

## Britain's National Parks

The poster was produced using PostGIS, ArcMap, Blender, QGIS and Adobe Photoshop. It contains data from OS Terrain 5, OS Open Zoomstack and OS MasterMap Topography Layer. The process can be summarised as follows:

- \* Clip the OS Terrain 5 raster to OS Open Zoomstack national park polygons (PostGIS)
- \* Process the Terrain 5 raster (ArcMap)
- \* Generate hillshades from the processed Terrain 5 raster (Blender)
- \* Create terrain style with Terrain 5 and surface water from OS MasterMap Topography Layer (QGIS)
- \* Compile the terrain styles and hillshades (Adobe Photoshop)

The process came from a brilliant [blog post](#) by Daniel Huffman at [SomethingAboutMaps](#). It contains a step by step guide on how to create shaded relief in Blender. Anyone wanting to try and replicate the process should do so by following Daniel's guide.

Firstly, a national set of Terrain 5 was loaded into a PostGIS database and intersected with the national park boundary layer from OS Open Zoomstack. This removed all the unnecessary extra raster. The clipped Terrain 5 raster was exported as a TIF and loaded into ArcMap. Here, the raster was rescaled so the pixel values ranged from 0 to 65,535. This was necessary to allow smooth rendering in Blender when generating the hillshade. The rescaled raster was then copied as a 16-bit unsigned tiff and exported to Adobe Photoshop, where each national park was saved as a separate image. It was now time for Blender. To provide an overview, each TIF was imported to Blender and attached to a 3d surface called a plane. The position of the light source could then be set and the image rendered. During rendering, the light source hits the plane and responds to the pixel values contained in the TIF. For low values, or dark areas of the TIF, the plane stays low. For high values, or light areas of the TIF, the plane is raised. This process produced a 3d surface for each national park. A far more detailed account of the technicalities and steps is available at [Daniel Huffman's blog](#).

Next, the clipped Terrain 5 raster (not the rescaled one) was loaded into QGIS and styled. Colours were inspired by Ordnance Survey's old One Inch Tourist Maps and other older, more traditional maps that use natural colour palettes. The surface water polygons from OS MasterMap Topography Layer were then laid over the top of the raster and the images were exported. Each image was loaded into Adobe Photoshop and were combined with the hillshades produced in Blender. Each

image had two hillshade layers placed over the top. Adjustment layers on each hillshade were used to pick up highlights and shadows and different blending modes were used to ensure the coloured terrain was visible beneath the hillshades. Again, Daniel Huffman has a [2\\*blog post\\*2](#) about this that goes into greater detail. Once each national park was finished, it was a matter of lining each one up for the poster. The national parks are ordered by the year they were created, with the Peak District in 1951 down to the South Downs in 2010.

1\* <https://somethingaboutmaps.wordpress.com/2017/11/16/creating-shaded-relief-in-blender/> \*1

2\* <https://somethingaboutmaps.wordpress.com/2014/10/26/adding-shaded-relief-in-photoshop/> \*2