

Advanced Mathematics – WS2021 – Lab 12

Submission is for next Tuesday, February the 16th! I want a PDF with the explications and the results. Please also provide your commented Matlab code. Do your best – it's the last one! 😊 Good luck!

Exercise 3 – Kilauea crater

The rim of the Halemaumau crater within Kilauea caldera has been digitized and its UTM coordinates (x_i, d_i) are listed in *halemaumau.txt*. We wish to approximate this shape by a perfect circle with parameters (x_0, d_0, r) .

Task 1 – what is the misfit function E that we want to minimize using the least squares criterion?

Task 2 – determine the three parameters for the circular model by minimizing E .

Task 3 – estimate the area of the crater.