**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Improved global modelling of HO$_x$ recycling in isoprene oxidation: evaluation against the GABRIEL and INTEX-A aircraft campaign measurements" by T. Stavrakou et al.

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In my earlier comment I focused strongly on the major issue of the efficient reaction rate between isoprene - OH and some of the issues on the isoprene emissions based on MEGAN. However, I would also like to add a comment on a more minor issue; the topic of dry deposition. It is indicated that that simulated dry deposition is based on Wesely's approach which uses the species solubility and estimated reactivity to infer dry deposition rates by scaling with those for O3 and SO2. This results in "daily average dry deposition velocities for isoprene hydroperoxides and epoxides between 1.3 and

1.7 cm s-1" according to the study. Then it is stated that substantially higher Vd's for MACR and MVK have been reported from field observations where a reference is made to the Pugh et al. 2010a paper. This reference suggests that Pugh et al. actually measured MACR and MVK dry deposition fluxes/velocities which is not true. They simply scaled the MACR and MVK dry deposition velocities to arrive at the proper levels of MACR and MVK concentrations. Concerning the availability of MACR and MVK dry deposition rates, there is very limited data. For a proper reference to such observations you could for example refer to Karl et al., J. Geophys. Res., 109, D18306, doi:10.1029/2004JD00473. This paper on observations in the Costa Rica rainforest shows observed large nocturnal removal rates, likely to be attributed to the destruction by dry deposition, e.g., associated with a wet canopy. In addition, this issue of tropical MACR and MVK dry deposition has also already been previously discussed in more detail by Von Kuhlmann et al., "Sensitivities in ...", 2004, Kuhn et al., Atmos. Chem. Phys., 7, 2855–2879, 2007 and the Ganzeveld et al. 2008 paper. A more essential change that should be made is the statement on the "dominance of the OH-reaction over deposition losses". If you would indeed have MACR/MVK dry deposition velocities larger then 1.7 cm s-1 (which seems to be too large when talking about daily averages, this value might be close or even larger then the turbulent limit), then dry deposition losses could be actually comparable to the chemical tendency (although this should be confirmed by checking the chemical timescale for the high OH levels). You would deplete a boundary layer of 1500m in about a day ($\sim$ 1500 x 100/1.7 seconds).