HOW TO… Make your own area map?

What you need:

- Google Maps
- Adobe Illustrator (CS4 or later)
- Adobe Photoshop (CS4 or later)
- 3D software that allows for JPEG import conversion to a Mesh and export to .STL (I used Strata 3D SE 7)
- 3D software to build a cool object and can export to .STL (I used 123D Design)
- 3D Slicer program (I use CURA)
- 3D Printer (Ultimaker 2 in my case)
- About 1 full evening of time depending on the complexity and your skill level with the software

By the way I use a Mac, so PC users have to adopt where needed

LETS GO!

Prep phase:

1. Find an area in Google earth that has a great number of levels in height (I choose Mt Blanc are as it goos from 0 to 4800+ meters)
2. Draw a polygon surface on the map covering the area you want to map
3. Make the polygon a very distinct color (pink is preferred as Google earth finds no pink landscape)
4. Select the polygon options and change the altitude to 100m (above sea level)
5. Now take a full screen snapshot
6. Repeat 4 and 5 as many times as needed to reach the highest point of your area in 50m to 100m increments on the altitude setting for the polygon
7. You now have a big set of screenshots of each 50m to 100m level of your area.

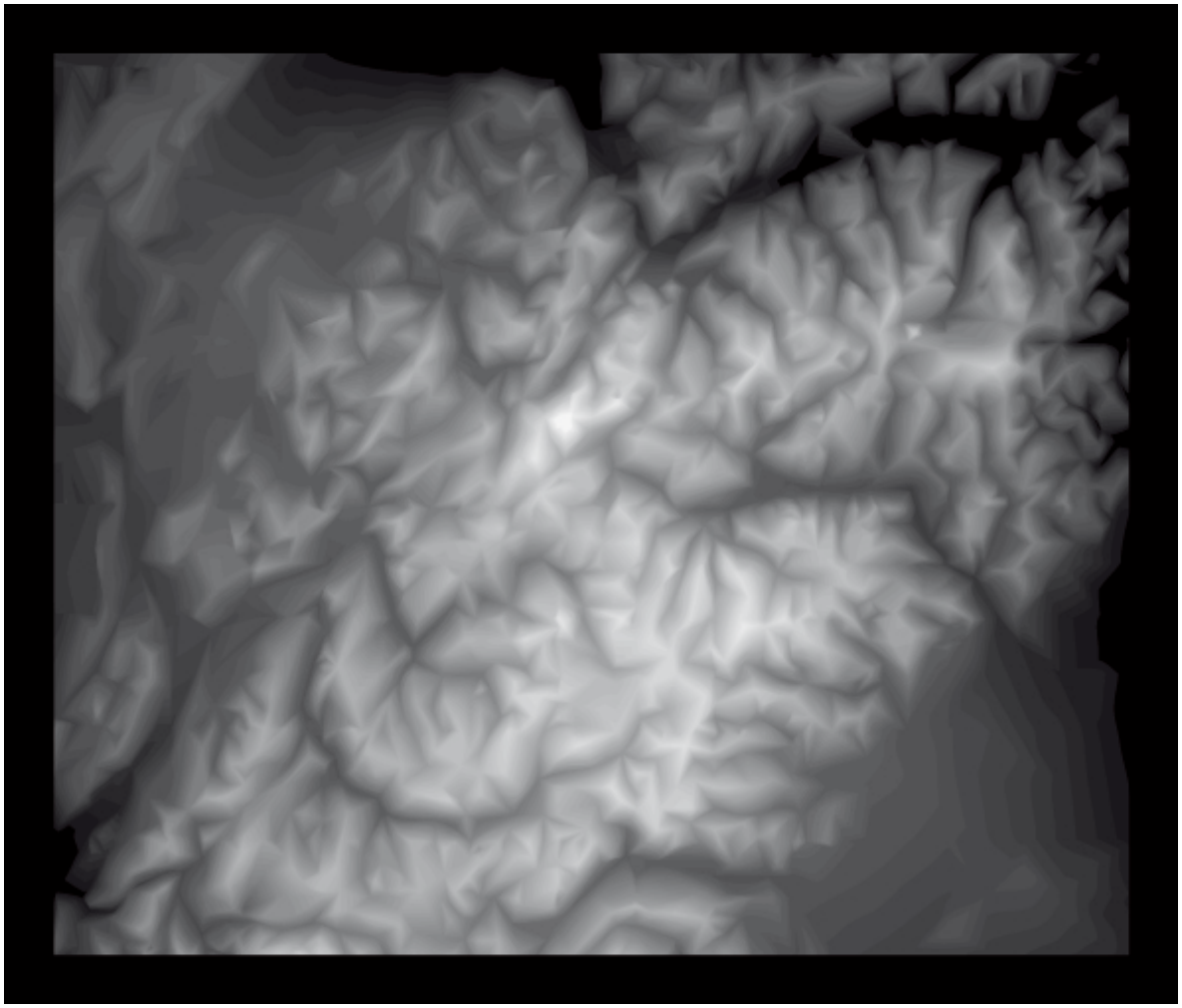
Waste some time (hold on this is the painful part of the process):

