



EGUsphere, referee comment RC2
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Comment on egusphere-2022-628

Anonymous Referee #2

Referee comment on "Satellite observations of seasonality and long-term trends in cirrus cloud properties over Europe: investigation of possible aviation impacts" by Qiang Li and Silke Groß, EGU sphere, <https://doi.org/10.5194/egusphere-2022-628-RC2>, 2022

The paper *Satellite observations of seasonality and long-term trend in cirrus cloud properties over Europe: Investigation of possible aviation impacts* by Qiang Li and Silke Groß is highly interesting and robust.

It is relevant in showing how vertical profiles from satellites could give a better insight of the atmospheric estate, fill gaps in knowledge, and pose new scientific questions.

As general comments, I think it is detailed and many investigations are reported. The impression is that the reader can sometimes be lost in the progress of such reporting. I would suggest reducing the number of figures and focusing more on what is the main result. Figure 12 is the main message that probably authors would like to give as a take-home message, but this is somehow diluted by the presence of many analyses: these are relevant for reaching the main results but could be shortened and eventually reported as an appendix or additional material.

Apart from this general comment, 3 are the points to be clarified /discussed/fixed in the paper:

- It seems that 2 different models are used for temperature and humidity during the investigation: ECMWF and GEOS. Why this difference? Why not use the same for the 2 analyses reported? Please clarify
- In the PLRD temporal behavior of fig 12, there is an anomaly in the 2010 and 2017-2019 (mainly 2018) period: is it possible that the big volcanic eruption affecting

Europe in 2010 is the cause of the 2010 anomaly? Is the aerosol/cloud misclassification in VFM a potential issue then? Which could be the reason for the lower PDLR in 2017-2018? Please discuss this point

- I am not a native English speaker, but the paper is somehow hard to read. I reported some revisions in the comments in the attached pdf, but these are just examples. Please revise the paper carefully in this sense.

These and more detailed points are reported as comments in the pdf file.

Please also note the supplement to this comment:

<https://egusphere.copernicus.org/preprints/2022/egusphere-2022-628/egusphere-2022-628-RC2-supplement.pdf>