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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Decreases in wintertime total column ozone over the Tibetan Plateau during 1979–2017" *by* Yajuan Li et al.

Anonymous Referee #3

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General comments: This paper investigated the long term trend and seasonal variation of total column ozone (TCO) and total ozone low over Tibetan Plateau (TP) by using the regression analysis. The impacts of individual variables including solar cycle, QBO, and geopotential height (GH) have been discussed. They found that the GH may play an important role influencing the TCO especially on 150hPa levels. Moreover, they mentioned there might be the dynamical controlling of Inter Tropical Convergence Zone, ENSO events or Walker circulation in the lower stratosphere. In this paper, the scientific conclusions may need to be addressed more carefully and clarified. Some other details could be found beneath in the "specific comments". I would also suggest the author to work on the writing of the manuscript.

Specific comments: 1. TOL has been discussed in the manuscript but it didn't show in

the abstract? 2. It would be more reasonable to address some discussion of reasons for choosing 4 TP regions. 3. Does Fig.1 show results of C3S? Some details would be helpful. 4. Fig.6, in QBO analysis, do purple dots represent combined QBO at 30hPa and 10hPa? 5. In the manuscript, SLIMCAT results show much smaller 150hPa GH contribution in DJF due to coarser resolutions. If it's correct, simulations with a finer resolution might be suggested to perform here. The values in JJA almost double in model simulations. It might require some discussions.

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