

Interactive comment on “Utilising polyphenylene oxide for high exposure solar UVA dosimetry” by D. J. Turnbull and P. W. Schouten

Anonymous Referee #1

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Utilizing polyphenylene oxide for high exposure solar UVA dosimetry

D.J. Turnbull and P.W. Schouten

The paper is a useful one that outlines some advances in the field of UVA dosimetry. It is a worthwhile paper and should be published. However, it is the sort of paper I would more expect to see in a photobiology journal.

Abstract First line Perhaps the sentence should read as "A personal UV dosimeter that can quantitatively assess high exposure solar UVA exposures has been developed". It is clear from the authors and their institutions where it has been developed.

Introduction line 17 Estimates of the direct health costs of 734.9 million dollars and foregone earnings of 1.395 billion dollars per year - it is hard to see how these are

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current estimates if the paper in question was written in 1995 (Armstrong 1995). Some clarification might help here.

Introduction While UVA dosimetry (as well as UV dosimetry) may well be useful, the authors could do more to clarify why this is the case for the average reader. I think the authors should expand on this.

Page 3 line 2 "extensive amounts of time at various locations" is a bit vague. Perhaps the authors could provide an estimate of the number of days the PPO film could reasonably be left exposed in some specific locations.

Page 3 Section 2.1 line 12 I suggest the word "area" rather than "size" so that the sentence reads as "minor variations in the PPO film over the area of the dosimeter".

Page 3 Section 2.2 It is unclear whether each of the dosimeters were exposed for a total of 22 days or whether the total number of measurement days was 22. Please clarify.

Page 4 line 7 What was the wavelength scan range for the global UV spectrum? If the measurements were made from dawn to dusk, why were the dosimeters not left out continuously?

Page 4 Section 2.3 last line Perhaps the last sentence should read as "These exposures were conducted on an unshaded sports oval in spring under clear sky conditions". This means that the dosimeters were exposed pretty much to all of the incident solar UVR, not just the direct but also all of the diffuse radiation from the sky. I assume this is why the sports field was chosen and if so, it might be worth mentioning that.

Page 5 Section 3.3 There is some repetition of details here with section 2.3 Reproducibility. This could be rationalised somewhat.

Page 5 Section 3.3 line 4 The explanation that the variation "may" be due to minor variations over the surface of the film. Perhaps the variations over the surface of the film could be quantified somehow to help confirm the explanation?

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Page 5 Sect 4 The authors indicate the film can measure exposures of more than 20 MJ/m² of solar UVA. How many days this is equivalent for a particular location, such as Toowoomba, might be useful to the readers.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 2129, 2008.

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