detritalPy Overview

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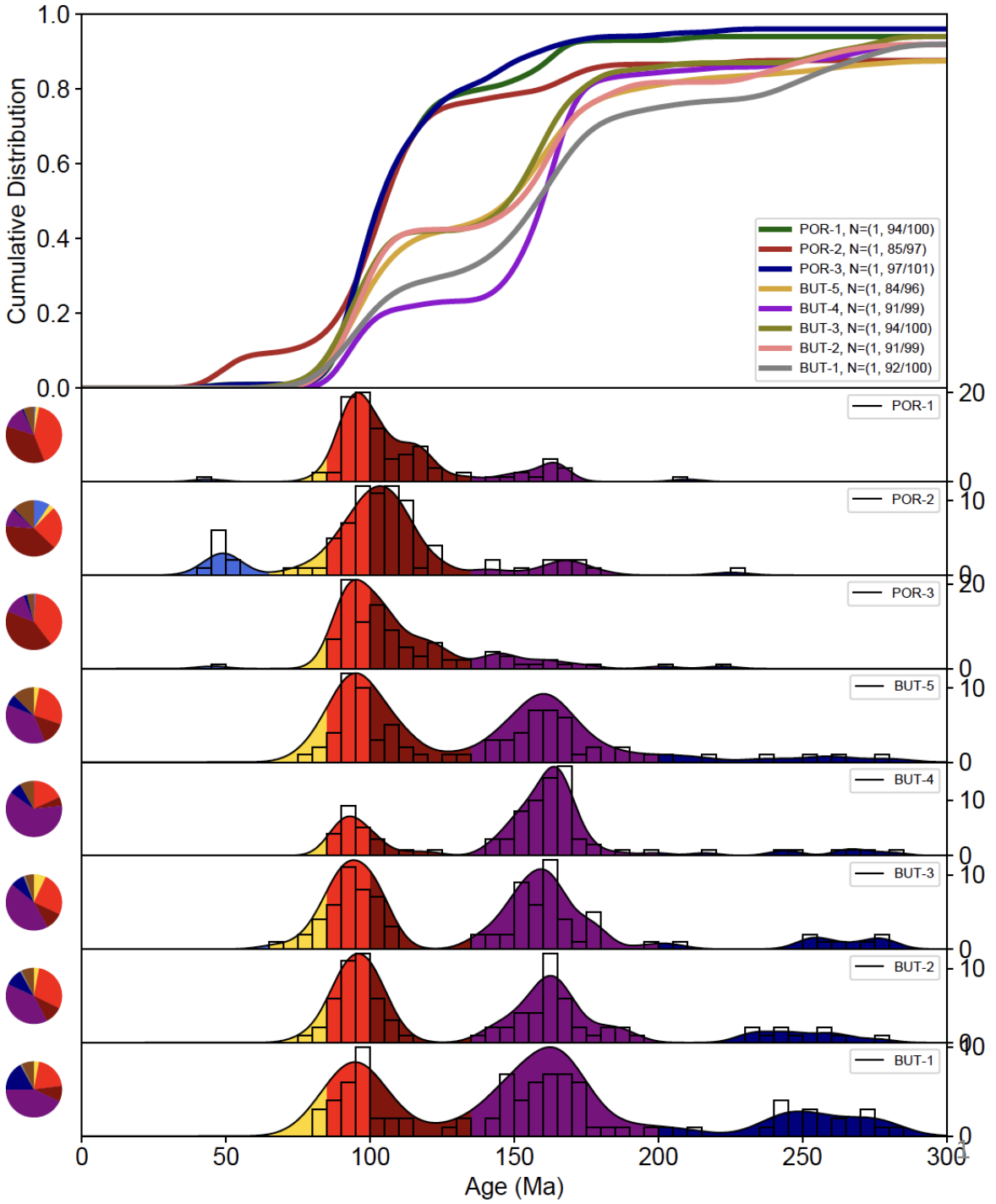

