

Weekly-scale shoreline monitoring using low-cost UAV photogrammetry: A case study from a highly dynamic beach in Sri Lanka

Report

The title clearly reflects the content of the paper, and the abstract provides a concise and complete summary of the developed study, but it should be enhanced by the addition of some specific results, as uncertainty values obtained or the costs of the techniques developed.

Introduction provides valuable information about the main issue studied and the main objectives of the study, but it should be enhanced. The main aim of the paper, as I understand, is the demonstration of the use of low-cost technology to assess coastal monitoring, but I miss a real comparison of the traditional methods and the proposed by the authors, specifically about the costs.

Specific comments:

Lines 28-29. Please justify this sentence with some references.

Lines 29-31. Weekly scales are not valid to predict future coastal changes, it is necessary, at least, medium-long term studies to determine coastal trends and, therefore, predict future coastal behavior.

The methodology sections provide a detailed description of the technologies and methods used to calculate shoreline variations. The methods are valid and clearly outlined. Authors should provide a reference for equations 1, 2 and 3, and some explanation on why they use this instead of others. For example, other uncertainty equations used to assess shoreline position add the run-up error, or other additional errors related to the images used. So, something that I would ask is, had authors considered other combinations of errors?

Regarding the uncertainty obtained values, a 2.36 m value should be taken carefully into consideration, as it could be high from a statistical point.

Another point is: DSAS includes an uncertainty value that users can modify with the calculated uncertainty values. If the user includes the uncertainty associated with each shoreline in the table of attributes of each shapefile, i.e. results from eq. 1, the application calculates the statistics including this uncertainty value. So, the results must not include again the error. Since authors calculated a combined uncertainty for successive shorelines (eq. 3) and said that only NSM values exceeding the total uncertainty value were considered for the analysis (lines 319-320), we may understand that they did not implement the uncertainty values into DSAS (establishing an unc value of zero in the application) and used the total unc for the post-analysis. Please clarify.

The results section is well structured and is clear and easy to follow. To enhance this section, authors could compare the obtained results with other works developed in the area or similar areas.

The discussion is also well structured but, in my opinion, is the weakest section of the paper.

In section 4.1, the authors cannot support the efficacy of the method by using only statistical data. A comparison with other studies and/or other methods are mandatory to state if a method is, or not, efficient. Only one work is referenced in this section (Sujivakand et al., 2024).

Authors include important limitations (correct, but more references are required) and recommendations for future research.

Regarding the conclusion section, it may be better ordered as it seems to me quite a little mixed. The methodology and the results obtained support the conclusion referred to the efficacy of the technology used, in the sense it is a good option for certain situations when low-cost methods are mandatory. But, in my opinion, the results do not support the efficacy of the method in terms of values reliability.

The conclusions regarding coastal management, the results obtained are not sufficient to support recommendations. More than one month of study (only 4 surveys) is necessary to explain the behavior of a beach and hereby to propose management actions.

Regarding the references:

Brasington et al., 2012a – There is no 2012b, correct the citation.

The following references do not appear in the reference list:

Jeong et al., 2018

Fang et al., 2021

Ruiz-Beltran et al., 2019

Warnasuriya et al., 2022

Warnasuriya et al., 2025