

Tutorial - Maps with R

Daniel Vaultot

25 03 2018

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1 Aim

This tutorial explain how to make maps with different packages under R

2 Downloads

Install the following software :

- R studio : <https://www.rstudio.com/products/rstudio/download/#download>

Download and install the following libraries by running under R studio the following lines

```
install.packages("dplyr")      # To manipulate dataframes
install.packages("stringr")    # To strings
install.packages("readxl")

install.packages("ggplot2")    # for high quality graphics
install.packages("leaflet")
```

3 References

- Leaflet for R : <https://rstudio.github.io/leaflet/>

4 Tutorial description

4.1 Load necessary libraries

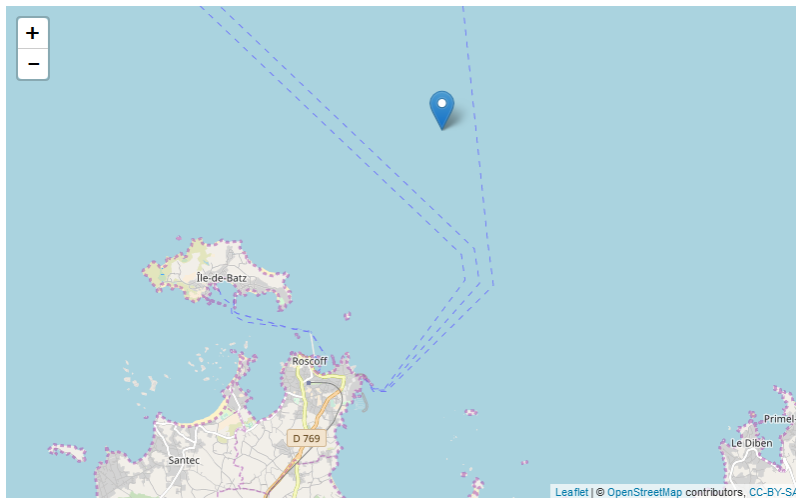
```
library("readxl")
library("leaflet")
```

```
## Warning: package 'leaflet' was built under R version 3.4.4
```

4.2 Use of leaflet for R

4.2.1 Simple map

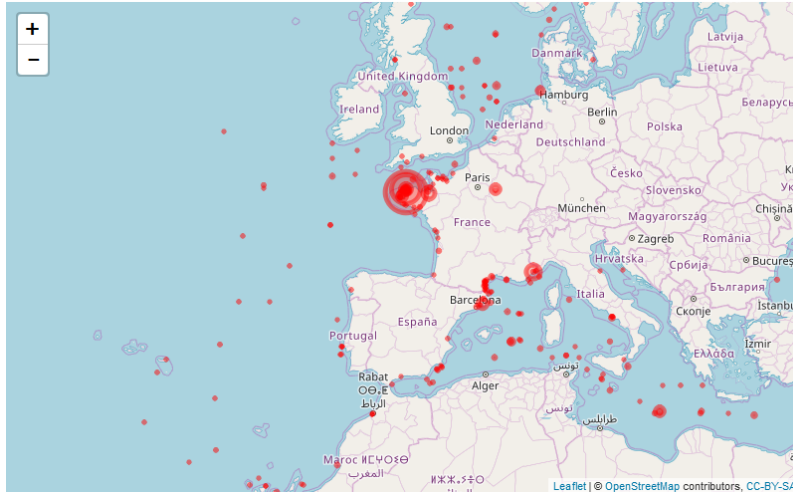
```
m <- leaflet(options = leafletOptions()) %>%  
  addTiles() %>% # Add default OpenStreetMap map tiles  
  addMarkers(lng=-3.9375, lat=48.77777778, popup="Roscoff Astan station") %>%  
  setView (lng=-3.95, lat=48.75, zoom=12)  
m # Print the map
```



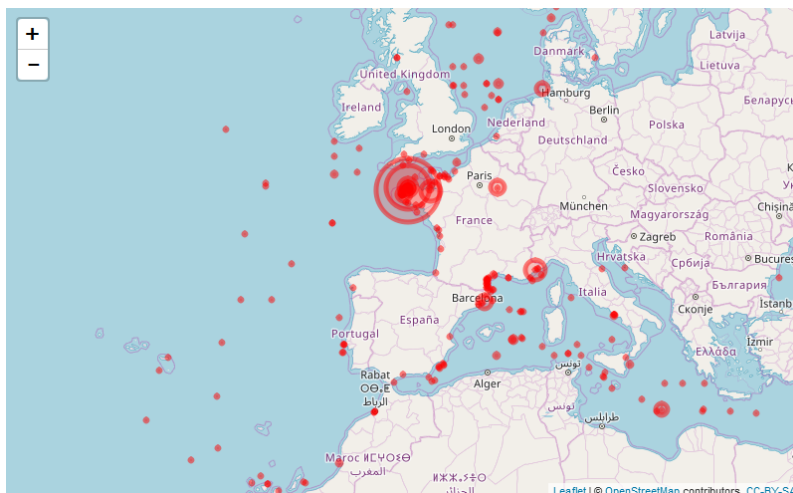
4.2.2 Maps of number of cultures isolated from different stations of the Roscoff Culture Collection (RCC)

Circle radius is proportionnal to number of cultures * addCircleMarkers: size is in pixel and therefore circle size does not change when zooming * addCircles: size is in meters and change when zooming

```
df <- read_excel("RCC_cultures_per_station.xlsx")  
  
m <- leaflet(options = leafletOptions()) %>%  
  addTiles() %>% # Add default OpenStreetMap map tiles  
  addCircleMarkers(data = df, lat = ~ Latitude, lng = ~ Longitude, radius = ~n_cult/10, color = "red")  
m
```



```
m <- leaflet(options = leafletOptions()) %>%
  addTiles() %>% # Add default OpenStreetMap map tiles
  addCircles(data = df, lat = ~ Latitude, lng = ~ Longitude, radius = ~n_cult*1000, color = "red", )
m
```

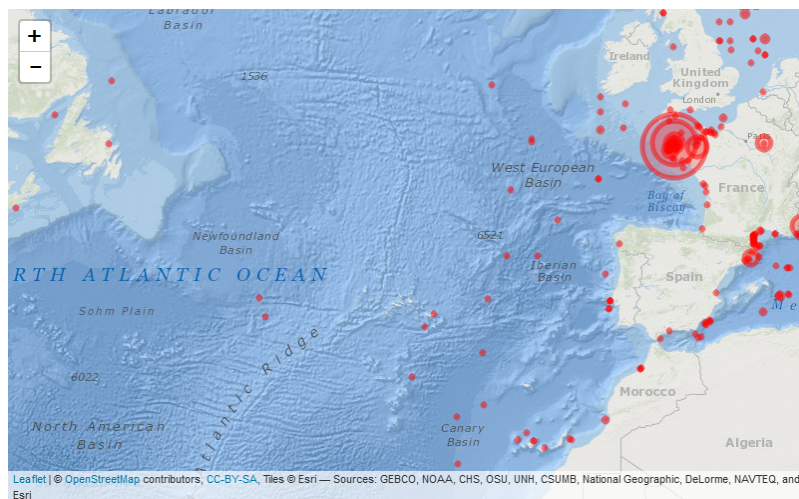


4.2.3 Change the background of the maps

See <http://leaflet-extras.github.io/leaflet-providers/preview/index.html>

- Ocean Base map

```
m <- m %>% addProviderTiles(providers$Esri.OceanBasemap)
m
```



- Esri World Imagery

```
m <- m %>% addProviderTiles(providers$Esri.WorldImagery)
m
```

