

Interactive comment on “Introducing the 4.4 km Spatial Resolution MISR Aerosol Product” by Michael J. Garay et al.

Anonymous Referee #3

Received and published: 18 November 2019

In this paper, the authors discussed the new version 23 MISR aerosol product. New changes are mentioned, differences to v22 MISR aerosol product are illustrated and preliminary validation efforts are included. Frankly, I am glad to see some of the new changes applied to the V23 MISR product, including fixing the known bias at very low AOD cases. Also, geolocation data are finally included in the individual V23 MISR AOD files, and this new change is welcomed by users like me. Overall, the paper is a well-organized and well-written paper. The content of the paper shall be a great resource for potential MISR aerosol data users. I recommend publication of the paper with minor changes.

Compared with V22 aerosol retrievals that are constructed at 17.6 km spatial resolution (with 16x16 pixels), the new V23 aerosol retrievals are constructed at 4.4 km spatial

C1

resolution (with 4x4 pixels). With a reduced number of pixels used in the retrieval process, is there a reduction in signal to noise ratio? Does this reduction in signal to noise ration affect AOD retrieval?

Cloud screening is discussed in section 4.1.3. However, even with the use of the clear flag fraction (CFF) parameter, cloud contamination may still exist. This is because no IR channel is included in MISR observations, and this may introduce an issue for detecting very optical thin clouds (e.g. thin cirrus). The authors shall at least mention that.

Page 22, line 14, the authors mentioned that AODs are reported at 550nm. What is the procedure used to convert from AOD at 558 nm (V22) to 550nm?

Page 28, what is the cloud screening method used for V22 MISR AOD data for constructing Figure 7? Also, what is the method used for converting AOD from 558 nm to 550 nm?

Page 41, figure 15. It looks like the low bias in high AOD retrievals still exists. What are the sources for this bias and why were changes not made to correct this low bias?

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-340, 2019.

C2