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Geoscientific Model Development Discussions

Interactive comment on "One-dimensional models of radiation transfer in heterogeneous canopies: A review, re-evaluation, and improved model" *by* Brian N. Bailey et al.

Anonymous Referee #2

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This paper contains a well-written discussion of the widely used but poorly defined concept of clumping employed in modelling radiative transfer in plant canopies. The concept is introduced and possible probabilistic approaches to representing it are discussed. These approaches are then assessed using simulations where the reference is a full leaf-resolving model. The binomial model is clearly seen to be the most accurate of those considered. I would be happy to see this paper published and have only a few essentially technical comments.

1. L67. It should say "was explored."

2. L75. The distinction between s and s' seems back to front here. If s' is the incident direction, then s should appear in the first three terms of the equation. Alternatively, if it is the scattered direction, then s and not s' should appear in the radiance in the final term.
3. L111. This should be "incurs".
4. L149, L162. "Augment" suggests an increase. Typically, $\Omega < 1$.
5. Figure 2. The third tree appears to be shown in plan view. This is not explained.

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