



Raster – Colorize – Hillshade and Calculation

QGIS 2.4 - WINDOWS 7 - AUGUST 2014

Goal for this lesson:

In October 2013 there was a flood in Denmark – The sealevel increased by 1.21 m. over the period of 2 days. In this lesson you are going to work with a Digital Terrain Model (DTM) with pixelsize 1.6*1.6 m. Each pixel has a value – the height above sea level.

A DTM map looks like a watercolour just in greyscale. For getting a better 'image' you are going to create a Hillshade and colorize each pixel by its height value.

1 other map will have to be calculated – or extracted – for values up to 1.22 m.

The steps are:

- Open Raster DTM
- Histogram
- Colourize
- Create Hillshade
- Transparency
- Raster Calculation

Data: Part_DTM_617_72.Zip
Source: DTM 1.6 m pixels from Kortforsyningen.dk

Start lesson

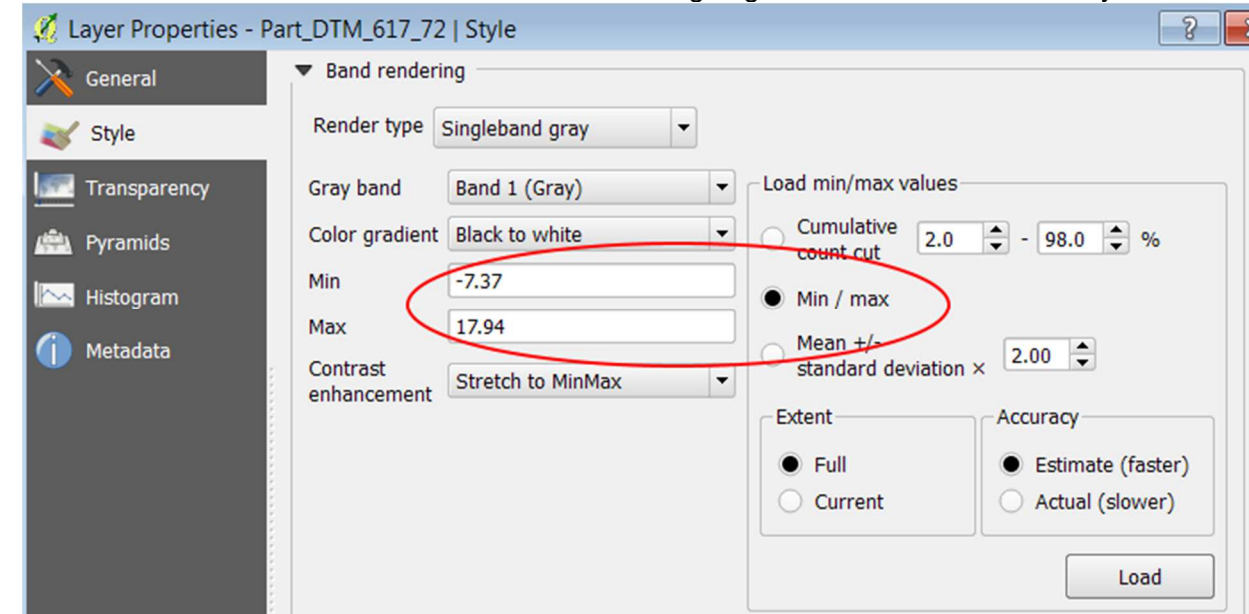
- Open raster file
- Click **Layer>Add Raster**
- Choose **Part_DTM_617_72**
- Choose **EPSG 25832**



30	27	24	23	23	23	19	16	16
27	26	25	28	32	32	27	23	20
30	30	32	36	40	40	38	31	26
35	36	39	42	44	42	40	37	33
39	39	39	39	39	37	36	37	37
41	38	35	32	29	28	31	35	38
40	35	30	26	23	23	26	32	37

