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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characteristics of convective boundary layer and associated entrainment zone as observed by a ground-based polarization lidar" *by* Fuchao Liu et al.

Anonymous Referee #2

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This manuscript is one part of an increasingly long list of papers simultaneously investigating the evolution of both planetary boundary layer (PBL) height and entrainment zone thickness for the haze events in China. Most have focused on CBL, this is one of the few to deal with EZ. It is of essence to investigate the variation of EZT near the PBL top, since it concerns the formation of cloud, the interaction of land-atmosphere, and the vertical mixing of scalars. The retrieval methods are scientifically robust, and the results interpretation makes sense, as far as I can tell. Therefore, I recommend acceptance for publication after addressing the following concerns.

Major comments: 1. The title of this manuscript seems overstated. Actually, the au-

thors only dealt with two cases from lidar measurements in Wuhan. Therefore, the title should be revised.

2. Most of the sentences are almost the same in both Conclusion and Abstract, especially regarding the statistic results of EZT evolutioin at different stages for both winter and summer cases. This should be avoided. The authors are suggested to highlight the major findings as well as the importance or implications of their work in Abstract, rather than simply duplicating the numbers. Minor comments: L17: the first "FWHM" is redudant and can be deleted. L57: "despite of" -> "despite" L77: "EZT" is a geophysical parameter rather than an approach. The authors mean "the determination of EZT"? L181: "Jan" is not official acronym for "January", and should be given full spelling. All instrances should be corrected throughout the MS L193: "measuring"-> "measurement" L245:"convinced"-> "confirmed" L432: "This new approach is designated as FWHM method in this work." can be deleted.

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