Rstudio et Rmarkdown

D Laloë

E-café GABI
29 mars 2016

RStudio

Integrated Development Environment

- Windows
- Mac
- Linux

RStudio

Composé de 4 fenêtres, qu'on peut redimensionner,masquer,…

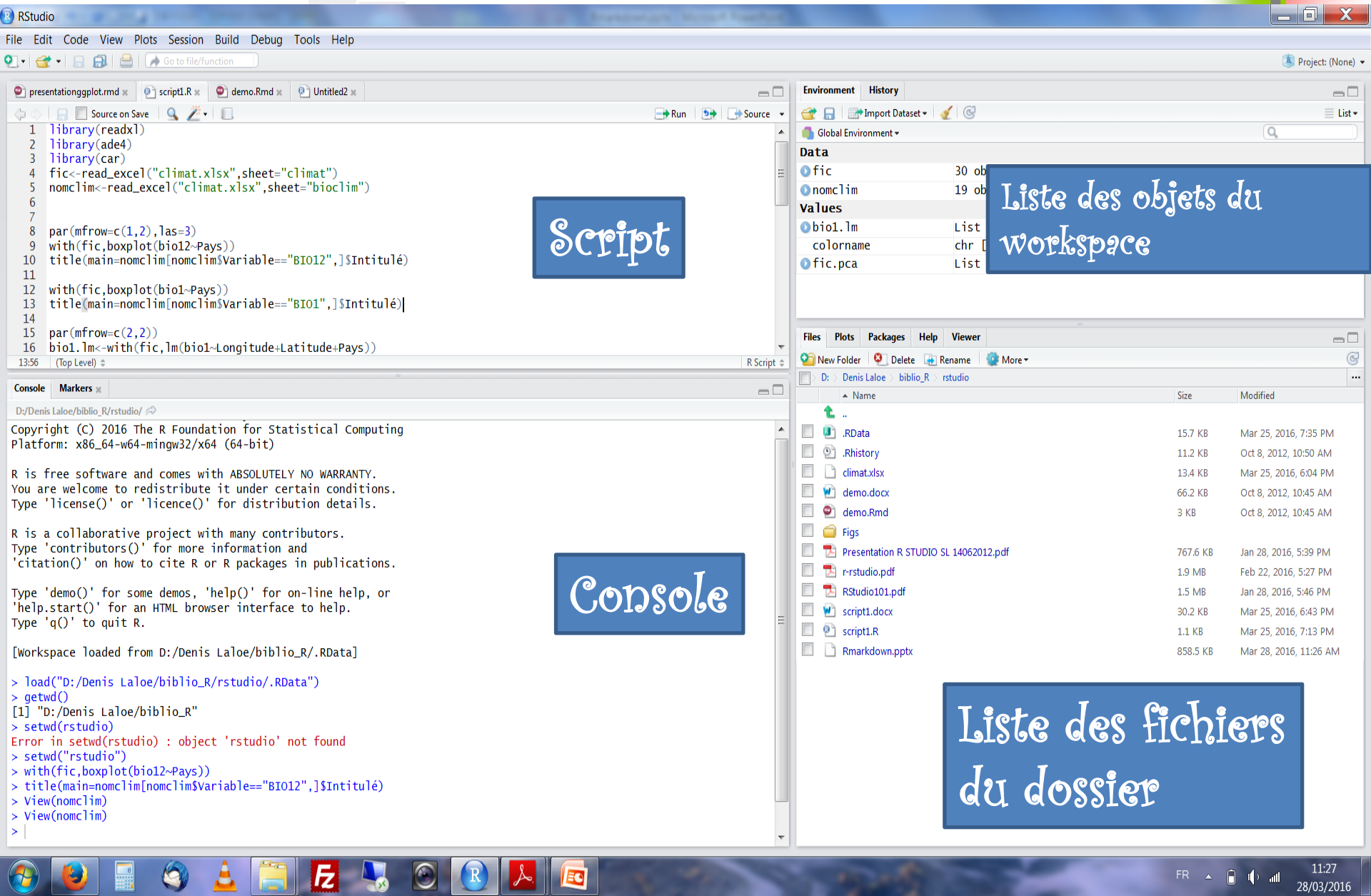
- Edition de fichiers sources (script R, …

