Atmos. Chem. Phys. Discuss., 14, C4741–C4743, 2014
www.atmos-chem-phys-discuss.net/14/C4741/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Erythemal ultraviolet irradiation trends in the Iberian Peninsula from 1950 to 2011" *by* R. Román et al.

Anonymous Referee #1

Received and published: 11 July 2014

The present paper presents a reconstruction of erythemal ultraviolet radiation for the Iberian peninsula for the period 1950 to 2011. The authors mention in the introduction that in previous investigations UV ER irradiation was only reconstructed at Valladolid since 1991 and at two other sites for a time period starting in 1950 but only for the summer months. The present reconstruction was performed for 9 spanish locations and showed an increase of 6.5% between 1950 and 2011. The UVER irradiation over the open human body was also calculated by multiplying daily UVER irradiation by the daily open body fraction which is a function of air temperature and wind. An increase of 12.5% between 1950 and 2011 was obtained. Considering the fact that already existing reconstructions from literature performed for the Iberian peninsula for the period from 1950 to now were only performed for the summer months, the present paper could

contain some new innovative results. The authors should however stress more on the new findings of the present work as compared to the papers by Bilbao et al.(2011) and Anton et al.(2011). The present study is one of the few studies, that I know, that include the open body fraction in the trend analysis. It is for me however still questionable how to interpret the open body erythemal UV values: the relevance of this quantity mainly pertains to the vitamin D production of the body and not to other uv related risks, since as soon as one part of the body is not covered by clothes it is at risk. It does not matter how much of the body is not protected in this case.

P.11: You should clearly mention what could be the result of a homogeneity test e.g. to find instrumentation/measurement problems, or is it only to find some trends such as the global dimming? When looking at fig. 2: at the station of A Coruna the end of 70ths and beginning of 80ths look very strange. The same remark applies to the peak in Madrid in the 70ths.

Other minor comments

P.2, line 28: “Changes in aerosols led to alterations in the presence and microphysical properties of clouds. . ...”???

P.4 line 3: “ A further aim is to propose and study a new variable to quantify the UVER dose that reaches the naked human body exposed to sun” I would suggest to change “the naked human body exposed to sun” with “ the body parts exposed to the sun (not covered by clothes)”

P5 line 10: up the present => up to the present

P.6 line 4 and 6: Chuvaroba => Chubarova

P.6 line 25: Roman(2014) which one of the Roman(2014) publications?

P.8, line 17: bins => intervals

P.13 line 29: please say in one sentence in what consists the methodology of

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Walker(2010)

I do not think that you need to show figure 4. There is no difference between the trend of these three quantities because mean wind speed has probably not changed very much during this period. It would be enough to mention this in one sentence.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 15545, 2014.