

## RESPONSE TO COMMENTS ON bg-2023-180 FROM Reviewer #2

We wish to thank the reviewer for their constructive comments on the manuscript.

Please note that in this document, *italics* refer to the text of the reviewers' comments, our detailed responses are in black, and the new text of the revised version is in **bold blue**. Line numbers refer to the revised version of the manuscript.

*The paper investigates slump blocks along marsh shorelines and their impact on marsh dynamics, particularly within Dean Creek, a tidal creek on Sapelo Island, GA, USA. Using Unmanned Aerial Vehicle (UAV) imagery spanning 11 months (March 2020–March 2021), the study tracks the spatial distribution, movement, and longevity of slump blocks. Overall, the paper demonstrates the efficacy of repeated UAV surveys in monitoring short-term geomorphological processes. Here are my comments:*

- 1. An aspect deserving more detailed discussion is the influence of vegetation on slump block loss. Does vegetation have any effect on the loss?*

We agree that the presence of vegetation affects slump blocks, and we have pointed out that the presence of vegetation may prolong the persistence of slump blocks (Lines 362-365) and that larger vegetation patches may enhance block reattachment (Lines 371-374). However, the focus of this paper is the dynamics of slump block themselves as we do not currently have the data to quantify the impact of vegetation on the process. We do agree that this is an interesting aspect for future study.

- 2. The discussion needs to be strengthened regarding the effect of the short observation period and whether the conclusion can be extrapolated to a larger area. Findings of this study are specific to Dean Creek, and what is the implication for other marshes or tidal creeks?*

We agree that this initial work was focused on our study site. However, we believe that the insights we present have broad applicability. For example, the fact that ebb-oriented point bars and oyster reefs can protect the bank from slumping, that blocks have the ability to reconnect with the marsh platform, and that slump blocks contribute to marsh erosion, are all likely to be applicable to other mesotidal marsh systems. We would like to add a sentence to highlight the importance of this analysis, which reads **“We expect that the main findings of these analyses regarding the spatial distribution of slump blocks, block dynamics and block contribution to marsh loss and creek widening will be applicable to other mesotidal marsh systems.”**

- 3. Specific comments: Why is the slump block important? It is unclear in the abstract.*

We would like to change the first sentence of the abstract as follows: **“Slump blocks are widely distributed features along marsh shorelines that can disturb marsh edge habitats, and affect marsh geomorphology and sediment dynamics.”**