

Interactive comment on “Screening for Snow/Snowmelt in SNPP VIIRS Aerosol Optical Depth Algorithm” by Jingfeng Huang et al.

Anonymous Referee #1

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This manuscript reports a development of an algorithm that effectively screens out snow/melting snow pixels in SNPP VIIRS aerosol optical depth product. The algorithm is described in details. Comparisons with AERONET measurements show that the algorithm works to effectively remove the snow and snow-melting pixels in the aerosol product. The paper is well written. Figures are sufficient and in general have good quality. Outcome of the study is of great importance to scientific studies that use the VIIRS aerosol product. I recommend the paper be published in the journal of AMT, before a few minor revisions are done.

Thank you very much for your very valuable and constructive comments.

1. While the "aerosol optical depth" (AOD) is used in title the "aerosol optical thickness" (AOT) is used in abstract and main text. Although AOT and AOD have been used interchangeably in literature for quite a while, I would suggest a consistent use of terminology throughout the paper. Furthermore, I prefer to use AOD.

As suggested, the paper is revised for consistent use of terminology throughout. AOD is used to replace AOT in the paper.

2. Figure 4 has low quality, although other figures have good quality. Also, three panels appear to have the same title, which is a bit confusing. I would like to suggest that they replot the figure with high quality. For panel (c), a different color scale may be used to better represent the difference.

Figure 4 is now revised as suggested. High quality images are used with proper titles consistent with the captions.

3. abstract, line 21: VRA appears too abruptly without any explanation. It may be suffice to say just the "default" snow-removing algorithm.

We appreciate this comment. After some deliberation, considering the VRA method is introduced in details in the main text and the VRA-based snow test are referred in many places in the paper to compare with the NDSI-based tests, we think it is better to keep the 'VRA-based snow test' in the abstract rather than replace it with 'default'. This will avoid potential confusion to readers as well.

4. page 2, line 72: add "snow" immediately before "contamination"
Revised as suggested.