Relatorio

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18 de julho de 2019

Carregar arquivo de dados

```r
# Cargamos el fichero de datos
# Debe tener una estructura igual a este, es decir,
# que las coordenadas X e Y estan en las columnas 3 y 5
# (la X) y 4 y 6 (la Y)
# Nombre del fichero de datos
fichero <- "Estatistica_8PCT.csv"
dados <- read.csv(fichero, header=TRUE, sep=";", dec=",")
dados[,2] <- 0
```

Calcular os erros em X e Y

```r
puncontrol <- list()
for (i in 1:100) {
  x <- (i-1)*35+1
  puncontrol[[i]] <- dados[x:(x+33), ]
  # Calculamos los errores en X e Y
  puncontrol[[i]]$E_X <- puncontrol[[i]][,5]- puncontrol[[i]][,3]
  puncontrol[[i]]$E_Y <- puncontrol[[i]][,6]- puncontrol[[i]][,4]
}
```

EstatÃsticas BÃ¡sicas

```r
basicStats(puncontrol[[params$j]]$E_X)
```

```
##                 X..puncontrol..params.j...E_X
## nobs                               34.000000
## NAs                                 0.000000
## Minimum                            -0.178800
## Maximum                             1.303200
## 1. Quartile                        -0.013150
## 3. Quartile                         0.016200
## Mean                                0.032865
## Median                              0.005600
## Sum                                 1.117400
## SE Mean                             0.039014
## LCL Mean                           -0.046510
## UCL Mean                            0.112240
## Variance                            0.051752
## Stdev                               0.227490
```

```
## Skewness                          5.090838
## Kurtosis                         25.622378
```

```r
basicStats(puncontrol[[params$j]]$E_Y)
```

```
##             X..puncontrol..params.j...E_Y
## nobs                            34.000000
## NAs                              0.000000
## Minimum                         -0.375000
## Maximum                          0.172000
## 1. Quartile                      0.008750
## 3. Quartile                      0.057000
## Mean                             0.023735
## Median                           0.034500
## Sum                              0.807000
## SE Mean                          0.013637
## LCL Mean                        -0.004009
## UCL Mean                         0.051479
## Variance                         0.006323
## Stdev                            0.079515
## Skewness                        -3.498827
## Kurtosis                        15.983239
```

```r
hist(puncontrol[[params$j]]$E_X, main="X", xlab="Errores en X", ylab="Frecuencia")
hist(puncontrol[[params$j]]$E_Y, main="Y", xlab="Errores en Y", ylab="Frecuencia")
```
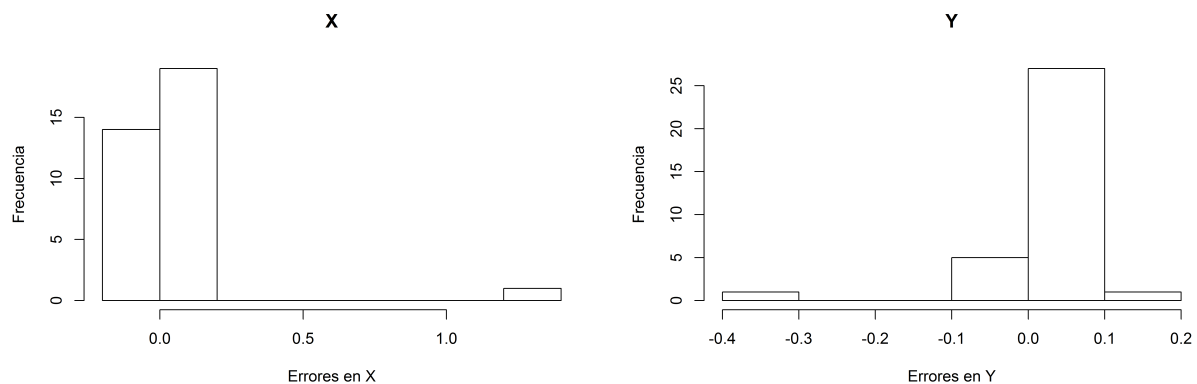


```r
plot(puncontrol[[params$j]][,3], puncontrol[[params$j]][,4] ,
    main="Distribución  espacial de los puntos de evaluación",
    xlab="X", ylab="Y")
```

