AERMOD Installation Guide

Based on AERMOD v24142

Last updated: November 21, 2024

Overview

This installation document is designed for a new user to set up and successfully run an AERMOD sample run, including the AERMAP and AERMET preprocessors. Collectively known as "the AERMOD modeling system".

This document provides the user an opportunity to become familiar with how to set up and run AERMOD from the command line. To use AERMOD with a wider range of applications, the user should refer to the user and implementation guides for a more thorough explanation of AERMOD use cases and applications. These guides are updated with each release version of the AERMOD modeling system and can be found on the EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) webpage (https://www.epa.gov/scram).

In this installation guide, the user will be guided through the installation of AERMOD using both Windows Explorer and Windows command prompt. This document will guide the user through downloading necessary files, creating AERMOD input files, running AERMOD from the command line, and examining the output files.

Note: This document is for users working on a Windows platform computer. Command line arguments and installation steps would differ based on the operating platform. If the user would like instructions for alternate operating systems (such as Mac), please contact EPA using the "Contact Us about Air Quality Models" form on the SCRAM website (https://www.epa.gov/scram/forms/contact-us-about-air-quality-models).

Table of Contents

1 Setting up the AERMOD Sample Run Directory

This section provides guidance to download, install, and set up the AERMOD Sample Run folder on a local computer using File Explorer.

1.1 Accessing the Windows (C:) Directory

Step 1. First, the user will need to access the Windows File Explorer, which can be done by two options.

Option 1. Press and hold the Windows key. While holding the Windows key, press the "e" key.

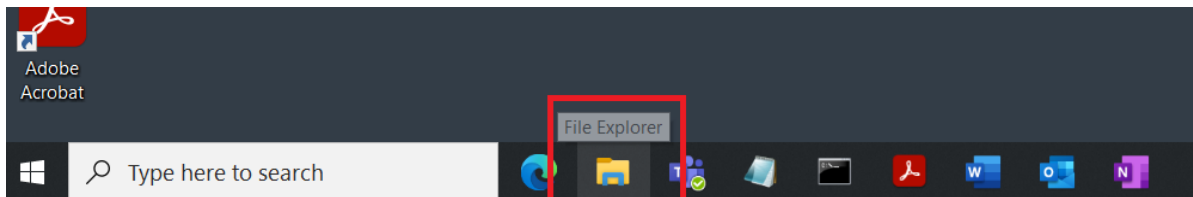*Option 2.* Click the "File Explorer" button at the bottom of the screen.

Figure 1: Opening File Explorer.

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Step 2. On the left side of the window, locate the *Windows (C:)* directory. Double click to open *the Windows (C:)* directory.

The result should look similar to Figure 2. Please note, files located at this location will differ per user.
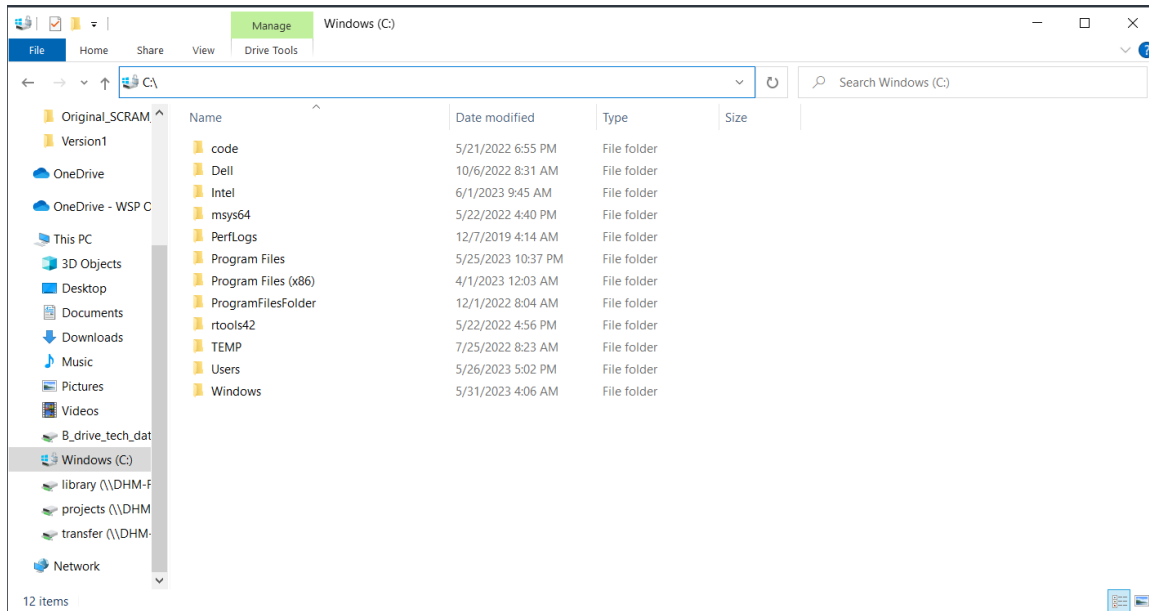
Figure 2: Accessing the Windows (C:) directory.

1.2 Creating a Folder for AERMOD

All AERMOD modeling system components should be installed in the Windows (C:) directory, the recommended installation location.

Step 1. Right click in the Windows (C:) directory.
Step 2. Create a new folder by selecting New → Folder (see Figure 3).
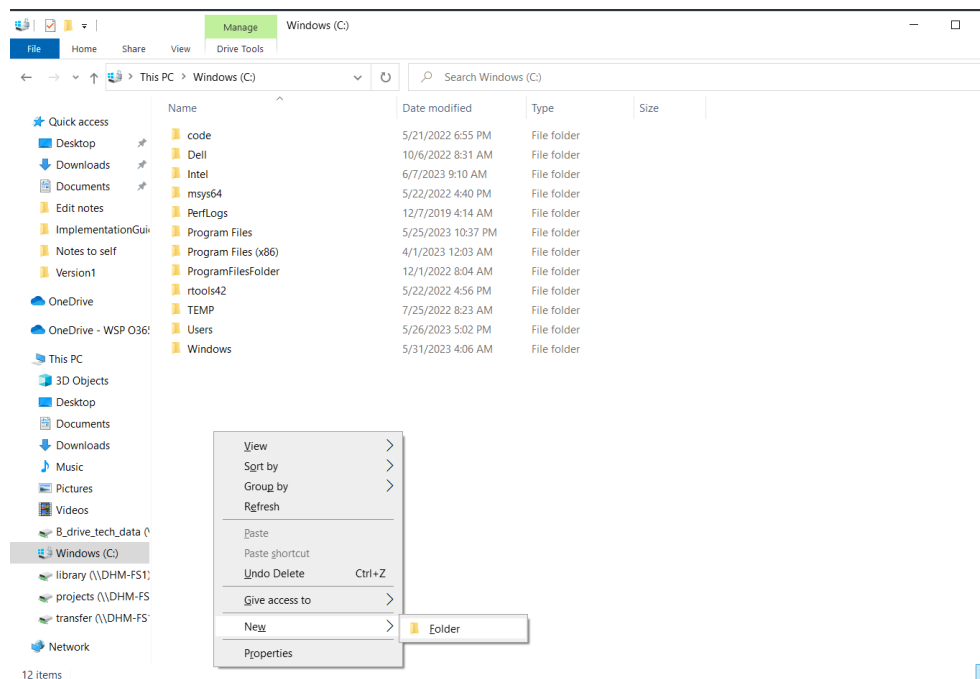

Figure 3: Creating a new folder.

Step 3. Title the new folder as "AERMOD". This folder will be the location where subfolders AERMAP, AERMET, and AERMOD are later stored.

1.3 Downloading the Sample Run ZIP File

The following steps guide through downloading AERMOD and its contents into the folder created in Section 1.2.

Step 1. Download AERMOD from the following link https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models:The download can also be found by [EPA's SCRAM website](https://www.epa.gov) then following these links: Air Quality Models → Dispersion Modeling → Preferred/Recommended Models → AERMOD Modeling System.

Step 2. Under the section titled "Installation Guide (Sample Run)", locate the file named "Sample Run (ZIP)".

Step 3. Click the file to download.

Step 4. Locate the download in the "Downloads" folder in the File Explorer.

Step 5. If a "CRDOWNLOAD File" is downloaded, please see "Appendix D: Potential Issue with Downloading ZIP File". It is likely that the ZIP file is an incomplete download.

