An excellent structured work, proving the necessity of introducing the BRDF in the RemoTAP algorithm for accurate aerosol retrievals over snow surfaces. The newly developed extended RemoTAP algorithm is tested against both synthetic and real PARASOL retrievals showing promising performance.

Line 83: Snow kernel function is given below the equations (6-7). I would say it is better to refer it and show its equation only on 87th line as it is.

Line 68: It's unclear to me if with the term z_{aer} you mean the top or the bottom of the aerosol layer. Other retrievals separate these two terms so here it's a bit confusing.

Table 1: For the 3rd Mode add the fixed z_{aer} as it is noted on line 74, so the reader doesn't have to search for this information in the text.

3.5 Data pre-processing

AERONET utilized for collocation purposes is introduced in the previous paragraph, but I think it would be better if you add AND here something like "in terms of AOT, SSA, AE" because I had to look up to the AERONET data to remember this.

Table 3: The minimum and maximum values give the range of the randomly generated input parameters? Is there a reason you choose these limits?

Figure 2: The general better performance of extended RemoTAP is clear. If you changed the χ2 limit for the filtering do you think it would have better results for SSA (maybe a sensitivity test)? The difference of 0.008 (RMSE) between baseline and extended RemoTAP over snow_domi surfaces appears small but in terms of % relative difference it is not insignificant. I'm thinking if it would be more proper using the baseline RemoTAP for SSA.

Figure 3: Why x-axis is labeled as Truth and not AERONET and y-axis as Retrieval and not Extended RemoTAP? I had to read the caption to understand the figure.