Dear referee,

Thank you again for reading the revised manuscript and our response to your comments so carefully! We are very impressed by your serious and responsible approach to the manuscript. We have read your suggestions carefully, and modifications have been made in the manuscript. Our replies are shown as follows.

1. Elaborate upon the need and perceived importance of improving understanding of precipitation physics in overshooting convection in the Introduction. Right now, the motivation is limited to improving models and understanding of the efficiency of vapor transport to the UTLS. Given the connections to severe and/or hazardous weather, including precipitation extremes, I believe the motivation can be much broader than it currently is.

Answer: Thanks for your advice! We've broadened the motivation, and added parts are shown as line 56-76. And following references have been added.

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2. Increase emphasis on the goals of the current study in the Introduction. For example, while tropopause definition is important for overshooting identification, the departure to discuss this in the sixth paragraph of the Introduction increases focus on the overshooting process and stratospheric impacts (which I took to be the most important goal of the effort and led to my disappointment that detailed characteristics within the overshoots were not the focus of the analysis). This content should likely move to the methods to justify use of the chosen tropopause definition.

Answer: Thanks for your advice! Modifications have been made in the manuscript, shown as line 107-127, 143-144, 165-186.

3. Increase motivation for focusing primarily on East China. Since you are not limited to this region based on the datasets you employ, the decision to focus on it should be a bit better justified than in the present draft of the paper.

Answer: Thanks for your advice! Modifications have been made in the manuscript, shown as line 128-144.

4. For the analysis and associated discussion, the altitude of the freezing level should be indicated in your figures (perhaps by average and standard deviation for your samples) because none of the current analyses demonstrate where that is!

Answer: Thanks for your advice! The altitude of the freezing level have been indicated in figure 6, 7,10.