# DIAMONDIFEROUS MAGMATISM: MINERAGENETIC TAXONS AND PREDICTION-PROSPECTING MODELS.

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Integrated prediction-prospecting models of search targets relevant to different mineragenetic taxons form a basis for regional forecast derivations. As applied to diamondiferous magmatism, these are, first and foremost, a mineragenetic zone, a field and a cluster (group) of bodies.

Mineragenetic zones are distinguished essentially by their geological-structural peculiarities, i.e. by practically observable sedimentary cover and crystalline basement structures. As regards deep-seated structure reconstructed by geophisical data, all the zones are of a common type and may be covered by a common term of an enhanced-permeability belt. In respect to geological-structural setting, three major types of mineragenetic zones are recognized (in the order of decreasing markedness of their manifestation in geological fields): a platformal mobile zone; a shoulder part of rifts and aulacogens (an areas of differentiated block movements); a zone of crowding-together hidden basement faults. Each type of zones is examined using its characteristic prediction-prospecting models.

The essentials of a prediction-prospecting model of a field are the following: the fact of crossing of the mineragenetic zone by transverse zones of tectono-magmatic activization; dome-shaped (dome-block) uplift in crystalline basement and/or sedimentary cover rocks; a positive annular morphostructure; annular and arc-shaped faults in lower sedymentary cover levels; a change in potential field structure consisting in that extended, medium-frequency linear anomalies give way to isometrically-shaped ones and to a broad spectrum of high-frequency anomalies, therewith 4-12 mgl decrease in g field level is observed; increased boundary velocities along the upper mantle surface ; the presence of rather high number of zones with velocity inversion in lithosphere; a regional magnetic field high; an areal anomaly of heightened electrical resistance in lithosphere and upper mantle at depths of 40-400 km, about 60 km in diameter; short-and long-range washdown heavy-mineral dipersion haloes. While slightly varying from region to region and from one genetic type to another, the field model remains rather stable in its essentials, which is likely to point to certain structural commonness for any mantle -origin volcanism manifestations occurring in platforms.

The essentials of a prediction-prospecting model for a body cluster are as follows: the presence of a raised basement block; an isometrical small-amplitude dome-shaped uplift in cover rocks; presence of short-range washdown heavy-mineral dispersion haloes; the fact of localization of the area under study within the boundaries of a kimberlite-controlling subzone marked out essentially by geophysical data; presence of a combined positive local gravimagnetic anomaly.

Petrological analysis allows distinguishing at least four series of diamondiferous rocks: essentially kimberlitic; essentially lamproitic; intermediate kimberlite-lamproitic (lamproite-kimberlitic); ultramafitic lamprophires. The main factor determining the genetic type of series and the average diamond content is the metallogenetic zone type. For instance, classic kimberlites with large and unique diamond deposits are known to be confined to zones of hidden basement faults; flange zones of rifts and aulacogens typically control the occurrence of kimberlite-lamproitic rocks; rocks of lamproitic series are rather characteristic for mobile zones; at last, poorly-diamondiferous ultramafitic lamprophyres are localized within the rifts and aulacogens.