- Console

- Affichage des objets, visualisation,…

- un navigateur de fichiers
- une fenêtre d'affichage et d'export des graphiques
- une liste des packages (MàJ, installation)
- Aide

RStudio


RStudio
File Edit Code View Plots Session Build Debug Tools Help
Project: (None)
presentationggplot.rmd
script1.R
demo.Rmd
Untitled2
Source on Save
Run
Source
1 library(readxl)
2 library(ade4)
3 library(car)
4 fic<-read_excel("climat.xlsx",sheet="climat")
5 nomclim<-read_excel("climat.xlsx",sheet="bioclim")
8 par(mfrow=c(1,2),las=3)
9 with(fic,boxplot(bio12~Pays))
10 title(main=nomclim[nomclim$Variable=="BIO12",]$Intitulé)
12 with(fic,boxplot(bio1~Pays))
13 title(main=nomclim[nomclim$Variable=="BIO1",]$Intitulé)
15 par(mfrow=c(2,2))
16 bio1.lm<-with(fic,lm(bio1~Longitude+Latitude+Pays))
13:56 (Top Level) R Script
Script
Environment History
Import Dataset List
Global Environment
Data
fic 30 ob
nomclim 19 ob
Values
bio1.lm List
colorname chr [
fic.pca List
Liste des objets du workspace
Console Markers
D:/Denis Laloe/biblio_R/rstudio/
Copyright (C) 2016 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)
R is free software and comes with ABSOLUTELY NO WARRANTY.
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> setwd(rstudio)
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> title(main=nomclim[nomclim$Variable=="BIO12",]$Intitulé)
> View(nomclim)
> View(nomclim)
>
Console
Files Plots Packages Help Viewer
New Folder Delete Rename More
D: Denis Laloe biblio_R rstudio
Name Size Modified
.RData 15.7 KB Mar 25, 2016, 7:35 PM
.Rhistory 11.2 KB Oct 8, 2012, 10:50 AM
climat.xlsx 13.4 KB Mar 25, 2016, 6:04 PM
demo.docx 66.2 KB Oct 8, 2012, 10:45 AM
demo.Rmd 3 KB Oct 8, 2012, 10:45 AM
Figs
Presentation R STUDIO SL 14062012.pdf 767.6 KB Jan 28, 2016, 5:39 PM
r-rstudio.pdf 1.9 MB Feb 22, 2016, 5:27 PM
RStudio101.pdf 1.5 MB Jan 28, 2016, 5:46 PM
script1.docx 30.2 KB Mar 25, 2016, 6:43 PM
script1.R 1.1 KB Mar 25, 2016, 7:13 PM
Rmarkdown.pptx 858.5 KB Mar 28, 2016, 11:26 AM
Liste des fichiers du dossier
FR 11:27 28/03/2016

RStudio

RStudio

File Edit Code View Plots Session Build Debug Tools Help

presentationggplot.rmd | script1.R | demo.Rmd | Untitled2

```
1  library(readxl)
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6
7
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11
12 with(fic,boxplot(bio1~Pays))
13 title(main=nomclim[nomclim$Variable=="BIO1",]$Intitulé)
14
15 par(mfrow=c(2,2))
16 bio1.lm<-with(fic,lm(bio1~Longitude+Latitude+Pays))
```

