

Block Kriging

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#setting working directory to where you store your barn.csv data
all <- read.csv("barn.csv", header=TRUE)
library(gstat)
library(sp)
coordinates(all) <- ~ East+North
var1 <- variogram(pH ~ 1, all)
plot(var1)
vgm1 <- vgm(0.35, "Exp", 2.5, 0.05)
plot(var1, vgm1)
var1.fit1 <- fit.variogram(var1, vgm1)
data.grid <- expand.grid(x=seq(8.5,8.5,0), y=seq(10.5,10.5,0))
names(data.grid) <- c("X", "Y")
coordinates(data.grid) <- ~X+Y
krig1_ok <- krige(pH ~ 1, all, data.grid, model=var1.fit1)
krig1_ok

#compare variances between OK and BK
krig1_block <- krige(pH ~ 1, all, data.grid, model=var1.fit1,
block=c(2,2), set=list(nblockdiscr=4))
krig1_block

# the effect of block size
krig1_block2 <- krige(pH ~ 1, all, data.grid, model=var1.fit1,
block=c(3,3), set=list(nblockdiscr=4))
krig1_block2

#change discretization
krig1_block3 <- krige(pH ~ 1, all, data.grid, model=var1.fit1,
block=c(3,3), set=list(nblockdiscr=6))
krig1_block3

#Again the effect of block size
krig1_block4 <- krige(pH ~ 1, all, data.grid, model=var1.fit1,
block=c(7,7), set=list(nblockdiscr=4))
krig1_block4

# variance increases here because 8 is larger than the effective range of 7.5
krig1_block5 <- krige(pH ~ 1, all, data.grid, model=var1.fit1,
block=c(8,8), set=list(nblockdiscr=4))
krig1_block5
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