Rebuttal round 2 of TCs and bananas

Reviewer 1

Dear authors, I think that the revision adequately addresses my concerns and comments and presents a more specific and coherent analysis of risk and vulnerability. There are however some leftover minor errors, such as a "(??)", empty or erroneous references that should be corrected and proofread thoroughly prior to submission.

We thank the reviewer and have addressed these oversights.

Reviewer 2

The paper is improved, but still seems to me to draw misleading inferences from the results. (The reviewer checklist, by the way, does not really ask about this --- whether the top-line conclusions are framed in a way that is justified by the actual results --- which is why my ratings of "Good" are a bit dissonant with my complaints here.) The uncertainties are under-recognized and the conclusions drawn do not make sense to me given those. It seems to me that the changes found are much smaller than the real uncertainties, but this is not acknowledged. The revisions I suggest are minor, in the sense that they wouldn't require much work to implement, hence my rating of minor revisions. (Also, I don't really want to review it again; the editor can easily determine if the authors have followed my suggestions or not.) But I think it would be a mistake to publish the paper as is, without modifying the headline conclusions statements to reflect the uncertainties; and within the paper, documenting those uncertainties a bit more.

My most important, large-scale comment: The abstract concludes "Globally, 24.3% of all banana-producing areas are projected to suffer major or complete (>84%) damage under current climate conditions, increasing to 26.5% under future climate scenarios at the 100-year wind speed return period. Additionally, we estimate that 30.1% of global production under current conditions, and 31.1% under future conditions will be majorly or completely damaged at the 100-year return period. The regions predominantly affected in the future are Southeast Asia, China, India and the Caribbean, potentially experiencing substantial disruption in banana production. Our results therefore indicate that considerable efforts in climate adaptation are essential ensure the stability of chains." to global banana supply

However these changes (24.3->26.5% and 30.1->31.1%) are very small. Surely they are well within the uncertainties, so that we can't be confident about even the sign of the change! In fact it seems slightly absurd to me to give these results to three significant

figures. And some regions show decreases in risk; however this could all be different if a different TC model were used (some have increases in TC frequency, some decreases, etc.). Altogether the framing and conclusions seem an exercise in false precision.

We agree and have addressed this by also communicating the range of changes, and by adding an explanation that the increase is "on average". We also list the largest regional mean differences.

A few more specific comments:

1. The explanation of the derivation of the damage function is better now, but I would still like to understand the uncertainty. How about plotting the 22 data points on Fig. 1, as a scatter plot on top of the curve? This would add no cost and give the reader much more insight into the the most original aspect of this paper.

We fully agree and have addressed this.

2. The authors say (lines 177-8) "evidence of damage to banana plantations was already observed at windspeeds of 10 m/s, hence why we set the lower limit of the curve (Vmin) at 10 m/s." In fact fig. 1 shows that damage function begins at zero, so that any wind at all destroys some bananas, and at 10 m/s already around 50% are destroyed. This is hard to believe, since these wind speeds occur all the time. With this curve, in fact, it wouldn't make sense only to use TC tracks as the source of winds, as routine daily weather phenomena would also cause damage and this should be included. Please address this in some way.

We agree with the concern raised by the reviewer and we have adjusted the curve accordingly.

3. Please say something about how STORM uses the climate models to get climate change influenced storms. I know it's in other papers but a sentence or two of explanation would really help the reader. Some discussion of the uncertainties would be very welcome as well. Can we expect that we might get different results if another TC model were used? I think so! This is relevant to the first, major comment above.

We agree and have added the following:

"The STORM future climate synthetic datasets are constructed using information from baseline (1979 – 2014) and near-future (2015 – 2050) climate model runs (SSP-585) for each of the different general circulation models. TC statistics (frequency, intensity) are

extracted from both the baseline and near-future runs, and changes in these statistics (the so-called "delta") are calculated. Subsequently, these deltas are added to the historical dataset which was used as input to create the STORM historical dataset. This creates a "future climate version" of this historical dataset, without the biases often present in general circulation models. For more information on this method, we direct readers to Bloemendaal et al., (2022)."