2ND REVIEW NOTES - MESTER ET AL., 2023 - "HUMAN DISPLACEMENTS FROM TROPICAL CYCLONE IDAI ATTRIBUTABLE TO CLIMATE CHANGE"

Overview

This study aims to model and identify the 'excess' population displacement triggered by tropical cyclone Idai that can be attributed to climate change. By utilising a 'storyline approach' the study compares actual recorded displacement against estimated levels of displacement derived from counterfactual scenarios of mean sea level and maximum wind conditions without contributions of climate change. The conclusion of the study is that the impact of climate change has increased displacement risk by between 3.1 to 3.5%, corresponding to 16,000 – 17,000 displaced people.

The approach and results are interesting and of value in exploring the impact of climate change on environmental shocks and stressors, and the resulting affect this will have on patterns of human mobility.

The revisions that have taken place since the first review have significantly strengthened the paper. The assumptions on which the modelling approach is based are clearly outlined. The results of the study are much more clearly elucidated, alongside the limitations of results. This contextualises the author's use of a 'storyline approach' as opposed to, for example, a probabilistic approach and highlights the utility of this framing in terms of raising awareness of potential risks.

This is now a good paper and worthy of publication. This recommendation is made both in terms of the results themselves and the blueprint that it offers for future studies. As the authors highlight, the use of counterfactuals and 'storyline' approaches have potential in event-based displacement attribution.

A few minor textual changes and edits are suggested below, including an update of a hyperlink.

Astract

26   *"corresponding to about 2.7 to 3.2%."* Can these percentages be clarified? I presume they are of recorded / estimated actual displacees.

1 Introduction

32   missing space 'TCs pose'

45   Suggest breaking sentence to improve clarity: *'… very intense TCs (category 4-5 on the Saffir-Simpson scale). This is…'*

2 Methods

2.1 Counterfactuals

143   Mean sea level rise is expressed here in centimeters ('23cm') whereas later in the paragraph the IPCC rates are expressed in mm yr^{-1}. Using millimeters in this instance (230mm, for example) is suggested.

2.3 Inland Flood Depth Estimation

304   The location of the source code referenced has changed and the link should be updated to https://github.com/NRCan/RICorDE/tree/main.

2.5 Displacements

342-347   This is a useful detail of the limitations of GIDD information

357-362   Again useful section which acknowledges the complexity of driver of displacement which helps place the results of this paper in context.

398-399 & 401 There is an inconsistency between 'flood depth threshold' and 'flood-depth threshold', where the latter is preferred.

4 Discussions and conclusions

545-549   This is a clear exposition of the findings.

562   Additional space 'ideally coupled'

674 onwards   Useful framing of the 'storyline approach' in terms of its potential role in raising awareness of risks

697   Hyphen required in 'Idai-like'