

## A few comments on “Enhanced stratospheric water vapor...”

There was also a comparison of hygrometers during the NASA MACPEX mission; this study might also be helpful here:

Rollins, A. W., et al. (2014), Evaluation of UT/LS hygrometer accuracy by intercomparison during the NASA MACPEX mission, *J. Geophys. Res. Atmos.*, 119, 1915–1935, doi:[10.1002/2013JD020817](https://doi.org/10.1002/2013JD020817).

Tissier and Legras also discuss the accuracy of the OT altitude and obtain a somewhat different results than reported here (l. 169)

Tissier, A.-S. and Legras, B.: Convective sources of trajectories traversing the tropical tropopause layer, *Atmos. Chem. Phys.*, 16, 3383-3398, doi:10.5194/acp-16-3383-2016, 2016.

The authors argue on the efficiency of mixing by breaking gravity waves (l. 188 and l. 296). Please consider this citation from a review of another paper (review by T. Dunkerton):

*“..vertical diffusion to breaking gravity waves, it is well-known that such waves (if undergoing local convective instability in their phase of overturning) are not effective in mixing heat and constituents vertically (Coy et al., 1988 JAS). Inertia-gravity waves may undergo shear instability at large amplitude, altering this result possibly in a significant way (Dunkerton, 1985 JAS, et seq.). “*

l.257: I find this sentence confusing, please consider to rephrase.