

Generate_for_publication

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
graphics.off()
### Definitive script
#dev.off()
### Imports
library("usethis")
```

```
## Warning: package 'usethis' was built under R version 4.0.5
```

```
library("roxygen2")
```

```
## Warning: package 'roxygen2' was built under R version 4.0.5
```

```
library("devtools")
```

```
## Warning: package 'devtools' was built under R version 4.0.5
```

```
library(Rcpp)
```

```
## Warning: package 'Rcpp' was built under R version 4.0.5
```

```
library(RcppEigen)
library(methods)
library(lattice)
```

```
## Warning: package 'lattice' was built under R version 4.0.5
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

```
library(dplyr)
```

```
##
```

```
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
```

```
##
```

```
## filter, lag
```

```
## The following objects are masked from 'package:base':
```

```
##
```

```

##      intersect, setdiff, setequal, union
library(purrr)
library(Matrix)

## Warning: package 'Matrix' was built under R version 4.0.5
library("viridis")

## Warning: package 'viridis' was built under R version 4.0.5
## Loading required package: viridisLite
library("optAM")

## Registered S3 methods overwritten by 'RcppArmadillo':
##   method                      from
##   predict.fastLm              RcppEigen
##   print.fastLm                RcppEigen
##   summary.fastLm              RcppEigen
##   print.summary.fastLm        RcppEigen

## Warning: replacing previous import 'RcppArmadillo::fastLmPure' by
## 'RcppEigen::fastLmPure' when loading 'optAM'

## Warning: replacing previous import 'RcppArmadillo::fastLm' by
## 'RcppEigen::fastLm' when loading 'optAM'
library(hrbrthemes)

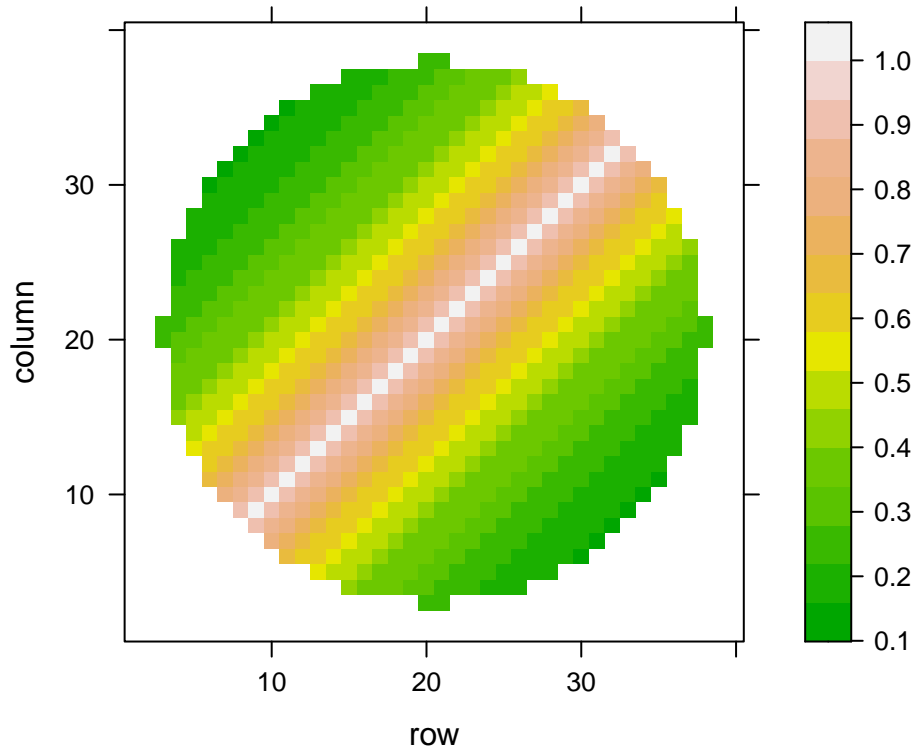
## Warning: package 'hrbrthemes' was built under R version 4.0.5
## NOTE: Either Arial Narrow or Roboto Condensed fonts are required to use these themes.
##       Please use hrbrthemes::import_roboto_condensed() to install Roboto Condensed and
##       if Arial Narrow is not on your system, please see https://bit.ly/arialnarrow
library(grid)
library(raster)

## Warning: package 'raster' was built under R version 4.0.5
## Loading required package: sp
## Warning: package 'sp' was built under R version 4.0.5
##
## Attaching package: 'raster'
## The following object is masked from 'package:dplyr':
##
##      select

