

Relatorio

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Carregar arquivo de dados

```
# 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

```
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]
}
```

Estatísticas Básicas

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

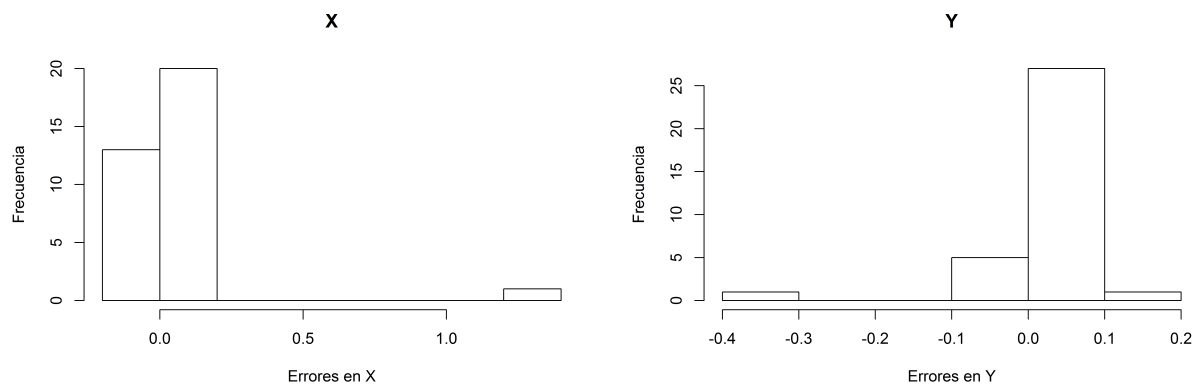
```
##           X..puncontrol..params.j...E_X
## nobs                      34.000000
## NAs                       0.000000
## Minimum                   -0.173100
## Maximum                    1.302400
## 1. Quartile                -0.009475
## 3. Quartile                 0.011325
## Mean                      0.032035
## Median                     0.002050
## Sum                        1.089200
## SE Mean                    0.038950
## LCL Mean                   -0.047208
## UCL Mean                   0.111279
## Variance                   0.051580
## Stdev                      0.227113
```

```
## Skewness          5.119550
## Kurtosis          25.812713
```

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

```
##           X..puncontrol..params.j...E_Y
## nobs                34.000000
## NAs                 0.000000
## Minimum            -0.371000
## Maximum             0.177000
## 1. Quartile         0.008250
## 3. Quartile         0.061000
## Mean                0.025735
## Median              0.038500
## Sum                 0.875000
## SE Mean             0.013692
## LCL Mean            -0.002121
## UCL Mean            0.053592
## Variance            0.006374
## Stdev               0.079836
## Skewness            -3.389833
## Kurtosis            15.349380
```

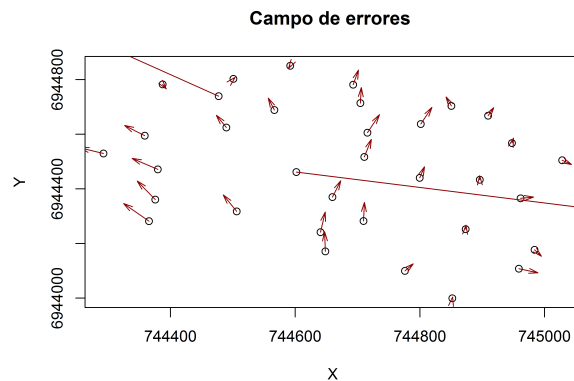
```
hist(puncontrol[[params$j]]$E_X, main="X", xlab="Errores en X", ylab="Frecuencia")
hist(puncontrol[[params$j]]$E_Y, main="Y", xlab="Errores en Y", ylab="Frecuencia")
```



```
plot(puncontrol[[params$j]][,3], puncontrol[[params$j]][,4] ,
     main="Distribuci³n espacial de los puntos de evaluaci³n",
     xlab="X", ylab="Y")
```

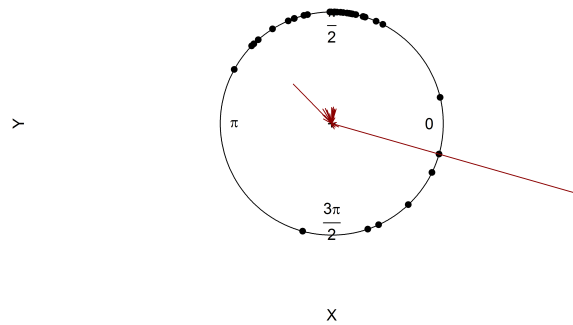


```
# Cambia este factor según necesites
fescala <- 1000
plot(puncontrol[[params$j]][,3], puncontrol[[params$j]][,4],
     main="Campo de errores ", xlab="X", ylab="Y")
arrows(puncontrol[[params$j]][,3],
       puncontrol[[params$j]][,4],
       puncontrol[[params$j]][,3] + fescala*puncontrol[[params$j]]$E_X,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



```
# Cambia el factor de escala circular según 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="Distribución circular de errores", xlab="X", ylab="Y")
segments(0, 0,
        fescalaCir*puncontrol[[params$j]]$E_X,
        fescalaCir* puncontrol[[params$j]]$E_Y,
        col= 'dark red')
```

