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Analysis of extreme summer temperatures in Belgrade

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In most of climate models, the changes in temperature correspond to the mean temperatures on the monthly, seasonal and annual time scales. Changes in the mean temperatures may results in changes of frequency of extreme events. In this paper we used the Belgrade temperature record for June, July and August for period 1888-2006. We divided this period into four parts on the basis of the seasonal extreme temperature values and calculated trends in seasonal extreme and mean temperatures for whole period and for subperiods. Then we assessed how increasing summertime mean temperatures are related to changes in frequency of minimum and maximum temperatures. After all we made spectral analysis of the data. In whole period there are a linear increase in mean and minimum temperatures, but in maximum temperatures there is a negligible decrease. In the subperiods there are periodic decrease and increase in all temperatures. The spectral analysis is showed that there is 59-year cycle for all temperatures. The maximum increase in mean and maximum temperatures is in subperiod 1977-2006, while the maximum increase in minimum temperatures is in subperiod 1913-1946. Number of days with maximum and minimum temperatures exceeding the selected high values of 30°C and 18°C respectively, increases with rising mean temperatures. The increase for number of days of extreme maximum temperature is greater then the increase for number of days of extreme minimum temperature.