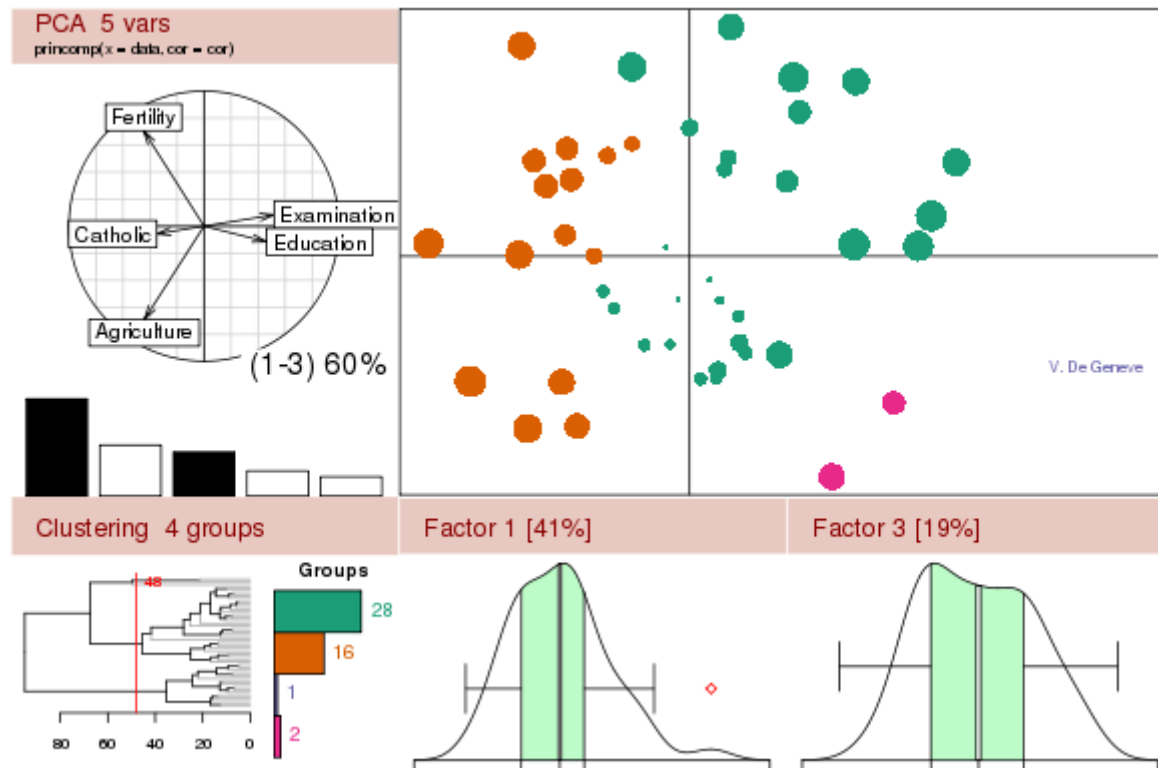


2013 Eric Pitman Summer Workshop in Computational Science



...an introduction to R, statistics, programming, and getting to know datasets

Intro to

Rstudio Tips

hpc2 My Tools: R Studio Tool

Jeanette Sperhac ▶ Dashboard

My Sessions

- [Workspace](#)
- Storage ([manage](#))
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Recent	Favorites	All Tools
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Quantum ESPRESSO		
R Studio Tool		

Add a tool to your favorites by clicking a heart. Click the heart again to remove it.

