

Interactive comment on “Dimensionality reduction in Bayesian estimation algorithms” by G. W. Petty

Anonymous Referee #5

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This article is more of a mathematical follow-on to two of the first author’s papers that have recently (or will soon) appear in AMS (American Meteorological Society) journal publications. Those paper show some examples from the TRMM data, but also describe the theoretical basis that is discussed in this discussion paper.

One thing to keep in mind when assessing this type of retrieval is that it is not the type of retrieval in the sense that it is not a physical retrieval that most users associate with the TRMM or GPM-type radiometer or combined radar/radiometer retrievals. Here, the actual physical TRMM-like retrievals (with their own pros and cons) are used to build the reduced-dimensionality databases used in this retrievals (i.e., rain and no-rain observations from TMI where the rain detection and quantification that gets attached to each TMI observation comes from the TRMM radar), so in essence this retrieval is actually a retrieval that works off of a previous retrieval. Which is not a criticism but rather something to keep in mind- it is trying to "match" what was previously generated

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from an earlier retrieval.

The points in the paper are well made and how well they work in practice is not part of this paper. The earlier comment by a previous reviewer about what "types" of rain processes this process is best suited to is relevant. I encourage the authors to follow up the work with more case by case studies and tests with other sensors and channel combinations.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 2327, 2013.