Session: C27 Poster: W100A

Assessment of WRF parameterizations for regional climate simulations over the CORDEX European domain

Priscilla Mooney[†]; Frank Mulligan; Rowan Fealy
[†] National Center for Atmospheric Research, USA
Leading author: pmooney@ucar.edu

The Advanced Research Weather Research and Forecasting (WRF) model is employed as a regional climate model for the European WCRP CORDEX Region 4 (http://copes.ipsl.jussieu.fr/SF_RCD_CORDEX.html) over the period 1989-1995. ERA Interim reanalysis data is used to provide the initial conditions, lateral boundary information and SSTs at 6 hourly intervals in accordance with CORDEX hindcasting guidelines. A grid resolution of 0.44ox0.44o is used in order to economize on the computational effort involved over the relatively large domain. We present the results of 16 different physical parameterizations with a view to identifying the optimal choice of these parameters for climate modelling studies over Europe. Four microphysics schemes, two longwave radiation schemes and two land surface models have been investigated while the shortwave radiation, planetary boundary, and cumulus physics schemes have been held fixed. The surface air temperature at 2 m and the precipitation levels predicted by these simulations have been compared with EOBS observational data in their spatial distribution and temporal pattern. Bias analysis and Taylor diagrams of the combinations of parameterizations show that some of the variables examined are sensitive to the land surface model chosen.