Validation of RegCM5 at convection parametrized resolution over the CORDEX-CORE domain and at convection permitting resolution over the Euro-CORDEX domain

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New evaluation simulations with the ERA5 boundary conditions have been completed with the new model RegCM5 for all CORDEX-CORE domains at 25 km resolution. Model performances are satisfactory for all evaluation metrics for both the mean climate and extreme climate and for temperature, precipitation and cloud variables. For some of the domains the new model is able to remove some well know biases like the dry bias in the Amazon region in the CAM domain or the warm bias in the La Plata basin for the SAM domain. In other domains the RegCM5 performs consistently with the previous model version. One simulation at convection permitting resolution (CP) has been completed for the first time for the whole Euro-CORDEX domain thanks to the new semi implicit dynamical core implemented in the RegCM5 that allow the model to remain stable at such resolution even with time steps of 30 seconds at 3 km resolution. The evaluation of the CP simulation is comparable with the previous model evaluation over the ALPS domain with a tendency to improve both the dry and wet bias in summer and winter respectively. Over the whole Euro-CORDEX domain validation of the sub daily statistic for the precipitation frequency, intensity and diurnal cycle confirm the fitness for purposes of this new model version to run at such resolution for such extended region. A further CP configuration is also tested with two overlapping longitudinal stripe domains covering the Euro-CORDEX domain and the comparison is shown between the two CP simulations.