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# Simulating Climate Change in Ireland using a Regional Climate Model Approach

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At the Meteorology & Climate Centre at University College Dublin, we are using the CLM-Community's COSMO-CLM Regional Climate Model (RCM) and the WRF RCM (developed at NCAR) to simulate the climate of Ireland at 7km resolution.

The RCM models were validated by performing a 20-year simulation of the Irish climate (1981-2000), driven at the lateral boundaries by ECMWF ERA-40 global re-analysis data, and comparing the output to observations. Results confirm that the output of the RCM models exhibit reasonable and realistic features as documented in the historical data record. Validation results will be presented for wind, temperature and precipitation.

Projections for the future Irish climate were generated by downscaling the Max Planck Institute's ECHAM5 global climate model data using the COSMO-CLM RCM. Simulations were run for a reference period 1961-2000 and future period 2021-2060. The future climate was simulated using the A1B & B1 greenhouse gas emission scenarios. Results for the downscaled simulations show a substantial overall increase in wind speeds for the future winter months and a decrease during the summer months. The projected changes for summer and winter were found to be statistically significant over most of Ireland. Future projections for temperature and precipitation will also be presented.