

About plutonic petrogenesis of continental crust of the Ukrainian shield.

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For the Early Precambrian (EP) crystal complexes of the Ukrainian shield (US) with age 3,7 - 1,7 Ga extensive layers and bodies, normal folds are not typical. On the contrary large magmatic plutons, monoclinical structures, dikes, lens, cross-cutting bodies including dikes of magmatic banded ferruginous quartzites are characteristic. The conception of plutonic petrogenesis of continental crust of US in the EP is proposed.

There are principal stages of plutonic petrogenetic evolution of continental crust in the EP (with leading role of magmatism and following metasomatism, metamorphism during each stage: 1) differentiation of saturated H₂O tonalite-peridotite magmasphere and crystallisation of continental primary trondhjemite crust (4,0-3,7 Ga); 2) alteration of continental crust (3,7-3,0 Ga); 3) formation of greenstone belts (3,2-2,5 Ga); 4) generation of batholithic granite plutons (2,3-1,8 Ga); 5) intrusion of the Late Proterozoic granite-rapakivi massifs and stabilisation of continental crust (1,8-1,7 Ga).

Changes of physical-chemical condition on surface of continental crust in EP Earth's history are estimated: temperature, pressure of mainly water atmosphere were decreased. Since the Ripheus the ocean crust zones, dry land areas and mountain systems were expanded; rate and volume of sedimentation and erosion of continents were increased; free oxygen in Earth's atmosphere was formed and biosphere was developed.