CERC ADMS-Urban & ADMS-Roads News

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ADMS-Urban and ADMS-Roads News

ADMS-Urban and ADMS-Roads User Group Meeting 2016

[Registration is open](#) for the 2016 ADMS-Urban and ADMS-Roads User Group Meeting (UGM), which will be held in Camden, London, on the 10th of November. The day will include presentations by CERC staff and software users and is the ideal opportunity to hear the latest news and advice on model features.

Users with a valid support contract are entitled to one or two delegate places free of charge, depending on the type of licence held. This year the meetings will include a Q&A session; please submit your questions to enquiries@cerc.co.uk.

ADMS-Urban now available to consultants

[ADMS-Urban](#), CERC's world-leading urban air quality modelling software, is now available to consultants. ADMS-Urban includes all the features of [ADMS-Roads](#), and adds features to allow air quality in large urban areas to be modelled on a range of scales.

[Prices](#) are available on our website.

Also in the news

CERC at the recent Harmo conference in Budapest

New Emissions Factors Toolkit (version 7) now available

A new version of Defra's [Emissions Factors Toolkit](#) (EFT), version 7, has been released recently. The update includes new NO_x and PM emission factors for Euro 5 and 6 vehicles from COPERT 4v11 and fleet adjustments for London.

These new EFT emission factors are now available for calculating traffic emissions in [ADMS-Urban](#) and [ADMS-Roads](#), with the release of the latest model update. Model users with valid support can access a download link by visiting the [User Area](#). More information about these emissions updates will be given in a talk at the [UGM](#).

Urban canopy data for London now available

London building and road geometry derived data required for use of the Urban Canopy Flow module in [ADMS-Urban](#), [ADMS-Roads](#) and [ADMS](#) are now freely [available](#) from CERC. This module accounts for the effects of urban buildings on local air flow at neighbourhood scales, calculating a spatially varying flow field due to variations in building density and geometry.

The data have been produced for the research project "Coupled Urban and Regional processes: Effects on AIR quality" (CUREAIR) supported by NERC. This is a collaboration between CERC, the universities of Edinburgh and Leeds, and the Centre for Ecology & Hydrology. The data are published with a recent paper by CERC and can be re-used without restriction. Download the data here. More information about the Urban Canopy Flow module is available in the model [user guides](#).

CERC News

New releases

ADMS-Urban Regional Model Link version 1.4

CERC's system for multi-scale modelling of pollutant dispersion, the ADMS-Urban Regional Model Link (RML), has been updated for use with ADMS-Urban 4 and the new Run Manager version 1.7.

WRFtoMet utility

The WRFtoMet utility extracts ADMS-format meteorological data input files from WRF mesoscale meteorological model output files. The tool was originally developed for use in the ADMS-Urban Regional Model Link system and is now available as a stand-alone product.

FLOWSTAR-Energy

FLOWSTAR-Energy provides estimates of the energy yield from wind turbines as well as the flow field and turbulence familiar to users of ADMS 5 and FLOWSTAR. The model allows for the effects on the airflow of complex terrain, variable surface roughness, stratification and wind turbine wakes.

Model Evaluation Toolkit version 4.0

CERC's Model Evaluation Toolkit is a free toolkit for model verification, using openair tools to create report-ready graphs and statistics from ADMS-Urban and ADMS-Roads output data at specified points. The tool can automatically download and import Londonair and UK AURN monitoring data to match model outputs. Version 4.0 of the Toolkit was released in January, with a new user interface.
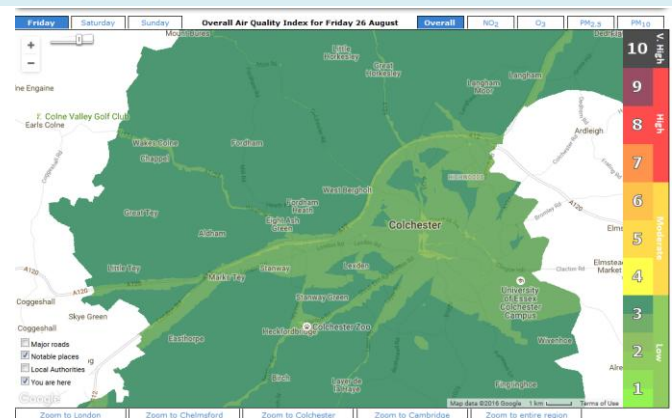
Coming soon...

ADMS 5.2

We are currently working on the next version of our industrial model, ADMS 5, which is expected to be released in October 2016.

