



An integrated modeling approach to evaluate the impacts of nature-based solutions of flood mitigation across a small watershed in the southeast United States

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The study has well demonstrated the advances of the flood decision-making system. The applied approach is beneficial for adopting non-structural flood mitigation measures. The work is carried out under hydrologic and hydrodynamic modeling and provides the solution for adopting flood mitigation planning in a small watershed in the US. The paper is well written; however, there are some concerns where the author(s) has to explain or justify more for the reader(s) understanding.

The specific comments to improve the work:

Major:

1. It is observed that the study reach is well established hydrologic network. It has enough observed river gauge stations to have input the upstream boundary condition at Hydraulic modeling. Then why author has performed the HEC-HMS hydrologic model to simulate and estimate the flood hydrograph at required location. Furthermore, HEC-HMS is usually performed when the watershed is ungauged and not having enough river-gauges which can utilize to fix the boundary condition of HEC-RAS.
2. What is the probability of detection (POD; Eq. (3)), false alarm ratio (FAR; Eq. (4)), and 235 critical success index (CSI; Eq. (5))? Explain more in detail in part of the Methodology.
3. Lines 325 to 340 are part of the Methodology rather than part of the results.
4. The CN value rest some extent on Soil characteristics. Therefore, the part of the Methodology needs to include a description of the soil map and relational of CN value.
5. How author's has considered the "n" value before and after the scenario.
6. What is court number, how author's has calculated the value for HEC-RAS unsteady flow simulation?
7. What is the 2D grid cell, and how has the author calculated the 2D cells? What is the simulation time?
8. How NBA site is selected, and how this layer added in the model for modeling?

9. The author has mentioned the number of storage structures. The storage structure map is missing? Second, how these structures operated during flooding also significantly influences modeling work.

Minor:

1. Fig. 9 Scale bar and Fig. 4 Scale bar are missing.
2. LU/LC map is missing.