

Interactive comment on “Gravitational separation of Ar/N₂ and age of air in the lowermost stratosphere in airborne observations and a chemical transport model” by Benjamin Birner et al.

Anonymous Referee #2

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The recently published study of Hauck et al. (2020, ACPD) provides an ideal age spectra framework for the data considered in this study. In Hauck et al. (2020) they consider aircraft measurements in the lowermost stratosphere and how to use separate entry value time series and age spectra for the air entering from the tropical tropopause vs. the extratropical tropopause. They show that the LMS consists of 50-70% tropospheric air from the same hemisphere, having bypassed the tropical tropopause, on average with large seasonal variability. A trace gas such as CO₂ has a strong, seasonally varying hemispheric gradient that will result in different entry values into the LMS from the

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extratropics compared to those from the tropical tropopause.

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