Histogram

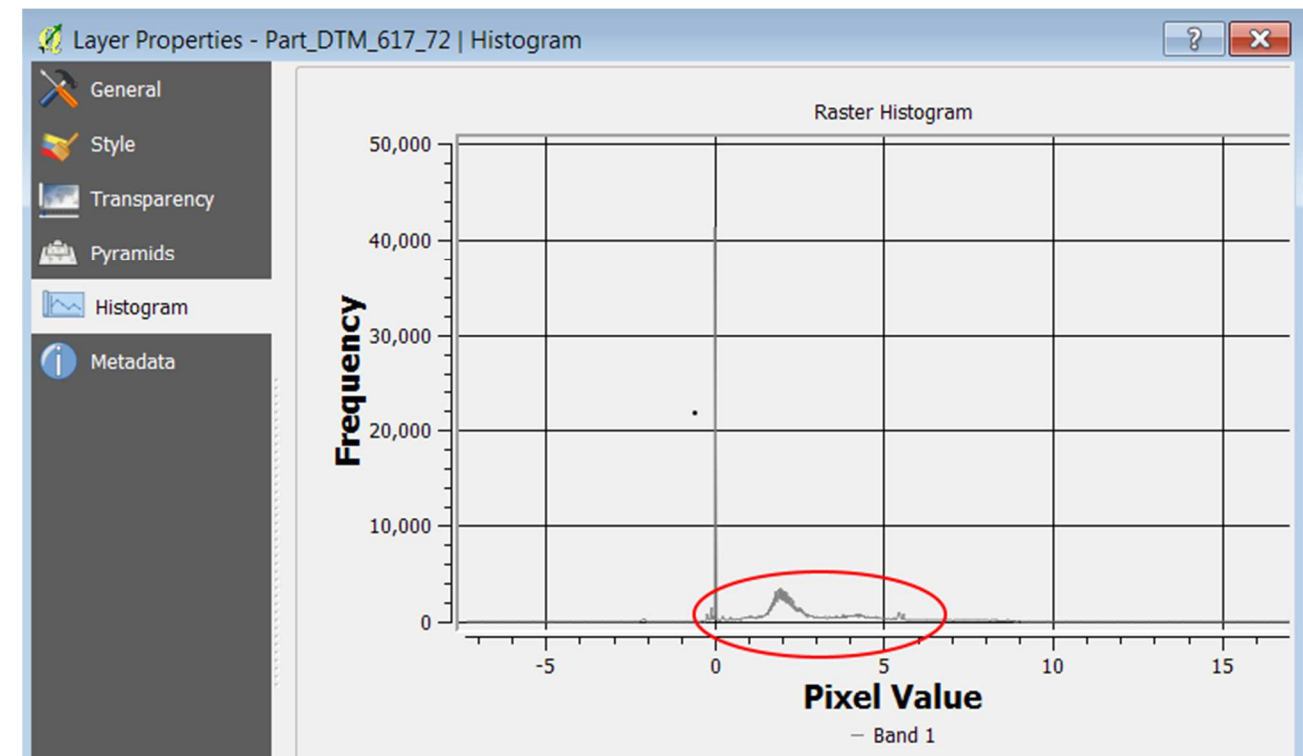
The raster has values from -7.37 to 17.94. You are going to see how the values vary.



Double Click on **Part_DTM_617_72** in **Layers**

Click on tab **Histogram**

Most of the data is with values from -0.5 to 6. And for your map – the most interesting interval is between 0.5 and 2.0. The water level came up to 1.21 m.




