

Interactive comment on “CALIPSO Lidar Calibration at 532 nm: Version 4 Nighttime Algorithm” by Jayanta Kar et al.

A. KUMAR

ashish452@yahoo.com

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In this manuscript, the authors have described the implementation of the new calibration scheme (532 nm, nighttime) in CALIPSO version 4.1 in detail, and discusses its merits and validation with HSRL. The manuscript is well written. It discusses the salient features and robustness of this new calibration procedure. I recommend publication with just a couple of minor editorial suggestions as given below:

- 1) At page 3, line#3 and 4, V4 is defined as version 4.00 and 4.10. In the similar manner V3 should also be defined at its first usage (line#9, page 3 or at line#33 at page 1).
- 2) There is no symmetry in using the defined acronym "MERRA-2", as it is also used

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as MERRA 2 and MERRA2 in the manuscript.

3) At some places, authors have used version 4.1 and later as version 4.10, and moreover they defined version 4.00 and version 4.10 as V4. All these may leads to confusion in the mind of readers. So better use a single nomenclature.

4) Acronym for signal-to-noise ratio is to be defined at its first usage (at page 1 line 28 rather than at page 3, line#7)

5) At page 3, line # 11-13 i.e. last sentence of the paragraph needs some revision because it is not too clear that whether the bias reduction is shown in the earlier study i.e. Rogers et al., 2011 or in the present study.

6) At page 4 line#17, the statement " The most extensive and accurate measurements" should be supported with some references.

7) Authors should also cite the following papers in the Introduction section: (a) Vaughan et al., 2016. Cloud – Aerosol LIDAR Infrared Pathfinder Satellite Observations (CALIPSO), Data Management System, Data Products Catalog, Document No: PC-SCI-503, Release 4.10 (June 6, 2017 and December 14, 2016). (b) Kumar, A., Singh, N., Anshumali, and Solanki, R.: Evaluation and utilization of MODIS and CALIPSO aerosol retrievals over a complex terrain in Himalaya, *Remote Sensing of Environment*, Volume 206, 1 March 2018, Pages 139-155, ISSN 0034-4257, <https://doi.org/10.1016/j.rse.2017.12.019>. (c)Thomason, L. W., Pitts, M. C., and Winker, D. M.: CALIPSO observations of stratospheric aerosols: a preliminary assessment, *Atmos. Chem. Phys.*, 7, 5283-5290, <https://doi.org/10.5194/acp-7-5283-2007>, 2007.

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