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The results of studies of temperature fields in the Elbrus volcanic center

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The results of theoretical and experimental studies on thermal processes in the Elbrus volcanic center and adjacent territories are presented. Distributed temperature measurements on the Elbrus volcano and in the Northern-Caucasus Geophysical Observatory have been performed.
Series of measurements were also performed with an aid from autonomous systems for temperature («High Capacity Temperature Loggers iButton» and «Rejim-avtomat-termo-10-100») monitoring in the mountain lake located near the Maloye Azau glacier. The comparative analysis of the results for different years is provided.
On the basis of the Geophysical Observatory in Northern Caucasus, in the laboratory located some 20 km from the Elbrus volcano in the tunnel at a depth of 4 km the array of temperature sensors has been deployed.
Results of continuous observations over variations of underground temperatures, including pin-point measurements in the vicinity of sources of carbonaceous mineral waters are presented and discussed.
Based on the results of temperature measurements in the 180-meter deep borehole drilled in the ice cap on the western plateau of the Elbrus volcano the theoretical estimations of possible deep temperatures and heat flux values have been obtained and corresponded to the proposed location of the peripheral magma chamber.
Thus, the original scientific results provide significant extension to our knowledge on possible resumption of volcanic activity in the vicinity of Mount Elbrus.