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Tools

Tool	Status	Questions	Answers	Alerts
arith2	updated	0	0	0
arith	published	0	0	0
rstudiotool	published	0	0	0

Other Contributions in Progress

- [Another test document](#)

Time: Download

RStudio environment

1. Editor

The screenshot displays the RStudio interface with four main panes:

- Editor:** Contains the R script `diamondPricing.R` with the following code:

```
1 library(ggplot2)
2 source("plots/formatPlot.R")
3
4 view(diamonds)
5 summary(diamonds)
6
7 summary(diamonds$price)
8 aveSize <- round(mean(diamonds$carat), 4)
9 clarity <- levels(diamonds$clarity)
10
11 p <- qplot(carat, price,
12            data=diamonds, color=clarity,
13            xlab="Carat", ylab="Price",
14            main="Diamond Pricing")
15
```
- Workspace:** Shows the loaded data `diamonds` (53940 obs. of 10 variables) and the function `format.plot`.
- Console:** Displays the output of the executed code, including summary statistics for the `diamonds` dataset and the `price` variable, and the creation of the `p` plot object.

	x	y	z
Min.	0.000	0.000	0.000
1st Qu.	4.710	4.720	2.910
Median	5.700	5.710	3.530
Mean	5.731	5.735	3.539
3rd Qu.	6.540	6.540	4.040
Max.	10.740	58.900	31.800

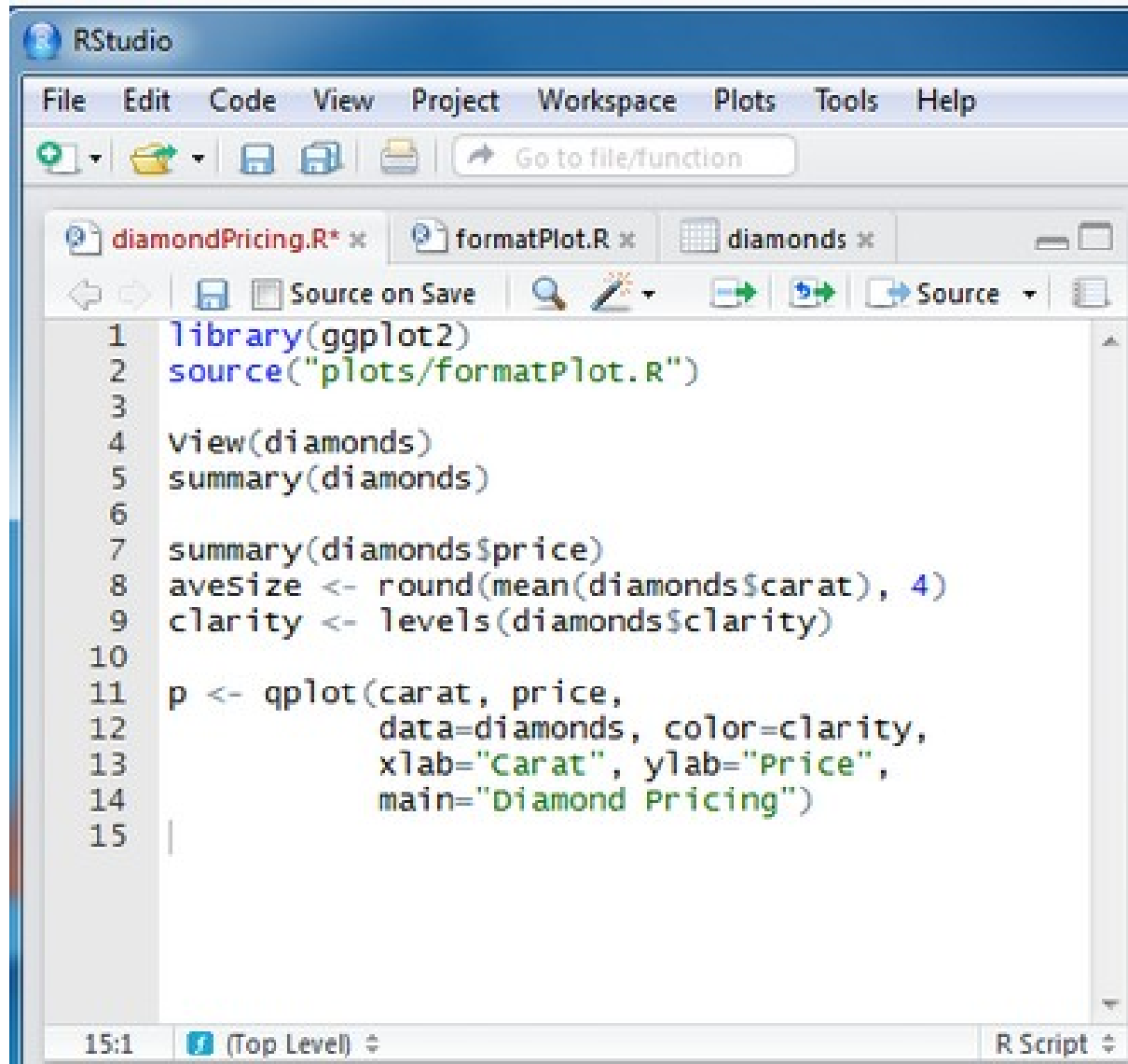
```
> summary(diamonds$price)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   326    950   2401   3933   5324  18820
> aveSize <- round(mean(diamonds$carat), 4)
> clarity <- levels(diamonds$clarity)
> p <- qplot(carat, price,
+            data=diamonds, color=clarity,
+            xlab="Carat", ylab="Price",
+            main="Diamond Pricing")
>
> format.plot(p, size=24)
> |
```
- Plots:** Displays a scatter plot titled "Diamond Pricing" showing Price (Y-axis, 0 to 15000) versus Carat (X-axis, 0.0 to 3.5). The points are colored by Clarity, with a legend on the right showing categories: I1, SI2, SI1, VS2, VS1, VVS2, VVS1, and IF.

