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Latest release: version 5.2.1, February 2017

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## ADMS 5 and ADMS-Screen News

**ADMS 5.2.1 released**

Version 5.2.1 of [ADMS 5](#) was released in February and is a minor update to version 5.2, released last November. ADMS 5.2 includes a major upgrade to the [ADMS Mapper](#), a more flexible hourly time-varying emissions file format and usability improvements including drag-drop functionality. In addition, ADMS 5.2.1 contains the latest versions of AERMOD (16216r) and AERMET (16216) as released by the US-EPA.

Current users should login to the [User Area](#) to download either the patch or the full install of ADMS 5.2.1. If you already have ADMS 5.2 installed, you need only download the patch to update your existing installation.

**ADMS-Screen**

A new version of [ADMS-Screen](#), the screening version of ADMS 5 for modelling ground-level concentrations from a single stack, was released in November 2016.

**Software downloads and free demos**

You can now download ADMS 5 and other CERC software products directly from our [website](#).

Registered users should log in to the [User Area](#), then visit the new [software download](#) page where you will find links to download our products.

If you are not yet a customer then you can still download the latest versions of some of our products from the [Free demos](#) page.

**ADMS 5 User Group Meetings**

The 2016 ADMS 5 User Group Meeting, held in London last November, was a great success. Delegates enjoyed a packed and varied programme of presentations ranging from ADMS 5 modelling tips to a case study of 19<sup>th</sup> Century industrial pollution. The presentations are available to [download](#) from the CERC website User Area.

Special thanks to our guest speakers: Yanos Zylberberg (Bristol University Economics Dept), Ji Ping Shi (Natural Resources Wales) and Kieran Laxen (Air Quality Consultants).

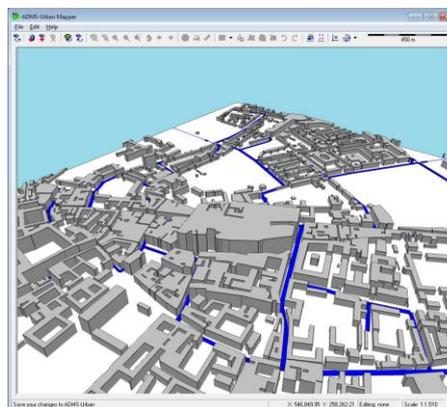
The 2017 ADMS 5 User Group Meeting will be held in Birmingham on Wednesday 1st November.

## CERC News

**ADMS-Urban and ADMS-Roads 4.1 released**

[ADMS-Urban](#) 4.1 and [ADMS-Roads](#) 4.1 were released in March 2017. These new releases include a greatly enhanced Mapper, the same version included in ADMS 5.2, many usability improvements (for example when entering traffic speeds or meteorological period subsets) and the latest EFT traffic emission factors, v7.0.

For more information on all the new features, please refer to the ADMS-Urban or ADMS-Roads 'What's New?' documentation.



## Consultancy News

**ADMLC report on source term sensitivity in dispersion models published**

[CERC's consultancy team](#), with [GT Science & Software Ltd](#), has carried out a 'High Level Review of the Sensitivity of Dispersion Model Predictions to Individual Source Term Parameters'. The work was funded by the UK Atmospheric Dispersion Modelling Liaison Committee ([ADMLC](#)) and the [report](#) is freely available.

The review discusses the main issues of source term sensitivity, describes a range of commonly-used dispersion models, and presents the results of detailed sensitivity tests. The source terms examined in the review include evaporating pools, pressurised catastrophic failures, jet releases, spray releases, warehouse fires and pool fires.

**Quantifying air quality in Cambridge by combining sensors with computer modelling**

CERC have been collaborating on a [project](#) to study ambient air quality across Cambridge using a large number of sensor nodes and computer modelling. Twenty AQMesh sensor pods have been placed at key points around Cambridge, measuring air quality in near real time. Comparisons against a reference instrument give very encouraging results, as shown in a paper recently [presented](#) by Professor Rod Jones of the University of Cambridge.

The next steps are to compare collected AQMesh data with ADMS-Urban modelled data for the same area and then use the real-time AQMesh data to improve CERC's [airTEXT](#) air quality forecasts for Cambridge.

**Disaster Resilient Cities: Forecasting Local Level Climate Extremes and Physical Hazards For Kuala Lumpur**

Recent disasters in Malaysia have revealed poor coordination and weak capacity in prediction of floods and landslides and there is concern over the occurrences of strong winds, air pollution (haze) and extreme temperatures.

CERC have joined a consortium of 16 research and business organisations, 6 from the UK and 10 from Malaysia, in a project to customise climate and hazard models from the UK to:

- forecast physical hazards common in Kuala Lumpur, i.e. flash floods & floods, landslides, sinkholes, strong winds, urban heat and local air pollution;
- test their viability;
- develop a prototype multi-hazard platform for managing and communicating risks to enhance disaster resilience; and
- promote the platform through outreach and marketing.

This 34-month project is funded jointly by the UK and Malaysian governments through the Newton-Ungku Omar Fund, and is led by the University of Cambridge and [SEADPRI-UKM](#).

## Training News

### CERC workshop: Reviewing Air Quality Modelling Assessments for Planning

In February, CERC held a workshop in Cambridge, UK, attended by more than thirty delegates from local authorities and consultancies.

Subjects presented during the day included:

- dispersion model inputs, including emission factors;
- validation, verification and NO<sub>x</sub> chemistry; and
- assessment of the significance of air quality impacts.

The workshop was a great success and CERC hopes to run a similar event in the near future. If you are interested in attending a workshop in future, 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 dates for 2017.