1.4 Extracting the Sample Run File

Once the Sample Run ZIP file is downloaded, it will need to be extracted in the correct folder.

Step 1. Right-click on "SampleRun.zip" in the Downloads folder.

Step 2. Click on "Extract All". This will prompt to select a "Destination and Extract Files". Extract files to "C:\AERMOD", or where the AERMOD folder, created in Step 1.2, is located.

Step 3. After confirming the correct directory, click "Extract".

Step 4. While not required, the user can delete the "SampleRun.zip" located in Downloads. This file is no longer necessary because the ZIP file is already unzipped in the AERMOD folder.

Step 5. Navigate to the AERMOD folder.

Step 6. Verify if a new folder called "SampleRun" has been created. This indicates the ZIP file was successful in unpacking the AERMOD project contents.

Step 7. Open the "SampleRun" folder. This should contain three folders: AERMAP, AERMET, and AERMOD. It is best if the user familiarizes themself with the structure of the "SampleRun" folder as it may be difficult to visualize later when using the command prompt.

After completing all the above steps, AERMOD and its subfolders can be moved to another location, if desired.

1.5 General Setup of an AERMOD Run

With most regulatory applications of AERMOD, the user must first run two preprocessor programs, AERMAP and AERMET. Both programs will create the necessary data files needed for an AERMOD run. Section 2 and Section 3 of this guide will guide through downloading, installing, and setting up AERMAP and AERMET to create the files needed for Section 4 where an example AERMOD run is completed.

1.6 Downloading AERMOD modeling system executables

To run AERMOD and the following programs, the user must first download three executables: AERMAP, AERMET, and AERMOD. These will all be downloaded from the EPA's SCRAM website, found in the Downloads folder, and then moved to the correct folder in the SampleRun folder.

1.6.1 Downloading the AERMAP Executable

Step 1. Navigate to the URL https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#aermap. The download can also be found by [EPA's SCRAM website](#) then following these links: Air Quality Models → Dispersion Modeling → Related Programs.

Step 2. Find the section labeled "AERMAP – Version 24142". Then, scroll down to the model code and download the 64-bit executable by clicking "Executable (ZIP)".

Step 3. Open the SampleRun folder and then the AERMAP subfolder.

Step 4. Open another File Explorer window and open the Downloads folder.

Step 5. Find and open the "aermap_exe.zip" folder.

Step 6. Select the "aermap.exe" executable by clicking on it once.

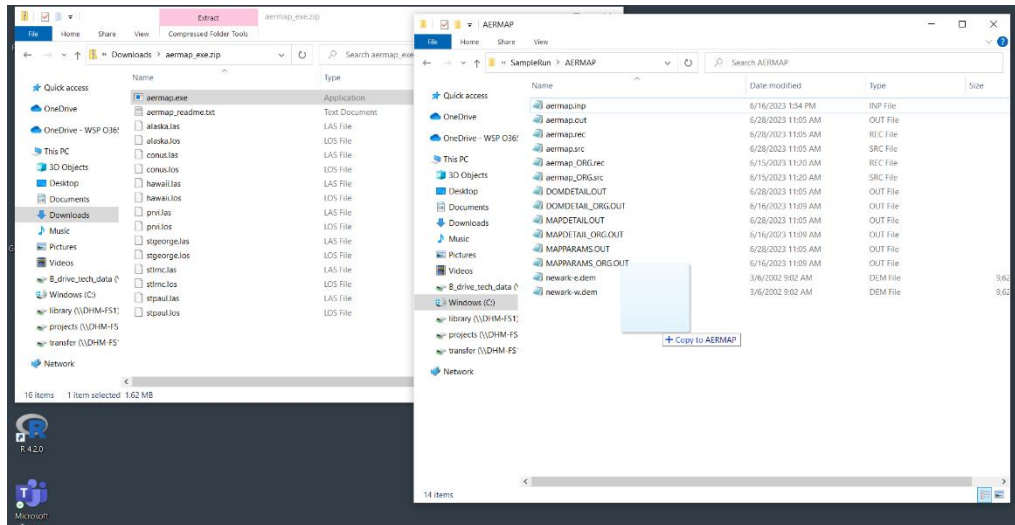**Step 7.** Drag the file "aermap.exe" into the AERMAP folder (see Figure 4).

Figure 4: Dragging aermap.exe into the AERMAP folder.

1.6.2 Downloading the AERMET Executable

Extracting the next two executables will be similar where you download a zip folder from the website and then extract the executable by dragging into the SampleRun folder.

Step 1. Navigate to the URL https://www.epa.gov/scram/meteorological-processors-and-accessory-programs. The download can also be found by EPA's SCRAM website following these links: Meteorological Data and Processors → Observational Meteorological Data → Meteorological Processors and Accessory Programs.

Step 2. Scroll down to the Model Code section and download the 64-bit executable by clicking "Executable – v24142 (ZIP)".

Step 3. Open the SampleRun folder and then the AERMET subfolder.

Step 4. Open another File Explorer window and open the Downloads folder.

Step 5. Find and open the "aermet_exe.zip" folder.

Step 6. Select the "aermet.exe" executable by clicking on it once.

Step 7. Drag the file "aermet.exe" into the AERMET folder (see Figure 5).
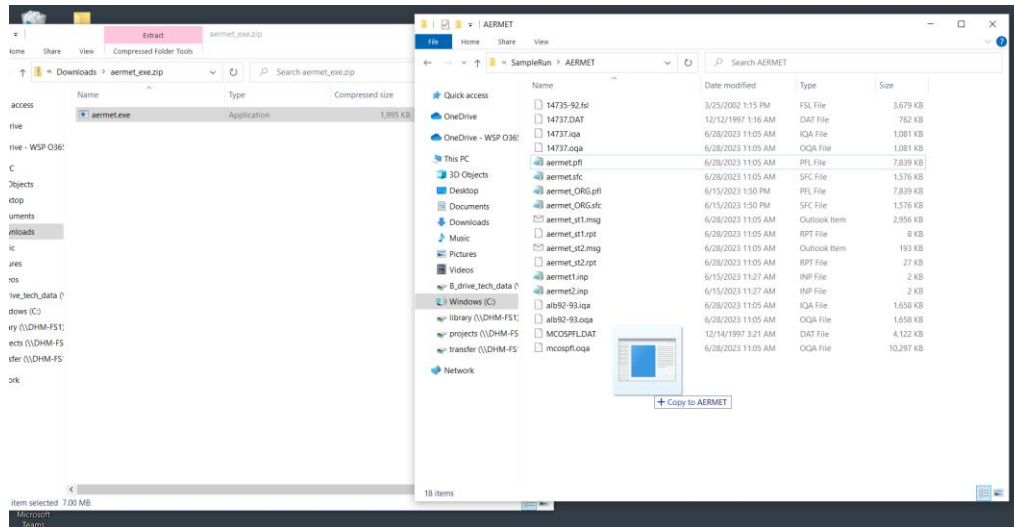
Figure 5: Dragging aermet.exe into the AERMET folder.

1.6.3 Downloading the AERMOD Executable

Step 1.   Navigate to the URL https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models. The download can also be found by EPA's SCRAM website following these links: Air Quality Models → Dispersion Modeling → Preferred/Recommended Models.

Step 2.   Scroll down AERMOD Modeling System Code and Documentation and download the 64-bit executable by clicking "Executable (v24142) (ZIP)".

Step 3.   Open the SampleRun folder and then the AERMOD subfolder.

Step 4.   Open another File Explorer window and open the Downloads folder.

Step 5.   Find and open the "aermod_exe.zip" folder.

Step 6.   Select the "aermod.exe" executable by clicking on it once.

