

## ***Interactive comment on “Modelling study of the impact of deep convection on the UTLS air composition – Part I: Analysis of ozone precursors” by V. Marécal et al.***

**V. Marécal et al.**

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We have noticed a mistake in our RAMS isoprene emission routine. A full simulation was performed again with a correction of the emission routine. This improves our isoprene results in the lower atmosphere. This has only a small or negligible impact on other NMVOC species, NO<sub>x</sub> and ozone. A change up to 20 % in the isoprene and ethene lifetimes is noticed due to changes in the OH concentration.

The new Figures concerning the isoprene and the isoprene lifetime will be provided in the revised version of the manuscript. The new simulation shows that in the first 1.5 km, the isoprene level is now 200 pptv at 18:00 UT instead of 1 pptv previously. This

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amount is comparable with the values collected during the flight from San Jose dos Campos to Cuiaba mentioned by T. Karl at 3 km during the dry season. However, at 3 km, the mean isoprene values at 18:00 UT (roughly 10 pptv) remain at least 10 times lower than the aircraft measurements. Several reasons could explain the apparent underestimation of the RAMS isoprene concentrations at 3km:

- First of all, the aircraft measurements mentioned above are performed in August, during the dry season while our work simulates a case during the wet season in February. It should be stressed that the isoprene emissions in the Sao Paulo State area during the dry season is 2 to 3 times higher than during the wet season, according to the GEIA monthly average emission data.

- Secondly, the results shown here are averaged values on the fine grid. Locally, isoprene values higher than 100 pptv are sometime computed in the fine grid. Furthermore, the region of Cuiaba which is far west out of the fine grid of simulation, is a region of very high isoprene emissions compared to the emissions in grid 2.

- Finally, the background level of isoprene used for initialisation is less than 1 pptv at 3 km. It doesn't favour high values at this level. As a consequence, the isoprene values at 3 km are mostly due to the transport of the emissions from the boundary layer up to 3 km. The total duration of the simulation might be too short to let the isoprene background levels increase at this height. We remind here that the duration of the simulation was chosen in order to better take into account the convective event itself.

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