

Diamond-bearing Astropipes in Mongolia their Recognition and Characteristics

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This paper reports on new results of the diamond-bearing astropipes in Mongolia: Agit Khangay and Khuree Mandal astropipes on the territory of western and central Mongolia, Bayan Khuree in south-eastern Mongolia.

1. The Agit Khangay astropipe in western Mongolia was formed at the Permian granite massive. The crater's total diameter is about 10 km and filled with shattered and shocked granite (agizit). Impactites contain microdiamond of octahedron habit, gold (from 0,1 gr/t, to 3-5 g/t), platinum, moissanite, pyrope, rhenium, chrom spinel, kamacite, khangaite (tektite glass), picroilmenite, coesite, khamarabaevite (TiC), fayalite, sheelite, graphite-2H, etc. Of special interest is a large quantity of the magnetic spherules (meteoritic dust or rain) has been gathered in the region of an Agit Khangay phenomenon. **2.** The Khuree Mandal astropipe within the upper Paleozoic volcanic depression has 10 km in diameter. The suevite like rocks and lavabreccia from various parts of crater and central rise are showed presence of picroilmenite, pyrope and gold closely associated with the mantle and impact microdiamonds. **3.** The Bayan Khuree astropipe in south-eastern Mongolia is located in upper proterozoic mica schists and impact crater incised into folded country rocks and is covered by Quaternary eolian sands. The clastic cement of breccia contains an impact glass (3-5 mm), shocked quartz grains, pyrope, olivine, chrom diopside and microdiamonds (0,01 mm) of mantle genesis.

Detailed geological and gas-geochemical investigations shows diamondgenesis is the expression of the collision of the lithospheric mantle with meteor impact collaps explosion process. The essence of the phenomenon is mantle manifestation and plume of the combined nuclear-magma-palingenesis interaction.

References

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