

## **GEOCHEMICAL FEATURES OF METAMORPHIC ROCKS IN THE KOLA SUPERDEEP BOREHOLE DRILL-SITE AREA IN THE CONTEXT OF SEARCHING FOR DEEP HOMOLOGUES**

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The investigation was accomplished in the framework of IGCP-408. Owing to the support of the leaders of the Scientific-Industrial Centre “Kola Superdeep borehole”, a database including over 2000 analyses was compiled for the drilled metamorphic rocks. In addition, our database comprising over 20000 complete silicate analyses of Kola region Archean and Proterozoic rocks was employed. A new technique was developed to compare the chemically different rock complexes and calculate the probability of their “similarity”. The compositional difference between the Proterozoic rocks from the Kola Superdeep borehole and their surface homologues was found to increase with depth. By comparing the Proterozoic metabasalts from different depths, we calculated the factor that equally changes the rocks without regard to the particular formation to which they belong. The factor is apparently related to the influence of superimposed processes. The Archean formations drilled by the Kola Superdeep borehole were also studied. The results indicated their similarity with the rocks located to the north-northwest of the drill-site. A relationship between the depth and the “degree of dissimilarity” from surface homologues was established for the Archean rocks as well as for the Proterozoic ones. Rocks from some thoroughly studied localities of the selected region showed the similarity to the rocks of one of the deepest (IX) Archean formations in the borehole section. The obtained data can be used to solve the IGCP-408 task of comparing the composition, structure and physical properties of rocks and minerals in the Kola Superdeep borehole and their homologues on the surface.