Geosci. Model Dev. Discuss.,
doi:10.5194/gmd-2016-237-RC1, 2016

Geoscientific Model Development Discussions
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Interactive comment on "The Fire Modeling Intercomparison Project (FireMIP), phase 1: Experimental and analytical protocols" *by* Sam S. Rabin et al.

Anonymous Referee #1

Received and published: 15 December 2016

The paper 'the fire modeling intercomparison project (fire MIP), phase 1: experimental and analytical protocols" by Rabin et al. aimes at synthesizing the various fire models embedded in DGVMs, describe their processes and equations, and how we can compare them. The complete description of all the equations in one single synthesis is definitely a keystone information for the community and is very well presented. The benchmarking datasets available and the efforts for proposing a common simulation protocol to capture the differences are clearly explained and is promising for further understanding on this topic. the paper is well written to try and clearly synthesize all the models. In turn, I just have minor concerns on the few 6 points below: #1# Page 3 lines 15 to 20 in introduction: I think some keystone references on the long term data

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Discussion paper

or simulations performed over the last century are missing here, beside the Kasischke 2002 and Stock 2003 references. I think it would be worth mentionning some model benchmarking (Yue et al. 2015, Kloster et al. 10), some fire history records and emissions (Mouillot et al. 2005, 2006, Schultz et al. 2008, Mieville et al. 2010), and the recent synthesis on global charcoal database to be used potentially for recent trends (Marlon et al. 2016). #2#for the LPJ GUESS BLAZE description, i did not really understand 'this annual burned area is distributed to each month of the next year based on observed fire seasonality'... i am confused with the term 'next year', and 'observed'. observations are based on remote sensing data? if yes, which one? and what s the impact on the benchmarking of seasonality if it's fitted on a given remote sensing data. In this sense, I think we would need a full table where, for each model, the reader would like to know for which variable and for which time step the model output can be benchmarked. #3# In table 4 describing the variables used for model benchmarking, I am wondering if fire size distribution or fire number could be an option or not? for exemple Hantson et al 2016, Yue et al. 2015 started to use this variable, and Oom et al. 2016 (recently published in Remote Sensing, maybe after the final submission of this manucript) proposed a global database on these fire numbers. #4# in the datasets description, we get a little confused along the document on the different time frames... maybe an additional supplementary material would help in understanding what are the actual data time frames, and the time frames for which the authors have repeated some variables. #5# finally, in table S3, what is the difference between 'none' and 'n/a'? in this supplementary material, n/a, n/c and none should be more clearly defined. #6# in table A1: I could see the "grazing to atmosphere" variable. this is not well described in the models, and which model actually use this. any additional information to provide on this topic?

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