

# Downloading AVERT Files for Use in SMOKE

U.S. Environmental Protection Agency  
State Energy and Environment Program



# Downloading AVERT Files for Use in SMOKE Overview

- The AVERT Main Module can produce output files for the **Sparse Matrix Operator Kernel Emissions (SMOKE)** modeling system, which is designed to create gridded, speciated, hourly emissions for input into air quality models such as CMAQ, REMSAD, CAMX and UAM
- For more information about SMOKE, visit <https://www.cmascenter.org/smoke/>
- This training refers to the Excel version of the AVERT Main Module

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## Select a Filepath

- AVERT's SMOKE text file generation can be found in Step 4: Display Outputs
- After running a displacement scenario, double-click the blue box to select the location where you would like to save the files

Upper Midwest, 2011

AVERT

### Step 4: Display Outputs

**Summary tables**

- Annual regional displacement data
- Displacement data for top ten peak days
- Annual displacement data by county
- Monthly displacement data by county
- Daily NOx displacement data by county

**Charts and figures**

- Displaced generation and emissions map
- Hourly displacements by week
- Monthly displacements by selected geography
- Signal-to-noise diagnostic

**SMOKE text file generation**

Enter a filepath, then click the button to save SMOKE text files.

**NOTE**  
Please be patient.  
This calculation may take up to twenty minutes to run on older machines.

Generate SMOKE text files

Welcome

1. Regional Data File

2. Set EERE Profile

3. Run Displacement

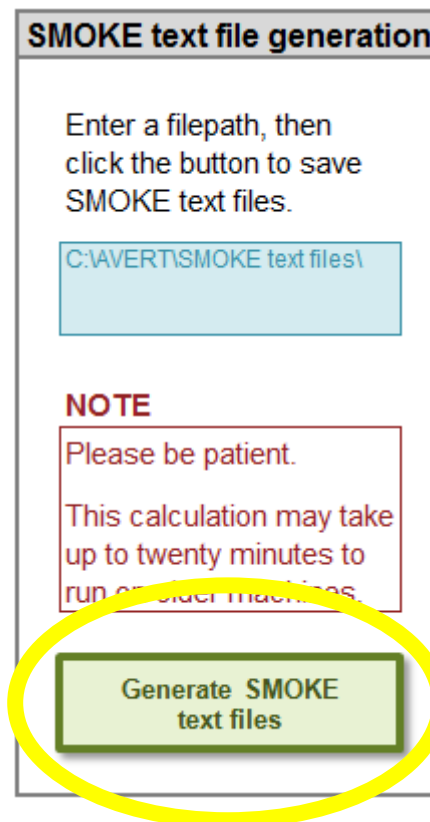
4. Display Outputs

← Back

EPA\_NetGen\_PM25

# Downloading AVERT Files for Use in SMOKE Generate SMOKE Text Files

- After entering a filepath, click the button labeled “Generate SMOKE text files”



**SMOKE text file generation**

Enter a filepath, then click the button to save SMOKE text files.

C:\AVERT\SMOKE text files\

**NOTE**

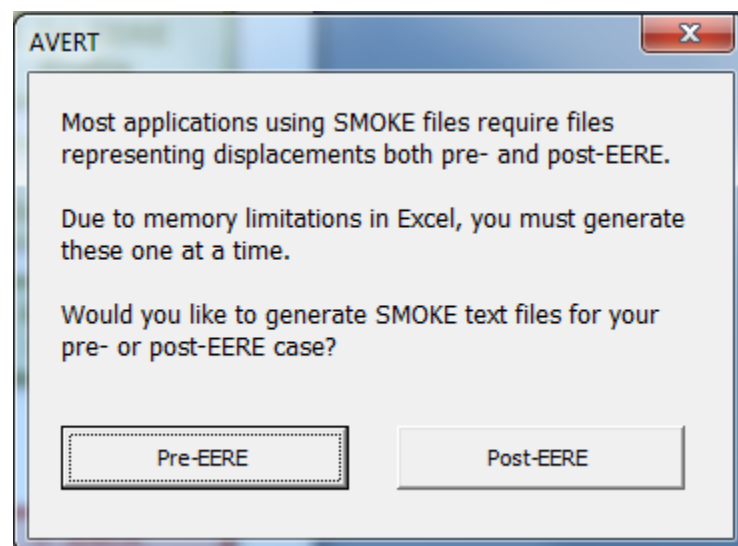
Please be patient.  
This calculation may take up to twenty minutes to run on older machines.