Step 7.   Drag the file "aermod.exe" into the AERMOD folder (see Figure 6).
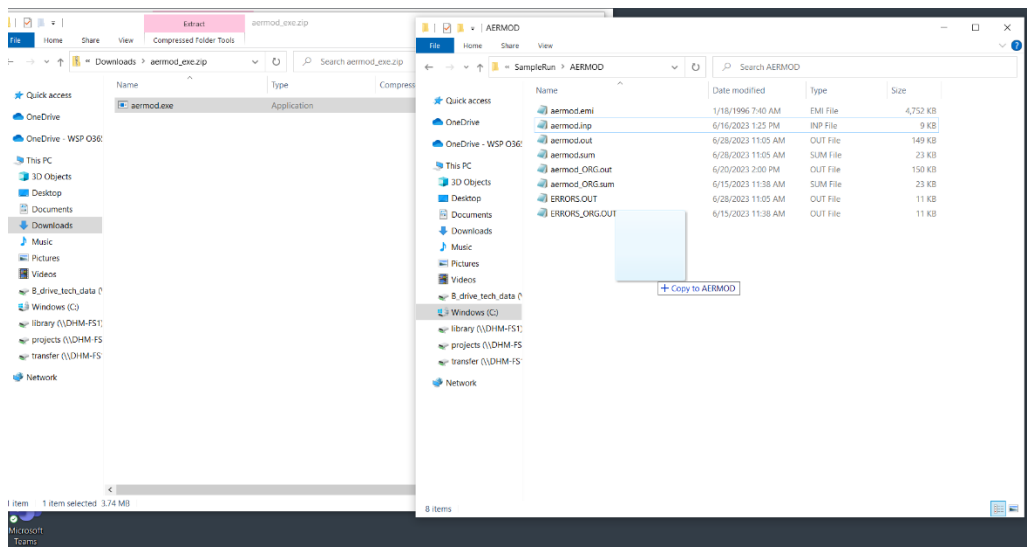
2 Setting up and Running AERMAP

AERMAP processes terrain data and produces two files: a .src and .rec file that are both later used in AERMOD. After these files are produced, they will be included in the file "aermod.inp", the input file which contains all in model inputs and options. In the sample run, "aermod.inp" is already formatted to include the .src and .rec file (see Section 5.1 Recommended File Structure for more information).

AERMOD and its preprocessors are designed to run from a Command Prompt window. Running AERMOD from the Command Prompt is helpful because it provides diagnostic messages to update the user on run progress. These messages are displayed as output text in the command window during the run. In addition, any errors that occur during the run will be output to an ERRORS.OUT file.

Step 1.   Open a command prompt window. This can be found by locating the search bar at the bottom and typing in "Command Prompt" (see Figure 7).
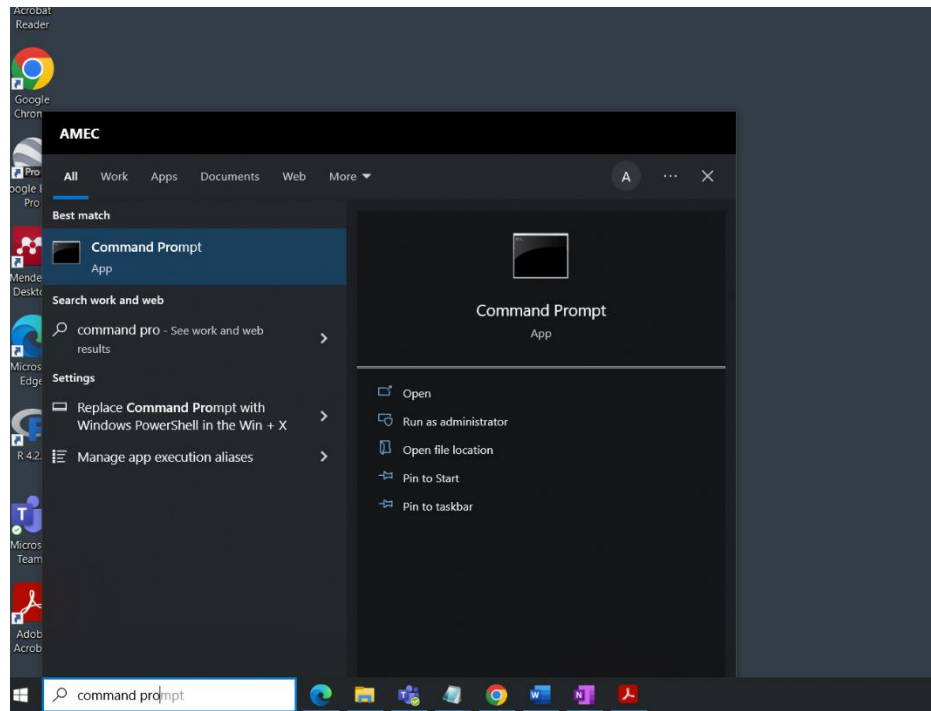
Figure 7: Accessing the Command Prompt.

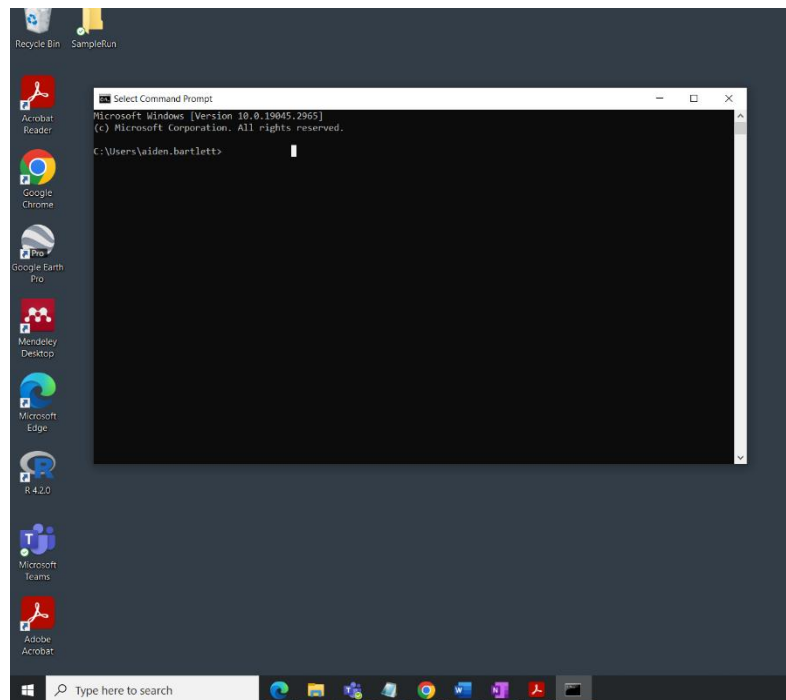**Step 2.** Click on the Command prompt banner. This will create a new Command Prompt window (see Figure 8).

Figure 8: Opening a Command Prompt window.

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Step 3.   The user must "change directories" (meaning the user must change the directory in the command prompt to the "Sample Run" folder). If the user has not moved the AERMOD project, they can type in the command (the user can also copy paste the following commands into the command prompt window):

```
cd C:/AERMOD/SampleRun
```

Notes: 1) The Windows Command Line is not case sensitive. Commands can be typed in either upper or lower case. 2) If the user has moved the AERMOD project, modify "C:/AERMOD/SampleRun with the correct directory

Step 4.   Once again, change directories. This time, change directories to the AERMAP folder. Since the user is already in the SampleRun directory, it can easily be done by the command:

```
    cd AERMAP
```

Note: If the user wants to go up a level (back to the SampleRun folder), then the user can use the command "`cd ..`".

Step 5. To run AERMAP, the user can simply type the command:

```
    aermap
```

Note: When running AERMAP, the program will look for an input file called "aermap.inp". If there is none, the program will fail. If the user wants to use an input file with a different name, they can manually rename the file to "aermap.inp", or, if there is a file named "myaermap.inp" run the command, "`aermap myaermap.inp`" in place of the "aermap" command above. For this sample run, there is already a file called "aermap.inp" provided in the AERMAP folder.

Step 6.   Confirm the command prompt outputs results similar to Figure 9 below.

Figure 9: Expected (partial) output after running AERMAP.

