Zoning and distance matrix

B. Charnomordic

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Contents


```
library(geozoning)
```

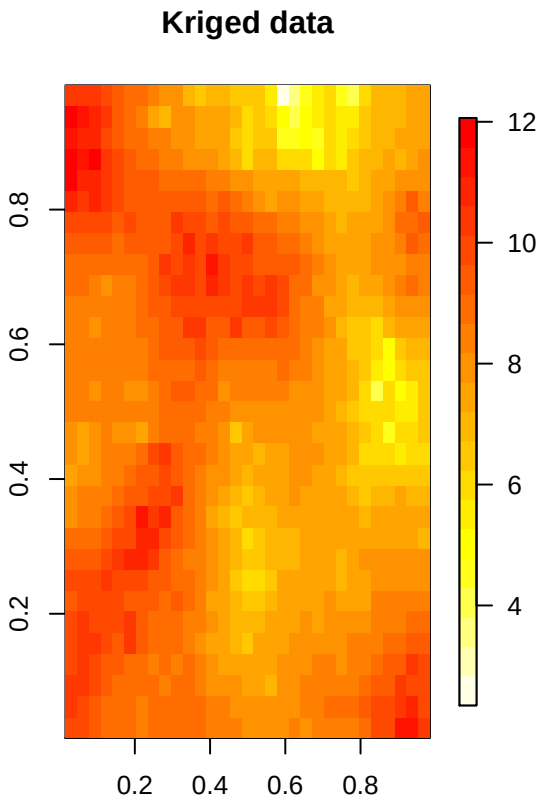
This vignette illustrates a simple quantile-based zoning procedure without corrections. It uses the initialZoning function and shows how to use its output to display zones, distance matrices and zone labels.

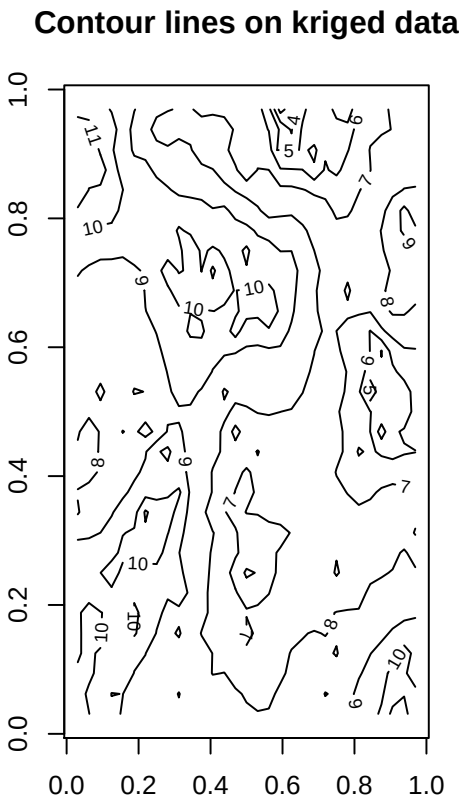
A map object is simulated with a Gaussian field. 450 points are randomly allocated on a square field of size 1.Then points are kriged using inverse distance weighted interpolation. A map with 2000 points is produced.

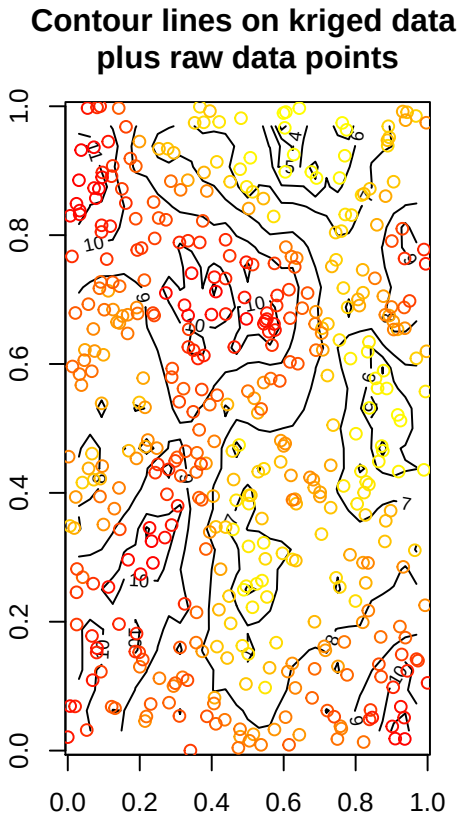
```
seed=80
map=genMap(DataObj=NULL,seed=seed,disp=FALSE,krig=2)
```

```
## [1] "DataObj=NULL, generating DataObj-seed= 80"
## [inverse distance weighted interpolation]
```

```
# display 2D map
plotMap(map)
```