2. Workspace
(Variables)
and
History

3. Plots, etc.

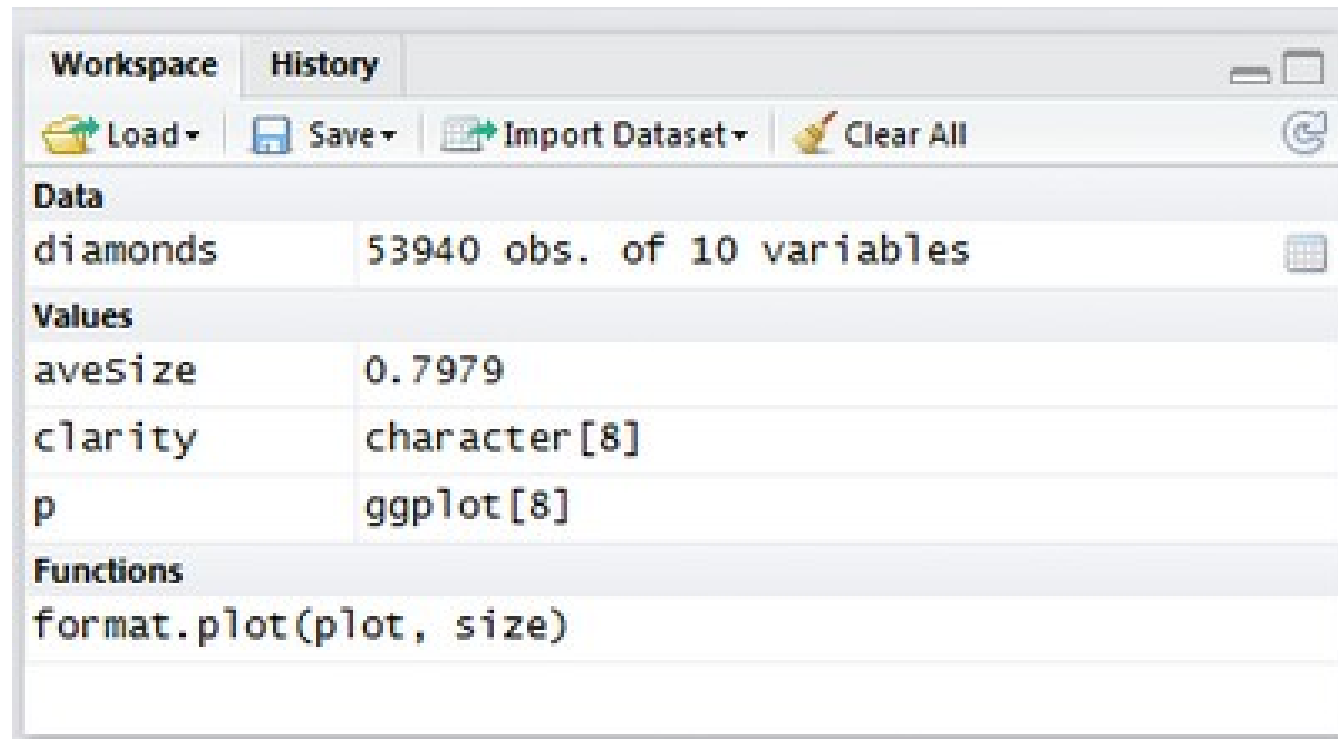
4. Console

Editor window



