**Atmospheric
Chemistry
and Physics
Discussions**

Interactive
Comment

Interactive comment on "Estimates of biomass burning emissions in tropical Asia based on satellite-derived data" *by* D. Chang and Y. Song

Anonymous Referee #1

Received and published: 5 November 2009

General Comments

The authors estimate emissions from biomass burning in tropical Asia for the years 2000-2006 using two different burned area products. The subject matter is appropriate for ACP and will be of interest to readers.

Specific Comments

One important issue that should be clarified by the authors is how the L3JRC burned area product, despite reporting much less burned area in the region as a whole in

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

almost every land cover type, results in emissions very nearly as high (or even higher) than the emissions obtained from the MCD45A1 product (see Tables 1 and 6). This outcome is unlike the results of previous studies which found that differences in the spatial distribution of burned area produce very large differences in emissions (e.g., Korontzi et al., 2004). Presumably at least some of the unexpectedly high L3JRC emissions arise from the higher proportion of peat burning in this product. It would help if the authors would clarify how the other factors in Equation (1) are compensating for the factor of ∼2 difference in burned area. A spatially explicit map of at least the fuel load would help greatly, as it is very difficult to keep track of the many different fuel loads that were used as described in Section 2.2.3.

Table 7 - Here the L3JRC product is producing much higher CO_2, CO, CH_4, NO_x, OC, and PM emissions from forest burning despite consistently reporting much less (∼0.6×) burned forest area than the MCD45A1 product. This same trend propagates into Table 8. As requested above, please clarify how this is happening.

Page 19609 - Among the other differences described between the L3JRC and MCD45A1 burned area products is the very large and completely burned region near Punjab that persists from 2004-2006 in the MCD45A1 product. Some discussion about this fairly major difference would be helpful. Any idea what this might be?

Page 19615, line 3 - "Overall, the MCD45A1 product performed very well in Thailand, while the L3JRC showed substantial under detection of burned areas." I don't think this claim is completely justified. Plotting the data in Table 4 on which it is based, it is clear that while the L3JRC product performs very poorly (consistently underestimating burned area as the authors say), the MCD45A1 product hardly performs "very well" (r^2 = 0.012). In fact, for three of the six fire years (2004, 2005, 2006) the L3JRC estimates are much closer to the FFCD estimates than are the MCD45A1 estimates.

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Technical Corrections

Page 19606, line 6 - As written sentence makes it sound as though MODIS has only seven bands. Change "...all seven bands of the MODIS..." to "...all seven 500-m bands of the MODIS...".

Page 19610, line 15 - "...Indonesia processes about 80.4% of total peatland..." Do you mean *possesses* about 80.4% of total peatland?

Page 19615, line 22 - Change *significantly* to *significant*.

Page 19616, lines 6 and 8 - Here 22 values from Table 6 are duplicated in the text. This is redundant and difficult to read, and makes it very difficult to compare the average annual emissions for each species. I suggest presenting this material only once in Table 6.

Page 19617, line 27 - Here again is a long list of numbers duplicated from a table (Table 8). This is not necessary and makes the text difficult to read.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 19599, 2009.