Interactive comment on “Modeling regional aerosol variability over California and its sensitivity to emissions and long-range transport during the 2010 CalNex and CARES campaigns” by J. D. Fast et al.

Anonymous Referee #1
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Exhaustive examination of regional aerosol variability during the 2010 CalNex and CARES campaigns using WRF-Chem.
Suggest shortening abstract by at least 33%. I would also mention the overarching goals of CalNex/CARES within the abstract.
End sections 4.1, 4.2, 4.3, 4.4, and 4.5 with summaries of how well the model simulated the respective quantities: meteorological quantities (4.1), trace gases (4.2), etc.

How much of the high-bias in emissions is due to emission reductions between 2008 and 2010 and how much is due to a high-bias in the CARB2008 emission inventory?

Specific Comments:
P7199L27: Needs a more specific web site
P7200L12: Why did Shrivastava et al. adjust primary organic aerosol emissions by a factor of two?
p7202L19: With respect to the "considerable differences" found by Knote et al., is there anything readers of this paper should know?
p7205L30: What do you mean by smaller "wind speed statistics"? Please re-write.
p7209L25: How much of models low bias for MVK+MACR is explained by these interferences?
p7224L16: impact of the marine intrusions → After reading the following paragraph it wasn’t clear to me what you meant by this statement. You focus on a refinery source as opposed to a marine source.
p7240L9: Reducing anthropogenic emissions by 50% decreased isoprene and terpene concentrations by what percent?
p7241L8: You state the MOZART boundary conditions are likely too high. Any thoughts as to why?

Technical Corrections:
p7189L10: evaluate the one configuration → evaluate one configuration
p7189L12: sensitivity of regional variations in aerosol → sensitivity of aerosol
p7189L18: contribute to errors (in what?)
p7189L26: some aerosol species (which?)
p7199L19: are also been included → are also included
model domain encompasses grid spacing of 4 km is identical. It is identical consistent with trend consistent with the observed decrease optical properties variables from observed, but the largest biases are for are likely to be biased high Statistics describing Statistics describing detection range 80 detection range of 80 are occasionally higher than the observations at SPECIFY LOCATION(S) likely too low contribute a significant contribute a significant may be due to missing important may be due to missing important Comments on Tables and Figures
Table 4: How is index of agreement defined?
Table 6: What are range gates?
Table 4 etc. The RMSE contains a contribution from the bias. Consider replacing the RMSE with the centered root mean square error (i.e., the RMSE after removing the mean)

Figure 1a: R/v Atlantis line does not show up well
Figure 1c: Acronym key would be useful
Figure 3 caption should mention LA basin

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 7187, 2014.