

MODELLING AIR QUALITY IN THE VICINITY OF THE TRENT AND AIRE VALLEY POWER STATIONS

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A UK version of the USEPA Models-3/CMAQ system has been developed by the UK electricity generators Joint Environmental Programme in order to meet the current and future air quality and acid deposition modelling needs of the power generation industry. The model is capable of simulating the transport, chemical conversion, and deposition of pollutant species on local, regional and national scales at an hourly resolution. An extensive programme of validation has been carried out by the JEP in order to encourage regulatory and scientific acceptance of the model. An overview will be given of the air quality modelling capabilities of the Models-3/CMAQ system, and the results of an evaluation of the ability of the model to simulate airborne concentrations of sulphur dioxide, nitrogen dioxide and ozone, all of which are important from a regulatory perspective. The evaluation was carried out for a domain covering the Midlands and the North of the UK at 4km grid resolution. Modelled concentrations were compared against monitored data from sites in the vicinity of the Trent and Aire valley power stations for periods in January and July 1999. Models-3 was found to simulate atmospheric concentrations of SO₂, NO₂ and O₃ in reasonable agreement with values measured in the UK and as such, is suitable tool for the modelling of air quality in the UK and Europe.