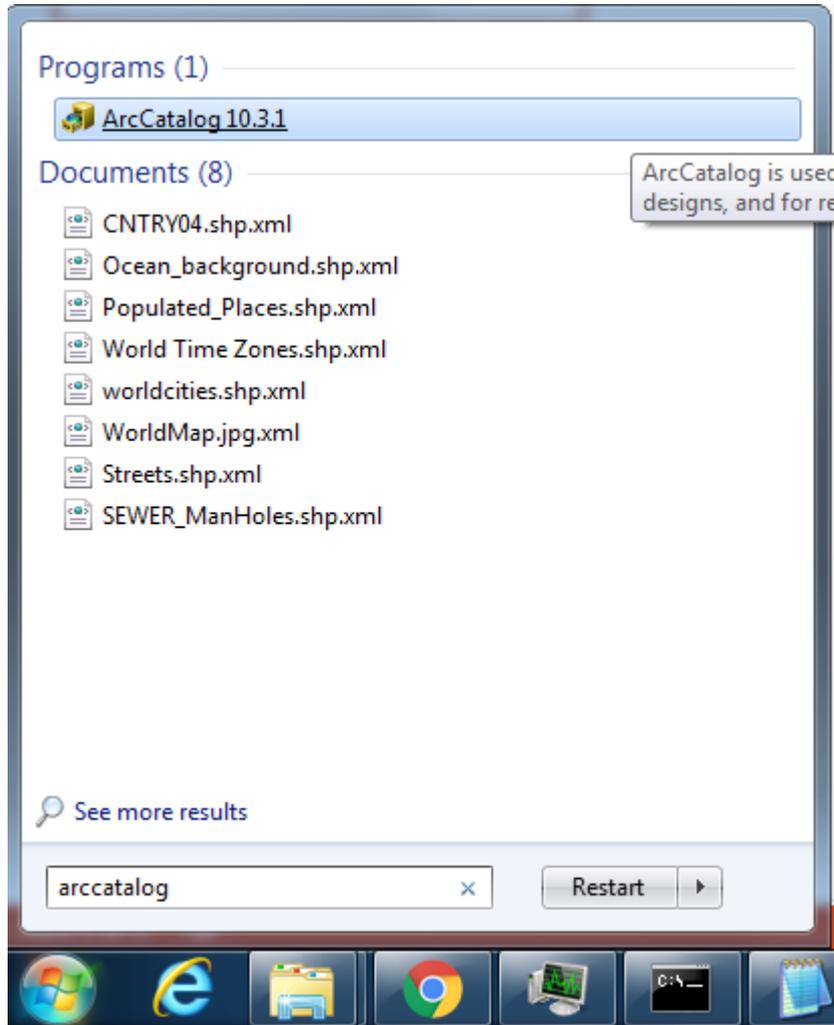


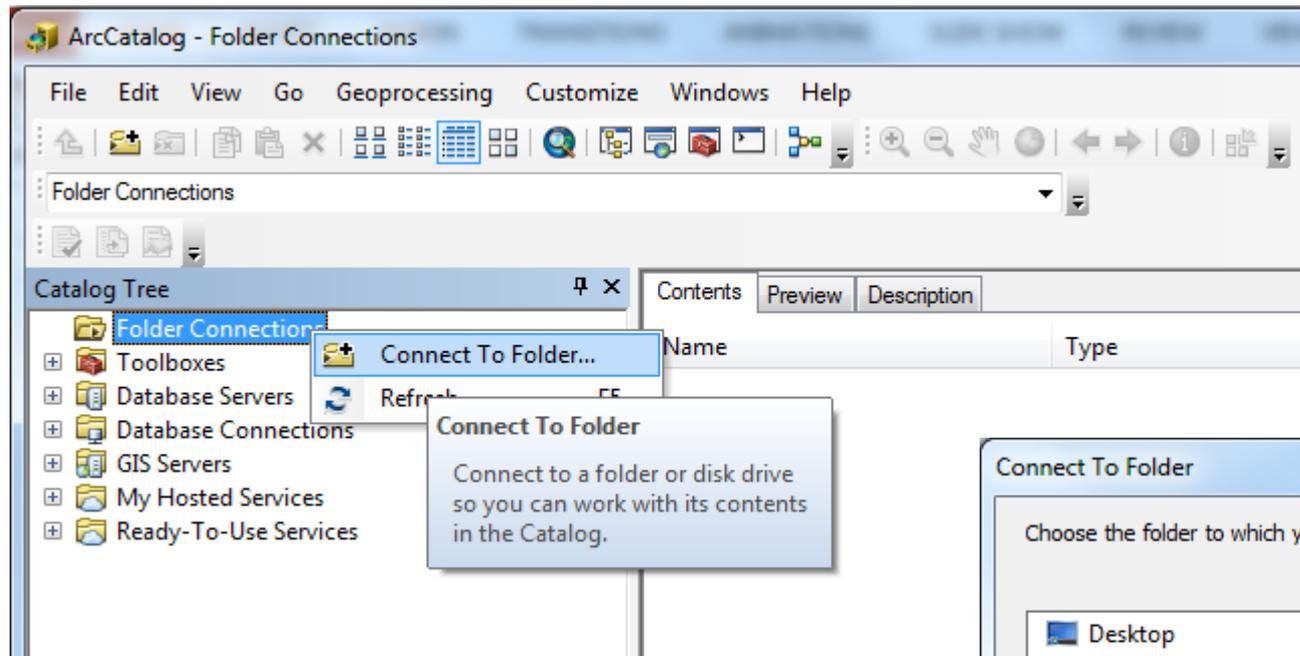
Computer lab setup instructions

- Please run through these on your lab machine
- If you have any questions, please stop and ask
- These may not work exactly as written on your own laptop. Please set up your lab machine first then try to adjust the steps for your own laptop.
- We are not going to give instructions that are this explicit again. We expect everyone has basic competence with ArcGIS and R. But we wanted to make sure everyone gets started in exactly the same way.

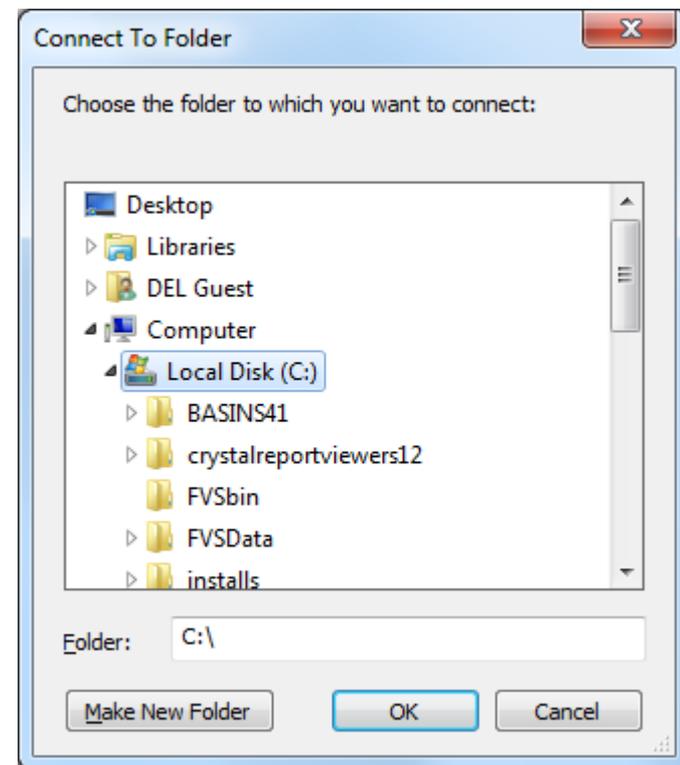
1. Click start button, type ArcCatalog, press Enter



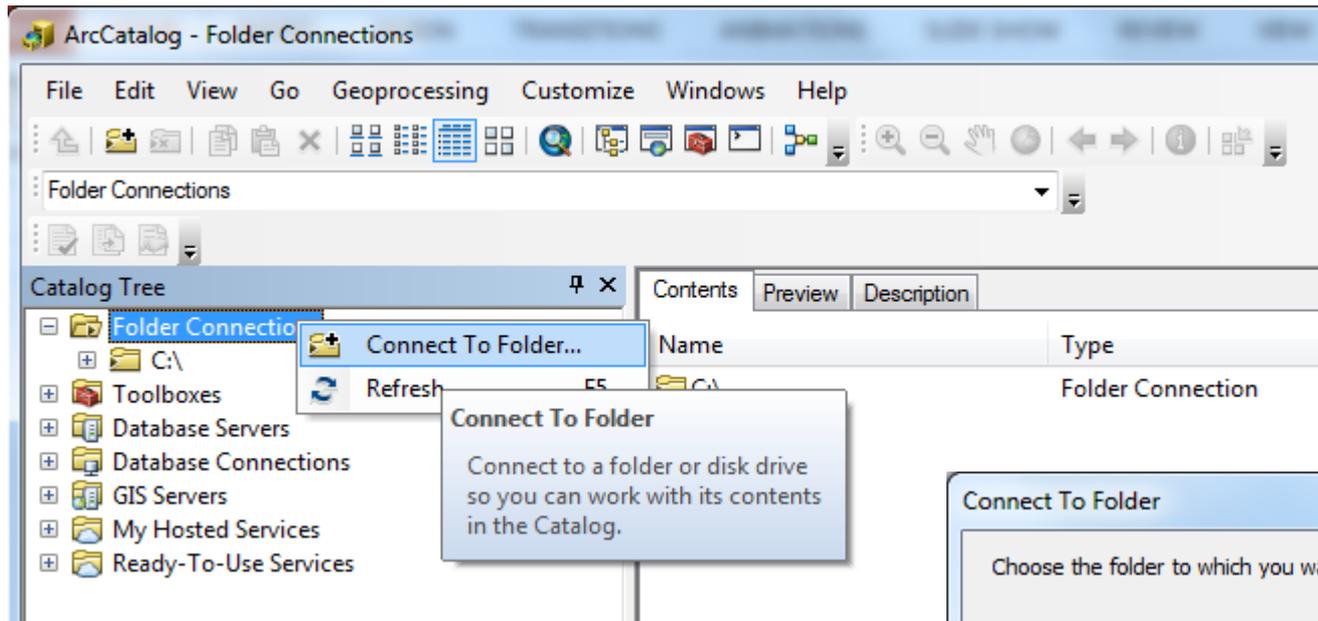
2. Right-click Folder Connections, click Connect To Folder



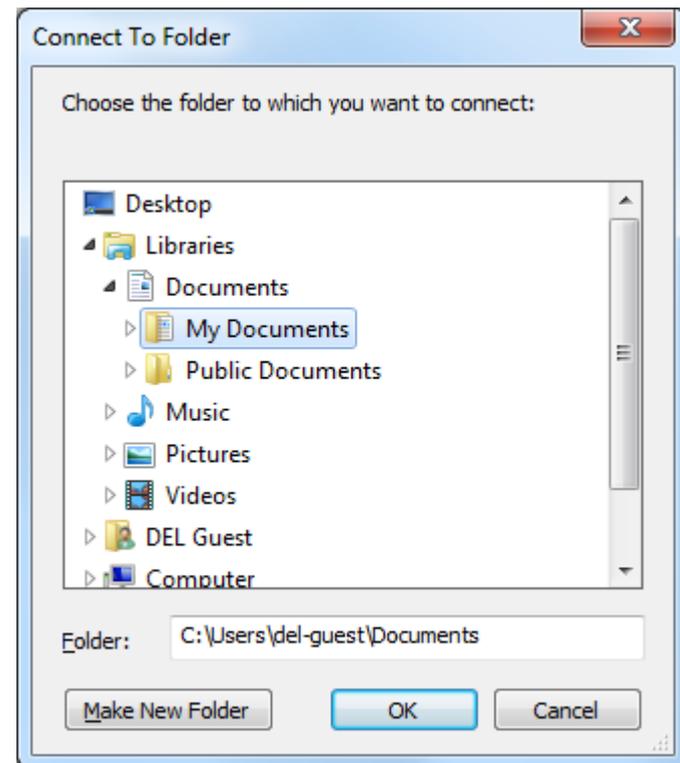
3. Open computer and select Local Disk (C:). Click OK.



