

## ***Interactive comment on “Clear sky UV simulations in the 21st century based on ozone and temperature projections from Chemistry-Climate Models” by K. Tourpali et al.***

### **Anonymous Referee #3**

Received and published: 8 October 2008

### **General Comments**

The paper provides an overview of model results relevant for atmospheric science and public health, and it may eventually merit publication in ACP. Prior to acceptance, however, the manuscript has to be substantially improved with regard to presentation quality. I am very disappointed by the fact that so many co-authors have not taken the time to proofread and optimize the manuscript prior to submission and I strongly recommend that a native speaker edits the text (e.g., one of the co-authors). I agree with the scientific comments of referee 1, but I think substantial revisions regarding the form, language and presentation of the manuscript need to be performed by the

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authors before the manuscript is acceptable for publication in ACPD.

In particular

**Title:**

Please re-formulate as already suggested by Referee 1: . . . simulations for the 21st century . . .

**Text:**

Many statements are awkwardly formulated and unclear or at least difficult to understand. Please check and improve the complete text and in particular the abstract and key statements with regard to scientific clarity and conciseness. A few examples:

... The CCM simulations are used as input ... (It is hard to see how CCM simulations could be used as input - probably you mean the CCM simulation results.)

... is associated with large uncertainties due to uncertainties in the ...

... The interannual variability of all models is larger at these latitudes ...(larger compared to ???)

The use of plural nouns seems not appropriate in several places, e.g.:

abstract, line 11: ... The magnitude of these decreases varies ...

p.13048, line 3: ... for the future atmospheres... (there will be only one atmosphere)

p.13049, line 18: ...The magnitudes of the calculated changes...

I do not understand the meaning of lines 26-29 on page 13050: Figure 4 shows ...variability of ... averages of ... changes from .. average... ( please reformulate)

These changes are an ensemble of the changes... (I do not understand what is meant)

**Figures:**

Honestly, the presentation of the figures is unacceptable for a scientific journal: missing

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axis notations, use of plural in axis notation, use of indistinguishable colors within the same graph, figure captions that are inconsistent with what seems to be shown. All figures and captions need to be thoroughly revised.

Figs.1-3:

Spell the model names in agreement with text and table (capital letters).

The two green lines and the two red/orange/brown(?) lines each are indistinguishable. Please use different colors.

Label all axes with regard to quantity and unit and explicitly state the plotted quantities and used units in the caption. The use of plural is discouraged: e.g., you would always use concentration (not concentrations) even if many data points are shown. Here, you would also use “year” rather than “years” for all the x-axes in Figs.1-3.

The labeling of Fig. 4 is completely insufficient: unit of y-axis?, meaning of x-axis and meaning of color bar?

### Figure Captions:

Please make all figure captions self-explanatory and use precise wording/terminology.

Please note that Fig. 1 does not show “Annual means of surface erythemal irradiance for five latitude belts.” Instead, it shows “relative deviation” from a certain level/year of reference. Please state this properly - not only in the text but also in the figure caption.

I would suggest using the term “relative deviation” rather than the term “departure” throughout the manuscript. In any case, please use the attribute “relative” explicitly rather than just indicating it by the unit of percent.

Caption to Fig.1: “The black line represents the model average.” Please be more specific. From the text I understand that the average refers to the time period 1996-2005, is this correct?

Please clarify if the meaning of the term “changes” used in the caption of Fig. 4 (again without the appropriate attribute “relative”) is different than the meaning of the term

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“departures”. If not, I would recommend using the same term (preferably “relative deviation”) throughout the manuscript.

Please move the long text from the top of the figures into the caption, and/or make it consistent with the formulation of the caption (models = members?).

**Table Caption:**

Why should the reader see Eyring et al. (2007) for references?

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 13043, 2008.

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