

Hydrothermal alteration Doleritebasalts and Hydrothermalites of Javakheti Plateau

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The processes of hydrothermal alteration and the related hydrothermalites were first noticed in doleritebasalts of Late Pliocene – Early Pleistocene, which were revealed within in an area of Javakheti Plateau. The field observations revealed location of hydrothermal alteration mainly in the upper and lower parts of lava flows, which have been developed in the vesicular zones. The distinct role in the management and development of mineralization process belong to the vesicles, which have been developed on the surface of lava flows. Their emergence is connected with the degasification process in rapidly freezing parts of the lava flows.

The vesicles have been filled by hydrothermalites, giving the rocks clear-cut mandelstone textures. Among the hydrothermalites of Late Pliocene doleritebasalts of the South Caucasus, radial fibrous aggregate of Aragonite were first discovered. Their diagnostics was done on the basis of detailed field and laboratory (microscopy, complete silicat chemical and X-raying analysis) study. The satellite minerals of Aragonite are: Dolomite, Chlorites and Smectites. The stages of mineralization process have also been identified, which is revealed in multiple renewal of hydrothermal circulation. The process takes place in pH (potential hydrogen ion) neutral (pH=7) and slightly acid (pH<7) environment within the conditions of comparatively low and rapidly decreasing temperature (150-50⁰ C) and pressure on the lower depth.

The study of hydrothermalites is of great significance for the solution of scientific and practical objectives; concretely, the study of this type is one of the necessary preconditions to conduct expoloration works of metallic and nonmetallic useful deposits.