

A Beginner's Manual for Installing and Using "detritalPy: A Python-based toolset for visualizing and analysing detrital geo-thermochronologic data"

Sharman et al. (2018)

<https://onlinelibrary.wiley.com/doi/full/10.1002/dep2.45>

Macintosh Version-Instructions compiled by Jeff Amato (amato@nmsu.edu, @ZirconsForever)
Feedback/improvements welcome.

I'm using Macbook Pro with Mojave 10.14.6 and Safari 13.1

You might need to use Chrome instead of Safari if you have upgraded to Catalina OS for Mac¹.

1. Install "Anaconda"

<https://www.anaconda.com/distribution/>

Select v. 3.7

Download to your hard drive

Click on the installation package

Run a normal installation

2. Open the Terminal tool on your mac

(it's in the utilities folder inside the applications folder)

Type "python"

It should respond with: "Python 3.7.6 (default, Jan 8 2020, 13:42:34)"

Indicating that the installation was successful.

3. Install detritalPy

<https://github.com/grsharman/detritalPy>

click on green box "Clone or download"

click "Download Zip"

This file is probably in your downloads folder Double clicking on the zip folder.

This will expand into a folder called "detritalPy-master"

I recommend moving this into another folder on your hard drive. Maybe applications, or maybe a class folder.

4. Close the Terminal and then open it again

5. In the Terminal, type "pip install detritalpy"

A bunch of lines will show up. The last line should be something like:

```
Successfully installed branca-0.4.0 detritalpy-1.3.16 folium-0.10.1  
peakutils-1.3.3 simplekml-1.3.3 sklearn-0.0 vincent-0.4.4
```

Steps 1-5 should only have to be done once. The other steps should be done anytime you want to run the program.

6. There's a manual called "detriralPy_Manualv.1.1.2.pdf" in the DetriralPy Master folder. I suggest you read it. You shouldn't have to install the extra files they mention.

7. Your data files are in an Excel workbook (file) which has two worksheets, Samples and ZrUPb. See Figure 1 in the manual.

8a. In the Terminal, type "jupyter notebook" and the program should open in a browser window (I'm using Safari).

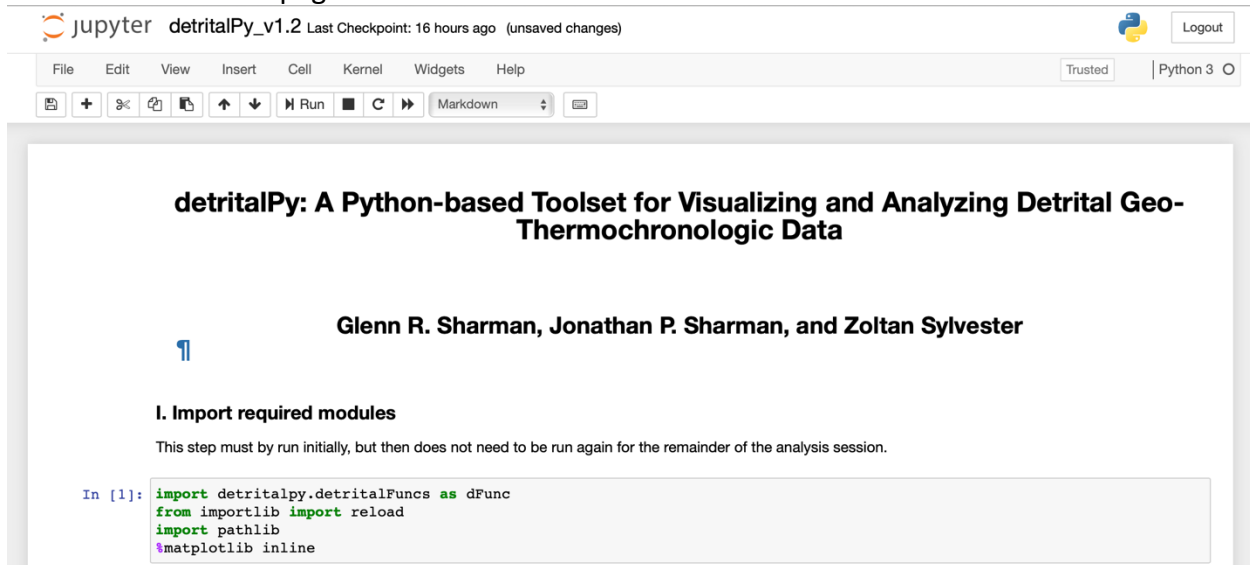
8b. Note: If it doesn't open, try first typing in the Terminal "pip install notebook" and then repeat step 8.

8c. Another option for starting the program is to go to the Launchpad on your computer and launch Anaconda-Navigator and then click the launch button under Jupyter Notebook. This avoids having to launch via the Terminal.

