


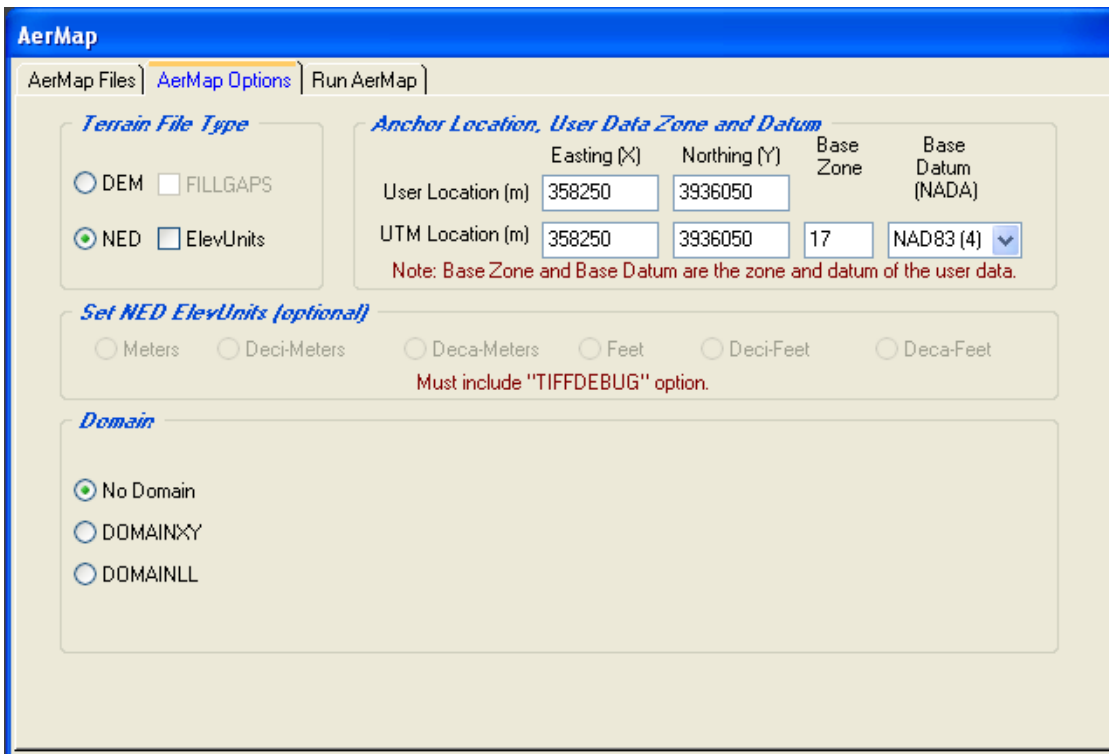
# Running AERMAP

## Overview

This tutorial covers how to set up and run AERMAP, the terrain pre-processor for AERMOD. AERMAP calculates elevations and hill height scaling factors for receptors and elevations for sources, buildings and tanks entered into BEEST.

## Define anchor location

AERMAP calculates elevations based on the location of model objects in the UTM coordinate system. The first step for running AERMAP is to define how object coordinates entered into BEEST are converted to the UTM coordinate system. To do so, select a coordinate of an object. Then, click “Run AERMAP”  and click the “AerMap Options” tab in the form that appears. Enter the object’s coordinate as the “User Location” and the corresponding UTM coordinate as the “UTM Location.” This is shown in Figure 1; the coordinate is already a UTM coordinate, so the two values are the same.



**AerMap**

AerMap Files | **AerMap Options** | Run AerMap

*Terrain File Type*

DEM  FILLGAPS

NED  ElevUnits

*Anchor Location, User Data Zone and Datum*

	Easting (X)	Northing (Y)	Base Zone	Base Datum (NADA)
User Location (m)	358250	3936050		
UTM Location (m)	358250	3936050	17	NAD83 (4)

Note: Base Zone and Base Datum are the zone and datum of the user data.

*Set NED ElevUnits (optional)*

Meters  Deci-Meters  Deca-Meters  Feet  Deci-Feet  Deca-Feet

Must include "TIFFDEBUG" option.

*Domain*

No Domain



DOMAINXY

DOMAINLL

Figure 1: Anchor location.

The anchor location can be defined at the time when AERMAP is run, but it is better to define it at the beginning of setting up a model in BEEST. If this is done, BEEST will display the UTM zone on the screen, which can help determine the data files AERMAP will need to calculate elevations.

## Define Data Region

After entering all the objects into the model, click the “Show Terrain Limits”  and “Label Terrain Limits”  buttons in the toolbar on the left side of the screen while viewing the data graphically. Zoom out several times until you see United States Geological Survey (USGS) quad names and latitude/longitude lines on the screen.