Step 7. Confirm that the files "aermap.src" and "aermap.rec" have now been created in the AERMAP folder (see Figure 10 below).
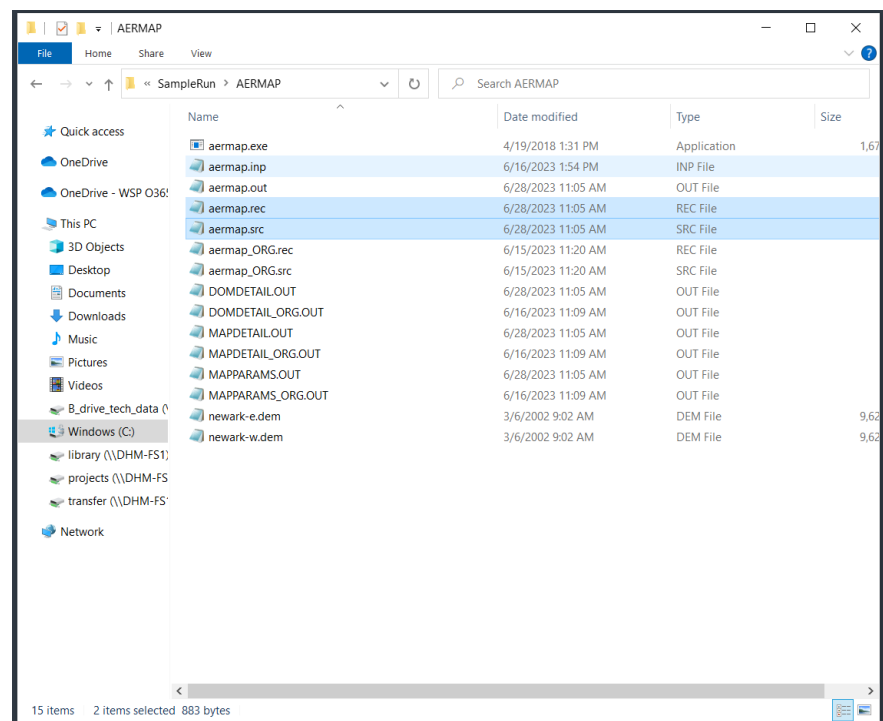

Figure 10: Confirming aermap.rec and aermap.src have been created.

Note: The current set of files has a known error that will leave the "aermap.src" file blank. This is not the same result as used in other applications, but this will not hinder any further steps. The user can safely ignore the empty "aermap.src" file.

3 Setting up and Running AERMET

Like AERMAP, AERMET will also produce the necessary data needed to run AERMOD. AERMET is responsible for producing a .sfc and .pfl file. The .sfc file will contain surface meteorological data and the .pfl file will contain profile meteorological data both used by AERMOD to characterize the atmospheric conditions.

The following steps guide through how to run AERMET to get the .sfc and .pfl files:

Step 1. Change directories to the SampleRun folder. This can be done by two options.

Option 1. If currently in the AERMAP folder, the user could run the command "`cd ..`" to return to the SampleRun folder.
Option 2. If in a different directory or even the AERMAP folder, the user can run the command "`cd C:\AERMOD\SampleRun`" to manually renavigate to the SampleRun folder.

Step 2. Change directories to the AERMET folder using the command:

```
cd AERMET
```

Note: AERMET runs in two "stages". Thus, the command prompts are slightly different than running AERMAP.

Step 3. Run the following command:

```
aermet aermet1.inp
```

Step 4. Verify the results are similar to Figure 11 below. This signifies that the first stage of running AERMET was successful.

Figure 11: Expected ouptut after Stage 1 of AERMET.

Step 5.   Run the following command:

```
aermet aermet2.inp
```

Step 6.   Verify the results are similar to Figure 12 below. This signifies that the second stage of running AERMET was successful.

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Figure 12: Expected result of Stage 2 of AERMET

After running both stages of AERMET, the user should open File Explorer and confirm that aermet.pfl and aermet.sfc have been created in the AERMET folder (see Figure 13 below).
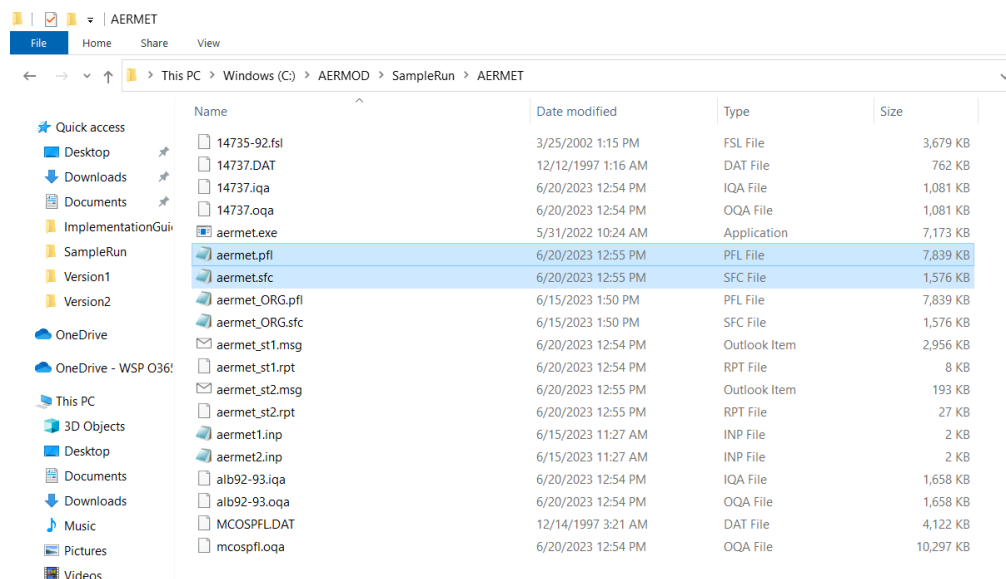
Figure 13: Two new files are created (highlighted/selected).

Note: There are many other files in the AERMET folder. These files are necessary for the corresponding program to create the data needed. Aermet.pfl and aermet.sfc are the files which will be input into AERMOD.

4 Setting Up and Running AERMOD

The aermod.inp file is the input file into the AERMOD program. Anytime the user wants to run AERMOD, a file named aermod.inp is required. It contains the file paths to other necessary data files (like the. sfc and .pfl files).

To view the aermod.inp file, open the following folders: the Windows (C:) directory → AERMOD → SampleRun → AERMOD. This can be done by three options.

Option 1. **(recommended):** Double click on aermod.inp to open the file in Notepad.
Option 2. The user can use a different text editor, such as Notepad++ or Sublime Text to examine the aermod.inp input file. Files that end in ".inp" are used as input for the model.
Option 3. Navigate to a Command Prompt window and then change directory to the AERMOD folder using the following command:

```
cd C:\AERMOD\SampleRun\AERMOD
```

Use the command "type aermod.inp" from a command prompt followed by a vertical bar, followed by the command "more" like the following:

```
type aermod.inp | more
```

The user can navigate through the text of the file with the Space bar. The user can stop it any time with control-C.)

For future reference, this aermod.inp file is divided by lines, as displayed in the example text below, into six sections called "pathways". One example of a pathway is the meteorology (ME) pathway. "ME STARTING" is the beginning of the meteorology pathway and "ME FINISHED" is the end of the meteorology pathway. Other pathways in the aermod.inp include control (CO), source (SO), receptor (RE), and output (OU). All pathways use the "STARTING" and "ENDING" keywords to "bracket" each pathway section in aermod.inp. Any line in the aermod.inp that starts with ""**" is treated like a comment and is not used by AERMOD. These comments are helpful for the user to keep text notes regarding options and choice for individual runs within this file.

```
ME STARTING

  SURFFILE  ..\aermet\aermet.sfc   free

  PROFFILE  ..\aermet\aermet.pfl   free

  SURFDATA  14737  1992  Allentown

  SITEDATA  00001  1992  Martin_Crk

  UAIRDATA  14735  1992  Albany

  PROFBASE  73.2

**   startend  92 7 9 20  92 7 9 20

ME FINISHED
```

More information about these pathways can be found in the [Implementation Guide,](#) and the use cases and applications of AERMOD.

4.1 Running AERMOD

While acceptable in a few cases, it is generally not recommended to run "aermod.exe" file directly because the user will not be able to view the "ERRORS.OUT" file and view any errors the AERMOD program encounters during the run. It is recommended that the user run AERMOD through the command line by the following steps:

Step 1. Change directories to the AERMOD folder by running the command:

```
cd C:\AERMOD\SampleRun\AERMOD
```

Step 2. Run AERMOD by typing the following into the command line prompt:

```
aermod
```

Press Enter to run. AERMOD will process many lines of data information like Figure 14 below.

Figure 14: Expected output from AERMOD.

4.2 Examining the Output Files

To examine the output file "aermod.out", it is recommended to open the file in text editor programs such as Notepad, Notepad++, etc.

