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Change in Mt. Elbrus nival-glacial system in the last century

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We investigated the long-term dynamics of four glaciers that are part of the nival-glacial system of Mount Elbrus and located on its southern slope: Terskol, Garabashi, Malyi Azau, Bol'shoi Azau. The time period of the study covers 1887–2017. Glaciological measurements were carried out using DEM, compiled from early-year maps and from the results of stereo surveys in 2017, made by UAVs and high-resolution digital camera. New results present the change in the area of these glaciers, the elevation of their lowest points and the height of the surface. All these characteristicsindicate decrease of glaciation at the southern slope of Elbrus and intensification of this process in the last decade. Some differences in dynamics of changes of different glaciers can be explained by differences in their morphological types, morphometric indicators, the state of the beds, which we do not have much information about. Additionally, cores of two near glaciers lakes sediments were extracted and analyzed, offering high resolution record of sedimentation. The age of the bottom lake sediments near Malyi Azau glacier corresponds to documented beginning of the lake formation due to glacier ice retreat in 1950th. The other lake to the side of the Garabashi glacier was formed much earlier and the upper 15 cm of the lake sediments core is formed between 1893 and 2016.

The obtained results are compared with the results of other investigations. We believe that the new data of glaciers dynamics is more accurate and more promising in understanding the specific of accumulation and melt in dependence on elevation, slopes aspect s and angle.