9. Navigate using the browser to where your "detriralPy-master" folder is. Mine was still in the downloads folder but you could have moved it into Applications. Open this folder

10. Inside this folder is a folder called "detriralPy"—**click on the file "detriralPy_v1.2.ipynb"** (or whatever is the most recent version of the program that you have installed)

11. You should see a page like this:



The screenshot shows a Jupyter Notebook interface. At the top, it says "jupyter detriralPy_v1.2 Last Checkpoint: 16 hours ago (unsaved changes)". The notebook title is "detriralPy: A Python-based Toolset for Visualizing and Analyzing Detriral Geo-Thermochronologic Data" by Glenn R. Sharman, Jonathan P. Sharman, and Zoltan Sylvester. Below the title is a section "I. Import required modules" with a note: "This step must be run initially, but then does not need to be run again for the remainder of the analysis session." A code cell is shown with the following code:

```
In [1]: import detrialpy.detriralFuncs as dFunc
from importlib import reload
import pathlib
%matplotlib inline
```

12. Highlight the first gray box that has some code in it and click "shift-enter". The brackets to the left "In []:" should turn to a 1 and the program should toggle down to the next box.

13. Skip down to the box saying "File pathways can be handled as shown below"

14. Now go to your data file on your computer. [for test use the file “ExampleDataset_1”, located in the Detrital Py folder that was downloaded.

Highlight the file name, right click on it (or two-finger click on trackpad), and then hit option key, select from the list “Copy as pathname”²

15. Paste this filename between the single quotes after the letter r. In other words, replace the text ‘C:\Users\gsharman\.....ExampleDataset_1.xlsx’ with your specific hard path data file name.

```
In [ ]: # Specify file paths to data input file(s)
dataToLoad = [r'C:\Users\gsharman\Documents\GitHub\detritalPy\example-data\ExampleDataset_1.xlsx',
              r'C:\Users\gsharman\Documents\GitHub\detritalPy\example-data\ExampleDataset_2.xlsx']
|
main_df, main_byid_df, samples_df, analyses_df = dFunc.loadDataExcel(dataToLoad)
```

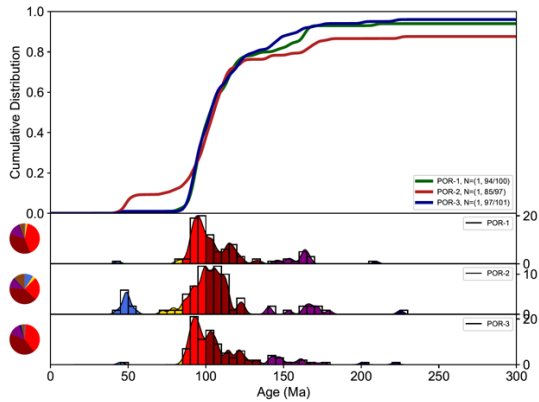
Use commas to select multiple files. For this example, delete the Dataset2 file. Now click shift enter. The text on the left should change to an asterisk and then a number.

16. Now go to III. Select samples. This is so that you can plot only some of the samples within a larger spreadsheet that’s already loaded. In the box “dFunc.plotSampleDist (main_byid_df, numBins=25)” you can list them in the format shown (e.g., ‘POR-1’, etc.). then click “Shift-enter”. So in this case, keep POR-1, 2, and 3, and delete the others.

17. Go to the next box “Plot detrital age distributions” and enter your plot options. The default is shown here:

```
# Cumulative distribution options
plotCDF = False # Plot the CDF discretized at xdif interval
plotCPDP = False # Plot the cumulative PDP
plotCKDE = True # Plot the cumulative KDE
plotDKW = False # Plot the 95% confidence interval of the CDF (Dvoretzky-Kiefer-Wolfowitz inequality)
```

This will plot cumulative distribution plots and KDE.
Shift-Enter to generate the plot. It should look like this:



If you only want PDP, you would change that to True and change the others to False.

18. There is an option to save the figure as a PDF file.

“Optional: Run the cell below to save the figure as a pdf file”

Click-Enter on that box and a file will be saved into your Output folder which is in the Detrital Py folder.

Congratulations, you have successfully made some plots using Detrital Py.

19. Next time start with step 8a (or 8c), 9, and 10 to run the program again.

20. Now put your own data into the format and try again.

21. If you want to check for (and install) updates to the detritalPy program, go to the Terminal and type “pip install detritalpy --upgrade” and it should install the new version if there is one.

¹ <https://discourse.jupyter.org/t/jupyter-notebook-window-wont-open-after-catalina-upgrade/3065>

² <https://www.switchingtomac.com/tutorials/osx/5-ways-to-reveal-the-path-of-a-file-on-macos/>

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