Specific gas composition of the adsorbed form in impactites of the diamond-bearing Mongolian astropipes

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The new methodics

At present scrutiny of the adsorbed form of gas in rocks of diamondiferous provinces is new acknowledgement of an elaboration and sampling of the intraditional prospecting methodics.

The new results

According to Dorjnamjaa *et al*. (1) the Agit Khangay, Khuree Mandal Tsenkher, and Bayan Khuree diamond-bearing ring impact astropipe structures are established for the first time in Mongolia. These astropipes are wonderfully-preserved from erosion and active denudation, and characterized by both well natural exposures and diversity of different impact-derived and shocked magmatic rocks and minerals. The Agit Khangay astropipe is the most detailed studying meteorite structure.

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). Most panned samples and hand specimens contain microdiamond of octahedron habit, gold, platinum, moissanite, pyrope, rhenium, coesite, khamarabaevite (TiC), graphite-2H, etc.

Conclusions

The adsorbed form of gas in the Mongolian astropipe impactites (Agit Khangay-sample 32/99, Khuree Mandal-sample 58/03, Bayan Khuree-sample 17/03) has been compared with gases of analogous form in volcanic rocks of modern (Volcano Gorelii, Kamchatka) and ancient (Maikhant-sample 25/04 and Zuun Busluur-sample 36/04., volcanoes, Dariganga plateau, Mongolia) eruption and kimberlite pipes (Victory-1, Shandun province, China).

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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Statistical determination of geochemical data to evaluate Oelberg-basalt as a geochemical reference material

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Modern geochemistry allows very accurate and precise measurements, however the critical part is still the sampling. On the basis of statistical observations unaltered-tertiary basalt in the Northern Hessian Depression, Germany from a quarry of the German Basalt – Corporation are analysed. The aim of this study is to evaluate this alkali-olivine basalt from the Oelberg/Hessisch Lichtenau for its potential as being geochemical reference material. Hence, the samples are taken systematically by hand over a 500 m long profile in a distance of 5 to 10 m and of 5 kg each. Furthermore, from the operating crasher of the quarry of different fractions are taken as well for random sampling.

Besides macroscopically and microscopically petrographical investigations of each sample selected phases (xenoliths, crystalline and glassy matrix) are studied in detail by EMP. In addition to phase analyses by EDX on selected mineral separates some bulk analyses were performed. For the bulk rock chemistry the samples were crushed in steel crushers and milled down to fine powder of <125µm in an agate mill. After each step the sample are controlled for impurity, stepwise minimized and homogenised. All samples are analysed for major and minor element concentrations by XRF using smelting tablets. Minor and trace elements are studied by ICP-OES and ICP-MS. The measurements are performed as repeat determination. To control the accuracies and precision of the measurements reference material were analyses in addition (BHVO-1 and BB). The BB is an in-house reference basalt from the University of Göttingen (BB) from the Northern Hessian Depression.