# Quick guide for “bumpmaps” in Photoshop

Version 1.1a created for the Cartographers’ Guild on 13-Dec 2011 by “pasis”

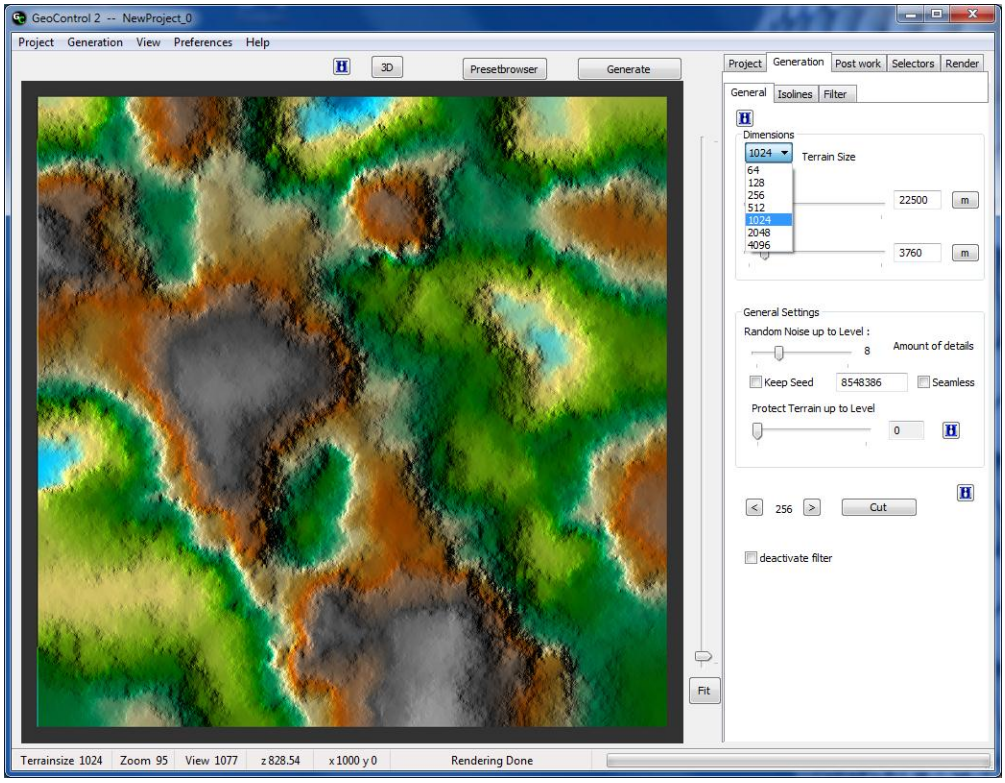
## Heightmaps

One good way to create “realistic” elevation to your maps is to use grey scale images called heightmaps. There are various ways to create them; using cloud filters, drawing by hand or using special software. In this example I will use a heightmap created with GeoControl software. But if you don’t want to get Geocontrol, you can get few samples I have posted in the following thread:

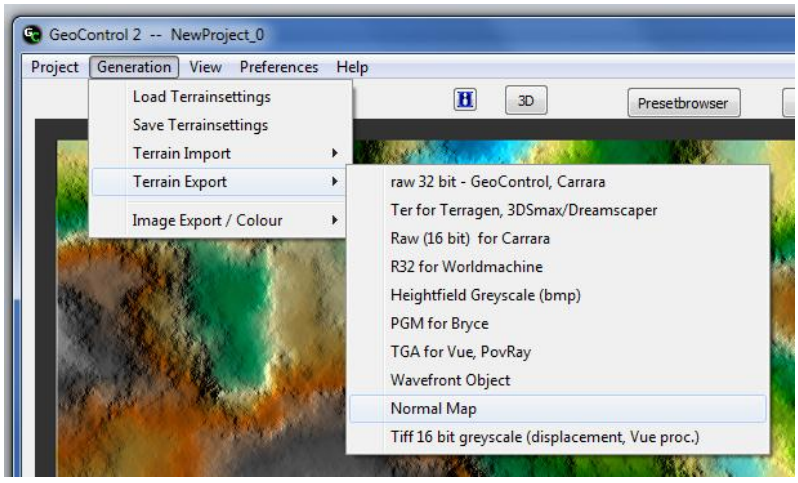
http://www.cartographersguild.com/showthread.php?16680-Heightmaps

Geocontrol is not the easiest software to use, but you get actually quite far just by using the default settings. In that way you don’t actually have to learn to use the program features at all, just select the terrain size, hit “generate” and let your PC do the rest.

You can get the Geocontrol full featured demo for free from their site (http://www.geocontrol2.com) and it will work for 31 days which lets you to generate quite many heightmaps ☺



