

## Exercise 6 – Interpolation

This exercise should present the interpolated maps for ElectroMagnetic (EM) data collected at different stations with a CMD mini explorer

Download the files in the UE06.zip

1. Using the routine “plotinterpolation.m” to plot the interpolated map for the data given (exercise6.txt)
2. Plot the interpolation obtained for electrical conductivity measured as a function of Easting (x-coordinates) and Northing (y-coordinates). Note that initially the interpolation is carried out using a linear interpolation method (line 36) and 50 elements in x-direction (line 22) and 50 elements in the x-direction (line 23).
3. For the same dataset please plot the following settings:
  - a. For grids considering 50 elements in x- and y-direction
  - b. For grids considering 20 elements in x- and y-directions
  - c. Comment on the resulting maps using different number of elements for the construction of the grids
4. For the initial settings (50 elements in both x- and y-direction) use the different interpolation methods available in matlab: nearest, linear, natural, cubic, v4. Prepare a plot comparing the results obtained for the different interpolation methods.
  - a. Comment on the obtained result using different interpolation methods
5. Based on your results in step 4, decide upon a number of elements (in x- and y-direction) and interpolation method, and plot the interpolated map for the height (column 3 in the .txt file) as a function of x- and y-coordinates and compare it with the interpolated map for the electrical conductivity
  - a. Is there any visual correlation between the changes in the topography (height) and the patterns observed in the electrical conductivity measured with the CMD device?