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Comment

Interactive comment on “VOC reactivity in central California: comparing an air quality model to ground-based measurements” by A. L. Steiner et al.

Anonymous Referee #1

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General comments:

The manuscript presented (VOC reactivity in central California: comparing an air quality model to ground-based measurements) by Allison Steiner and co-workers reflects an interesting study of measured and modeled OH-reactivity for the area of central California in detailed discussed for 4 sites. The authors did a very good job in explaining the structure of the model and the overall aim of the manuscript. The results reflect interesting features for the total and single OH-reactivity and I would recommend publishing the paper in ACP with minor comments.

Special comments:

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As already pointed out by the referee 2 I also wonder why it is necessary to integrate the model over the first 250 m and not use the lowest level of the model outcome for comparison with the ground based measurements. This could have a quite important effect for the concentrations of reactive VOCs. As shown by Boy and co-authors (ACP, 4, 2004) the concentrations of monoterpenes can in rural areas decrease up to 50 % from the ground to the top of the mixed layer and this should be the same for reactive compounds emitted from the surface.

Second I do not completely agree with the authors to use the word measured for the OH-reactivity based on calculations regarding a certain number of VOCs (depending on the station), methane (only estimated), CO and NO₂. There are instruments which are able to measure OH-reactivity but in the context of this manuscript I would prefer to use calculated and modeled values.

The last point for this in general very good manuscript is to include one more figure at the end of the manuscript showing equal like in Figure 9a the whole model area but the contributions of the single modeled R(OH) values.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 13077, 2007.

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