```

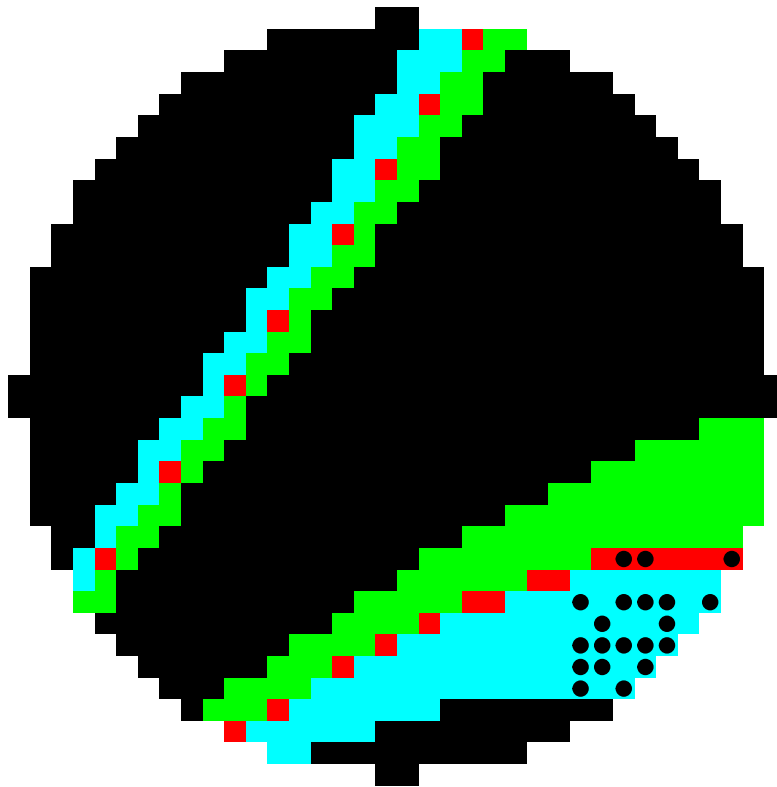
Including Plots

You can also embed plots, for example:



```
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude

## Warning in if (class(cost) == "dtCMatrix") {: la condition a une longueur > 1 et
## seul le premier élément est utilisé
```



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

```
## [1] 1758

##      [,1]
## [1,]    0
## [2,]    0
## [3,]    0
## [4,]    0
## [5,]    0
## [6,]    0
## [7,]   45
## [8,]    0
## [9,]    0
## [10,]   0
## [11,]   0
## [12,]   0
## [13,]   0
## [14,]   0
## [15,]   0
## [16,]   0
## [17,]   0
## [18,]  271
## [19,]   0
## [20,]   0
## [21,]   0
```