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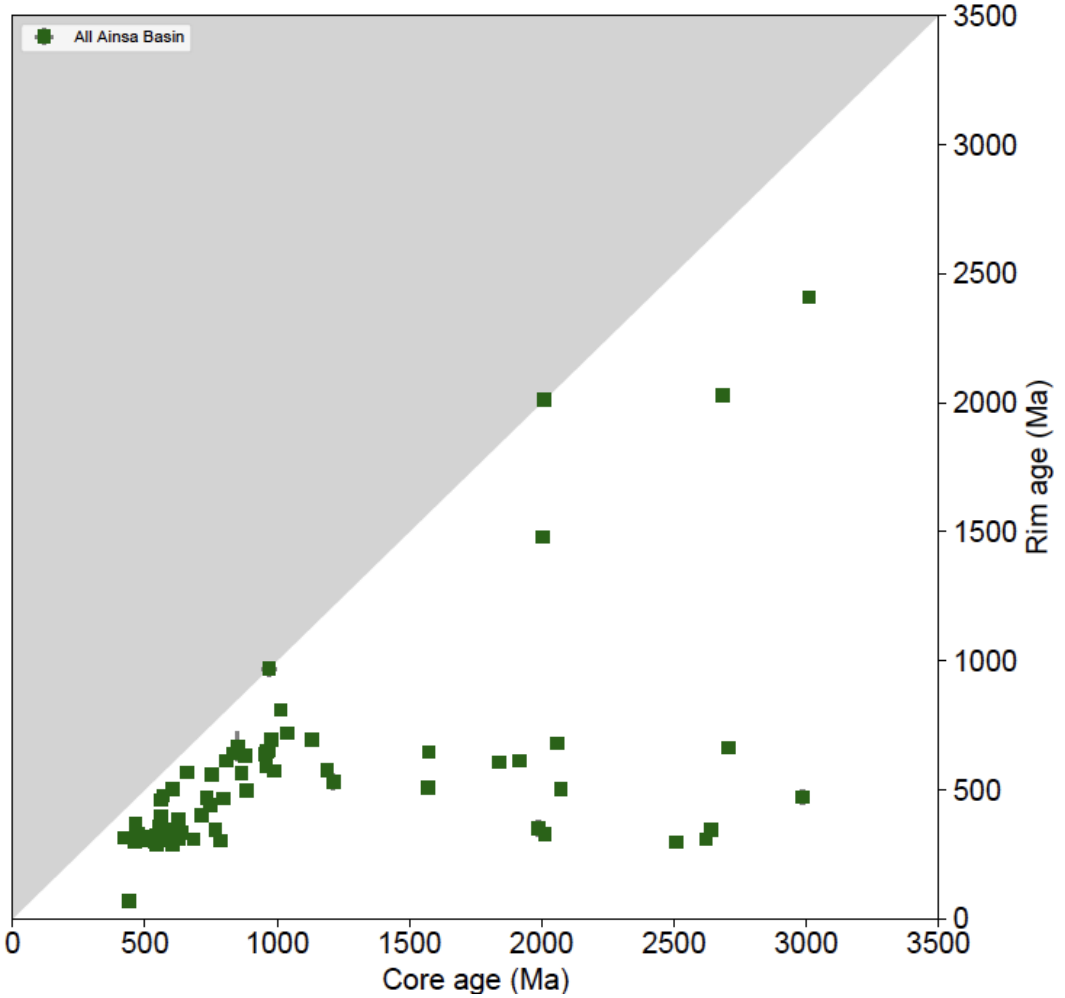

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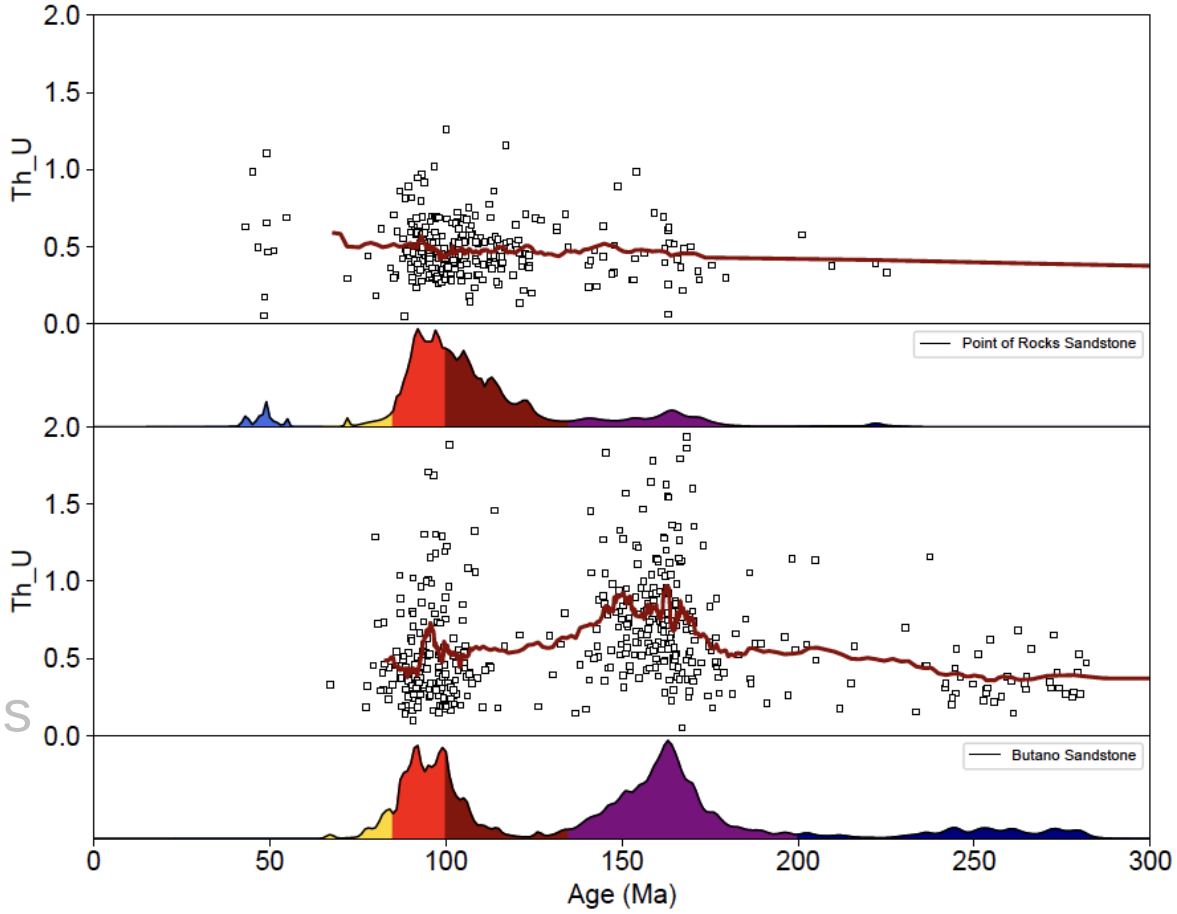

