



## Estimating the friction velocity in neutral and unstable boundary layers

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In this work a method is suggested for the calculation of the friction velocity for neutral and unstable boundary-layer flows over hills. Theoretical predictions are obtained with the linear model of Hunt et al. (1988a). Numerical simulations are carried out using a non-hydrostatic mesoscale numerical model. The theoretical results are compared with the numerical predictions and with observations made by Coppin et al. (1994) at Cooper's Ridge, in New South Wales, Australia. The comparisons between the theoretical and the numerical and experimental results show an improvement in the behaviour of the theoretical model when the friction velocity is calculated using the method proposed. The present study extends previous work by the authors, where the same kind of approach was adopted for stably stratified boundary layers.