

Comments on ‘Turbulence parameters measured by the Beijing Mesosphere–Stratosphere–Troposphere radar in the troposphere/lower stratosphere with three models: Comparison and analyses’ by Z. Chen et al.

Summary

The reviewer acknowledges the replies by the authors. In my opinion, the study fits into the scope of Atmospheric Measurement Techniques, while I have several comments which the authors might want to address in further revised version.

Specific comments

In the revised manuscript, the authors added a discussion on how to calculate the vertical shear of horizontal wind for estimating the shear broadening component, where the vertical shear is calculated as the vertical gradient of absolute value of horizontal wind vector. However, since shear broadening comes from the variation of the radial velocity within the radar volume, only the beam direction component of the horizontal wind vector contributes to the broadening of the radar spectrum. In fact, Nastrom (1997) shows scatter plots of spectral widths of the eastward (northward) beam versus vertical shear of zonal (meridional) winds to explore the shear broadening effects of WSMR observations. I recommend the authors to recalculate shear broadening effects.

References

Nastrom, G. D.: Doppler radar spectral width broadening due to beamwidth and wind shear, *Annales Geophysicae*, 15, 786-796, [10.1007/s00585-997-0786-7](https://doi.org/10.1007/s00585-997-0786-7), 1997.