EMS Annual Meeting Abstracts Vol. 12, EMS2015-423-1, 2015 15th EMS / 12th ECAM © Author(s) 2015. CC Attribution 3.0 License.



Sensitivity tests of the surface characteristics in the GABLS4 experiment

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The GABLS4 experiment (Gewex Atmospheric Boundary Layer Study) is an intercomparison exercise which aims at studying the interaction between the snow surface of the Antarctic Plateau at DomeC and the boundary layer under strong stability.

Among the models that participated to this study, results of the CNRM-GAME models (Surfex, Arome, Arpege, Meso-NH) will be presented.

The sensitivity experiments will concentrate on the representation of roughness lengths, that are used in the computation of the surface fluxes exchange coefficients, both for heat and momentum.

The impact of different roughness lengths will be shown on results derived from:

- stand-alone surface simulations (LSM) done on a 15 days period (December 2009)

- 1d-coupled single column model runs (SCM) and large eddy simulations (LES) during a diurnal cycle with a boundary layer height varying from 300m in the convective phase to a few meters in the morning.