

Interactive comment on “Validation of Aura MLS retrievals of temperature, water vapour and ozone in the upper troposphere and lower–middle stratosphere over the Tibetan Plateau during boreal summer” by X. L. Yan et al.

Anonymous Referee #1

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This is a very informative and thorough paper describing the latest version of MLS temperature, water vapor and ozone retrievals (v4) as well as the implications of the changes on scientific questions such as the composition of the UTLS over South East Asia during the summer monsoon season. After reading the manuscript, a few questions came to mind: (1) In section 2.2, the authors note "... v4 provides increased data yields in this region relative to v3..." It's not entirely clear as to why this is the case. Were flag thresholds revised, for instance, and if so, why? (2) What is the impact of clouds in v4? Are clouds being addressed differently in this new version? Some suggestions for a few figures: (Fig 2) It is very difficult to see the uncertainties in these

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plots as presented, since the magnitudes of the mean values are much larger and hence mask the magnitudes of the uncertainties. Consider plotting the uncertainties separately or instead of the means, if that is the focus of the plot. In addition, why average together different years and different seasons into one plot? (Fig 4) It is difficult to see if any differences exist between the error bars on the mean (set as 2-SEM) and the error bars on the median (set as the IQR) in both (a) and (b). Consider offsetting them in the vertical. (Figs 7, 9, 10, 12) The "x" axes in these figures should be labelled with the tracer names, similar to how it was done in Figs 5 and 6, for quick visual reference.

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