

Interactive comment on “Characterizing the multi-scale spatial structure of land-atmosphere interactions with information theory” by N. A. Brunsell and M. C. Anderson

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1. Does the paper address relevant scientific questions within the scope of BG? Yes
2. Does the paper present novel concepts, ideas, tools, or data? Yes
3. Are substantial conclusions reached? Yes, though a few additional points might be added.
4. Are the scientific methods and assumptions valid and clearly outlined? Yes, although the description of the site and more in-depth description of the ALEXI model would greatly help the reader.

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5. Are the results sufficient to support the interpretations and conclusions? Yes.
6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes, but see 4. above.
7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes.
8. Does the title clearly reflect the contents of the paper? Yes, but it is perhaps rather broad.
9. Does the abstract provide a concise and complete summary? Yes.
10. Is the overall presentation well structured and clear? Yes.
11. Is the language fluent and precise? Yes.
12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes.
13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No.
14. Are the number and quality of references appropriate? Yes.
15. Is the amount and quality of supplementary material appropriate? n/a

GENERAL COMMENTS

This paper presents an excellent, well-written and well thought out experiment to assess the additional information content gained from different satellite sensors at different resolutions, for assessing land-atmosphere interactions. I only suggest fairly minor changes for publication - the methods, analysis, results and conclusions are largely clear and logical, and interesting to Biogeosciences readers. An important addition however, is further information on the study site and the ALEXI model, which are cur-

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rently missing.

SPECIFIC COMMENTS

1. A table of general environmental information (e.g. soil, basic climate data, altitude, vegetation, location) for the Fort Peck site would be useful for the reader.
2. If available, further references on the use/development/validation of the ALEXI model, and on its input data etc, would also be useful for the reader.
3. It isn't clear from the outset why the year 2002, and the 3 days in question were chosen - can the authors please clarify this?
4. Units seem to be missing from some of the figures (e.g Fig 1,2,3).

P3436 line 19 - remove 'but'

P3437 line 11 - should 'is not be', be changed to 'is not'?

P3441 lines 6 and 9 - I think Priestley is mis-spelt Priestly here?

P3445 line 7 - should 'beak' be 'peak' ??!

P3446 line 11 - should "The" before 200m be removed?

P3449 - lines 14-16 - I think this finding is important, and should be mentioned in the conclusions/abstract

P3449 line 19- replace 'things' with 'quantities'?

P3449 line 14-15 - I don't quite understand this sentence - is it meant to be linked to the last paragraph?

P3449 line 17 to P3450 line 6 - again, I think this is an important finding which could be mentioned in the abstract and conclusions.

P3450 line 21-28 - it would be useful to consider how we might assess the "truth" - e.g. would this require a very extensive network of ground observations, for example?

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P3451 line 15 - I think the 'but' after (2) should perhaps come before the (2), making conclusion (2) part of the earlier sentence?

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