GEODINAMIC REGIME OF KIMBERLITE MAGMATISM MANIFISTATIONS ON THE SIBERIAN PLATFORM.

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During the Neogean time, the Siberian platform witnessed numerous recurrent stages of magmatic reastivation manifested both by basic magmatism and kimberlite formation The typical property of these reactivation stages was that basic magmatism in each cycle was 15-20 m.y. younger as compared to the kimberlite formation flare-ups.

The riftogenic basic magmatism was manifested to different scale in the Riphean, Vendian, Middle and Late Paleozoic time. In the Late Paleozoic-Early Mezozoic, it occurred in the geodynamic environments of dispersed spreading resulting in the formation of trapp syneclises. In the Middle and Late Mezozoic and in Early Cenozoic,the magmatism was confined to zones of incomplete rifting. The kimberlite magmatism manifestations"echoed"each flare-up of basic astivity, while the kimberlite formation was associated both with the inverse development stages in paleorift systems and epochs of regional gaps in the platform cover accumulation.

Reconstruction of paleorift systems of different age has shown that riftogenic structures freqently inherit each other's trend.The trend of the longest and deepest Late Precambrtan and Middle Paleozoic riftogenic depressions was inherited from the protorift throughs originated in the Late Archean and Early Proterozoic time.

Paleorift systems are fringed by linear collision zones /ramps/- the pesuliar small-scale subduction areas compensating the paleorift tension. During their short-term impulse opening due to decompression these zones were injected by small amounts of magma generated in the deepest upper mantle layers.A striking feature of the ramp magma-controlling zones was that their s mall areas accommodated numerous kimberlite bodies of different age.

Both the paleorift systems and their fringing ramp zones have dtfferent characteristics of the deep structure.The paleorift systems correspond to dome-like uplifts in the Moho discontinuity (with an amplitude up to 8 km) and reduction in crustal thickness up to 32-34 km due to wedging out of the upper velocity layers. Seismic sounding also reveals a high degree of layering of the lower velocity level(6.8-7.0 km/s) and the upper mantle. This may be interpreted as relics of ancient destruction resulting from piftogenic tension and mantle degassing.

Absence of correlation between the gravimagnetic field anomalies has been repcrted for the collision /ramp/ zones located as faras 150-200 km away from the paleorift axes.

Detailed seismic studies conducted by V.D.Suvorov allowed to identify the ramp zones tn the lowermost crustal layers by the dramatic increase in the boundary velocities (up to 9.1 km/s),the appearance of 8-12 km deep trenches in the Moho discontinuity, the anticlinal uplifts at the intracrustal K-reflection boun-dary, higher Poisson,s ratio and higher absorption of resillent waves due to increased compression and significant growth of mass exchange.

The paleorift areas usually correspond to the platform cover syneclises while the ramp zones are associated with reduction in the cover thickness and numerous sedimentation gaps.

The classical kimberlite fields tend to associated with areas of intercrossing of ramp zones and Late Precambrian - Middle Paleozoic dyke belts. It is noteworthy that the long axes and dyke root bodies of kimberlite pipes run parallel to the trend of ramp zones. This also confirms the magma-controlling role of those regional dislocations.

Another genetic group of diamondiferious rocks has been recognized on the Siberian platform. It is represented by specific picrite - lamproite complexes of subvolcanic rocks and volcanic formations.These are confined to the intersection areas of paleorift structures and to strike slip faults of the transform type. These complexes formed synchronously with the classical kimberlites during the Middle Paleozoic, Early and Middle Mezozoic time.

However, the conditions of melt generation in transform zones differed from those of kimberlite melt generation in ramp structures primarily by their fluid regime $(H\ 0 > C0\ )$ and by the depth of mantle sources of magma generation.This resulted in the formation of specific mineral associations chiefly of the eclogitic and lherzolitic parageneses and of specific round - shaped diamonds. The latter are designated as the "Ebelyakh" and "Uraltan" ones and occur over extensive dispersion areas of the northern Siberian platform.

Hense the extension and compression regimes have been shouwn to combine in the considered tectonic enviroments. The difference lies in the fact that the classical kimberlite magmatism is characterized by the superimposition of riftogenic branches with basic dyke belts on the collision (ramp) zones while the picrite-lamproite complexes feature the reverse picture, i.e. the riftogenis "shafts" resulting from extension are crossed by strike slip fault zones of transform type.