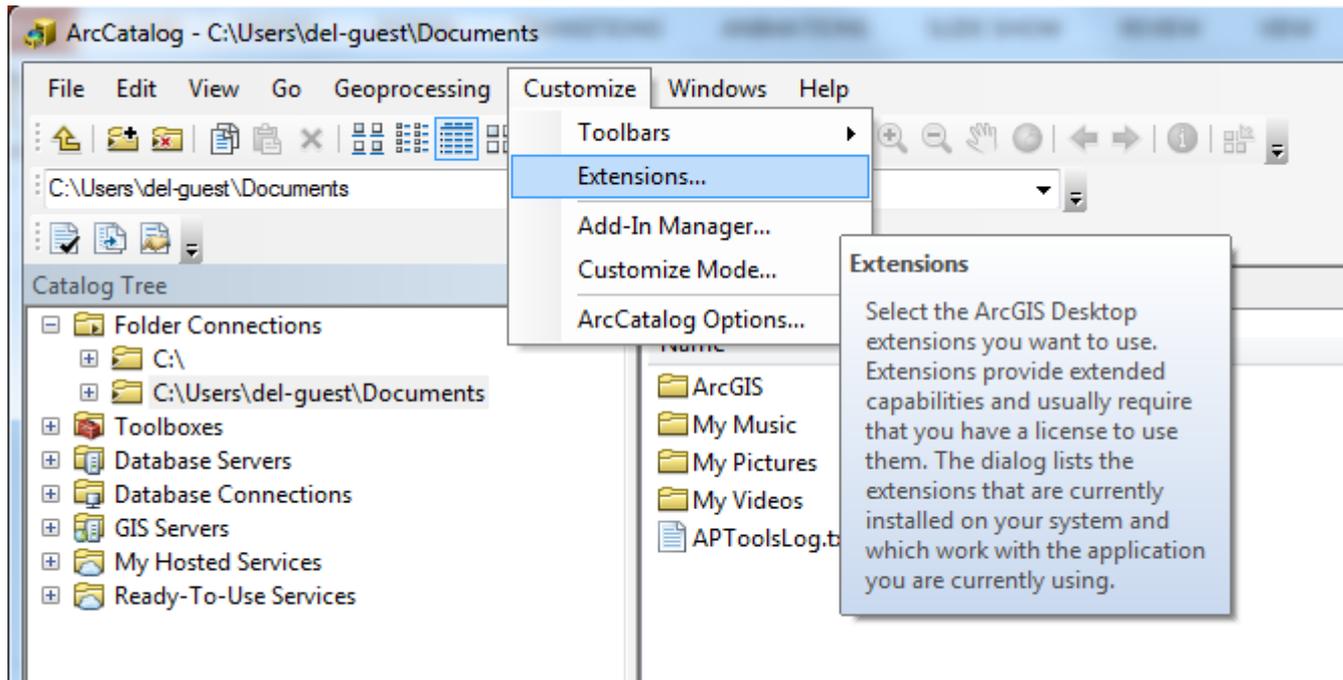
4. Once again, right-click Folder Connections, click Connect To Folder



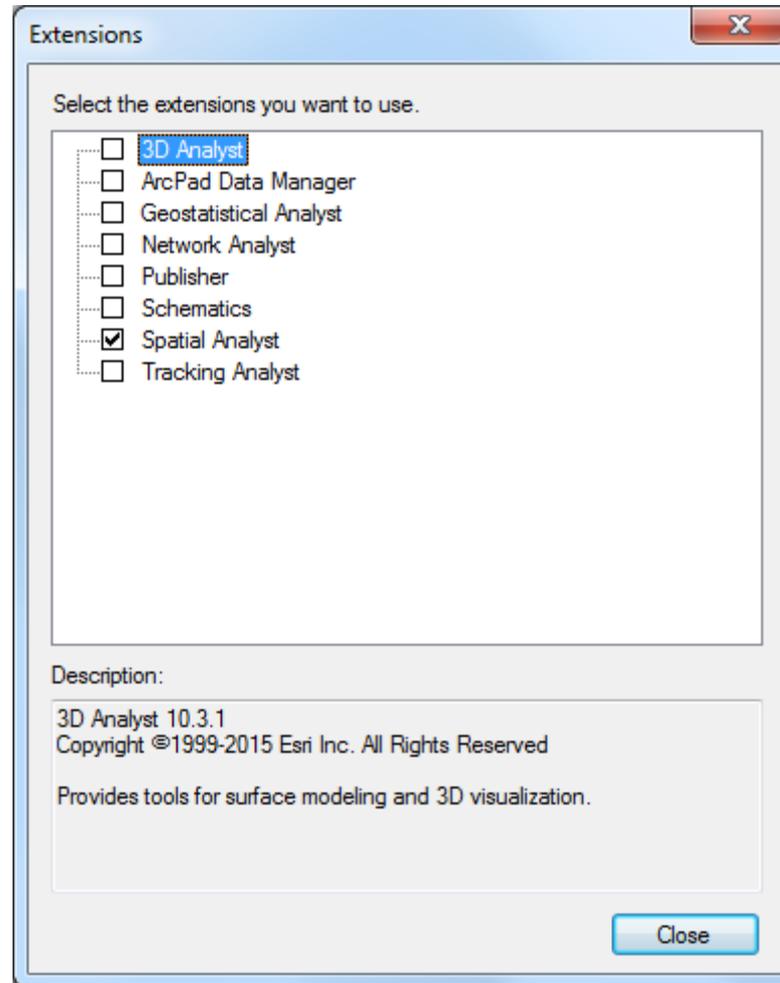
5. Now open Libraries, Documents, and select My Documents. Click OK.



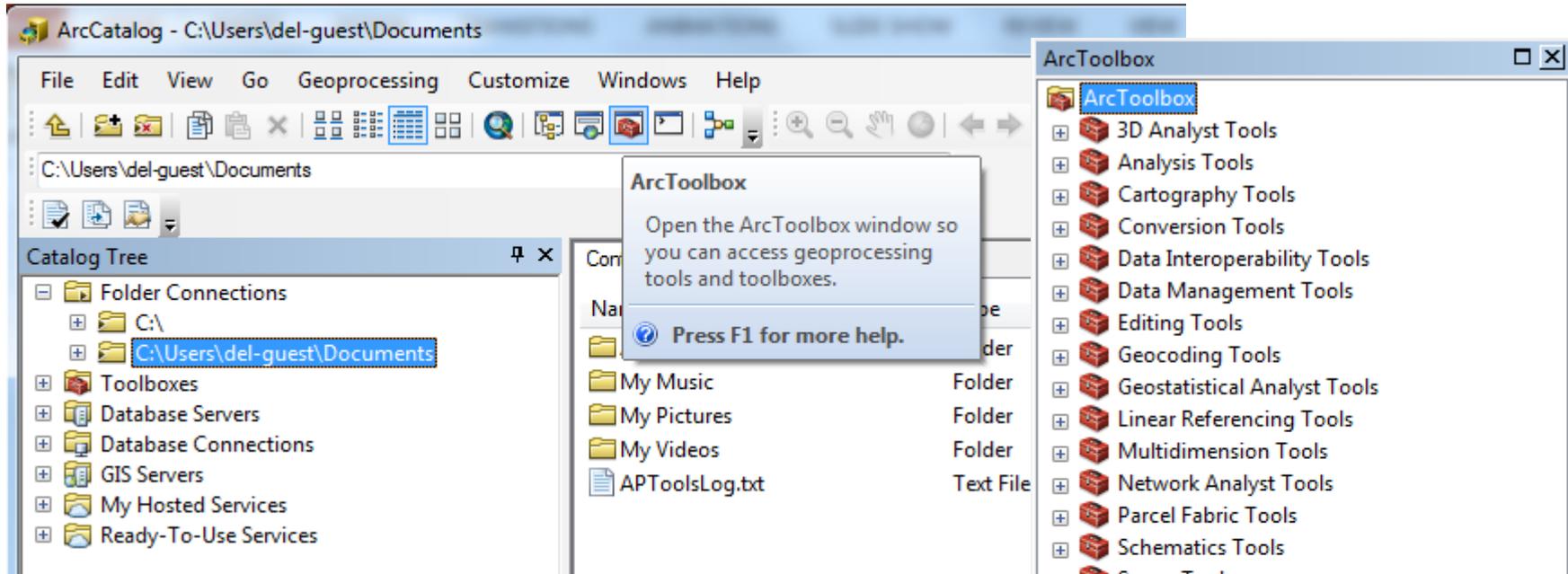
6. Now click Customize, Extensions



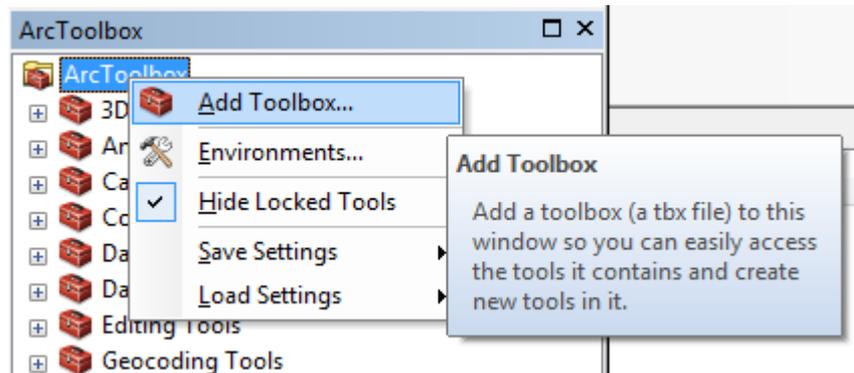
7. Now click Customize, Extensions, turn on the Spatial Analyst, click Close



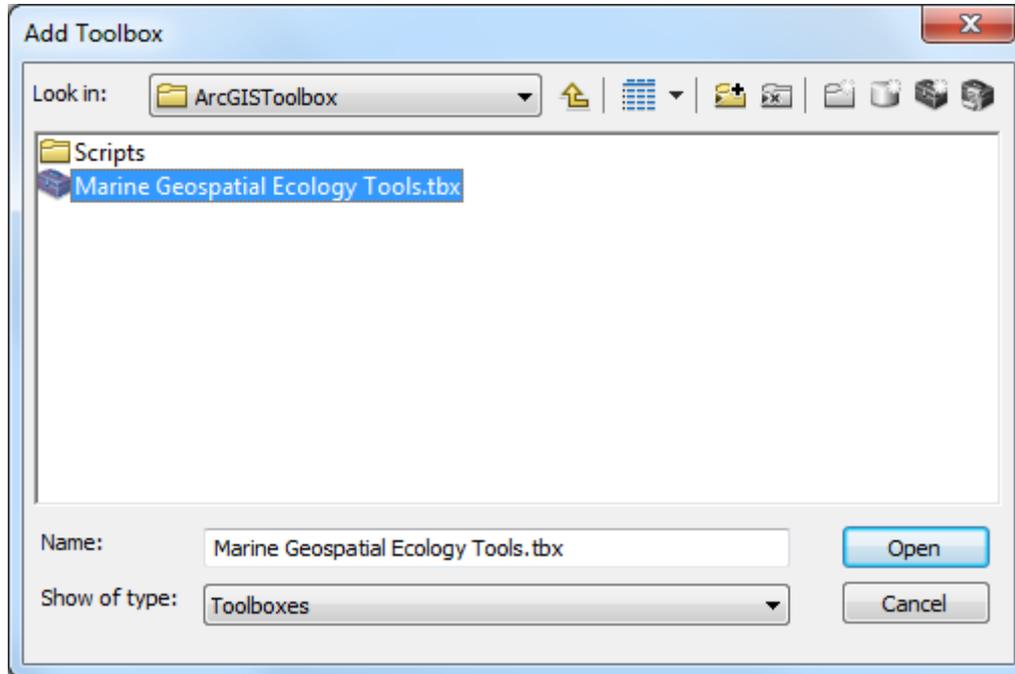
8. Click the ArcToolbox button. The ArcToolbox window opens.