1. Open Adobe Photoshop and Illustrator.
2. Open the first (lowest) screenshot in photoshop and select the pink

area with the magic wand and “Select-Similar".
3. Copy and Paste in Illustrator. This now becomes a layer
4. In Illustrator choose “Object-Active Trace-Make while the screenshot is selected. This transfers the screenshot to vector black and white image.
5. Repeat 2-4 for all the different levels go your area
6. You now have all the 50m or 100m slices in your Illustrator document as layers. Make sure these stack bottom to top.
7. Anywhere in the illustration select a black object.
8. Select-Similar-Fill to select all black.
9. Delete the black.
10. Anywhere in the illustration select a white object
11. Select-Similar-Fill to select all white.
12. Change the color to anything except white, grey or black.
13. If this all worked out, you now have a set go who knows how many layers staked up nicely

Make a relief picture:

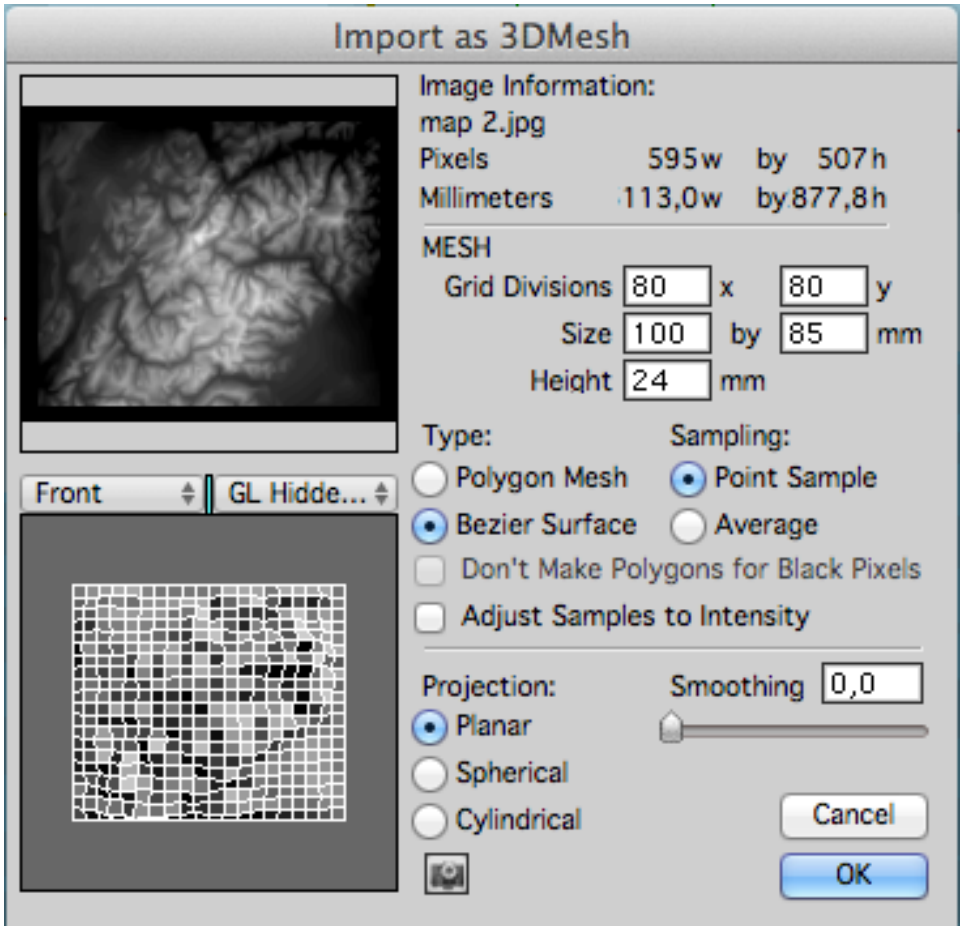
1. Select the bottom slice and make change the color to black
2. Select the next layer and change the color to 98% black
3. Selcet the next layer and change the color to 96% black
4. And so on until you reach the top of your object
5. 2% increments should work to most area’s unless you have created 100 or more slices
6. Your illustration should now look something like this…



