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Interactive comment on “Space-based observations of fire NO_x emission coefficients: a global biome-scale comparison” by A. K. Mebust and R. C. Cohen

Anonymous Referee #2

Received and published: 23 October 2013

General comments:

This paper investigates the range of fire NO_x emission coefficients (ECs) found at global scale for different biomes as well as the spatial variability within each biome. It is a useful contribution to a better understanding of the implication of the assumptions made in models (e.g. uniform EC for each biome type) in term of NO_x emission inventory uncertainties. The paper is well-written, but there are some redundancies and it could probably be more concise in some sections. I would recommend publishing it after some modifications suggested below.

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Specific comments:

p21666, Line 20-21: "and a similar number of ecoregion ECs falls outside this range". I do not understand what this means. What range are you referring to?

Section 4.1: This section needs to be rewritten to improve clarity. There is an attempt to explain the difference between standard deviation and standard deviation of the mean, which in my opinion should be more concise (maybe include some references here?).

p21677 line 5, "we note the standard deviation is the square root of the variance" is not necessary, since all readers are familiar with this basic concept.

Also, p21677 line 20-23 is a repetition of p21676 line 20-25

Section 4.2: The authors discuss the comparison between specific ecoregion ECs and the mean ECs for the corresponding biome, but in Figure 3 the grey band indicate the range for all mean biome ECs (it is indeed the same for all Figures 3-6). It is a bit odd to present results this way. The mean ECs for each type of biome should also appear on Figure 3-6, since that is what is discussed here.

Technical corrections:

p21666, Line 19: p has not been introduced before, and you should avoid to use it in the abstract.

p21676, Line 10: R needs to be defined.

p21678, line 9: p should be defined

p21678, line 13: statistically

p21681, line 6: "moderate number of observation rather than a small number". "Moderate" and "small" are subjective. Rather say something like:"Given the number of observations used for ecoregions that deviate from the mean ECs, these results can be considered statistically robust".

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p21686, line 9-10: I would choose either "significantly" or "substantially" here.

Figures: Please increase the size of the letters (a, b etc...) for each figure.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 13, 21665, 2013.

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13, C8404–C8406, 2013

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