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

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Potential competing interests: No potential competing interests to declare.

This manuscript is on “Cloud-based geospatial services for building capacity and safeguarding heritage in climatically marginal landscapes” The manuscript focused on the cloud-based geospatial services such as Google Earth Engine (GEE) that could be used to build capacity for communities which are climatically marginal landscapes. A case study was explained with two regions: Yukon-Kuskokwim Delta in Alaska, USA and Mauritania. This topic is an interesting research topic. The authors’ efforts should be appreciated regarding this study and I would like to highlight some points to improve this manuscript.

- **Abstract:** The abstract of this manuscript should clearly reflect the manuscript content. The abstract needs to improve by adding important steps of methodology and key results.
- **Introduction:** This section needs some improvement based on the selection of this platform and past application of GEE. More explanations need with some references for why the author selected GEE as an ideal solution for this study. In addition, a brief introduction can provide on recent applications of land use change, climate hazards and other relevant studies conducted using GEE (Table 2 can bring together here into the introduction).
- Figure 1: Please add a legend to this map. It is better to highlight the study regions for clear identification.
- I suggest to separate the description of study region from the introduction. The flow of the introduction is disturbing due to repeated explanations of the study area with more details.
- “These tools are designed for accessibility with minimal training based on local heritage preservation contexts— both for archival data stored on the external servers and the user’s own uploaded data.” It is important to briefly explain both archival data stored on the external servers and the user’s uploaded data, such as type of data, source, etc.
- **Development of software workflows**
- “Tool M1: Flood extent visualiser of Sentinel-2 imagery” Subtitle needs an underline.
- The statement “Mauritania, like other hyperarid regions of the world, is characterised by great temporal variability for rainfall (Schick, 1988)”. Please give recent reference.
- In this manuscript, there are several statements on referring lines, such as “By specifying two dates in lines 12-14, a weekly composite is generated for the area and dates in question.” What is meant by lines 12-14 ? If you are referring particular line in a script, please give details on it.
- Readers are confused on some statements such as “There is also an option to display the rasters on either side

as……." Are you referring to GEE platform?

- Please give references for the indices used in this manuscript.
- Figure 3 was not referred to the content of the manuscript.
- A more clear explanation is needed for this statement. " The histogram of the NDWI raster has been visually optimised to show the presence of water as a bright blue hue in the context of an arid environment (Lines 31-32)."
- Please check the Figure 4 description b) NDWI raster October 10th 2020. Is this in September?
- Figure 5 needs a legend.
- "The A1: Archaeology and Coastal Change (ACC) tool utilises the Landsat 8 Tier 1 (T1) Surface Reflectance (SR) Collection stored on Google's servers to visualise land loss." Is this referred to soil loss?
- "This code applies a cloud mask……" Which code you are referring to?
- "The present example visualises land loss from 2015 to 2020, with specific input areas of interest of the waterways near the village of Newtok." If possible please indicate how much loss from 2015 to 2020.
- According to Table 1 the subtitle "2.3. Tools for processing own data" can improve as "2.3. Tools for processing uploaded datasets."
- Figure 6 was not explained in the manuscript.

Thank you and all the best !