

# Untitled

## packages

J'ouvre un nouveau chunk avec : Ctrl + Alt + I

Je charge la liste des packages nécessaires à la formation.

```
# Load libraries -----
library(sp)
library(rgdal)

## rgdal: version: 1.4-3, (SVN revision 828)
## Geospatial Data Abstraction Library extensions to R successfully loaded
## Loaded GDAL runtime: GDAL 2.4.0, released 2018/12/14
## Path to GDAL shared files: /usr/share/gdal
## GDAL binary built with GEOS: TRUE
## Loaded PROJ.4 runtime: Rel. 5.2.0, September 15th, 2018, [PJ_VERSION: 520]
## Path to PROJ.4 shared files: (autodetected)
## Linking to sp version: 1.3-1

library(raster)
library(maps)
library(mapdata)
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:raster':
##
## intersect, select, union

## The following objects are masked from 'package:stats':
##
## filter, lag

## The following objects are masked from 'package:base':
##
## intersect, setdiff, setequal, union

library(here)

## here() starts at /mnt/Data/ThinkR/Gitlab/formation-glm/FR_Teacher_Classic_AllDataModel

# Other libraries ----
library(lattice) #to improve graphics
library(MASS)

##
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':
##
## select

## The following objects are masked from 'package:raster':
##
## area, select
```

```
library(ggplot2)

## Registered S3 methods overwritten by 'ggplot2':
##   method      from
## [.quosures    rlang
## c.quosures     rlang
## print.quosures rlang

# devtools::install_github('bhaskarvk/widgetframe')
library(leaflet)
library(ggmap)

## Google's Terms of Service: https://cloud.google.com/maps-platform/terms/.
## Please cite ggmap if you use it! See citation("ggmap") for details.
```

## Dossier de travail

```
# Define working directories -----
# WD <- "/mnt/Data/Formation_TD-GLM_Cours_Agro/TD_Vilaine_SIG-et-GLM_2017_01_3days"
WD <- here()
# Folder of original files
origWD <- here("01_Original_data")
# Folder for outputs
saveWD <- here("02_Outputs")
# Folder where to save outputs from R
figWD <- here("03_Figures")
# Folder where complementary functions are stored
funcWD <- here("04_Functions")
# Copy maintained complementary functions from local directory
# if (file.exists("~/Rshiny/Map_creation_git/Rsources/Map.output.fun.R")) {
#   tmp <- file.copy("~/Rshiny/Map_creation_git/Rsources/Map.output.fun.R",
#                     paste0(funcWD, "/Map.output.fun.R"), overwrite = TRUE)
# }
# Manual operations
Manuel <- FALSE
```

## Scripts supplémentaires

```
# Download other personal graphic functions
source(paste0(funcWD, "/function.Gamma.Hist.R"))
source(paste0(funcWD, "/function.chisq.gof.R"), encoding = "Latin1")
```

## Les données

Les données sont des données spatialisées.

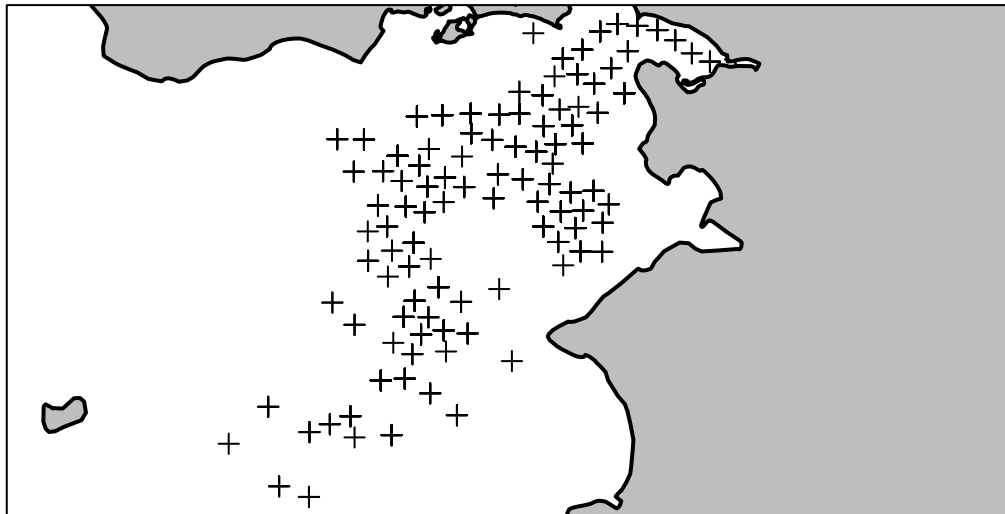
```
# Get data -----
# Load Coastlines shapefile
# Coasts_Vilaine_wgs84 <- readOGR(dsn = saveWD, layer = "Dept_Contour_wgs84")
Coasts_Vilaine_wgs84 <- readr::read_rds(file.path(saveWD, "Dept_Contour_wgs84.rds"))
# Coasts_Vilaine_wgs84 <- readr::write_rds(Coasts_Vilaine_wgs84, file.path(saveWD, "Dept_Contour_wgs84.rds"))
```

```

# Load the data shapefile
# dataset <- readOGR(dsn = saveWD, layer = "Stations_covariates_wgs84")
Stations_covariates_wgs84 <- readr::read_rds(
  path = paste0(saveWD, "/Stations_covariates_wgs84.rds"))

# Plot data
plot(Stations_covariates_wgs84)
plot(Coasts_Vilaine_wgs84, usePolypath = F, lwd = 2, col = "grey", add = TRUE)
box()