ADMS-Screen

We will be releasing a completely updated screening model, ADMS-Screen, based on the new ADMS model. ADMS-Screen is designed to model emissions from a single source.

2016 model survey

Thank you to everyone who took part in this year's User Survey. It is useful to find out how our models are applied, and your feedback helps us plan future model developments. We also received some excellent suggestions for discussion topics at our forthcoming User Group Meetings. We have replied to everyone who supplied an email address. For those with outstanding queries, please contact the helpdesk. On that note, we are very happy that 97% of respondents rated our helpdesk service as excellent or good.

Consultancy News

Colchester and Chelmsford join the *air*TEXT air quality forecasting service

We are delighted to announce the expansion of the *air*TEXT air quality and health forecasting service, with forecasts for Colchester and Chelmsford now included. Residents can sign up for free air quality alerts by SMS text message, email, voicemail, and Twitter. The forecasts are also available on free apps for Android and iPhone. The *air*TEXT service is also available to residents in all thirty-three London Borough Councils, Slough Borough Council and Three Rivers District Council.

*air*TEXT provides three-day forecasts of NO_2, PM_{10}, $PM_{2.5}$ and ozone at street-scale resolution using ADMS-Urban.

Please contact CERC for more information on *air*TEXT or forecasting services.

New ADMS-Urban research projects

CERC are involved in a number of large research projects using ADMS-Urban. In the NERC-funded CUREAIR project we are working with UK academic partners looking at the influences of regional and local processes on air quality in urban areas, focusing on London. The NERC AIRPRO project (An Integrated Study of AIR Pollution PROcesses in Beijing) is concerned with monitoring and exposure in Beijing; ADMS-Urban is being used for high-resolution exposure modelling.

Glasgow is the focus of the Innovate-UK/NERC-funded project QCumber-envHealth; CERC are collaborating with academic partners, end users and the Italian SME Algebra to develop an integrated decision-making tool for urban health and policy evaluation. Finally, CERC are being sub-contracted by the Hong Kong University of Science and Technology on the PRAISE-HK project (Personalised Real-time Air quality Informatics System for Exposure – Hong Kong) to help develop a public forecasting system including real-time, high-resolution air quality data.

Training News

New workshop: Reviewing Air Quality Modelling Assessments for Planning

CERC are holding a one-day workshop on reviewing air quality modelling assessments, designed for local authorities and anyone involved in reviewing air quality modelling for planning applications. The course will consider general principles of air quality modelling with a focus on the ADMS models.

The date of the workshop is Wednesday 8th February 2017, at the Pitt Building, Cambridge. Early-bird registration fee until 16th December: £200; standard registration fee: £250. To register or for more information, please contact CERC.

Discount on CERC training courses

A 20% discount applies to scheduled CERC training courses, if purchased at the same time as a software annual licence or support renewal. This discount also applies to one-day refresher courses. Training must be booked within 12 months of purchase.

Upcoming training courses

Our training courses focus on giving users the knowledge and expertise to efficiently apply CERC software to real-life air quality problems. CERC holds regular 2-day courses at its Cambridge offices. The table shows scheduled training dates for 2017.

Courses may also be arranged at alternative locations and/or dates and can be customised to particular user requirements; for further details, see www.cerc.co.uk/training or contact CERC.

Course	Feb	Jun
ADMS-Roads	14 - 15	20 - 21
ADMS-Urban	21 - 22	27 - 28
EMIT	-	13 - 14

Recent publications

Jackson, M., Hood, C., Johnson, C. and Johnson, K., 2016: *Calculation of Urban Morphology Parameterisations for London for use with the ADMS-Urban Dispersion Model*. International Journal of Advanced Remote Sensing and GIS. Article online

Stocker, J., Ellis, A., Smith, S., Carruthers, D., Venkatram, A. Dale, W. and Attree, M. 2016: *A review of the limitations and uncertainties of modelling pollutant dispersion from non-point sources.* Atmospheric Dispersion Modelling Liaison Committee, ADMLC/2015/06 Report. Article online

Malkin, TL. *et al.* 2016: *Assessing chemistry schemes and constraints in air quality models used to predict ozone in London against the detailed Master Chemical Mechanism.* Faraday Discussions. Article online

Stocker, J., Carruthers, D., Johnson, K., Hunt, J. and Chan, P.W., 2016: *Optimized use of real-time vertical-profile wind data and fast modelling for prediction of airflow over complex terrain*. Meteorological Applications. Article online

Modelling tips

Using free GIS software

The User Survey indicated that an increasing number of users are interested in using free visualisation software for setting up and editing ADMS-Urban and ADMS-Roads model runs. CERC are prioritising developments in ADMS Mapper and links to the third party application QGIS. This will be a topic of one of the talks at the UGM.

