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MixedEffectsModel
#Setting your working directory
data1 <- read.table(file = "Boreality.txt", header = TRUE, dec = " ")

data1$Bor <- sqrt(1000*(data1$nBor+1)/(data1$nTot))

data1$Wet <- as.numeric(data1$Wet)
data1$x <- as.numeric(data1$x)
data1$y <- as.numeric(data1$y)

B.lm <- lm(Bor ~ Wet, data = data1)

E <- rstandard(B.lm)
library(gstat)
library(sp)
mydata <- data.frame(E, data1$x, data1$y)
#coordinates(mydata) <- c("data1.x", "data1.y")
coordinates(mydata) <- ~ data1.x + data1.y

bubble(mydata, "E")

vario1 <- variogram(E~1, mydata)
plot(vario1)

vario2 <- variogram(E~1, mydata, alpha=c(0,45,90,135))
plot(vario2)

library(nlme)
f1 <- formula(Bor~ Wet)

B1.gls <- gls(f1, data=data1)

vario.gls <- Variogram(B1.gls, form=~x+y, resType="pearson")
plot(vario.gls, smooth=T)

B1A <- gls(f1, correlation=corSpher(c(200, 0.2), form=~x+y, nugget=T),data=data1)

AIC(B1.gls, B1A)

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