

Dear Alexander, dear Davide,

based on the two reviews received on your manuscript “Analytic characterization of random errors in spectral dual-polarized cloud radar observations” from two experts in the field of radar polarimetry, I plan to give your comments and an updated manuscript free for a second iteration of review. But before I do this, I would like you to consider a further modification of the manuscript.

Reviewer#1 states “...the manuscript contains plenty of mathematical derivations that are quite difficult to follow and check...”

and

Reviewer#2 states “The main problem of this manuscript, it is not easy to read.”

I have studied your replies to the reviewers and am convinced that your manuscript contains the complete set of mathematical derivations for an experienced radar user to understand and apply your methodology. However, I think you need to address a broader audience. Radar operators nowadays are not only experts in the field of radar polarimetry, so please make this manuscript also comprehensible for scientists using cloud radar from a variety of applications and even disciplines.

Especially Sections 3 and 4 are dominated by equations and references to the appendices. Please make the scientific narrative clearer, it is there in principle, but not well recognizable. This could be improved by explaining why you are deriving which equation in more detail and discussing the outcomes of your derivation in relation to the original objective. This could also include formulating the title of the sub-sections in a more generally understandable way and relating a discussion of derivations unambiguously to these titles. Also, please consider more text details between the steps of your equation derivations. I’m sure that this will make your manuscript more accessible to a broader range of interested scientists.

I am looking forward to receiving your modified manuscript.

Best regards

Uli