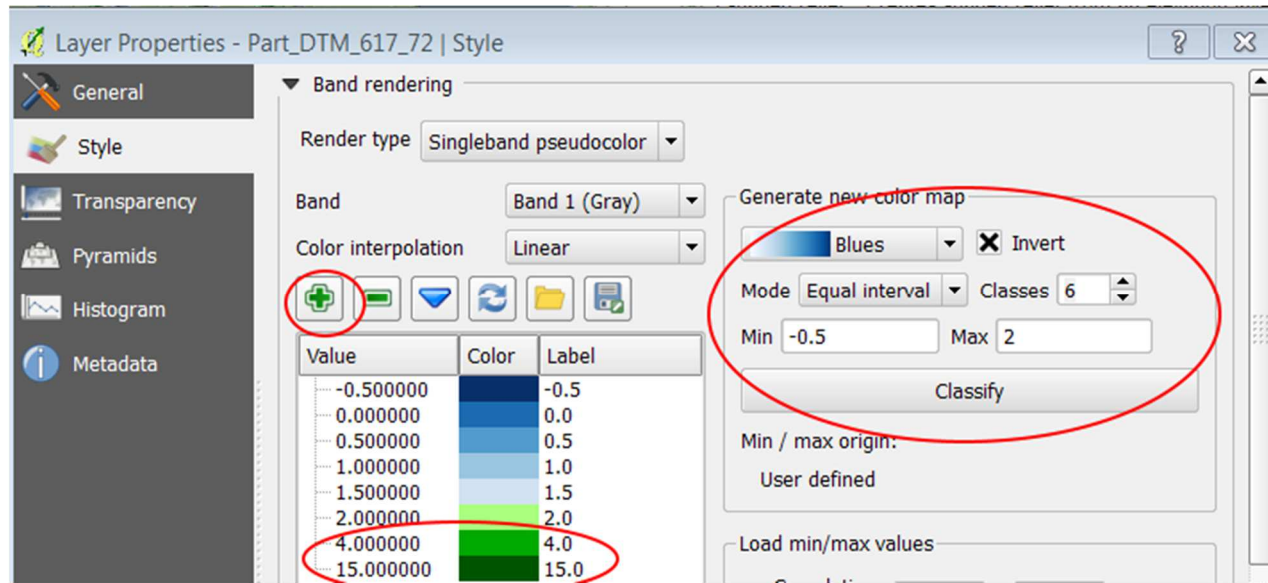
Style – Colorize

Click on the tab **Style**

Change **Singleband gray** to **Singleband pseudocolor** Classify

Change color to Blues and click on **Invert**
Change **Mode** to **Equal interval 6 classes**
Min -0.5 to Max 2
Click on **Classify**

Add 2 extra values by clicking on 
Double click on the 0.0 and write 4 – Double click on the color and change it to light green
Double click on the 0.0 and write 15 - Double click on the color and change it to dark green



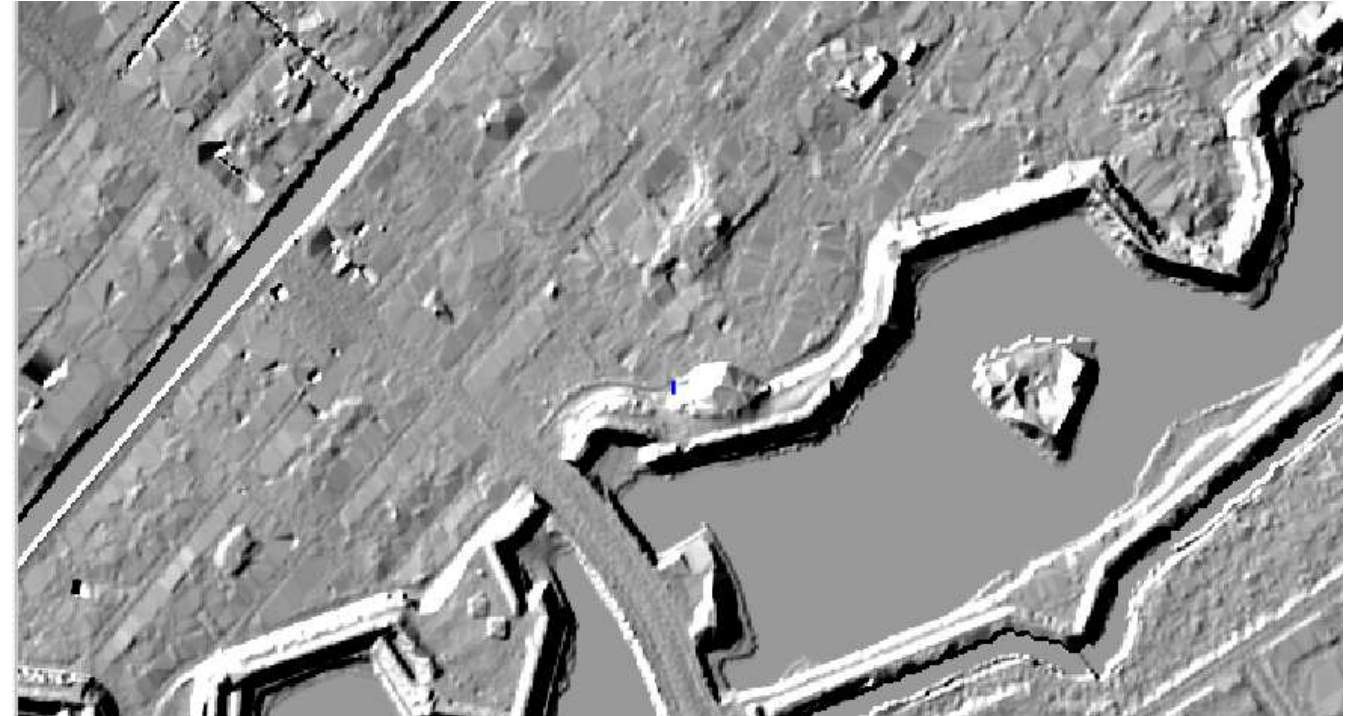
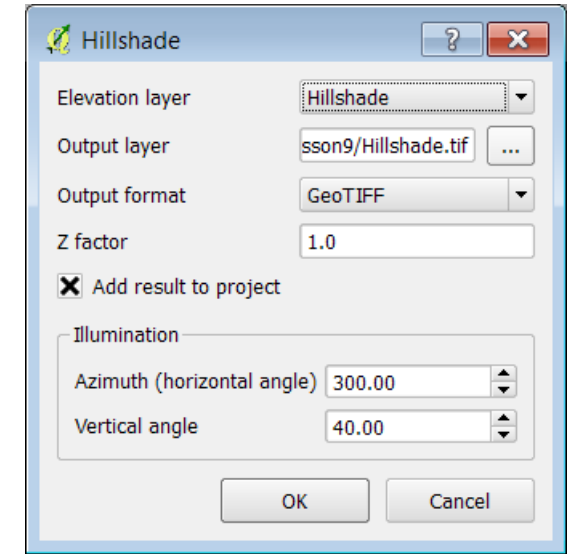
The image you see is like a water color – very difficult to ‘read’ – so the next task is to create a Hillshade and make this blue/green layer partially transparent.