Distribución circular de errores

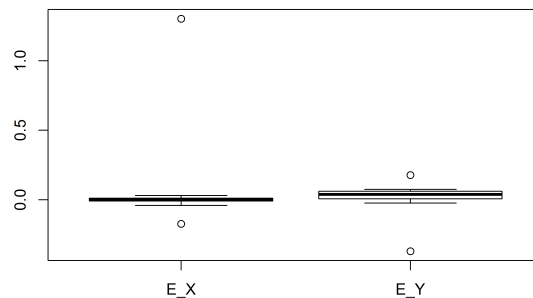


```
QCoH_RANDOMNESS(puncontrol[[params$j]][c(7,8)])
```

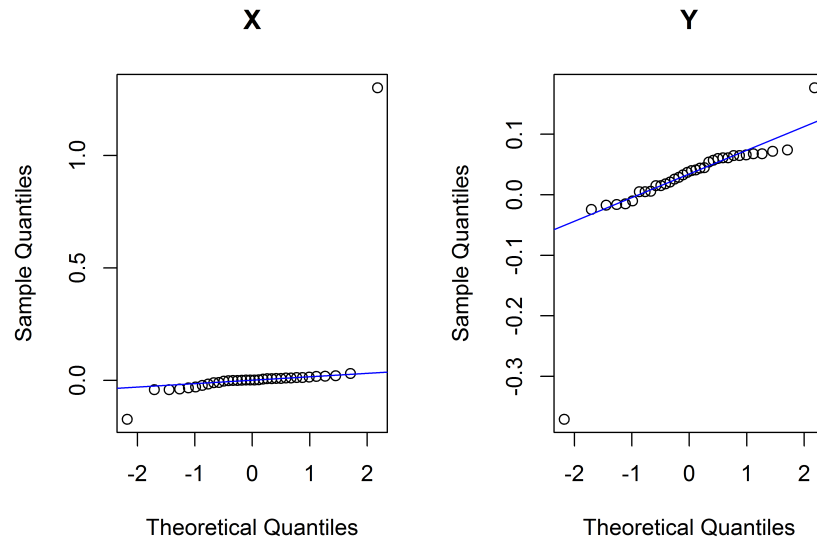
```
## [1] "El resultado del test de aleatoriedad para X: "
##
## Runs Test
##
## data: errorespos[, 1]
## statistic = -0.34832, runs = 17, n1 = 17, n2 = 17, n = 34, p-value
## = 0.7276
## alternative hypothesis: nonrandomness
##
## [1] "El resultado del test de aleatoriedad para Y: "
##
## Runs Test
##
## 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 número de casos fuera de rango en X es: 1"
## [1] "El número de casos fuera de rango en Y es: 0"
```



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



```
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

## 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

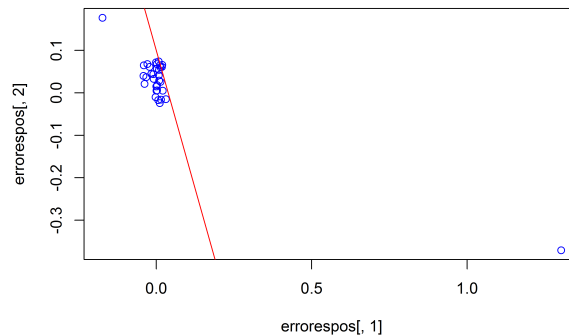
##
## Title:
## Normality test
##
## Test Results:
## STATISTIC:
## D: 0.4583
## P VALUE:
## Alternative Two-Sided: 1.253e-06
## Alternative Less: 8.125e-07
## Alternative Greater: 6.267e-07
##
## Description:
## X coordinate
##
## Title:
```

```
## Normality test
##
## Test Results:
## STATISTIC:
## D: 0.461
## P VALUE:
## Alternative Two-Sided: 1.058e-06
## Alternative Less: 5.29e-07
## Alternative Greater: 1.795e-06
##
## Description:
## Y coordinate
```

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

```
##
## Title:
## Bartlett Test for Homogeneity of Variances
##
## Test Results:
## STATISTIC:
## Bartlett's Chi-squared: 30.4813
## P VALUE:
## 3.371e-08
##
## Description:
## Thu Jul 18 15:03:13 2019
```

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



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

```
##          E_X          E_Y
## E_X  1.000000 -0.915476
## E_Y -0.915476  1.000000
```

```
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:  erroresp[, 1] and erroresp[, 2]
## S = 8672.2, p-value = 0.06073
## alternative hypothesis: true rho is not equal to 0
## sample estimates:
##      rho
## -0.3250038
```