Statistical analysis in RStudio

Contents

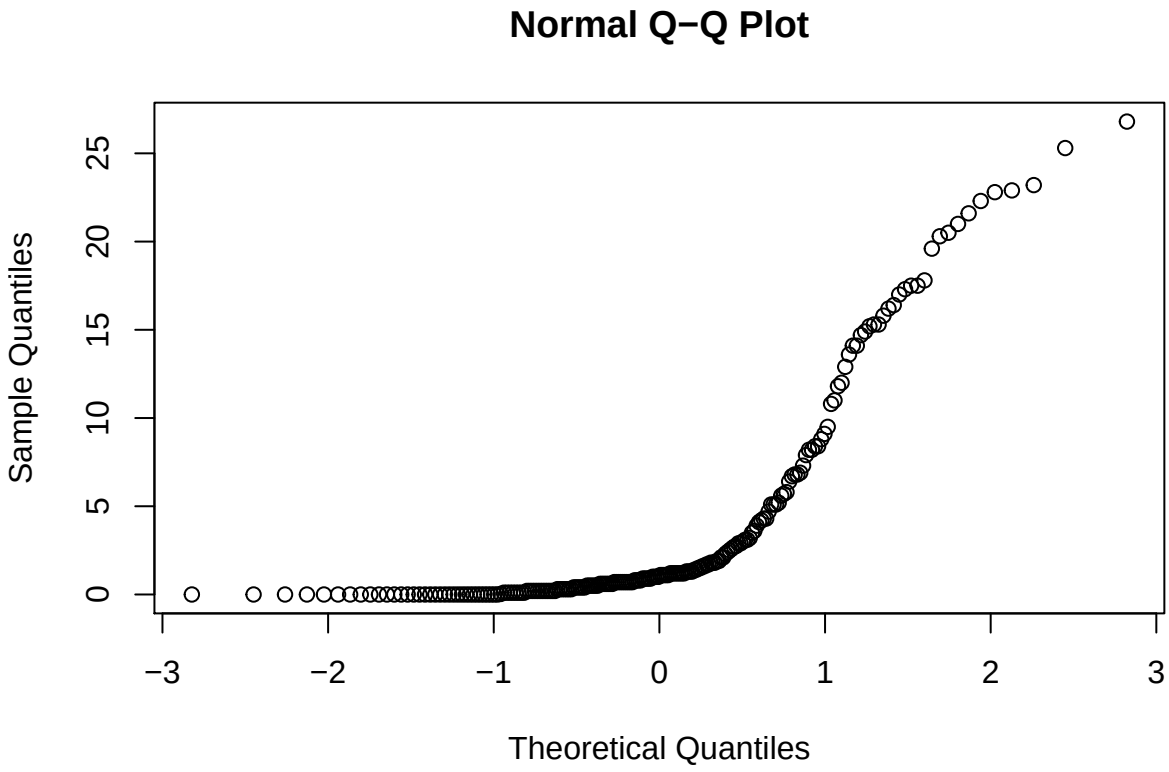
1 INTRODUCTION

Summer	Year.Month	Site	Species	average.count
summer-2007	2007.Jun	A	HARBOUR	14.1
summer-2007	2007.Jun	B	HARBOUR	0.3
summer-2007	2007.Jun	C	HARBOUR	14.7
summer-2007	2007.Jun	Spit	HARBOUR	0.1
summer-2007	2007.Jun	Wall	HARBOUR	0.7
summer-2007	2007.Jun	D	HARBOUR	0.0

```
## 'data.frame':    210 obs. of  5 variables:
##  $ Summer       : chr  "summer-2007" "summer-2007" "summer-2007" "summer-2007" ...
##  $ Year.Month   : chr  "2007.Jun" "2007.Jun" "2007.Jun" "2007.Jun" ...
##  $ Site         : chr  "A" "B" "C" "Spit" ...
##  $ Species      : chr  "HARBOUR" "HARBOUR" "HARBOUR" "HARBOUR" ...
##  $ average.count: num  14.1 0.3 14.7 0.1 0.7 0 0 0.3 0 2.6 ...
```

```
## 'data.frame':    210 obs. of  5 variables:
##  $ Summer       : Factor w/ 4 levels "2007","2008",..: 1 1 1 1 1 1 1 1 1 1 ...
##  $ Year.Month   : Factor w/ 15 levels "2007.Aug","2007.Jul",..: 3 3 3 3 3 3 3 3 3 3 ...
##  $ Site         : Factor w/ 7 levels "A","B","C","D",..: 1 2 3 6 7 4 5 1 2 3 ...
##  $ Species      : Factor w/ 2 levels "GREY","HARBOUR": 2 2 2 2 2 2 2 1 1 1 ...
##  $ average.count: num  14.1 0.3 14.7 0.1 0.7 0 0 0.3 0 2.6 ...
```

