



## What's New in ADMS 5.2?

November 2016

ADMS 5.2 is the latest general release of CERC's state of the art model for the dispersion of pollutants. ADMS 5.2 contains a number of new features and model options, most notably:

- the ability to save project files in the ADMS Mapper, allowing background maps, contour plots, layer symbology and more to be saved and reopened with your model input files;
- a new facility for creating terrain files from OS terrain 50 and SRTM data formats;
- a more flexible hourly time-varying emissions file format (*.var*) allowing for more source properties to be varied, including the source height; and
- enhanced usability functions throughout the ADMS Mapper and interface.

This document contains details of the new features, scientific improvements and model corrections implemented since the last release of ADMS 5.1 (May 2015). Also contained in this document are instructions for installing ADMS 5 and upgrading from previous model versions.

### In this release

This version of ADMS 5.2 includes an updated user interface, model and User Guide. The ADMS 5.2 User Guide and guides to using the GIS links can be found in the '*Documents*' sub-directory of the ADMS 5.2 install directory.

# Installation

## Before installing ADMS 5.2

Log on to your computer as Administrator, and uninstall any previous version of ADMS by selecting **Add/Remove Programs** from the Windows Control Panel.

## Installing ADMS 5.2

If you have not already done so, log on to your computer as Administrator.

ADMS 5 will either have been supplied by download link or on CD. Follow the appropriate instructions:

- **Download:** Unzip the downloaded *.zip* file to a local directory. In Explorer browse to this directory and double-click on the file '*setup.exe*'.
- **CD:** Insert the ADMS 5.2 installation CD and the install program should automatically start. If it does not, browse to locate the CD in Explorer and double-click on the file '*setup.exe*'.

Follow the instructions on the screen. Further details are given in Section 2.2 of the ADMS 5.2 User Guide, a copy of which is included in the download or on the installation CD in *.pdf* format.

New versions of the GIS links you require (ArcGIS, MapInfo) can be installed by following the instructions in the ADMS 5.2 User Guide.

# New Features and Major Changes

## ADMS Mapper

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*Full details on using the ADMS Mapper can be found in the ADMS Mapper User Guide.*

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1. Project files can now be saved from the ADMS Mapper. The project file contains details regarding external files loaded, symbology of ADMS layers and view settings like zoom and extent. The project file can be associated with an *.apl* file so that it is always opened with that *.apl* file.
2. An individual source, building or specified output point can be highlighted in the ADMS Mapper from right click menus on the source, buildings or grids screen of the ADMS interface respectively.
3. The import wizard for delimited files (e.g. comma-separated files) has several new features:
  - a. Greater flexibility for specifying the file delimiter and identifying the header, start and end lines of the data to be imported;
  - b. Support for plotting data representing single-segment lines as well as individual points; and
  - c. Option for creating a contour plot can be created from one of the columns of data in the input file.
4. Jet sources will now by default show an arrow indicating the horizontal angle of the jet.
5. A preferences menu option has been added to allow the snap-to-shape setting to be disabled.
6. It is now possible to pan and zoom the map view while editing sources. The Shift key is used to enable panning and the Ctrl key to enable zoom. The cursor changes to indicate the current map view mode.
7. External files can now be loaded into the ADMS Mapper by dragging them from an explorer window and dropping them onto the Legend.
8. A new facility is available in the ADMS Mapper to extract data from image files. This can be used to create terrain data in ADMS format, e.g. from SRTM or OS Terrain 50 input files. It can also be used with other types of file, for instance to extract land use data for creating a roughness file.

## Utilities

9. When launched from the Wind Rose button on the Meteorology screen the Wind Rose Viewer will now take into account the wind sector size and any meteorological subset extents entered on the Meteorology screen. The wind rose viewer also now displays a count of the number of used and unused lines of meteorological data from the file.

## **AERMOD link**

10. The version of AERMOD and AERMET supplied has been updated to 15181.
11. It is now possible to use an *.asp* file when running AERMOD from the ADMS interface.

## **Interface**

12. It is now possible to open an *.apl* file by dragging the file from an Explorer window and dropping onto the title bar of the ADMS interface. Similarly external files, for instance a *.met* file, can be specified by dragging the file from an Explorer window and dropping it onto the appropriate file path text box.
13. It is now possible to export the specified points from the ADMS interface to an *.asp* file.

## **Buildings**

14. There have been several changes to the buildings module to improve the consistency of results between modelling regimes. Concentrations will typically change by up to 5% as a result of these changes.

## **Time varying emissions**

15. The format of the time varying emissions (*.var*) file has changed, with the parameters to be varied for each source now identified by a header row – please refer to the ADMS 5.2 User Guide for details of the new format. This new format allows for greater flexibility in the parameters which can be varied for each source, including the following options:
  - a. Full range of efflux and buoyancy properties;
  - b. Height of the source;
  - c. Emission rate for each pollutant;
  - d. Diameter for point and jet sources;
  - e. Location for point and jet sources;
  - f. Emission angles for jet sources;
  - g. Width for line sources;
  - h. Depth for volume sources; and
  - i. Initial mixing ratio of water if plume visibility is being modelled .

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*.var files in the old format can still be used with ADMS 5.2 but cannot provide access to the new functionality.*

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## Other Changes

16. The ou odours unit option has been removed. Ou\_e units should now be used instead.
17. Modelling runs with line, area and volume sources will have improved run times, especially for runs also using complex terrain.
18. An issue has been fixed which may have caused model runs containing line, area or volume sources with specified output points, complex terrain and the calm conditions option to crash.
19. A correction has been made to the modelling method for time dependent puffs and fluctuations when the output averaging time is non-zero.
20. The calculations of percentiles and probability of exceedence within the fluctuations module have been improved for cases with multiple sources. This will have the most effect for sources with very different emission rates.
21. An issue has been fixed whereby modelling falling drop wet deposition in conjunction with complex terrain and buildings could cause the model to crash.
22. In the falling drop wet deposition calculations the Reynolds number is now based on the droplet radius rather than the droplet diameter.
23. Several changes have been made to the calculations used when modelling the effect of wind turbines on dispersion. These changes include modifications to the calculation of shear induced turbulence due to the wind turbines and a change to the vertical resolution of the internal grid to better capture the wind turbines.
24. If a Comprehensive Output File is output when the isotopes palette is being modelled, previously the Comprehensive Output File may have contained the wrong units, this has been corrected.
25. The file size of .apl files has been reduced when there are a large number of sources.
26. The Chinese air quality standards have been updated to GB3095-2012.
27. A new kriging interpolation method is available in the Grid Interpolator. This new method is able to interpolate files with larger output grids.