9. Right click the ArcToolbox node and select Add ArcToolbox...

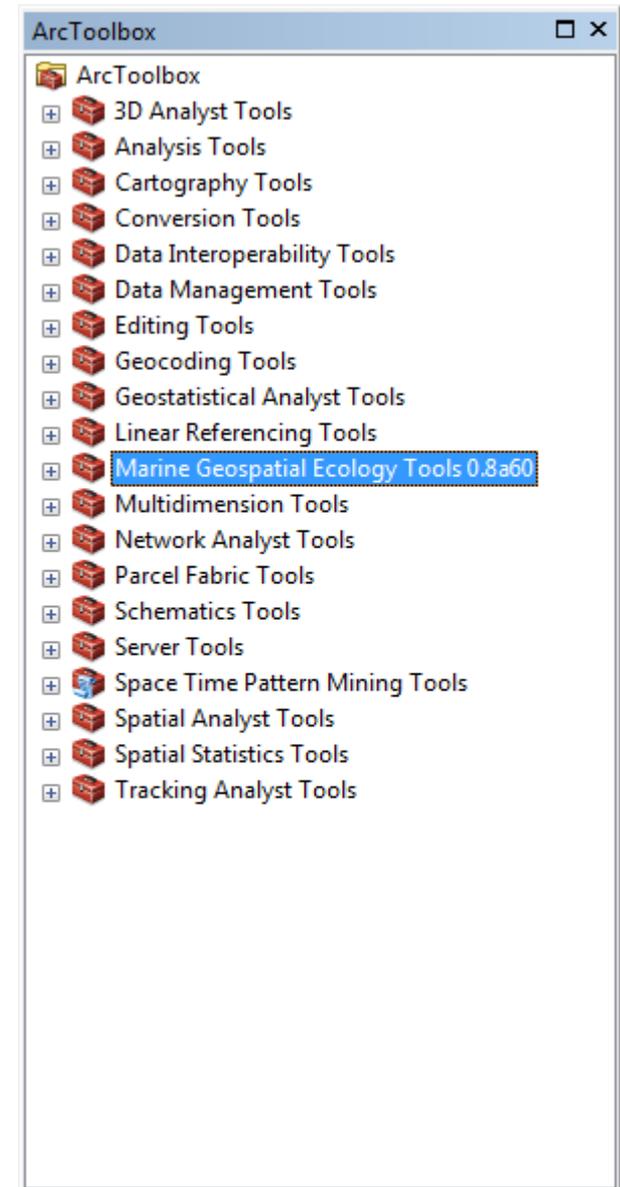


10. Navigate to C:\Program Files\GeoEco\ArcToolbox. Select Marine Geospatial Ecology Tools.tbx. Click Open.



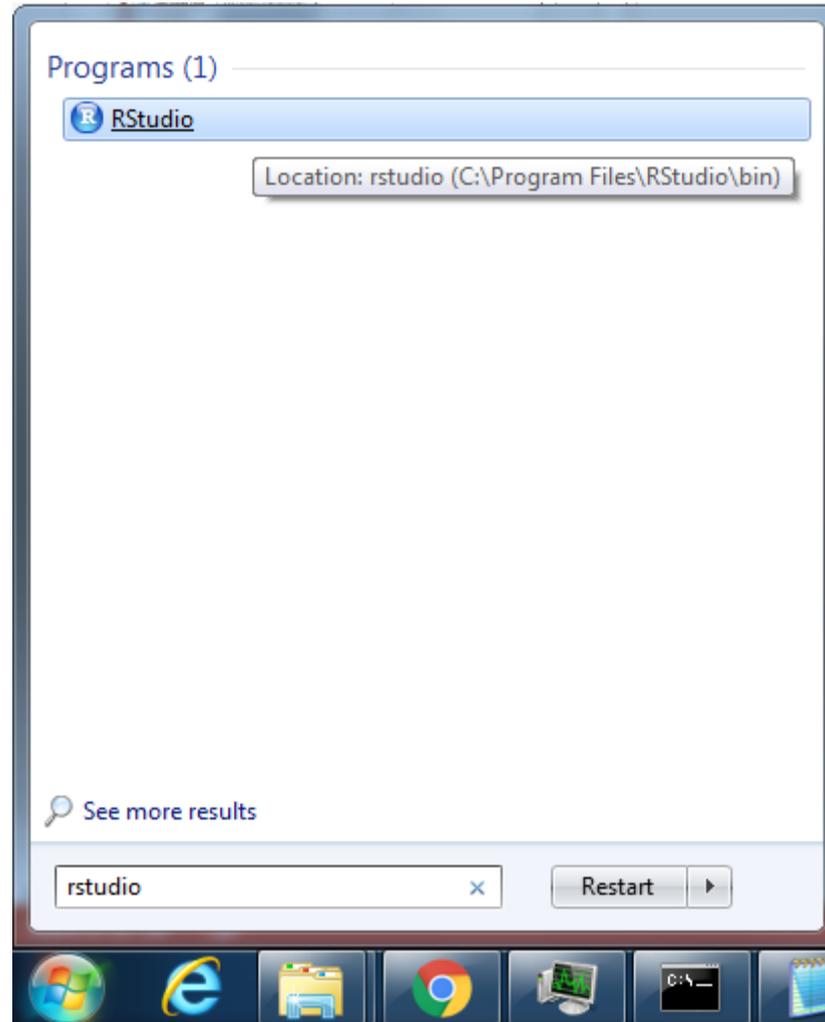
The MGET toolbox appears in the ArcToolbox window.

If you like, close or dock this window so it is not in the way.