How many time-varying profiles can I use?

An unlimited number of time-varying emissions profiles can be incorporated in model runs through the use of a *.fac* file or a *.hfc* file. Additionally, a "default roads" profile may be used in a *.fac* file to apply a time-varying profile to all road sources without an explicit time-varying profile.

Refer to Section 4.1 of the model User Guide for instructions on how to create these files.

### Using Real World Emission Factors in EMIT

Recent real-world tailpipe measurements show that some published road traffic emission factors are not realistic, especially when considering NO_x emissions from diesel vehicles. These emission factors may be adjusted by applying scaling factors, which can be entered directly into CERC's EMission Inventory Toolkit (EMIT) before carrying out dispersion modelling.

For details of a study showing the effects of introducing adjustment factors to road traffic emission factors, please refer to the ADMS-Urban and Roads UGM presentation from 2015.

Correctly allowing for met. site roughness

Allowing for differences in surface roughness between the met. and dispersion sites is important.

Input meteorological data are usually measured over a smooth surface, such as at an airport. Conversely, urban areas have a relatively rough surface which reduces wind speeds near the ground. ADMS-Urban and ADMS-Roads are able to account for this effect if the "Met. measurement site" and "Dispersion site" surface roughness parameters are set to different values. Urban roughness effects can be modelled in more detail using the urban canopy or complex terrain options.

How can I view model inputs in Google Earth?

The ADMS Mapper can export ADMS-Urban and ADMS-Roads model inputs to Google Earth .kml files.

Ensure that the correct coordinate system is selected on the "Setup" screen of the main interface, and then right-click the layer in the Mapper, and select "**Export layer**" … "**to KML**".
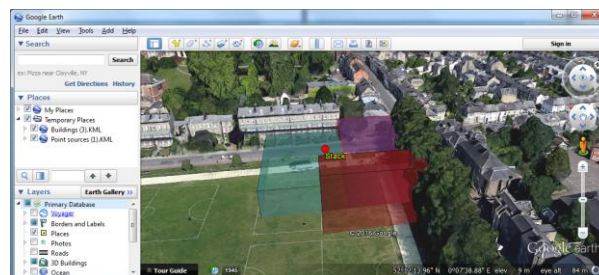
How can I model multiple years of meteorological data at once?

A met. file containing up to 10 years of data can be used in the model and processed in two ways:

1. The model can produce a comprehensive output file covering the entire period. Different outputs, including yearly averages, can be created from this file using the Comprehensive Output File Processor, located in the "Utilities" menu.
2. The "Use a subset of met. data" option on the meteorology screen can be used to run the model for a specified period within the larger .met file.

Duplicating sources

Any source in a model run can be duplicated by right-clicking the source name, and selecting "copy". All the input parameters, including location, are copied to the new source.

New and updated helpdesk notes

Instructions for carrying out many common model tasks can be downloaded from our User Area. Some recently added or updated notes include:

Difference between short term and long term output

Building roof orientation

Products and Services

CERC have been developing world-leading air dispersion and complex flow modelling solutions since 1985. Our consultancy team was established to apply our expertise to a wide variety of applications for a diverse client base.

Other software solutions

ADMS 5.1

Local scale air quality modelling for industrial sources

ADMS-Urban Regional Model Link

Automated nesting of ADMS-Urban within a regional air quality model

ADMS-Airport

Urban scale modelling with detailed treatment of aircraft emissions

GASTAR

Modelling emergency releases of dense gases

FLOWSTAR-Energy

Advanced software for high resolution air flow over complex terrain

ADMS-STAR

Short-term accidental release modelling

For custom-made software solutions, see www.cerc.co.uk/research or contact CERC.

Consultancy services

Our consultancy services include:

- Air quality assessments, e.g. odours, LAQM, planning and permitting
- Specialised modelling, e.g. dioxins, accidental releases, wind energy
- Compilation of emissions inventories and forecasting for large urban areas
- Project support and review services

For more details, see www.cerc.co.uk/consultancy or contact CERC.

Contacting the helpdesk

The CERC helpdesk is on hand to provide model support. Contact us:

- From the ADMS-Urban or ADMS-Roads interface, select Help, Email CERC
- Email help@cerc.co.uk
- Phone +44 (0)1223 357773