

PLUME VOLCANISM OF MICROCRATONS OF FAR EAST ASIA: MAGMATISM, FLUID REGIME, AND ORE FORMATION

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Plume volcanism of microcratons of Far East Asia: Magmatism, fluid regime, and ore formation The continental part of East Asia shows a complicated block structure. The centers of the blocks are Ar-Pt microcratons surrounded by fold constructions. Microcratons are significantly reworked by tectonomagmatic activity in Pz, Mz, and Kz. Each has distinct thermal history. In Amur structure, high-potash ultrabasic (kimberlite) and basic (lamproite) volcanism manifested itself in Pz and Kz, and picrite-alkali-basaltic - in Miocene, Pliocene, and Holocene; in Okhotsk structure, lamproite and alkali-basaltic volcanism - in Paleocene and Miocene; in Omolon structure, picrite-alkali-basaltic and lamproite-kamafugite volcanism - in Paleozoic, Mesozoic, and Cenozoic. Volcanoes of alkali-basaltic series contain inclusions of garnet and spinel peridotites. In diamonds of kimberlites, the inclusions of native metals and minerals (SiC, Fe-Si) and gases (H₂, CH₄, N, CO) are found.

In the folded settings of cratons, mantle-crust magmatism with root (discompaction zones) coming to mantle. These are the long-lived centers of high ore content - ore-magmatic system with stable fluid (F, Cl, H₂, H₂O, CH₄, etc.) regime, where major Sn, Sn-W, Au, B, and other deposits are formed. Isotope data (Sr, Nd, H, C, etc.) on rocks and inclusions of peridotites, LiL, REE, and fluid phase distribution in minerals of deep facies, and geologo-geophysical study allow following conclusions: a) plume volcanism has lower-mantle nature, probably, D layer; b) thermal history and erosion of subcontinental lithosphere was complicated and related with tectonomagmatic activity periods; c) deep fluids were the main bearer of metals.