

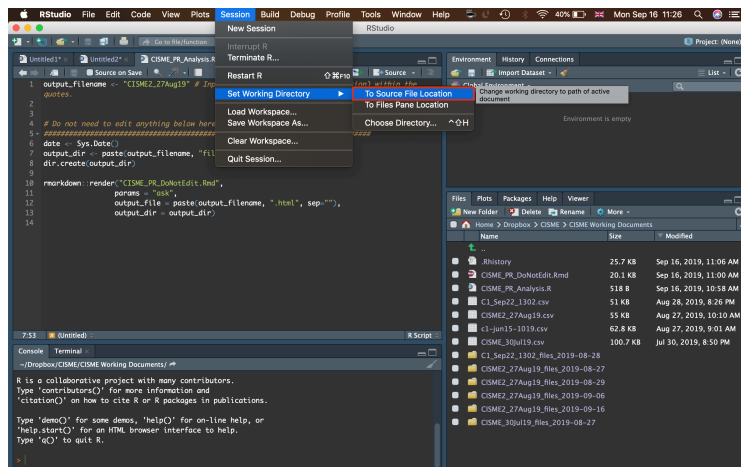
# CISME Data Analysis Script Walkthrough

1. Download R studio: <https://www.rstudio.com/products/rstudio/download/#download>

The screenshot shows the RStudio website. On the left, there's a section titled "Choose Your Version of RStudio" with four options: RStudio Desktop (Open Source License, FREE, DOWNLOAD), RStudio Desktop (Commercial License, \$995 per year, BUY), RStudio Server (Open Source License, FREE, DOWNLOAD), and RStudio Server Pro (Commercial License, \$4,975 per year, BUY). On the right, there's a section titled "RStudio Desktop 1.2.1335 - Release Notes" with a table of installers for supported platforms. The table has columns: Installers, Size, Date, and MD5. The installers listed are for Windows 7+ (64-bit), macOS 10.12+ (64-bit), Ubuntu 14/Debian 8 (64-bit), Ubuntu 16 (64-bit), Ubuntu 18/Debian 10 (64-bit), Fedora 19/RedHat 7 (64-bit), Debian 9 (64-bit), OpenSUSE 15 (64-bit), and SLES/OpenSUSE 12 (64-bit). Red arrows point to the "Windows Download" and "Mac Download" links.

Installers	Size	Date	MD5
RStudio 1.2.1335 - Windows 7+ (64-bit)	126.9 MB	2019-04-08	d0e2470f1f8ef4cd35a669a323a2136
RStudio 1.2.1335 - macOS 10.12+ (64-bit)	121.1 MB	2019-04-08	6e570b0e2144583f7c48c284ce299eeef
RStudio 1.2.1335 - Ubuntu 14/Debian 8 (64-bit)	92.2 MB	2019-04-08	c1b07d0511469abf5e582919b183eeef83
RStudio 1.2.1335 - Ubuntu 16 (64-bit)	99.3 MB	2019-04-08	c142469c210257fb10d18c045ffef13c7
RStudio 1.2.1335 - Ubuntu 18/Debian 10 (64-bit)	100.4 MB	2019-04-08	71a8d1990c0d97939804b46c0b0aaa75
RStudio 1.2.1335 - Fedora 19/RedHat 7 (64-bit)	114.1 MB	2019-04-08	29b06ef58969a1297fab545f256a7a
RStudio 1.2.1335 - Debian 9 (64-bit)	100.6 MB	2019-04-08	1e32d4d6f6e216f086a81ca82ef5a91
RStudio 1.2.1335 - OpenSUSE 15 (64-bit)	101.6 MB	2019-04-08	2795a63c7ef88e2aa2d8e08ba09a81e5
RStudio 1.2.1335 - SLES/OpenSUSE 12 (64-bit)	94.4 MB	2019-04-08	c65424b06ef673727d982db9eeefcae1

2. Make sure CISME output is saved as a .csv file into the same folder as provided R scripts (*CISME\_PR\_Analysis.R* and *CISME\_PR\_DoNotEdit.Rmd*)
3. Open the *CISME\_PR\_Analysis.R* script in R studio
4. Set the working directory (the location where your CISME data output file and *CISME\_PR\_DoNotEdit.Rmd* are found)
  - Select 'Session' menu
  - Select 'Set Working Directory'
  - Select 'To Source File Location'



5. Input CISME output file name (without .csv extension) within the "quotations" at the top of the *CISME\_PR\_Analysis.R* script.

```

1 output_filename <- "CISME2_27Aug19" # Input file name (without .csv extension) within the
2   quotes.
3
4 # Do not need to edit anything below here
5 #####
6 date <- Sys.Date()
7 output_dir <- paste(output_filename, "files", date, sep="_")
8 dir.create(output_dir)
9
10 rmarkdown::render("CISME_PR_DoNotEdit.Rmd",
11                   params = "ask",
12                   output_file = paste(output_filename, ".html", sep=""),
13                   output_dir = output_dir)
14

```

6. Select ‘Source’ in the top right screen.
7. A web browser will pop up to input parameters for analysing the output. The only REQUIRED entry is ‘Input File Name’ (again, input file name without .csv extension).

8. Other parameter options:
  - **Salinity:** you can modify salinity here if the salinity in the CISME metadata is not correct
  - **Dark time limit (min):** time in minutes at which the user would like to use as a cut off for dark (respiration) analyses
  - **Light minimum time (min):** time in minutes at which the user would like to use as the start for light (photosynthesis) analyses
  - **Light maximum time (min):** time in minutes at which the user would like to use as a cut off for light (photosynthesis) analyses

- **Initial measured total alkalinity (uMol/kg):** measured initial total alkalinity taken before sample run. \* *Without total alkalinity measurements, no calculation of TA, total carbon dioxide, or calcification rates will be calculated.*
  - **Final measured total alkalinity (uMol/kg):** measured final total alkalinity from CISME sample tube after sample run
  - **Measured surface area (cm<sup>2</sup>):** used for standardization of calcification rates
  - **Measured biomass:** used for standardization of calcification rates if not using surface area of sample
  - **Total water volume:** volume (g) of water in the sample loop and CISME device used to calculate calcification rate
  - **Dark calcification percent (decimal):** user-determined percentage to calculate dark and light portions of calcification rates (if calculating rates from combined photosynthesis/respiration run)
9. Once desired parameters are input in web browser, press ‘**Save**’ or hit enter. Pull back up R studio window and wait until the console displays:  
“Output created: *your\_filename\_here*.html”
10. A new folder (named: *yourfilename\_files\_currentdate*) should now appear in the directory where the original CISME output file is saved. The folder will contain the following:
- HTML overview document (*filename.html*) → this file will open in a web browser
  - Spreadsheet of the regression table (*filename\_RegressionTable\_currentdate.csv*)
  - PDF of all figures (*filename\_figures\_currentdate.pdf*)
  - Final spreadsheet with calculated parameters (*filename\_workup\_currentdate.csv*)