

## ***Interactive comment on “The Interactions between Soil-Biosphere-Atmosphere (ISBA) land surface model Multi-Energy Balance (MEB) option in SURFEX – Part 1: Model description” by Aaron Boone et al.***

### **Anonymous Referee #2**

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This paper describes the introduction of a multi-energy balance version in the ISBA SVAT model. This more complexity-based approach is a major development modification of the model and has the goal to improve the land surface processes, particularly on forest medium. I found this paper well written, well documented and clear. Model history and working context is well introduced. I'm sure that this ISBA option will serve the land surface model community. Therefore, I suggest minor revisions before accepting the paper for publication.

p5. L146: "and" is misplaced

C1

p6. L188: define  $V_a$  in equation

Fig. 1: this figure is central and commented P6 from L176 to 201. For a better understanding of different resistances and temperatures, a table showing symbology indices elements would be welcome such as: vg: vegetation, c: canopy, g: ground, n: snow surface ...). Moreover, this symbology is repeated in many other terms.

P8. L234: I supposed the reference is Eq. 5 instead of 6

p8. L248: reverse vegetation and snow position.

p10. L321: Snow surface temperature is missing.

p11. L355: replace "over liquid water and ice" by "air and snow".

p13. L393: define "pn" as evaporative efficiency or adapted terminology

p13. L394: define "LAI"

p14. L449: replace "m-6" by "10-6 m" (2 times)

p16. eq. 45: define LAI as Leaf Area Index

p17. eq. 52: define "lw" (denominator)

p18. eq. 58: is LAI a particular LAI?

p22. L698: boeotian question: I supposed the maximum snow load per unit branch area is different according to species. Is value of 6.3 kg m<sup>-2</sup> proposed could be considered as a median estimator? or a default value?

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C2