



## Effects of horizontal resolution of regional climate model simulations on convective and stratiform precipitation

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We apply a recently proposed algorithm for disaggregating station precipitation data into predominantly convective and stratiform (Rulfová and Kyselý 2013), and evaluate biases in characteristics of convective and stratiform precipitation (including annual cycle, proportion of convective and stratiform precipitation, dependence on altitude, and extremes) in an ensemble of regional climate model (RCM) simulations for the recent climate (1989-2008) from the EURO-CORDEX project. Four RCMs (CLM, HIRHAM, RACMO and RCA) with different horizontal resolutions ( $0.44^\circ$  and  $0.11^\circ$ , about 50 km and 12 km respectively) driven by the ERA-Interim reanalysis are examined. We find that the horizontal resolution has a relatively small effect on studied characteristics of mean precipitation. An improvement with increasing resolution is found mainly in reproducing details related to orography. The effects of the horizontal resolution are more pronounced in characteristics of stratiform than convective precipitation, due to stronger dependence of stratiform precipitation on altitude. The increasing resolution results in more realistic representation of the proportion of convective precipitation in total amounts and precipitation extremes.

### Reference:

Rulfová Z., Kyselý J., 2013: Disaggregating convective and stratiform precipitation from station weather data. *Atmospheric Research*, 134, 100–115 [doi 10.1016/j.atmosres.2013.07.015].