Create a Hillshade

A Hillshade is a light you put on your image, from a specific direction and angle. By changing both parameters the ‘landscape’ changes. In this lesson we just use the standard values in the dialog.

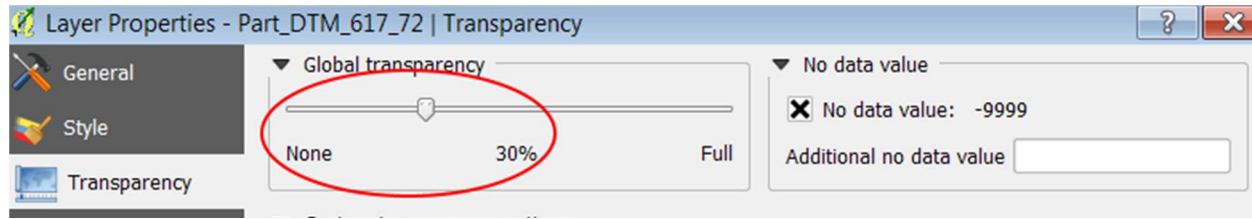
Click on **Raster>Terrain Analysis>Hillshade**
Click **OK**



In **Layers** drag the Hillshade under the DTM.

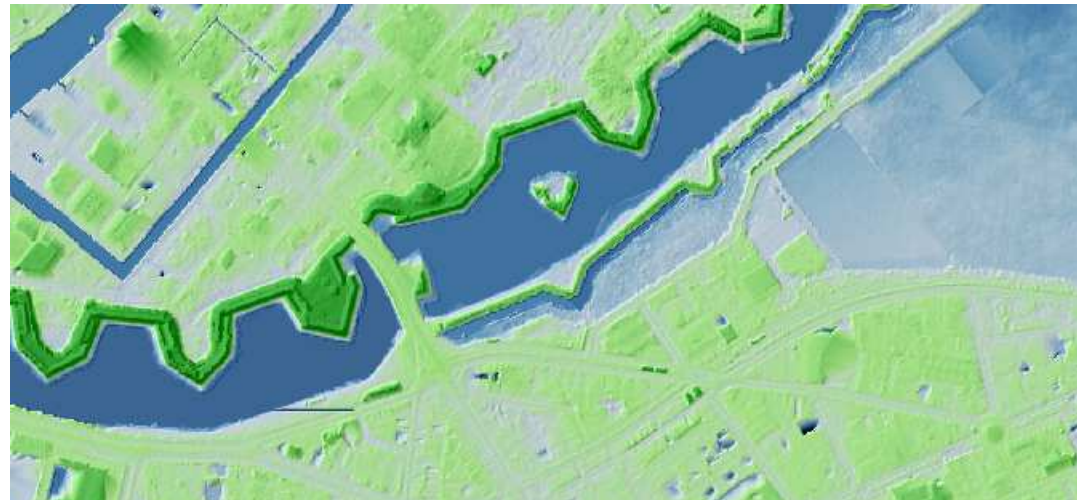
Transparency

Doubleclick on the DTM and click on the tab **Tranparency**
Drag the **Global transparency** to 30



Without Hillshade

With Hillshade



Raster calculator

It can be difficult to see the exact area for values – so in this part of the lesson you are going to calculate each pixel and find pixels with a value ≤ 1.22

