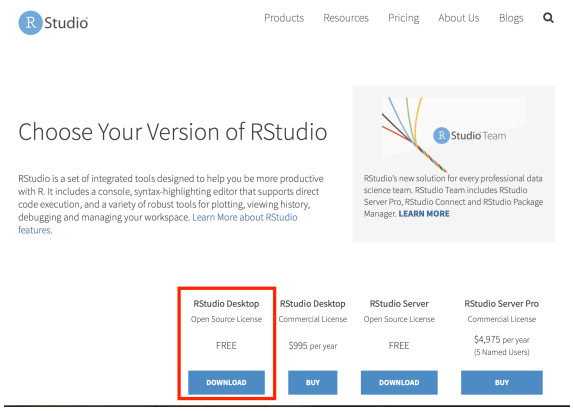
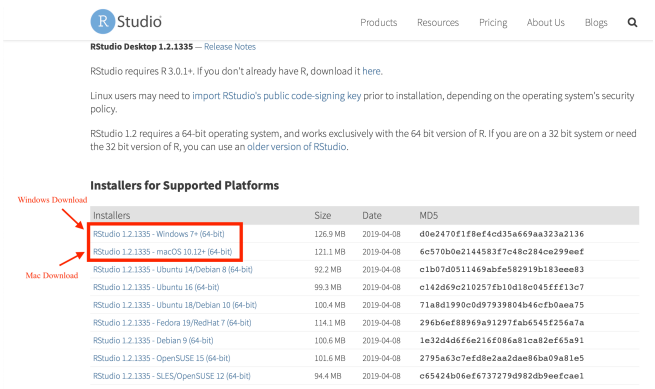
CISME Data Analysis Script Walkthrough

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



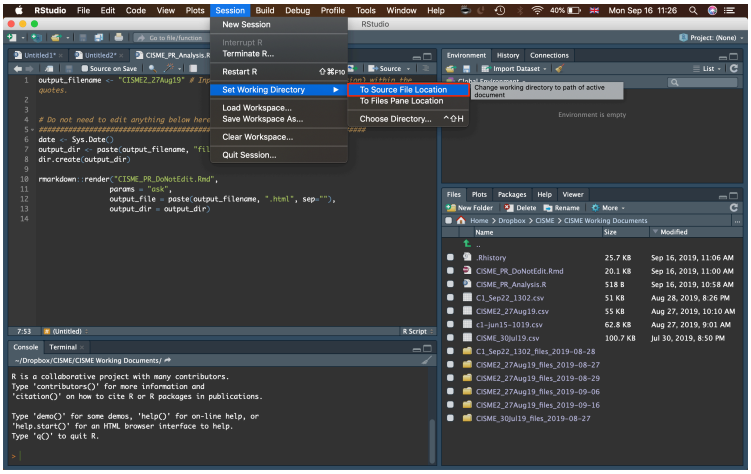


2. Make sure CISME output is saved as a **.csv** file into the same folder as provided R scripts (*CISME_PR_Analysis.R and CISME_PR_DoNotEdit.Rmd*)

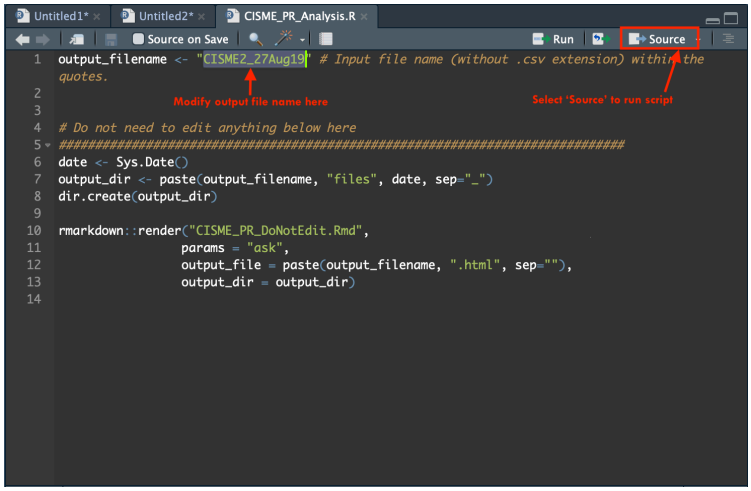
3. Open the *CISME_PR_Analysis.R* script in R studio

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**'

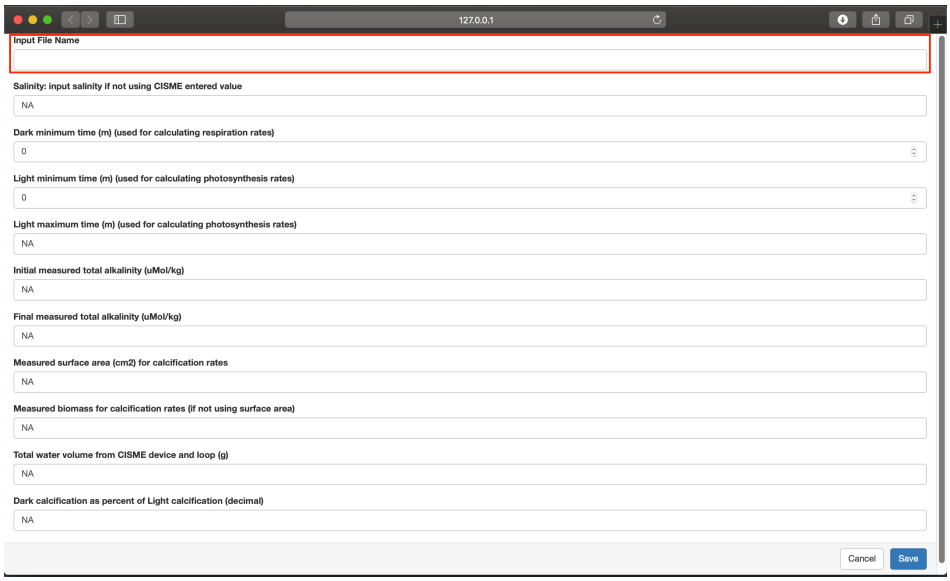


5. Input CISME output file name (without .csv extension) within the "quotations" at the top of the *CISME_PR_Analysis.* script.



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^2):** 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*)