To locate the output file, navigate to the AERMOD folder which was previously opened to inspect "aermod.inp". This folder should not contain a file called "aermod.out". Alternatively, the user can use the command "type aermod.out | more", however, this is only recommended for users familiar with command line editors and navigating the command prompt output.

It should be pointed out, the very beginning of the "aermod.out" file is an exact copy of the "aermod.inp" file. Following the copy of "aermod.inp" will be the AERMOD output

information. This information will depend on the user options and input files passed into AERMOD.

Within the AERMOD folder, will be an additional output file titled, "ERRORS.OUT. This .OUT file will contain any warnings or errors encountered during the run. It is recommended the user is aware of any errors reported in this document.

4.3 Verifying AERMOD Outputs

If the user wants to verify that AERMOD is producing the correct outputs, they can compare files on the working computer to the original files. Inside the ZIP file, which was downloaded, there will be files that contain "_org" in the file name. This implies the file is an "original file" that was not modified by AERMOD in this run. The user can compare their files to these original files to verify some of the features are working.

It is also recommended to use text editors like Notepad++, Sublime Text, etc. to compare the two output files. Some text editors may have features that allow for an easier comparison of the two files.

Note: This is not a comprehensive verification system. This will only verify simple AERMOD procedures.

After executing AERMOD and creating the output scripts, the user can use the "FC" (file compare) command to compare file output.

Note: While minor differences in the files are expected (see Sections 4.3.1 - 4.3.2), if there are major differences within the files, please return to and run through the corresponding steps. In some cases, it may be an easier approach to delete the SampleRun folder and unzip the AERMOD ZIP file again.

After executing AERMAP, the user can confirm correct output and AERMAP is working by navigating to the AERMET folder and using the following commands:

```
FC aermap.rec aermap_ORG.rec

FC aermap.src aermap_ORG.src
```

Note: The user can also use the "FC" command on "DOMDETAIL.OUT", "MAPDETAIL.OUT", and "MAPPARAMS.OUT", but these files are not important for the later steps.

After executing AERMET, the user can confirm correct output and AERMET is working by first navigating to the AERMET folder and using the following commands:

```
FC aermet.pfl aermet_ORG.pfl
```

```
FC aermet.sfc aermet_ORG.sfc
```

After executing AERMOD, the user can confirm correct output and AERMOD is working by navigating to the AERMOD folder and using the following commands:

```
FC aermod.out aermod_ORG.out

FC aermod.sum aermod_ORG.sum

FC ERRORS.OUT ERRORS_ORG.OUT
```

4.3.1 Difference in Dates and Time Stamps

When AERMOD output files that are expected to be the same are compared, the file of differences should only have lines containing date or time stamps. (Because the timestamps will be the only difference.) Some files should have no differences.

4.3.2 Difference in Numerical Formats of the Same Numbers

In numerical data, there might be cases where "0.00" is represented as " .00". These represent the name numerical value. If the difference is the last digit, such as "1.45678" instead of "1.45677", the difference could occur due to rounding in the calculation.

Comparison commands are useful to locate numerical differences.

4.4 Visualizing Outputs: AERPLOT (optional)

An AERMOD run can also provide visual mapping of receptors in programs such as Google Earth. This will require installation of AERPLOT, which is a postprocessor for AERMOD, which produces spatial images of the AERMOD outputs.
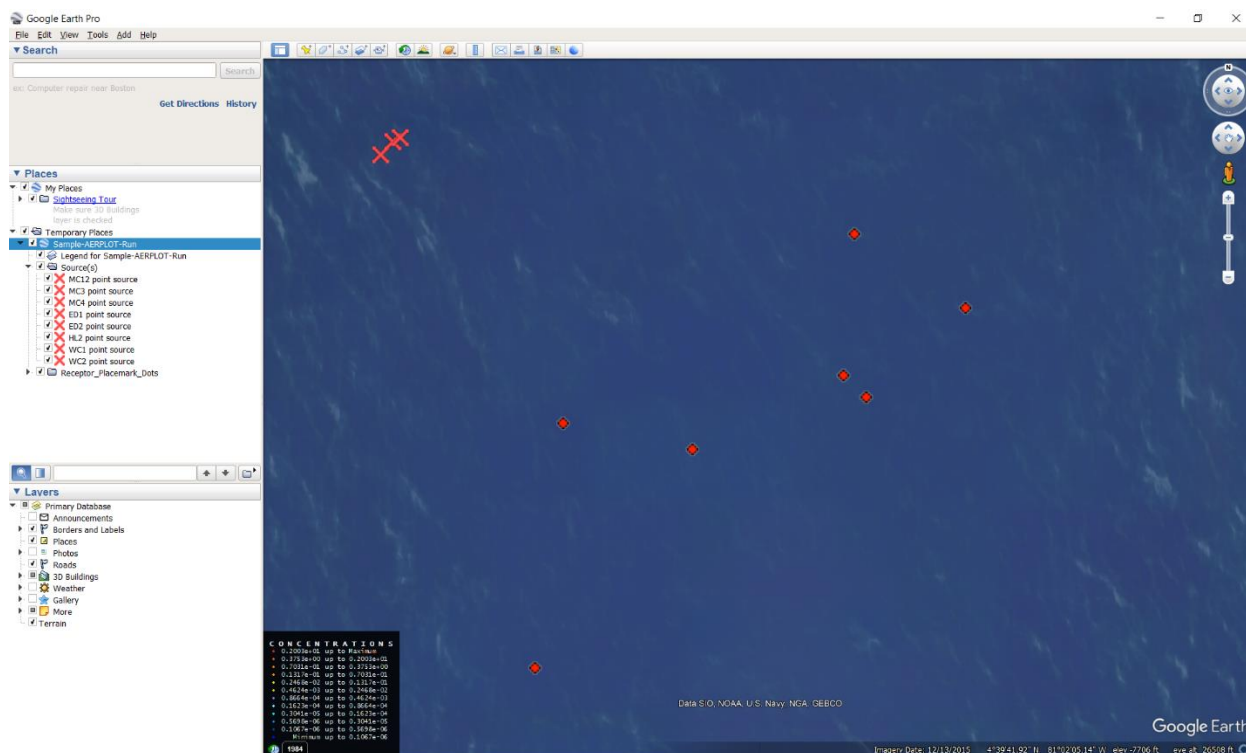
Figure 15: Example output (.KMZ file) from AERPLOT as displayed in Google Earth.
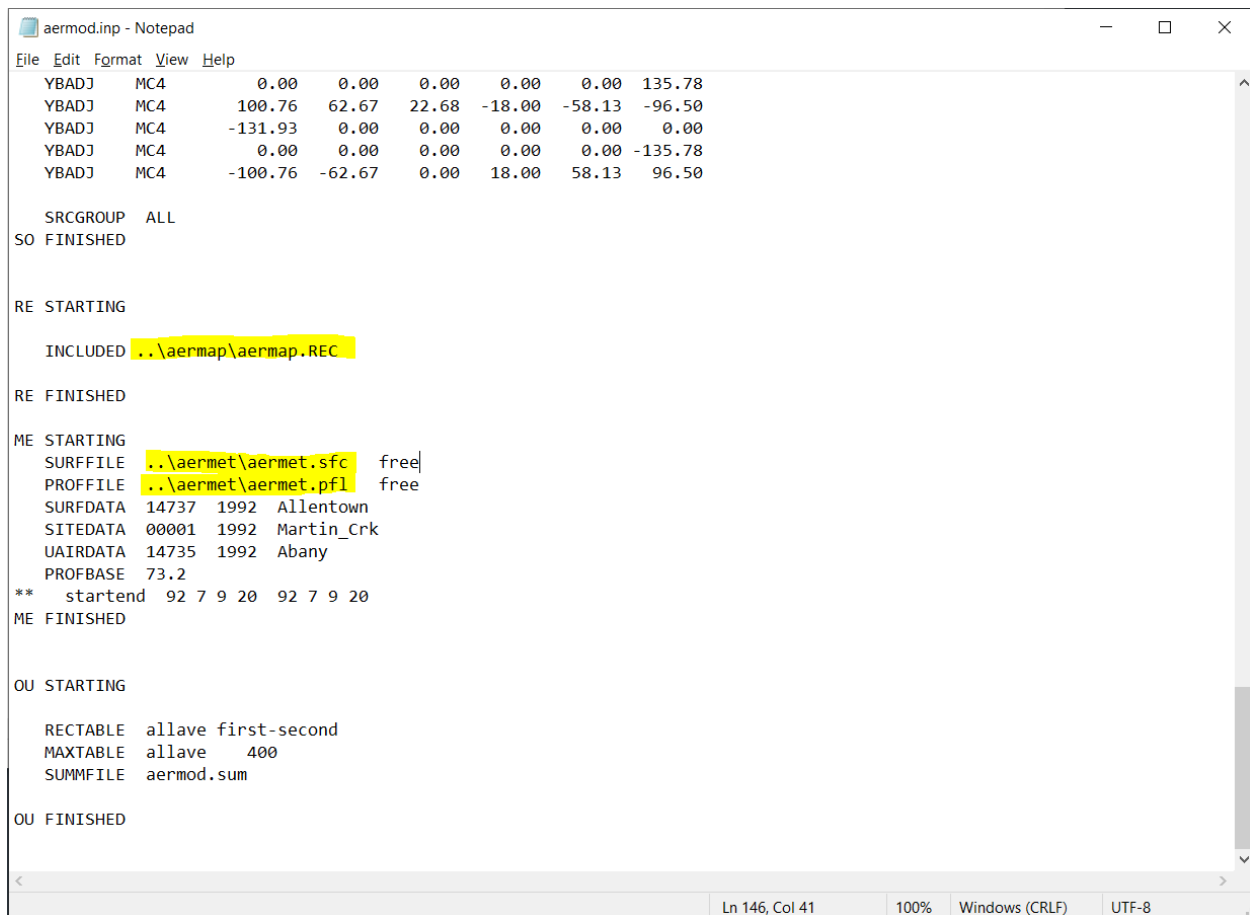
For installation instructions, visit the following link: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models. Once on the webpage, click on "AERPLOT Installation Guide (PDF)" for more information.

