

Interactive comment on “Increasing Frequency in Off-Season Tropical Cyclones and its relation to Climate Variability and Change” by José J. Hernández Ayala and Rafael Méndez-Tejeda

Anonymous Referee #1

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This study examines the decadal change in the TC frequency during TC-inactive seasons and its linkage to climate variability. It is well written and shows a few interesting results. However, the results of this study are primarily based on the unreliable and inconsistent TC best tracks. It is not known whether the findings of this study are induced by artificial effect or real physics. Therefore, I suggest a major revision.

Specific comments: 1. The authors have already mentioned that TC best tracks before the satellite era is unreliable. Regardless of what modification that they apply, the modified data is still of lower quality. There are several decades from 1966 to present, which

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is long enough for an analysis on the decadal time scale. Thus I would recommend the authors analyze the data since 1966.

2. Another issue related to TC data is the uncertainty in observing the weakest TCs, e.g. tropical depressions. The observation of tropical depressions is highly sensitive to the TC-detecting technologies. I would suggest the author exclude tropical depressions in a revised manuscript.

3. Since the MK test is a well-documented method to detect potential trends, there is no need to represent the detailed algorithm in the paper.

4. Where is the cloud cover dataset obtained from? Before the introduction of satellites, are these cloud cover data reliable?

5. Considering the increasing TC frequency shown by the authors and global warming, it is natural that the correlation between TC frequency and GMST is significant. To make this point more clear, the author should further examine the spatial patterns of the changes in the TC occurrence and the SST. Does the region with rising SST correspond to the region with more TC formation?

6. Since the significant increasing trend in the TC frequency, the correlation between TC number and climate indices might be reduced. Therefore, I would suggest the authors compute the correlation coefficients after removing long-term trends, to highlight the potential relationship on the decadal time scale.

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