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

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Focus of the paper: Climate-environmental transition was evaluated with a case of two regions: Yukon-Kuskokwim Delta in Alaska, USA and Mauritania.

Abstract : Well written and clearly describes the whole research paper study.

Structure: Well organized article with structured sections as per the journal standard and norms.

Logic: The clarity of the text logic and organization of the paper is good and well explained. A comparison of the results with previous studies is presented and well connected in the paper.

Introduction: In the introduction, the authors defined two study areas: Alaska Native Yup'ik and Mauritania in the Sahel region of Africa. They provided descriptions of these places and their specific features. Additionally, the authors mentioned that the research goals involved using Google Earth Engine (GEE) for environmental assessment. The introduction effectively provided background information and set the context for the article. It seems that the authors referenced relevant literature to support their arguments and research objectives. Overall, based on the information you've provided, it appears that the introduction and background sections of the article are well-written and provide a comprehensive overview of the research topic.

The authors introduced the advantages of GEE, which is a cloud-based geospatial service, for processing RS data. They discussed its capabilities and benefits in the context of environmental assessment. Additionally, the authors provided references to support their discussions and presented examples of GEE's usage. By introducing the advantages of GEE and discussing its benefits, the authors highlighted its relevance and importance in the field of RS data processing for environmental monitoring. Based on the information you've provided, it appears that the authors effectively presented the advantages of RS tools, described satellite images as data sources, and discussed the use of scripting tools like GEE for RS data processing. They supported their claims with references and provided examples to illustrate the practical application of GEE in the field.

Study area: Yukon-Kuskokwim Delta in Alaska, USA and Mauritania. Among others, the authors mentioned such problems as desertification and sand dune encroachment in Sahel and landscape changes in American Arctic.

English language: Fine.

Research questions and goal are identified: the authors assessed free cloud-based geospatial services of GEE for their applicability to build capacity for communities in the contrasting regions of Arctic and the Sahel.

Methods and Results: The authors used five analytical remote sensing tools built in GEE to address specific and urgent environmental concerns in the regions, and presented and commented on the obtained results. Section 2. Automatic Workflows for Remote Communities well described the approach and undertaken methods with described GEE approach, its advantages and examples of scripts. The examples of the use of GEE include the processing of Sentinel-2 imagery with calculated VI (MNDWI, NDWI, NDVI etc.). Furthermore, the case of using multispectral UAV imagery is provided with presented examples of the processed images. Methods are well described.

Research gaps: Research can correlate the climate change with different landscape and provide statical data of precipitation of the study area.

Discussion: Authors discussed the advantages of using the Google Earth Engine (GEE), which is a cloud-based geospatial platform. They highlighted the benefits of utilizing GEE's tools within the remote sensing (RS) workflow to address various environmental issues in geographically isolated areas. The authors compared GEE with other spatial data processing tools such as QGIS, Python's Rasterio, and GDAL. They likely discussed the functionalities of these tools and how they stack up against GEE. They might have also compared GEE's capabilities with machine learning (ML) and deep learning (DL) frameworks, as well as other technical tools commonly used in RS. While highlighting the advantages of GEE, the authors also acknowledged that there are some limitations or drawbacks associated with the platform. They might have mentioned specific areas where GEE's functionality is restricted or not as comprehensive as other tools.

Furthermore, the authors provided examples of natural and social disasters and described the methodological approaches they used to study these cases using remote sensing data. This suggests that they demonstrated how RS, coupled with GEE, can be applied to analyze and understand various environmental challenges.

Conclusion: The authors concluded that Remote Sensing is a powerful tool for visualizing and analyzing threats in the environment. They highlighted the significance and novelty of their research, as they tested the GEE for environmental applications and provided case studies in Alaska and Mauritania. By using RS and the GEE, the authors were able to gather data and analyze environmental conditions in both Alaska and Mauritania. The study likely displayed how Remote Sensing and the GEE can be used to monitor and assess different environmental factors in these regions. The authors' findings likely support the idea that RS and the GEE are effective tools for environmental monitoring and provide valuable insights for addressing environmental challenges.

Figures: Figures are Labelle and describe. They illustrate the results of the study.

Recommendation: I suggest to publish this paper based on the above detailed report.

With kind regards,

- Vartika Singh.

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