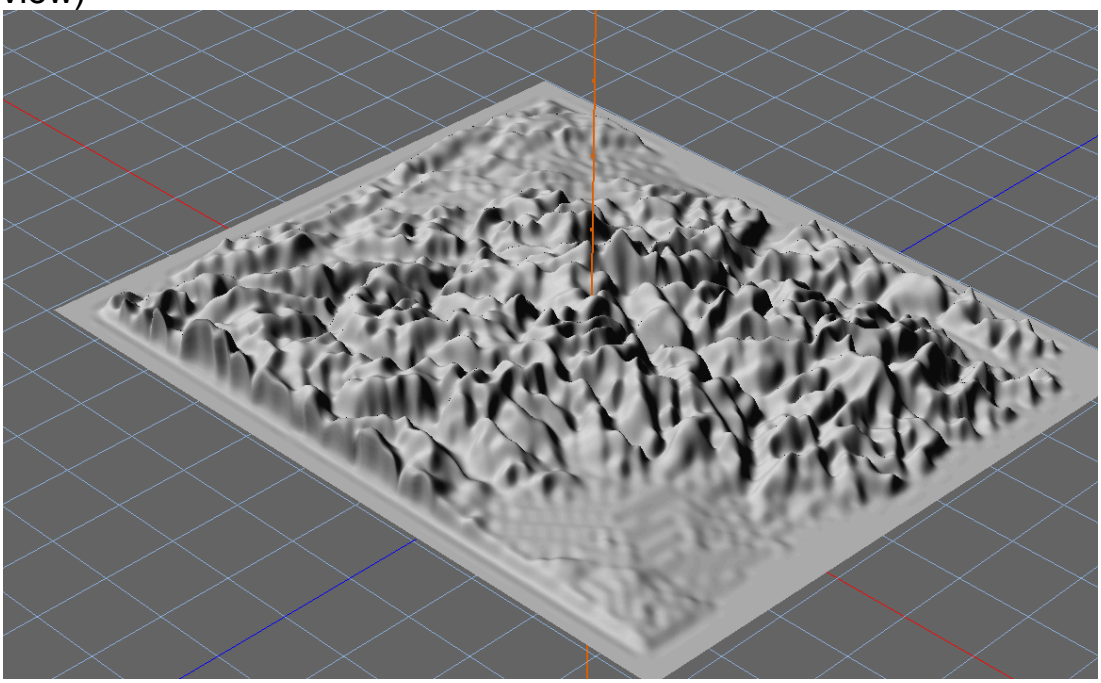
(TIP: add a black border to the design this will allow the mesh to flow of naturally in a later stage)

