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Earth System Dynamics
Discussions

Interactive comment on "Estimating global cropland production from 1961 to 2010" *by* Pengfei Han et al.

Anonymous Referee #1

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This paper presents a study of global cropland production modeling using a process-based model VEGAS. The Green Revolution is addressed here which is very important in global carbon cycle. However, how to represent the Green Revolution in models is a major task. A prior attempt was made in VEGAS. Although large uncertainties and lots of future improvements remain, the results are still reasonable. Therefore, this paper fits the journal scope well and has certain scientific contributions.

There are only some issues to be addressed in the discussion section about the uncertainties.

1, The Green Revolution has not changed synchronously across different regions globally. However, the harvest index represented in equation 1 treats it identical over the globe. Please discuss the uncertainties of this issue.

2, Irrigation in section 2.1.2. As mentioned in the context, the irrigation intensity varies spatially. Please specify the sources of this spatial information? Is the spatial information from the HYDE data or generated by the model?

3, section 2.1.5. it says "Crop phenology was not decided beforehand but was determined by the climate condition." Double cropping over the East Asia is very popular where the climate conditions are sufficient. However, in the USA, single cropping is major under similar climate condition. Please discuss this issue a little bit in the discussion section.

4, DO double check the context and the references. There are too many small mistakes in the reference list, such as Subscript 2 in CO2. Mistakes were found in Lines 508 and 518 536. . .. . . DO keep the references in an identical style.

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