Script

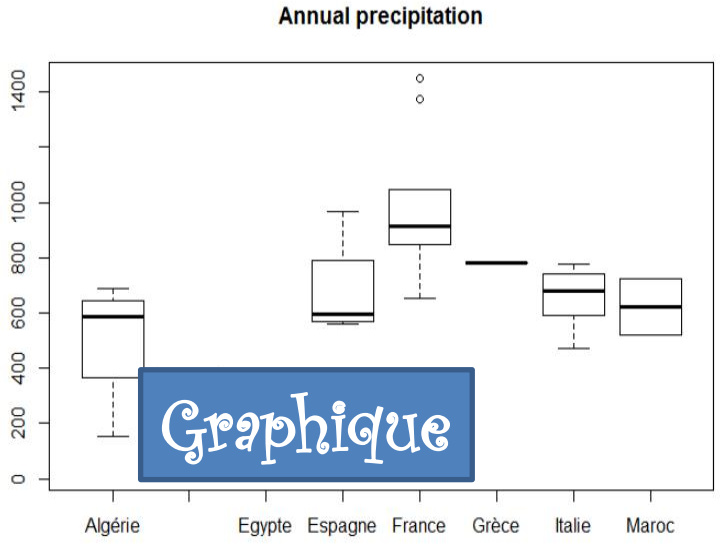
Environment | History

Data
- fic — 30 obs. of 24 variables
- nomclim — 19 ob

Values
- bio1.lm — List
- colorname — chr [
- fic.pca — List

Liste des objets du workspace

Files | Plots | Packages | Help | Viewer



Graphique

Console | Markers

D:/Denis Laloe/biblio_R/rstudio/

```
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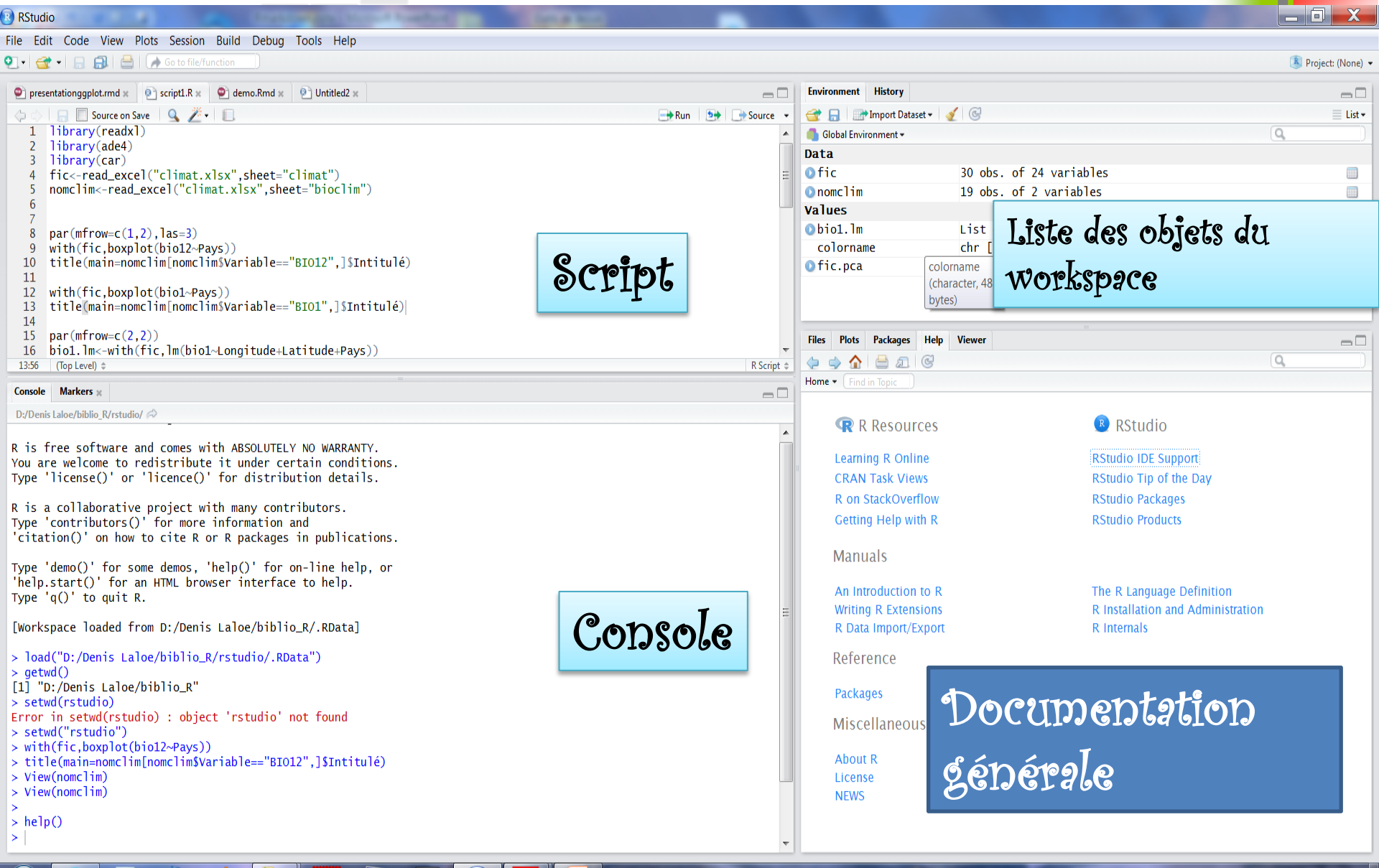
RStudio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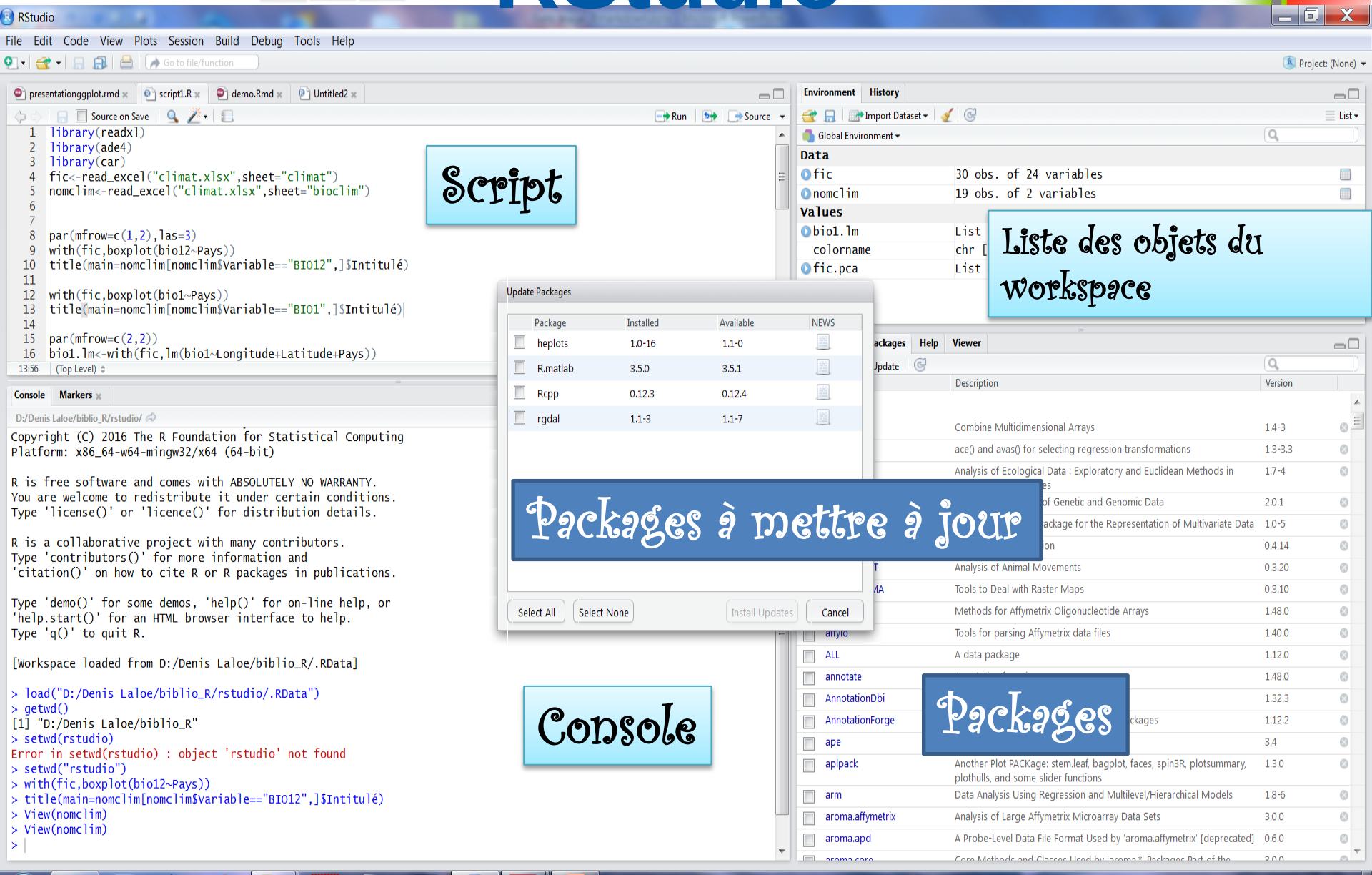
> help()
Console
Files Plots Packages Help Viewer
Home Find in Topic
R Resources
Learning R Online
CRAN Task Views
R on StackOverflow
Getting Help with R
RStudio
RStudio IDE Support
RStudio Tip of the Day
RStudio Packages
RStudio Products
Manuals
An Introduction to R
Writing R Extensions
R Data Import/Export
The R Language Definition
R Installation and Administration
R Internals
Reference
Packages
Miscellaneous
About R
License
NEWS
Documentation générale

