Geophysical Research Abstracts,
Vol. 10, EGU2008-A-10429, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-10429
EGU General Assembly 2008

Comparison of total ozone column, precipitable water and aerosol optical thickness in central Spain

D. Mateos, J. Bilbao, A. De Miguel and V. Cachorro

Applied Physics Department, Valladolid University, Spain (david.mateos.villan@uva.es)

The solar ultraviolet radiation that reaches the Earth's atmosphere is not more than 8

The aim of this paper is to compare ozone, precipitable water and aerosols optical thickness data series measured by Microtops-II sensor and data obtained by remote sensing and Cimel instruments.

In this work, a series of total ozone column, precipitable water column and aerosol optical thickness at 1020nm values have been analyzed (Campmany, 2006). The experimental measurements were carried out in Valladolid (Spain, 41.65° N, 4.72° W and 701m a.s.l.) by a Microtops-II sensor covering the period from August to December 2007.

With regard to ozone, the variation in total ozone column is studied obtained by means of irradiances direct solar measured by a Microtops-II at three wavelengths in the UV range (305, 312 and 320nm). The values obtained are compared with other sources of information such as satellites OMI (NASA) and GOME-2 (ESA), as well as with the closest land station, the Instituto Nacional de Meteorología (INM) Madrid (to approximately 190km from Valladolid), Spain.

For the precipitable water column in the atmosphere, the sunphotometer Microtops-II provides values that have been compared with the supplied by the CIMEL of AERONET (NASA) network, placed in Palencia (to approximately 45km from Valladolid) and managed by UVA-GOA group of Valladolid University. Meteorological variables (temperature, pressure and relative humidity) are also used for the evaluation of this parameter by means of several expressions.

Finally, aerosol optical thickness measured with Microtops-II at 1020nm values have been compared with the supplied by AERONET network data.

This work contribute to understand the deviation between experimental measurements by Microtops and the remote sensing sensors.

References

Campmany Pons E. (2006), Predicció de la radiació solar espectral UV mitjançant models de dispersió múltiple. Aplicació a la predicció de l'índex UV a Catalunya. Doctoral Thesis. Barcelona University.

Palancar, G.G. and Toselli, B:M. (2004). Effects of meteorology on the annual and interannual cycle of the UV-B and total radiation in Cordoba City, Argentina. Atm. Envir., 38, 1073-1082.