

The impact of climate change on the regime of extreme temperatures (On the example of Samtskhe-Javakheti)

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The impact of climate change on the different atmospheric parameters (especially the extreme temperature regime) is particularly relevant for the countries, which stand out by difficult physical-geographical and climatic conditions. In this regard, Samtskhe-Javakheti is one of the most important regions of Georgia, which's climatic conditions, mainly caused by local factors; significantly differ from the climatic conditions of other regions, due to difficult relief conditions, radiation regime and atmospheric circulation. Despite the relatively small area, the region's temperature regime is characterized by large contrasts.

As for all mountainous countries, the temperature regime of this region is characterized by vertical zones. The temperature gradient is relatively lower in winter, which is the result of the temperature inversion, developed during this period, and in the summer it is relatively higher. For assessment of climate change in the region of Samtskhe-Javakheti, the study used statistical data and long term meteorological, climatological and graphical analysis. The dynamics of extreme temperatures (maximum, minimum) change for 40 years periods has been evaluated for the following meteorological stations: Akhalkalaki, Akhaltsikhe, Bakuriani, Tsalka, Paravani, Goderdzi pass, Borjomi. According to the survey, extreme temperature changes have been determined by 10-year periods. The maximum temperature during the whole period was increased by 0.92°C, and the minimum temperature also was increased by 0.74°C.

Samtskhe-Javakheti meteorological observations survey results allow us to conclude, that on the background of climate change, during the 40-year period, extreme temperature changes during 10 years periods were confirmed. In particular, cases of warming-cooling have been identified.