Geoscientific

Model Development

Discussions

Interactive
Comment

Interactive comment on "IL-GLOBO (1.0) – development and verification of the moist convection module" *by* D. Rossi et al.

D. Rossi et al.

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general comments:

2.1 – Resolution We agree with the reviewer and took the time to perform a simulation at higher resolution, that is now shown in the renewed Figures. We did not change figure 1, since it is only used as an illustration of the effect of the activation of the convective scheme. Results are qualitatively unaltered.

2.2 – In the old figure 5 we only showed the tracer parcels released in the tropics. We added to the figure also tracer released in the other two subdomain, as it is shown in the renewed figure 5. Different behaviour is observed between tropics and extra-tropics release. This is reported in the text.

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2.3 pg 8241 ln 10-11

Our intention was to inform the reader that convection will appear in many places and times during the model's run, not to go into a physical explanation of its occurrence, but since this sentence seems to incur the disapproval of both reviewers we removed it and substituted it with:

Moist convection is widespread in the Earth's atmosphere where it displays a wide range of space and time scales in response to the variability of environmental parameters, ranging from the sub-kilometer / tens-of-minutes of individual cumuli to hundred-of-km / several days of mesoscale convective complexes \citep[see, \textit{e.g.},][]{emanuel-1994}.

2.4 pg 8241 ln 16 – Changed "below" to "smaller than or close to"

2.5 pg 8242 ln 10 – OK

2.6 pg 8243 ln 24 – LET: no change

The Kain-Fritsch code uses LET, and we left it so in order to help anyone who would loOK at the code. We like LNB as well, but other acronyms appear in the literature beside those mentioned by the reviewer (e.g. Bechtold 2001 uses ETL) and we thougth there was no harm in using a different one.

2.7 pg 8245 ln 5 – OK

2.8 pg 8245 ln 15 – OK

2.9 pg 8245 ln 17 – OK

2.10 pg 8246 ln 1 – Paragraph rewritten in order to present first the general formula, and then the special case of cloud top.

2.11 pg 8246 ln 7 – The sentence starting at 8246 ln 5 is changed to: "In terms of probability this is expressed by the complementary probability ..."

2.12 pg 8247 ln 4 – OK, added: "where the redistribution of mass is applied"

2.13 pg 8250 ln 8-9 – OK – see general comments

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Interactive comment on Geosci. Model Dev. Discuss., 8, 8239, 2015.