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## ***Interactive comment on “Separating mixtures of aerosol types in airborne High Spectral Resolution Lidar data” by S. P. Burton et al.***

**Anonymous Referee #1**

Received and published: 1 November 2013

This paper describes a method for separating external mixtures of two aerosol types using the intensive parameters (lidar ratio, color ratio, depolarization ratio) obtained from high-spectral-resolution lidar (HSRL). The method was applied to the NASA airborne HSRL data. The subject is suitable for AMTD, and the paper is well written.

The followings are questions and comments.

Is it straightforward to extend this approach to handle external mixtures of three aerosol types?

How the pure aerosol types were defined in general? It should be mentioned if studies like cluster analysis have been conducted with HSRL-1 data.

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Nishizawa et al., JQSRT 2010 is a better reference instead of Nishizawa et al. 2010 in Atmos. Res. They also extended their method to include independent extinction (or lidar ratio) measurement in Nishizawa, et al., IEEE Trans. Geosci. Rem. Sens, 46(12), 4094-4103, 2008 to partition optically absorptive aerosols.

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Interactive comment on Atmos. Meas. Tech. Discuss., 6, 8269, 2013.

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