

Recent developments in prognostic physics in ARPEGE-Climate: Turbulence in the presence of convection and discretization of convective vertical velocity in PCMT

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This talk presents 2 recent developments in prognostic physics included during 2018 in ARPEGE-Climat and implemented in 2019 in the coupled operational seasonal forecasting system of Météo-France. The first and most important one concerns the consideration of convective PCMT transport flows in turbulence; this is done by including thermal and dynamic convective productions, in addition to their pre-existing turbulent contributions, in the temporal evolution equation of the turbulence. The second development deals with a better discretization of the convective vertical velocity equation in PCMT. Results will be illustrated using 1D simulations on case studies and 3D global simulations in mean climate and seasonal forecast mode.