Review of: "Cloud-based geospatial services for building capacity and safeguarding heritage in climatically marginal landscapes"

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In this paper, the authors showcase the use of Google Earth Engine (GEE) for carrying out a series of geospatial analyses to investigate climate-related phenomena, such as flood extent mapping and visualization, coastal erosion change detection, sand dune shifts monitoring. The authors also point out the advantages of GEE and its use to process proprietary data not hosted on the cloud.

The manuscript is in general well written, and the flow is on average good. I am supportive of the relevance of this work and the valuable objective of the paper, which can inform and empower remote communities about environmental concerns. However, some adjustments must be made.

In the following are some general considerations and specific comments that can be considered by the authors, referred to sections that, in my opinion, can be improved.

Introduction: In the introduction, the authors provide background information and an overview of the issues related to climate change and natural hazards. In addition, they highlight the advances the remote sensing techniques, including UAVs, have led in the field of monitoring risks and protecting assets. However, in my opinion, relevant literature by the scientific community in the field of remote sensing, natural hazards and environmental monitoring is not referenced and must be acknowledged.

Study area: The authors describe two study regions investigated in the analysis, which are Yukon-Kuskokwim Delta in Alaska, USA and Mauritania. Some more details about the precipitation regime of the study area, hydrography and more background on historical hazards observed in the areas under exam would be appreciated, rather than providing so many details about riverine resources (i.e., the mentioning of salmon, sea mammals, fish exports, etc.), unless the mentioning is better justified and supported. In addition, consider creating a section ad-hoc for the description of the study areas, rather than including it in the introduction.

Methods: Five automatic workflows for addressing specific environmental concerns in the areas under exam are presented and discussed in an overall good way. The only issue here is to provide references of the spectral indices mentioned by the authors (e.g., the NDWI must be credited to McFeeters et al. (1996), and the same is true for the other indices).

In addition, please check if tool A1 (Coastal erosion susceptibility of Sentinel-2 imagery) is developed with Sentinel-2 or Landsat-8 since there is a discrepancy between the title and what is reported in the text.

Further suggestions

Consider moving Table 2 to the introduction section, where environmental hazards and the help of remote sensing techniques are described.

Suggested references:

Albertini et al. (2022). Detection of surface water and floods with multispectral satellites. Remote Sensing, 14(23), 6005.

Manfreda & BEN-DOR (2023). Unmanned Aerial Systems for Monitoring Soil, Vegetation, and Riverine Environments. Elsevier.

Manfreda et al. (2018). Advances in Large-Scale flood monitoring and detection. Hydrology, 5(3), 49.

Tavares da Costa et al. (2019), A web application for hydrogeomorphic flood hazard mapping, Environmental Modelling and Software, (doi: 10.1016/j.envsoft.2019.04.010).

Samela et al. (2017), Geomorphic classifiers for flood-prone areas delineation for data-scarce environments, Advances in Water Resources, 102, 13-28, (doi: 10.1016/j.advwatres.2017.01.007).