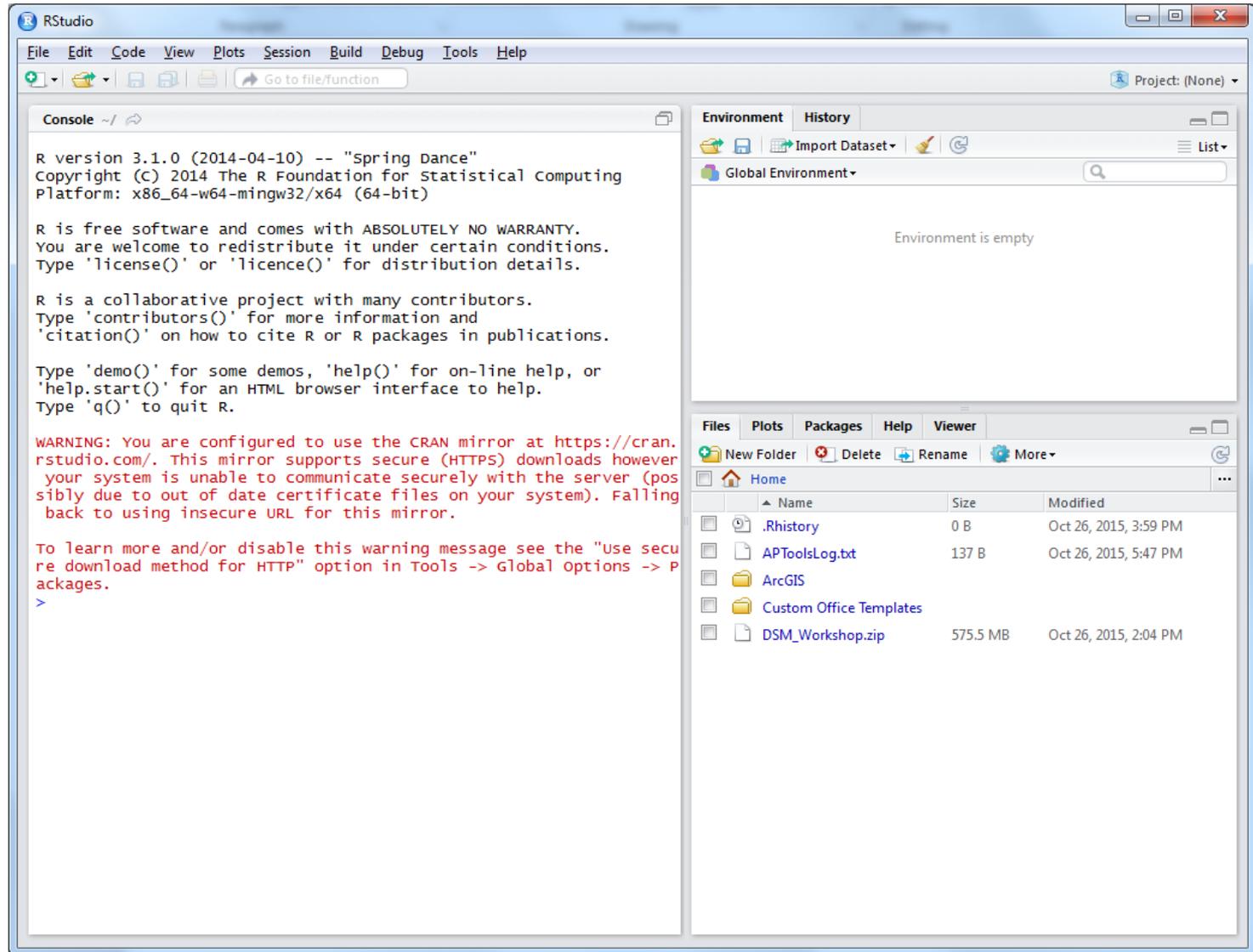


11. Close ArcCatalog

12. Click start button, type RStudio, press Enter

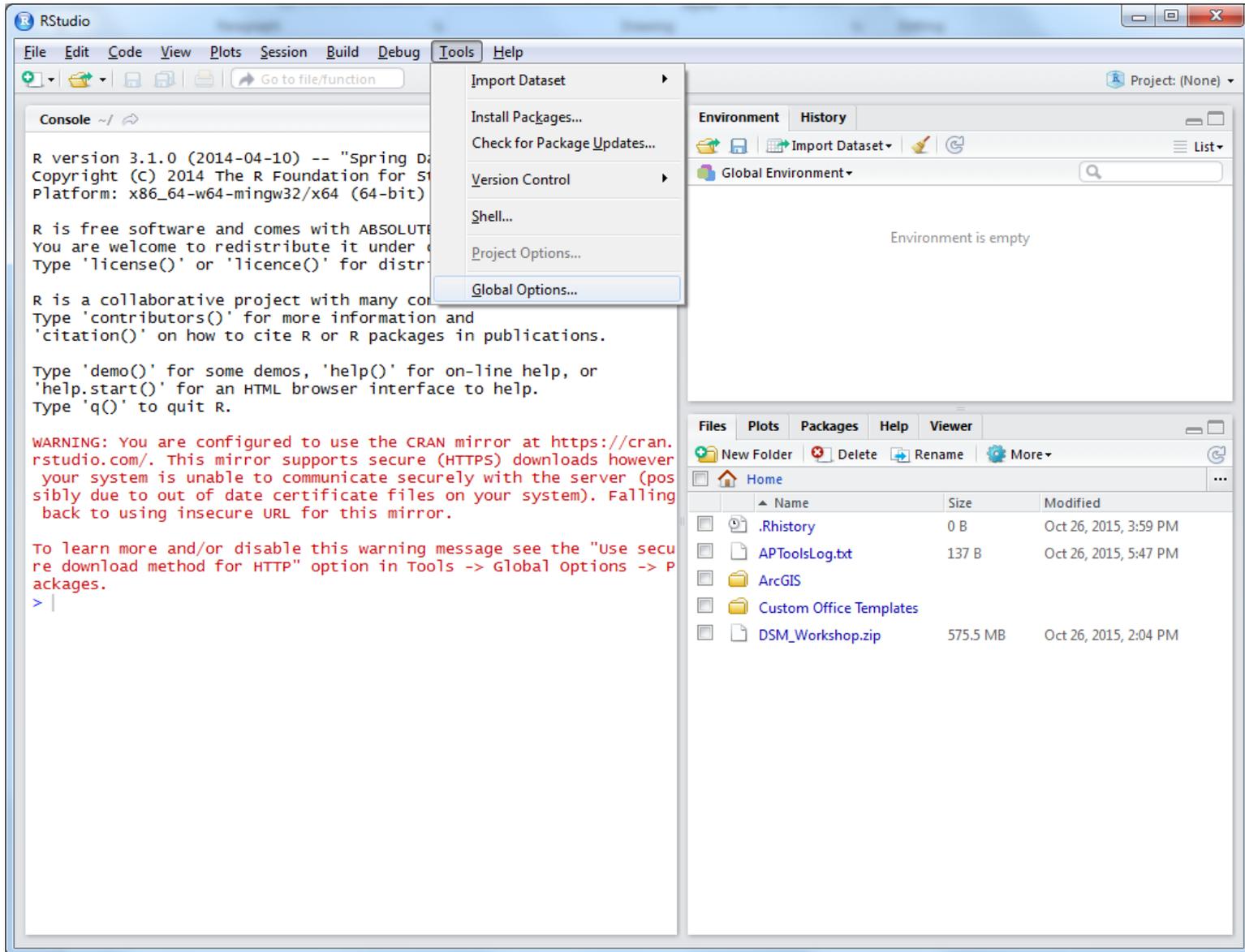


13. RStudio comes up

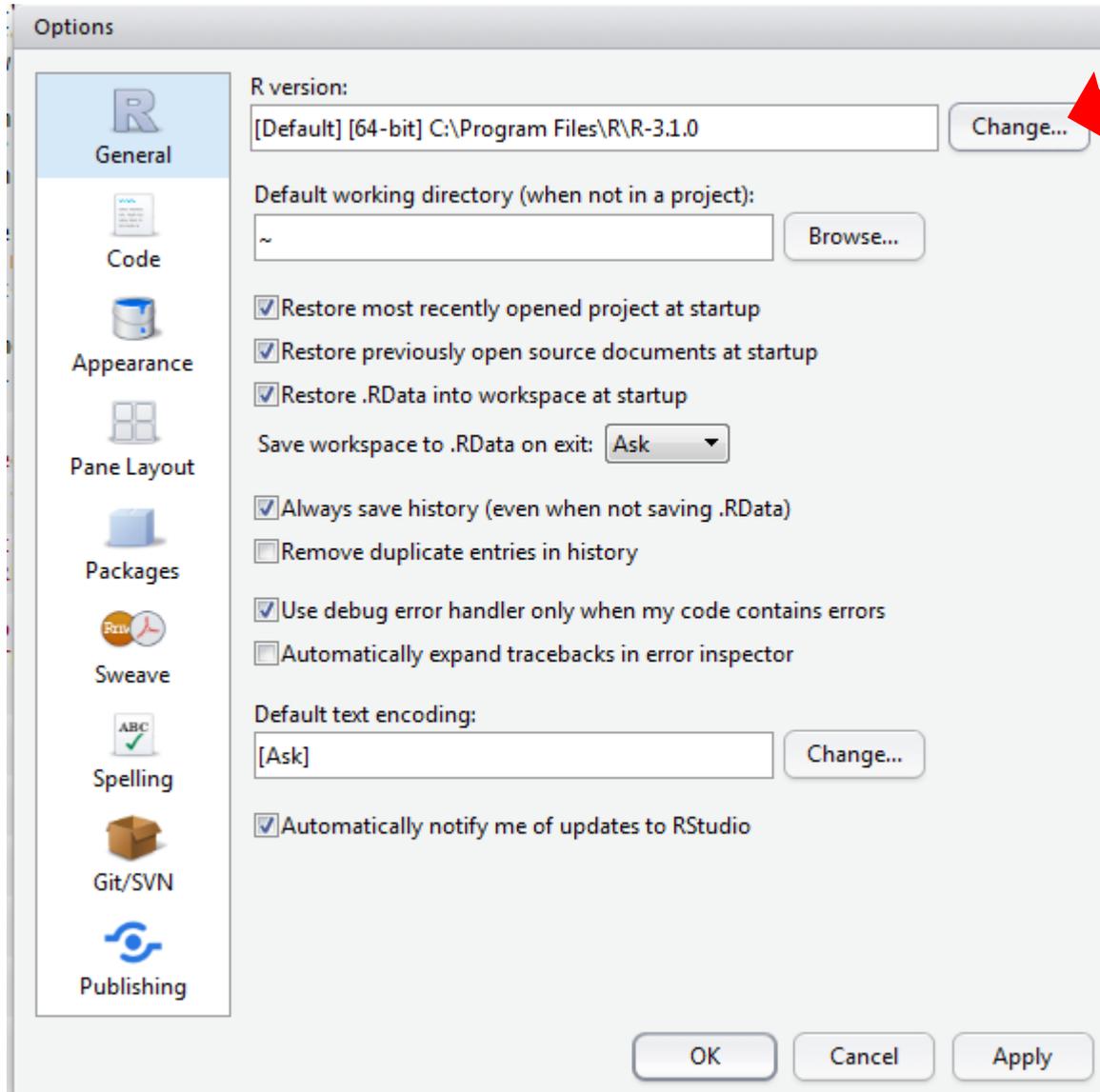


We need to fix this problem →

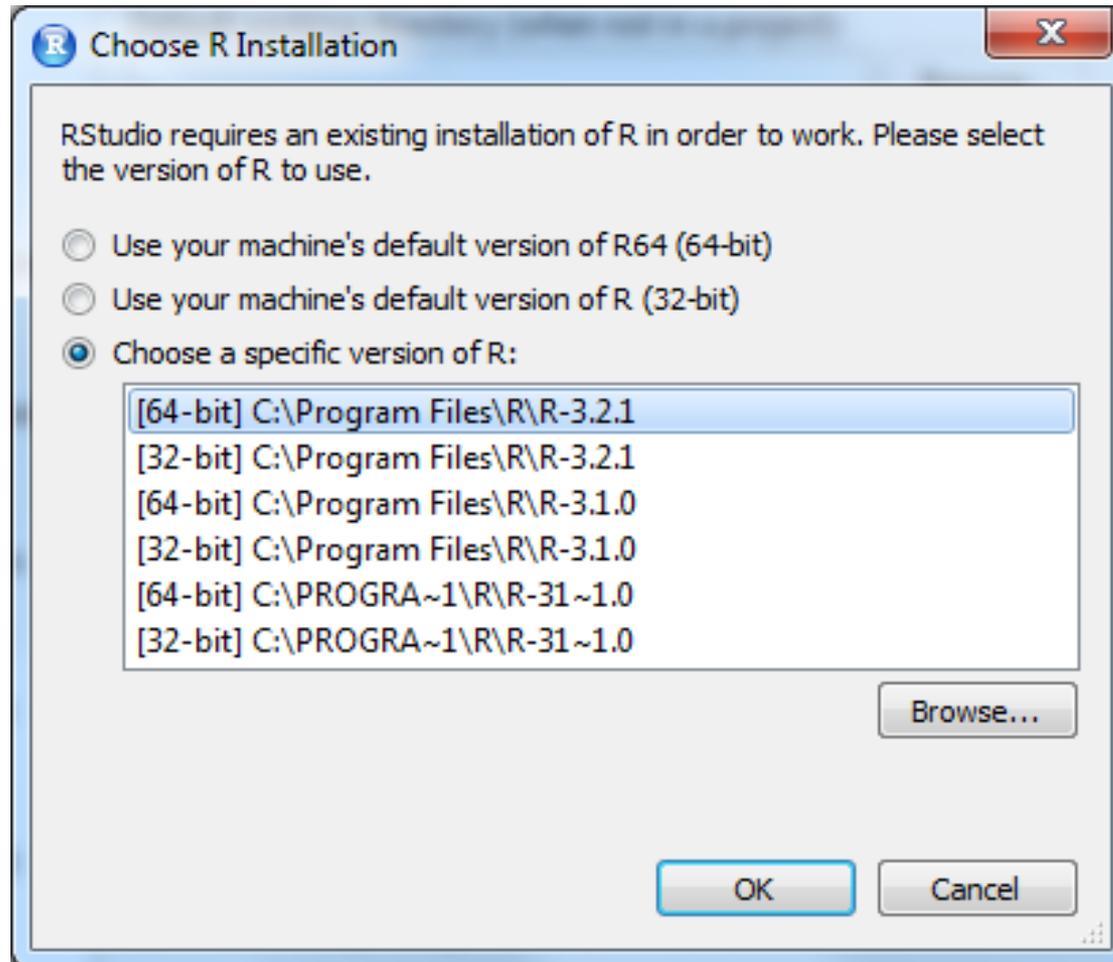
14. Click Tools, Global Options...



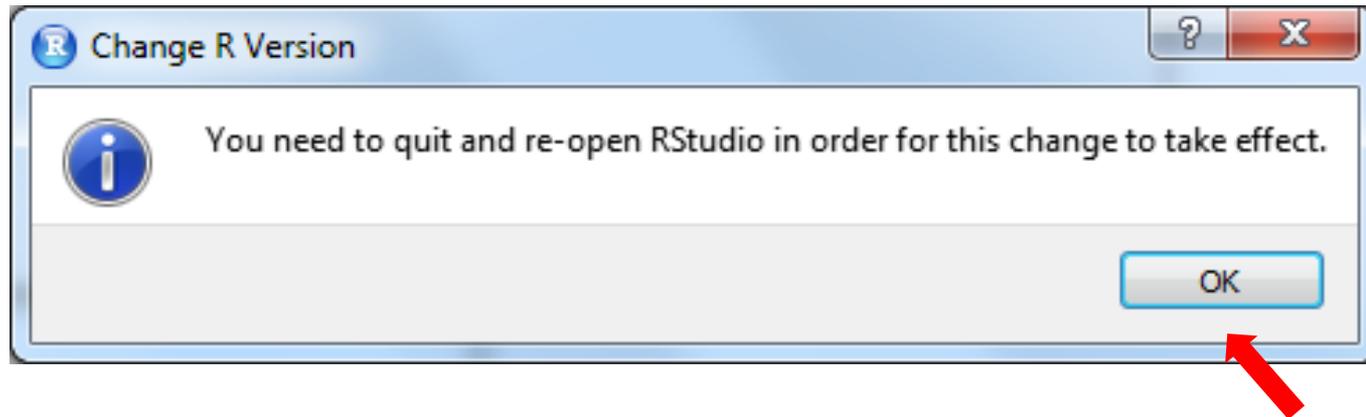
15. If the R version ends with R-3.1.0, click Change



16. Select Choose a specific version of R. Select [64-bit] C:\Program Files\R\R-3.2.1. Click OK.



17. You should get this:



If you DO, click OK twice. Close RStudio.

