Geophysical Research Abstracts
Vol. 14, EGU2012-11277, 2012
EGU General Assembly 2012

Developing next generation high resolution DEcadal and Long Term climate projections for IrelAnd (DELTA)

P.A. Mooney (1), F.J. Mulligan (2), and R. Fealy (3)

(1) Department of Physics, University of Oxford, UK, (2) Department of Experimental Physics, National University of Ireland Maynooth, Ireland, (3) Department of Geography, National University of Ireland Maynooth, Ireland

The DELTA project (recently approved for funding by the Irish Environmental Protection Agency involving Met Éireann (the Irish Meteorological Service) and NUI Maynooth) will develop decadal (10-30yrs) and long term (100yrs) climate projections for the euro-CORDEX domain with the Weather Research and Forecasting (WRF) model. Preliminary studies for this project have examined the impact of a selection of WRF parameterization schemes on surface temperature, precipitation and mean sea level pressure over the British Isles.
WRF is configured to simulate the climate over the euro-CORDEX domain for the period 1989-1995 with a grid resolution of 0.44o. This grid resolution is chosen to economize on the computational effort involved over the relatively large domain. In accordance with the WCRP CORDEX guidelines, initial conditions, lateral boundary information and SSTs at 6 hourly intervals are supplied to WRF from ERA Interim reanalysis. Hindacast simulations are performed for combinations of parameterizations which include various microphysics schemes, longwave radiation schemes and land surface models. Bias analysis and Taylor diagrams of the combinations of parameterizations show that surface air temperature at 2 m and precipitation are more sensitive to land surface model than either microphysics or longwave radiation schemes. Based on this analysis an optimal combination of WRF physics schemes will be used in conjunction with a next generation Earth system model, EC-EARTH, to produce high resolution decadal (10-30yrs) and long term (100yrs) climate simulations.