Kriged data
0.2
0.4
0.6
0.8
12
10
8
6
4


Contour lines on kriged data
0.0
0.2
0.4
0.6
0.8
1.0

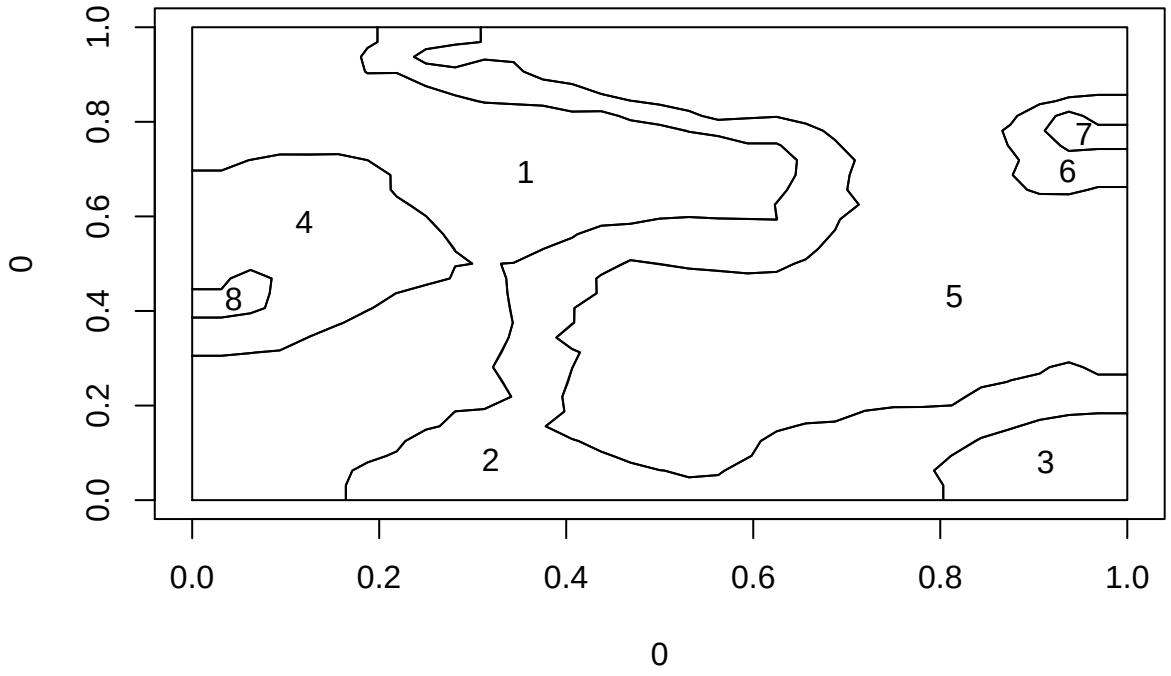

Contour lines on kriged data
plus raw data points
0.0
0.2
0.4
0.6
0.8
1.0

Generate

zoning Z from map, quantile vector (0.4) and plot zoning (7 zones in this case)

```
ZK=initialZoning(qProb=c(0.4,0.7),map,pErr=0.9,simplitol=1e-3,optiCrit=2,disp=0) # names(Z)  "resCri
# initialZoning calls zoneGeneration, calNei, calDistance, calCrit
# zoneGeneration calls contourAuto
# contourAuto calls contourLines and extensionLine
Z=ZK$resZ$zonePolygone
K=ZK$resZ

plotZ(Z) #only zones
```