**DistribuciÃ³n espacial de los puntos de evaluaciÃ³n**


```
# Cambia este factor segÃºn necesites
fescala <- 1000
plot(puncontrol[[params$j]][,3], puncontrol[[params$j]][,4],
     main="Campo de errores ", xlab="X", ylab="Y")
arrows(puncontrol[[params$j]][,3],
       puncontrol[[params$j]][,4],
       puncontrol[[params$j]][,3] + fescala*puncontrol[[params$j]]$E_X,
       puncontrol[[params$j]][,4] + fescala* puncontrol[[params$j]]$E_Y,
       col= 'dark red', length = 0.1, angle = 15)
```

Campo de errores
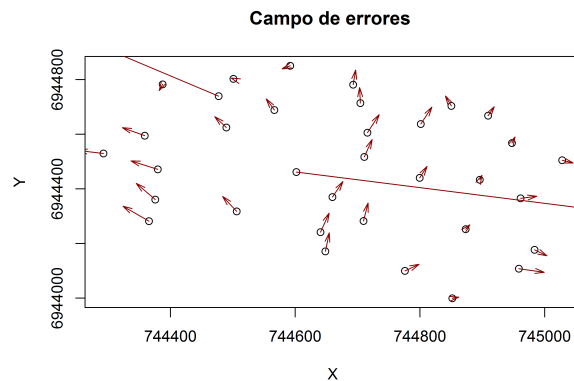

```
# Cambia el factor de escala circular segÃºn necesites
fescalaCir <- 2
datos_cir2d <- circular(atan2(puncontrol[[params$j]]$E_Y, puncontrol[[params$j]]$E_X))
modulo2d <- sqrt(puncontrol[[params$j]]$E_X^2+puncontrol[[params$j]]$E_Y^2)
plot.circular(datos_cir2d)
title(main="DistribuciÃ³n circular de erores", xlab="X", ylab="Y")
segments(0, 0,
         fescalaCir*puncontrol[[params$j]]$E_X,
         fescalaCir* puncontrol[[params$j]]$E_Y,
         col= 'dark red')
```

DistribuciÃ³n circular de erores

Y

X
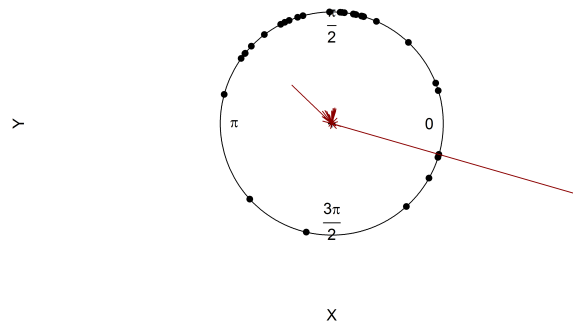
```
QCoH_RANDOMNESS(puncontrol[[params$j]][c(7,8)])
```

```
## [1] "El resultado del test de aleaoriedad para X: "
##
##  Runs Test
##
## data:  errorespos[, 1]
## statistic = -3.1348, runs = 9, n1 = 17, n2 = 17, n = 34, p-value =
## 0.001719
## alternative hypothesis: nonrandomness
##
## [1] "El resultado del test de aleaoriedad para Y: "
##
##  Runs Test
##
## data:  errorespos[, 2]
## statistic = -3.1348, runs = 9, n1 = 17, n2 = 17, n = 34, p-value =
## 0.001719
## alternative hypothesis: nonrandomness
```

```
QCoH_OUTLIERS(puncontrol[[params$j]][c(7,8)])
```

```
## [1] "El nÃºmero de casos fuera de rango en X es:  1"
## [1] "El nÃºmero de casos fuera de rango en Y es:  0"
```
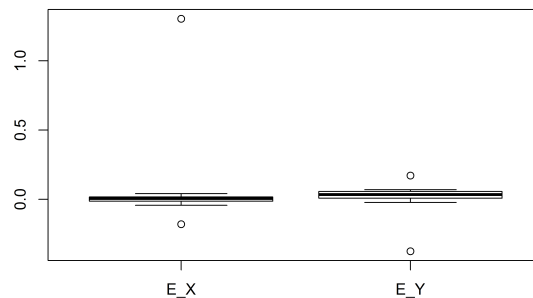


```
QCoH_NORMALITY_G(puncontrol[[params$j]][c(7,8)])
```

