

Preliminar results on the operative cosine correction in Eubrewnet

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The amount of UV radiation reaching the Earth's surface is constantly changing due to the contribution of different factors of very different nature. On the one hand, the distance is not constant but varies on annual cycle what is observed analyzing the average values of UV radiation measurements. On the other hand, the UV radiation varies daily due to the presence of external variables as ozone, aerosols, clouds, which can absorb or scatter the UV radiation [1].

In addition, all equipments used to measure the solar radiation must be corrected for their instrumental errors. In particular, the Brewers have a non ideal angular response. In this work, we show the initial results obtained when the UV measurement are corrected regarding the cosine error. The dataset used were collected by the Brewer#157, Brewer#183 and Brewer#185 which form the triad of the Regional Brewer Calibration Center for Europe (RBCCE,Izaña Atmospheric Research Center, Agencia Estatal de Meteorología, Tenerife, Spain). In order to guarantee the validity of the UV measurements, the Brewers are calibrated each six months with 1000W lamps in the optical laboratory facilities and, monthly, using a portable calibration system with 200W lamps. Moreover, the Brewer#185 is calibrated annually in respect to the reference of World Radiation Centre. This study was carried out using the database of the European Brewer Network (EUBREWNET), <http://rbcce.aemet.es/eubrewnet/>.

References:

[1] Ilias Fountoulakis, Alkiviadis F. Bais, Konstantinos Frangos, Charicleia Meleti, Kleareti Tourpali, and Melina Maria Zempila, "Short and long term variability of spectral solar UV irradiance at Thessaloniki, Greece: effects of changes in aerosols, total ozone and clouds", *Atmos. Chem. Phys.*, 16, 2493–2505, 2016.
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