

#### 讀取資料

```
library(splancs);library(GISTools);library(rgdal);
library(raster); library(ggtern); library(spatstat)
setwd("D:/1072SA/Data")
FF=readOGR(dsn = ".", layer = "Tpe_Fastfood",encoding = "utf8")
TW=readOGR(dsn = ".", layer = "Popn_TWN2",encoding = "utf8")
#選出台北市,計算出密度與邊界
TPE=TW[TW$COUNTY=="臺北市",]
TPE$den=rowSums(TPE@data[,c(5,8,11)])/poly.areas(TPE)
xlm=TPE@bbox[1,];ylm=TPE@bbox[2,]
```

### 速食店 權重計算

```
for(i in 1:12) FF$den[FF$TOWN %in% TPE$TOWN[i]] = TPE$den[i]
FF$W=as.numeric(FF$TYPE_99)*FF$den
```

```
MIC=FF[FF$STORE=='MIC',]
KFC=FF[FF$STORE=='KFC',]
```

FF

TOWN	den	
中正區		F
松山區	0.023789	Т
信義區		F
中山區		F
中山區		F
內湖區		F
內湖區		F
文山區		F

TPE

TOWN	den
松山區	0.023789
信義區	0.019975
大安區	0.027318
中山區	0.016441
中正區	0.021414
大同區	0.027091
萬華區	0.025554
文山區	0.008773
南港區	0.005562
內湖區	0.008986
士林區	0.004628
北投區	0.004431

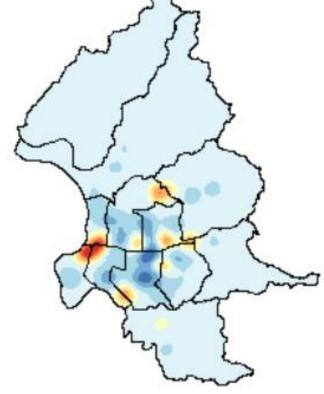
#### KDE計算

MIC.kde=kde2d.weighted(MIC\$X\_COOR,MIC\$Y\_COOR, 2000,500,c(xlm,ylm),MIC\$W)
KFC.kde=kde2d.weighted(KFC\$X\_COOR,KFC\$Y\_COOR, 2000,500,c(xlm,ylm),KFC\$W)
Dual.kde=KFC.kde
Dual.kde\$z=MIC.kde\$z-KFC.kde\$z

#### KDE繪圖

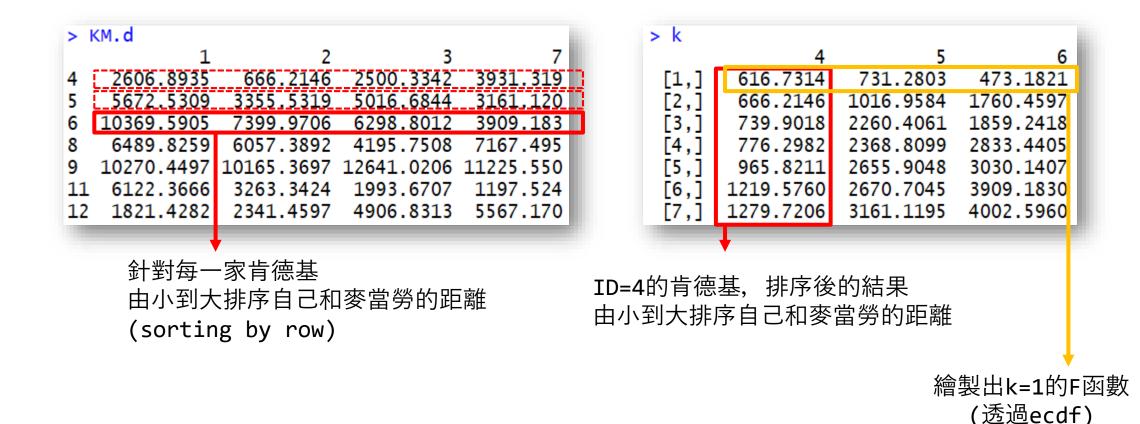
image(Dual.kde,asp=1,bty='n',xaxt='n',yaxt ='n',col=brewer.pal(9,'RdYlBu'))
masker=poly.outer(as.points(xlm,ylm),TPE)
add.masking(masker, col="white")

plot(TPE,add=T)



## F function via gDistance

```
KM.d=gDistance(MIC,KFC,byid=T)
k=apply(KM.d,1,sort)
#畫出方框、架構
plot(c(0,2000),c(0,1),type='n',xaxs = "i", yaxs ="i",xlab="距離",ylab='F')
#畫出線
for(i in 1:4) lines(ecdf(k[i,]),col=i,cex=0,lwd=3,verticals=T)
```



# F function via nncross

```
#轉換成ppp
Mpp=ppp(MIC$X_COOR,MIC$Y_COOR,as.owin(TPE))
Kpp=ppp(KFC$X_COOR,KFC$Y_COOR,as.owin(TPE))
#畫出方框、架構
plot(c(0,2000),c(0,1),type='n',xaxs = "i", yaxs ="i",xlab="距離",ylab='F')
#畫出線
for(i in 1:4) lines(ecdf(nncross(Kpp,Mpp,k=i)[,1]),col=i,cex=0,lwd=3,verticals=T)
```

