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7, S136–S137, 2007

Interactive Comment

Interactive comment on "Retrieval of aerosol complex refractive index from a synergy between lidar, sunphotometer and in situ measurements during LISAIR experiment" by J.-C. Raut and P. Chazette

Anonymous Referee #2

Received and published: 1 February 2007

In the beginning I would like to tell that this is an interesting and well written paper. The authors are the experts in the field and the manuscript can be published.

Still I would like to touch some critical (by my opinion) points. First of all, the extinction profiles are derived from lidar measurements by using the Klett method and range independent lidar ratio (LR). The numerous experimental studies performed with Raman lidars reveal significant variance of LR through the PBL. So this is a question, what uncertainties will be introduced by using equivalent BER instead a real one.



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Speaking about synergy between different passive instruments, we should keep in mind, that sun photometer provides averaged through PBL data while in situ instruments do with the ground level measurements. Thus different values of Angstrom parameter in Fig.2 derived from these instruments can be explained not only by spectral dependence, but also by altitude dependence.

The same is probably true when ACRIs derived from AERONET and lidar are compared. The real part of ACRI is derived at ground level, so this is one of the reasons why it is higher.

Speaking about index retrieval from lidar data it is worth to mention the publications of D.Muller from Leipzig.

In Fig.15 BER at 355 nm is higher than at 532 nm for RH²20%, while experimental results in Fig.6 are opposite. Could some explanations be provided?

In the section 6 the authors discuss the effect of RH on aerosol scattering properties. Should vertical variability of BER be taken into account in Fig.16, 17 when deriving the extinction profiles from lidar data?

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