

SMiB
Homework/Labwork 5
Due May 26th, 2024 EOD

Problem 1. Data file `swissrain100.csv` contains 100 mean rainfall measurements taken in stations across Switzerland, and file `swissrain367.csv` contains locations (367) where the rainfall needs to be predicted. Use the following spatial interpolation methods: NN or IDW, ordinary kriging and universal kriging using provided altitude. Compare the models using mean squared error metric. Provide plots.
(20pts)

Problem 2. Data file `odra.csv` contains daily measurements of the levels of the river Odra taken near Wrocław in years 1980-2022. Again, please note that the hydrological month/year are used. Using block maxima method fit the GEV distribution to examine the tails of the distribution of the levels (estimate parameter ξ and the standard error of the estimate). Is it a heavy tail distribution? Show mean excess plot as well.
(Optional, 15pts, extra 5 points for estimating 100 year return level)