RStudio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fic.pca List
Liste des objets du workspace
Update Packages
Package Installed Available NEWS
heplots 1.0-16 1.1-0
R.matlab 3.5.0 3.5.1
Rcpp 0.12.3 0.12.4
rgdal 1.1-3 1.1-7
Select All
Select None
Install Updates
Cancel
Packages à mettre à jour
Console
Markers
D:/Denis Laloe/biblio_R/rstudio/
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Viewer
Update
Description
Version
Combine Multidimensional Arrays 1.4-3
ace() and avas() for selecting regression transformations 1.3-3.3
Analysis of Ecological Data : Exploratory and Euclidean Methods in 1.7-4
2.0.1
1.0-5
0.4.14
Analysis of Animal Movements 0.3.20
Tools to Deal with Raster Maps 0.3.10
Methods for Affymetrix Oligonucleotide Arrays 1.48.0
Tools for parsing Affymetrix data files 1.40.0
ALL A data package 1.12.0
annotate 1.48.0
AnnotationDbi 1.32.3
AnnotationForge 1.12.2
ape 3.4
aplpack Another Plot PACKage: stem.leaf, bagplot, faces, spin3R, plotsummary, plothulls, and some slider functions 1.3.0
arm Data Analysis Using Regression and Multilevel/Hierarchical Models 1.8-6
aroma.affymetrix Analysis of Large Affymetrix Microarray Data Sets 3.0.0
aroma.apd A Probe-Level Data File Format Used by 'aroma.affymetrix' [deprecated] 0.6.0
Packages
FR
11:36
28/03/2016

Rmarkdown/knitr

Markdown
Langage de balisage léger

Pandoc's Markdown
Version améliorée / alourdie
http://pandoc.org/README.html#pandocs-markdown

Rmardown
Inclusion dans R/Rstudio

Outil de rapportage

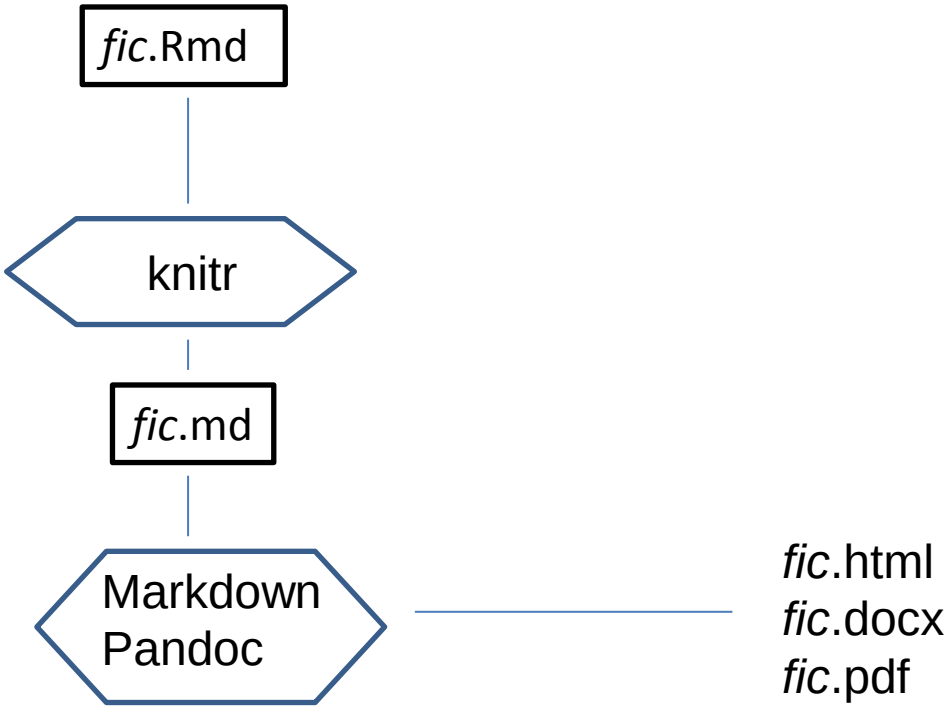
https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf
http://www.rstudio.com/wp-content/uploads/2015/03/rmarkdown-reference.pdf

Trois formats de sortie

- docx
- html
- pdf

Traçabilité / Reproductibilité

Rmarkdown/knitr



https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf

R Markdown Reference Guide

Learn more about R Markdown at rmarkdown.rstudio.com
Learn more about Interactive Docs at shiny.rstudio.com/articles

Contents:

1. **Markdown Syntax**
2. Knitr chunk options
3. Pandoc options

Syntax

