

## ***Interactive comment on “Impact of an improved radiation scheme in the MAECHAM5 General Circulation Model” by C. Cagnazzo et al.***

### **Anonymous Referee #2**

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#### General comments

The results of the authors are quite interesting for the readership of atmospheric chemistry and physics. This manuscript is of high relevance and should definitely be published after addressing the referee's comments (also those of the first reviewer)

#### Specific comments

- Considerable concern exists with respect to the validation procedure. The authors show significant improvements in the model output when increasing the number of bands from 4 to 6. They show that their new scheme leads to improvements for specific cases. However, they do not show that this improvement is valid for one specific situation (only one solar zenith angle, ozone profile and summer conditions) - they

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do not answer the obvious question whether even more bands would lead to a better agreement (8 or more bands?). How sure can we be that 6 bands are sufficient for the issues tackled? - In addition it would be desirable to have some physical explanation why 4 bands do not lead to satisfactory results, but 6 do. It is only stated “desirable” because the authors might think it is not possible to give physical explanations. In the latter case it would be even more important to validate the codes for more situations.

#### Technical comments

- The manuscript and especially the figure caption contain by far too many acronyms. Every acronym should be explained in the figure caption once (at least give a reference to the main text, where the acronym is clear explained). The non-specialized reader will highly appreciate such efforts - There are several places where the term “ratiation” is used. It is probably a misspelling and the author want to talk about “radiation”

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Interactive comment on Atmos. Chem. Phys. Discuss., 6, 11067, 2006.

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