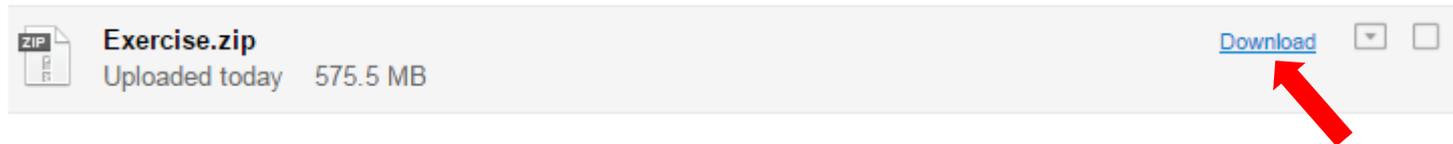
If you DO NOT, look for it as a hidden pop under window on the Windows Task Bar next to RStudio and carry on as above.

If you still don't find it, ask for help!

18. Start up your web browser. Go to:

<http://duke.box.com/DSMWorkshop>

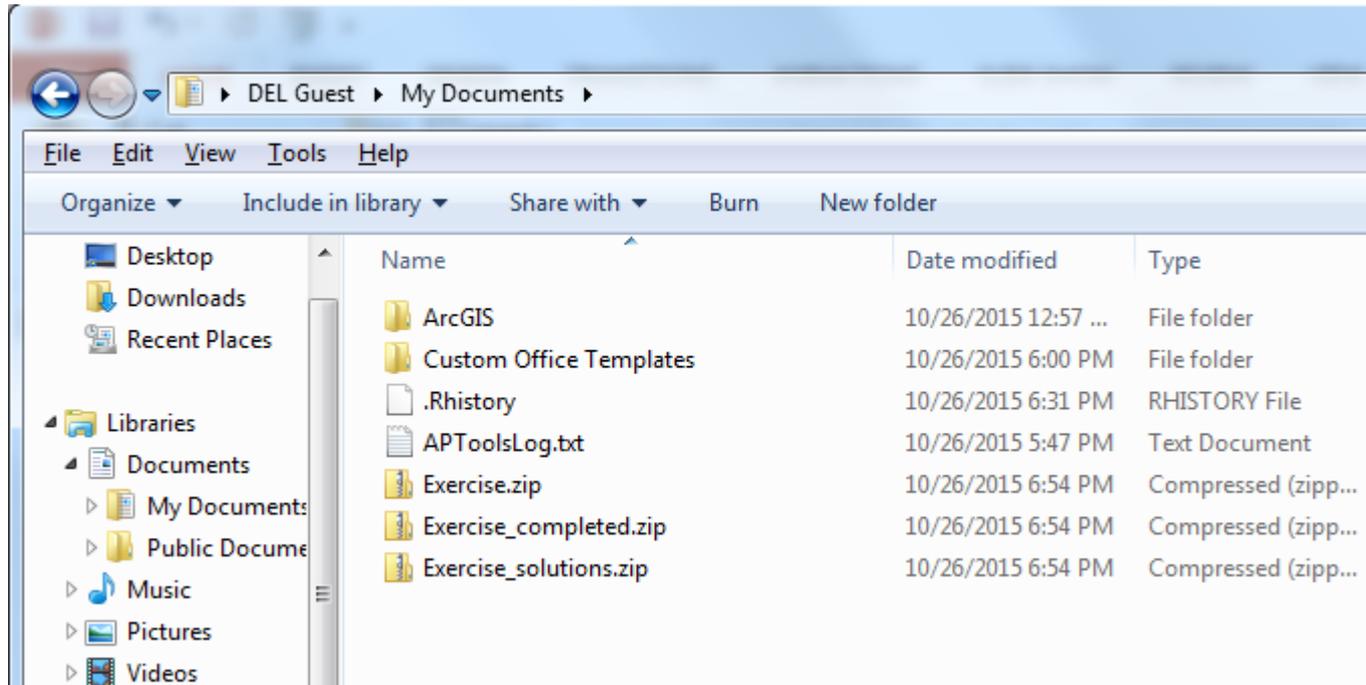
19. Click download for Exercise.zip



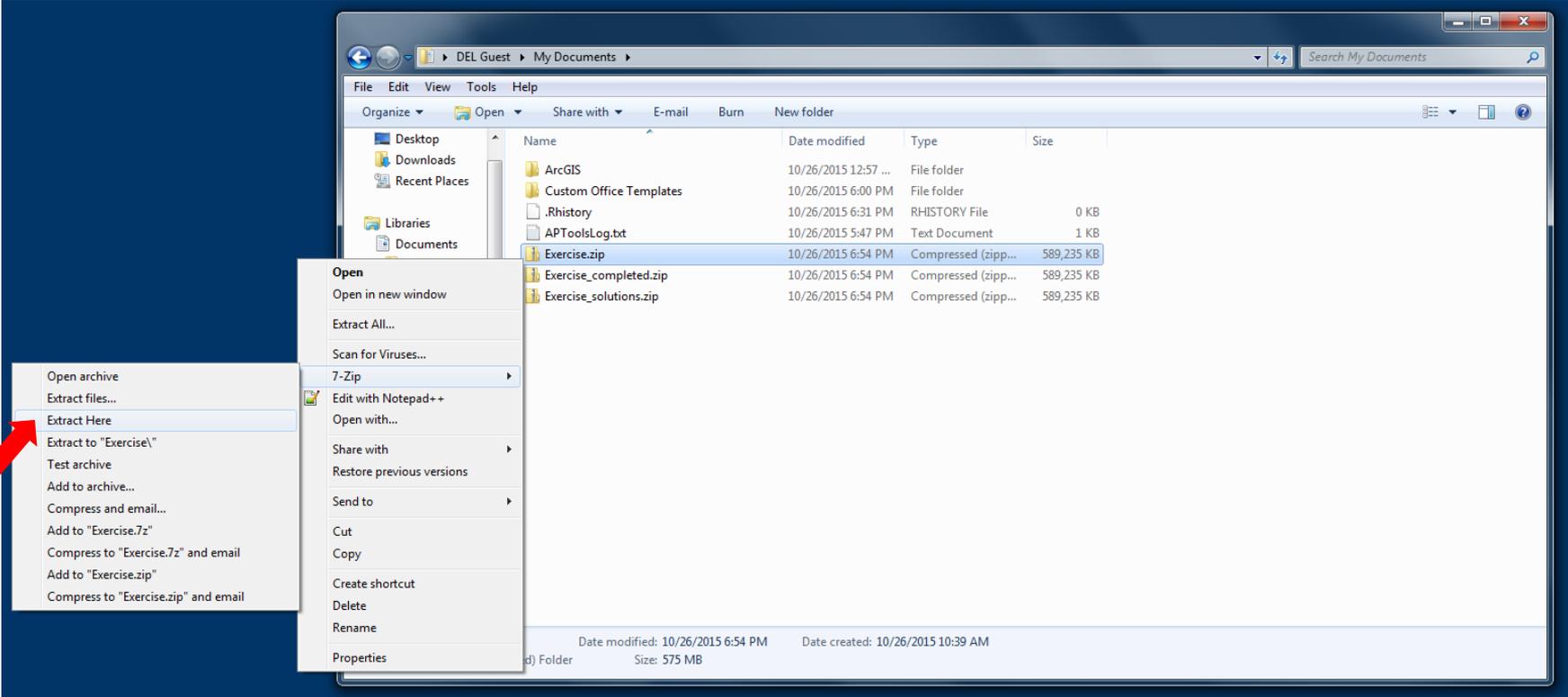
20. The download may take a long time. When it is done, move the file to the My Documents folder.

21. Do steps 19-20 for the files Exercise_completed.zip and Exercise_solutions.zip. The My Documents folder should look like:

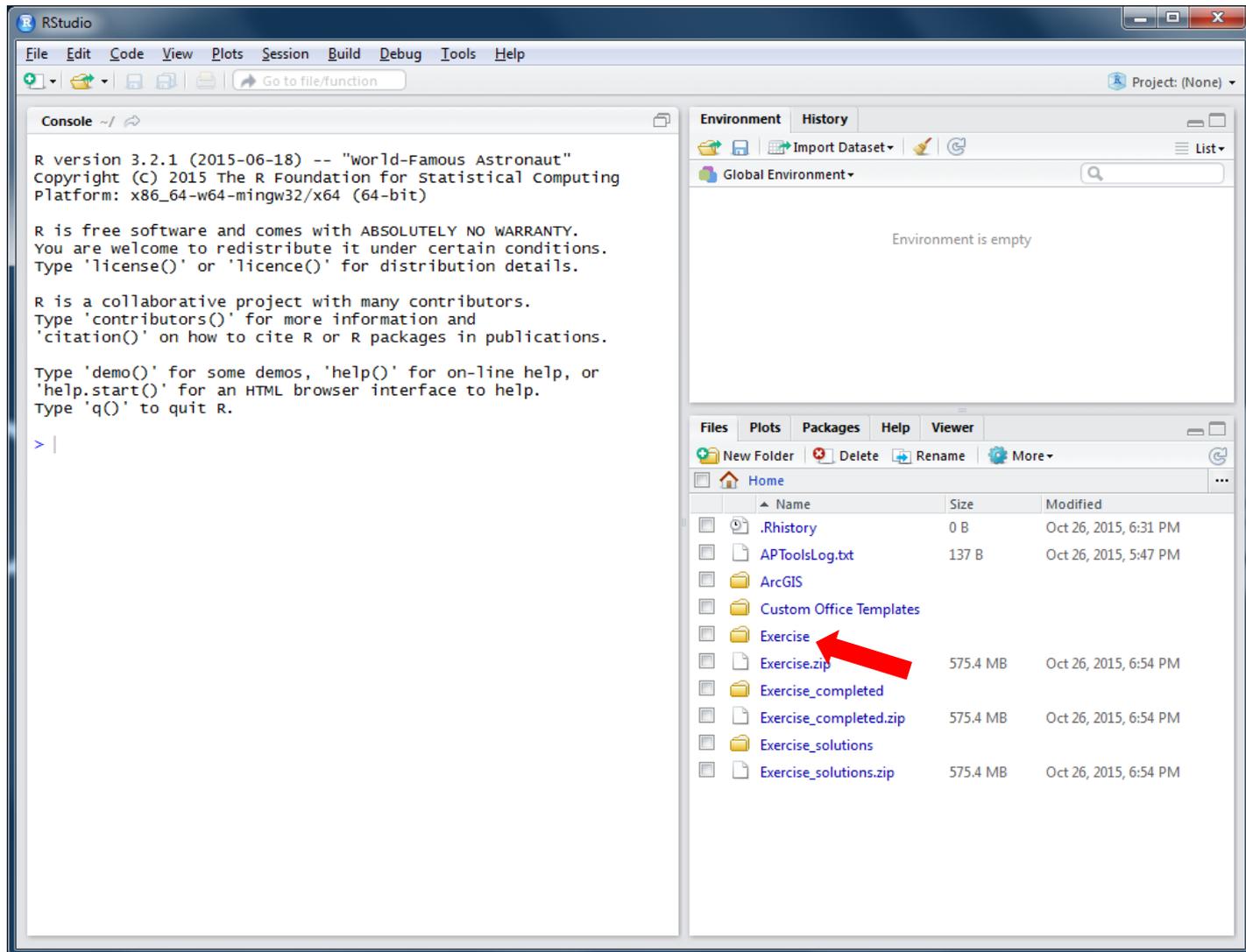
22. The My Documents folder should look similar to this:



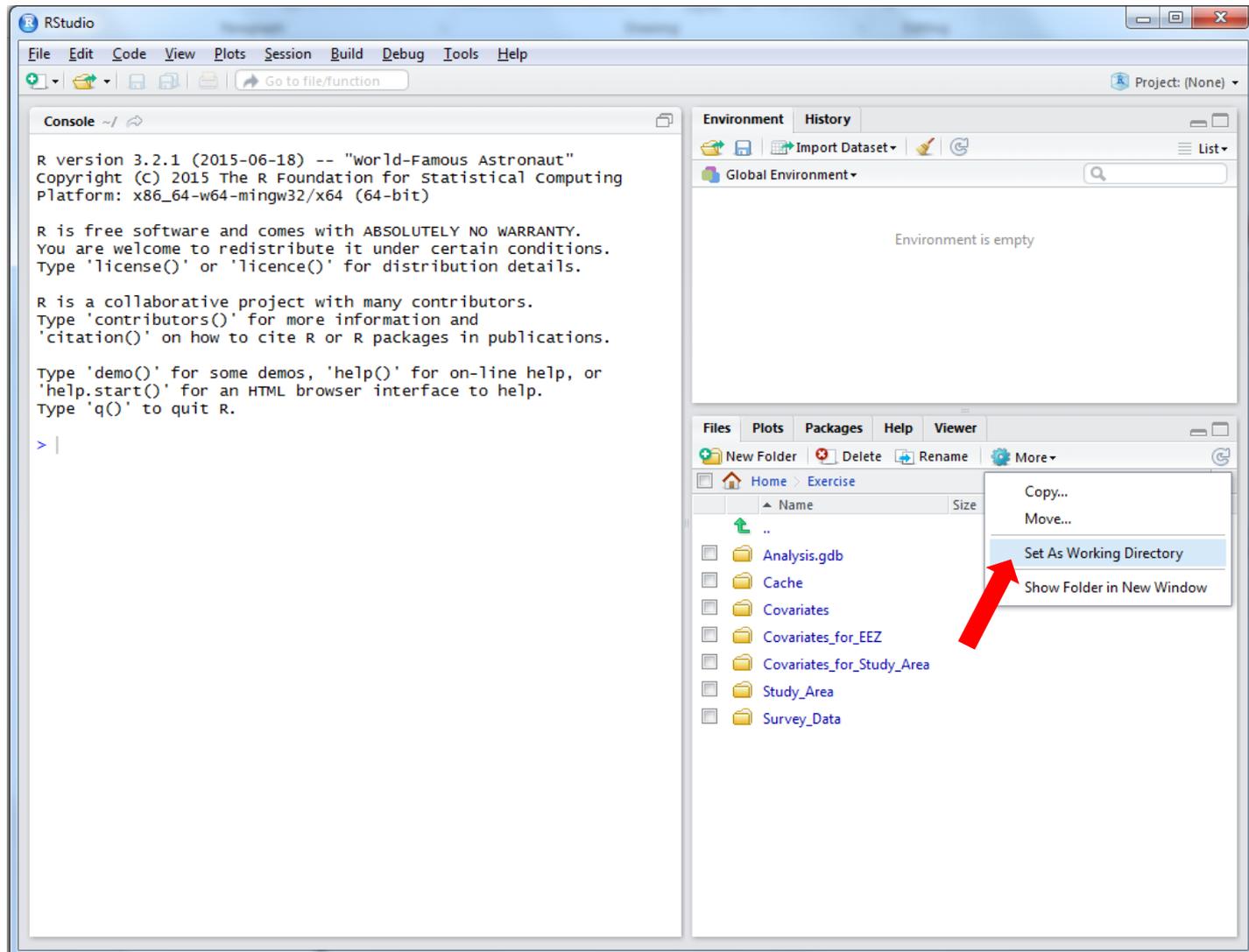
23. On each of the three ZIP files, right click, select 7-Zip, and Extract Here:



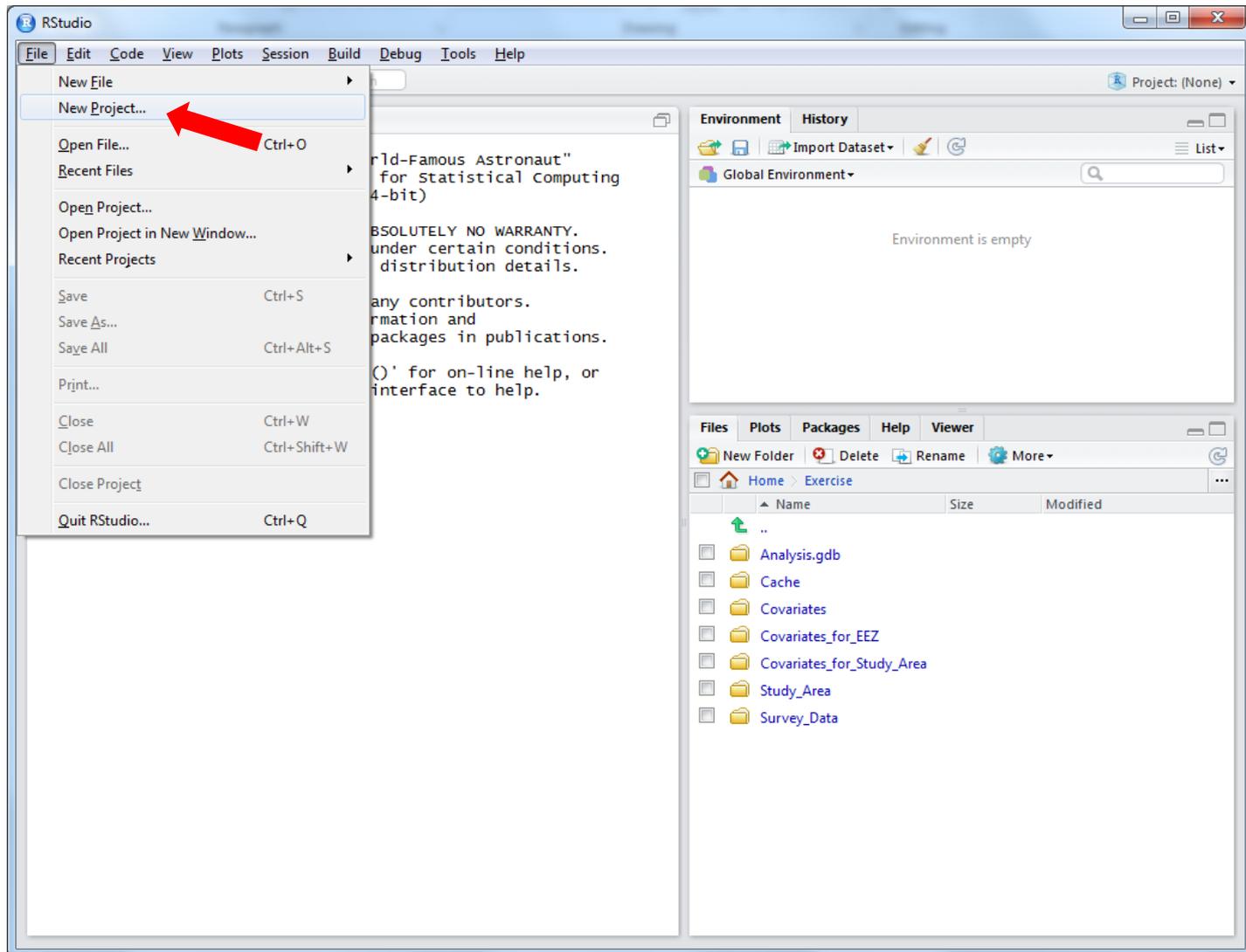
24. Start RStudio. Click on the blue word Exercise.



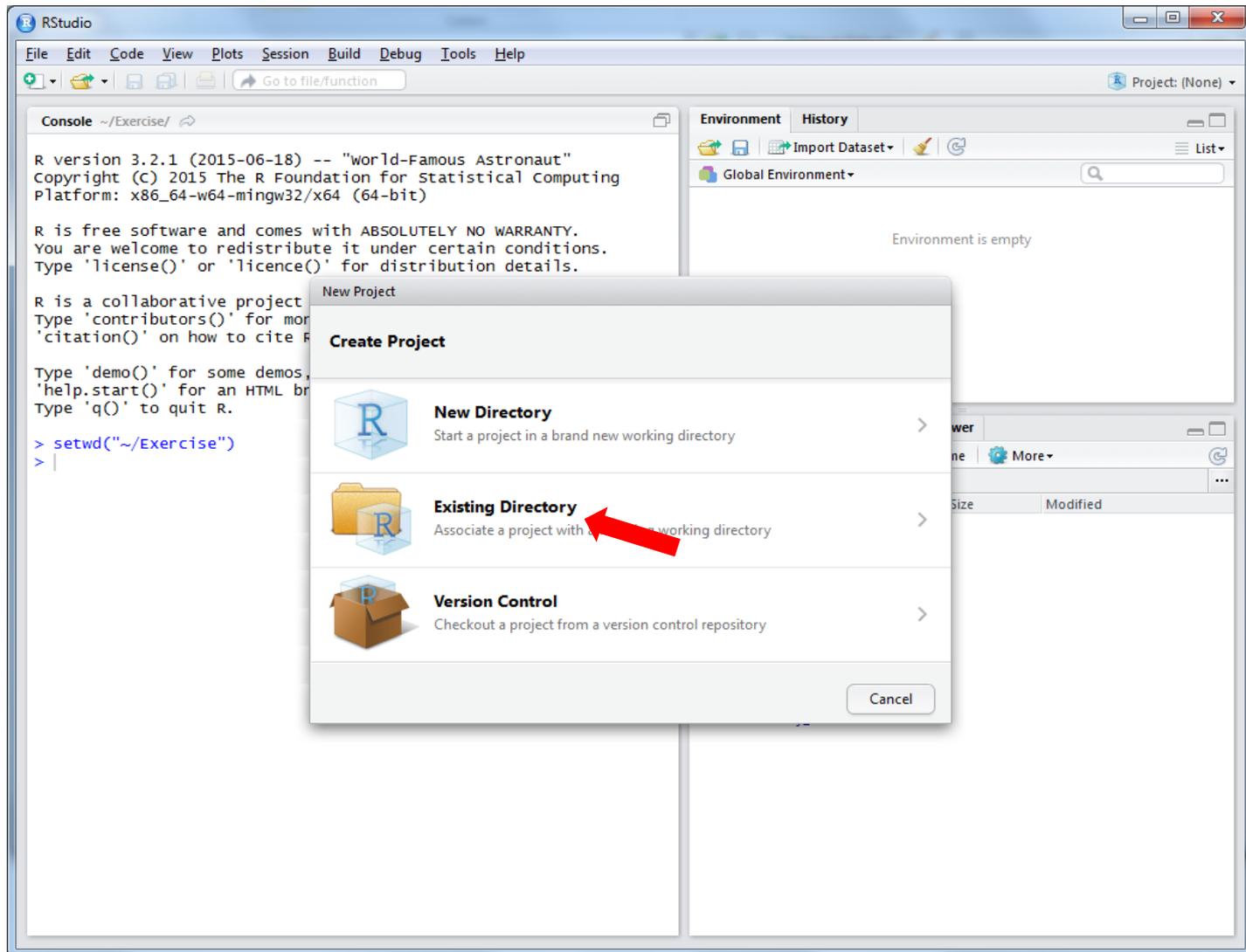
25. RStudio changes into the Exercises directory. Click More, select Set As Working Directory.