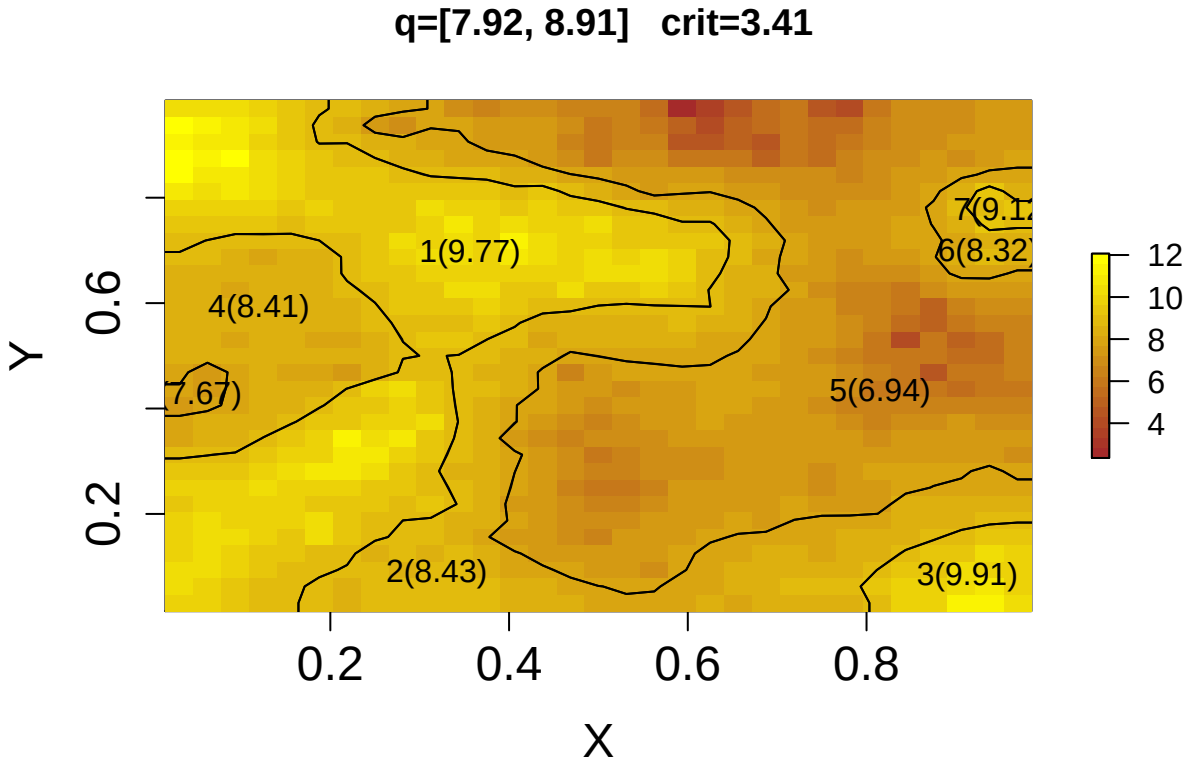

```
## NULL
```

```
# obtain normalized corrected distance matrix
DC0=ZK$resD$matDistanceCorr
DC0N=normDistMat(DC0,2)
```

```
# more detailed plot
valRef=quantile(map$krigGrid,na.rm=TRUE,prob=c(0.4,0.7))
dispZ(map$step,map$krigGrid,zonePolygone=Z,K=K,boundary=map$boundary,nbLvl=0,id=FALSE,mu=2)
```

```
## NULL
```

```
title(paste(" q=[",toString(round(valRef,2)),"]   crit=",round(ZK$resCrit,2),sep=""))
```




```
  # print zoning labels
  printLabZ(list(ZK$resZ))
```

```
## [1] "2q zone labels= c(3, 2, 3, 2, 1, 2, 3, 1)"
```

```
## [[1]]
## [1] 3 2 3 2 1 2 3 1
```

```
  # print zoning surfaces
  printZsurf(ZK$resZ$zonePolygone)
```

```
## [1] "iZ= 1 area= 0.26918"
## [1] "iZ= 2 area= 0.19976"
## [1] "iZ= 3 area= 0.03089"
## [1] "iZ= 4 area= 0.08394"
## [1] "iZ= 5 area= 0.38709"
## [1] "iZ= 6 area= 0.01823"
## [1] "iZ=7 area=0.00506 < minSize(0.012)"
## [1] "iZ=8 area=0.00591 < minSize(0.012)"
```

```
## [1] 7 8
```

```
  # print zoning ids
  printZid(ZK$resZ$zonePolygone)
```

```
## [1] "ii= 1  ID= 1"
## [1] "ii= 2  ID= 2"
## [1] "ii= 3  ID= 3"
## [1] "ii= 4  ID= 4"
## [1] "ii= 5  ID= 5"
## [1] "ii= 6  ID= 6"
## [1] "ii= 7  ID= 7"
## [1] "ii= 8  ID= 8"
```

Session informations

```
## R version 3.4.0 (2017-04-21)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Debian GNU/Linux 8 (jessie)
##
## Matrix products: default
## BLAS: /usr/lib/libblas/libblas.so.3.0
## LAPACK: /usr/lib/lapack/liblapack.so.3.0
##
## locale:
##  [1] LC_CTYPE=fr_FR.utf8       LC_NUMERIC=C
##  [3] LC_TIME=fr_FR.utf8        LC_COLLATE=fr_FR.utf8
##  [5] LC_MONETARY=fr_FR.utf8    LC_MESSAGES=fr_FR.utf8
##  [7] LC_PAPER=fr_FR.utf8       LC_NAME=C
##  [9] LC_ADDRESS=C              LC_TELEPHONE=C
## [11] LC_MEASUREMENT=fr_FR.utf8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] rgeos_0.3-23    sp_1.2-4        ggplot2_2.2.1   geozoning_1.0.0
## [5] rmarkdown_1.6
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_0.12.11             compiler_3.4.0
##  [3] plyr_1.8.4               tools_3.4.0
##  [5] xts_0.9-7                digest_0.6.12
##  [7] gstat_1.1-5              evaluate_0.10.1
##  [9] tibble_1.3.1             gtable_0.2.0
## [11] lattice_0.20-35          rlang_0.1.1
## [13] yaml_2.1.14              spam_1.4-0
## [15] stringr_1.2.0            knitr_1.17
## [17] raster_2.5-8             RandomFieldsUtils_0.3.25
## [19] fields_8.15              maps_3.1.1
## [21] rprojroot_1.2            grid_3.4.0
## [23] spacetime_1.2-0          foreign_0.8-68
## [25] deldir_0.1-14            magrittr_1.5
## [27] backports_1.1.0          scales_0.4.1
## [29] htmltools_0.3.6          intervals_0.15.1
## [31] RandomFields_3.1.50      maptools_0.9-2
## [33] colorspace_1.3-2         labeling_0.3
## [35] stringi_1.1.5            lazyeval_0.2.0
## [37] munsell_0.4.3            FNN_1.1
## [39] zoo_1.8-0
```