

**A CONSISTENT SPATIAL POSITION OF THE KIMBERLITE AND METEORITE FIELDS GIBEON AND GROSS BRUKKAROS STRUCTURE (GB), NAMIBIA: RANDOM OR REGULAR PATTERN?.** K.K.Khazanovitch-Wulff, Planetology Branch of Russian Geographic Society, 16 Grivcov Per., Saint-Petersburg, Russia, 191000. KKK@spb.cityline.ru

Iron meteorite's ellipsis of dispersion Gibeon is 540x330 km in size.

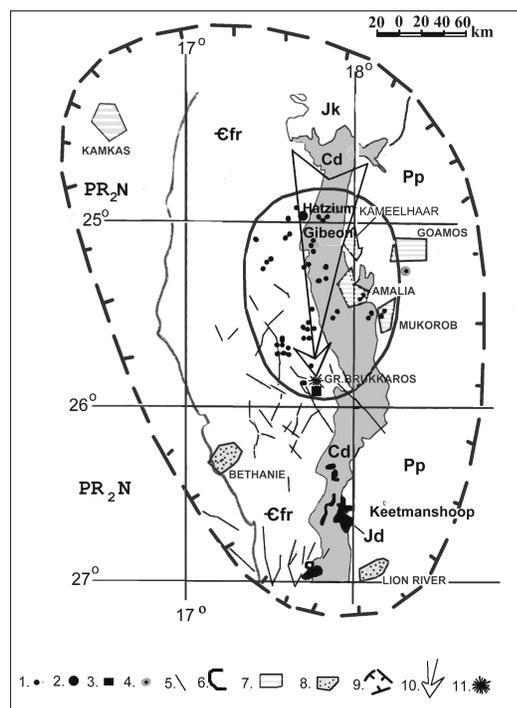


Fig. 1. Geological situation [1-3]. Legend: 1 - kimberlite pipes; 2 - Hatzium Dome; 3 - intrusion Blue Hills; 4 - two meteorite (€) "craterlets" Grundorner Flache; 5 - faults; 6 - boundary of kimberlite field Gibeon; 7 - districts of meteoritic iron's finds and its names; 8 - the same without exact location; 9 - boundary of meteoritic irons ellipsis of dispersion; 10 - inferred direction of meteoric body Gibeon flight to the place of its explosion; 11 - GB. PR<sub>2</sub>N - Upper Proterozoic, Namibian System; Nama System: Cfr - Cambrian, Fish River Series; Karroo System: Cd - Carboniferous, Dwyka series, Pp - Permian, Ecca series, Prince Albert Formation, Jd - Jurassic dolerite dikes and sills, Jk - Jurassic basalts.

Within the central ellipse portion situated is a 190x140 km Gibeon kimberlite field of a similar shape with 45 pipes.

GB is a crater 3 km across surrounded by a swell ranging in diameter from 4.5 to 10 km. GB looms 600m above the adjacent area. Its crater facies is represented by layered microbreccia composed of non-volcanic rocks (basement and Cambrian). Angular debris shape indicates to a short-term transport and a shallow depth of explosion center about 1–1.3 km [2]. Traditional ideas on GB as a "carbonatite volcano" are based on a supposed occurrence of a laccolith-type magmatic chamber beneath it [2, 4] and lack any reliable evidence. GB is thought to show the same age as the kimberlites and intrusion Blue Hills ca. 75 Ma.

L.Spencer [3] was the first to draw attention to the fact that GB is situated near the center of areal meteoritic occurrences.

Earlier the author suggested an explanation of the spatial-temporal link between some cosmogenic structures and pipe magmatism fields [5]. Based on the proposed model an event is inferred to occur 75 Ma ago on area of Namibia: a large iron-meteoroid Gibeon having entered the earth's atmosphere induced a powerful electrical charge on the earth's surface which interacted with electrical fields in the earth's interiors. This resulted in electrical discharges between this levels to form diatremes. GB formation is due to the meteoroid explosion.

Provided that a regular arid climate existed on the Nama plateau during 75 Ma, the large meteorite debris could be preserved among dry eolic sands. The very fact of the preservation of GB structure suggests such an environment.

Geological setting in the Gibeon vicinity provides a clue to understand geological processes related to entering the earth's atmosphere and flight of large meteoroid bodies over it.

#### References:

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