

## Data Visualization – Course Work

### Assignment 4

#### Task 1: Scientific Visualization with Paraview

Answer the following questions utilizing the histogram and quartile filter.

*Describe how the elevation levels are distributed! Are there special values/outliers?*

The values are lying between 682 and 2543 (see Fig. 3). The most values are between 682 and 1500, those are the lower regions of the vulcano. From there on the values are slowly fading and getting lesser. Those are the higher regions. There are periodic occurring peaks (see Fig. 1).

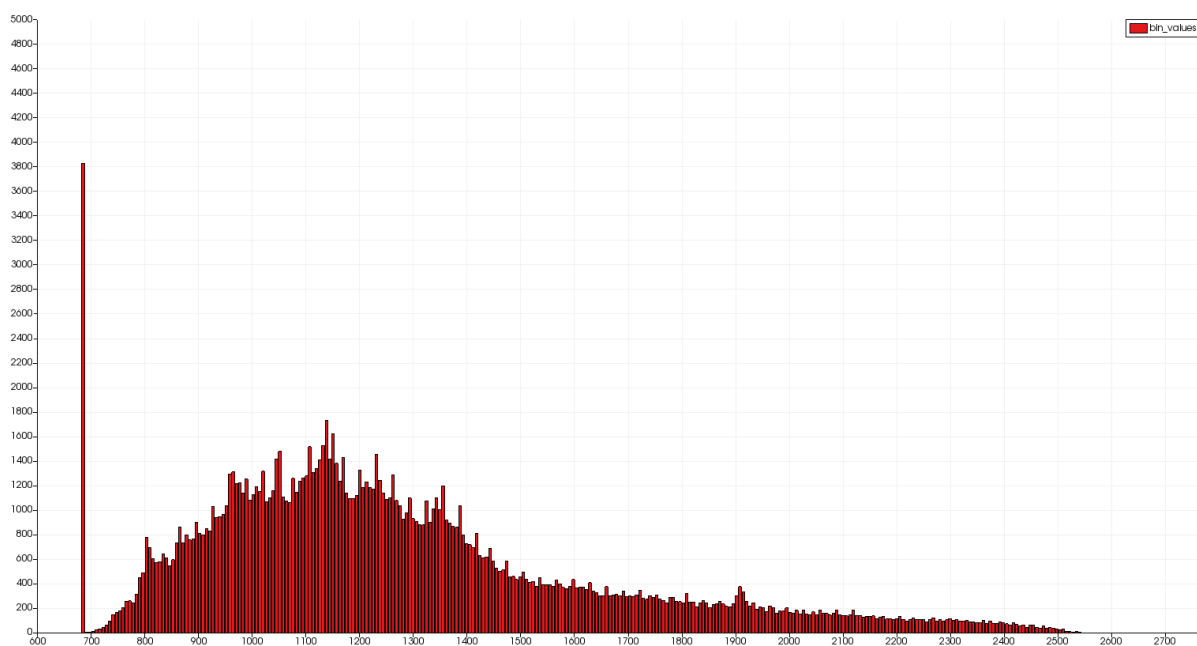


Fig. 1.: histogram filter, bin count 300

There is one outstanding outlier at 682. Therefore, this elevation value occurs a lot more often, than every other value. This value only occurs at the edges and in a straight manner (see Fig. 2). Therefore, it seems to be artificial. It could be an area that wasn't mapped and was therefore assigned to the lowest value.

