

REF: Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-269, 2016. Title: "The Interactions between Soil-Biosphere-Atmosphere (ISBA) land surface model Multi Energy Balance option (MEB) in SURFEX – Part 1: Model description" Authors: A. Boone, P. Samuelsson, S. Gollvik, A. Napoly, L. Jarlan, E. Brun and B. Decharme

Corresponding Author response to Editor: From the editor:

Thank you for this careful revision of your manuscript answering basically all the referees' comments. I however have the minor following remarks to make:

COMMENT:

-Paper title: I think it would read better to put "option" before "(ISBA-MEB)".

RESPONSE:

The title has now been modified accordingly.

COMMENT:

-L12-13: wouldn't it be better to put this sentence at the past tense: "It became clear ... had been reached and there was a need ..." ?

RESPONSE:

This sentence has now been edited/corrected to be in the past tense.

COMMENT:

-L23: please put a comma after "part two": part two, which ...

RESPONSE:

Corrected/done

COMMENT:

-L76-77: you write that you changed L76-77 to answer the referee' comment but I do not see any changes and the sentence still reads "... has been replaced in recent years by improved realism with respect to ...".

RESPONSE:

Indeed, this was an oversight (Referee 1 comment). We have now modified the phrase as suggested by that reviewer:

«In the SURFEX context, the Force-Restore approach has been replaced in recent years by multi-layer explicit physically-based options for...»

COMMENT:

-L170-175: Again, I think that "... ISBA-MEB option (referred to hereafter simply as MEB) ..." and "... multi-layer soil scheme (ISBA-DF: explicit DiFfusion equation for heat and Richard's equation for soil water flow) ..." and "snow parameterisation (ISBA-ES: multi-layer Explicit Snow processes with 12 layers by default) ..." would read better.

RESPONSE:

We are not quite sure what the requested modification is: but we have slightly reworded the phrases: we hope that this is along the lines of what the editor meant. The new text reads:

The ISBA-MEB (referred to hereafter simply as MEB) option can be activated for any number of the forest patches. By default, MEB is coupled to the multi-layer soil (ISBA-DF: explicit DiFfusion equation for heat and Richard's equation for soil water flow, Boone et al. 2000; Decharme et al., 2011) and snow (ISBA-ES: multi-layer Explicit Snow processes with 12 layers by default, Boone and Etchevers 2001; Decharme et al., 2016) schemes.

COMMENT:

-L657-658: I do not see the correction and the sentence "The soil liquid water and equivalent frozen water equivalent volumetric water content are defined ..." still sounds awkward to me.

RESPONSE:

We have replaced this phrase with the suggestion by Reviewer 1 to now read:

«The soil liquid water content and water content equivalent of frozen water are defined as w_g and w_{gf} , respectively ($m^3 m^{-3}$). «