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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Performance of the meteorological radiation model during the solar eclipse of 29 March 2006" *by* B. E. Psiloglou and H. D. Kambezidis

Anonymous Referee #1

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This article analyses the performance of the model MRM v5 using two days, one of them corresponding to a special and unusual sky condition as a solar eclipse. Such as Authors say, this work is more interesting from a theoretical point of view than from a practical value. The article is well written and structured. Tables and figures are right. In general, I think this article could be published as is. However, I have two questions:

1) Why DELTA(beta) = -0.04 in eq. 13? A justification should be added.

2) The cloudy-sky sub-model uses a daily mean measured sunshine duration value (n) to take into account the effect of clouds. Since the cloudless-sky sub-model uses daily constant values for beta, ozone content and albedo, the effect of pressure is

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not relevant, and the effect of water vapour on the total radiation can be assumed of second order, then the estimated total radiation (as well as the diffuse component) should present an almost perfect mid-day symmetry. However, Fig. 4 shows a relatively high variability for estimated total and diffuse radiations. The little effect of clouds in the afternoon is well described by the model, but why? The same comment for Fig. 5.

On the other hand, if the factor (1-EM) is used to describe the effect of the eclipse, what is the value of n?

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 12807, 2007.