

Dear anonymous referee #2:

We thank you for your insightful comments. The replies to the comments are highlighted in blue. The new text added to the revised manuscript are marked in red.

I still do not find the formulation in Lines 34-35 clear. Redundancy in between TB_h and TB_v is certainly not the cause of better retrieval quality. But is possible that for surfaces and conditions that make possible good retrievals, TB_h and TB_v are more redundant than in other cases. In other words, I suggest rephrasing to avoid giving the impression that there is a cause-effect relationship.

Response: We thank the reviewer for this comment. We have rephrased Line 34-Line 35 to “TB_h and TB_v tend to contribute large redundant information to DCA estimates under surfaces or 30 conditions where DCA makes better retrievals.”

Otherwise, I only have a minor comment: Line 529. Please note that in the case of SMAP, NDVI is not used as a first guess to estimate the vegetation optical depth (VOD). NDVI is used to fix the VOD value and to only retrieve soil moisture. So, I strongly suggest to remove "initial guess".

Response: We thank the reviewer for this comment. We have removed the “initial guess” from Line 529.