



An investigation on temperature variance scaling in the atmospheric surface layer

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The paper presents surface layer measurements of temperature fluctuation variance performed in a site characterized by small scale inhomogeneities. Periods of marked radiative forcing are chosen, in order to highlight the effects of thermal forcing and to work with a wide stability interval. The data characterized by large thermal forcing agree quite well with the similarity relationship for convective cases $\overline{\vartheta'^2}/\vartheta_*^2 \propto (z/L)^{-2/3}$ and with a z -less parameterisation (with a large scatter) in the stable case. For near neutral cases, the similarity function diverges because of the loss of significance of the temperature scale. Departures from similarity are highlighted in cases with small thermal fluxes, because horizontal heterogeneity and unsteadiness become important as production terms.