Edit and save scripts.

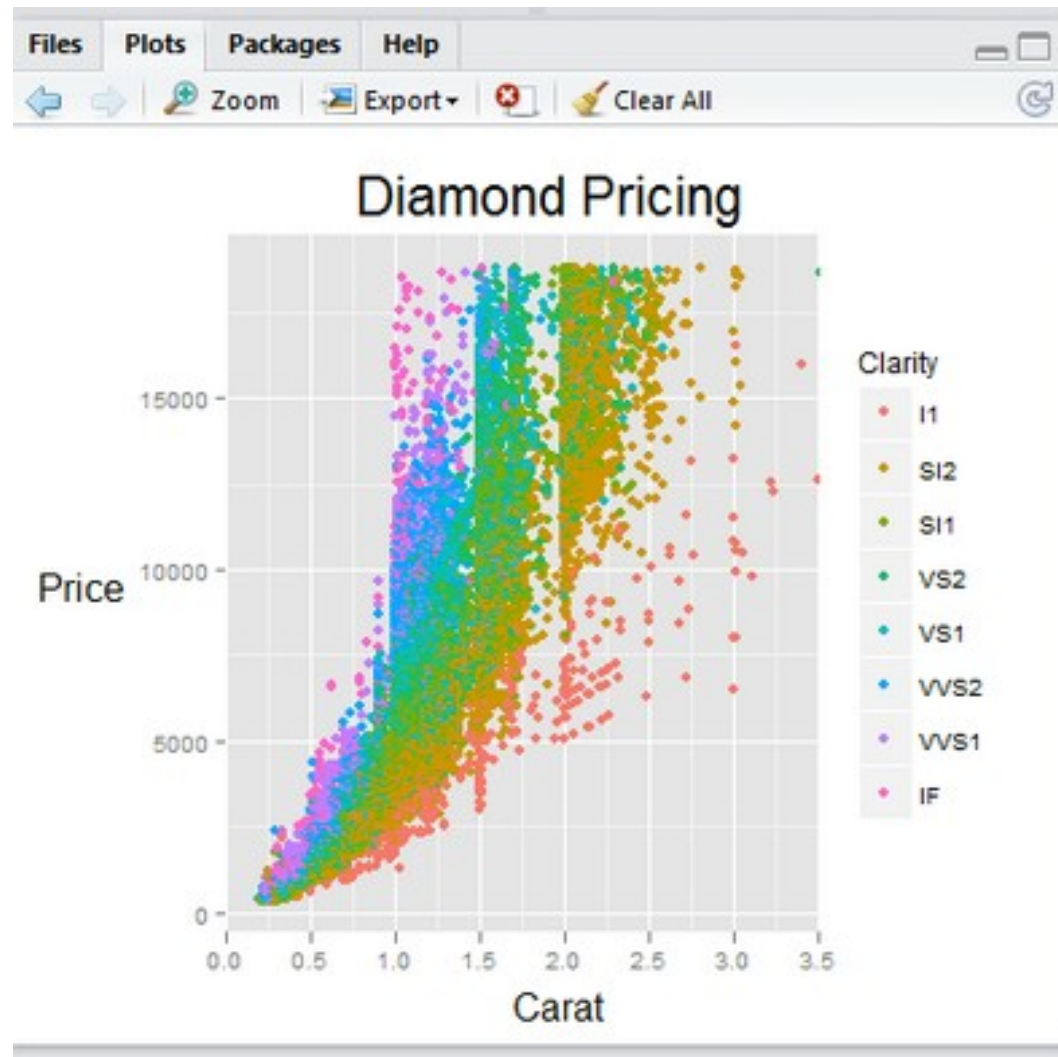
Workspace and History window



Pick a tab to:

