

Comment on essd-2021-298

Anonymous Referee #1

Referee comment on "Resilient dataset of rain clusters with life cycle evolution based on observations from the GPM DPR and Himawari-8 AHI" by Aoqi Zhang et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-298-RC1>, 2021

General Comments:

To date, no single dataset can provide both the three-dimensional structure of precipitation and the relevant life cycle properties. This manuscript by Zhang et al. reported on one resilient such dataset, by combining rainfall cluster and GPM 2ADPR orbital data and MCS from Himawari-8 AHI. A series of resilient reprocessing steps have proposed, including filtration, segmentation, and consolidation on the initial RCs, which makes sure the robustness and high accuracy. This method is scientifically sound, and results are pretty reasonable from the case studies shown in the present study. The dataset will definitely help facilitate three-dimensional studies of the life cycle evolution of precipitation. Therefore, I strongly recommend its acceptance after addressing the following several minor comments:

Response: Thanks a lot for your encouragement and helpful suggestions! The following is our replies point-by-point to your issues (presented in blue color in the “**track change file**”).

Minor comments:

L44-45: I noticed the references cited here are not involved in investigation of FY-4. The authors can refer to Wang et al. 2019 (doi: 10.1109/TGRS.2019.2923247) and the references therein.

Response: Thanks a lot for your kind reminder. We have added relevant references in the manuscript [**Line 47-48**].

L105-106: It is not clear to me what does it mean by “the central area”. Also, “in the region of subpolar westerlies with strong high-level westerly winds” is suggested to be further justified.

Response: Sorry for our unclear words. 1) We have changed “the central area is ...” to “the RCs are ...” [line 110]. 2) We have provided the seasonal wind field at 500 hPa [Fig. 1].

Figure 6 caption: The authors can clarify what do the colored profiles in panel c-d represent.

Response: Thanks. We have clarified it in the figure caption [Fig. 6].

Figure 7a and Figure 7b: The y-axis can be revised to the same value range, which will help the readers better understand the difference between zonal and meridian speed. Again, my guess is that the peak speed observed within 20 – 30 N could be due to the subtropical jet stream. Can the authors show the seasonal wind field at 500 – 200 hPa?

Response: Thanks a lot for your constructive suggestions. 1) we have revised the y-axis [Fig. 7a & 7b].

2) We agree with you that the peak speed observed within 20–30 N could be due to the subtropical jet stream [Line 200]. We have provided the seasonal wind field at 500 hPa [Fig. 1]. The 200 hPa wind field is quite similar with 500 hPa wind field [Fig. S1].

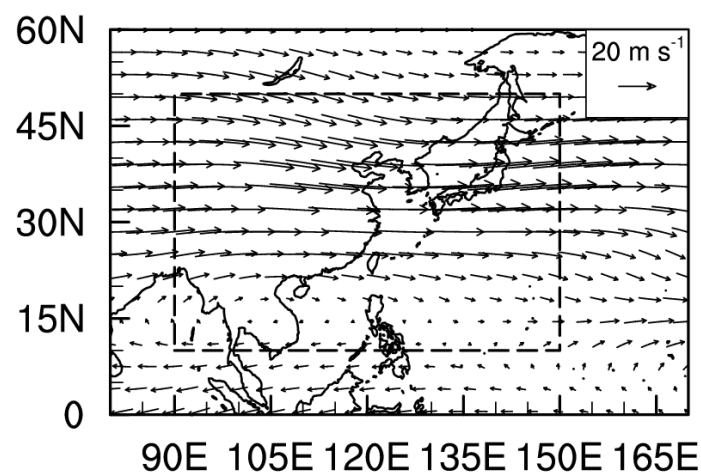


Figure S1: The same as Figure 1, but for 200 hPa wind field.

L244: it is needed to clarify what profiles are compared when the authors state “relatively consistent DSD profiles”.

Response: Sorry for our unclear words. We have reorganized this sentence [**line 259-261**].

Technique correction:

L237: Is “as” missing between “different” and “a result of”?

Response: Thanks [**Line 254**].

L242: “corresponding” -> “correspond”

Response: Thanks [**Line 258**].

The captions of Figures 3 and 5: “parts (c) and (d)” -> “panels (c) and (d)”

Response: Thanks a lot for your nice correction [**Fig. 3 & 5**].