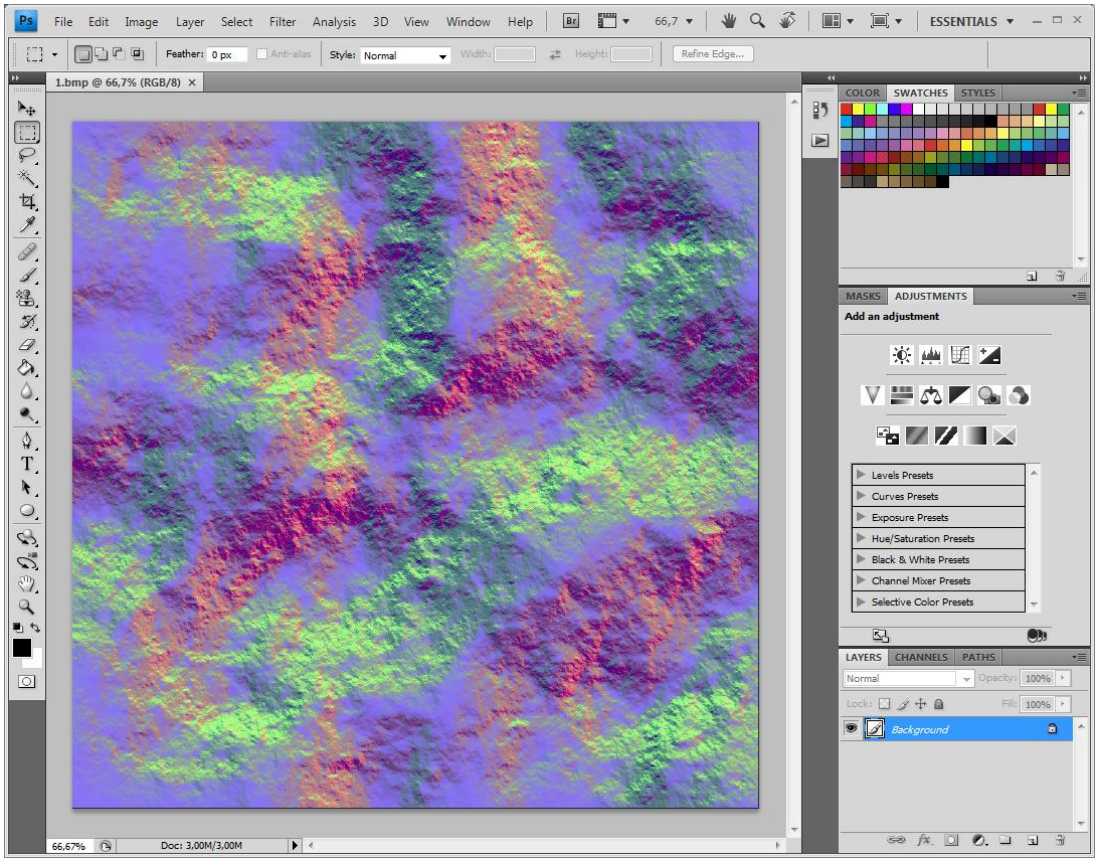

Then just save the work as “Normal Map” (BMP) to be edited in Photoshop (or Gimp or whatever program you use).



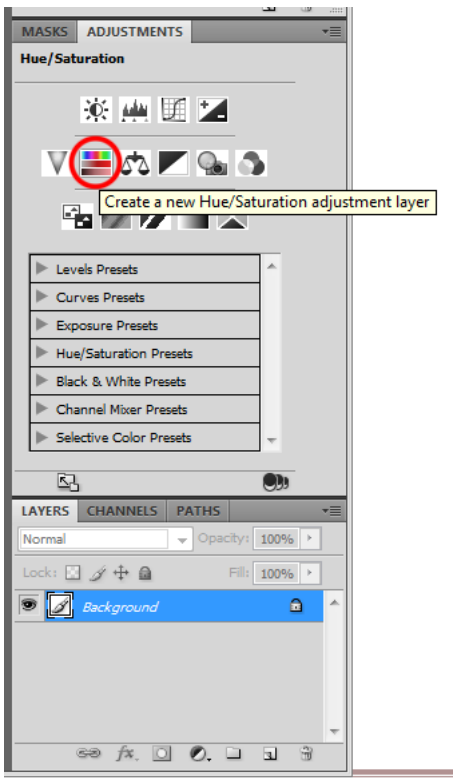
# Working with heightmaps in Photoshop

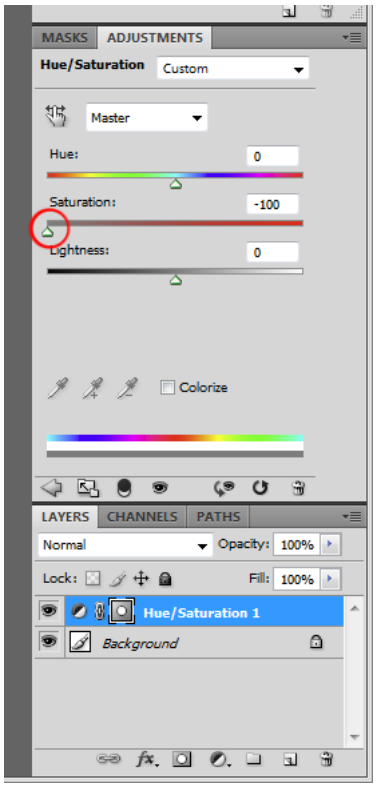
Note: these instructions are for Photoshop CS4 and in other versions buttons etc may vary.

First thing you need to do is to open the newly created heightmap in Photoshop.

