

EGU21-2417

<https://doi.org/10.5194/egusphere-egu21-2417>

EGU General Assembly 2021

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Impact of the model representation of PBL and convection on the PM concentrations over Europe

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The impacts of different implementations of turbulence and convection in the Regional Climate Model (RegCM, version 4.6) on the ability to predict the particle matter (PM) concentrations in the lower troposphere over selected regions of Europe are presented. PM were simulated by the chemical transport model CAMx (Comprehensive Air quality Model with extensions, version 6.50) driven by RegCM meteorology using offline coupling of these two models. The results from four simulations for a European domain driven by two different PBL parametrizations (marked as Holtslag and UW) and two different convection parameterizations (marked as Grell and Tiedtke) are compared over the four regions of Europe, namely the Alps, Benelux, Po Valley and Central Europe. Spatial differences as well vertical profiles are contrasted with each other from the different configurations. Validation of the overall PM_{2.5} concentrations based on EMEP data has shown better agreement between simulated and ground measured values for the simulations driven by UW scheme of PBL.