

Thermodynamics of the Deep Earth - the determinant factor of localization of the main diamond-bearing and oil-gas-bearing structures of platforms

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Places of occurrence of diamond-bearing structures of kimberlites, lamproites including tuffisites are the following: core centers of macrozircoid plum-structures controlling thermodynamic regime of Phanerozoic cratons (Mirny type); joints of regenerated zones of through divisibility of platforms - shields with extremal fluid regime of mantle (Arkhangelsk type). Boundaries of blocks of high standing of granulite-basite layer with mafic crust, blocks with structural pattern of enclosed triangles restricted to the zones of through divisibility of lithosphere with potentially diamond-bearing parts in their tops (Russian platform) are favourable. Contours of triangles accomodate to the structural plan of aulacogens - rifts.

Large concentrations of oil-gas-bearing raw materials partly repeat deep factors of localization of kimberlite fields. Diamond-bearing kimberlites often occur near oil-gas-bearing structures and salt domes. Oil-gas-bearing basins and large deposits of oil are exclusively localized in mantle-dome uplifts (blocks of mafic crust). Their connection with arms of aulacogens or other show of rifting is obvious. The decrease of density of local parts of basal layer of crust of the main oil-gas-bearing objects determined with seismomethods points to their connection with the thermodynamics of the Deep Earth. The great part of the Russian oil is connected with the parts where the structures of rifting are combined with core zone of the Western-Siberian macrozircoid responsible for thermodynamic regime of the Western-Siberian geostructure since Paleozoic. The data of geochemistry of rare-earth elements prove high activity of thermodynamics of the interior part of the earth.