

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

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A.L. Steiner and co-authors have presented a very nice analysis comparing measured and modeled concentrations of VOC and NO_x in central California. For the most part they have done an excellent job of presenting insightful and accurate comparisons. However, there is one aspect of their comparisons that is not adequately addressed. It is relatively straight-forward to compare the ratios of the measured concentrations of emitted species to the ratios of those species in emission models, because those ratios, at least under favorable conditions are largely independent of meteorological variables. The comparison of measured and modeled absolute concentrations, which

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is a major focus of this paper, is much more difficult, because disagreements can arise from model errors both in quantifying emissions and in treating dilution effects. These dilution effects are driven by meteorological parameters such as wind fields and evolution of the boundary layer depth. Steiner et al. largely ignore possible model errors in the dilution effects, and attribute the inconsistencies between measured and modeled concentrations solely to problems in the emissions included in the model. The paper would be greatly strengthened by a discussion of how well the model simulates the relevant meteorological parameters including wind fields and boundary layer depth, and consideration of the balance of the responsibility for model-measurement disagreement between errors in emissions and errors in the treatment of dilution.

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