Click on **Raster>Raster calculator**

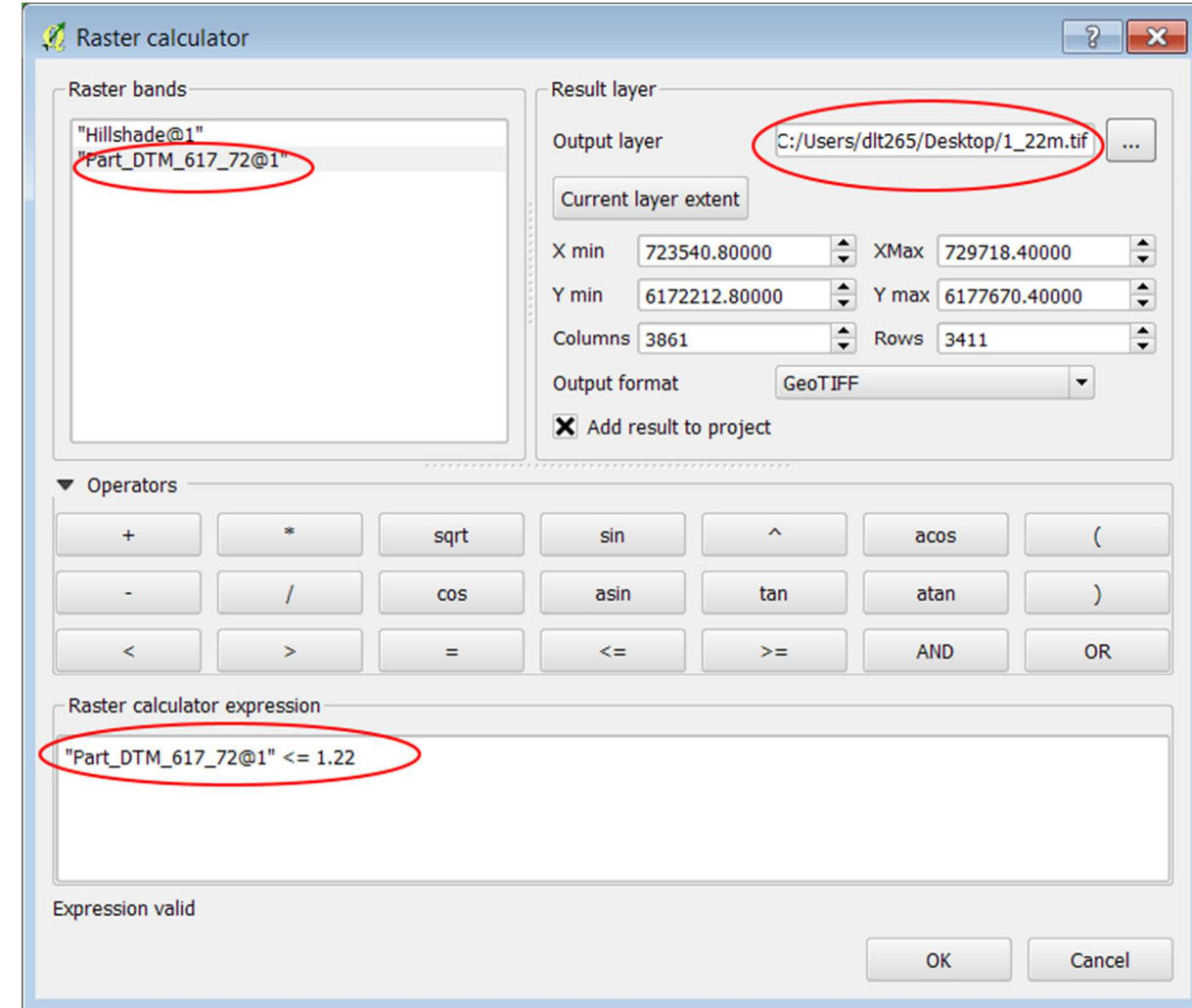
Double click on the filename **Part_DTM_617_72@1**

Click on **<=**

Write **1.22**

Click on **...** and write the filename **1_22m**

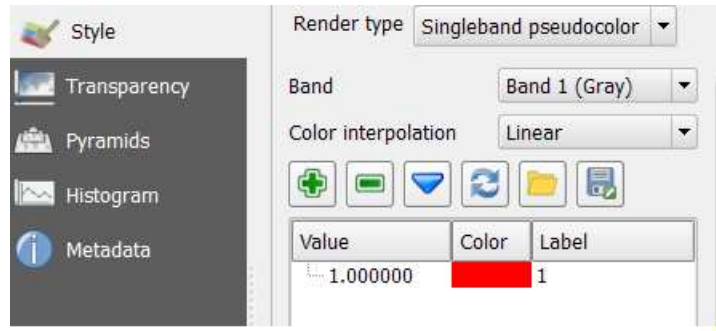
Click **OK**



The result is pixels with value 0 or 1. Is the pixel ≤ 1.22 – Yes (1) or No (0)

Transparency and color

For the layer 1_22m
Change Style



And Transparency for 0