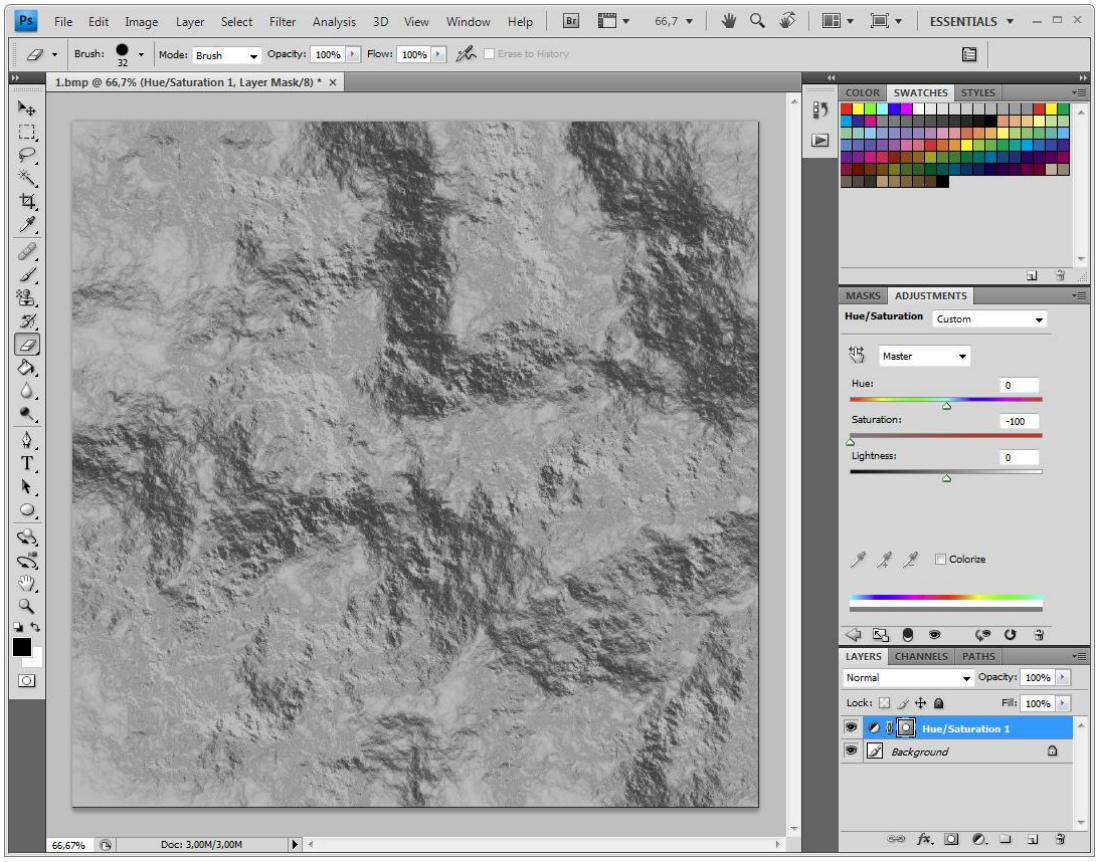



As you see the heightmap we got from Geocontrol is not actually grey scale and to make it greyscale, you can add a new adjustment layer (Hue/ Saturation). Then set the saturation to 0.



And now you have your heightmap as I do below.



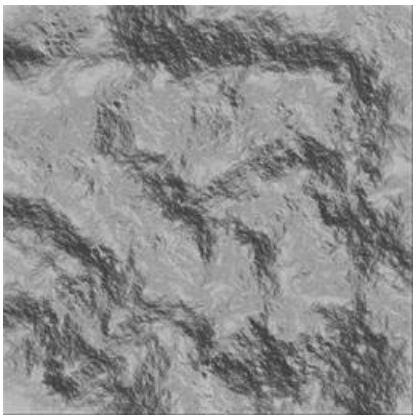

## Combining your heightmaps

Usually your heightmap is not exactly what you are looking for, so feel free to delete any parts of it and/or combine several ones to get the result you want.

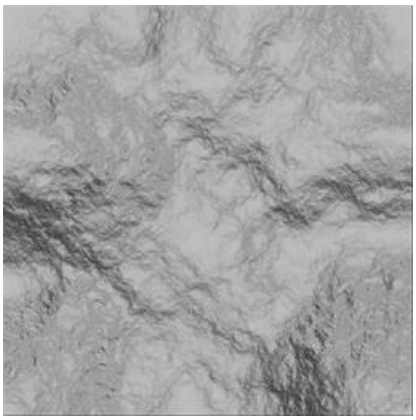
### Blending maps together

In this sample I have created two different heightmaps and I show here the importance of setting your layers blending mode right to get the desired ground.

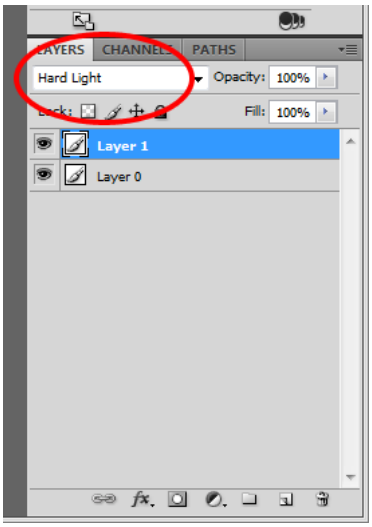
Layer 0



Layer 1

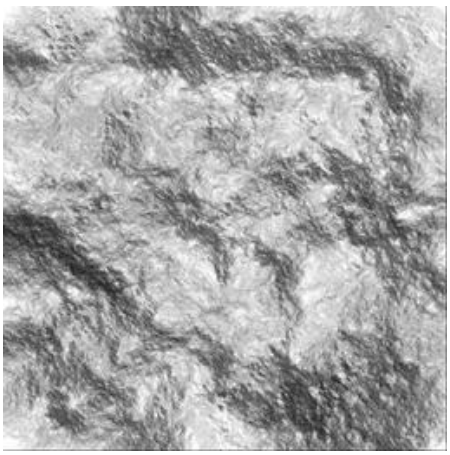


Select your upper bumpmap layer and choose the blending mode from the list.

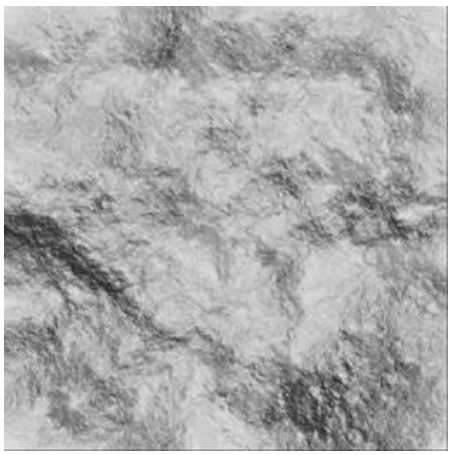


Here are few samples with different blending modes.

