

Project: 946

Project title: NHCM-2

Long title: The Non-Hydrostatic Climate Modelling, Part II Towards Convection-Resolving Climate Simulations in the Alpine Region

Project leader: Andreas Haensler

Report period: 01.01.2019 – 31.12.2019

The main objectives of NHCM-2 were: to investigate the ability of state-of-the-art non-hydrostatic RCMs operated at convection permitting scales (≤ 3 km grid spacing) to capture important climate processes in the European Alpine region on regional (meso- β) scales; and to derive model configurations for the next generation long-term climate simulations (i.e. convection-permitting scale) in the Alpine region using the regional climate models COSMO-CLM, WRF and REMO-nh. GERICS was tasked to conduct and analyze all REMO-nh simulations for the common multi-model analysis and to contribute in the multi-model analyses. The next phase of the NHCM-2 was to continue long-term climate change simulations to further understand the occurrence of future climate precipitation extremes over the Alpine region within the framework of the “The Future of Extreme Precipitation Events in the Alpine Region under High End Climate Change Conditions” (Highend:Extremes) .The Highend:Extremes Project was a project between the Wegener Center for Climate and Global Change (WEGC) and GERICS, which was funded by the Austrian Ministry for Transport, Innovation and Technology in the frame of the Climate and Energy Fund. At the end of the project, GERICS was tasked to evaluate indices such as heavy to extreme precipitation events over the “Greater Alpine Region” from the available simulations.

Within the reporting period, we requested only resources for storage. We have finished three test cases for the CORDEX Flagship Pilot Studies (FPS) on convective phenomena at high resolution over Europe and the Mediterranean, wherein the NHCM2 project partners participated. The three case studies were analysed on different convective events. We submitted this data to project partners and we are currently working on further intercomparison studies and analysis. During this allocation period, we would like to keep the project data for one more year to be able to perform this model intercomparison and analysis of our results with the other models.