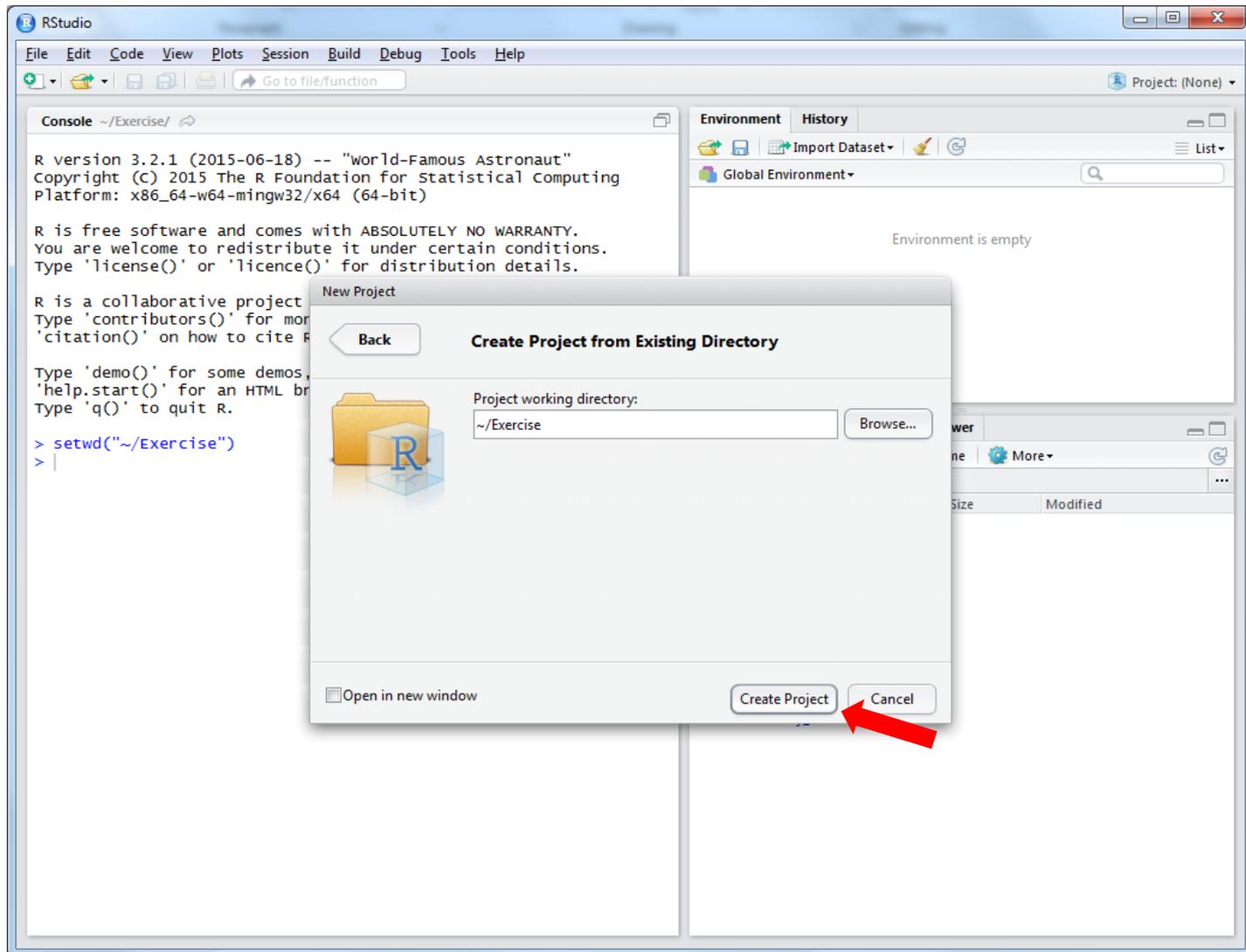
26. RStudio executes `setwd("~/Exercise")`. Click File, New Project...



27. Click Existing Directory



28. Click Create Project



29. Start your web browser. Go to:

<http://distancesampling.org/workshops/duke-spatial-2015/>

30. Scroll to the bottom. Highlight the `install.packages` code and copy it:

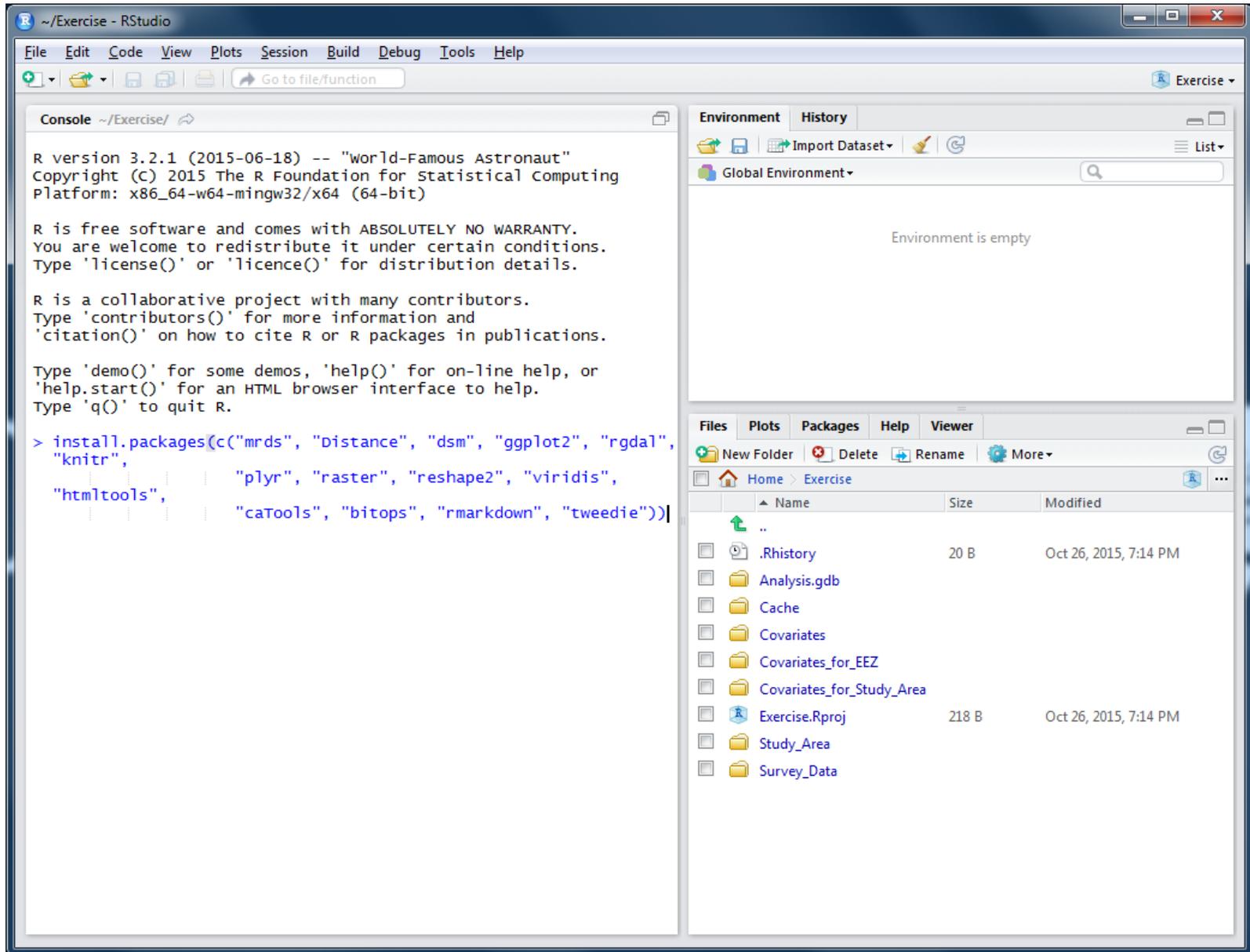
R

The course will use R, RStudio and various R packages installable from CRAN. The following steps should setup your computer for the workshop:

1. Install R from [the R website](#)
2. Install RStudio from [the RStudio website](#)
3. Install R packages from within R using the following command:

```
install.packages(c("mrds", "Distance", "dsm", "ggplot2", "rgdal", "knitr",  
                  "plyr", "raster", "reshape2", "viridis", "htmltools",  
                  "caTools", "bitops", "rmarkdown", "tweedie"))
```

31. Paste into RStudio. Press Enter



The screenshot shows the RStudio interface with the following components:

- Console:** Displays the R version (3.2.1) and a command to install several packages: `> install.packages(c("mrds", "Distance", "dsm", "ggplot2", "rgdal", "knitr", "htmltools", "plyr", "raster", "reshape2", "viridis", "caTools", "bitops", "rmarkdown", "tweedie"))`
- Environment:** Shows the Global Environment, which is currently empty.
- Files:** A file explorer view showing the contents of the current project directory, including files like `.Rhistory`, `Analysis.gdb`, `Cache`, `Covariates`, `Covariates_for_EEZ`, `Covariates_for_Study_Area`, `Exercise.Rproj`, `Study_Area`, and `Survey_Data`.

32. Paste into RStudio. Press Enter

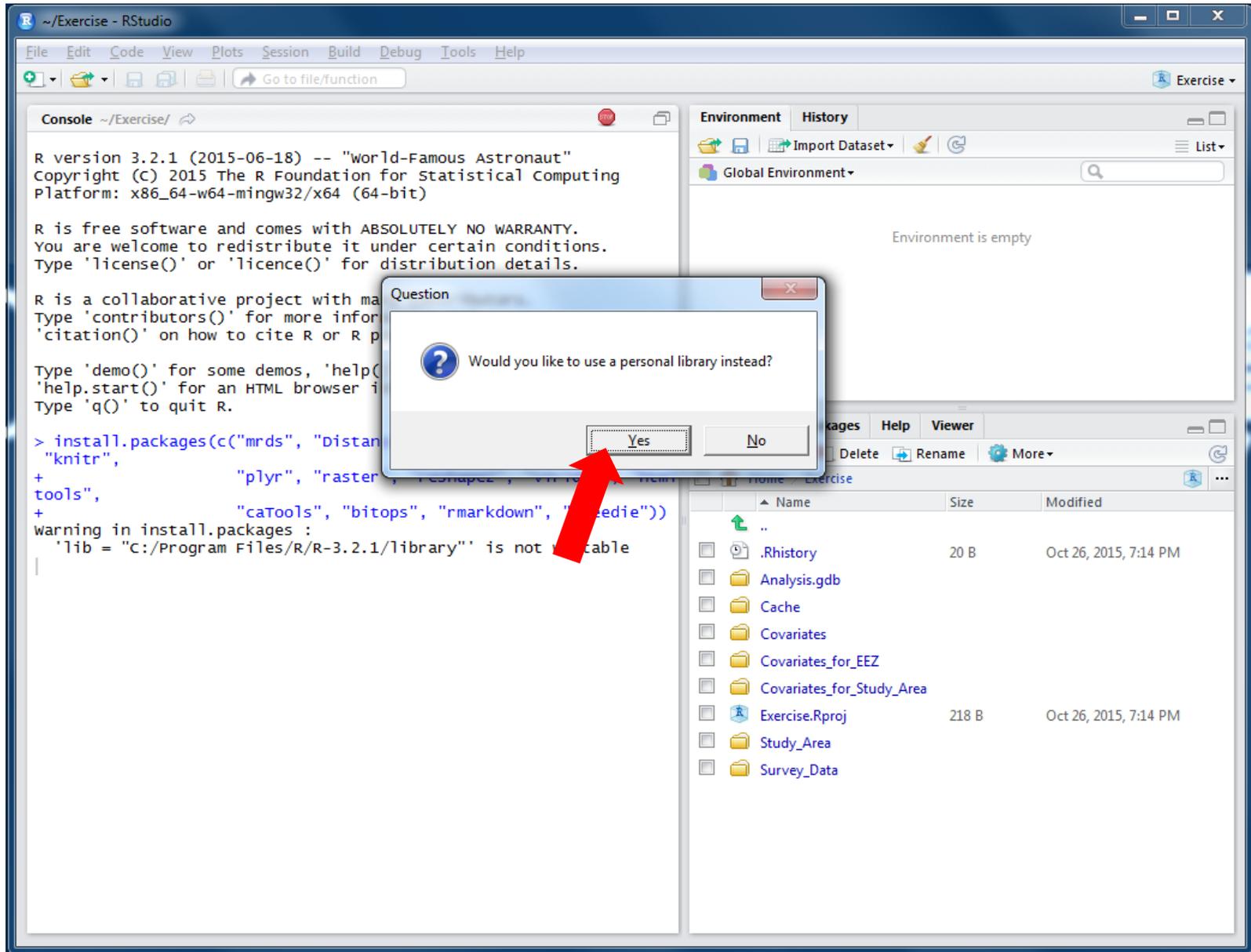
RStudio will
say this →
and then
appear to
hang