**Generate SMOKE text files**

# Downloading AVERT Files for Use in SMOKE

## Generate SMOKE Text Files

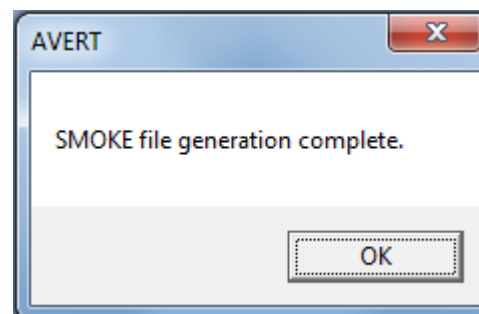
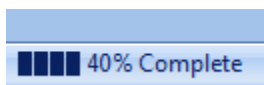
- A dialog box will appear asking you whether you want to generate SMOKE files for your pre-EERE or post-EERE case



# Downloading AVERT Files for Use in SMOKE

## Generate SMOKE Text Files

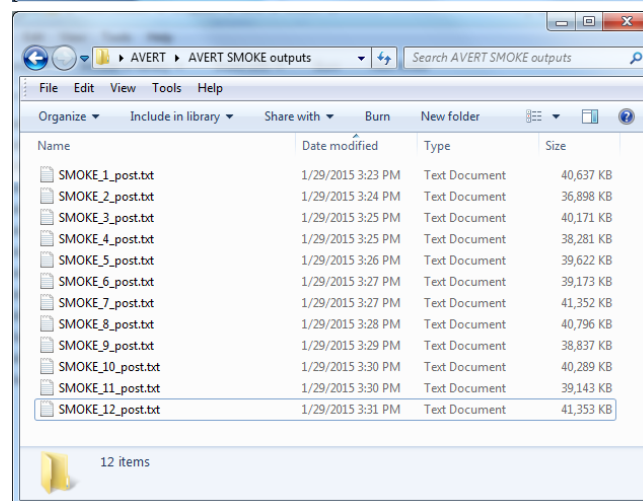
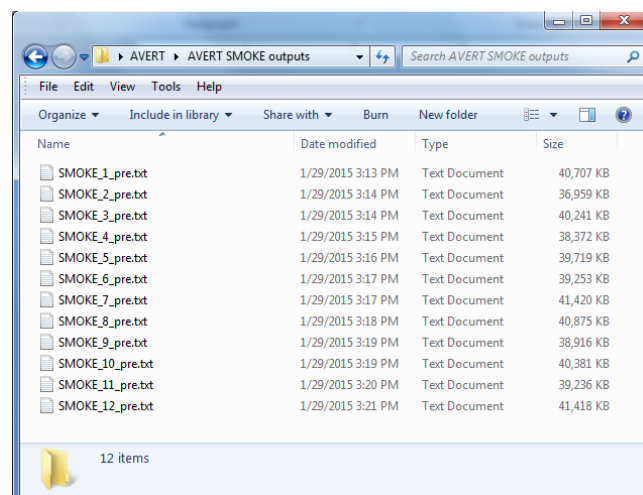
- After you select either pre-EERE or post-EERE, the file generation process begins, marked by an indicator in the task bar at the lower left hand corner of the window.
- A dialog box will appear when the process is complete. If you want both pre-EERE and post-EERE files, repeat the process.



# Downloading AVERT Files for Use in SMOKE

## Locate SMOKE Text Files

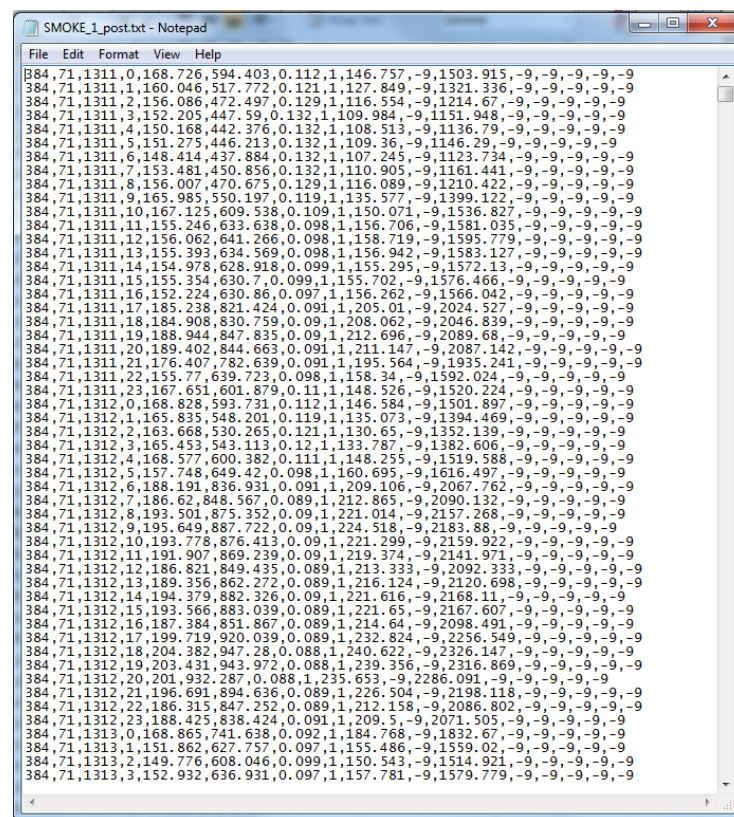
- The SMOKE output files will appear in the folder that you selected on slide 3 (Step 4: Display Outputs)
- Files are now ready for use in SMOKE



