Interactive comment on "From standard wind measurements to spectral characterization: turbulence length scale and distribution" *by* Mark Kelly

A. Peña

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Dear Mark,

Thanks for a very interesting paper. It is indeed extremely convenient to have a parametrization for the Mann length scale that is based on commonly measured parameters. Here three short comments on your manuscript:

1. My previous work both in the citations and in the references should be Peña, A and not Peña Diaz, A. I think you have two references (and the corresponding citations) with that issue.

2. In Peña et al. (2010) we did not explicitly suggest a parametrization for the Mann length scale but we relate it to the length scale of the wind profile as you point out. Your work suggests $L_{MM} \approx \sigma_U/dU/dz$ which roughly means that $L_{MM} \approx z$ in the surface layer (if the approximation $\sigma_U = u_*/\kappa$ is used), whereas our relation $L_{MM} \approx 1.7\ell$ roughly means $L_{MM} \approx 0.68z$. The latter is also in accordance with the work of Chougule et al. (2014) from measurements at Høvsøre and at Ryningsnäs.

3. So what is the reason for the differences between Peña et al. (2010)/Chougule et al. (2014) and your results? Could it be the way the velocity spectra was analyzed (you seem to extract the Mann parameters from each individual 10-min record whereas Peña et al. (2010)/Chougule et al. (2014) ensemble average spectra for different turbulence conditions)? What is the uncertainty of the fit when performed on each 10-min case?

Best regards,

Alfredo