Responses to reviewers

Dear Editor,

We thank you and the reviewers for your precious time examining our manuscript and making comments to improve the current version. The authors have combed through all the comments and provided appropriate responses. We expect that the revised manuscript will meet your requirements.

We are available to consider any additional comments from this resubmitted version.

In the following, we present the responses to the comments.

Sincerely,

***S ènа Donalde Dolor ès Marguerite DEGUENON**

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Below are the responses to the Reviewers' comments included in the revised version.

Reviewers 2

Introduction

L61: "According to (Anderson et al., 2018)" this form of in text citation is incorrect,

Response: Citation has been corrected. Please see the file "Highlights"

L64-65: If the context of your text refers to drains, being affected (blocked) by rising water levels due to flooding or other causes, you might want to clarify the specific situation you are describing.

Response: Please, we are referring to the rising water levels which contribute to the blockage by sediment supply considering the topography of drains and other conduits connected to the ocean by saltwater. It's has been clarified in the reviewed version.

L79: What is "ML" Standing for?

Response: Machine Learning (ML). Corrected and Highlighted in the reviewed version.

L79-81: It looks like there might be a typo or missing words in your sentence

Response: Yes please. Corrected and Highlighted in the reviewed version.

L106-109: Please, clearly state the specific study objectives at this last paragraph of the introduction section, as it would help readers understand the purpose and focus of the research.

Response: The objectives has been clearly defined now in the reviewed version.

L94-96: “In contrast, given the breadth of uncertainty, future global mean SLR scenarios are a typical technique to take into account various future circumstances and design response choices” consider revising this sentence for more clarity.

Response: Sentence corrected and Highlighted in the reviewed version.

Methodology

L117-118: The coordinates you provided are indeed missing the north/south (latitude) and east/west (longitude) information.

Response: Yes please. Has been added now.

L122: “a daily thermal amplitude” is this referring to the difference between the maximum and minimum temperatures recorded within a single day or the average daily temperature?

Response: Pleqse, this temperature is this referring to the the average daily temperature

L123: the citation (CEDEO, 2013) and reference at L148 (page 14) needs to be corrected: it should rather be CEDEAO, 2013 or ECOWAS, 2013

Response: Has been corrected

L178-179: “wetland categories and sea-level rise, permitting only one category change per time step. A time step of 20 years was used in this study to simulate the period from 2021 to 2090,” does this mean that the outputs will be obtained for the years 2021, 2041, 2061, and 2081 within the specified period. If this is the case, the output for 2090 will not specifically provided by the model.

Response: Yes please, the time step of 20 years was concidering. But the model generate himself first the impact on the starting year. We mean 2021. After that he run to generate by the time step conciduring the RCP you are using. You have a point. It wasn’t clear, so it has been corrected in the revised version that the simulation using the time step start by 2030.

L185: On which basis were the 10 categories considered? please provide more details on that. What are these 10 wetlands? List them please

Response: The categories was considered after classificaton. A published paper (Deguenon et al 2022) has been make on that although we reclassified again using his time Machine Learning tools (Support Vector Machines). The categories are now listed on the revised version.

L186: “with definition of 23 categories” is this different from the 25 wetlands categories offer by the NWI in table 2

Response: No please, it should be 23. Corrected

L189: “obtained from the website https://www.earthdata.nasa.gov” Which DEM did you used from this website? NASA Earthdata Search provides access to a variety of Digital Elevation Models (DEMs) with different spatial resolutions and coverages. Some of the available DEMs include SRTM, ASTER, GMTED . Provide the resolution of the used DEM Consider provide the database name in addition to the website name: NASA Earthdata Search. The same applies to L201-202

It would have been valuable to include visualizations of the three input data sets used in the SLAMM model for better clarity and understanding.

Response: We used the Digital Elevation Map (ASTER). Has been added to the revised version as well as your comment and visualizations of the three input data sets used in the SLAMM model.

L217-218: It seems like the sentence is not complete, consider revising

Response: Sentence revised

Table 2: This table has not been referenced in the text, please called it in the text where necessary. Certain parameters shown in the table need to be further described to enhanced understanding.

Response: Has been revised

Results

Figure 2: To which specific analysis does Figure 2 correspond?

Response: It was a personal summary from SLAMM analyses. Figure has been removed.

L242 & L259: The reference to "erosion caused by flooding" requires further clarification. Since erosion and flooding are distinct phenomena that often interact, it would be beneficial to provide additional details regarding the specific flooding events being referred to and how they lead to erosion.

Response: It is erosion caused by Sea Level Rise. But we removed the figure 2 and the details below.

Table 3: How do you explain that mangrove area change (decrease) predicted under SLR in 2090 can be smaller than those of 2030-2050-2070 when comparing to the initial coverage.

Response: This could be explained by the optimization of conditions favorable to restoration and even the establishment of mangrove areas that had accumulated due to saline intrusion over the years. Has been discussed in the revised version

Figure3: I would recommend zooming in on the specific region where significant changes are observed for all illustrations in this figure look similar. I understand that SLR projections under RCP 8.5_Upper Limit scenario were used for the simulations but no such information was provided in the study’s objective nor in the methodology.

Response: Zoom done. The RCP has been added to the objective and methodology

Figure 4: I guess this is not an outcome of your analysis but rather this input data for your model. As such, it should be shown in the methodological section and source of this information should be provided.

Response: It part o the outcome of the analysis please

Discussion

The discussion section appears to include a substantial amount of results description. It would be beneficial to shift the focus towards discussing the implications of the observed land-use changes and their identified impacts. Furthermore, consider highlighting innovations and delving into the limitations of the methods and data used. Furthermore, to enhance the discussion section, you might also compare your findings with those of previous studies conducted in the same area or neighboring coastal zones, underlining the consistency of the current outcomes.

Response: We thank the reviewer for his comments. The various sections highlighted in the comment have been developed in the revised version.

Conclusions

P13, L112-113: This study rather demonstrates the suitability of the combination of SLAMM and ML

Please provide recommendations for mitigating the adverse effects of flooding and erosion. This could involve suggesting strategies for coastal management, resource preservation, and sustainable development.

Response: Recommendations provided