

***Interactive comment on “The impact of
deforestation in the Amazonian atmospheric
radiative balance: a remote sensing assessment”
by E. T. Sena et al.***

Anonymous Referee #2

Received and published: 19 September 2012

First I am not a specialist of Aerosols, thus please read this review with this background information in mind.

Overall I liked the paper and learned quite a bit. I have two main comments. Firstly for me a section which discusses what the results now mean in a broader context is missing, leaving the reader a little bit with the impression of 'so what'. Given the results I think it should be not very difficult to add such a section. Given the various effects will the biosphere (e.g. agriculture) now profit or not? in the total are the effects a concern or not? As an example you state at the end of the abstract 'The large radiative forcing values presented in this study point out that deforestation has

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strong implications in convection, cloud development and photosynthesis rate over the Amazon region.' Your study does not show that (e.g. 'strong implications on cloud development'). However your results could possibly lead to something like that if you broaden a bit the discussion. My second main comment is that for me too much technical material is in the main text. In my view the article would be more easy to read and thus would reach a wider audience if you would move some of the more technical materials in an appendix.

More detailed comments

abstract: line 17

'The surface reflectance plays a major role in the aerosol direct effect' - can you say in a few words why, what is the mechanism?

p. 14839 first two lines -can you give per cent change of air column water vapour content?

line 3 - remove word 'impact'

line 3/4 what do you mean by 'shortwave radiative effect' - do you mean 'shortwave radiation forcing'? can you formulate more precisely?

line 19 'controlling atmospheric composition' - in what sense? can you be more precise?

line 25 approximately 741365 km² - seems a very precise number for being approximate? - give standard errors?

p. 14840

line 8 reformulate as follows: '...with consequences for the column water vapour content'

Figure 2 - maybe split into three subfigures - for every site one subplot - it may be

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easier to 'read'

line 17 'This indicates that there was a shift in biomass burning activities, initially ...'
what proofs that ? do you have more clean evidence ? otherwise formulate more cautiously

p. 14841 second paragraph - it would be good if you said what the role of AERONET data will be

The last sentence seems unnecessary / repetitive - instead the reader would probably expect a section discussing implications of the findings (as already mentioned in my general comments)

p. 14843 line 17 '...cerrado covered areas' - based on what data / climatology ?

p. 14849 line 6 replace 'less' by 'least'

lines 5 to 9 Impressive ! was 2008 particularly anomalous though ?

line 16 replace 'intense' by 'strong'

p. 14850 line 18 '...cerrado'. Can you explain better why this is - what exactly is going on ?

p. 14851 first three lines - again why ? please explain in more detail

p. 14852 line 20 replace 'considering' by 'assuming' line 22 - express in %

p. 14853 line 12 define 'aerosol forcing efficiency' - e.g. what are the units ?

line 18 to 22 - what do these changes mean ? interpret ?

p. 14854 line 26 - maybe replace 'understanding' by 'quantifying'

p. 14855 line 5 to 7 say this earlier on (see comment to p. 14841)

line 14 -15 again why ?

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line 21 (ii) explain a bit more

p. 14856 line 10-12 too simplistic - see also general comments

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 14837, 2012.

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