Major Comments:

1. Do not confuse the official storm season with storm climatology. While it is true that there are set dates outlining the official hurricane/typhoon seasons, I think it should also be mentioned that this does not mean that it is atypical for storms to occur outside the official season. Storms occur where environmental conditions are relatively favorable. For the Atlantic, the climatological environment becomes favorable in the spring, which means storms are possible as early as April or May and as late as December. However, they usually do not compare to in-season storms in terms of overall numbers, intensity and duration. This is perhaps why May and December is not counted in the Atlantic's official season despite it being very possible to have storms (albeit not very strong ones) develop within these months.

The authors agree with the reviewers comments and we added a sentence in the last paragraph of the introduction the mentions that is not atypical for TCs to develop outside of the core season months of each basin. In this manuscript we focus on the months with the lowest frequency of TCs and not necessarily on the official TC season for each basin, yet we think that making that clarification is important so thank you for the suggestion.

2. I understand it can be pretty tricky to define what "off-season" means. But in my opinion, given the length of each basin's climatological season, there is not much sense in categorizing storms into pre- versus post-season storms. Just looking at Figures 1(b-e), there are only about 2-4 months out of the year in which the environment is drastically unfavorable for each basin. But this is a comment and not really a suggestion to change your methodology at this point.

The authors understand the reviewer's concern, yet we believe that by examining the pre and post-seasons TC frequencies and trends we are able to focus on the temporal particularities of each basin and whether there are more/less storms developing over time in the pre/post-seasons. In the manuscript we also analyzed all of the off-season TCs together without separating them into pre and post-seasons, so that addresses some of the reviewer's concerns.

3. I think a good way to assess whether there is any meaningful change in the number of off-season storms is to show changes in the climatology over time. Just showing the number of off-season storms outside the context of in-season storms makes it harder to interpret the trend. The number of off-season storms is likely related to what happens during the official season since they are driven by the same climate variability and change (as suggested by the papers referenced).

The authors understand the reviewer's concerns, yet we would like to keep our focus on the off-season TC climatology since the in-season TCs have been studied by many researchers already and no clear increasing trend has been found.

4. I agree with Referee 1 that the manuscript lacks a physical explanation or mechanism for the climate associations the authors make. In what way do SST, GMST and CC alter the number of off-season storms? Is it a shift in the climatology of? storms or is there also an increase of storms within the official seasons? How have climate dynamics changed over time in months prior to/post the official season to cause the observed trend without also causing any significant trend in in-season storm frequency? This could help augment your discussion section and provide a better comparison to previous studies.

Our hypothesis is the following, since climate change is causing an increase in SST (which also leads to an increasing trend in CC) in areas where TCs develop, we wanted to see if those increasing trends that are also occurring in the low activity months could be behind the increasing number of storms developing in those months where few TCs form. Again, we think that a lot of researchers have already studied the relationship between TC frequency during the peak season months of activity and climate variability and change, and for that reason we think is necessary to focus on the off-season TCs since we don't know if climate variability or change are causing changes in their frequency.

Minor Comments:

1. Please go through the manuscript carefully to correct grammatical errors, unfinished sentences and repetition.

We read the manuscript thoroughly and grammatical errors, unfinished sentences and repetitions were fixed.

2. The authors do not define the regions over which sea surface temperature and cloud cover are averaged in each basin. Similarly, how are the ENSO, AMO, IOD and IPO indices defined and over what region?

Thank you for pointing out that missed information, the SST and CC were averaged over the 5-25° degrees north in the Atlantic and Pacific Basins. The ENSO 3.4, AMO and IPO indexes were all averaged from their respective areas of development.

3. You mention statistical significance quite a bit. But, at what value of Kendall's tau is statistical significance achieved and what frequency is this associated with for each basin?

Based on our results, the lowest Kendall's Tau value at which statistical significance is achieved is 0.485. I think we made this clear in Table 2.

Table 2. Results of Mann-Kendall trend tests for the 1900-2019 period for all ocean basins where TCs form.

Pre TCs	Tau S	P-value	Post TCs	Tau S	P-value	Off TCs	Tau S	P-value
EP	**0.746**	**0.002**	EP	0.098	0.723	EP	**0.679**	**0.004**
NA	**0.572**	**0.015**	NA	**0.485**	**0.042**	NA	**0.554**	**0.016**
SP	0.048	0.889	SP	0.015	1.000	SP	0.061	0.836
WP	**0.554**	**0.016**	WP	**0.485**	**0.034**	WP	**0.534**	**0.019**

Significant trends in bold.

4. Line 49: Walsh et al. (2016) could be updated to the more recent Walsh et al. (2019). There is also Knutson et al. (2019, 2020) for an updated review of tropical cyclone trends and projections.

Thank you for the suggestion , the papers have been updated to the most recent versions.