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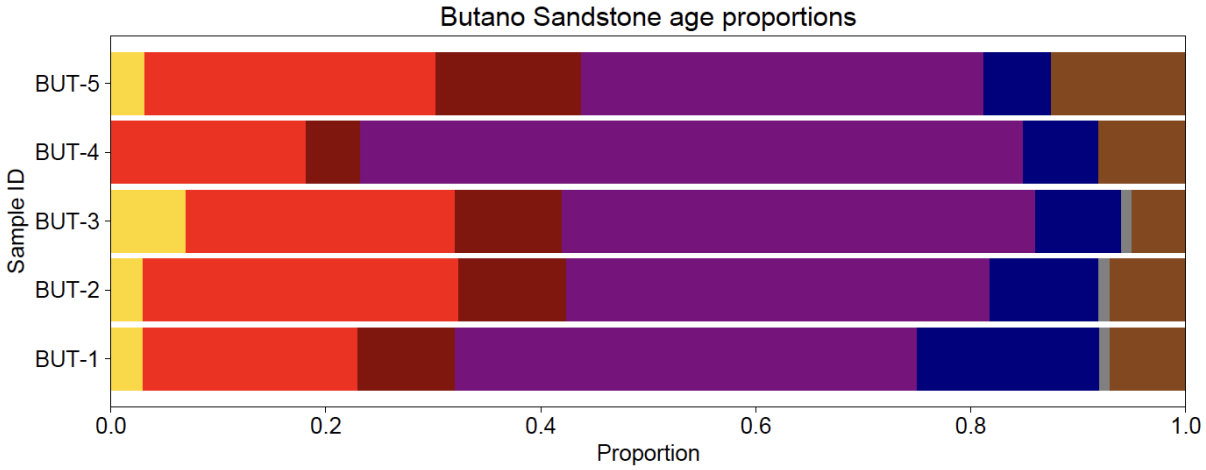

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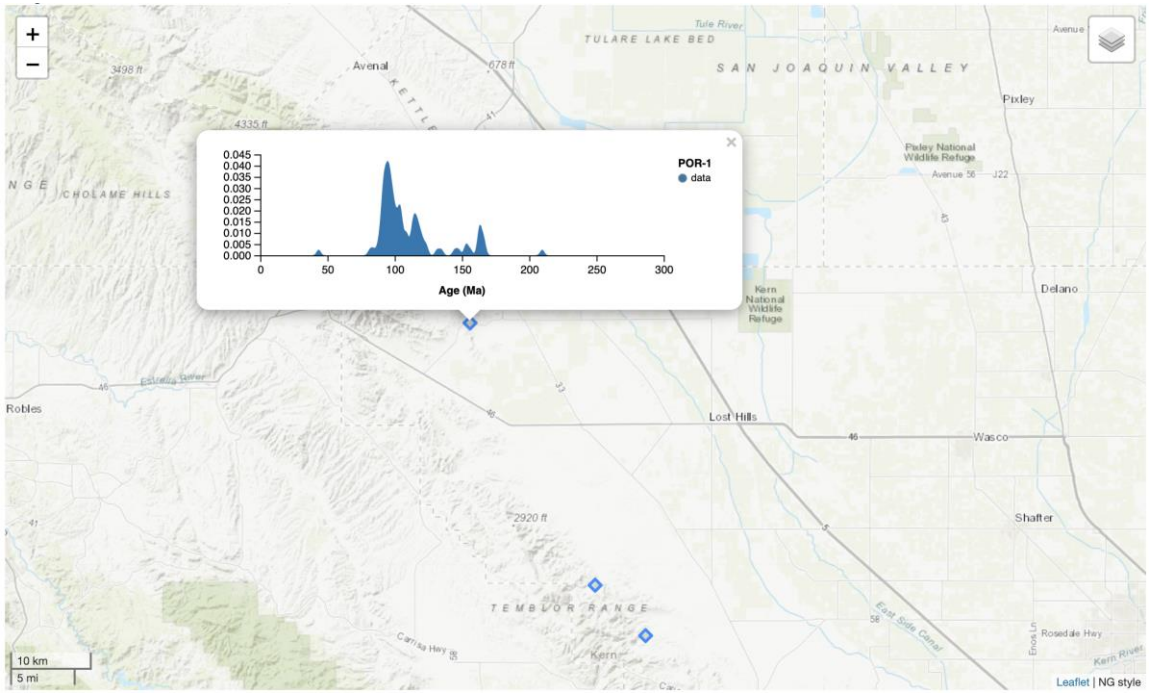

