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# A comprehensive sensitivity analysis of the WRF model parameterizations over Europe

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Evaluation of the parameterization schemes used in the WRF model are assessed for temperature and precipitation over Europe at a 36 km by 36 km grid resolution for a winter (i.e. January 2015) and a summer (i.e. July 2015) month using the two-way nesting approach. A step-wise decision approach is followed, beginning with 18 simulations for the various microphysics schemes followed by 45 more, concerning all model's PBL, Cumulus, Long-wave, Short-wave and Land Surface alternate schemes. Model evaluation is performed using gridded temperature and precipitation data from the ECA&D 0.25 deg regular grid. The best performing scheme at each step is chosen by integrating the entropy weighting method 'Technique for Order Performance by Similarity to Ideal Solution' (TOPSIS). The concluding scheme set consists of the Mansell-Ziegler-Bruning microphysics scheme, the Bougeault-Lacarrere PBL scheme, the Kain-Fritsch cumulus scheme, the RRTMG scheme for short-wave and the New Goddard for long-wave radiation and a seasonal-variable sensitive option for the Land Surface scheme.

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