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Earth System Science Data Discussions

Interactive comment on "Recovery of the first ever multi-year lidar dataset of the stratospheric aerosol layer, from Lexington, MA, and Fairbanks, AK, January 1964 to July 1965" *by* Juan-Carlos Antuña-Marrero et al.

Anonymous Referee #2

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This paper presents in my view a valuable contribution to the rescue of old geophysical data - in this case from early lidar measurements of stratospheric aerosols - for the sake of their use in the reconstruction of past volcanic events. The work is a contribution to the Data Rescue activity of the Stratospheric Sulfur and its Role in Climate within the SPARC project.

The crux of the work is the extraction of aerosol extinction coefficients at 532 nm between 12 km and 24 km from backscattering-ratio results at 694 nm retrieved in that range, under simplifying hypotheses, from lidar measurements carried out in differ-

ent periods of 1964 at two different locations (Lexington, Massachusetts, and College, Alaska).

While the "translation" from the original results (the backscattering ratios at a given wavelength under the mentioned simplifying hypotheses) to the extracted ones (the aerosol extinction coefficients at another wavelength and correcting for the simplifications) is carefully explained, I found apparent inconsistences and ambiguities in the developed formulation, as well as in the notation, that the authors should explain or, if my concerns are proven right, correct.

A revision of the English writing and a more direct style, with less involved sentences, would probably be beneficial as well.

See attached pdf for review details.

Please also note the supplement to this comment:
https://essd.copernicus.org/preprints/essd-2020-246/essd-2020-246-RC2-supplement.pdf

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