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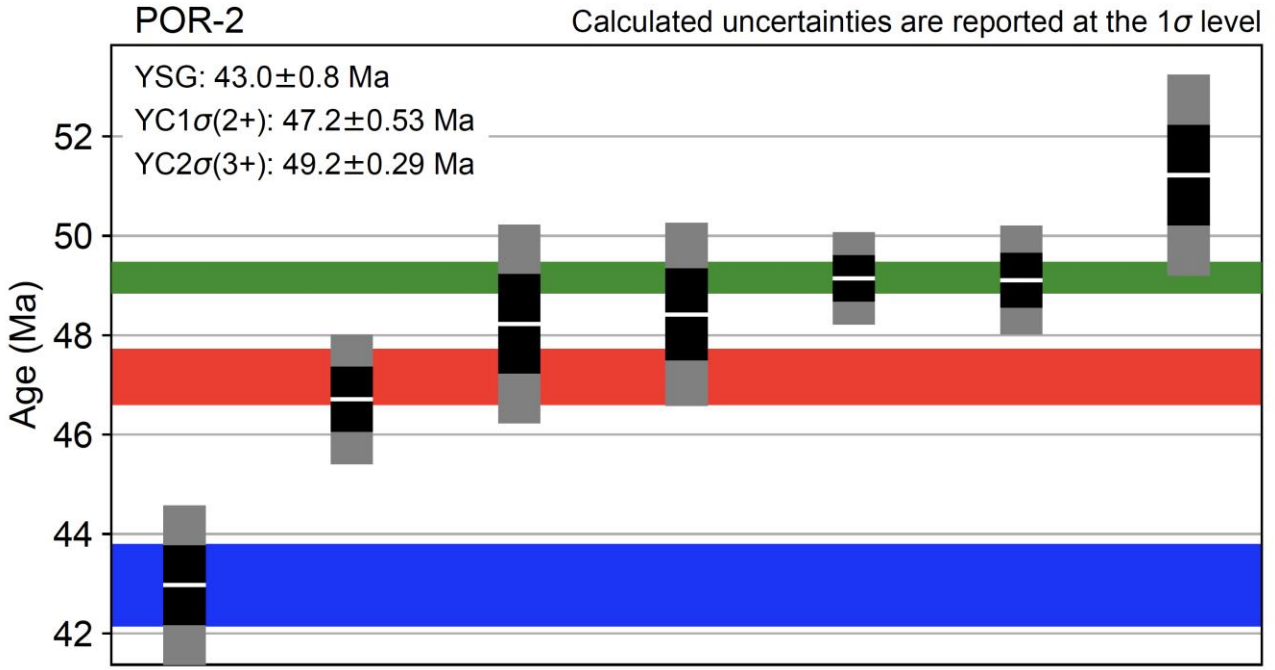

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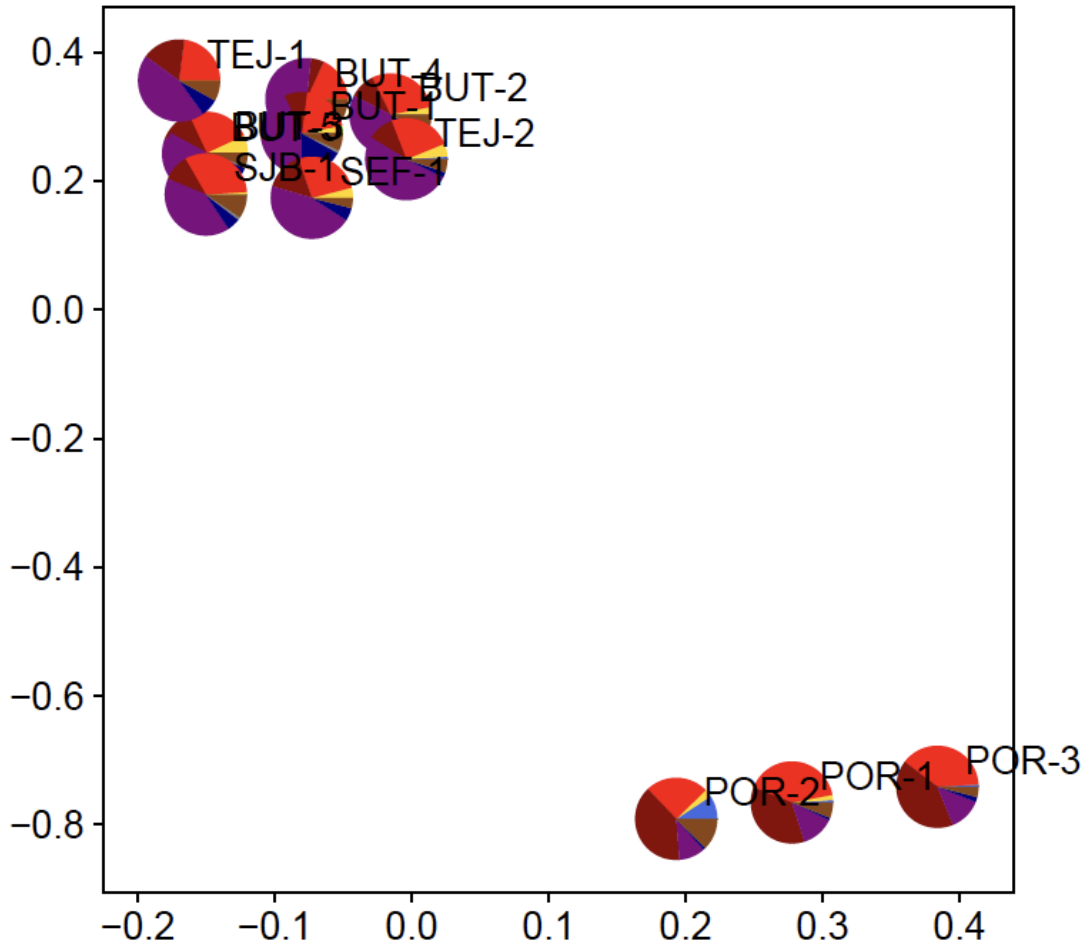

