

# Using NED files with AERMAP

## Overview

This tutorial will show how to obtain National Elevation Dataset (NED) files and use them for calculating elevations with the AERMAP terrain pre-processor. The tutorial will use the test case file shipped with BEEST for Windows to illustrate the process. There are three main steps to using NED files:

1. Define the area for which to obtain data
2. Download NED files
3. Set up AERMAP to use NED files

To begin the tutorial, open BEEST for Windows and click File → Load and Run Test Case.

## Define Data Region

Click the “Show Terrain Limits” and “Label Terrain Limits” buttons in the toolbar on the left side of the screen. Zoom out several times until you see USGS quad names on the screen, as shown in Figure 1 on the next page.

You will download data for an area that includes the quad with the sources and receptors as well as surrounding terrain. The data region is defined in terms of longitudes and latitudes. In this case, it is from 35.4 degrees to 35.7 degrees north latitude and from 82.4 to 82.7 degrees west longitude.

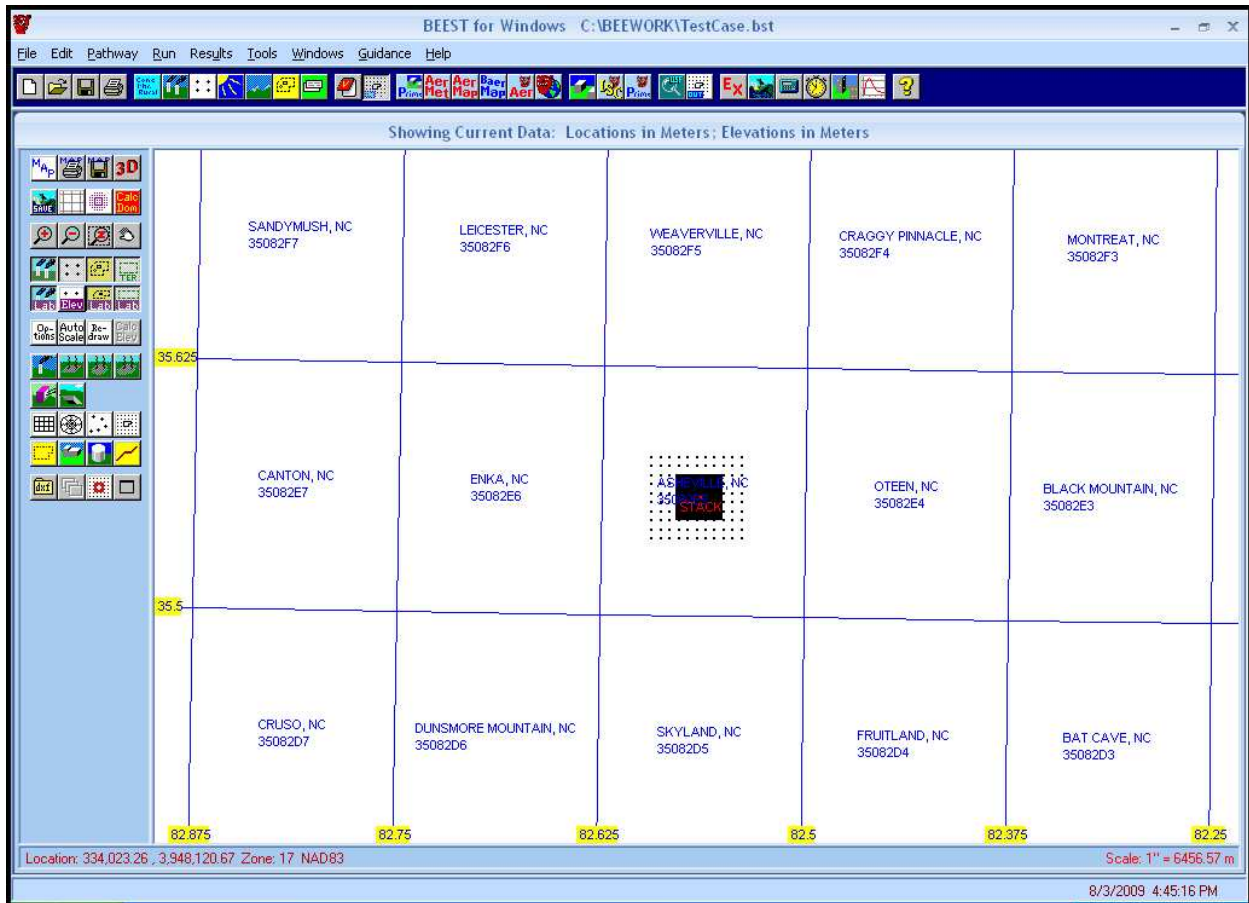
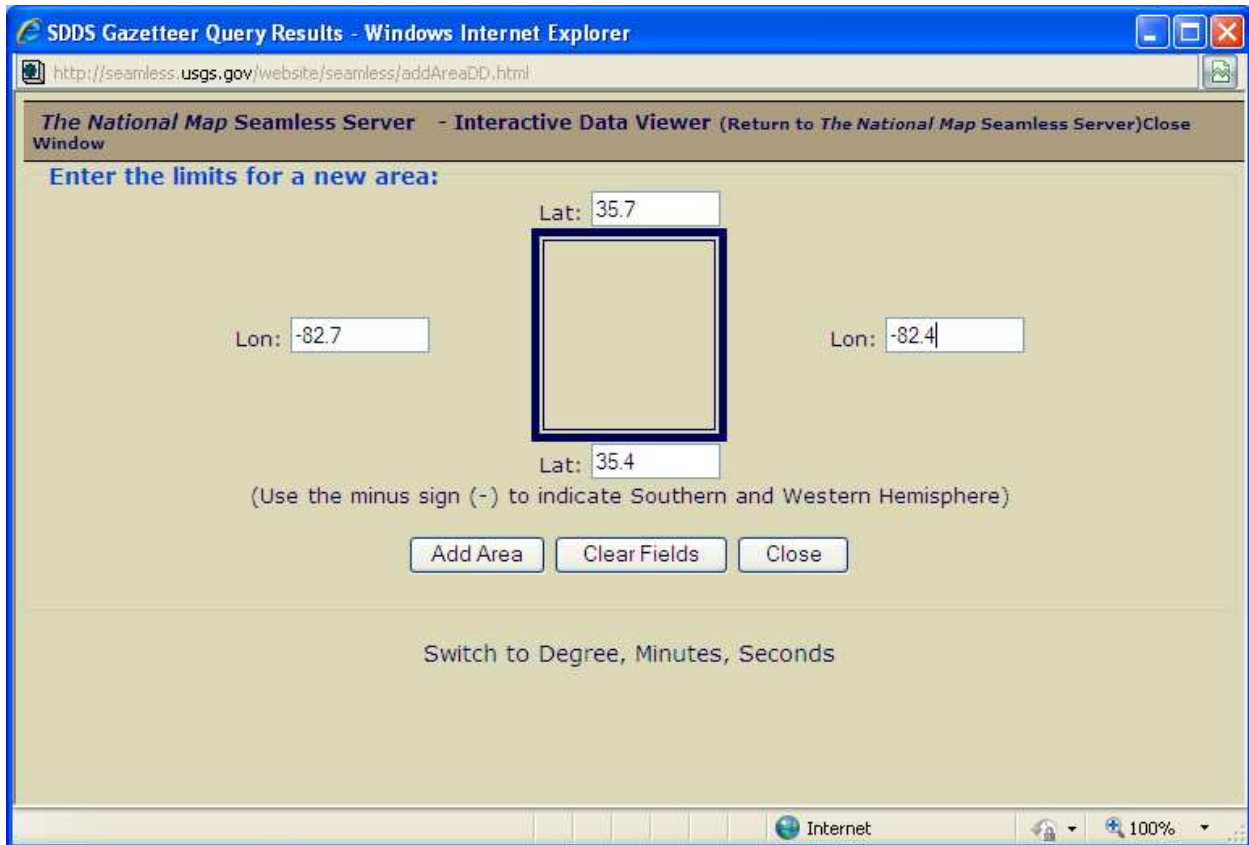