Convert the image to a Mesh

1. Save the illustration as JPEG with high quality
2. Open Strata Design DE
3. Import the JPEG image
4. Strata will ask for some settings
5. This is where you have to play around a bit to get a good scale and detail
6. For my project I calculated that 100 x 85mm (LxW) would give me a scale of 1:2.000.000 cm. For the height I eventually chose 12mm for a scale of 1:400.000 cm



7. After some playing around I choose 80 x 80 for my grid division. Keep in mind that a higher number will give more detail, but might be difficult to print
8. Select OK and this should be the result (if you select a pre-render view)

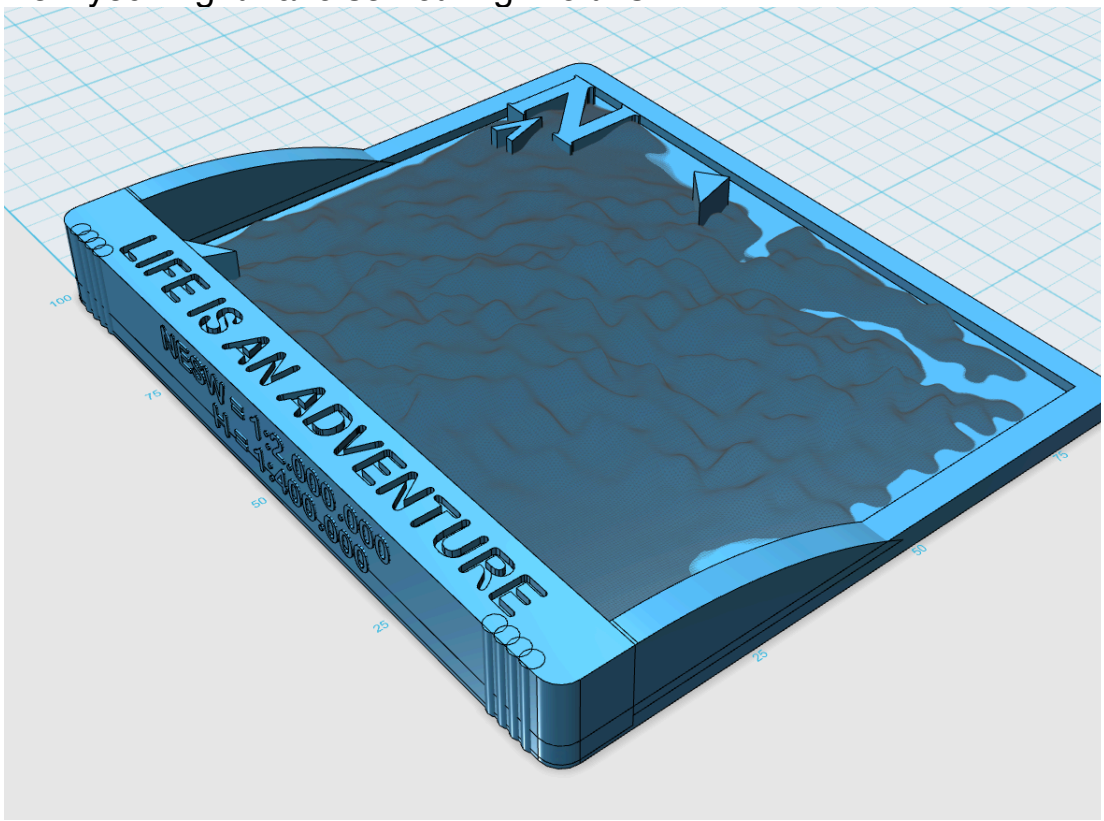


9. Export the model to .STL (no need to worry about anything else

here)

Build your object

1. Open 123D Design
2. Import the .STL of your landscape
3. Start making a cool model
4. Make sure you create a good base where the landscape sings into just slightly (for good print)
5. Now you might have something like this



Now Print

1. Since I have an Ultimaker 2, I favour to use CURA
2. Save your 123D Design file as .STL
3. Load the model in CURA
4. Play with settings any way you like but make sure you print a Brim to secure the model.
5. Using the attached .ini profile will give you a good balance of speed to quality on an Ultimaker 2

WELL DONE!