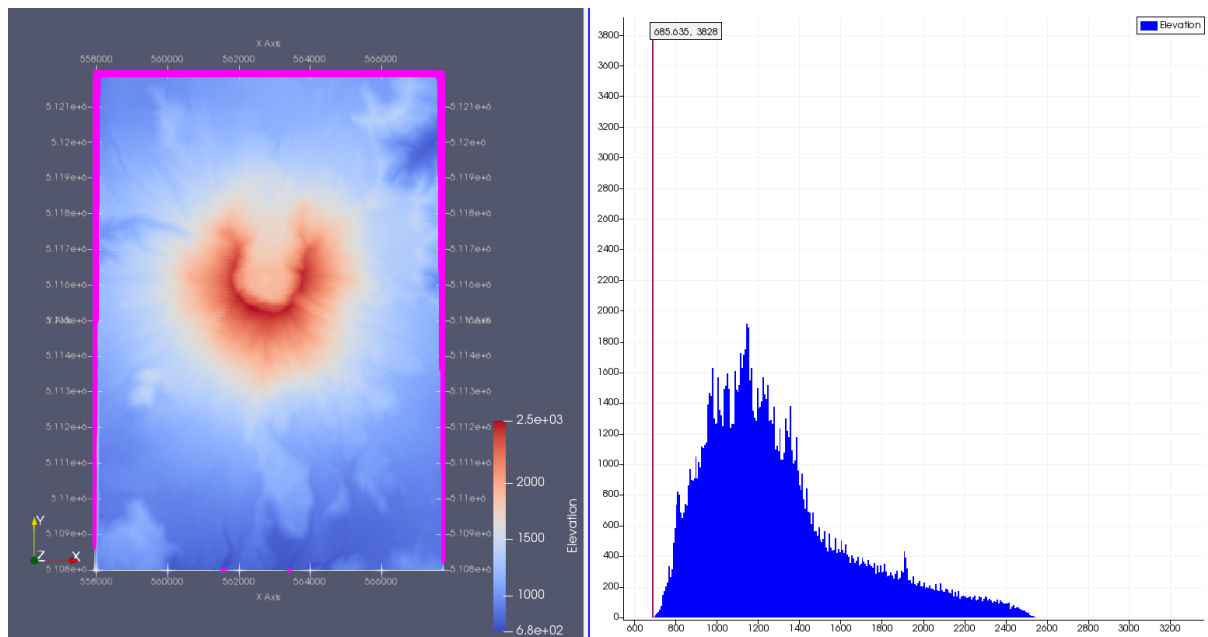


Fig. 2.: outlier at in render and histogram view

*What is the median of the elevation values?*

The median of the elevation values is 1201.

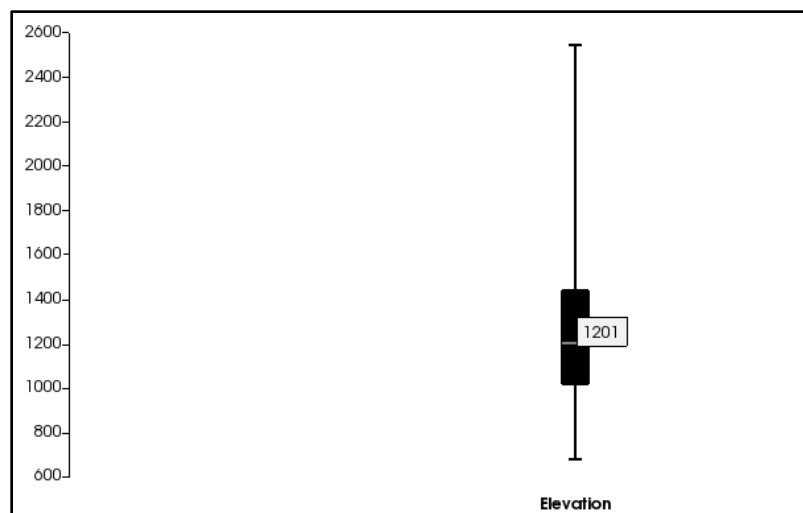


Fig. 3.: quartile filter

Visualize the gradients as arrow glyphs colored by their magnitude.

