

Interactive comment on “Climatic and ecological future of the Amazon: likelihood and causes of change” by B. Cook et al.

Anonymous Referee #1

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The paper is interesting, but I suggest some reviews before publication. The author s suggest that rainfall in the southern part of the Amazon is decreasing while in fact has been increasing (Marengo 2004-TAC, Satyamurty et al 2009-TAC).

The authors also suggest that various models show the die back of the Amazon by middle 22050's, when in fact only one or two global models do so. Mahli et al (2009) made a review of the knowledge of the die back, and they show that considering the projections from the IPCC AR4 global models, what could happen in the future may be more of a change in the vegetation type, perhaps a seasonal forest, rather than savanna type vegetation as shown by the HadCM3 model. Some of the findings in MAhli et al (2009) are similar to this paper by Cook et al (2010), I would like to see something new from the later as compared to the former.

Southern Amazon is a region where predictability is relatively low, and uncertainties are high, due to land surface processes not well represented by the models. It is true that on this region fires occur every year, because the relatively dry season of it (not dry season, since rainfall still falls, but we can consider a month with $pp < 100$ mm as a “dry” month). It is also true that soil moisture (low) is a factor that contributes to the propagation of fire, but more important is the lower atmospheric humidity, strong winds and large incoming solar radiations, that are not considered on the analyses of this paper. Human influences (deforestation) are not considered in the IPCC AR4 model runs, so that last statement of the abstract may sound more as speculation than a fact.

In page 76, line 23, what does this statement mean:

3. Higher maintenance cost and possibly reduced growth at higher temperature.

Maintenance cost of what?, reduced growth of what?

I would like to see a discussion of the decrease of the dry season rainfall, which is relatively small in its absolute magnitude. Does the drying correspond to a lengthening of the dry season by 11 days, as the authors suggested?. Do the analyses included daily data?, I do not see that on the paper.

Please also note the supplement to this comment:

<http://www.earth-syst-dynam-discuss.net/1/C32/2010/esdd-1-C32-2010-supplement.pdf>

Interactive comment on Earth Syst. Dynam. Discuss., 1, 63, 2010.

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