Natural Hazards
and Earth System
Sciences

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Discussions

Interactive comment on "Tidal flood area mapping fronts the climate change scenarios: case study in a tropical estuary of Brazilian semiarid" *by* Paulo Victor N. Araújo et al.

Anonymous Referee #1

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The paper is relevant to the scope of the journal. It a case-specific article and author(s) has presented the case of Rio Grande do Norte Brazil which was affected by Tidal flooding.

Author(s) attempted to prepare a Flood Hazard, Vulnerability and Risk map based on a method proposed by Wisnert et.al (2011). MT, AT, and high-resolution DEM is considered for preparation of different scenario. The different land area under risk is quantified and future management measures have been suggested.

Step by sept comments are cited here to improve the quality of paper

Title:

In the title, after the semiarid, add the "Region".

Abstract: Line 20, approximately 118.26 km2; this value is not matched with the values included in the table. Verify and include the correct value.

Introduction: The literature lacks recent advances in tidal flood mapping case studies. The application of modeling techniques for tidal flood mapping and remedial measures cases worldwide needs to include to strength the introduction part.

Study area:

What is the significance of Line 64-71 in tidal flood analysis? Line 88-90, presents about the mosaic study area, however, the area is not presented or marked in any figures.

Line 102-103, presented that the study area is also affected by river flooding, and however in the present case described only tidal flooding. Under this condition presented result for tidal flooding deficit the inundation case by river flooding. It would be considered for precise flood risk mapping besides tidal flooding or it would justify not considered river flood in the present case.

Materials and methods:

Description and preparation of land use land cover map for vulnerability mapping are missing.

Line 120, data from point 19, however, the figure 19 is not presented in figure 1, in addition, Legend is missing in Figure 1.

Line 179, LiDAR DEM covers an entire area, however, the area covered in km2 and in form of a map is missing in presented research.

Table 1, Hazard attribute values, in score 1 to 5, however score for 2 is missing. Justify why it is not considered. Table 2, Vulnerability values, in score 1 to 5, however, the score for 0 is missing. Justify why it is not considered or line 216 Score from 1 instead

it will start from Score 0.

Results and Discussion:

What is the significance of the use of High-resolution DEM (LiDAR) data in this work? Why the flood depth map is not presented in this study?

Flood waves are dynamic quantities, however, the entire concept presented in static condition. If dynamic tidal wave model or unsteady tidal flood modeling will be performed considering the river flooding and rain flooding will generate the different flood inundation or risk scenario.

Line 269, Table 5.5, However it does not match with the table numbers

References:

Line 309, reference 1 should cite in the English language.

Page 17, Photographs A to C, shows the tidal flooding in different years i.e. 2011, 2015, what is the relation with the scenario generated. How it will be utilized for validation, although the scenario is generated based on the 20 year return period

These are the major deficiencies observed in this work and need to improve.

I rated this paper as a major revision; Happy to review a revised version with significant improvement.