Basic Introduction to

Simon Knüsel

Forest Dynamics, WSL

simon.knuesel@wsl.ch

Course administration

Tim Menck

kurssekretariat@id.uzh.ch

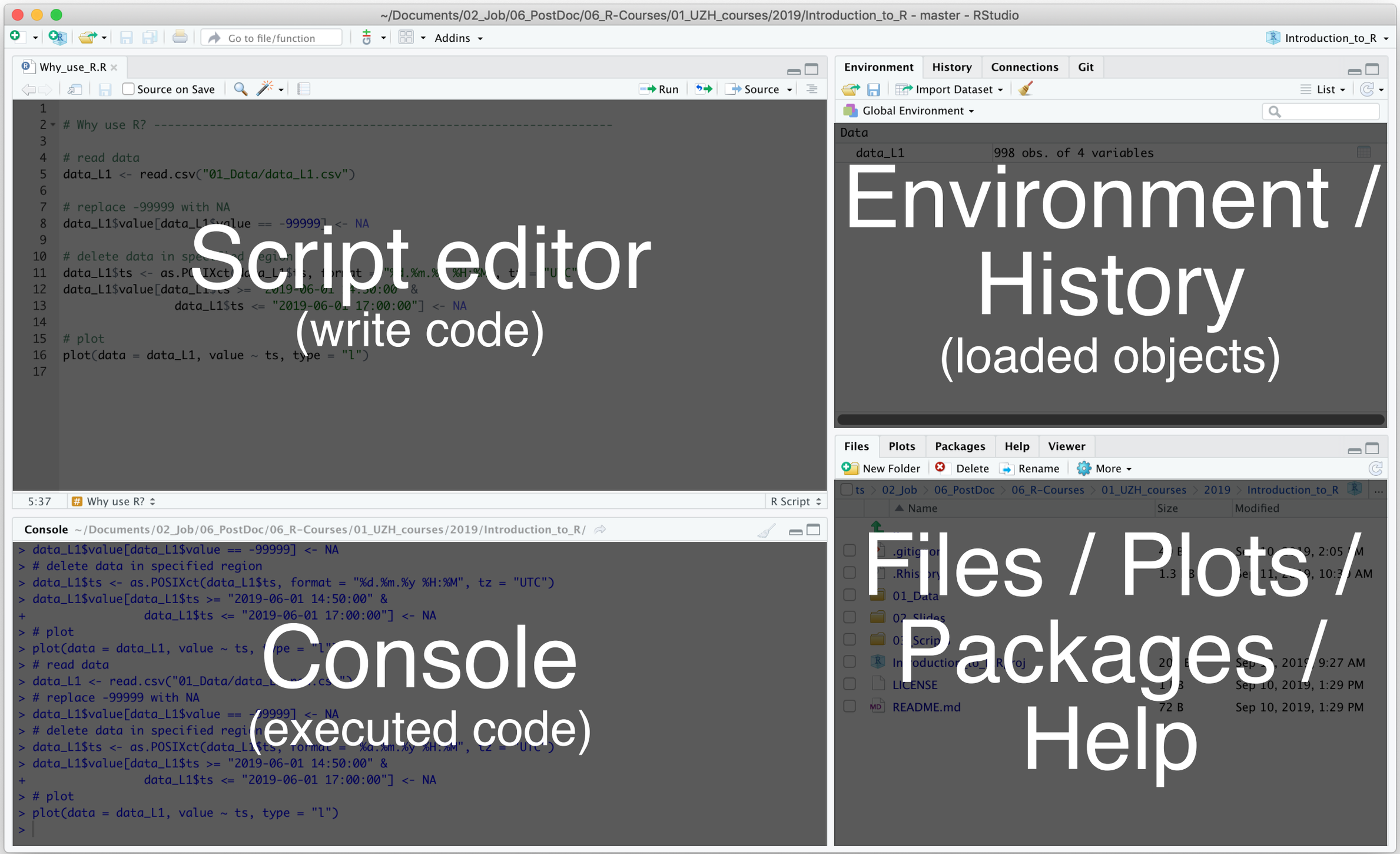
Goals

- Start to code
- Learn how to use R for the analysis of your data
- Know where and how to get help if you are stuck

Why use R?

- Reproducibility
- Keep original data untouched
- It is open source…
  with a large community
- Advanced statistics
- State-of-the-art graphics
- Powerful data manipulation
- Supports large datasets
- Fast computation
- Easier automation
- Anyone can contribute
- …

RStudio



Script editor
(write code)

Environment / History
(loaded objects)

Console
(executed code)

Files / Plots / Packages / Help

Shortcuts

	Mac	Windows / Linux
Run line	Cmd + Enter	Ctrl + Enter
# Comment line	Alt + 3	
[ ] Square brackets	Alt + 5 / Alt + 6	
{ } Curly brackets	Alt + 8 / Alt + 9	
| OR operator	Alt + 7	
~ Tilde	Alt + N	
Show RStudio shortcuts	Alt + Shift + K	Option + Shift + K

Capabilities of R

- Nice graphs
  https://www.r-graph-gallery.com/violin_and_boxplot_ggplot2.html

- Maps with R
  https://www.r-graph-gallery.com/choropleth-map.html

- Interactive web applications (R Shiny)
  https://shiny.rstudio.com/gallery/movie-explorer.html

- R and databases
  https://db.rstudio.com/getting-started/connect-to-database

Where to get help

- Websites
    - RStudio Cheat Sheets
      https://www.rstudio.com/resources/cheatsheets/
    - Google
      e.g. „r how to merge two data frames“
    - https://stackoverflow.com/
    - https://www.r-bloggers.com/
- Online book
    - R for Data Science
      https://r4ds.had.co.nz/

…more help

- Other R courses
    - R: tidyverse for data science (UZH) https://app.connect.uzh.ch/apps/id/kurse.nsf/veranstaltungen.xsp
    - Specialised R-Workshops (2 days, 1ECTS for PhD students, Plant Science Center) https://www.plantsciences.uzh.ch/en/teaching/phdplantscience/coursecatalogue.html
    - Zurich R Courses https://www.zhrcourses.uzh.ch/en.html
    - Specialised R-Workshops (1 day intensive course, small groups) https://ethz.ch/services/de/it-services/katalog/support-weiterbildung/it-training/kurse.html

Sources

For the development of this course I was mainly inspired by the course material of Jan Wunders *R* course

Introdution to R (Wunder, 2016)