Blending mode set to multiply

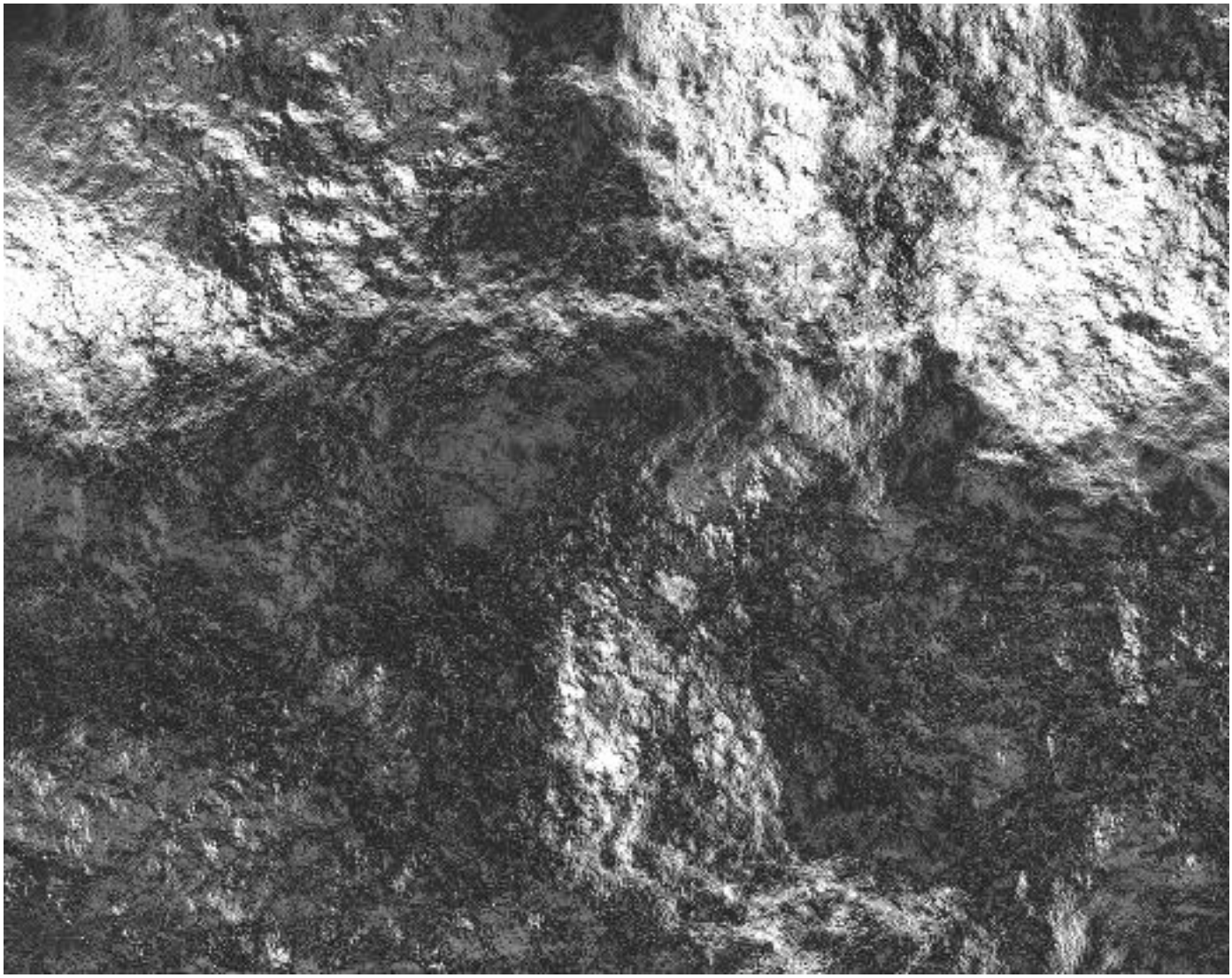


Hard Light



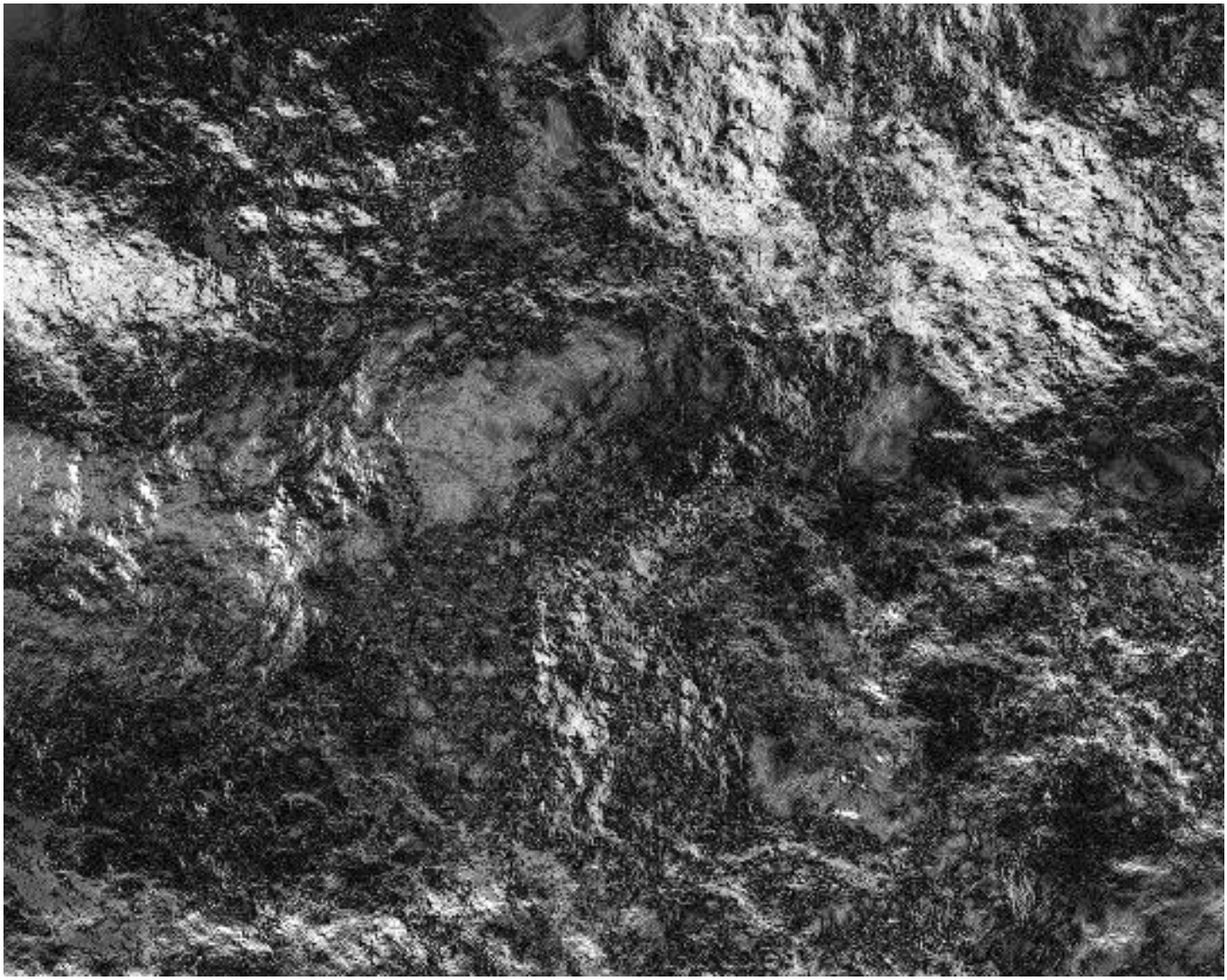
Difference

Note: when you use Difference as a blending mode, the result tends to be a bit more than an actual height map. It tends to kind of add ground texture to the map which could be ok for some places, but not necessarily in all. A larger sample shows the thing a bit better.