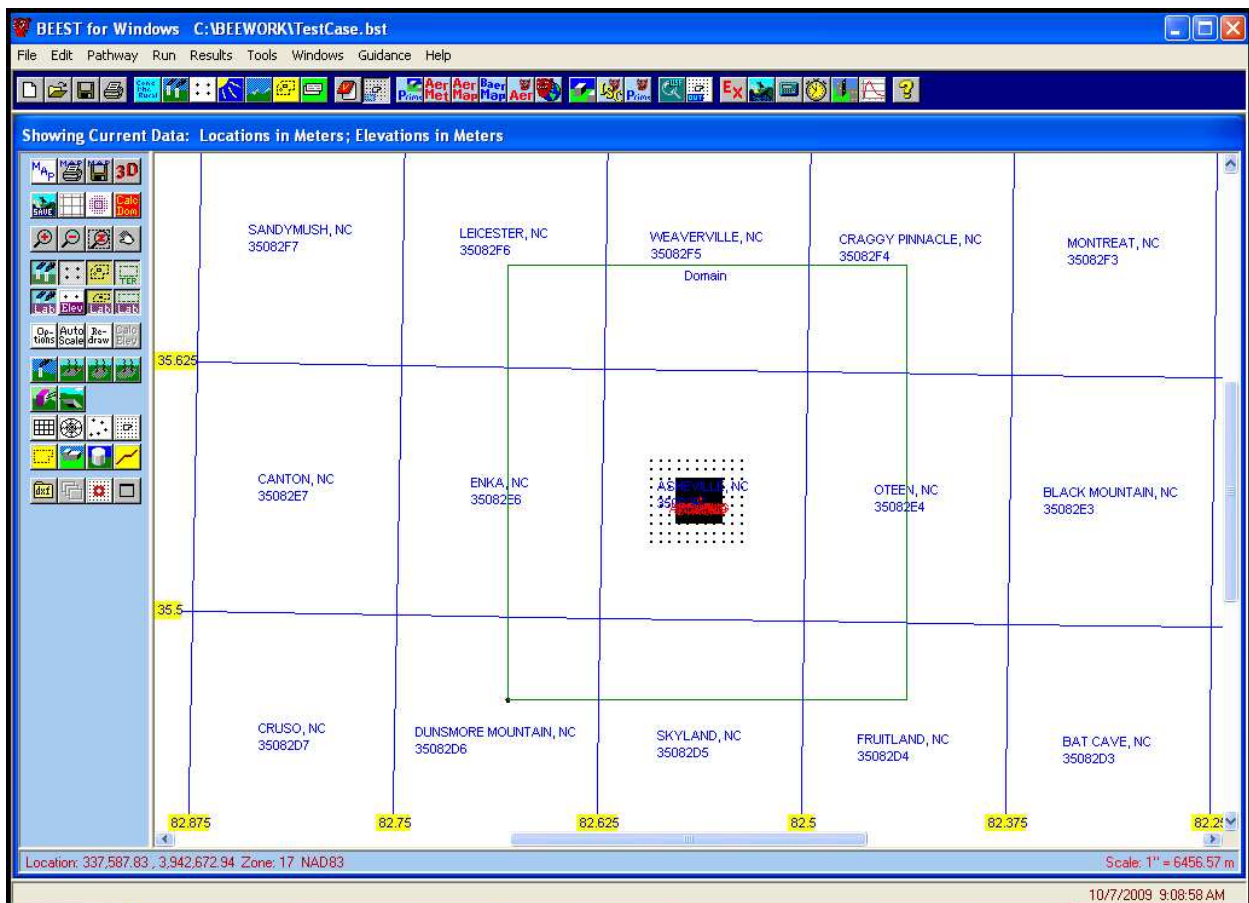



Figure 2: AERMAP domain.

You will need to download data files for an area that includes the model objects as well as surrounding terrain that is at or above 10% slope from every receptor. You can either determine the area by examining the objects on the screen or let BEEST calculate it for you. In the latter case, return to the “AerMap Options” tab and click the DOMAINXY

radio button. Return to viewing the data graphically and click the “Calculate Domain”  button. Uncheck the “Generate Report” checkbox and click Calculate, then click OK. The domain will appear on the screen, and can be adjusted if it appears too large. An example of a calculated domain appears in Figure 2.

## Download data files

AERMAP can work with files in two formats: Digital Elevation Model (DEM) and National Elevation Dataset (NED). DEM is an older format that divides the continental United States into quads and has one file per quad. NED is a newer format that can have multiple quads per file and sometimes has data in a higher resolution than DEM. Also, there is no need to specify a domain in BEEST when NED files are used. DEM files are sometimes available from state regulatory agencies and on numerous public domain websites, such as <http://data.geocomm.com/dem/>, <http://www.mapmart.com>, and <http://www.atdi-us.com/>. They can also be purchased for a reasonable fee from commercial websites such as <http://micropath.com/>. NED files are freely available on the USGS website; see the “NED Files” tutorial for instructions on how to download them.

After downloading the data files, return to the “AerMap Options” tab. Select either DEM or NED as the Terrain File Type, then click the “AerMap Files” tab. Select the directory in which you saved the data files, then click the checkbox next to each file to include it in the set of files AERMAP will use to calculate elevations.

## Run AERMAP model

Click the “Run AerMap” tab. Click the “File...” button to specify the AERMAP input file. Give the file a name and click the Save button. In the Objects section, select which objects to calculate elevations for. If receptors are included, you should also select the “Calculate Elevations and Hill Heights” option.

Click the OK button. A diagnostics screen will appear that checks whether AERMAP settings are valid and whether the data files are present. If there are no errors shown in the Diagnostics column, you will see the “Run AERMAP” button and it will be enabled.

Click the “Run AERMAP” button. The model will start running in the background and a progress window will appear in BEEST. When the model finishes running, click OK to close the progress window. The elevations and hill heights calculated by AERMAP will then be imported into BEEST.