(a) Knutson, T., and Coauthors, 2019: Tropical Cyclones and Climate Change Assessment: Part I: Detection and Attribution. Bull. Amer. Meteor. Soc., 100, 1987–2007, https://doi.org/10.1175/BAMS-D-18-0189.1.

(b) Knutson, T., and Coauthors, 2020: Tropical Cyclones and Climate Change Assessment: Part II: Projected Response to Anthropogenic Warming. Bull. Amer. Meteor. Soc., 101, E303–E322, https://doi.org/10.1175/ BAMS-D-18-0194.1.

(c) Walsh, K. J., Camargo, S. J., Knutson, T. R., Kossin, J., Lee, T. C., Murakami, H., Patricola, C., 2019: Tropical cyclones and climate change. Tropical Cyclone Research and Review, 8(4), 240-250, https: //www.sciencedirect.com/science/article/pii/S2225603220300047.

5. Lines 73-76: Is there a reference or citation for this sentence? Yes, the decade does have the most off-season storms, but this could be due to more recent hurricane/ typhoon seasons being better observed and measured. And again, May has been the climatological start of most seasons.

You are correct in pointing out that this be due to more recent hurricane/ typhoon seasons being better observed and measured, yet it still important to mentioned since it was still the season that produced the most off-season storms in the satellite era.

6. I think the details outlined in Sections 3 and 4 can be summarized. Further details can be placed in an appendix or supplementary document. Or you can just direct the reader to the proper citations.

Sections 3 and 4 have been summarized and all of the algorithms associated with the MK Test have been removed.

7. The stacked columns used in the figures can be incredibly confusing. It is hard to infer any conclusion about trends in pre versus post-season numbers.

We understand the reviewers concern with figure 2, however we think is important to show the total counts by decade for the pre and post off-season TCs.

8. Is there a baseline number of off-season storms in each basin to compare changes to? How do you assess a statistically significant change or trend?

Her we selected all of the TCs that developed outside of the peak-season months for each basin and we summed them all by decades. Those decadal counts where the ones that were analyzed with the MK test for trends.

9. I really like that the p-value column was included in Tables 3 and 4. Not many studies do this.

Thank you for letting us know!

10. Figure 1(a) does not really help since the darker tracks hide the lighter tracks, particularly for the Western North Pacific. A good alternative would be to replace 1(a) with a figure of storm climatology (as you did in Figures 1[b-e]) over the five categories you have created. This would probably address my Major Comment 3 above and most of my comments on changes in trend. You should also note in the caption that Figures 1 (b-e) all have different scales of frequency.

We appreciate the reviewers suggestion with regards to figure 1, yet we think is important to keep that figure since it shows all of the off-season TCs analyzed in this study. We did modified figures 3, 4 and 5 to show that most off-season TCs are forming in the areas that have been experiencing an increasing trend in SSTs. We also fixed the different scales of frequency in Fig 1, thank you for letting us know about that.

11. In Figures 3-5, all you do is superpose the trends in GMST, ENSO and IPO/AMO onto the same figure of pre-and post-season storm numbers. What if you regressed total off-season storm frequency against each decadal index to show?
how each climate phenomena influenced storm numbers over time?

We actually did that in the study, and we discuss the results of the multiple linear regression and stepwise procedures in Tables 3 and 4. We regressed the climate change and variability series with pre, post and total off-season TC counts and we discussed the results. Here are the tables were the results of those analysis are presented.

Table 3. Best multiple linear regression models (MLR) for basins with statistically significant increasing trends in off-season TCs.

Model	Multiple R-squared	Adjusted R^2	Factors	p-value
EP pre-season	0.682	0.563	SST, GMST & CC	0.021
EP off-season	0.653	0.522	SST, GMST & CC	0.030
NA pre-season	0.622	0.481	SST, GMST & CC	0.041
NA post-season	0.687	0.427	ENSO & AMO	0.130
NA off-season	0.552	0.384	SST, GMST & CC	0.070
WP pre-season	0.673	0.551	SST, GMST & CC	0.020
WP post-season	0.742	0.645	SST, GMST & CC	0.000
WP off-season	0.774	0.689	SST, GMST & CC	0.005

Table 4. Stepwise multiple linear regression models (MLR) for basins with statistically significant increasing trends in off-season TCs.

Model	R-squared	Adjusted R^2	Factors	p-value
EP pre-season	0.777	0.694	SST, ENSO & CC	0.005
EP off-season	0.747	0.652	SST, ENSO & CC	0.008
NA pre-season	0.569	0.526	CC	0.004
NA post-season	0.687	0.427	CC & AMO	0.098
NA off-season	0.460	0.406	CC	0.015
WP pre-season	0.655	0.578	GMST & CC	0.008
WP post-season	0.826	0.726	CC, GMST, ENSO & IPO	0.008
WP off-season	0.839	0.747	CC, GMST, ENSO & IPO	0.006