The dynamics of precipitations change in the background of climate change (Black Sea coastline)

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Global climate change has been particularly noticeable since the 1970s, marked with the trend of the world annual average temperature change and intense climatic catastrophes. The climate change on the planet is expressed by the rise of average temperature and associated increase in the intensity of precipitation and frequency of extreme phenomena in certain regions (Georgia's Second (2009) and Third (2015) National Communications to the UNFCCC). In the background of global warming, the change of the regional climate has special peculiarities and warming and cooling trends due to the climate change can be seen in the Black Sea basin. The demarcation line between these opposite processes may be found on the territory of Georgia. In this kind of border zones, transition from warming into cooling and vice versa, is not a monotonous process. Rather, there are small areas, with sharply expressed changes of climatic parameters. Carried out researches have shown the change in the major climatic parameters in the South East region of Black Sea, in particular, in average and extreme air temperatures as well as in the sum of precipitations. The forecast of the same climatic parameters shows, that these changes in the future will get more dramatic character.

The dynamics of the changes of the atmospheric precipitation in the coastal zone of the Black Sea was studied by using observation data of the weather stations of 1957-2006, in particular, of such major indicators of precipitation, such as monthly and annual sums. Research was conducted according to each observation point data, obtained in different seasons and in 10-year-long periods.

Based on observation data of meteorological station in Poti (1957-2006), as the linear approximation trend suggests, for 50 years, the annual sums of precipitation has increased by 450 mm. and according to Batumi data, for 50 years, the total precipitation decreased by 100 mm. The Sea coastal line of Adjara is characterized by abundant precipitation, Daily maximum precipitation is in Batumi region. The absolute maximum of the maximum daily precipitation is 352 mm. The duration of precipitation is always longer in the cold periods as compared to the warm periods of the year.

In the South Eastern part of Black Sea, the sharp changes in temperature and sums of precipitations, as well as the periods of warming and cooling were observed.

Black Sea is the most vulnerable ecosystem in Georgia in terms of climate change, needing immediate adaptation measures.