5 AERMOD Run Customization

Now that the user can successfully complete an AERMOD run, there are methods to customize a basic AERMOD run and use AERMOD for more complicated tasks.

5.1 Recommended File Structure

Each part of the AERMOD modeling system (e.g. AERMAP, AERSURFACE, AERMET, etc.) should be stored in its own subdirectory. The output from each segment of the system, such as the meteorological data or land characteristics, will need to be copied to the subdirectory where the user's AERMOD run will be executed. This is the pattern used within this SampleRun folder and should be mimicked when using AERMOD. Path names can sometimes be used to point back to where the data is located and therefore, the data does not have to be copied to the executable's subdirectory (see Figure 16 below for an example).

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Figure 16: Inspecting aermod.inp (highlights show input files from AERMET and AERMAP).

Input to each executable must be renamed or copied to the basic file name of the executable. For instance, when executing an AERMOD run, "myinputfile.inp" has to be renamed to ""aermod.inp"". The output file will be AERMOD.OUT and will have to be renamed to "myoutputfile.out" or it will be over written next time AERMOD is run. It is important to read each User's Guide for any variations that do not follow this generic procedure. This helps us to make AERMOD compatible with other Operating System environments.

5.2 Running AERMOD with Custom Filenames

AERMOD has been updated to support multiple arguments from the command line. There are three ways to run AERMOD from the command line:

Option 1. The most common technique and the one that was used earlier is to run the command:

```
aermod
```

This will require an input file called "aermod.inp" and give an output file named "aermod.out". It will give an error and not run if "aermod.inp" is not found in the directory location.

Option 2. The second technique is to specify the input file name. If you have a file named "myrun.inp", you can run the command:

```
aermod myrun.inp
```

This will require an input file called "myrun.inp" and give an output file named "myrun.out".

Option 3. The third technique is to specify the input file name and the output file name. If you have a file named "myrun.inp" and want the output to write to a file called "myoutput.out", you can run the command:

```
aermod myrun.inp myoutput.out
```

This will require an input file called "myrun.inp" and give an output file named "myoutput.out".

5.3 Running AERMAP, AERMET, and AERMOD Multiple Times

Batch files are used to execute multiple commands in the command prompt consecutively and automatically. In this section, the user will first be introduced to batch files and then learn about the most common AERMOD application for batch files.

5.3.1 How to Use Batch Files

A batch file is a script file that stores commands to be executed. Instead of executing one command like used earlier, batch files can execute multiple commands one after another without the user having to manually enter them. Batch files have multiple applications with AERMOD; most of the time they are used to perform multiple runs automatically with different sets of data. The rest of this section will introduce the user to a basic batch file.

As an introduction to batch files, imagine the user wanted to run one script instead of having to manually run AERMET, then AERMAP, then AERMOD.

The series of commands would be as follows:

1. Switch to the AERMAP folder.
2. Run AERMAP.
3. Switch to the AERMET folder.
4. Run Stage 1 of AERMET.
5. Run Stage 2 of AERMET.
6. Switch to the AERMOD folder.
7. Run AERMOD.

The following steps will lead the user through how to create a batch file to automatically run these steps.

Step 1. First, the user wants to create the batch file.

1. Using the search bar at the bottom of the screen, type in "Notepad" and select the application. Alternatively, use any choice of text editor although the following instructions will be best suited for Notepad. Figure 17 shows a new Notepad tab being opened.
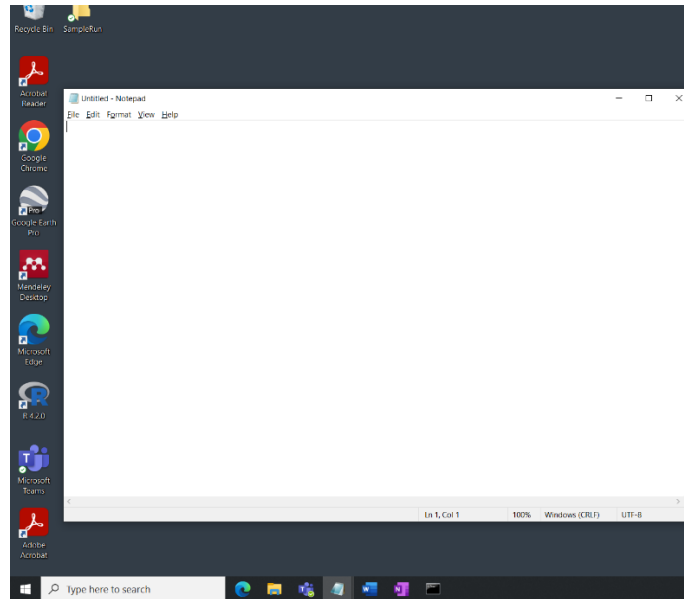
Figure 17: Opening a Notepad file.

2. Copy and paste the text below into the Notepad window. Please keep in mind this is a very basic batch script. After the first batch script is working, the user can experiment with more complex batch scripts.

```
rem Switching directories to AERMAP folder.
cd AERMAP
rem Running AERMAP:
aermap
rem Switching directories to AERMET folder.
cd ../AERMET
rem Running Stage 1 of AERMET:
aermet aermet1.inp
```

```
rem Running Stage 2 of AERMET:
aermet aermet2.inp
rem Switching directories to AERMOD folder.
cd ../AERMOD
rem Running Aermod:
aermod
```

Note: The "rem" commands are lines that will be given as console output. When the user runs the batch file later, the user can see the lines that begin with "rem" in the console.

