

This work investigates changes implied by variability of temperature, zonal wind and ozone mixing ratio during the eleven-year cycle in the stratosphere and lower mesosphere. The analysis is performed by using multiple linear regression of the MERRA reanalysis dataset for the period 1979-2012. Furthermore, we describe possibilities of available dataset, which can be also considered for the study of the upper atmosphere. Results of this study show a qualitative agreement with other related studies in the stratosphere, we find substantial differences especially in the ozone concentrations above the stratopause. It has been shown more intensive sudden stratospheric warming during solar maxima and the associated impact on the Brewer-Dobson circulation in all fields of meteorological variables.