

New Petrologic-geodynamic Model of Diamond-bearing Magmatic Formations and Diamond Deposit Forecast

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Kimberlites and lamproites form a genetically united series and reveal the common evolutionary trend to the tendency of rising general and potassium alkalinity, potassium oversaturation, reduction of basicity and magnesiumness. Ultrapotassium and high-magnesian character of lamproites, whatever their basicity with the permanent rise of alkalic oversaturation parameter, testifies that lamproites may be formed in the regime of addition of high-potassium fluids. The petrochemical analysis lets to distinguish three stages of lamproite-formation in the different by vertical line intermittent focus, where the potassium fluids and volatiles, including carbon are accumulated.

High- and moderate-potassium kimberlites of South Africa intensify the lamproites of Australia from the bottom, and more melanocratic kimberlites of Siberian type are located in the lower part of lamproite-kimberlite series. Kimberlites may be formed from high magnesiumness ultramelanosubstratum by the way of addition of potassium fluids into this system through the series of intermittent focuses where the solid and liquid fractionation, partial magma crystallization, melting of the crystallized base with the supply of the new portion of fluids are taking place. The petrogenetic unity of kimberlites and lamproites, lateral zonation of lamproite-kimberlite-picritic magmatism, the development of adamant-generated magmatism through the series of intermittent focuses in the mantle in the zones of superabyssal latent fractures on the joint of ancient structures with the younger folded zones let to predict the new diamond-bearing deposits.