

Turbulence parameters measured by the Beijing MST radar

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The authors have addressed my concerns with the original version but in making their changes they have introduced some further points that need addressing.

I.100 is related to (not with)

Table 1. Coherent integration (combining signals from the same height bin over successive radar pulses, according to phase)

Incoherent integration (averaging of spectra)

Add to the table or the following text how long it takes to make one observation with the radar (your reply to me stated 5'6'' but you didn't put that in the paper)

I.156-7 '... tropopause region, where the echo signal spectrum is narrow and unrelated to turbulence (e.g Fukao.....'

I.158 based on isotropic scattering

I.210-230. When thinking about the physics of the way wind shear affects the spectral width, we must recall that the Doppler shift is due to the component of velocity along the beam direction. If the beam is tilted along the same azimuth as the wind, and there is a vertical wind shear in the same direction, the spectrum is affected as shown in Dehgan and Hocking (2011), fig 5a. For example, positive wind shear makes the Doppler shift of the 'top' of the beam larger relative to the 'bottom', reducing the difference between them. But if the wind rotates with height in the range gate (transverse wind shear), the extra wind components add in quadrature to the mean wind, and their impact on the wind speed is much smaller. So the correct value of wind shear should be $\partial u \partial z |_{\phi}$ where ϕ is the azimuth direction of the mean wind.