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Supplement of

Boundary layer evolution over the central Himalayas from radio wind profiler and model simulations

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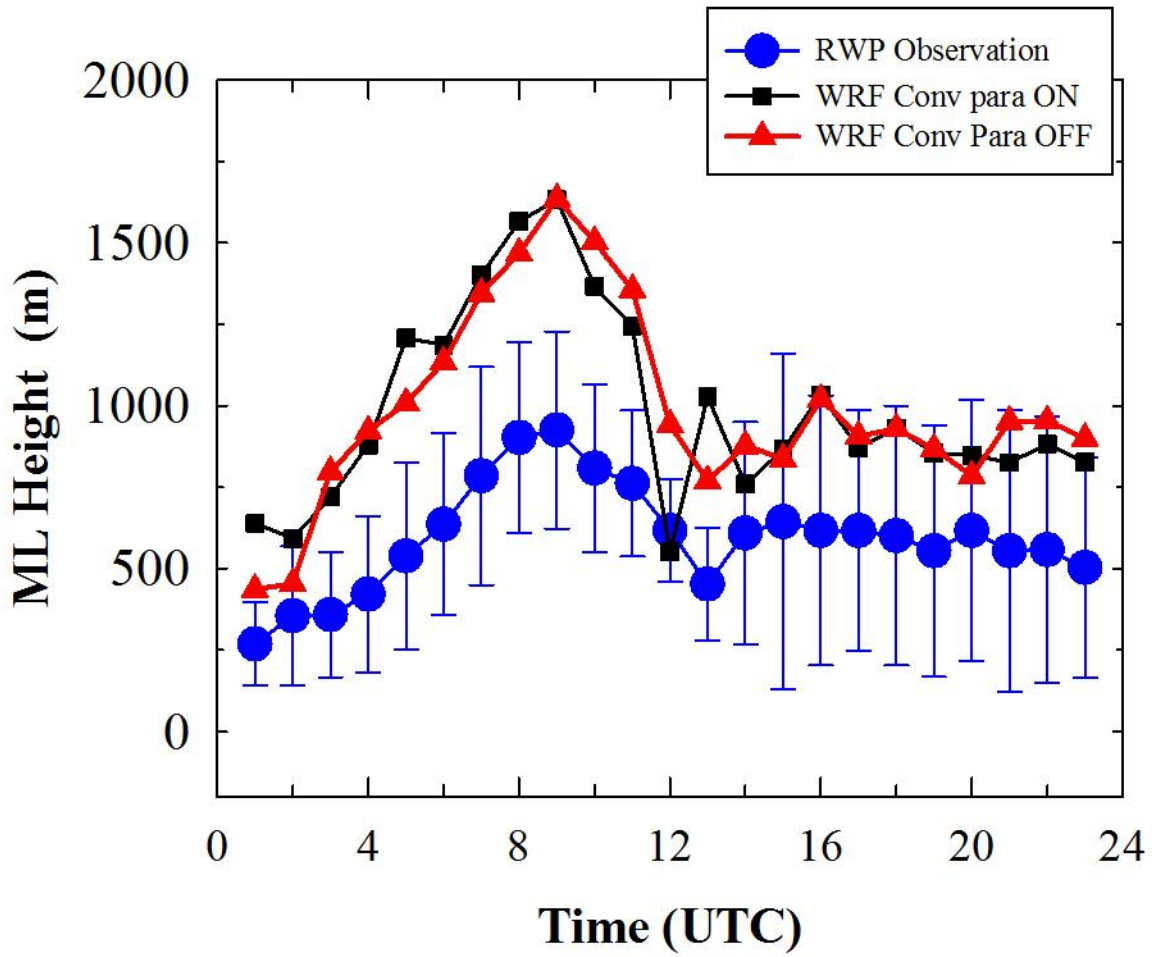

Figure S1: Comparison of mean diurnal variation in boundary layer height from the RWP measurements and WRF simulations (5 km x 5 km) to investigate the effect of convective parameterization. The simulation with convective parameterization turned OFF shows relatively smoother variation at 11-13 UT.

