



A new formula for low-wind spectra in stable and unstable conditions.

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Low-wind spectra of the wind velocity and temperature are investigated through the analysis of sonic anemometer observations gathered in two experimental campaigns: the Urban Turbulence Project (Mortarini et al., 2013) and the Northern hemisphere climate Processed land-surface Experiment (Thomsen et al., 1994). As a consequence of the oscillatory behaviour of the horizontal wind in low-wind conditions the spectra present an evident peak in the lower frequency range in both stable and unstable conditions. The peak frequency depends on the meandering time-scale of the horizontal wind components and it is not accounted for in classical spectra formulations. In this work a new formula for the low-wind velocity and temperature spectra is presented and tested.