- View current variables
- View historical commands

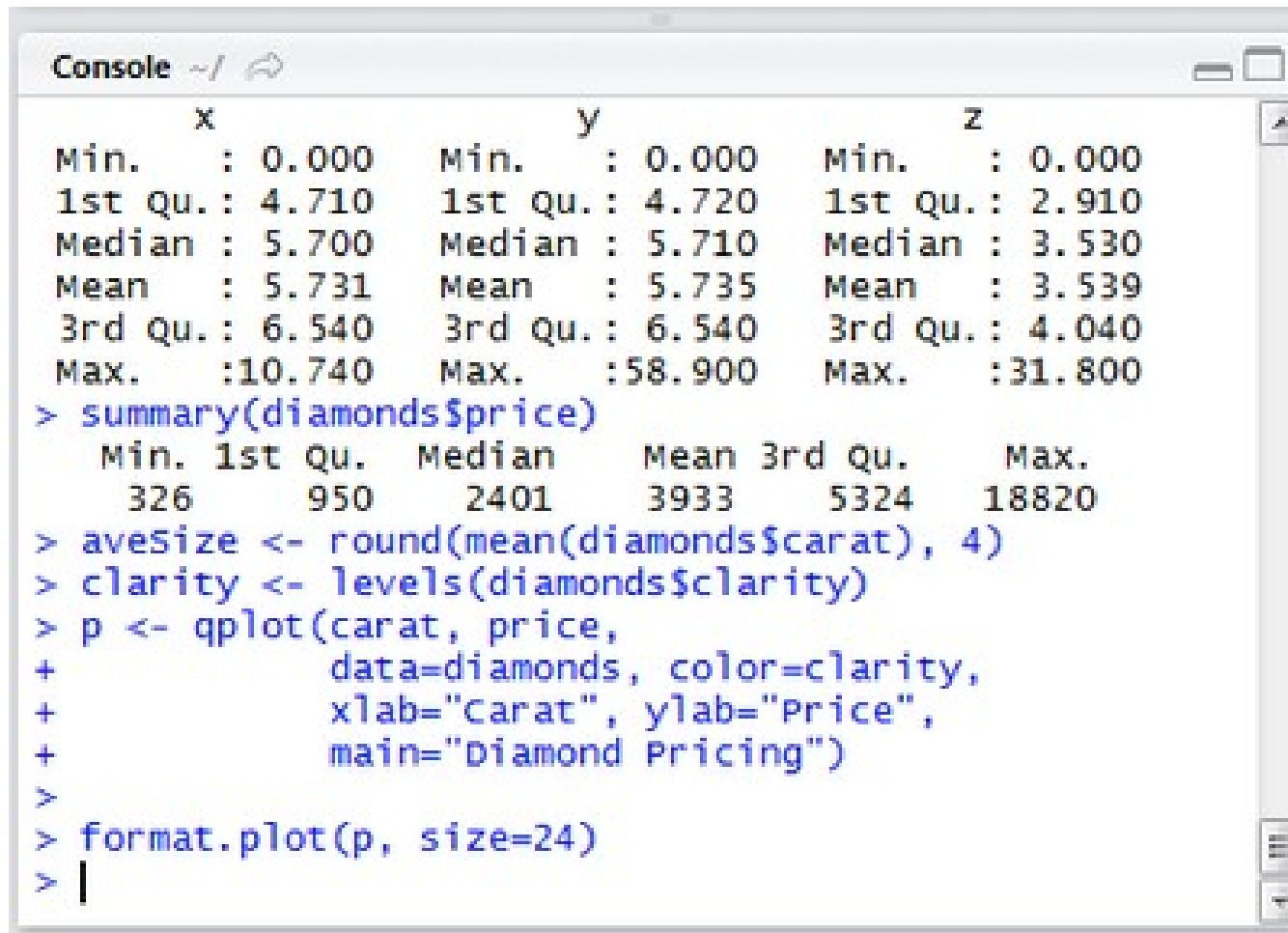
Plot window







Pick a tab to:

