

## ***Interactive comment on “RECCAP uncertainty” by I. G. Enting et al.***

**Anonymous Referee #1**

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This paper discusses the evaluation of uncertainties in the context of a specific carbon-cycle effort called RECCAP. While the treatment of uncertainties is relevant to a wide range of geo-scientific questions, and this paper contains useful information and concepts about it, it seems to be written with only the RECCAP initiative in mind and consequently does likely not attract the broader readership of Biogeosciences it deserves. This starts with the title and the abstract which includes the acronym RECCAP without further explanation. But also throughout the focus is on RECCAP which is a pity. I suggest the authors to carefully go through the document and evaluate the different aspects of uncertainties with the following questions: "What part of this aspect is relevant for the whole biogeosciences community? What kind of approaches do already exist? What part is specifically relevant to carbon cycle science and RECCAP?". This does not involve a complete restructuring or rewriting, but rather adding short relevant statements in the respective paragraphs. The abstract should be broader in scope and

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a more general introduction sought for.

Moreover, when describing the RECCAP activities and products, it seems a more precise description would be desireable. E.g. the Ocean part is only cited as "pers comm.". On page 1852 - as a synthesis I would expect a table with the concrete properties of the RECCAP components instead of relatively general statements.

Minor points:

- \* Worthwhile discussing the relation between "ambiguity" and "equifinality" - the latter often used in hydrological and ecological modelling
- \* p. 1839 l. 8-11: Not clear how the authors infer an underestimation of uncertainties on GPP by evaluatung NEE. GPP and NEE will simply have differing uncertainties
- \* p. 1841 l. 18: "misinterpretation of results" is very unspecific. What different from "bias" do you mean here?
- \* p. 1844 l 20ff.: this whole paragraph needs better explanation and references (e.g. "weak constraint formalism")
- \* p. 1845 : there is very little specific guidance on treating spatial decomposition correctly, the paragraphs are very general (cf. temporal decomposition)
- \* p. 1845 l 25 : right panel instead of lower panel (or better put letter (A) and (B) into figure
- \* p. 1850 l 12: but note that this uncertainty based on parameters is very likely an underestimation (due to model structural error)

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