcanites and alkaline ring intrusions (syenites, carbonatites, peralkaline granites) is documented in 2811-2713 and 2713-2614 Myr cycles where petrologic evolution of mantle magmatism corresponds to a successive conversion from the early komatiite -tholeiitic- calc-alkaline magmatic complexes (arc and rifting tectonics) to younger and deeper alkaline series (rifting and plum tectonics). The same magmatic evolution is typical also for some 100-Myr cycles from Early Proterozoic to Riphean. However, the age setting of alkaline magmatism marked in 100-myr cycles of Phanerozoic has another style: the formation of alkaline complexes comprises the whole interval of every cycle. This type of magmatic evolution was discovered also in some Early Proterozoic and Riphean cycles. This study was supported by Russian Foundation of Basic Researches (97-05-64863).