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Discussions

Interactive comment on "New-generation NASA Aura Ozone Monitoring Instrument (OMI) volcanic SO$_2$ dataset: Algorithm description, initial results, and continuation with the Suomi-NPP Ozone Mapping and Profiler Suite (OMPS)" *by* Can Li et al.

Anonymous Referee #1

Received and published: 29 November 2016

Review of "New-generation NASA Aura Ozone Monitoring Instrument (OMI) volcanic SO2 dataset: Algorithm description, initial results, and continuation with the Suomi-NPP Ozone Mapping and Profiler Suite (OMPS) " by Li et al.

Li et al. present a variant on their very successful PCA boundary-layer SO2 retrieval algorithm, aimed here at retrieving volcanic SO2, and apply it to OMI and OMPS. For larger SO2 loading they utilize long wavelengths in their retrieval. The authors find greatly reduced retrieval noise, and removal of a high bias, with this product. Its

successful application to OMPS will help ensure a continuation of the OMI volcanic SO2 data record. This is clear and well written and represents an advance in the retrieval of SO2 from UV/vis satellite spectra. I recommend it be published once the reviewers address the points given below:

Page 12, line 24: "In the absence of information on SO2 plume height . . ." - OMI should have information on plume height in its spectra, at least for larger eruptions. What about retrieving SO2 plume height? This was demonstrated previously for OMI by Yang et al. (2009). Presumably this knowledge would greatly reduce one of the larger sources of error for users. Please address this.

Yang, K., X. Liu, N. A. Krotkov, A. J. Krueger, and S. A. Carn (2009), Estimating the altitude of volcanic sulfur dioxide plumes from space borne hyper-spectral UV measurements, Geophys. Res. Lett., 36, L10803, doi:10.1029/2009GL038025

Section 3: More detailed/quantitative/spatial comparisons should be made with GOME-2. E.g., Figure 5 and figure 7. GOME2 is mentioned in passing but real comparisons would provide additional confidence in this new product (different sensor + different algorithm). Provide GOME2 VCD maps for one of the eruptions studied.

Page 5, line 11: change "computationally too expensive" to "too computationally expensive"