

## ***Interactive comment on “Comparative analysis of atmospheric radiative transfer models using the Atmospheric Look-up table Generator (ALG) toolbox (version 2.0)” by Jorge Vicent et al.***

### **Anonymous Referee #2**

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The paper describes a software tool to generate lookup tables for atmospheric correction. Three different RT models (MODTRAN, libRadtran and 6SV) are included and the tool provides an interface which can setup consistent model input files for the different RT models. Thus the tool can be used to compare the different models, which is an application shown in the paper.

The paper is a technical description of the software tool ALG. Unfortunately, the results of the model intercomparison shown here are not very meaningful, because the authors do not explain the reasons for discrepancies, they only speculate and do not provide details of the RT codes. Moreover, I think that the compared quantity (global

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sensitivity analysis) is not well suited for a model intercomparison, because it does not give much insight in reasons for discrepancies. All included RT models (MODTRAN, 6SV and libRadtran) have been validated in numerous model intercomparison studies and given the same input they produce exactly the same results. Providing exactly the same input is a difficult task, and obviously, also the presented toolbox can not generate exactly the same input. There are differences in parameterisations of absorption, optical properties etc., so I think that it is important, that one works directly with the RT model instead of using a wrapper which hides the specific features of the individual models.

I am a little skeptical whether the tool is really useful for the scientific community. Of course it makes the generation of lookup-tables for atmospheric correction easier. But the danger is that the users do not understand the physics behind radiative transfer, which they learn better when they work directly with the RT models.

Given these concerns, I can not recommend publication in GMD. The document is of course needed as a technical documentation of the software but it's scientific content is from my point of view not sufficient for a scientific journal such as GMD.

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