2 MATERIALS AND METHODS

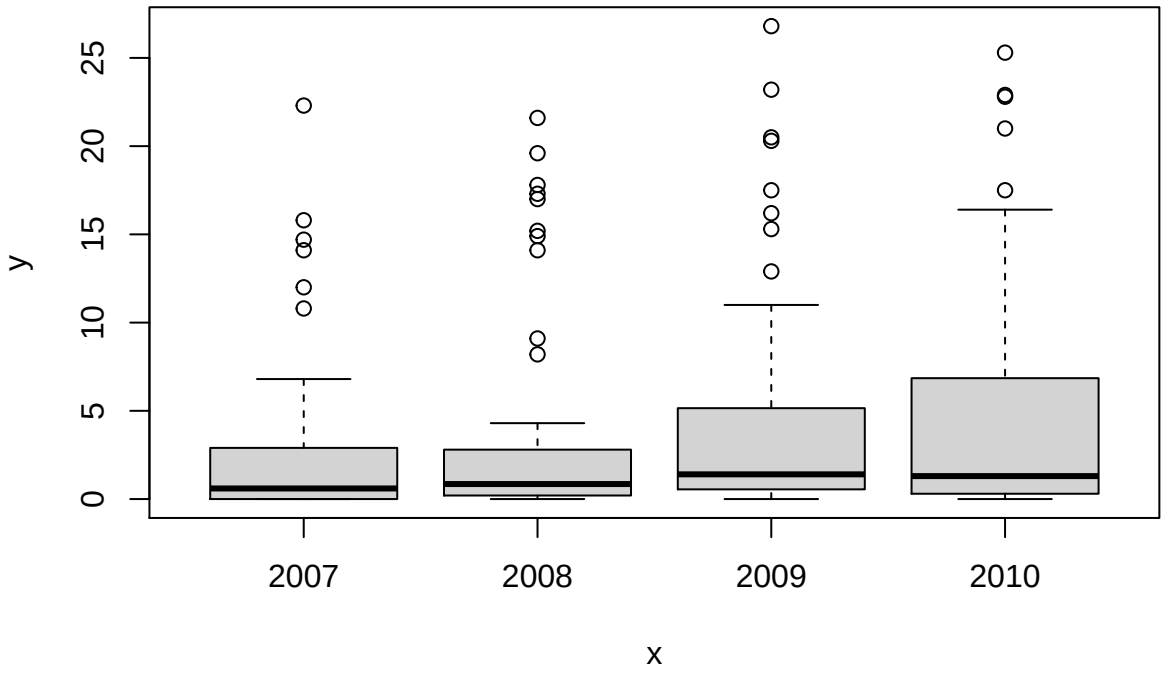



```
##
##  Shapiro-Wilk normality test
##
## data:  data$average.count
## W = 0.67749, p-value < 2.2e-16

##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count and data$Summer
## Kruskal-Wallis chi-squared = 6.236, df = 3, p-value = 0.1007

##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count and data$Summer
##
##      2007 2008 2009
## 2008 0.89 -    -
## 2009 0.20 0.43 -
## 2010 0.43 0.64 0.89
##
## P value adjustment method: holm
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count and data$Summer
##
##      2007 2008 2009
## 2008 0.54 -    -
## 2009 0.17 0.17 -
## 2010 0.17 0.32 0.75
##
## P value adjustment method: BH
```




```
##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count[data$Summer == "2007"] and data$Year.Month[data$Summer == "2007"]
## Kruskal-Wallis chi-squared = 1.3113, df = 2, p-value = 0.5191

## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties

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## exact p-value with ties

## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count[data$Summer == "2007"] and data$Year.Month[data$Summer == "2007"]
##
##          2007.Aug 2007.Jul
## 2007.Jul 0.63     -
## 2007.Jun 0.63     0.63
##
## P value adjustment method: BH
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count and data$Species
## Kruskal-Wallis chi-squared = 18.66, df = 1, p-value = 1.562e-05
```


```
##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count and data$Species
## Kruskal-Wallis chi-squared = 18.66, df = 1, p-value = 1.562e-05

##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
```

```
##
## data:  data$average.count and data$Species
##
##         GREY
## HARBOUR 1.6e-05
##
## P value adjustment method: BH

##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count[data$Summer == "2007"] and data$Species[data$Summer == "2007"]
## Kruskal-Wallis chi-squared = 3.2976, df = 1, p-value = 0.06938

## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties

##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count[data$Summer == "2007"] and data$Species[data$Summer == "2007"]
##
##         GREY
## HARBOUR 0.071
##
## P value adjustment method: BH

##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count[data$Summer == "2008"] and data$Species[data$Summer == "2008"]
## Kruskal-Wallis chi-squared = 2.727, df = 1, p-value = 0.09866

## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties

##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count[data$Summer == "2008"] and data$Species[data$Summer == "2008"]
##
##         GREY
## HARBOUR 0.1
##
## P value adjustment method: BH

##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count[data$Summer == "2009"] and data$Species[data$Summer == "2009"]
## Kruskal-Wallis chi-squared = 10.332, df = 1, p-value = 0.001307
```

```
## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count[data$Summer == "2009"] and data$Species[data$Summer == "2009"]
##
##         GREY
## HARBOUR 0.0013
##
## P value adjustment method: BH
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  data$average.count[data$Summer == "2010"] and data$Species[data$Summer == "2010"]
## Kruskal-Wallis chi-squared = 4.1213, df = 1, p-value = 0.04235
```

```
## Warning in wilcox.test.default(xi, xj, paired = paired, ...): cannot compute
## exact p-value with ties
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data$average.count[data$Summer == "2010"] and data$Species[data$Summer == "2010"]
##
##         GREY
## HARBOUR 0.043
##
## P value adjustment method: BH
```

3 RESULTS

4 DISCUSSION

4.0.1 REFERENCES