

Review of “Oscillations in atmospheric water above Switzerland” by Hocke et al.

The interesting data set of long-term microwave radiometer measurements used for the analysis gives a good opportunity for analyzing the variability of cloud parameters and IWV. However, the paper is very descriptive. There is only very little interpretation of the findings and when it is given it is often not proved well. Please give a more detailed interpretation of your findings and conclusions especially for the statements in the following:

- Why is it surprising that the power spectrum of the zonal wind has strong annual harmonics reaching up to the fourth harmonic? Give an explanation for this behavior. (p. 5 l. 31-32)
- What can you conclude from the similarity of SAO in ILW and SAO in CF? (p. 6 l. 7)
- Please explain your statement that convective cumulus clouds are responsible for the high ILW values in July. (p.6 l. 12)
- P. 6 l. 12-15: You explain which line shows what but you do not describe what you can see in the right panel of Fig. 5 and what you can conclude from that.
- To conclude a transport of air masses from the Atlantic from the zonal wind speed is speculative and should be proved. (p.6 l. 20)
- How do you come to the conclusion that the 20 day-oscillation is related to a Rossby wave? Please explain.
- Your conclusions are mostly a summary. Here, an explanation of the connection between your findings about ILW, IWV and CF should be given.

There are also some minor corrections needed:

- Do not mention the “positive linear trend” of IWV in the abstract while the trend is not subject of this paper as you say on p.5 l.23.
- Please give a short explanation (1-2 sentences) how you determined the coefficients (p.4 l.1)
- Fig. 8: The description/caption of colors and lines is missing.
- Fig. 9: The description of the vertical lines is missing.

In my opinion it is inconvenient to give interpretations in the figure captions as in Fig. 6 “The seasonal change of u is similar ...” and in Fig. 9: “While the weekly cycle in IWV...” Put these descriptions in the text instead of the figure captions.

The text could benefit from a rephrasing. For example, it would be nice to read an alternative to “Figure x shows...” and do not say “A spectral analysis of the green curves...” but “A spectral analysis of the monthly means...” (p. 5 l. 24).

Technical corrections:

- P.3 l. 10: remove brackets in citation
- P.3 l. 19: “where TB [is] the observed”
- P.5 l. 31: remove one of the two “to”