



Different parameterizations for wind variance applied to the convective boundary layer growth modeling

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The transition planetary boundary layers from the day to night, and from the night to day, have fewer studies than established boundary layers: convective, neutral, and stable. Here, the turbulent kinetic energy (TKE) variation is analysed during the morning transition phase from the neutral stratification during the night. The characteristics of the TKE during the growth phase of convection are analysed with the help of four analytical models. Each model is characterized by different combinations among convective and neutral spectra, parameterizations for the wind variance and dissipation rate. A 3-D spectral model of the growth of convection, starting from a neutral layer are employed. The TKE evolutions generated by the analytical models agree fairly well with the results of large-eddy simulation (LES) for three vertical levels. The LES result can help to evaluate the best parameterization.