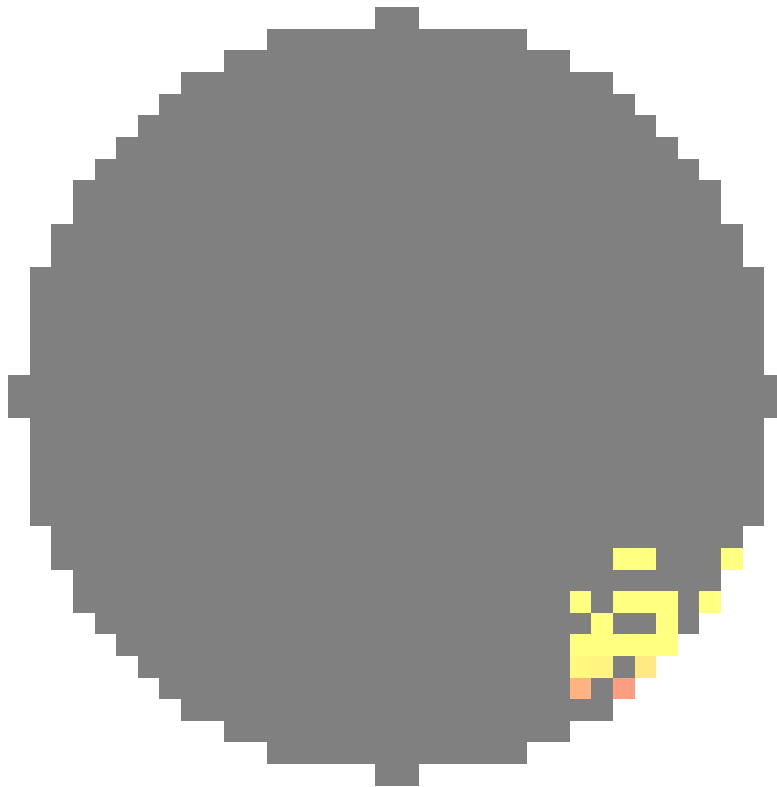
```

## [22,]    0
## [23,]    0
## [24,]    0
## [25,]    0
## [26,]    0
## [27,]  103
## [28,]    0
## [29,]    0
## [30,]    0
## [31,]    0
## [32,]    0
## [33,]    0
## [34,]    0
## [35,]    2
## [36,]    0
## [37,]    0
## [38,]    0
## [39,]    0
## [40,]    0
## [41,]    0

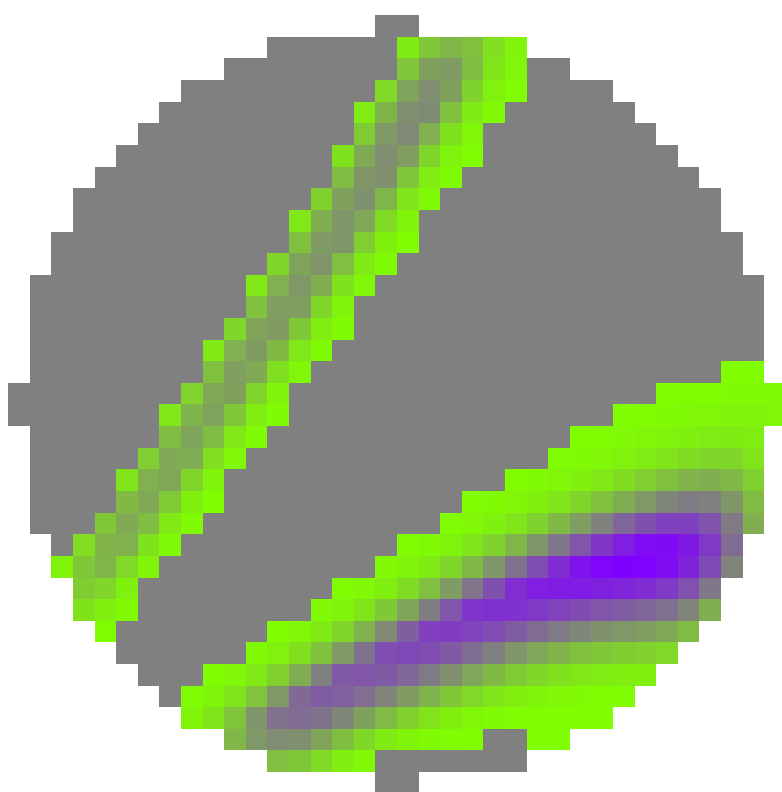
##      [,1]
## [1,]  223
## [2,]  221
## [3,]  220
## [4,]  219
## [5,]  232
## [6,]  231
## [7,]  230
## [8,]  245
## [9,]  243
## [10,] 241
## [11,] 239
## [12,] 254
## [13,] 252
## [14,] 250
## [15,] 249
## [16,] 261
## [17,] 260
## [18,] 259
## [19,] 276
## [20,] 283

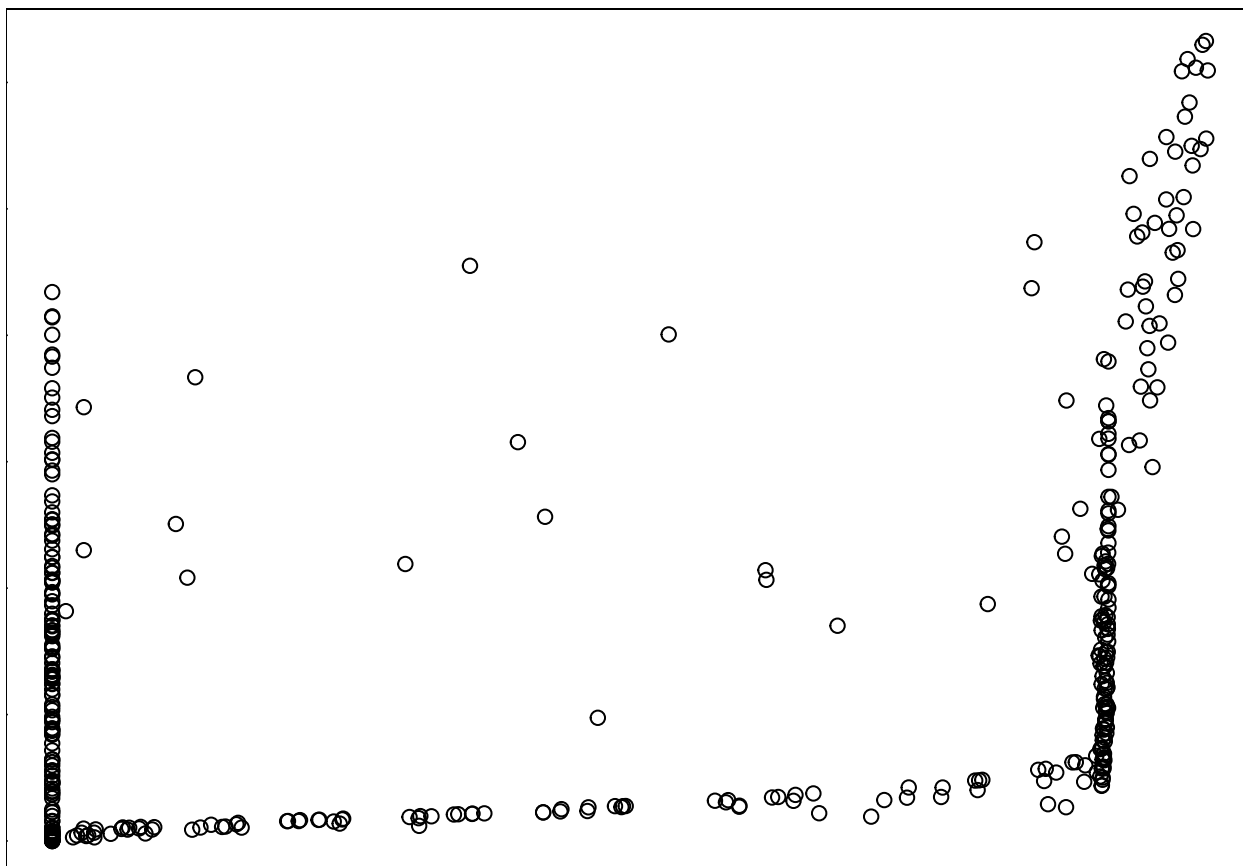
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude

