

This supplement file contains all routines involved in the modifications described in: Model development in practice: A comprehensive update to the boundary layer schemes in HARMONIE-AROME cycle 40, GMD, de Rooy et al., 2021. The directory structure is the same as in the full Harmonie-Arome model. Directory `src/arpifs/phys_dym` contains four modified routines: `apl_arome.F90`, `vdexcuhi.F90`, `vdhghtnhl.F90` and `vdparcelhl.F90` that involve changes to, respectively the cloud scheme, the turbulence scheme, the convection and turbulence scheme, and finally the convection scheme. Corresponding original routines are always indicated by the extension `_ori`. Directory `mpa/micro/internals` includes `condensation.F90` with modifications to the cloud scheme. Finally, directory `mpa/turb/internals` contains five routines with modifications to the cloud scheme: `compute_function_thermo_mf.F90`, `compute_mf_cloud_stat.F90`, `ini_cturb.F90`, `turb.F90` and `turb_ver_thermo_corr.F90`. In the same directory, two routines include modifications related to the turbulence scheme: `turb_ver_dyn_flux.F90` and `turb_ver_thermo_flux.F90`. With reference to the paper mentioned above, all routines in the supplement file can be freely used e.g. in other software.