

## ***Interactive comment on “The Land Surface, Snow and Soil moisture Model Intercomparison Program (LS3MIP): aims, set-up and expected outcome” by Bart van den Hurk et al.***

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### General Comments

In the Introduction, this paper needs to clearly state what is its focus and what is found in the other strongly related GMD CMIP6 papers. The split between the physical climate and the carbon MIPs needs to be made much clearer and early in the paper.

### Specific Comments

1. Page 11, Lines 389-402 – You may want to note here that these runs will be performed sometime in the future after the ESM data is available in the CMIP6 archive. This could be a year or 2 or more in the future.

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2. Page 12, line 405 – Is there an interaction between LFMIP and FAFMIP? It seems there should be and it should be noted in this section.

3. Page 14, line 523 – “A perfect boundary condition” – several studies have shown that prescribed SSTs are less than perfect since it breaks the atmosphere-ocean coupling and feedbacks. This issue distorts the variability in models forced by SSTs relative to predicted SSTs. I assume the land surface will have even larger issues since it has a much smaller heat capacity. Reword.

4. In the table “direction” should be changed to “Positive direction”. Just to be very clear.

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