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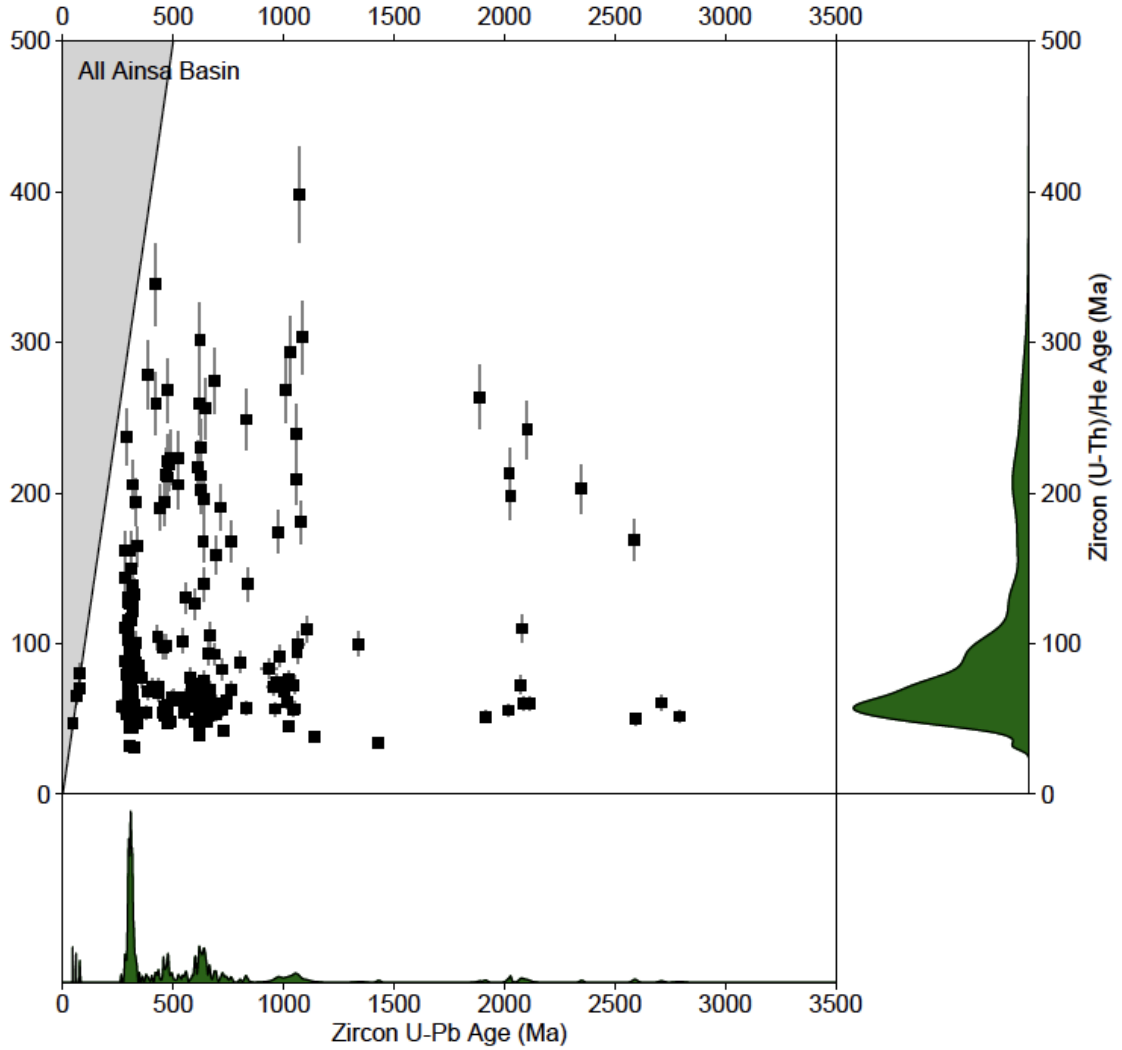


detritalPy Overview

How to import data?

- **Data is inputted via Excel**
  - Samples worksheet (default name = “Samples”)
  - Analyses worksheet (default name = “ZrUPb”)

Note: data input is a simple relational database with “Sample_ID” as the primary key of “Samples” and the foreign key that links “ZrUPb” with ”Samples”

A

Required | Optional (not used) | Optional (used in some functions) | Optional (not used)

	A	B	C	D	E	F	G
1	Sample_ID	Unit	Basin	Age	Latitude	Longitude	Source
2	11-Escanilla	Escanilla	Ainsa Basin	Eocene (Bartonian)	42.278474	-0.122617	Thompson et al. (2017)
3	12-Escanilla	Escanilla	Ainsa Basin	Eocene (Bartonian)	42.267407	-0.116455	Thompson et al. (2017)
4	10-Sobrarbe	Sobrarbe	Ainsa Basin	Eocene (Bartonian)	42.29224	-0.101188	Thompson et al. (2017)
5	7-Guaso	Guaso	Ainsa Basin	Eocene (Lutetian)	42.409038	-0.106831	Thompson et al. (2017)
6	13-Guaso	Guaso	Ainsa Basin	Eocene (Lutetian)	42.358007	-0.156971	Thompson et al. (2017)
7	5-Morillo	Morillo	Ainsa Basin	Eocene (Lutetian)	42.379942	-0.151209	Thompson et al. (2017)
8	6-Morillo	Morillo	Ainsa Basin	Eocene (Lutetian)	42.414713	-0.11229	Thompson et al. (2017)
9	14AB-M02	Morillo	Ainsa Basin	Eocene (Lutetian)	42.43641	-0.07068	Thompson et al. (2017)
10	14AB-A04	Ainsa II	Ainsa Basin	Eocene (Lutetian)	42.433589	-0.12764	Thompson et al. (2017)
11	14AB-A05	Ainsa II	Ainsa Basin	Eocene (Lutetian)	42.43343	-0.12742	Thompson et al. (2017)
12	4-Ainsa	Ainsa I	Ainsa Basin	Eocene (Lutetian)	42.404218	-0.14801	Thompson et al. (2017)
13	14AB-A06	Ainsa I	Ainsa Basin	Eocene (Lutetian)	42.43364	-0.1314	Thompson et al. (2017)
14	15AB-352	Banaston	Ainsa Basin	Eocene (Lutetian)	42.404645	-0.190405	Thompson et al. (2017)
15	15AB-118	Banaston	Ainsa Basin	Eocene (Lutetian)	42.45504	-0.05471	Thompson et al. (2017)
16	15AB-150	Gerbe	Ainsa Basin	Eocene (Lutetian)	42.38277	-0.18547	Thompson et al. (2017)
17	3-Gerbe	Gerbe	Ainsa Basin	Eocene (Lutetian)	42.39448	-0.197896	Thompson et al. (2017)
18	14AB-G07	Gerbe	Ainsa Basin	Eocene (Lutetian)	42.39455	-0.197719	Thompson et al. (2017)
19	2-Arro	Arro	Ainsa Basin	Eocene (Ypresian)	42.406398	-0.238684	Thompson et al. (2017)
20	1-Fosado	Fosado	Ainsa Basin	Eocene (Ypresian)	42.428614	-0.256078	Thompson et al. (2017)
21	14AB-F01	Fosado	Ainsa Basin	Eocene (Ypresian)	42.434566	-0.248433	Thompson et al. (2017)