```

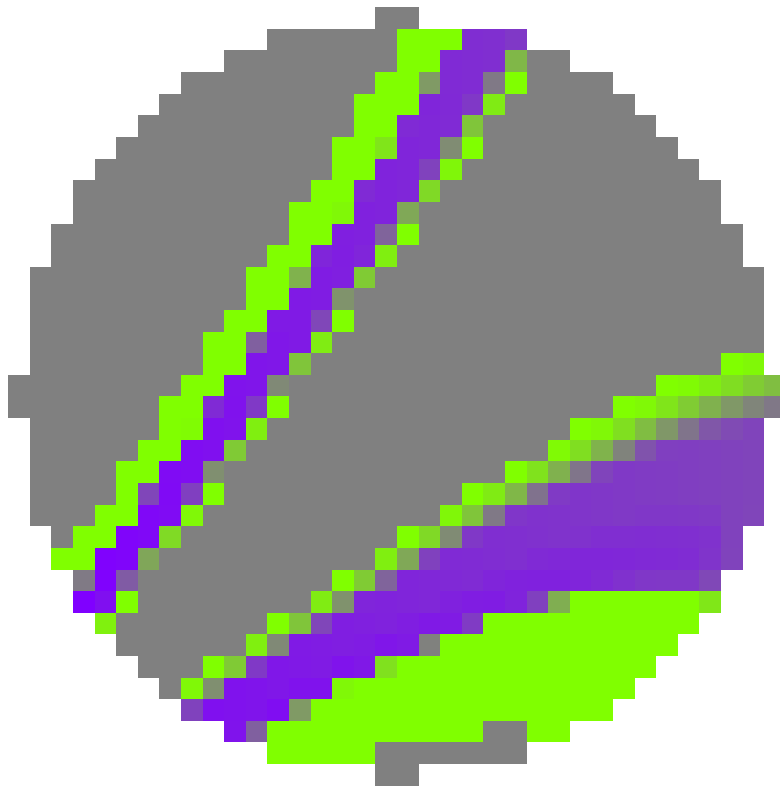


```
## Warning: package 'ramify' was built under R version 4.0.5
##
## Attaching package: 'ramify'
## The following objects are masked from 'package:Matrix':
##
##   tril, triu
## The following object is masked from 'package:purrr':
##
##   flatten
## The following object is masked from 'package:graphics':
##
##   clip
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude
```