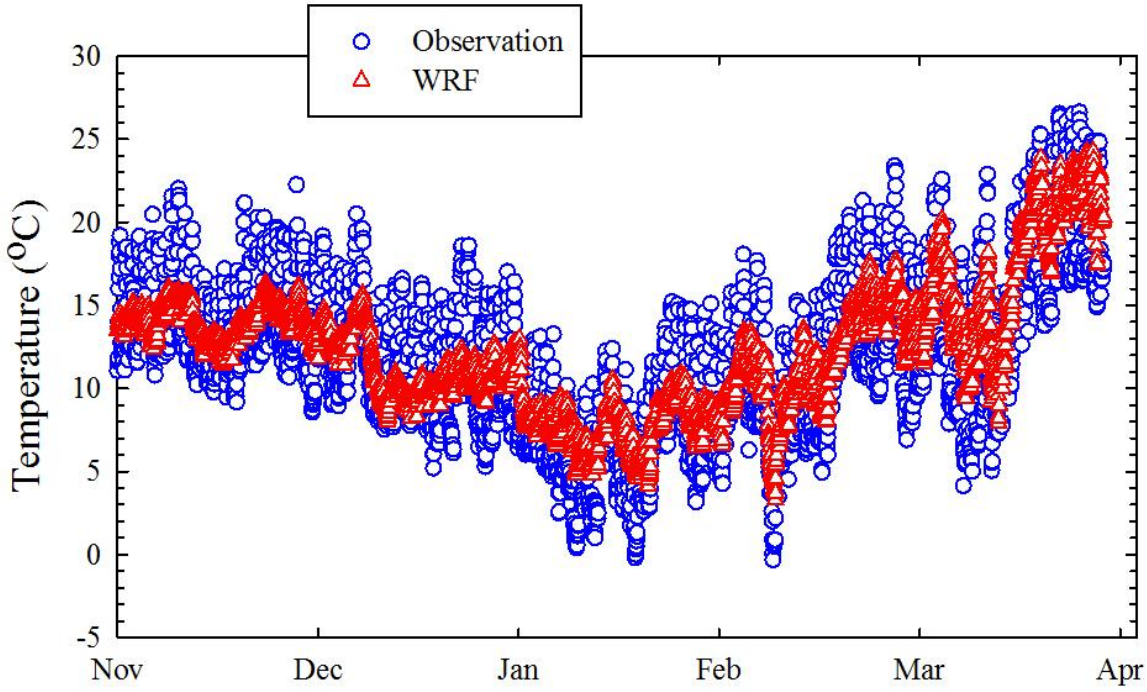

Figure S2: Comparison of observed air temperature from Automatic Weather Station (AWS) with WRF simulated temperature at Nainital during study period.

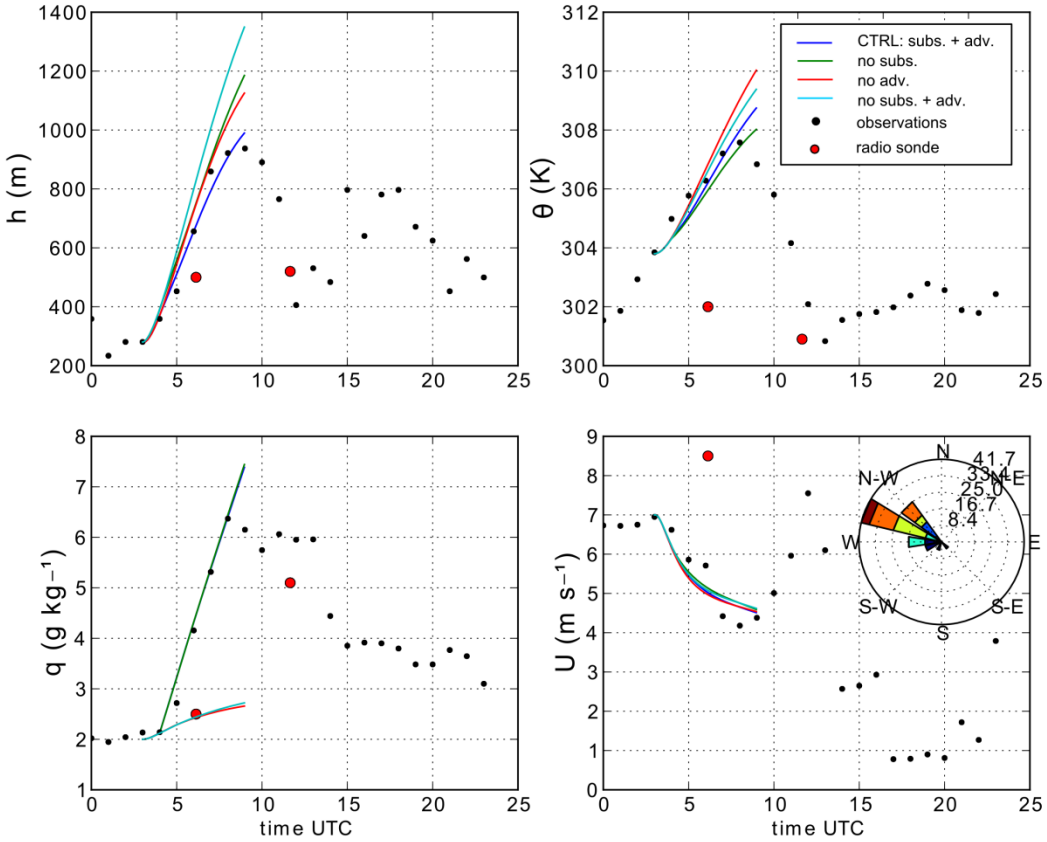

Figure S3: Diurnal variations in **(a)** boundary layer height (h), **(b)** potential temperature (θ) **(c)** specific humidity (q) and **(d)** wind speed (U) and direction on 15th March 2012 as simulated with MXL/MESSy. The dots show observations of these variables. The results of four simulations are shown: a control case (CTRL) which includes both subsidence and advection, a simulation in which the subsidence has been turned off (no subs.), a simulation in which the advection of cool and moist air has been turned off (no adv.) and a simulation in which both subsidence and advection have been turned off (no subs. + adv.).