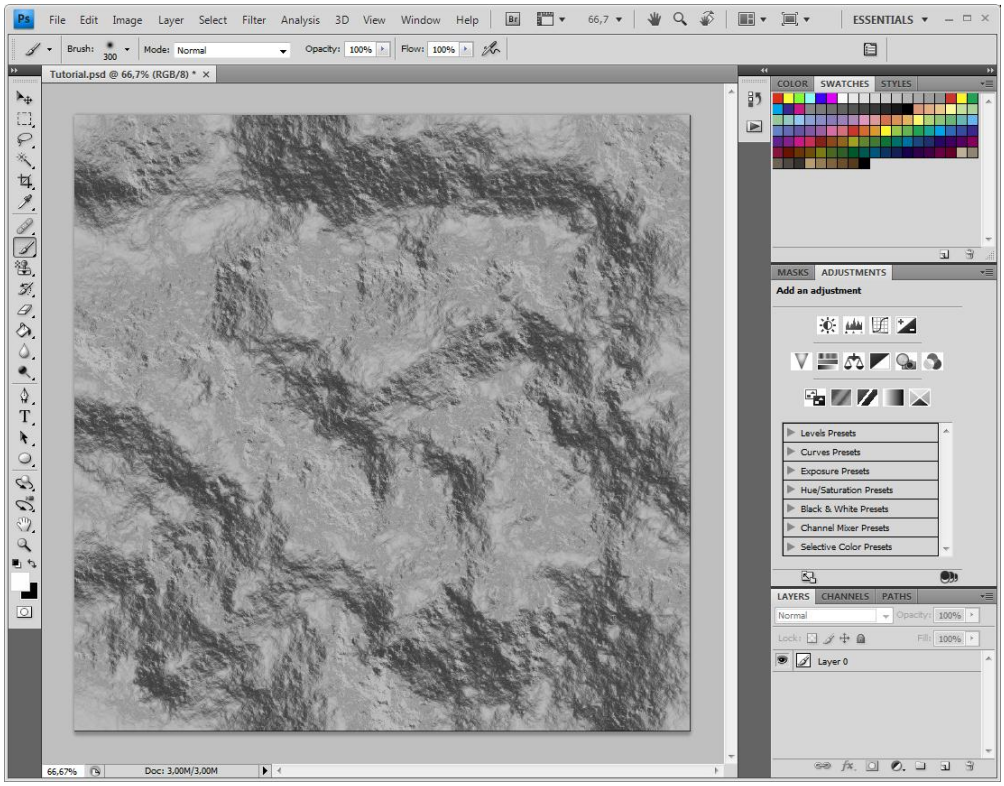
And when you start changing the layer fill % (while having the Difference as blend mode), you see that the possibilities are endless.

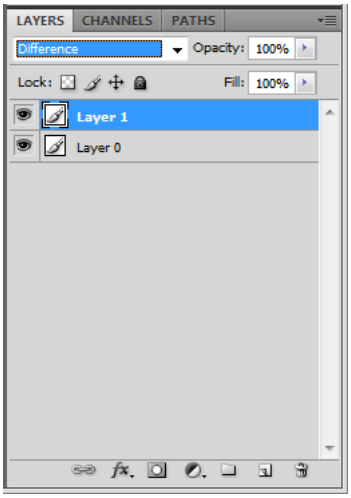
Here is a new sample with Fill set to 85% and it looks quite different than the image on previous page.