4

X   Y
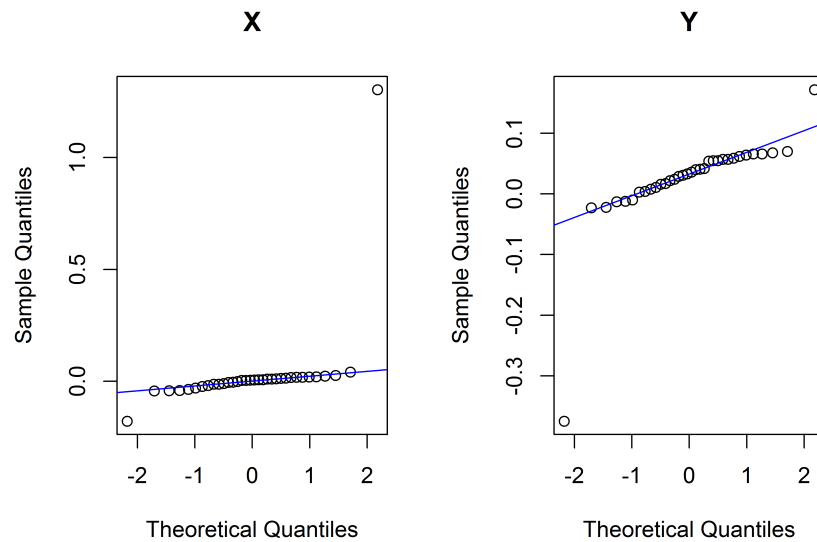
```
QCoH_NORMALITY_A_KS(puncontrol[[params$j]][c(7,8)])
```

```
## Warning in ks.test(x, "pnorm", alternative = "two.sided"): ties should not
## be present for the Kolmogorov-Smirnov test

## Warning in ks.test(x, "pnorm", alternative = "less"): ties should not be
## present for the Kolmogorov-Smirnov test

## Warning in ks.test(x, "pnorm", alternative = "greater"): ties should not be
## present for the Kolmogorov-Smirnov test

##
## Title:
##  Normality test
##
## Test Results:
##    STATISTIC:
##      D: 0.4543
##    P VALUE:
##      Alternative Two-Sided: 6.241e-07
##      Alternative       Less: 3.333e-07
##      Alternative    Greater: 3.121e-07
##
## Description:
##  X coordinate
##
##
## Title:
##  Normality test
##
## Test Results:
##    STATISTIC:
##      D: 0.4614
##    P VALUE:
##      Alternative Two-Sided: 1.032e-06
##      Alternative       Less: 5.159e-07
```
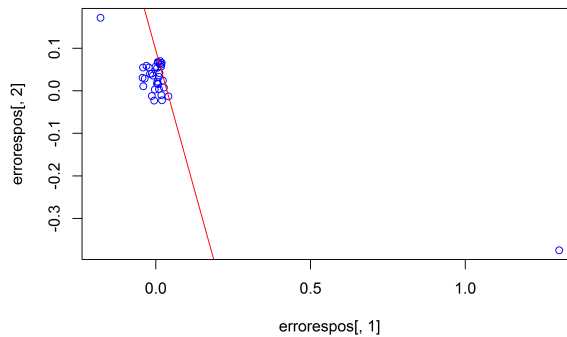
```
##      Alternative   Greater: 1.632e-06
##
## Description:
##  Y coordinate
```

```r
QCoH_HOMOCEDAS_BAR(puncontrol[[params$j]][c(7,8)])
```

```
##
## Title:
##  Bartlett Test for Homogeneity of Variances
##
## Test Results:
##    STATISTIC:
##      Bartlett's Chi-squared: 30.7701
##    P VALUE:
##      2.905e-08
##
## Description:
##  Thu Jul 18 15:01:29 2019
```

```r
QCoH_CORRELATION_G(puncontrol[[params$j]][c(7,8)])
```



```r
QCoH_CORRELATION_A(puncontrol[[params$j]][c(7,8)])
```

```
##            E_X        E_Y
## E_X  1.0000000 -0.9189989
## E_Y -0.9189989  1.0000000
```

```r
QCoH_CORRELATION_A_SPR(puncontrol[[params$j]][c(7,8)])
```

```
## Warning in cor.test.default(errorespos[, 1], errorespos[, 2], method =
## "spearman"): Cannot compute exact p-value with ties
```

```
##
##  Spearman's rank correlation rho
##
## data:  errorespos[, 1] and errorespos[, 2]
## S = 7797.3, p-value = 0.2784
## alternative hypothesis: true rho is not equal to 0
## sample estimates:
##        rho
## -0.1913349
```