Optimizing WRF configuration for assessments over Europe

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WRF performance optimization for the combined assessment of temperature and precipitation over Europe is applied at a 27 km by 27 km grid size resolution. Six simulation groups optimize model performance for microphysics, PBL, Cumulus, Long-wave, Short-wave and Land Surface schemes. The best performing option for each ensemble is selected by using the TOPSIS method based on the integration of entropy weights. The concluding scheme set consists of the CAM V5.1 2-moment 5-class microphysics scheme, the Grenier-Bretherton-McCaa scheme in combination with the MM5 Similarity planetary boundary layer scheme, the New Tiedtke cumulus scheme, the RRTMG scheme for long-wave and the GFDL scheme for short-wave radiation, and the Unified Noah scheme for Land Surface. The method presented here is applicable to any region, allowing the best possible ranking of model parameterizations when multiple model runs, and multiple measures of model performance are used.