Magmatic Rocks in Accretionary Prisms and their Diamond-Bearing Potential (Central Sikhote Alin)

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The Central Sikhote Alin accretionary prisms composed of Mesozoic volcanogenic–cherty-terrigenous complexes are characterized by close spatial relationships between basaltoids and volcanic ultramafic rocks (meimechites). The geologic setting of basalts, the position of the points of their compositions on discrimination petrogeochemical diagrams testify to the formation of basalts in the oceanic intraplate environment. Judging from the bodies' shapes (explosion pipes), sets of xenoliths in them, and petrogeochemical characteristics the meimechites formed during a post-accretionary stage in the evolution of prisms. The basalts considered are alkaline, of sodic and potassic types. Ferro-titanium specialization and a similar pattern of REE and trace elements' distribution are common for basaltoids and meimechites. Figurative points of the volcanites' compositions on TiO_2 – MgO and TiO_2 – Al_2O_3 diagrams are situated along regular and systematic trends testifying to: a) petrogenetic relationship of spatially adjacent basalts and meimechites formed inder different geodynamic environments, and b) the presence of at least two types of such paired associations. Volcanic ultramafic rocks, close to a tholeiitic series are associated with potassic varieties of basalts, and those close to the platform meimechites are associated with sodic ones. The chemical composition of meimechites depended on a degree of an accretionary prism's maturity demonstrated in its thickness increase in the process of evolution. A gradual change in the meimechites' composition toward the platform analogues and the composition of the minerals of xenoliths allow regarding ultramafic volcanic rocks as potential sources for diamonds.