**Reviewer 1:**

Convective Storms

In fact the authors agree with the reviewer's argument about the term convective storms. However, this is a definition of S2ID, we will try to contact S2ID, but at the time of writing we end up accepting the definition given by the system.

**Reviewer 2**:

Dear authors,

I made some changes to the language of the manuscript. A native speaker should revise the new version.

I have some major comments.

1. Why should the authors not show the rainfall data relate to Natural Disasters?
2. How can the authors use ERA5 to characterize the Mesoscale events?
3. In some parts of the text, the authors use AB, VCME, and abbreviations in Portuguese.
4. Why do the authors only use the CPTEC synoptic charts? Given the variability of the surface charts in Brazil, it should be made a comparison between the National centers, or the authors should make their analyses
5. The authors did not discuss the variability of the time duration of the SACZ events.
6. The authors did not explain how the satellite images helped them to study the MCV events. Was it subjectively or using a tracked method?
7. The presentation of the results is confusing. Why the different times and dates between Figures 1-4?
8. Why did the authors not show a Figure of the elevation map of SP in the study area and not bring statistical graphs for some of the described results?
9. Why do the authors use different time series data sets?
10. Why is quality control needed if the rainfall data was not shown? In fact, if they want to verify mesoscale systems, remote sensing data should be used.
11. Interpolation methods can smooth localized events
12. Why was the reason for the short period (2013-2017) used?
13. How can a Mesoscale cyclonic exist with diameters between 50 and 300 km? This is synoptic.
14. Did the authors evaluate the CHIRPS data compared to the in situ rainfall data?
15. In Figure 1, it is impossible to see the details described in the text.
16. The Tables presented in the results should be changed for graphs.
17. Why the choice of the case study?
18. How was the variability of the intensity of the MCV regarding the different atmospheric levels and radius of the vortex.

**Explanations and arguments:**

1. 1) The authors chose to show accumulated precipitation during the days at SACZ events (Figure 6). Exact precipitation at the ND site would be unfeasible since there are no stations in all ND locations, and we need to estimate through the interpolated data, but we chose not to interpolate.
2. 1) Era5 was chosen as a test at the beginning of the master's degree to be reliable reanalysis and have a better resolution. At the time of the Master's qualification there were no better reanalysis.

The beginning of the work was to characterize SACZ, and later the MCVs appeared. As reanalysis consistently represented MCVs, we chose to keep it. We may not have found all MCVs, but she represented well.

1. Adjusted.
2. The reviewer is correct. We use CPTEC Synotic Letters, but we checked and analyzed each case that there was the agreement with the CPTEC maps. Unfortunately these cards are no longer available.
3. 5) In fact it was not discussed. The sacz was just the starting points, the work focused more on MCVs and not the sacz. But this feature and variation was observed. And the article is limited in 20 pages, the authors preferred not to describe this analysis.
4. 6) No tracking methodology was used. The literature points out that the cyclonic vortex of mesescala may be associated with the mature and dissipation stages of a convective system of mesescala. Thus, the identification of a CS in a satellite image ended up contributing to the identification of MCVs, however, this analysis was subjective.
5. Figure 1 represents the synoptic fields showing a characteristic pattern in sacz episodes, such as moisture convergence at 850 hPa, the upward movement in 500hpa, the high of Bolivia at 250 hPa. The authors chose to choose 4 more representative times.

Figure 2 represents the most intense MCVS time, with the figure on a more regional scale, only in the state of SP.

Figure 3 represents satellite images in the development of CS and subsequent MCVs.

Figure 4 represents the formation of MCVs, its development and dissipation.

The same number of figures was not chosen, as well as their respective times due to pages limitation.

1. The elevation map was made, and due to limitation of the pages the authors chose to omit it. We did it but we didn't put it in the dissertation.

link:<https://www.tees.usp.br/eses/disponibles/14/14133/tde-14062022-140742/en-br.php>.

And regarding statistical analysis, I believe the event sample is a very small base, 62 ZCAS events filtered by disaster MCV events has become 10 events. A very small sample to work with statistics.

Suggestion of the dissertation is to insert more cases.

1. DAEE with hours resolution was used at first as it is a large network. But after qualification a network with time data was suggested, so we used Inmet, with automatic stations. It has data only from the 2000s.
2. Data control was done to verify erroneous data. It was not shown, for the sake of pages limitation. The observed rain data were used in Figure 6.
3. The authors chose not to interpolate the data from the stations. Even if some areas were without data.
4. The period of 2013 - 2017 was used due to the availability of ND data
5. Literature highlights: Davis et al. (2004) and James & Johnson (2010), Who Detected Mean Radius Around 185 km and 224 km.
6. 14) This was the comparison made in Figure 6 (one map with CHIRPS data and the other with Inmet/DAEE). No careful evaluation was made by station, but qualitatively was analyzed. At first we used the CPC, but compared to CHIRPS, we got better results..
7. We agree to be a small figure, but there is the limitation of pages.
8. The table synthesizes more than the graphs. If we were using graphics we would have to use more than one, occupying more pages.
9. The SACZ event number 41 had the second largest number of affected cities and expressive numbers in terms of home losses and displaced people. Due to these impacts and cyclonic vortex present the most intense vorticity among all cases (Table 3), this number 41 event was chosen for case study.
10. The MCVs performed more intense from lows to average levels. Although it appears at higher levels, its relative vorticity was less intense.

Regarding the rays, the system presented the largest more circular sizes and shapes at low levels. At higher levels, lower rays and less circular shapes. This was discussed in the dissertation (link above), but we took the article due to the issue of space.