Samples | ZrUPb

B

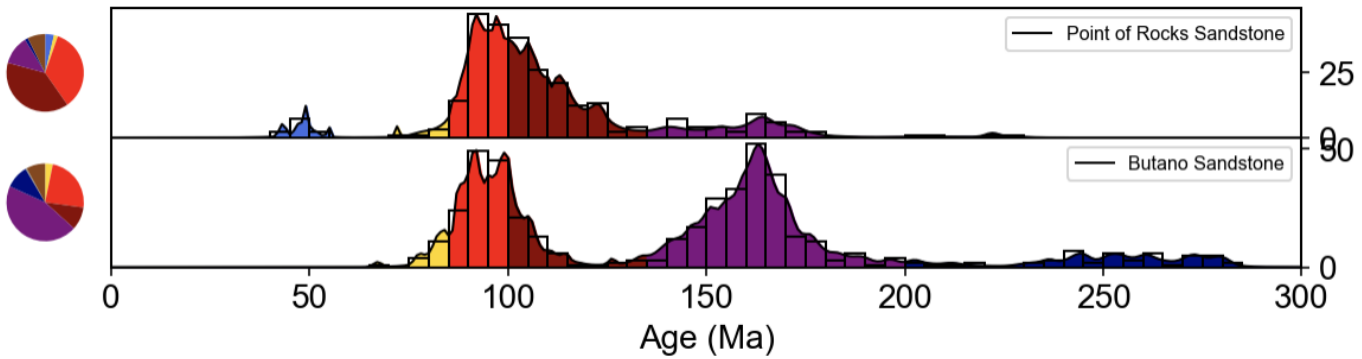
Required | Optional (used in some functions) | Required | Optional (used in some functions)

	A	B	E	G	U	V	W	X	Y	Z
1	Sample_ID	Grain_ID	U_ppm	Th_U	BestAge	BestAge_err	Disc	ZHe_Age	ZHe_Age_err	RimCore
441	7-Guaso	7_Guaso_65	128	0.52	572	5	1.04			
442	7-Guaso	7_Guaso_60	267	0.57	575	7	1.2			
443	7-Guaso	7_Guaso_70	506	0.17	579	4.15	7.4			
444	7-Guaso	7_Guaso_81	980	0.30	590	10	1.01			Rim
445	7-Guaso	7_Guaso_86	80.5	2.63	591.4	4.9	0.94			
446	7-Guaso	7_Guaso_28	85.7	0.87	605	7	2.37			Core
447	7-Guaso	7_Guaso_92	31.28	0.64	613	6.5	1.76			
448	7-Guaso	7_Guaso_72	98.2	2.38	617.1	2.65	0.33	49.8	4.0	
449	7-Guaso	7_Guaso_49	878	0.04	624.2	4.2	1.37	202.1	16.2	
450	7-Guaso	7_Guaso_25	157.8	1.05	631.7	4.8	0.19			
451	7-Guaso	7_Guaso_53	58.3	0.88	632	6.5	1.71			
452	7-Guaso	7_Guaso_17	180.2	0.96	634.2	3.8	1.77			
453	7-Guaso	7_Guaso_46	37.3	1.25	639	5	1.39			
454	7-Guaso	7_Guaso_61	267	0.49	644.6	3.4	0.05	50.2	4.0	
455	7-Guaso	7_Guaso_7	431	0.51	645	5.5	1.23	61.5	4.9	
456	7-Guaso	7_Guaso_8	45.8	0.86	658.5	4.6	1.72			
457	7-Guaso	7_Guaso_99	105.5	0.68	684	9.5	1.01			Core
458	7-Guaso	7_Guaso_48	86.2	0.48	738	8.5	1.47			
459	7-Guaso	7_Guaso_73	75.9	0.85	742.6	4	0.79			
460	7-Guaso	7_Guaso_93	82.7	1.67	790	6	0.01			

Samples | ZrUPb

detritalPy Application

- **We will experiment with different options in the plotAll() function**



You will then apply what you have learned on two datasets (time permitting)

- **Bengal Fan (Blum et al. 2018: *Scientific Reports*)**
- **Permian-Triassic of Colorado Plateau (Gehrels et al. 2020: *Gchron*)**

You may share your plot(s) with the group by visiting this shared Google presentation file

- https://docs.google.com/presentation/d/1thdB0AxztzI23_SScyOVBrcrMTVdhc8BZYw21sNzQNM/edit?usp=sharing

detritalPy Application

There are two ways to run detritalPy

Option 1 (recommended): Google Colaboratory
(Google account required)