# Downloading AVERT Files for Use in SMOKE

## About File Format

- Files are generated in Continuous Emissions Modeling (CEM) format—a format recognized by SMOKE
- Files have a .txt extension and can be viewed in a text editor such as Notepad
- Each row represents a single hour of data
- Values are comma-separated



```

SMOKE_1_post.txt - Notepad
File Edit Format View Help
B84,71,1311,0,168.726,594.403,0.112,1,146.757,-9,1503.915,-9,-9,-9,-9,-9
B84,71,1311,1,160.046,517.772,0.121,1,127.849,-9,1321.336,-9,-9,-9,-9,-9
B84,71,1311,2,156.086,472.497,0.129,1,116.554,-9,1214.67,-9,-9,-9,-9,-9
B84,71,1311,3,152.205,447.59,0.132,1,109.984,-9,1151.948,-9,-9,-9,-9,-9
B84,71,1311,4,150.168,442.376,0.132,1,108.513,-9,1136.79,-9,-9,-9,-9,-9
B84,71,1311,5,151.275,446.213,0.132,1,109.36,-9,1146.29,-9,-9,-9,-9,-9
B84,71,1311,6,148.414,437.884,0.132,1,107.245,-9,1123.734,-9,-9,-9,-9,-9
B84,71,1311,7,153.481,450.856,0.132,1,110.905,-9,1161.441,-9,-9,-9,-9,-9
B84,71,1311,8,156.007,470.675,0.129,1,116.089,-9,1210.422,-9,-9,-9,-9,-9
B84,71,1311,9,165.985,550.197,0.119,1,135.577,-9,1399.122,-9,-9,-9,-9,-9
B84,71,1311,10,167.125,609.538,0.109,1,150.071,-9,1536.827,-9,-9,-9,-9,-9
B84,71,1311,11,155.246,633.638,0.098,1,156.706,-9,1581.035,-9,-9,-9,-9,-9
B84,71,1311,12,156.062,641.266,0.098,1,158.719,-9,1595.779,-9,-9,-9,-9,-9
B84,71,1311,13,155.393,634.569,0.098,1,156.942,-9,1583.127,-9,-9,-9,-9,-9
B84,71,1311,14,154.978,628.918,0.099,1,155.295,-9,1572.13,-9,-9,-9,-9,-9
B84,71,1311,15,155.354,630.7,0.099,1,155.702,-9,1576.466,-9,-9,-9,-9,-9
B84,71,1311,16,152.224,630.86,0.097,1,156.262,-9,1566.042,-9,-9,-9,-9,-9
B84,71,1311,17,185.238,821.424,0.091,1,205.01,-9,2024.527,-9,-9,-9,-9,-9
B84,71,1311,18,184.908,830.759,0.09,1,208.062,-9,2046.839,-9,-9,-9,-9,-9
B84,71,1311,19,188.944,847.835,0.09,1,212.696,-9,2089.68,-9,-9,-9,-9,-9
B84,71,1311,20,189.402,844.663,0.091,1,211.147,-9,2087.142,-9,-9,-9,-9,-9
B84,71,1311,21,176.407,782.639,0.091,1,195.564,-9,1935.241,-9,-9,-9,-9,-9
B84,71,1311,22,155.77,639.723,0.098,1,158.34,-9,1592.024,-9,-9,-9,-9,-9
B84,71,1311,23,167.651,601.879,0.11,1,148.326,-9,1520.224,-9,-9,-9,-9,-9
B84,71,1312,0,168.828,593.731,0.112,1,146.584,-9,1501.897,-9,-9,-9,-9,-9
B84,71,1312,1,165.835,548.201,0.119,1,135.073,-9,1394.469,-9,-9,-9,-9,-9
B84,71,1312,2,163.668,530.265,0.121,1,130.65,-9,1352.139,-9,-9,-9,-9,-9
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B84,71,1312,7,186.62,848.567,0.089,1,212.865,-9,2090.132,-9,-9,-9,-9,-9
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B84,71,1312,9,195.649,887.722,0.09,1,224.518,-9,2183.88,-9,-9,-9,-9,-9
B84,71,1312,10,193.778,876.413,0.09,1,221.299,-9,2159.922,-9,-9,-9,-9,-9
B84,71,1312,11,191.907,869.239,0.09,1,219.374,-9,2141.971,-9,-9,-9,-9,-9
B84,71,1312,12,186.821,849.435,0.089,1,213.333,-9,2092.333,-9,-9,-9,-9,-9
B84,71,1312,13,189.356,862.272,0.089,1,216.124,-9,2120.698,-9,-9,-9,-9,-9
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B84,71,1312,16,187.384,851.867,0.089,1,214.64,-9,2098.491,-9,-9,-9,-9,-9
B84,71,1312,17,199.719,920.039,0.089,1,232.824,-9,2256.549,-9,-9,-9,-9,-9
B84,71,1312,18,204.382,947.28,0.088,1,240.622,-9,2326.147,-9,-9,-9,-9,-9
B84,71,1312,19,203.431,943.972,0.088,1,239.356,-9,2316.869,-9,-9,-9,-9,-9
B84,71,1312,20,201.932,927.088,1,235.652,-9,2286.091,-9,-9,-9,-9,-9
B84,71,1312,21,196.691,894.626,0.089,1,226.504,-9,2198.118,-9,-9,-9,-9,-9
B84,71,1312,22,186.315,847.232,0.089,1,212.158,-9,2086.802,-9,-9,-9,-9,-9
B84,71,1312,23,188.425,838.424,0.091,1,209.5,-9,2071.505,-9,-9,-9,-9,-9
B84,71,1313,0,168.865,741.638,0.092,1,184.768,-9,1832.67,-9,-9,-9,-9,-9
B84,71,1313,1,151.862,627.757,0.097,1,155.486,-9,1559.02,-9,-9,-9,-9,-9
B84,71,1313,2,149.776,608.046,0.099,1,150.543,-9,1514.921,-9,-9,-9,-9,-9
B84,71,1313,3,152.932,636.931,0.097,1,157.781,-9,1579.779,-9,-9,-9,-9,-9
  
