

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

C. Cagnazzo

cagnazzo@bo.ingv.it

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Dear Reviewer 1,

thanks to your review, among other points, we have realized that Section 3 (offline validation of SW6) does not clearly report the already existing validation of the SW6 parameterization, see reported references below. This reply is only a short comment, aimed at adding relevant information on the SW6 validation. The complete answer to your review will be done together with our Co-Authors after the discussion period.

Although unclear, the purpose of section 3 is actually only to further document the difference between the SW4 and the SW6 parameterizations, with the major focus of the calculations in the stratosphere. We acknowledge that section 3 needs to be

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substantially revised as suggested.

The SW6 parametrization was developed by Jean-Jacques Morcrette and his colleagues and is in use in the ECMWF model since April 2002 (Morcrette, personal communication). Please see the following works:

Dubuisson P., J.C. Buriez and Y. Fouquart, 1996: High Spectral Resolution Solar Radiative Transfer in Absorbing and Scattering Media: Application to the Satellite Simulation, *J. Quant. Spectrosc. Radiat. Transfer*, 55, 103-126. (not cited in the manuscript, it will be added in the revised version)

Iacono, M. J., Delamere, J. S., Mlawer, E. J., Clough, S. A., and Morcrette, J.-J.: Cloudy Sky RRTM Shortwave Radiative Transfer and Comparison to the Revised ECMWF Shortwave Model, Twelfth ARM 15 Science Team Meeting Proceedings, St. Petersburg, Florida, April 8-12, Atmospheric and Environmental Research, Inc. Lexington, Massachusetts, 2002. (already cited)

see also:

Iacono, M. J., E. J. Mlawer, and S. A. Clough, 2001: Validation of the RRTM shortwave radiation model and comparison to GCM shortwave models. In Proceedings of the Eleventh Atmospheric Radiation Measurement (ARM) Science Team Meeting.

Iacono, M.J., J.S. Delamere, E.J. Mlawer, S.A. Clough, J.-J. Morcrette, and Y.-T. Hou. 2004: Development and evaluation of RRTMG_SW, a shortwave radiative transfer model for general circulation model applications. In Proceedings of the 14th Atmospheric Radiation Measurement (ARM) Science Team Meeting, Albuquerque, New Mexico, March 22-26.

Iacono, M. J., E.J. Mlawer, J.S. Delamere, S.A. Clough, J.-J. Morcrette and Y.-T. Hou, 2005: Application of the Shortwave Radiative Transfer Model, RRTMG_SW, to the National Center for Atmospheric Research and National Centers for Environmental Prediction General Circulation Models, In Fifteenth ARM Science Team Meeting Pro-

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ceedings, Daytona Beach, Florida, March 14-18.

The last 4 publications can be found here: <http://www.arm.gov/publications/proceedings.stm>

Please note that in the manuscript in ACPD, we already referred to the previous validation, but only in the last paragraph of section 3: In the revised manuscript, that text will be extended and moved at the beginning of the section, to highlight the work already done on the SW6 validation. Of course, your other comments will also be addressed.

Best regards,

Chiara Cagnazzo and Elisa Manzini

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

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6, S5658–S5660, 2006

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