

Interactive comment on “Recent variability of the solar spectral irradiance and its impact on climate modelling” by I. Ermolli et al.

I. Ermolli et al.

ermolli@oaroma.inaf.it

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We thank Dr Fontenla for his additional comments to which we respond below.

First of all, we would like to stress that a draft of the description of the SRPM model in the paper was sent to Dr Fontenla by one of the co-authors before submission (in May 2012), and that we received a reply from him with his corrections and comments. The text we received is essentially the text of the first two paragraphs of the SRPM subsection of Sect. 3.3. Some slight changes were introduced during language editing by native speakers, which we believe did not change the content. Thus we believe that Dr Fontenla was informed about the manuscript before its submission, in contrast to his claim in his second comment. As a matter of course we acknowledged his helpful reply and comments. Since Dr Fontenla is not happy with this, we will remove that

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acknowledgement when revising the manuscript. Besides, as far as we know, the claim “I only learnt about your paper submission from a third party colleague” is unjustified, since one of the authors informed Dr Fontenla about it during the HEPPA-SOLARIS meeting in Boulder (9-12 October 2012).

We fully agree that the third paragraph of the SRPM subsection is not based on the text provided by Dr Fontenla and is our assessment of the usability of the Fontenla et al. (2011) SSI and TSI reconstruction for climate simulations, which was the main purpose of this paper (see Sects. 1 and 5). The subsections describing other models of irradiance variations, all have such paragraphs at the end. We believe that a pure description of a model without describing its results would be of little use to the climate community.

We apologise if some of the statements in the submitted manuscript are not entirely clear, in particular, the difference between, on the one hand, the whole SRPM concept and, on the other hand, the model of irradiance variability published by Fontenla et al. (2011), which uses the SRPM tool. As stated in our reply to the first comment posted by Dr Fontenla, we will correct and revise the relevant sentences to clarify that the current version of SRPM atmospheric models is built on earlier models. We will also use only the terms employed in the original (2011) paper to describe the recent modifications. In addition, we will emphasise the difference between the SRPM as a tool for construction of semi-empirical atmospheric models and the model of irradiance variations by Fontenla et al. (2011).

Finally, with regards to the statements on the OAR model: “it is not clear what OAR model is and the atmospheric structure by Fontenla et al (2009) was not numerically published”, we would like to point out to the following issues: 1) The OAR subsection of the manuscript clearly lists model atmospheres, the synthesis code and the input solar full-disc observations used by this model. 2) The atmospheric models used by OAR are the ones described in the paper by Fontenla et al. (2009). This paper states (cf sec 3, page 486) that “All the values used in this paper are listed in the electronic

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tables available in the online edition of the journal as a supplementary tar file, and also available in the distribution files posted in the Web site <http://www.digidyna.com>"

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