- View current Files and Directories
- View current Plots
- Review loaded Packages
- Read Help and Documentation

Console window



```
Console ~/    
  x           y           z
Min.   : 0.000   Min.   : 0.000   Min.   : 0.000
1st Qu.: 4.710   1st Qu.: 4.720   1st Qu.: 2.910
Median : 5.700   Median : 5.710   Median : 3.530
Mean   : 5.731   Mean   : 5.735   Mean   : 3.539
3rd Qu.: 6.540   3rd Qu.: 6.540   3rd Qu.: 4.040
Max.   :10.740   Max.   :58.900   Max.   :31.800
> summary(diamonds$price)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  326    950    2401    3933    5324   18820
> aveSize <- round(mean(diamonds$carat), 4)
> clarity <- levels(diamonds$clarity)
> p <- qplot(carat, price,
+           data=diamonds, color=clarity,
+           xlab="carat", ylab="Price",
+           main="Diamond Pricing")
>
> format.plot(p, size=24)
> |
```

The command line:

- Issue commands
- See the results
- Get error messages

RStudio environment: summary

1. Editor

The screenshot displays the RStudio interface with the following components:

- Editor:** Contains R code for loading data, summarizing it, and creating a plot. The code is as follows:

```
1 library(ggplot2)
2 source("plots/formatPlot.R")
3
4 view(diamonds)
5 summary(diamonds)
6
7 summary(diamonds$price)
8 aveSize <- round(mean(diamonds$carat), 4)
9 clarity <- levels(diamonds$clarity)
10
11 p <- qplot(carat, price,
12            data=diamonds, color=clarity,
13            xlab="Carat", ylab="Price",
14            main="Diamond Pricing")
15
```
- Workspace:** Shows the loaded data and functions.

Data	
diamonds	53940 obs. of 10 variables
Values	
aveSize	0.7979
clarity	character[8]
p	ggplot[8]
Functions	
format.plot(plot, size)	
- History:** Shows the execution history of the code.
- Console:** Displays the output of the code execution.

```
      x      y      z
Min.   :0.000 Min.   :0.000 Min.   :0.000
1st Qu.:4.710 1st Qu.:4.720 1st Qu.:2.910
Median :5.700 Median :5.710 Median :3.530
Mean   :5.731 Mean   :5.735 Mean   :3.539
3rd Qu.:6.540 3rd Qu.:6.540 3rd Qu.:4.040
Max.   :10.740 Max.   :58.900 Max.   :31.800
> summary(diamonds$price)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   326    950   2401   3933   5324  18820
> aveSize <- round(mean(diamonds$carat), 4)
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+            xlab="Carat", ylab="Price",
+            main="Diamond Pricing")
>
> format.plot(p, size=24)
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```
- Plots:** Displays a scatter plot titled "Diamond Pricing" showing Price (Y-axis, 0 to 15000) versus Carat (X-axis, 0.0 to 3.5). The points are colored by Clarity, with a legend on the right showing categories: I1, SI2, SI1, VS2, VS1, VVS2, VVS1, and IF.

2. Workspace
(Variables)
and
History

3. Plots, etc.

4. Console

R Practical Matters



- R is case sensitive (R != r)
- Command line prompt is >
- To run R code: use command line, or save script and `source("script_name")`
- To separate commands, use ; or a newline
- The # character marks a non-executed *comment*
- To display help files:
`?<command-name>` or `??<command-name>`



RStudio basics and tips

- Up-arrow and history pane: access and edit previous commands
- You can change window size in the IDE by dragging window borders
- Ctrl-L clears the console window
- Broom icon clears Workspace or Plots
- Is your Project loaded? Check upper right.