3. Click File in the upper left-hand corner.
4. Click "Save as". A file explorer tab will open. Find the SampleRun folder. If it has not been moved, the user can do this by finding the Windows (C:) tab, then the AERMOD folder, and then the Sample Run folder (see Figure 18).
5. Under Save as type, click the dropdown menu and select "All Files (*.*)."
6. Rename the file to "run-myrun.bat".
7. Verify results with Figure 18 below. The image shows the batch script in the Notepad window and the correct place to save the file with the correct information.
8. Click Save to create a batch file.
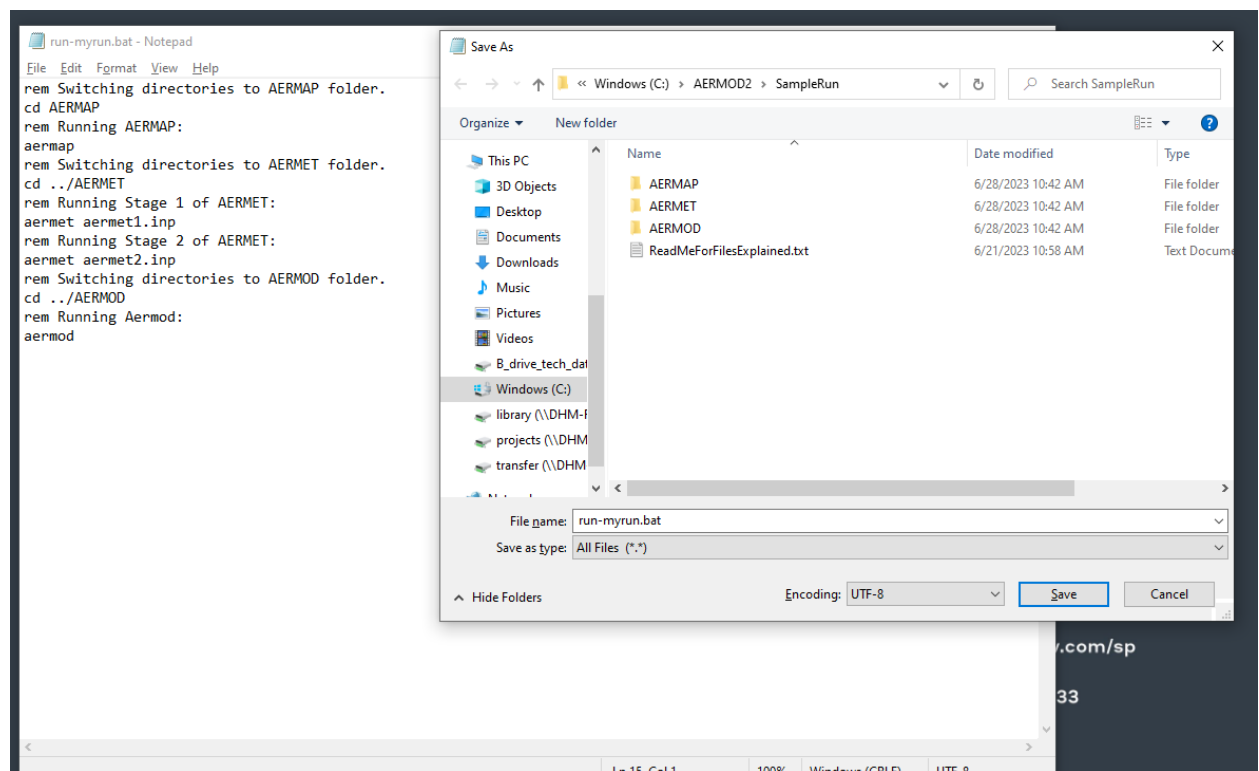
Figure 18: Saving a batch file.

Step 2. Now that an input file and a custom batch file have successfully been created, the user must run the batch file from the command line.

1. Open a new command prompt window (or one that is already open).
2. Change directories to the SampleRun folder with the command:

```
cd C:\AERMOD\SampleRun
```

3. Run the batch file using the command:

```
run-myrun.bat
```

4. The batch file will now run through all the steps of AERMAP, AERMET, and AERMOD (see Figure 19).

```
C:\AERMOD2\SampleRun>run-myrun.bat

C:\AERMOD2\SampleRun>rem Switching directories to AERMAP folder.

C:\AERMOD2\SampleRun>cd AERMAP

C:\AERMOD2\SampleRun\AERMAP>rem Running AERMAP:

C:\AERMOD2\SampleRun\AERMAP>aermap

+Now Processing SETUP Information
+Processing Setup...

**********************
 OPENING FILE:

   DEM File #:          1
   DEM File Name: NEWARK-W.DEM

   Partial analysis of file structure using first    10240 characters.

     Number of bytes read:         1026
     File Type:           Delimited File - DOS or UNIX

 CLOSING THE FILE.

**********************
 OPENING FILE:

   DEM File #:          2
   DEM File Name: NEWARK-E.DEM

   Partial analysis of file structure using first    10240 characters.

     Number of bytes read:         1026
     File Type:           Delimited File - DOS or UNIX

 CLOSING THE FILE.

 Exiting DEMCHK
 Exiting CHKADJ
 Exiting DOMCNV
 Exiting RECCNV
 Exiting SRCCNV
 Exiting CHKEXT
 Exiting DEMREC
 Exiting DEMSRC

+Initializing Terrain Data...
 This may take few a minutes...

 Exiting INITER_DEM

+Now Processing Receptor      1 of      7
+Now Processing Receptor      2 of      7
```

Figure 19: Beginning of the command prompt output from running batch script.

5.3.2 Batch File Application in AERMOD

Often when running AERMOD, the user may need to run multiple runs of the model. It is more convenient to write a script that automates the process of running AERMOD with different parameters, rather than manually executing AERMOD each time. This is the most common application for batch files when using AERMOD. These types of batch scripts would follow the same logic/steps presented above but execute AERMOD multiple times with multiple .inp files by running with the custom filenames as described in Section 5.2 or by renaming each .inp file to aermod.inp running, then renaming the output filenames to match the desired run name.

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5.3.3 Running from Windows Explorer

Another way to run the RUN-MYRUN.BAT file is to locate it in the File Explorer window, and then double click it. Evidence that the AERMOD program has run is if a new Command Prompt window opens and closes quickly. The result of the run can be seen in the "aermod.out" file.

Note: Experienced users can go into Windows Explorer, and double click on "aermod.exe". If there is no "aermod.inp" ready, that would result in a window that would briefly open and shut with no indication of anything happening. That did run AERMOD but gives no idea of whether it was a successful run or not.

The user has now completed all steps to run their first AERMOD sample run. As mentioned earlier, the user should find the implementation guide for more information on applications and use cases.

6 References

EPA, 2024a: User's Guide for the AERMOD Terrain Preprocessor (AERMAP). EPA-454/B-24-008. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

EPA, 2024b: AERMOD Implementation Guide (Revised November 2024). EPA-454/B-24-009. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

EPA, 2024c: User's Guide for the AERMOD Meteorological Preprocessor (AERMET). EPA-454/B-24-004. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Appendix A: AERMOD System Components and Additional Resources

The use of AERMOD requires a user to read the manuals and to understand what they are trying to convey. This "Sample Run Instructions" is a very restrictive example to familiarize the user with how to set up and run AERMOD. For a deeper understanding, please refer to the implementation guide.

Please read and understand what is in the user's guides and manuals. This cannot be emphasized enough. AERMOD and its supporting systems are complex and must be understood fully when using AERMOD in some simulation or application.

All resources can be found on EPA's SCRAM page.

Appendix W (40 CFR Part 51) summarizes EPA's guidelines for the AERMOD model.

For more help, please contact EPA using the "Contact Us about Air Quality Models" form on the SCRAM website (https://www.epa.gov/scram/forms/contact-us-about-air-quality-models).

TABLE OF <u>REGULATORY</u> COMPONENTS AND ADDITIONAL RESOURCES.

Model System Component	Additional Resources	Description
AERMOD	User's Guide	Describes all model options, inputs, outputs, and requirements for all modeling situations
	Quick Reference Guide	Gives a summary of pathway keywords and parameters
	Model Formulation Document	Technical description of all model equations and methodology, as well as references to published work. This contains formulations for both AERMOD and AERMET
	Model Evaluation Document	Evaluates old and new versions of AERMOD for statistical accuracy
	Model Evaluation Databases	Databases used in AERMOD evaluation
	Implementation Guide	Provides information on how to use AERMOD in application and different use cases
	Test Cases	Provides a series of tests used for model version comparison
	Model Supporting Documents	Collection of journal articles, technical support documents, and other various documents containing model formulation and evaluation
AERMET	User's Guide	Describes all options, inputs, outputs, and requirements for AERMET
	Test Cases	Provides a series of tests used for model version comparison on the AERMET model
AERMAP	User's Guide	Describes all options, inputs, outputs, and requirements for AERMAP
	Test Cases	Provides a series of tests used for model version comparison on the AERMAP model

	Data Sources and Conversion of Elevation Data	Details information on data sources and converting elevation data to TIFF files.

TABLE OF <u>NON-REGULATORY</u> COMPONENTS AND ADDITIONAL RESOURCES.

