Dear Editor:

We quite appreciate your favorite consideration and the insightful comments. We have revised our manuscript according to the comments, and found these comments are very helpful. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the comments are as follows:

1. **Comments:** Introduction has to be shortened. The authors give a detailed overview of some issues, which are related to the paper's subject, but indirectly. For instance, studies dealt with the problem of sub-grid topography, buildings and other constructions and their influence on flow pathway are overviewed in detail (lines 61-100), but the problem is not clearly described in the paper. Also, the issues related to the computational technology are not central to the paper but they occupy a lot of space in the introduction(lines 114-131). Thus, I suggest either shortening this section or clearly designating place of the listed problems in the paper.

   Responses:

   Thanks for the suggestions on the Introduction. This section has been shortened according to your suggestions: the shortened content, which was in lines 61-100 in the original manuscript, is in lines 50-56 and 72-80 in the revised version; and those in lines 114-131 in the original manuscript is in lines 81-90 in the revised version. Besides, we have also organized and merged the contents in lines 50-60 and 101-113 in the original manuscript. After some repeated expressions deleted, the organized content is in lines 57-71 in the revised version. Major changes are as follows:

   Lines 49-55: A current research trend is to upscale the resolution of models' computational mesh to meter level, and then to directly simulate the influence of buildings on flood flow.

   Lines 56-70: Nevertheless, it is time-consuming of these approaches that they can only be applied in a quite small research area in most cases. When it comes to the flood simulation in a larger area, there are still many difficulties.

   Lines 71-88: Analyst on the existing solutions of applying high-resolution DEM in flood simulation in lager areas: in the respect of models, sub-grid and porosity parameterization methods can be applied on raster models; in the respect of computation, parallel computing can be applied. However, each of these approaches has its limitations.

2. **Comments:** As I could understand, neither flat-water model nor 1D hydraulic model is used in the study. Consequently, I suggest removing Overview sub-section from Methodology section.

   Responses:

   Thank you for the suggestion on removing Overview sub-section.

Considering the paper's readability will not be influenced after this sub-section deleted, we have deleted it in the revised manuscript.

3. **Comments:** The overall presentation quality should be improved(particularly, quality of figures 10-12, reference style, Fig. 11 parts 1-4 are not explained in the caption, etc.). Check the HESS guidelines of manuscript style and follow them closely.

   Responses:

   We really appreciate the comments on improving the overall presentation quality. We have improved the explanation of figures, reference style, and so on. Revised portion are marked in red in the paper.

4. **Comments:** Check the English language carefully.

   Responses:

   Thanks for the comment on the English language. We have checked the paper again carefully, several sentences have been improved on their fluency. The manuscript has also been emendated and polished by an English essay editing institution. Revised portion are marked in red in the paper.

Once again, thank you very much for your comments and suggestions.