

## Getting Topographic information from the 2011 Northeast LiDAR DEM tiffs:

Here's how I have been color-coding the 2011 Northeast LiDAR DEM tiffs to create usable topo information. Creating vector contour lines from this data would require more complex processing. But the color-coded raster data, with transparency, is very useful just the way it is.

Each time I have added a LiDAR DEM tiff file ("tile") to a map for the first time:

### Calculate statistics:

(First, I added the Calculate Statistics tool to my toolbar. Customize > Customize Mode > Commands > searched for Calculate Statistics, found it in the Data Management Tools category, and dragged it onto my toolbar.)

Select the tif tile, hit the Calculate Statistics button. Choose the name of the tile from the drop-down menu, then when it has appeared, hit OK. Now the tile is ready to classify any way you want.

Tip: You only have to do this step once, no matter how many different ways you classify the data.

### Classify:

To show breaks corresponding to contour lines, first I decide what elevation breaks I want to use for the tile. Right now I'm quality-checking the new flood zone shapefiles and want to compare the breaks in the flood zones with the elevation breaks on the DEM. So if in the area of one tile I have some AE15, AE16, VE16, VE17 and VE19, I want to show breaks at 15', 16', 17' and 19'; four breaks. That means I need to create 5 classes (4 + 1). These will be Manual classes.

Right click on the tif, Properties > Symbology > Classified > Classify. Choose Manual classification from the drop-down menu, and choose 5 for the number of classes.

Tip: Sometimes this function is stubborn and does not allow you to change the number of classes. I have found that I can force in the number of classes I want by choosing Equal Interval, choosing the number of classes, and hitting OK. Then I hit Classify again, choose Manual, and now I have the number of classes I want.

Under Break Value, I enter 4.572 (the metric equivalent of 15'), then 4.8768 (=16'), then 5.1816 (=17'), then 5.7912 (=19'). The final break value will probably already be in place, it's the Maximum value from the table of statistics above where you're entering the break values. Tip: Sometimes it takes a few tries to get what I've typed not to be changed to another value. Check that the break values are correct, then hit OK.

Now I can choose colors for the classes, and enter the labels I want to see. In the example above these are Under 15', 15-16', 16-17', 17-19', & Above 19'.

Now I've got a tile that shows the elevation breaks I want to see.

Tip: Use bright colors, and then set transparency (Properties > Display), so that you can layer the topo against other data.

Tip: When you've got a tile classified the way you want it for a purpose, you can save it as a Layer (.lyr) file. I will wind up with 4 folders of Layer files for these tiles: one for quality-checking the new FEMA FIRMs, and one for each of the contour-interval versions that I create.

Once I have finished quality-checking the new Preliminary FIRM shapefiles, using only the minimum number of breaks I need for each tile, I will go back and reclassify all of the tiles consistently, to use for general topo. I'll probably do a 5-foot, a 2-foot and a 1-foot version. I expect the best way to do this will be to use Equal Interval classification.

Note re projection: The 2011 Northeast LiDAR tiffs are in UTM zone 19 projection. They are in the same coordinate system (NAD83) as the rest of MassGIS data. Most MassGIS data is in Mass State Plane Mainland projection. I have had no problems just allowing the LiDAR tiffs to project on the fly with my maps that are in Mass State Plane Mainland.

--Dody Adkins-Perry [dadkins-perry@townofbourne.com](mailto:dadkins-perry@townofbourne.com), with many, many thanks to Joe Costa of the Buzzards Bay Project who gave me the info I needed to start using the 2011 Northeast LiDAR DEM tiffs in this way.