

DSMcompare: Analysis of digital surface models by using non-parametric statistics

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> library(maptools)
> mM <- c("/home/thomas/Documents/University/Bachelor/FVA/Daten/Messpunkte/Messpunkte_Petra1.shp",
+         "/home/thomas/Documents/University/Bachelor/FVA/Daten/Messpunkte/Messpunkte_Petra2.shp",
+         "/home/thomas/Documents/University/Bachelor/FVA/Daten/Messpunkte/Messpunkte_Petra3.shp")

Read manual measurements

> lmM <- readManualMeasure(files = mM)

cut data

> cmM <- cutData(uncutfiles = list(lmM[[1]], lmM[[2]]),
+               columns = list("x_coord" = 9, "y_coord" = 10, "z_coord" = 6, "class" = 3),
+               omit.class = FALSE)

Calculate means of cut manual measure

> mcmM <- meanManualMeasure(manualMeasure = cmM)

Read model values

> coordinatesModel <- mcmM[, 1:2]
> MTb1 <- read.table(file = "/home/thomas/Documents/University/Bachelor/FVA/Daten/Models/MT_balanced1_buf5m.t
> MTb2 <- read.table(file = "/home/thomas/Documents/University/Bachelor/FVA/Daten/Models/MT_balanced2_buf5m.t
> MTb3 <- read.table(file = "/home/thomas/Documents/University/Bachelor/FVA/Daten/Models/MT_balanced3_buf5m.t
> cModh <- calcModelHeights(coordinates = coordinatesModel, model = list(MTb1 = MTb1, MTb2 = MTb2, MTb3 = MTb
+               method = "IDW",
+               idw = list("p" = 2, "m" = 5, "rad" = 5))

[1] "model MTb1: 1 / 3"
[1] "model MTb2: 2 / 3"
[1] "model MTb3: 3 / 3"

Calculate error between manual measure and model values

> errorMod <- errorModel(manual = mcmM, model = cModh)

Test if errors are normally distributed

> errorNormalTest(errorMod, hist = TRUE, ksTest = FALSE, qq = FALSE, classes = FALSE)

[1] "MTb1"
[1] "MTb2"
[1] "MTb3"

Calculate parameter-free statistic values

> statValues <- stat(errorMod, cfi = FALSE, classes = FALSE)

Plot

> plotStats(statValues, param = c("NMAD", "median", "max|h|"))
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