Review of ACPD manuscript "Daily global fire radiative power fields estimation from one or two MODIS instruments" by Remy and Kaiser.General comments

The present work is devoted to correct biases in daily FRP observations from MODIS using a single satellite. This work proposes to use an adaptive regionalization algorithm to remove these biases. The evaluation is conducted at global scale with NASA's Terra and Aqua satellite data. The state of art is well reviewed, although some more references would be appreciated. The objectives of this manuscript are clear and correspond to the editorial lines of ACP. Also, the authors present a solid validation. Consequently, I recommend the acceptance of this manuscript after addressing a couple of major issues and replying to some minor comments.

Major Comments

- Figures must be sorted by their order of appearance. It is not correct to talk about Figure 5 first (P11 L10), then Fig. 4, and so on. This is quite confusing for the reader.
- In my opinion, authors should be more specific when analyzing their results. Throughout the article they use many qualitative expressions such as "a lot", "better", "satisfactory", or "worse" than lack of precision. I would suggest to give a more quantitative look of results by giving figures and statistics where possible. This is especially critical in the summary (Section 5), which will greatly benefit from a recapitulative table with the major results of the authors' work. Please find below a non-exhaustive list of somewhat vague assertions:
    - P10 L8 "very positive".
    - P17 L8 "slightly larger"
    - P17 L24 "large"
    - P17 L24 "rather small"
    - P20 L22 "much improvent"
    - P20 L 25 "significant way"
    - P21 L1 "better"
    - P21 L2 "large"

Minor Comments

- P2 L20 Please give value of biases and the percentage of improvement.

- Introduction Section: Please add a short summary of FRP definition and of methods of retrieval by satellite.

- References in the introduction are quite scarce, especially in Section 1.1. Please consider adding more.

- P4 It might seem obvious but a definition of what FRP is would be appreciated by the readers.

- P4 L15 Why GEO data are not used? LSA-SAF project disseminates in NRT FRP product with MSG geostationary satellite (http://landsaf.meteo.pt/). Do you think your method could be also used to merged GEO and LEO data.

- P5 L12 Again, MODIS is not the only satellite providing real time FRP products. Please check the LSA-SAF website, for example.

- P5 L20 Please define LST.
- P8 the following links are not available:

http://www.gmes-atmosphere.eu/news/canada_smoke and
http://www.wunderground.com/blog/JeffMasters/canadas-2nd-largest-fire-on-record-spreading-smoke-to-europe

- P9 Please insert a brief summary of your article before Section 2.

- P10 L22 Please give the number of the results' section.

- Tables 1-3 Are values of RMSE and bias (10-4 or 10-5) significant? I would suggest to include relative bias and RMSE in the referred tables to provide more significant statistics.

- P14 L12 What value of RMSE and bias would be acceptable?

- p15 Could you give the percentage of 'extreme results' obtained with the non-linear regression and give the threshold for 'extreme'?

- P18L24 "the causes … are clear …". Please clarify the meaning of this sentence.

- P20L22 replace "doesn't" by "does not".

- Figure 7 Please use the same Y-Axis range [0-0.0008] in the two subplots.

- Figures 8, 9, and 10 need to be redrafted (legend or label too small).

- I would suggest to superimpose statistics (mean value/rmse/bias, …) in all your figures.

- It would be nice to include a brief discussion on the benefits of including the improvements presented by the authors in the MACC-II system on the smoke emissions. This will give a more "atmospheric" flavor to the manuscript and will make it even more suitable for ACP.

- Finally, I would also suggest to discuss a little bit more performances of the presented approach compared to previous works. For example, it seems that Ellicott et al. (2009) managed to use observations from a single satellite only (P6 L26). Did the authors compared their method with Ellicott's? Can they at least add a comment about the main differences between these two methods in the conclusions?