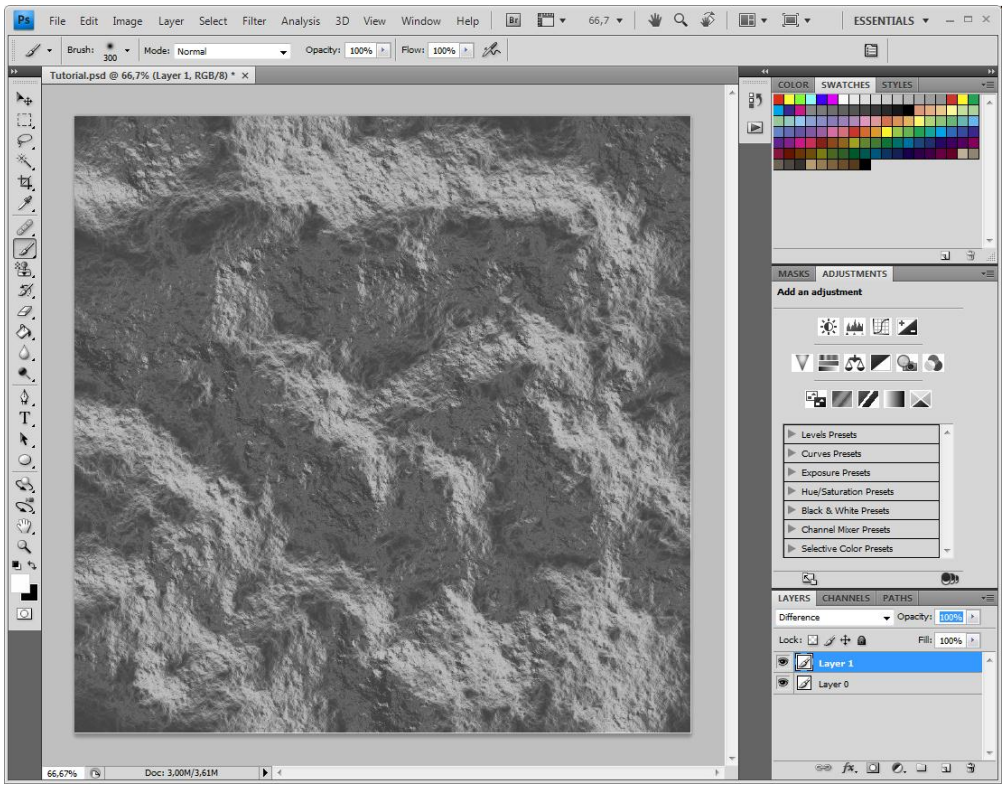
## More playing with the blending modes

Lets take a single heightmap layer. Then add a new empty layer on top of it and set the new layer blending mode as Difference.





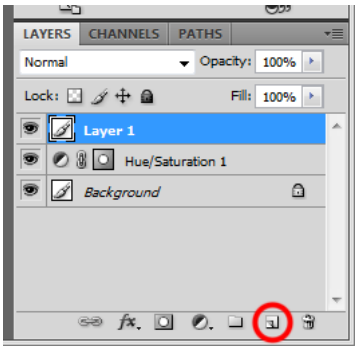

Take a brush tool and start drawing with pure white color to the new layer and see what happens. Here I have colored the whole layer in white and it is again very different.

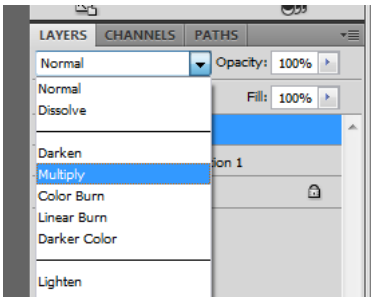


I encourage you to try different things even though you would have no idea what the outcome will be and you might discover something useful …

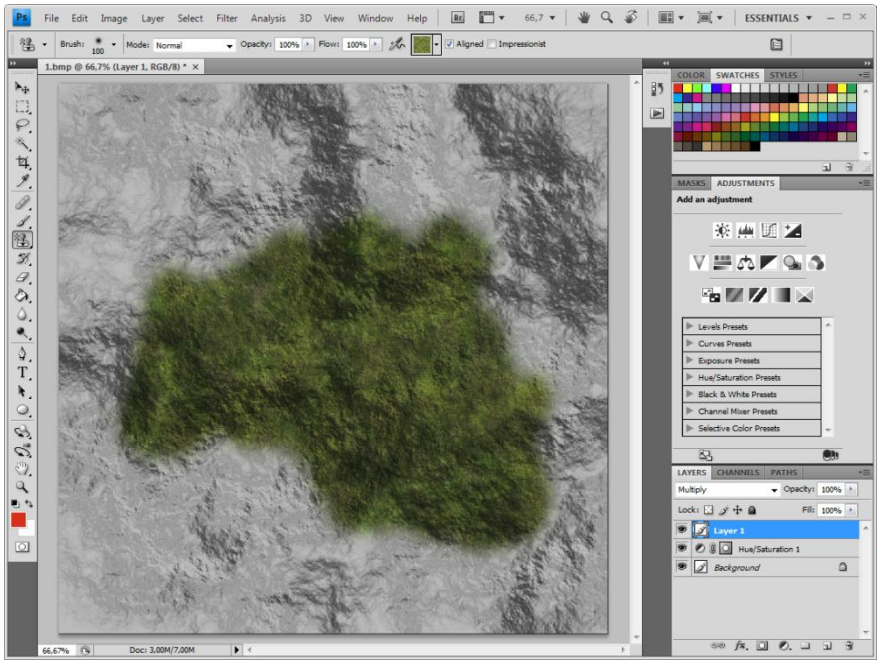
# Textures

Next thing is to add a new layer on top of your heightmap and set the blending mode as multiply. This layer will be your texture layer.