The screenshot shows the RStudio interface with the following components:

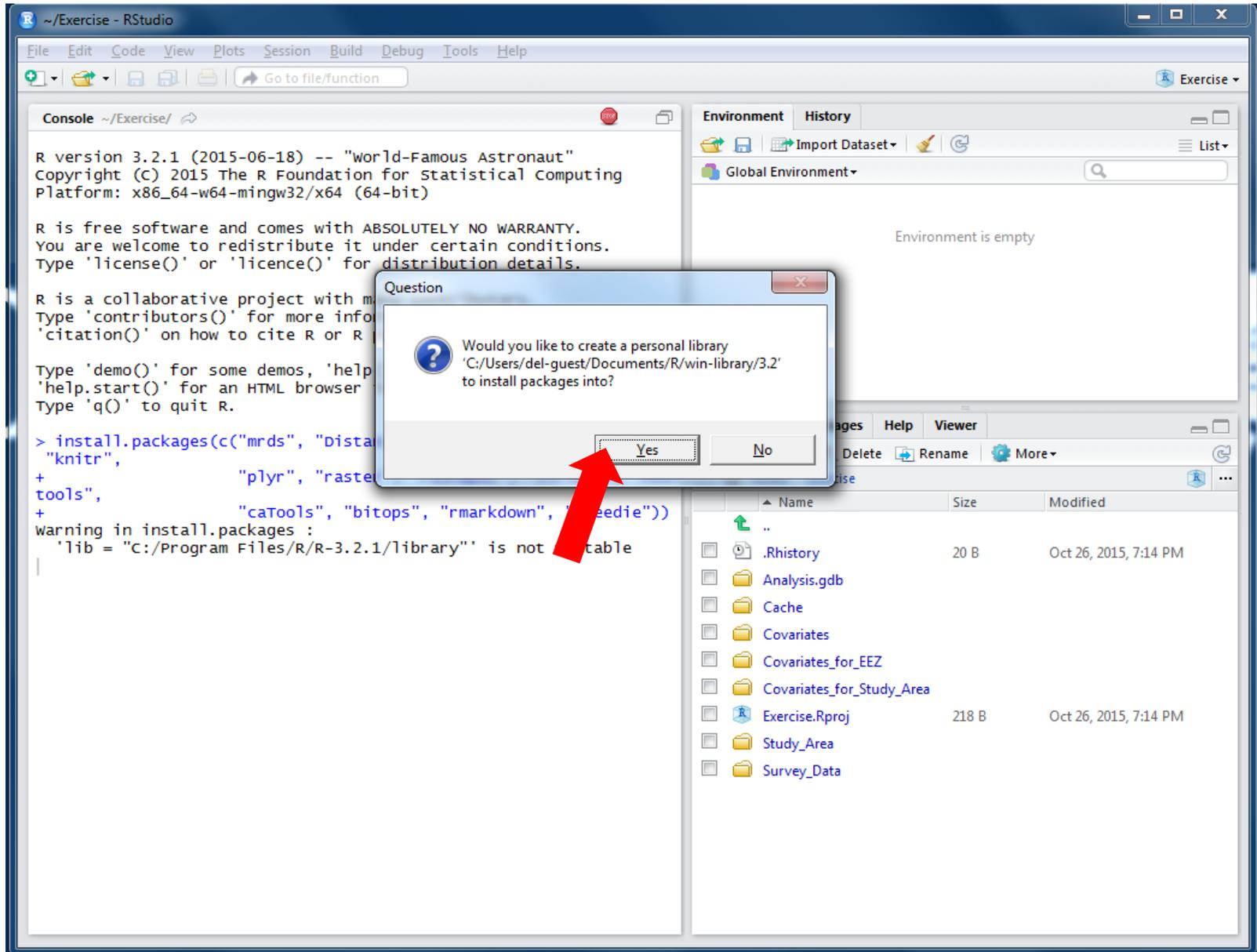
- Console:** Displays the R version (3.2.1) and the output of the `install.packages()` command. The command lists several packages: "mrds", "Distance", "dsm", "ggplot2", "rgdal", "knitr", "plyr", "raster", "reshape2", "viridis", "htmltools", "caTools", "bitops", "rmarkdown", and "tweedie". A warning message is shown: "warning in install.packages : 'lib = \"c:/Program Files/R/R-3.2.1/library\"' is not writable".
- Environment:** Shows "Global Environment" and "Environment is empty".
- Files:** Shows a file explorer view of the "Exercise" directory, listing files like ".Rhistory", "Analysis.gdb", "Cache", "Covariates", "Covariates_for_EEZ", "Covariates_for_Study_Area", "Exercise.Rproj", "Study_Area", and "Survey_Data".

A red arrow points to the console area with the text **CLICK HERE!**

33. Click Yes, you want to use a personal library instead!



34. Click Yes again



The screenshot shows the RStudio interface with a dialog box in the foreground. The dialog box asks: "Would you like to create a personal library 'C:/Users/del-guest/Documents/R/win-library/3.2' to install packages into?". There are two buttons: "Yes" and "No". A red arrow points to the "Yes" button.

The background shows the RStudio console with the following text:

```
R version 3.2.1 (2015-06-18) -- "World-Famous Astronaut"
Copyright (C) 2015 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (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.

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.

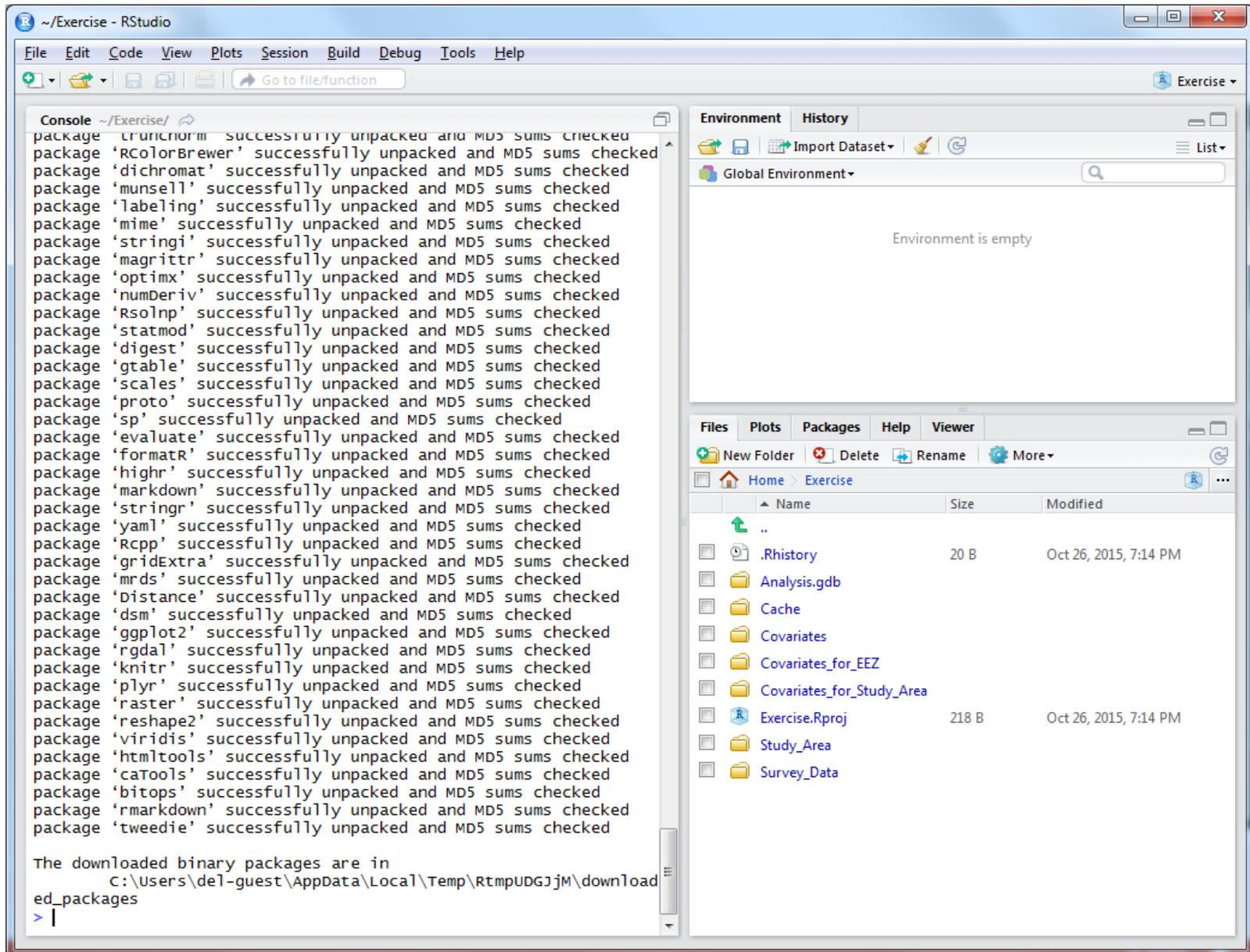
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages(c("mrds", "Distal", "knitr",
+ "plyr", "raster",
+ "caTools", "bitops", "rmarkdown", "readie"))
warning in install.packages :
  'lib = "C:/Program Files/R/R-3.2.1/library"' is not writable
```

The Environment pane shows "Global Environment" and "Environment is empty". The File Explorer pane shows a list of files and folders:

Name	Size	Modified
..		
.Rhistory	20 B	Oct 26, 2015, 7:14 PM
Analysis.gdb		
Cache		
Covariates		
Covariates_for_EEZ		
Covariates_for_Study_Area		
Exercise.Rproj	218 B	Oct 26, 2015, 7:14 PM
Study_Area		
Survey_Data		

35. Lots of packages install. You are done!



The screenshot shows the RStudio interface with the following components:

- Console:** A list of 47 packages successfully installed and checked. The packages are: ltruncnorm, RColorBrewer, dichromat, munsell, labeling, mime, stringi, magrittr, optimx, numDeriv, Rsolnp, statmod, digest, gtable, scales, proto, sp, evaluate, formatR, highr, markdown, stringr, yaml, Rcpp, gridExtra, mirds, distance, dsm, ggplot2, rgdal, knitr, plyr, raster, reshape2, viridis, htmltools, caTools, bitops, rmarkdown, and tweedie.
- Environment:** Shows "Global Environment" and "Environment is empty".
- Files:** A file explorer view of the "Exercise" directory containing:
 - ..
 - .Rhistory (20 B, Oct 26, 2015, 7:14 PM)
 - Analysis.gdb
 - Cache
 - Covariates
 - Covariates_for_EEZ
 - Covariates_for_Study_Area
 - Exercise.Rproj (218 B, Oct 26, 2015, 7:14 PM)
 - Study_Area
 - Survey_Data

The console also shows the path for downloaded binary packages: `C:\Users\de1-guest\AppData\Local\Temp\RtmpUDGjM\download_packages`.