Review of Characteristics of convective boundary layer and associated entrainment zone as observed by a ground-based polarization lidar by Liu et al.

General Comments:
Entrainment is critical for the evolution of boundary layer. This study developed an approach for estimating entrainment zone thickness. Then this approach was applied to two cases. The evolution of boundary layer and entrainment zone thickness was analyzed at four stages. The difference between the winter and summer cases were also discussed. The topic is interesting but major revision is needed before I can recommend acceptance of this paper.

1. Line 216-217: "Then, the upper and lower heights with half value of the maximum variance are searched and defined as the top and bottom heights of EZ, respectively." Why do the upper and lower heights with half value of the maximum variance represent the top and bottom heights of EZ? Please compare the top and bottom of EZ from this method with those from other methods to justify this method.
2. Only two cases are analyzed to represent the results in winter and summer, respectively. To obtain robust conclusions, more cases are needed, at least, one month for each season. In addition, why do the authors only focus on winter and summer? Please include spring and autumn. The case on May 19, 2020 is actually a case in spring, not summer.
3. In section 4, only the results from this study are presented. Please compare these results with previous studies.

Minor Comments:
1. In the introduction, please clearly state what is the deficiency of previous studies on this topic and what is new in this study.
2. Line 214: ABR should be defined when it shows up for the first time.
3. Line 242-246: Please give a figure to compare the ABR results by this TPL and the co-located vertically-pointing 532-nm polarization lidar.