



TROPOPAUSE HEIGHT'S INFLUENCES ON VERTICAL OZONE STRUCTURE IN ANKARA, TURKEY

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The changes in ozone and the temperature profiles in mid-latitudes of lower stratosphere are consistent with the assumption of a change in vertical transport. The variability of total ozone in these latitudes may be related to the tropopause heights.

Stratospheric ozone observations based on balloon-borne ozonesonde from Ankara (40°N;33°E) by Turkish State Meteorological Service (TSMS) began in January 1994. The measurement program is currently continuing at taken State Meteorological Station. The ECC ozonesonde has been used by chemical means as the instrument ascents through the atmosphere by balloon.

In this study, we attempt to present the results of analyses of tropopause heights and their influences on total ozone variability in Ankara. Due to the strong dynamical processes, and associated atmospheric transport, which are the main reasons of the variability in the vertical ozone profiles in mid-latitudes, the tropopause heights and temperature and ozone mixing ratio profiles in Ankara were examined.

It is founded that the average value of total column ozone amount by ozonesounding is 320 DU with a standard deviation ± 43 in the period of 1994-2001 in Ankara. The monthly average total column ozone varied in between 250 to 419 DU.

In this study, we have considered a classification of the observed data according to the low and high tropopause heights corresponding to ozone mixing ratio profiles for the winter (DJF) and the summer (JJA). For this purpose we assumed a range in between 8.5-10.0 km heights for low tropopause; 10.0 km and higher for high tropopause respectively. About 151 soundings from January 1994 to December 2001 are used in

this analysis. Of all 151 sounding used, 47 fall in winter period and 29 in summer period. Furthermore 43 from total sounding correspond to the lower tropopause height and 108 to the higher class. Furthermore, the average ozone mixing ratio profiles for the low and high tropopause groups are obtained. The correlation between total column ozone and tropopause heights has important implications for the interpretation of long-term trends in total ozone. For this purpose, we examined the relationships between total ozone and tropopause height.