Model System Component	Additional Resources	Description
AERMINUTE	User's Guide	Describes all options, inputs, outputs, and requirements for AERMINUTE that processes 1-minute ASOS wind data to generate hourly average winds for input to AERMET in Stage 2.
AERPLOT	Installation Guide	Provides information on how to install AERPLOT
AERSURFACE	User's Guide	Describes all options, inputs, outputs, and requirements for AERSURFACE,
	Test Cases	Provides a series of tests used for model version comparison on the AERSURFACE model
	Land Surface Data Access	Details information on data sources that may be used to obtain land cover data for AERSURFACE.
AERSCREEN	User's Guide	Describes all options, input, outputs, and requirements for AERSCREEN, a screening-level air quality model
	Test Cases	Provides a series of tests used for model version comparison on the AERSCREEN screening model
BPIPPRM	Addendum to ISC3 User's Guide for BPIPPRM Documentation	Describes all options, inputs, outputs, and requirements for BPIPPRM, a building preprocessor
	Test Cases	Provides a series of tests used for model version comparison on the BPIPPRM model
MMIF	User's Guide	Describes all options, inputs, outputs, and requirements for MMIF, a meteorological preprocessor
	Guidance for AERMOD applications	Provides guidance on the use of MMIF for AERMOD use
	Test Problems	Provides a series of tests used for model version comparison on the MMIF model
WRPLOT	Tutorial & Instructions	A program which computes wind rose statistics based on 10 degree wind increments. Unlike WINDROSE, WRPLOT can provide a graphical plot. Windrose uses the TD-1440 SCRAM meteorological data as input.
	Demonstration	Gives the user an example of how to execute WRPLOT

A.1   Retrieving the SCRAM Test Cases

The test cases on SCRAM are used for model version comparison. They are used to compare new version of AERMOD with older versions of AERMOD and make sure their features are the same.

If the user would like to access them, use the following steps:

Step 1.   Use a browser to go to the [EPA's SCRAM page](#) then tracing the following links: Air Quality Models → Dispersion Modeling → Preferred/Recommended Models → AERMOD Modeling System.

Step 2.   Find the section labeled Test Cases and download the "AERMOD Test Cases (ZIP)".

Step 3.   If the user is having trouble downloading the ZIP, please read through "Appendix: Trouble downloading ZIP file".

Step 4.   Read through Step 4 with help unzipping the file.

Step 5.   Read through "AERMOD Test Cases – Instructions_v24142" for help downloading the test cases.

Appendix B: AERMOD File Extensions

Table 2 is a list of the file types used by AERMOD. The table is a quick reference to be used in identifying the files that can be found in the AERMOD program's folder before and after the AERMOD run. The first column is the extension, and the second column contains descriptive information about the extension.

Table 1: AERMOD File Extensions

Extension	Description
*.pfl	Upper-level wind profile
*.src	Sources data
.rec	Receptor data
.dat	Text formatted input data
*.sfc	Surface meteorological data
*.exe	executable file
*.inp	input file
*.out	output file
*.sum	summary file
Errors.*	File containing error messages generated during run attempt

Step 6.   For more information on the specific files in the SampleRun folder, see the file "ReadMeForFilesExplained.txt" in the SampleRun folder.

Appendix C: Windows DOS Prompt Commands

Listed below are sample DOS commands to enter at the Command Prompt (>).

Table 1 is a list of all the Windows DOS commands used in the document's text. The first column is the command and the second column contains descriptive information about the command:

Table 2: DOS Commands

Command	Description
cd \	changes directories to the top directory in whatever drive currently in
cd \document*	changes directories to the "documents" subdirectory
copy file1 file2	copies the file contents of file1 to file2 (e.g. copy "aermod.out" aertest1.out)
mkdir foo	creates the subdirectory named foo
del file	deletes the file
rmdir foo	deletes the subdirectory named foo (may have trouble if not empty)
| more	Adding the vertical bar and "more" will page the output of the existing command

Appendix D: Potential Issue when Downloading ZIP file

If the user is having trouble downloading any ZIP file, make sure that their computer has storage. If the computer has storage, it is likely that the browser doesn't trust the download.

Step 1. Look for a popup that says something like "File.zip isn't commonly downloaded. Make sure you trust File.zip before you open it". Note: The name of the file will vary based off what the user is trying to download. See Figure 20 for an example.
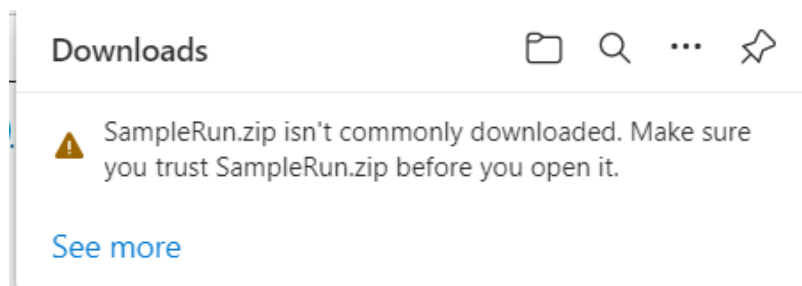

Figure 20: An example of popup window if error occurs during download.

Step 2. Hover over the error message until the message is greyed out and an icon with three bars is shown on the side.

Step 3. Click the icon with three bars.

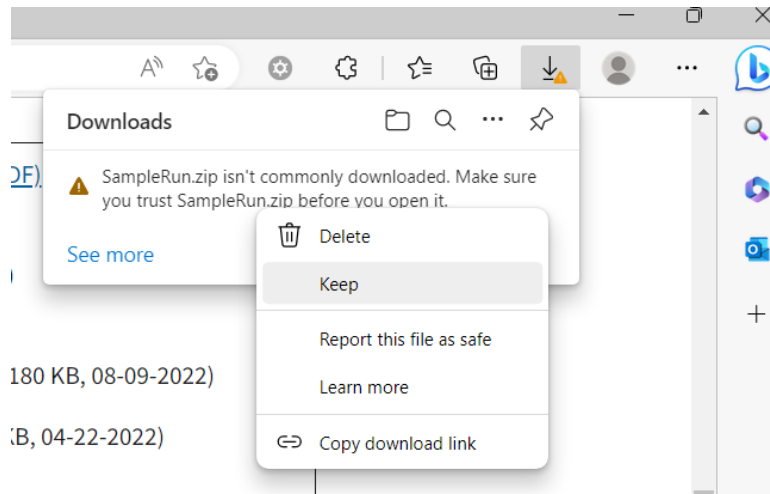**Step 4.** Click "Keep" (see Figure 21).

Figure 21: Finding the keep button.

Step 5.   The user will be prompted to "Make sure you trust the zip before you open it." Click the dropdown that says, "Show more".

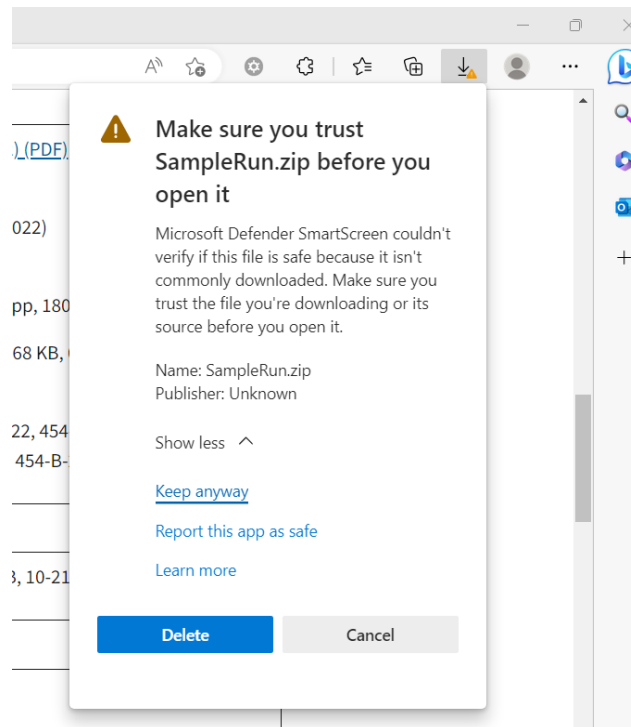**Step 6.**   Click the blue text that says, "Keep anyway" (see Figure 22).

Figure 22: Keeping the ZIP file.

The zip folder should now be in the user's downloads folder and the ZIP is successfully downloaded. Repeat these steps if another ZIP file has the same problem.