



Ministry of Forest,
Environment
and Climate Change



R and R Studio

Addis Ababa, 2017

Antonello Salis

Forestry Officer

Antonello.salis@fao.org



R & RStudio

<https://cran.r-project.org/>

<https://www.r-project.org/>

License: GNU General Public License

Pricing: Free

<https://www.rstudio.com/>

License: AGPL v3

Pricing : Free



R training Roadmap

1 day (1 hour) [file: R_training_A1.R]

- Install R & Rstudio;
- Overview;
- First steps with Rstudio:
 - × Data types;
 - × Vectors;
 - × Plots.



R training Roadmap

Before start please:

- 1) Create a folder called R_training on your Desktop;**
- 2) Copy the “Materials” folder from the flashdisk on the R_training folder;**



Yes

- data handling and storage: numeric, textual
- matrix algebra
- hash tables and regular expressions
- high-level data analytic and statistical functions
- graphics
- programming language: loops, branching,

No

- is not a database, but connects to DBMSs
- no professional / commercial support





```
ch3o@black: ~ ch3o@black: ~
ch3o@black:~$ R

R version 3.2.3 (2015-12-10) -- "Wooden Christmas-Tree"
Copyright (C) 2015 The R Foundation for Statistical Computing
Platform: x86_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

  Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Previously saved workspace restored]

>
```



Activities Places RStudio Thu Jan 21, 10:51:46

~/WIP/R_project/Ethiopia/Ethiopia - RStudio

File Edit Code View Plots Session Build Debug Tools Help

Go to file/function

Hansen.R Import_clean.R Hansen

Source on Save Run Source

```
1 library(ggplot2)~
2 ~
3 ~
4 #Import data~
5 rm(list=ls())
6 # Restart the plot device~
7 dev.off()~
8 ~
9 setwd("~/home/ch3o/WIP/R_project/Ethiopia/")~
10 Hansen <- read.csv("Hansen2.csv", header = T)~
11 ~
12 plot(Hectars-Year, data = Hansen)~
13 correlation<- lm(Hectars-Year, Hansen)~
14 summary(correlation)~
15 Anova_Hansen <- aov(Hectars-Year, data = Hansen)~
16 summary(Anova_Hansen)~
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```

5:14 (Top Level)

Environment History Git

Import Dataset Grid

Global Environment

Name	Type	Length	Size	Value
Anova_Hansen	aov	12	14.4 KB	List of 12
correlation	lm	12	14.4 KB	List of 12
Hansen	data.fra...	2	840 B	7 obs. of 2 variabl...

Files Plots Packages Help Viewer

R: Textual annotations. Find in Topic

Description

geom_text adds text directly to the plot. geom_label draws a rectangle underneath the text, making it easier to read.

Usage

```
geom_label(mapping = NULL, data = NULL, stat = "identity",
  position = "identity", parse = FALSE, ..., nudge_x = 0, nudge_y = 0,
  label.padding = unit(0.25, "lines"), label.r = unit(0.15, "line"),
  label.size = 0.25, na.rm = FALSE, show.legend = NA,
  inherit.aes = TRUE)
```

```
geom_text(mapping = NULL, data = NULL, stat = "identity",
  position = "identity", parse = FALSE, ..., nudge_x = 0, nudge_y = 0,
  check_overlap = FALSE, na.rm = FALSE, show.legend = NA,
  inherit.aes = TRUE)
```

Arguments

Console

~/WIP/R_project/Ethiopia/Ethiopia/

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'citation()' on how to cite R or R packages in publications.

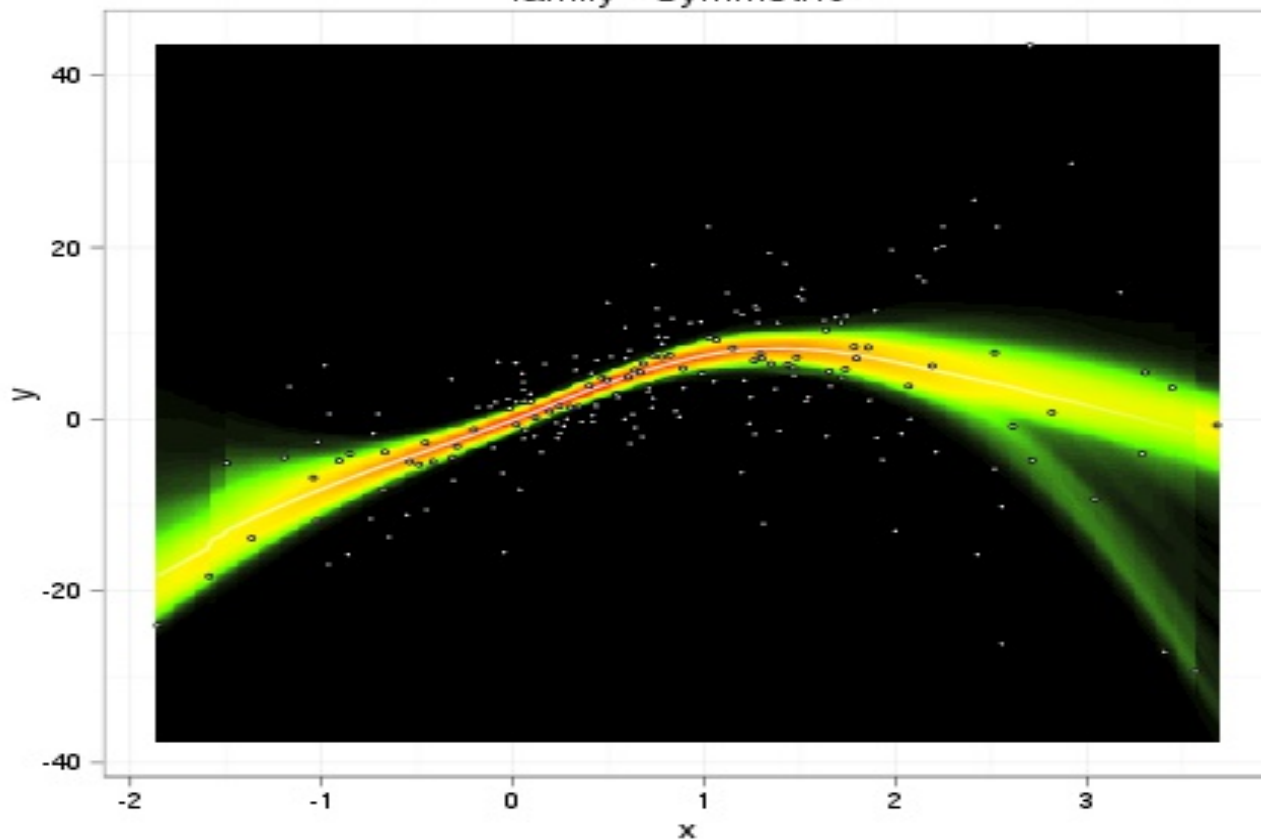
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Workspace loaded from ~/WIP/R_project/Ethiopia/Ethiopia/.RData]

> |



```
y~x, df, shade.alpha=0, slices=400,  
palette=colorRampPalette(c("black", "green", "yellow", "red"), bias=5)(2  
family="symmetric"
```



Over 10.000 Packages!



- ggplot2

- gdal

- bayess

- reshape

- animation

- Mass



Different “boxes” for different data types

- Small boxes : variables (just a letter, a number, a formula, eg: one tree height, the average of the DBH in a SU)
- Medium boxes : vectors, lists. (eg, list of all the ethiopian tree species, or all the DBH in a SU)
- Big boxes : datasets (eg. all the NFI data).