```
Plain text

End a line with two spaces
to start a new paragraph.

*italics* and _italics_

**bold** and __bold__

superscript^2^

~~strikethrough~~

[link](www.rstudio.com)

# Header 1

## Header 2

### Header 3

#### Header 4

##### Header 5

###### Header 6

endash: --

emdash: ---

ellipsis: ...

inline equation: $A = \pi*r^{2}$

image: ![](path/to/smallorb.png)

horizontal rule (or slide break):

***
```

Becomes

Plain text

End a line with two spaces to start a new paragraph.

italics and *italics*

bold and **bold**

superscript^2

~~strikethrough~~

link

Header 1

Header 2

Header 3

Header 4

Header 5

Header 6

endash: –

emdash: —

ellipsis: …

inline equation: $A = \pi * r^2$

image:

horizontal rule (or slide break):

Chunk options

Syntax	Becomes

Make a code chunk with three back ticks followed by an r in braces. End the chunk with three back ticks:
 	
``{r}
paste("Hello", "World!")
``
	Make a code chunk with three back ticks followed by an r in braces. End the chunk with three back ticks:
	
	`paste("Hello", "World!")`
	
	`## [1] "Hello World!"`

Place code inline with a single back ticks. The first back tick must be followed by an R, like this `r paste("Hello", "World!")`.	Place code inline with a single back ticks. The first back tick must be followed by an R, like this Hello World!.

Add chunk options within braces. For example, `echo=FALSE` will prevent source code from being displayed:
 	
``{r eval=TRUE, echo=FALSE}
paste("Hello", "World!")
``
	Add chunk options within braces. For example, `echo=FALSE` will prevent source code from being displayed:
	
	`## [1] "Hello World!"`

Learn more about chunk options at http://yihui.name/knitr/options

Chunk options

option	default value	description
Code evaluation		
child	NULL	A character vector of filenames. Knitr will knit the files and place them into the main document.
code	NULL	Set to R code. Knitr will replace the code in the chunk with the code in the code option.
engine	'R'	Knitr will evaluate the chunk in the named language, e.g. **engine = 'python'**. Run **names(knitr::knit_engines$get())** to see supported languages.
eval	TRUE	If **FALSE**, knitr will not run the code in the code chunk.
include	TRUE	If **FALSE**, knitr will run the chunk but not include the chunk in the final document.
purl	TRUE	If **FALSE**, knitr will not include the chunk when running **purl()** to extract the source code.
Results		
collapse	FALSE	If **TRUE**, knitr will collapse all the source and output blocks created by the chunk into a single block.
echo	TRUE	If **FALSE**, knitr will not display the code in the code chunk above it's results in the final document.
results	'markup'	If **'hide'**, knitr will not display the code's results in the final document. If **'hold'**, knitr will delay displaying all output pieces until the end of the chunk. If **'asis'**, knitr will pass through results without reformatting them (useful if results return raw HTML, etc.)
error	TRUE	If **FALSE**, knitr will not display any error messages generated by the code.
message	TRUE	If **FALSE**, knitr will not display any messages generated by the code.
warning	TRUE	If **FALSE**, knitr will not display any warning messages generated by the code.
Code Decoration		
comment	'##'	A character string. Knitr will append the string to the start of each line of results in the final document.
highlight	TRUE	If **TRUE**, knitr will highlight the source code in the final output.
prompt	FALSE	If **TRUE**, knitr will add > to the start of each line of code displayed in the final document.
strip.white	TRUE	If **TRUE**, knitr will remove white spaces that appear at the beginning or end of a code chunk.
tidy	FALSE	If **TRUE**, knitr will tidy code chunks for display with the **tidy_source()** function in the **formatR** package.

Chunk options

Syntax	Becomes

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Pandoc options

Learn more about Interactive Docs at shiny.rstudio.com/articles

2. Knitr chunk options
3. **Pandoc options**

Templates	Basic YAML	Template options	Latex options	Interactive Docs

html_document
pdf_document
word_document
md_document
ioslides_presentation
slidy_presentation
beamer_presentation
	`---`
	`title: "A Web Doc"`
	`author: "John Doe"`
	`date: "May 1, 2015"`
	`output: md_document`
	`---`
		`---`
		`title: "Chapters"`
		`output:`
		`  html_document:`
		`  toc: true`
		`  toc_depth: 2`
		`---`
			`---`
			`title: "My PDF"`
			`output: pdf_document`
			`fontsize: 11pt`
			`geometry: margin=1in`
			`---`
				`---`
				`title: "Slides"`
				`output:`
				`  slidy_presentation:`
				`  incremental: true`
				`runtime: shiny`
				`---`

Syntax for slide formats (ioslides, slidy, beamer)