1. Access Google Colab notebook via this link
   - https://gist.github.com/grsharman/db90e2eb5ca39450b6296754ab310274
2. Click “Open in Colab”
3. Sign into your Google account
4. Select the first cell, either click the arrow button or return Shift+Enter
5. Click “RUN ANYWAY” when the warning appears
6. Scroll down to the end of the first cell, and click on link above “Enter verification code”. Enter code.
7. Continue through notebook by executing cells with code, one-by-one

Option 2: Jupyter Notebook

1. Download and Install Python (I recommend the free Anaconda distribution platform)
   - https://www.anaconda.com/
2. Install detritalPy
   - “pip install detritalpy”
     - Windows (open Anaconda Prompt)
     - MacOS (open Terminal)
3. Download zipped folder on shared Drive folder
   - Unzip on your computer
4. Launch Anaconda & Jupyter Notebook
5. Open “detritalPy_GSA2020.ipynb”

See Section 2.2 in Step-by-Step instructions

EXTRA SLIDES

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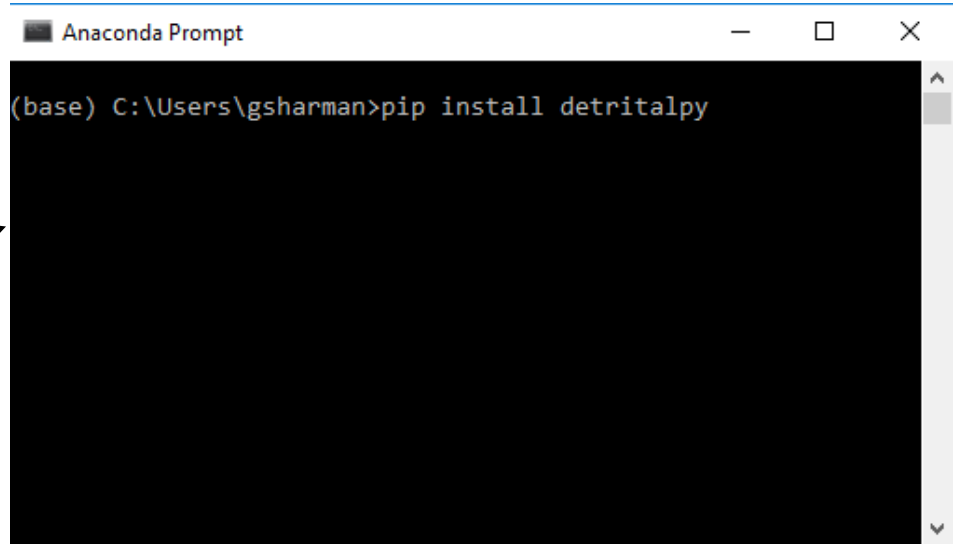
Open Anaconda Prompt



MacOS
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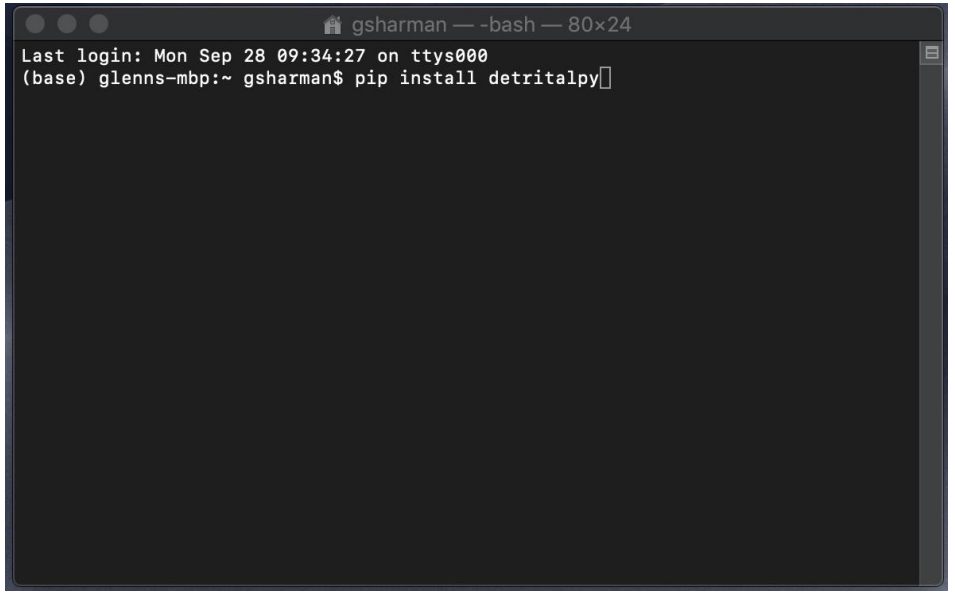