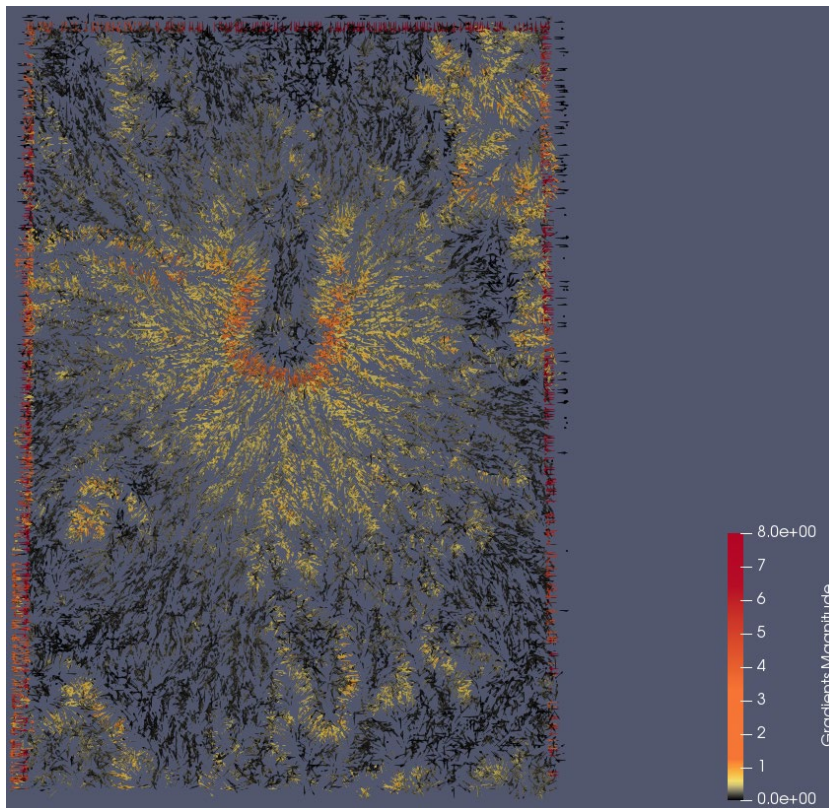


Fig. 4.: in 2D

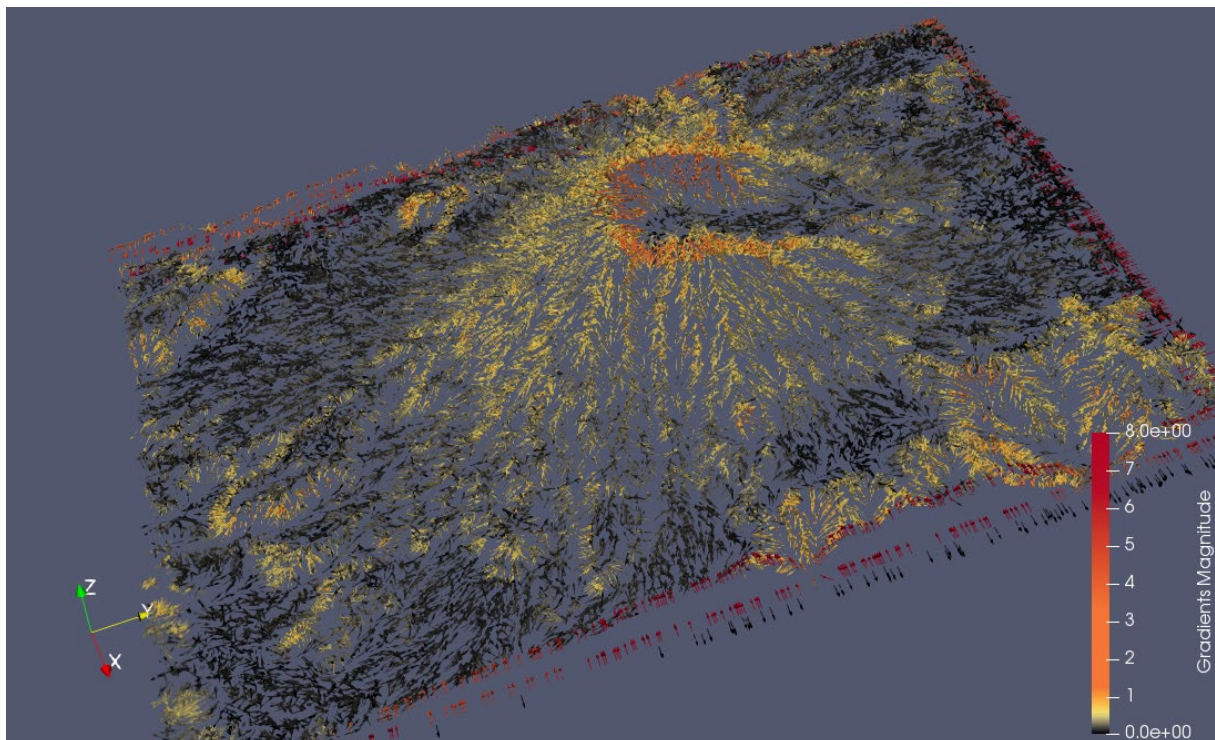


Fig. 5.: in 2D