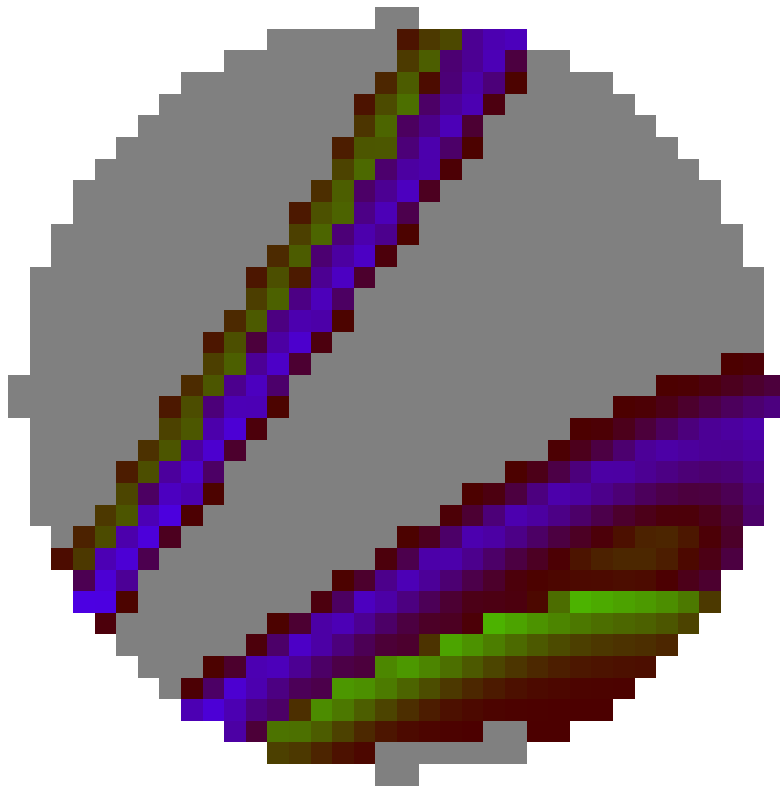




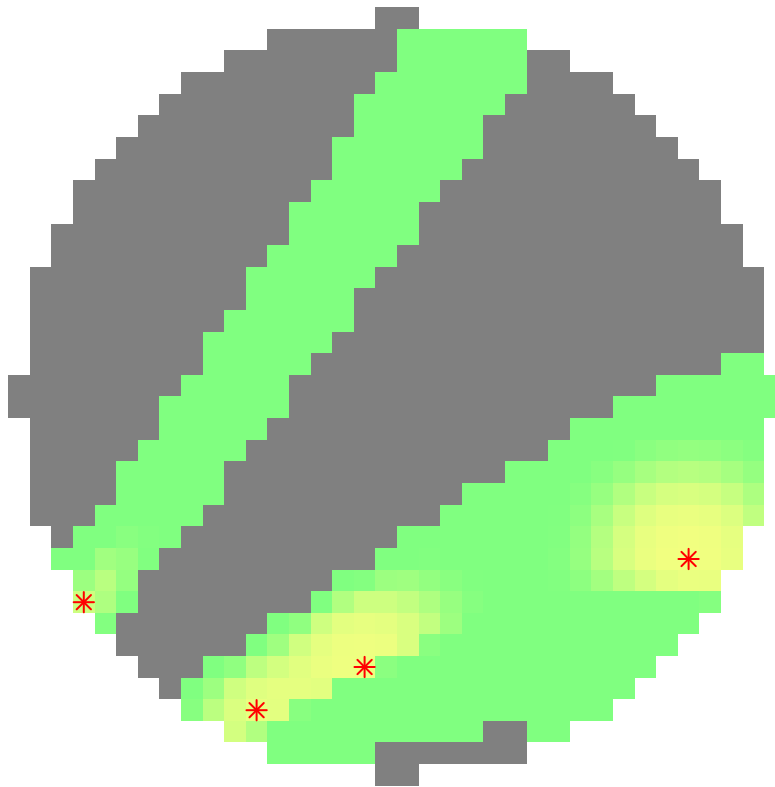
```
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is  
## longitude/latitude
```

```
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is  
## longitude/latitude
```



