Atmospheric
Measurement
Techniques
Discussions

Open Access

Interactive
Comment

Interactive comment on "Profiling of fine- and coarse-mode particles with LIRIC (LIdar/Radiometer Inversion Code)" *by* M. R. Perrone et al.

Anonymous Referee #2

Received and published: 22 September 2014

Profiling of fine- and coarse-mode particles with LIRIC (LIdar /Radiometer Inversion Code) By M. R. Perrone, P. Burlizzi, F. De Tomasi, A. Chaikovsky

General comments

Considering the specifics and the number of analysed cases, some of the conclusions concerning the accuracy of the aerosol model used in LiRIC sound too general.

Specific comments

I have to point out that, what concerns the site and the cases selected for study, at least two of them demonstrate a presence of rather well-mixed aerosols, which places

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

LiRIC in an unfavourable condition for retrievals.

Also, LiRIC results are highly dependable on the estimations of aerosol columnar properties provided by AERONET inversion, you should mention level of the data you've used (1.5. or 2.0) and the aerosol optical thickness, measured by the sun-photometer for that case, as it is directly defines the accuracy of such estimations (see more details in Dubovik, O., Smirnov, A., Holben, B. N., King, M., Kaufman, Y. J., Eck, T. F., and Slutsker, I.: Accuracy assesments of aerosol optical properties retrieved from Aerosol Robotik Network (AERONET) sun and sky radiance measurements, Journal of Geophysical Research, 105, 9791–9806, 2000.)

Technical comments

p. 8886, line 23: "two aerosol modes" instead of "two aerosol mode"

p. 8887, line 5: "LIRIC searches for particle lidar profiles that best match the AERONET-derived column volume concentrations. . ." In the first place, as I understand, LIRIC searches the profiles that best match the multi-wavelength lidar measurements and the columnar concentration is used as an additional constraint.

p. 8888, line 10–11. "However, we believe that the indicated one to go too well." There is clearly some error in this sentence, please rephrase it to make It understandable.

Figures 2, 4, 6, 7, 12, 10, 14: Consider making proper legends for these plots. If there are 6 different lines, so the legend, to my taste, should describe all of them. That makes a comparison at a glance much easier.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 8881, 2014.