

Exploration and Mining of Arkhangelsk Diamond Deposits, NW Russia

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Discovering the first diamond deposit named after M.V. Lomonosov in Arkhangelsk region in early 1980s, and afterwards the V. Grib deposit in the same region in 1996 allowed viewing the area as a new industrial source of diamonds dubbed Arkhangelsk Diamondiferous Region, Karelian-Kolsky Diamondiferous Province, NW Russia. It is clear now that the industrial potential of the ADP is far from being assessed to the full extent. The area yet has two deposits, while Yakutia can boast of more than 25, so detailed survey of the properties of diamond as such, the paramount indicator of predicting and prospecting for new fields, is a focus of prospecting and exploration in the European part of Russia.

M.V. Lomonosov deposit discovered in 1981 lies in the west of the Zolotitsa field and embraces six commercial diamondiferous kimberlite pipes: Lomonosov, Pomorskaya, Pionerskaya, Karpinskogo-1, Karpinskogo- 2, Arkhangelskaya (~360 Ma age). All deposit pipes have been medium diamondiferous to some extent (0.5 – 1.0 ct/t), although in some pipe vents the content could reach 1.0-3.0 cts/t. The total resources of deposit (for all six pipes) are more than 200 mln carats. Commercial mining started in 2005.

V. Grib pipe (~355 Ma age) deposit is located within the Chernoozerskoe field with the average grade 0.5-1.5 cts/t and annual production approximately 3.5 mln carats. It is one of the biggest diamond deposits with total resources 98 mln carats. Mining stage started in 2013.

Biography:

Viktor Garanin graduated from Geological Faculty of M.V. Lomonosov State University. Ph. D., Dr., Prof. in Geology. Academician of Russian Academy of Natural Sciences. Since 1975 Chief of Diamond Deposit Laboratory in M.V. Lomonosov State University. Scientific Director of A.E. Fersman Mineralogical Museum of Russian Academy of Sciences. Scientific and research interests are geology, mineralogy and geochemistry mineral deposits (diamonds, gold, base metals), historical geology, analytical works, education, consulting and arts. Author of more than 400 publications including 15 monographs. One of the leaders of World diamond geology.