RESPONSE TO REVIEWER’S COMMENTS

The authors sincerely thank the associate editor and the anonymous referee for their valuable comments. As to the Reviewer’s suggestions, necessary modifications have been made by the authors. All the amended paragraphs and sentences are marked red in the revised manuscript.

Reply to Reviewer 2

1. The limitation of the quasi-2D model, comparing to the fully 2D model, should be discussed in the Introduction. Does the quasi-2D model can run on unstructured triangular grids?

Response:
As suggested by the reviewer, the content discussing about the quasi-2D model and its applicability for unstructured grids have been included in the Introduction (page 1, line 41; page 2, line 42-54). As demonstrated in previous studies, the quasi-2D model can be applied on a topographic data with unstructured grids (Kuiry et al., 2010). However, it should be noted that this study only focus on the time-step analyses for diffusion wave model based on structured grids, hence, the applicability of modified algorithm adopted in an unstructured data still needs to be discussed in the future research. Related explanations have also been included in the Introduction (page 2, line 70-73; page 2, line 78-80).

2. The Green-Ampt equation and parameters should be presented in the Section 2.

Response:
As suggested by the reviewer, the theoretical equation and the related parameters for the rainfall infiltration estimation have been moved to section 2.3 (page 5, line 157-170).

3. Lines 386 and 397, Figure 5 should be Figure 14.

Response:
The authors sincerely apologize for the editing error. In the revised version, the figure number has been amended (page 14, line 402; page 15, line 413).

4. Figure 14 shows that the proposed model achieve a worst accuracy. Some reasons should be discussed.

Response:
The authors sincerely thank the reviewer’s suggestion. Explanation for this issue has been
The hydrographs generated by the integrated algorithm and the Bates inertial momentum formulation are similar because of using the identical momentum equation as shown in Eq. (17), in which one more inertial force term is included in the original diffusion wave equation as shown in Eq. (4). Hence, the larger deviations between the simulated results and the analytical solution of kinematic-wave equation can be found in these two methods in comparison with the other two numerical solutions of non-inertial wave equation.

5. The Section 5 of model validation should be put to the front of Section 3. 
Response: 
The authors sincerely thank the reviewer’s suggestion, and did think about this arrangement for the manuscript structure. However, since the review of different modified algorithms is discussed in the Section 4 of manuscript, it should be more adequate to put the content of model validation for various algorithms after Section 4. The authors hope the reviewer can be considerate of this difficulty.