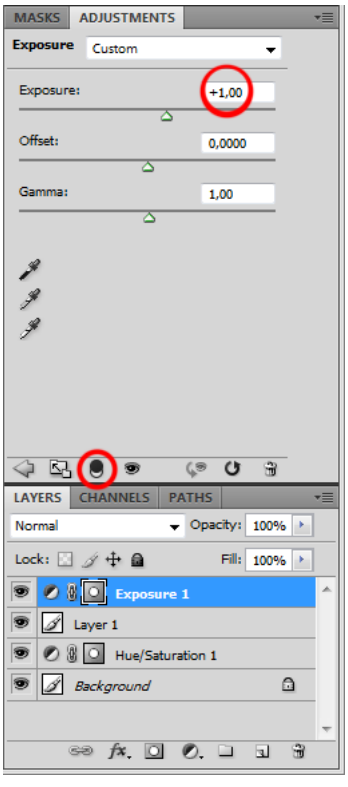



Now you are free to draw your texture to the map:

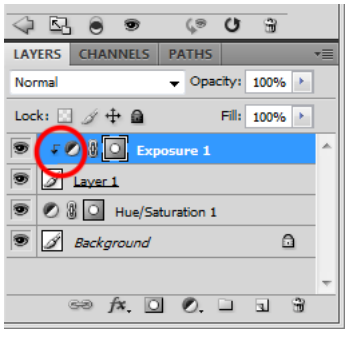


You will notice that the textures you paint appear quite dark as they multiply with your heightmap. So you need to add a new adjustment layer “exposure” to lighten it up. And in order to lighten up only the one texture layer and not all layers, you need to set it to clip the one layer only.



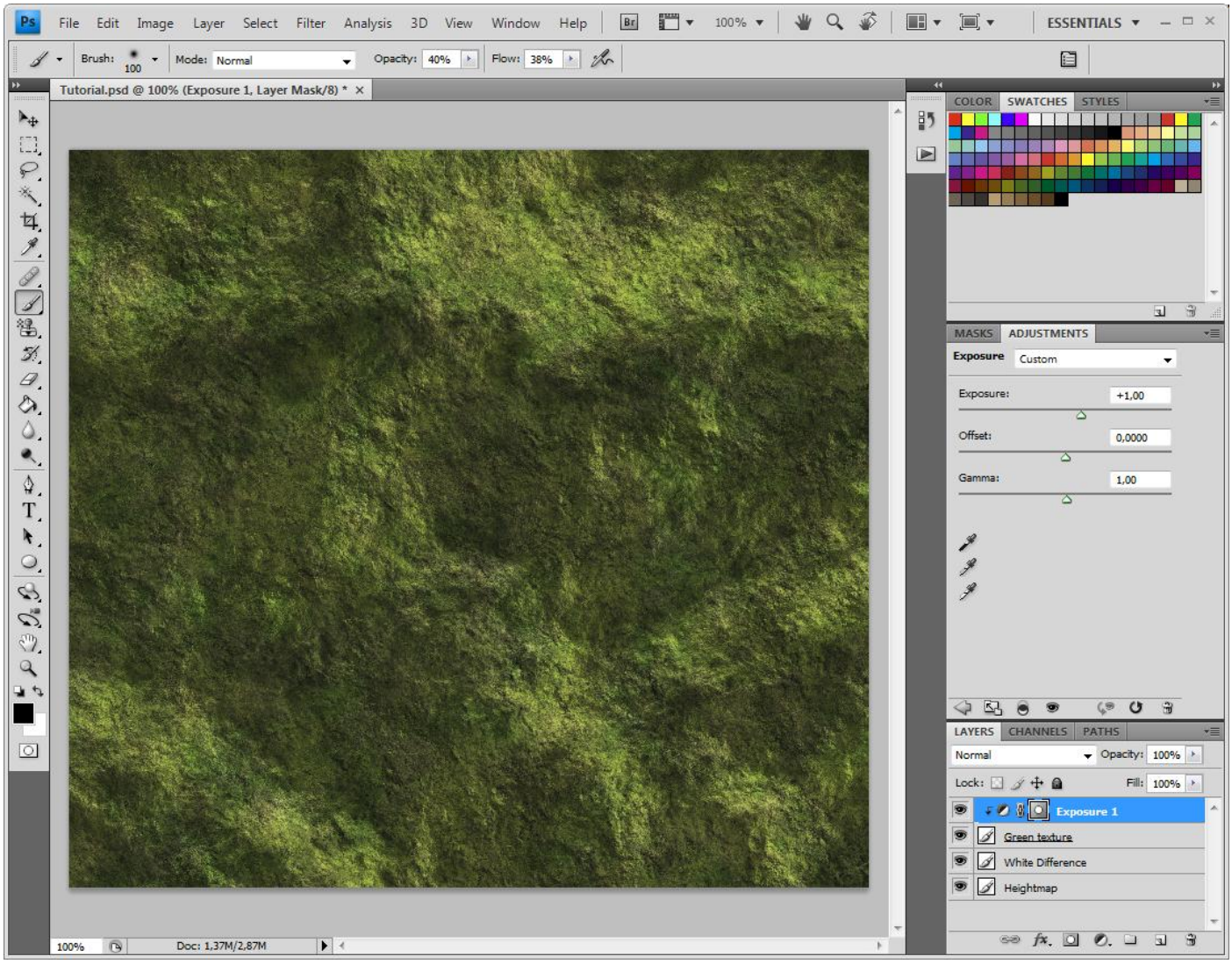

When the clipping is on, you see a little arrow pointing down showing that this layer affects only to the one layer below.

