Geoscientific
Model Development
Discussions

Interactive comment on "Sensitivity of biogenic volatile organic compounds (BVOCs) to land surface parameterizations and vegetation distributions in California" *by* Chun Zhao et al.

Anonymous Referee #2

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This is an excellent paper and it should make a significant contribution to GMD. Because it will serve as a reference for users of the widely used community modeling system WRF-Chem, I agree with comments from reviewer #1 that it requires a bit more information and precision. In addition to the comments from the other reviewer, I would like to see more details and clarification on the following points.

(1) The authors apply nudging. While is appropriate for their application in which they only look at the sensitivity of biogenic emissions to land surface parameterizations and vegetation distributions, the reader should have a little bit more info. Is the nudging also applied in the Boundary Layer (BL) and at the surface? Why did you choose not to nudge moisture? I would not expect the answers to this question to alter the quality

of the results. (2) I would have been interested to get a bit more info on the difference in surface meteorology, assuming that nudging was not applied in the BL. What was the relative impact from meteorology compared to land-use and/or a different version of MEGAN? Of course, if nudging was applied in the BL this would be a moot point. If the authors can elaborate a little on this that could be useful. (3) I assume this was a dry period in the model simulations, so slight differences in cloud distributions could not have contributed much to the differences between model simulations in this case. However, could this have played a role in under/over forecasting for simulations of all runs in general?

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2015-266, 2016.