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Interactive comment on "Evaluation of the ECHAM family radiation codes performance in the representation of the solar signal" *by* T. Sukhodolov et al.

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In my opinion, it is a useful paper. In this paper have been evaluated several radiation codes performance in the representation of the solar signal. Thus has been evaluated accuracy of some popular approaches for taking into account of gaseous absorption in GCMs and CCMs. This work once more demonstrates that these approaches, including the "correlated k-distribution", are not good enough for the radiative transfer simulation in the upper stratosphere and mesosphere. The authors have not explained this well-known fact but suggested a rather reasonable method to improve the representation of the solar signal in the ECHAMSs codes. It seems that this method also

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can be applied to improve other codes.

Concerns/suggestions: To try a method that is described in (Fomin, B.A. and M.P. Correa, A k-distribution technique for radiative transfer simulation in inhomogeneous atmosphere: 2. FKDM, fast k-distribution model for the shortwave, J.Geophys. Res., V. 110, D02106, doi:10.1029/2004JD005163, 2005), which seems much more effective for the rapid radiative transfer simulation in comparison with the "correlated k-distribution" method, particularly in the upper stratosphere and mesosphere.

Technical correction:

1. Page 1339, line 7, should be "2013".

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