Or if you want, you can put the exposure layer just above the bumpmap layer, so it will lighten up the bumpmap only and you don’t have to do the lighting to every texture layer

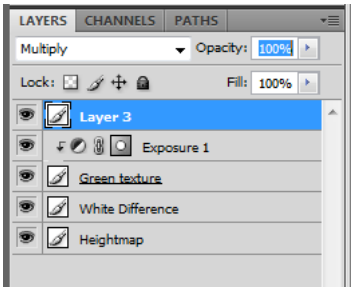


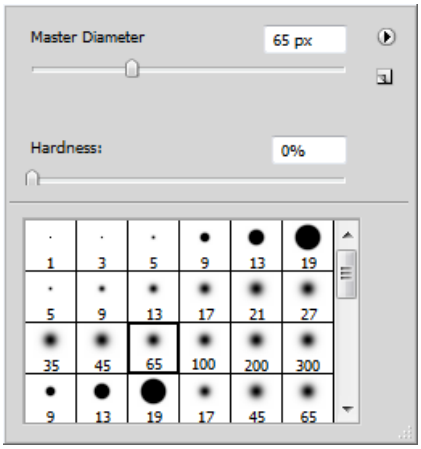
## Manually adding deep chasms etc.

Now that you have set your textures, you can enhance the height effect by highlighting and darkening certain areas. In this example I have a heightmap and the white difference layer on top of it. Then I have the green texture layer and an exposure layer just as in previous paragraph. I have renamed my layers for easier follow up.

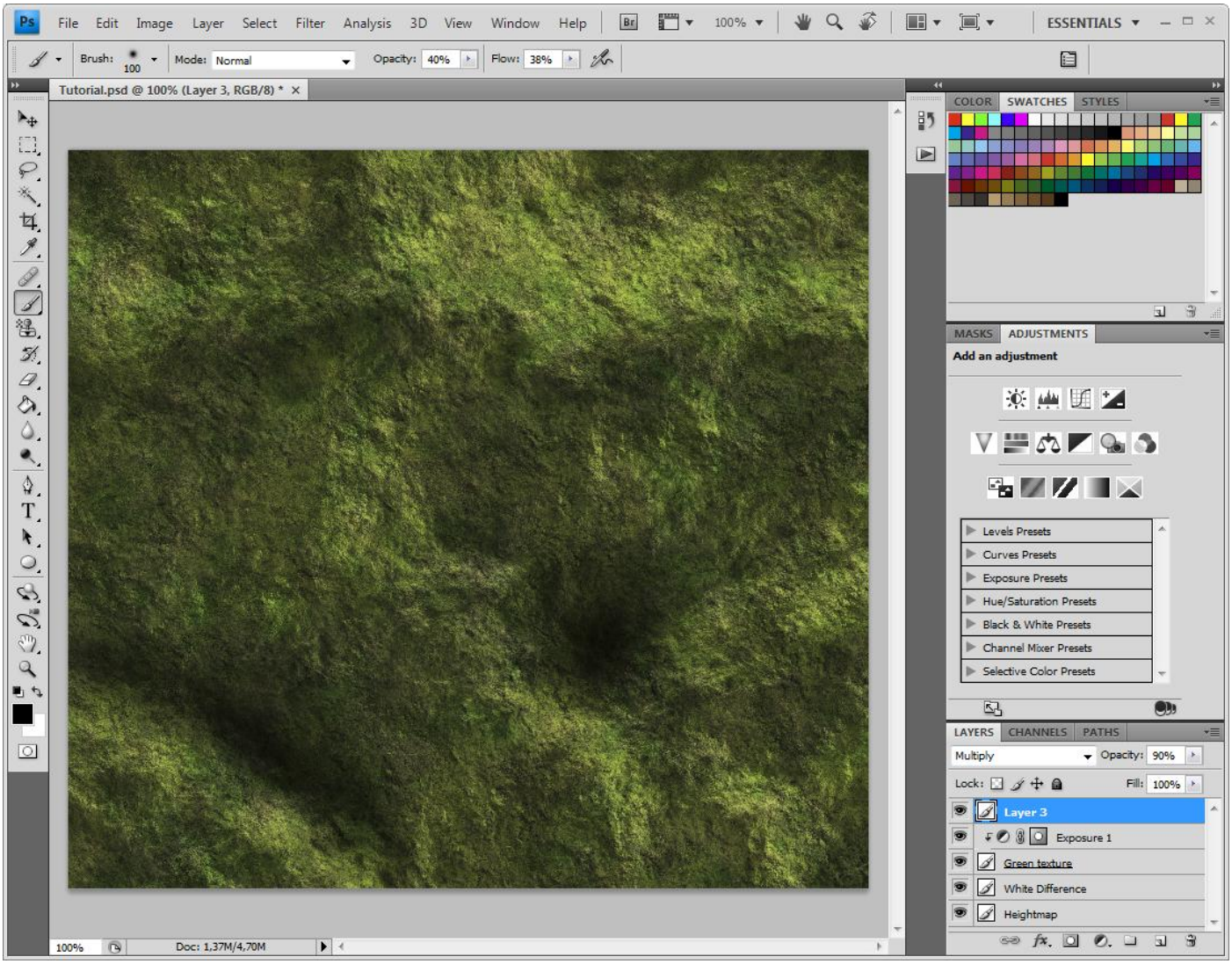


Next I added a new layer on top and set it to multiply.




Then I took a brush tool and selected a standard round brush (size 65 in this case) and set the brush to low opacity and flow. By drawing with black I made a bit deeper chasm and one sinkhole. Simple and done in few minutes.




This is exactly the way I have used to draw the cave that is in the front page.

If you make a mistake, just erase what you draw and you can draw again as you have not touched any of the heightmap or texture layers and not destroyed any of the good looking ground.