Hydrol. Earth Syst. Sci. Discuss.,
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Hydrology and Earth System Sciences
Discussions

Interactive comment on "The impact of initial conditions on convection-permitting simulations of flood events" *by* Lu Li et al.

Anonymous Referee #1

Received and published: 6 November 2019

Review of manuscript "The impact of initial conditions on convection-permitting simulations of flood events " (hess-2019-402) by Li et al.

The manuscript is well written and clearly shows the impact of spinup time and different snow cover on discharge modeling with WRF-Hydro. This work is of high interest for the hydrological modeling community. It should therefore be considered for publication in nhess.

Minor comments For clarity and conciseness I think the size of the abstract should be reduced to less than 300 words (currently 438 words)

Page 10, line 285: add units to the values of bias and RMSE. By the way, please consider formulating the bias in percentages instead of mm, in order to facilitate the

interpretation of the results.

Page 10, line 289: I guess this "correlation coefficient" comes from the PEST method. Please clarify.

Page 11, lines 299-302: this result implies that the runoff coefficient, that is the ratio between discharge and precipitation, is slightly above 1! in order to argue that this is realistic, the authors may emphasize the fact that the case study is in "polar region" and that at the end of October not much ET is expected.

Page 12, line 333: it would be useful to also add the values in %, in order to better assess that the "differences are fairly small".

Page 12, line 346: "discharge MAE": the whole paragraph is about precipitation so I find it confusing to have this comment about discharge at this place. Is it a typo? Otherwise, this could be moved to the next paragraph.

Page 13, line 367: "Unsurprisingly, the snowmelt is due to positive surface temperatures and precipitation" In the Noah LSM, the snowmelt occurs when surface temperature is positive, independently of precipitation. Another land surface model such as NoahMP, which distinguishes between solid and liquid phase in the snowpack would be need to assess the effect of precipitation on snowmelt. So I suggest to remove the comment that the snowmelt is due to precipitation, as the Noah LSM which is used here does not allow to asses that, I think.

Page 13, line 374: same comment

Section 5: this section is rather a summary of what has already been explained in the result section, than a discussion. Please consider renaming this section, and also use the past tense.

Typos Page 3, line 87: "in to improve" –> "in order to improve"

Page 15, line 399: "1m" –> "1 m", line 406: "69%" –> "69 %", apply to the entire

manuscript

Page 15, line 429: “performance is depends ” –> “performance depends”

Figures Fig. 6: labels a) and b) are missing

Fig 8: Maybe the symbols could be shifted so that they can be all seen?

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