Comments to the Author

Title: Changes in extreme precipitation patterns over the greater Caribbean and teleconnection with large-scale sea surface temperature.

Summary: This manuscript analyzes changes in extreme precipitation over the greater Caribbean and their correlation with large-scale sea surface temperature (SST) from 1985 to 2015. This is an important area of research as examining the impact of the key drivers on observed changes over the region, and particularly the links between extreme precipitation indices and large-scale sea surface indices are mandatory. While this type of analysis is valuable, the manuscript needs major revision. The paper should be reconsidered after major revision to better ground the conclusions and the presentation of the results.

General Comments:

1. Page 1, line 14: the phrase "the greater Caribbean" is used, What is this? I suggest the authors to clarify this.
2. Page 1, line 22: the phrase "Northern Oscillation Index (NAO)" is used, I highly recommend using "North Atlantic Oscillation" instead.
3. Page 3, lines 95-96 "They have a monthly rainfall cycle characterized by two peaks: the first in May and the second between September and November" This should be cited.
4. Page 3, lines 96-98: "North Atlantic anticyclone" better use "North Atlantic subtropical high (NASH)". Here adding more information about the Caribbean low-level Jet (CLLJ, Amador, 1998) and the Mid-Summer Drought will improve the text since both features are quite important in the climate of the region.
5. Page 3, lines 101-102, "The total annual precipitation in the Greater Antilles depends on land-sea interactions (breezes) and topography (fig.1a)" This should be cited.
6. Satellite data section. Due to complexities in estimating rainfall, for example, gridded products exhibit a very wide range of accuracy levels across regions worldwide. These products are developed at relatively high resolution or using sophisticated procedures, but even though, despite advances in estimating precipitation from satellite data, this option is limited by temporal sampling and algorithm errors that lead to advantages and limitations of each product. Why did the authors consider only using satellite data instead of other datasets? Why do the authors use only two products, when the use of more available products could lead to more robust results? According to the results, could the authors mention how these errors in satellite data could affect their results?
7. Page 4, lines 116-118: "TRMM 3B42v7 satellite product is used to calibrate and reduce the bias in the estimates". Could the authors be more specific? A bias correction method was applied. Why do the authors use this Tropical Rainfall Measuring Mission product instead of the integrated Multi-satellite retrievals for Global Precipitation Measurement (IMERG)?
8. Check every time CHIRPS is mentioned, first appeared as CHIRPSv2 and after as CHIRPS, please select one.

9. Page 4, lines 120-121 “evaluated over certain regions of the Americas, has demonstrated 121its ability to reproduce the mean climate as well as its capacity to estimate extreme precipitation events” Please add cites.

10. In general in the Satellite data section, I highly recommend adding the following reference “Centella-Artola A, Bezanilla-Morlot A, Taylor MA, Herrera DA, Martinez-Castro D, Gouirand I, Sierra-Lorenzo M, Vichot-Llano A, Stephenson T, Fonseca C, et al. Evaluation of Sixteen Gridded Precipitation Datasets over the Caribbean Region Using Gauge Observations. Atmosphere. 2020; 11(12):1334. https://doi.org/10.3390/atmos11121334”. These will help to improve your research.

11. Why the NOAA DOISST (Daily Optimum Interpolation Sea Surface Temperature version 2.1) data is used?

12. Page 5, lines 150-155, I highly recommend to rewrite this paragraph.

13. More discussion should be added on why the use of Spearman correlation instead of Pearson for example.

14. Page 5, lines 156-162, I highly recommend to rewrite this paragraph.

15. Page 6, lines 166-169, What is the meaning of “whether the two variables are correlated or not”? If the trend or correlation is not statistically significant, then that means you cannot reject the null hypothesis (i.e., that there is no trend or correlation).

16. If the acronyms for the extremes were previously defined, please use them to reduce the text. Please check this.

17. Why the analysis is performed by decades instead of a full 30 years? what are the authors looking at with this?

18. Page 6, lines 176-179, I highly recommend to rewrite this sentence.

19. Page 6, lines 181-184, I highly recommend to rewrite this sentence. Besides, are these results related to a very active hurricane season, or are caused but something else?

20. Page 6, lines 185-196, I highly recommend to rewrite this paragraph.

21. Page 7, “Variations in extreme precipitation indices under the influence of variables such as NAO, SOI, TSA, and SST-CAR were analyzed over the Greater Antilles. The influences of large-scale variables were classified as positive, negative, positive, significant, negative, or significant, as shown in Figure 4.” Could the authors explain the meaning of this?

22. Page 7, lines 209-210: based on what the authors made this comment? In Figure 4 I can not see this statement since significant correlations are barely seen.

23. Page 7, lines 210-213: this is impossible to see since the quality of the figures is low and one or two * did not make a difference.

24. I can not follow this discussion (figure 5-8) if the supplementary material is not available, besides the writing should be improved for better understanding.

25. Page 8, lines 249-253: please improve the writing.

26. The reference format should be revised.

27. All the figures' quality must be improved, Figure 3 revised the caption and the information on the figure does not coincide.