```
# Dividing slides 1

Pandoc will start a new slide at each first level header

## Header 2

… as well as each second level header

***

You can start a new slide with a horizontal rule`***` if you do not want
a header.

## Bullets

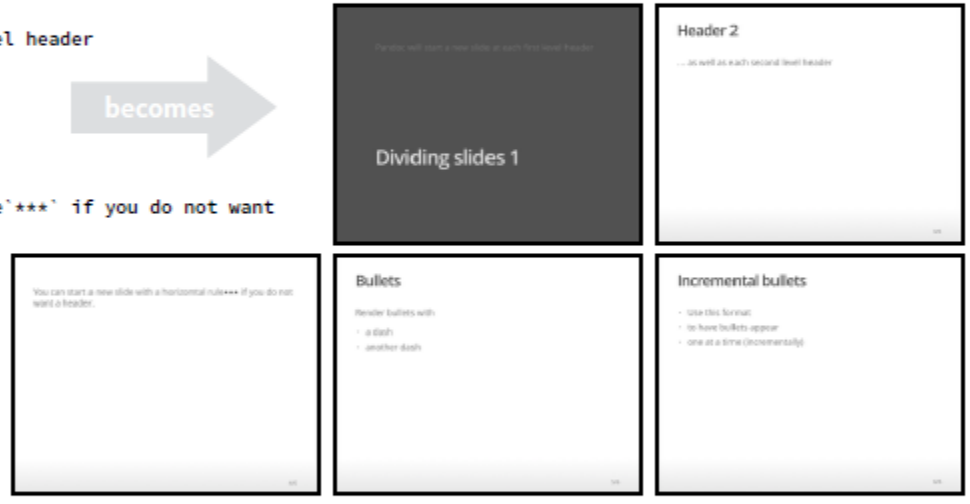
Render bullets with

- a dash
- another dash

## Incremental bullets

>- Use this format
>- to have bullets appear
>- one at a time (incrementally)
```

becomes



Slide display modes

Press a key below during presentation to enter display mode. Press **esc** *to exit display mode.*

ioslides

- **f** - enable fullscreen mode
- **w** - toggle widescreen mode
- **o** - enable overview mode
- **h** - enable code highlight mode
- **p** - show presenter notes

slidy

- **C** - show table of contents
- **F** - toggle display of the footer
- **A** - toggle display of current vs all slides
- **S** - make fonts smaller
- **B** - make fonts bigger