```



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## About File Format

### Comma-separated fields in CEM format:

Position	Name	Type	Description
A	ORISID	Char (6)	DOE Plant Identification Code (required) (should match the same field in the PTINV file in ORL format)
B	BLRID	Char (6)	Boiler Identification Code (required) (should match the same field in the PTINV file in ORL format)
C	YYMMDD	Int	Date of data in YYMMDD format (required)
D	HOUR	Integer	Hour value from 0 to 23
E	NOXMASS	Real	Nitrogen oxide emissions (lbs/hr) (required)
F	SO2MASS	Real	Sulfur dioxide emissions (lbs/hr) (required)
G	NOXRATE	Real	Nitrogen oxide emissions rate (lbs/MMBtu) (not used by SMOKE)
H	OPTIME	Real	Fraction of hour unit was operating (optional)
I	GLOAD	Real	Gross load (MW) (optional)
J	SLOAD	Real	Steam load (1,000 lbs/hr) (optional)
K	HTINPUT	Real	Heat input (mmBtu) (required)
L	HTINPUTMEASURE	Character(2)	Code number indicating measured or substituted, not used by SMOKE
M	SO2MEASURE	Character(2)	Code number indicating measured or substituted, not used by SMOKE
N	NOXMMEASURE	Character(2)	Code number indicating measured or substituted, not used by SMOKE
O	NOXRMEASURE	Character(2)	Code number indicating measured or substituted, not used by SMOKE
P	UNITFLOW	Real	Flow rate (ft <sup>3</sup> /sec) for the Boiler Unit (optional; must be present for all records or not any records – not yet used by SMOKE)
Q	PM25MASS	Real	PM <sub>2.5</sub> emissions (lbs/hr) (optional)

Excerpted from the SMOKE User's Manual, found at [www.cmascenter.org/smoke](http://www.cmascenter.org/smoke)



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## More Information

- AVERT User Manual, found at [www.epa.gov/avert](http://www.epa.gov/avert)
- SMOKE User's Manual, found at [www.cmascenter.org/smoke](http://www.cmascenter.org/smoke)