library(MultiscaleDTM)

## Loading required package: terra

bathy<- rast("Data/bathy5m.tif")

TA<- rast() #Initialize Raster for Terrain Attributes  
  
for (k in c(3, 5, 7, 11, 17, 27, 43, 69)) {  
 SlpAspCurv<- Qfit(bathy, w, metrics = c("qslope", "qeastness", "qnorthness", "profc", "planc", "twistc", "meanc"))  
   
 Rugosity<- AdjSD(bathy, w)  
   
 RelativePosition<- TPI(bathy, w)  
   
 TA<- c(TA, SlpAspCurv, Rugosity, RelativePosition) #Append layers to stack  
 } #Yay, you've calculated 72 terrain attributes!

library(RStoolbox)  
  
rPCA<- rasterPCA(TA, spca = TRUE)  
  
unsup<- unsuperClass(rPCA$map[[1:20]], nClasses = 5)