



Ozone, water vapour and temperature features of the extratropical tropopause region

António Ferreira (1), José Castanheira (2), and Luis Gimeno (1)

(1) Environmental Physics Laboratory, University of Vigo, Spain (ap.ferreira@uvigo.es), (2) CESAM, University of Aveiro, Portugal

The interaction of the thermal structure of the extratropical tropopause region with both ozone and water vapour vertical distributions is studied. Seasonally averaged UTLS profiles derived from high-resolution balloon measurements at Boulder and a few other locations (data from NOAA/ESRL's GMD) reveal a relationship between the sharpness of the extratropical tropopause and the decrease of water vapour amount with height, as well as variations in the general increase of ozone density. Particularly, the formation of a tropopause inversion layer (TIL) is found when the two chemical gradients are large. Whether such trace gas features arise from the strong static stability of the TIL, or rather they are controlling factors of the later, is discussed. Results by using tropopause-based vertical coordinate are compared with those obtained with height above mean sea level.