Some characteristics of precipitation at Skalnaté Pleso

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In the last year a great attention is paid to the problem of the long-time variability of atmospheric precipitation because precipitation belongs among the responsive indicator of climatic changes. A great attention is paid not only to the extremes anomalies of precipitation, but also to the reasons which cause these effects. Precipitation regime in Slovakia has been significantly changed in the 20th century. It was probably due to by changes in the atmospheric circulation above Central Europe. Possible changes in the air pressure fields above Europe and the North Atlantic in the 21st century can essentially influence the position and variability of the polar frontal zone as well as the general circulation patterns. This is a factor which determines many characteristics of the climatic system, including precipitation

The aim of our study is an analysis of time series of atmospheric precipitation at Skalnaté Pleso ($\varphi = 49°\ 12´$ N, $\lambda = 20°\ 14´$ E, h = 1778 m a.s.l.) in the High Tatras Mts. It comes to this, that the actual solution of the chosen problem is based on experiment. Based on the experimental data of precipitation (measurements are carried out 3 times a day in the climatic terms 7, 14, and 21 h) at Skalnaté Pleso during the 1947-2006 period the daily and annual sums of precipitation were calculated which served as a basis for the time series analysis. To estimate the trend of precipitation (q) with the time (t) (variable t denotes the corresponding year in the time series) the method of regression analysis was applied. In the first approximation a simple linear model was assumed and by the method of the least squares the regression coefficients were calculated.

By processing of the extensive material from measurements of precipitation during the investigated period many statistical characteristics of the number and amount of

precipitation were obtained.