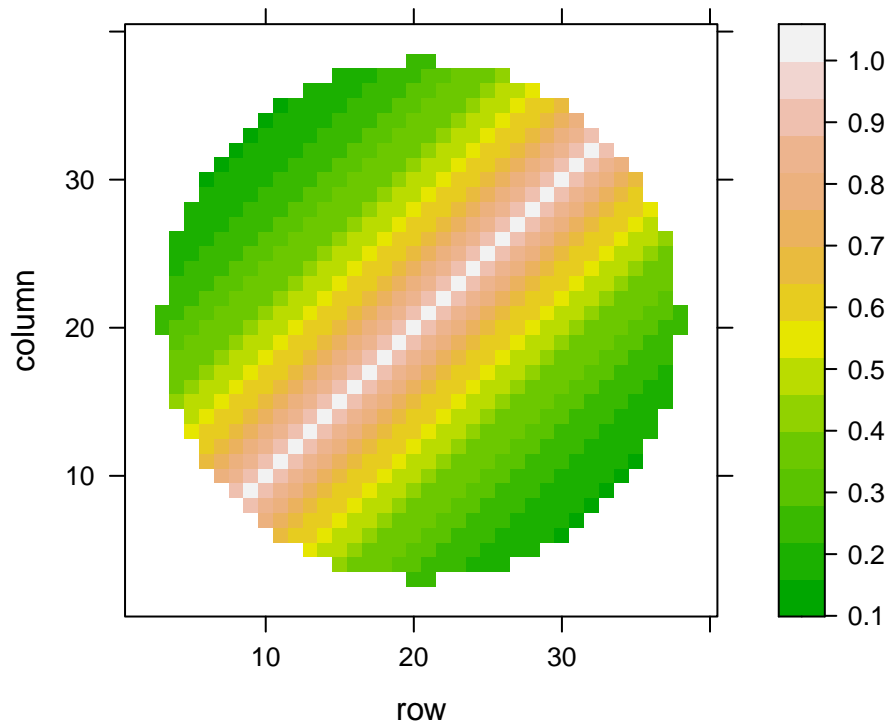
```
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is  
## longitude/latitude
```



-
-
- espece 2
-
-

```
## Warning: package 'rgdal' was built under R version 4.0.5
## Please note that rgdal will be retired by the end of 2023,
## plan transition to sf/stars/terra functions using GDAL and PROJ
## at your earliest convenience.
##
## rgdal: version: 1.5-28, (SVN revision 1158)
## Geospatial Data Abstraction Library extensions to R successfully loaded
## Loaded GDAL runtime: GDAL 3.2.1, released 2020/12/29
## Path to GDAL shared files: C:/Users/callebaut/Documents/R/R-4.0.3/library/rgdal/gdal
## GDAL binary built with GEOS: TRUE
## Loaded PROJ runtime: Rel. 7.2.1, January 1st, 2021, [PJ_VERSION: 721]
## Path to PROJ shared files: C:/Users/callebaut/Documents/R/R-4.0.3/library/rgdal/proj
## PROJ CDN enabled: FALSE
## Linking to sp version:1.4-6
## To mute warnings of possible GDAL/OSR exportToProj4() degradation,
## use options("rgdal_show_exportToProj4_warnings"="none") before loading sp or rgdal.
## Overwritten PROJ_LIB was C:/Users/callebaut/Documents/R/R-4.0.3/library/rgdal/proj
```

Terrain simulated



```
## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude

## Warning in if (class(cost) == "dtCMatrix") {: la condition a une longueur > 1 et
## seul le premier élément est utilisé

## [1] 1626

##      [,1]
## [1,]    0
## [2,]    0
## [3,]    0
## [4,]    0
## [5,]    0
## [6,]    0
## [7,]    0
## [8,]   26
## [9,]    0
## [10,]   0

##      [,1]
## [1,]  304
## [2,]  302
## [3,]  301
## [4,]  300
## [5,]  317
## [6,]  316
## [7,]  315
```

```

## [8,] 314
## [9,] 313
## [10,] 312
## [11,] 311
## [12,] 310
## [13,] 327
## [14,] 326
## [15,] 325
## [16,] 323
## [17,] 322
## [18,] 321
## [19,] 333
## [20,] 332
## [21,] 345
## [22,] 344
## [23,] 343
## [24,] 342
## [25,] 341
## [26,] 353
## [27,] 352
## [28,] 351
## [29,] 360
## [30,] 358

## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude

## Warning in .couldBeLonLat(x, warnings = warnings): CRS is NA. Assuming it is
## longitude/latitude

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## longitude/latitude

```