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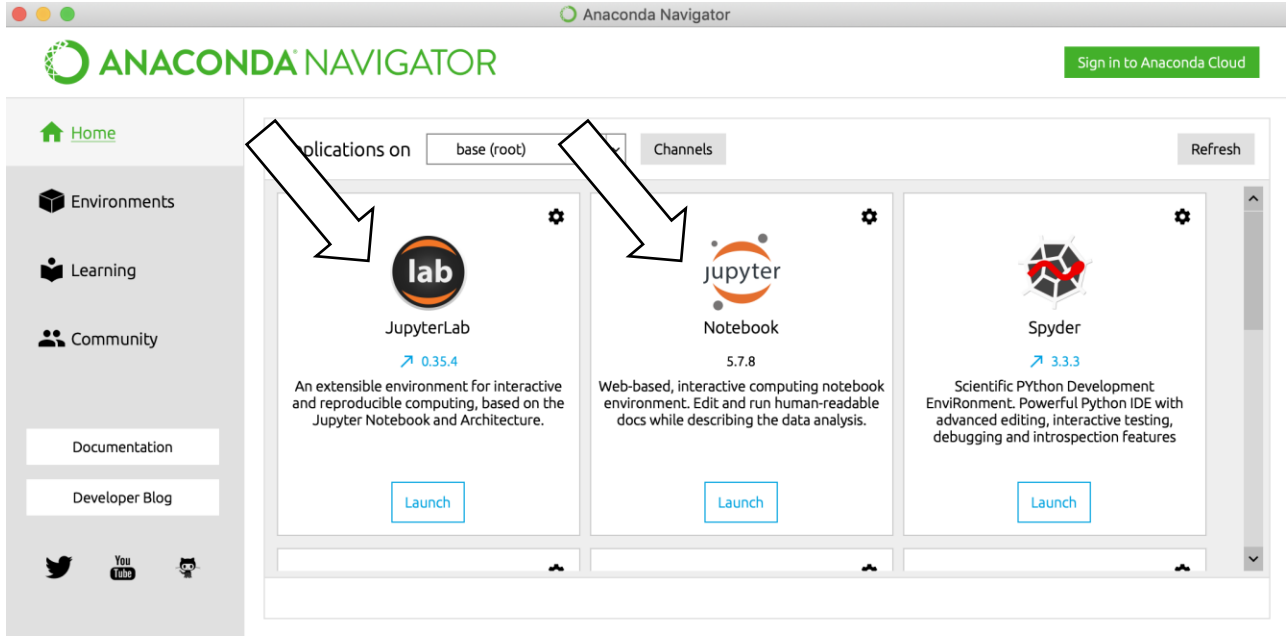

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shift+enter to run cells

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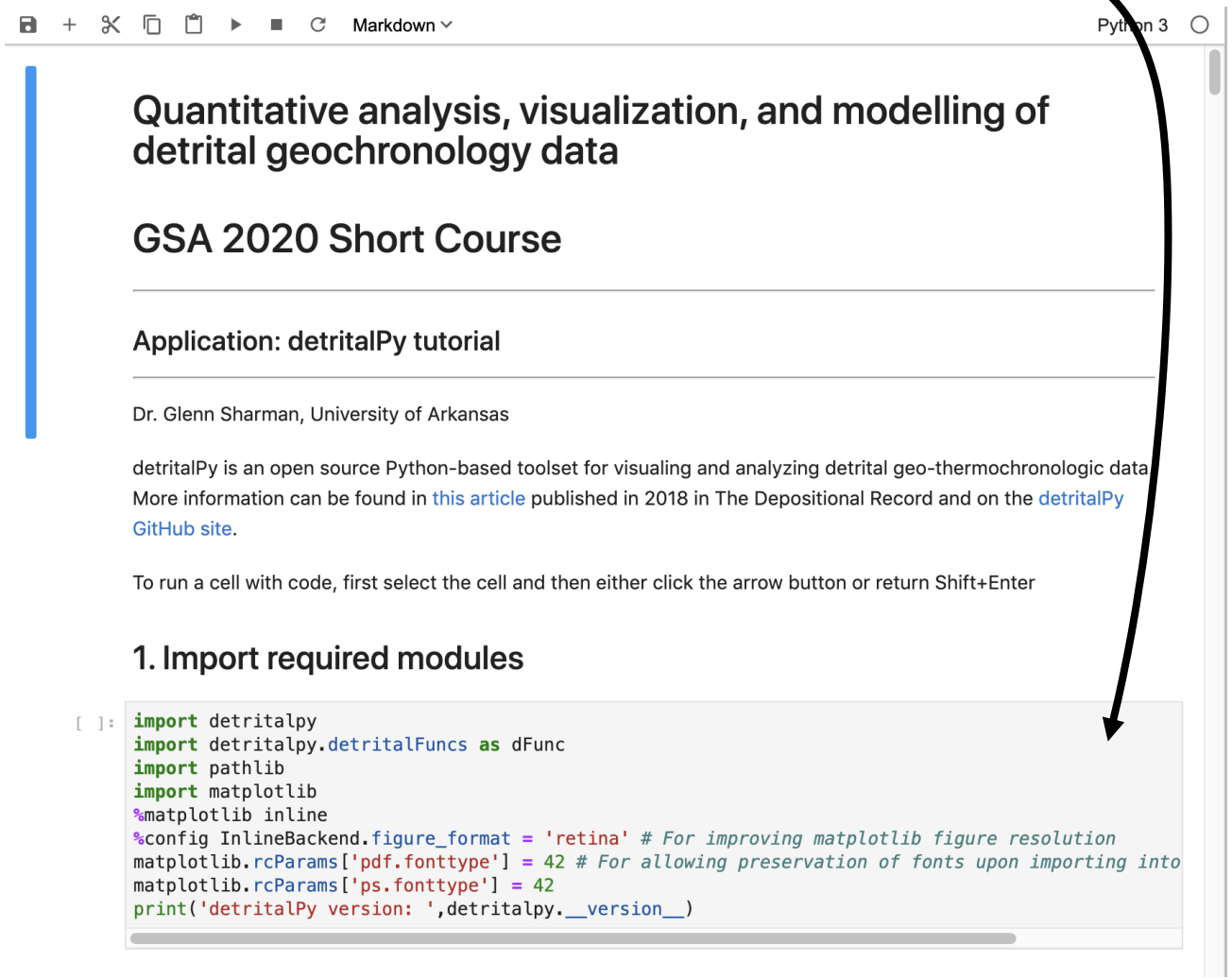

detritalPy Overview

Having trouble with detritalPy?

Email me with questions!

- gsharman@uark.edu

Check back for updates!

- pip install detritalpy --upgrade

shift+enter to run cells