Figure 1: Quad names in BEEST.

## Download NED files

Open a web browser such as Internet Explorer and go to the website <http://seamless.usgs.gov/index.php>. Click the "View & Download United States Data" link or the map above it. You will be taken to a page that shows a map of the continental United States.

You will see several sets of buttons on the left side of the screen. Find the word "Downloads" and click the middle button in the first row of buttons beneath. It has the tooltip "Define Download Area by Coordinates." A new window will open, prompting you to enter the data region. Click the link "Switch to Decimal Degrees" at the bottom of the page. You will now see four data entry fields. Enter the data region limits into the fields so that the window looks like Figure 2. Note that longitudes in the Western hemisphere are entered as negative values.



**Figure 2: Specify the data region.**

Click the “Add Area” button, and you will see a window that will allow you to download the NED file. Before doing so, you will have to change its format so that AERMAP can process the file. Click the “Modify Data Request” button at the top of the page. Scroll down until you see the National Elevation Dataset file type and change the file type from ArcGRID to GeoTIFF. Scroll up and click the “Save Changes & Return to Summary” button.

Click the Download button and wait for a ZIP file will be downloaded to your computer. Save it in a location such as the C:\Temp folder and view the files inside the ZIP file. The file you will need is the file with the .TIF extension. Copy this file to your project folder (in this case, C:\Beework) and close the browser.

## **AERMAP Setup**

Click the “Run AERMAP” button within BEEST. The first screen you will see is the “AerMap Files” screen. Click the “Clear All Filenames” button to deselect all DEM files

and change the file extension from “\*.DEM” to “\*.TIF” in the dropdown menu. Click the checkbox next to the NED file you downloaded to select it.

Click the “AerMap Options” tab and click the NED radio button in the Terrain File Type options. You will also need to enter the anchor location, zone, and base datum; see the “Running AERMAP” tutorial for information about these options. Finally, click the “Run AerMap” tab. Click the File button and enter a file name, then click the Save button. Select the objects in the model for which to calculate elevations and click “OK” to run AERMAP using the NED file.

### **Working with Multiple NED files**

In a real model the data region can span a dozen or more quads in BEEST. If this occurs, the data region should be split into several sub-regions and a separate NED file should be downloaded for each sub-region. When running AERMAP, all the NED files should have their checkboxes checked.

Additionally, some parts of the United States have data available at a higher resolution than the 1 arc-second resolution used in this tutorial. The resolution can be set on the screen where the data format is changed to GeoTIFF. These files are larger in size but can give more accurate elevation values. If you use higher-resolution files together with lower-resolution files, rename the higher-resolution files so that they are processed first by AERMAP (the files are processed in alphabetical order).