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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Some issues in uncertainty quantification and parameter tuning: a case study of convective parameterization scheme in the WRF regional climate model" *by* B. Yang et al.

Anonymous Referee #3

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General Comments. This is a valuable contribution, because I am not aware of this method being applied in detail to a physics parametrization in a meteorological model before. The authors have chosen a good range of variables, and introduced a method of exploring the large parameter space efficiently to optimize a chosen aspect, in this case precipitation. The authors have shown good familiarity with the physics parametrization scheme chosen and have explained the mechanisms behind the parameters well. While I would have liked to have seen an independent period or year chosen to back up their findings, I feel this is a good initial presentation of the method

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that can lead to future related work.

Specific Comments. The caveat is that in a different year, with perhaps a drier or moister soil, or in a different region of precipitation, the results may have optimized towards different values, which would have been quite instructive. It would be dangerous to take these results at face value to apply to this scheme in all situations.

Technical Comments. 1. Equation 8. Is RND the same in both uses in this equation or ar they different random numbers? 2. p31780. I assume that 50 experiments means that K=50, but this is not quite clear. 3. p31780, line 26. The word may be "constraint". 4. p31782. The method of doing the overlapping simulations was presented at the end of Section 2, after the description of some physics tests in Figure 3. Were these physics tests carried out with the same simulation technique? And if so, it might be beneficial to put this description before these tests. 5. p31784 and earlier description of EC on p.31780. Since E and C appear to have such different magnitudes, it is not clear that EC=E-C is sufficiently normalized to make sense.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 31769, 2011.

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