Course	Jun	Oct
ADMS 5	6 - 7	3 - 4

Courses may also be arranged at alternative locations and/or dates and can be customised to particular user requirements. For more information, visit [www.cerc.co.uk/training](http://www.cerc.co.uk/training) or [contact CERC](#).

## Modelling Tips

### Modelling vents on buildings

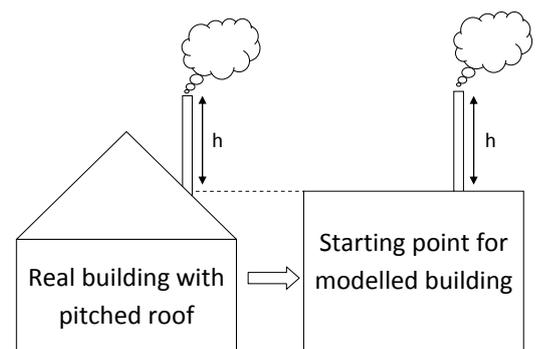
Some sources have structures such as covered stacks and horizontal vents that impede plume rise. Guidance sometimes suggests that these should be modelled by setting exit velocities to zero.

However, note that in ADMS setting the exit velocity to zero is a useful switch to turn off buoyancy effects. Modelling a source with no buoyancy and no momentum can be very extreme, especially if the source temperature is high. We therefore recommend setting the exit velocity to a very low value instead; we generally recommend at least 0.02 m/s.

### Modelling buildings with pitched roofs

Deciding on a building height in ADMS is not always straightforward when you are trying to represent a building with a pitched roof, as all buildings in ADMS are modelled with flat roofs.

Our approach within the CERC consultancy team is to start by setting the height of the modelled building to be the height of the roof at the stack location, to ensure the distance between roof and the top of the stack is consistent with the physical building. This is complemented by sensitivity tests of different building set-ups, for example setting the height to that of the roof apex and then to that of the base of the roof.



### Temperature Inversions in ADMS 5

Surface cooling, as frequently occurs at night, leads to a temperature inversion, indicating stable conditions. Another case, sometimes referred to as a capping inversion, occurs when the temperature inversion is at the top of the boundary layer.

We have produced a new [helpdesk note](#) that discusses how the model treats these temperature inversions.

### Dense gas modelling

ADMS 5 can be used to model various emergency release scenarios, including dense gases released at height; see this [presentation](#) for more details.

Dense gases released at ground level, however, exhibit specific dispersion behaviour, dominated by gravity effects. CERC's specialist dense gas model, [GASTAR](#) can be used to model dense gases from sources such as jets, liquid spills and catastrophic failure releases.

### Wet deposition and precipitation data

In order to model wet deposition, precipitation data are required as part of the meteorological data. Some suppliers of meteorological data provide 12-hour total precipitation distributed evenly between each of the 12 hours of the period, rather than hourly data. This results in a greater frequency, but smaller hourly average precipitation, than the corresponding hourly measured data. The washout coefficient is usually defined as  $A \times P^{0.64}$ , so using the 12-hour average precipitation data is likely to result in higher wet deposition rates than using corresponding hourly measured data. So, to avoid overestimating wet deposition rates, ensure your meteorological data include measured hourly precipitation rather than 12-hour data.

### Searching the ADMS 5 User Guide

The ADMS 5 User Guide can be accessed via the Help menu. Some users have found that searching in the User Guide using Adobe Acrobat does not return the correct results. To fix this, in Acrobat, go to Edit > Preferences > Search and click on the Purge Cache Contents button.

### New features in the ADMS Mapper

The ADMS Mapper in ADMS 5.2 has been significantly upgraded. New features include:

- The ability to save project files, allowing background maps, contour plots, layer symbols and settings, etc. to be saved and reopened with your model input files.
- A facility to extract data from image files, which can be used to create terrain data in ADMS format from SRTM or OS Terrain 50 files.

### Emailing CERC for Help

If you have a query regarding the use of any of our models and have a support contract with us, you may contact the [helpdesk](#) and ask for help. One of the best ways of doing this is by clicking on the Email CERC option from the Help menu in the model interface. This creates a template email addressed to the helpdesk that includes useful information about your model and licence, which can enable us to investigate and diagnose any issues more quickly.

### New and updated helpdesk notes

Helpdesk notes on carrying out many common model tasks can be downloaded from our [User Area](#). Recently added or updated notes include:

- [Reducing run time using variable grid resolution](#)
- [Finding the met condition causing the maximum concentration](#)
- [Temperature inversions within ADMS](#)

## Recent Publications

Carruthers D, Stocker J, Ellis A, Seaton M and Smith S, 2017: *Evaluation of an explicit NO<sub>x</sub> chemistry method in AERMOD*. Journal of the Air & Waste Management Association. [Article online](#)

A comprehensive list of all our publications may be found on the [publications](#) section of our website.

## 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-Roads and Roads-Extra](#)

Local scale air quality modelling including road and industrial sources



#### [GASTAR](#)

Modelling emergency releases of dense gases



#### [ADMS-Urban](#)

Urban scale modelling including roads, industrial and diffuse sources



#### [FLOWSTAR-Energy](#)

Modelling wind energy and airflow at high spatial resolution for wind farm planning and other airflow-related applications



#### [ADMS-Airport](#)

Urban scale modelling with detailed treatment of aircraft emissions



#### [ADMS-STAR](#)

Short-term accidental release modelling

For custom-made software solutions, visit [www.cerc.co.uk/research](http://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, visit [www.cerc.co.uk/consultancy](http://www.cerc.co.uk/consultancy) or [contact CERC](#).

### Contacting the helpdesk



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

- From the ADMS 5 interface, select Help, Email CERC
- Email [help@cerc.co.uk](mailto:help@cerc.co.uk)
- Phone +44 (0)1223 357773