```



Nettoyage des données

```

# Transform to non-spatial dataset
dataset <- as.tbl(Stations_covariates_wgs84@data)

# Clean dataset names
names(dataset) <- gsub("_pt", "", names(dataset))

# Add a new covariate: bathymetry as class factor covariate
# c("1depth < 5 m", "2depth 5 - 10 m", "3depth 10 - 20 m", "4depth 20 - 50 m")
dataset <- dataset %>%
  mutate(Bathy_c =
    cut(-Bathy, breaks = c(min(-Bathy), 5, 10, 20, max(-Bathy, 50)),
      labels = c("1depth < 5m", "2depth 5-10m",
        "3depth 10-20m", "4depth 20-50m"),
      include.lowest = TRUE)) %>%
  # dplyr::select(-matches("coords"), -optional, -id) %>%
  dplyr::select(lat:Density, Sedim, Bathy, Bathy_c) %>%
  mutate(Year = as.factor(as.character(Year)))

```

## Exploration

Le plus important dans toute analyse

```
glimpse(dataset)
```

```
## Observations: 740
## Variables: 7
## $ lat      <dbl> 47.46767, 47.45450, 47.50150, 47.45850, 47.45967, 47.4...
## $ lon      <dbl> -2.561500, -2.657167, -2.536333, -2.580000, -2.553833,...
## $ Year     <fct> 1984, 1984, 1984, 1984, 1984, 1984, 1984, 1984, 1984, ...
## $ Density  <dbl> 19.111146, 1.111795, 218.983411, 24.432392, 13.194867,...
## $ Sedim    <fct> 1mud, 1mud, 1mud, 2sand, 1mud, 1mud, 2sand, 1mud, 1mud...
## $ Bathy    <dbl> -6.066180, -11.944320, -1.911541, -6.856680, -5.112914...
## $ Bathy_c  <fct> 2depth 5-10m, 3depth 10-20m, 1depth < 5m, 2depth 5-10m...
```

```
str(dataset)
```

```
## Classes 'tbl_df', 'tbl' and 'data.frame':   740 obs. of  7 variables:
## $ lat      : num  47.5 47.5 47.5 47.5 47.5 ...
## $ lon      : num  -2.56 -2.66 -2.54 -2.58 -2.55 ...
## $ Year     : Factor w/ 20 levels "1984","1985",...: 1 1 1 1 1 1 1 1 1 1 ...
## $ Density: num  19.11 1.11 218.98 24.43 13.19 ...
## $ Sedim    : Factor w/ 4 levels "1mud","2sand",...: 1 1 1 2 1 1 2 1 1 3 ...
## $ Bathy    : num  -6.07 -11.94 -1.91 -6.86 -5.11 ...
## $ Bathy_c  : Factor w/ 4 levels "1depth < 5m",...: 2 3 1 2 2 2 1 1 3 2 ...
```

```
skimr::skim(dataset) %>% skimr::kable()
```