

Geosci. Model Dev. Discuss., author comment AC4
<https://doi.org/10.5194/gmd-2022-61-AC4>, 2022
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Reply on RC4

Zhi Li et al.

Author comment on "CREST-VEC: a framework towards more accurate and realistic flood simulation across scales" by Zhi Li et al., Geosci. Model Dev. Discuss.,
<https://doi.org/10.5194/gmd-2022-61-AC4>, 2022

This manuscript presents new developments concerning the CREST hydrological model. It is interesting, but it mixes 2 different subjects: speed up improvement thanks to vector-based routing framework and model physic improvement thanks to the new tested schemes for subsurface runoff and lake. In my view, and as already mentioned by the other reviewers this two subject should be clearly separated. Another point already mentioned by reviewers is the lack of information concerning the way parameters are estimated. Furthermore, lot of references are cited in the text, but are missing in the bibliography part (see specific comment).

Response:

Thanks for your constructive comments and suggestions. We have separated the results part into both model speedup and performance improvement. A manuscript structure is shown below.

- Results

- 3.1 Case study: Houston region

- 3.1.1 Model speedup

- 3.1.2 Performance improvement

- 3.2 CONUS simulation

- 3.2.1 Model speedup

- 3.2.2 Performance improvement

Specific comments

References not found:

L29 : Weather and Climate Disasters (2021)

L40: Chow, 1968

L43: Quinn et al., 1991

L44: Shaad, 2017

L45: Wang et al. 2011

L45: Vergara et al., 2016

L60: Lin et al., 2017

L76: Lin et al.,2020

L94: Yamazaki et al., 2019

L99: Yang et al., 2021

L116: Zhang et al., 2016

L129: Wang et al., 2011

L130: Xue et al., 2013

L131: Tang et al., 2016

L131: Gourley et al., 2017

L131: Chen et al., 2020

L133: Gourley et al., 2017

L136: Liang et al., 1994

L139: Vergara et al., 2017

L140: Shen et al., 2017

L154: Gharari et al., in prep

Response:

Thanks for your suggestions. All the references mentioned above have been added into bibliography.