

The impact of climate change on the temperatural dynamics of Samtskhe-Javakheti region

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The interdependence of climate and humans is the most important problem at the present stage of human development and it could become a cause of social progress or degradation in the future. This circumstance is especially noticeable in mountainous countries such as Georgia. In this respect, particularly stands out Samtskhe-Javakheti, one of the most important regions in Georgia. Samtskhe-Javakheti is located in the southern part of the country and by the climatic conditions is in sharp contrast to other regions. This can be explained by the influence of the local factors.

Temperatural dynamic of Samtskhe-Javakheti, as its climatic conditions, is distinctive by various characteristics, which are mainly related to the location, difficult terrain of the territory, radiational regime and general and local circular conditions of the Atmosphere, which are prevailing in this region.

To assess the climate change in Samtskhe-Javakheti, the data from 30-40 year observation period was used from the following meteorological stations: Akhalqalaki, Akhaltsikhe, Bakuriani, Tsalka, Paravani, Goderdzi mountain pass, Borjomi. We have carried out the temperatural data analysis for the 10-year observation periods for all listed meteorological stations. As a result, the following changes of the average temperature was found according to the different year periods: **In Akhalqalaki**, during 1967-2006 years, (I-IV) periods, the average temperature was increased by $0.73^{\circ}\text{C}/_{40\text{y}}$, **In Akhaltsikhe**, during 1967-2006 years, (I-IV) periods, the average temperature was increased by $1.00^{\circ}\text{C}/_{40\text{y}}$, **In Bakuriani**, during 1962-1991 years, (I-III) periods, the average temperature was slightly changed and decreased by $0.09^{\circ}\text{C} /_{30\text{y}}$, **in Tsalka**, during 1967-2006 years, (I-IV) periods, the average temperature was increased by $0.70^{\circ}\text{C}/_{40\text{y}}$, **in Paravani**, during 1967-2006 years, (I-IV) periods, the average temperature was increased by $1.13^{\circ}\text{C}/_{40\text{y}}$, **on Goderdzi mountain pass**, during 1963-1992 years, (I-III) periods, the average temperature was decreased by $0.73^{\circ}\text{C}/_{40\text{y}}$, **in Borjomi**, during 1962-2004 years, (I-IV) periods, the average temperature was increased by $0.37^{\circ}\text{C}/_{40\text{y}}$.

The research results of Samtskhe-Javakheti meteorological observations, enables us to conclude, that, in the background of climate change, the sharp changes of average temperatures have been occurred in this region. There are also clear cases of varying warming/cooling patterns.