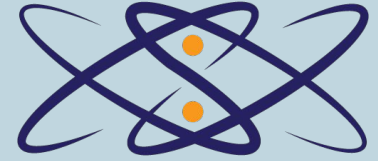


CIRDLES.org

<https://github.com/CIRDLES>



Student Research Lab at the College of Charleston

Geochronology Cyber Infrastructure :
MARS, Topsoil, CHRONI, ET_Redux, and Squid
Working with SESAR to Support Geoscience

GSA Nov 2018 Paper #50-9

PI: Jim Bowring

Students: Julius Walton, Jake Marotta, Ryan Barrett, Bryce Barrett



Collaborative domain-specific software engineering research to invent and sustain open source tools and cyber infrastructure that support and advance open science.



Student Researchers by Project



ET_Redux: Gould



Squid: R. Barrett



Topsoil: Marotta, B. Barrett



MARS: Walton, Rundle



CHRONI: Cozart



Ambapo: Cole

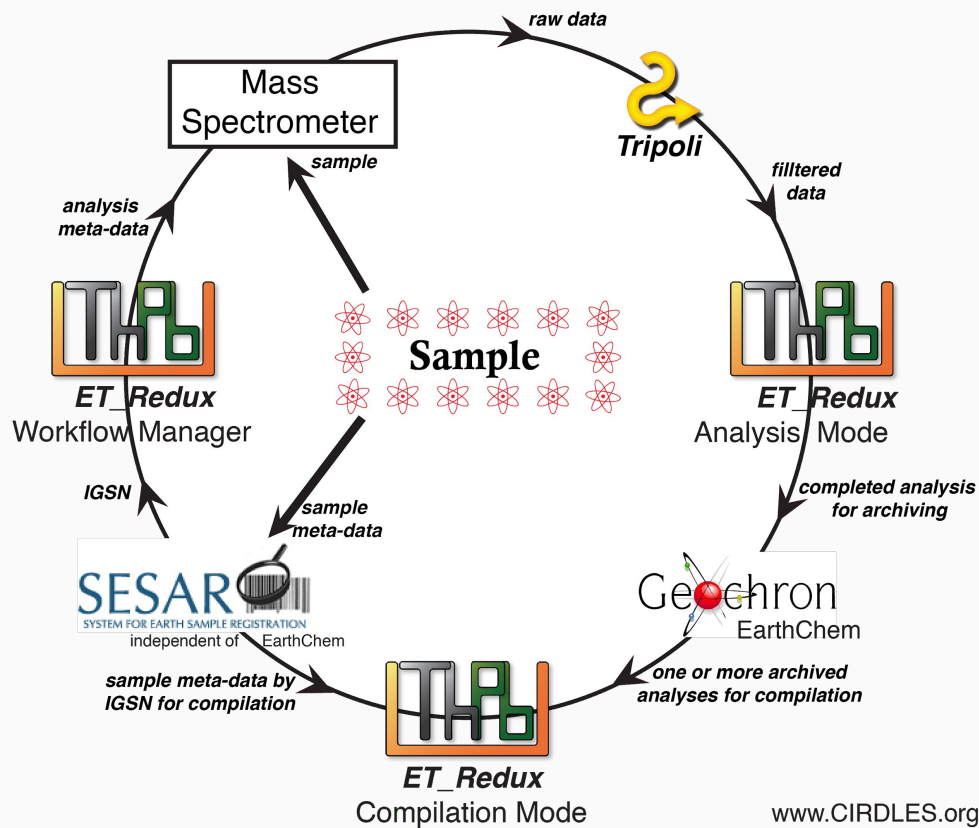


Help, Web Presence: All



Web Services / Virtual Lab: TBD

ET_Redux



MARS (Middleware for Assisting the Registration of Samples)



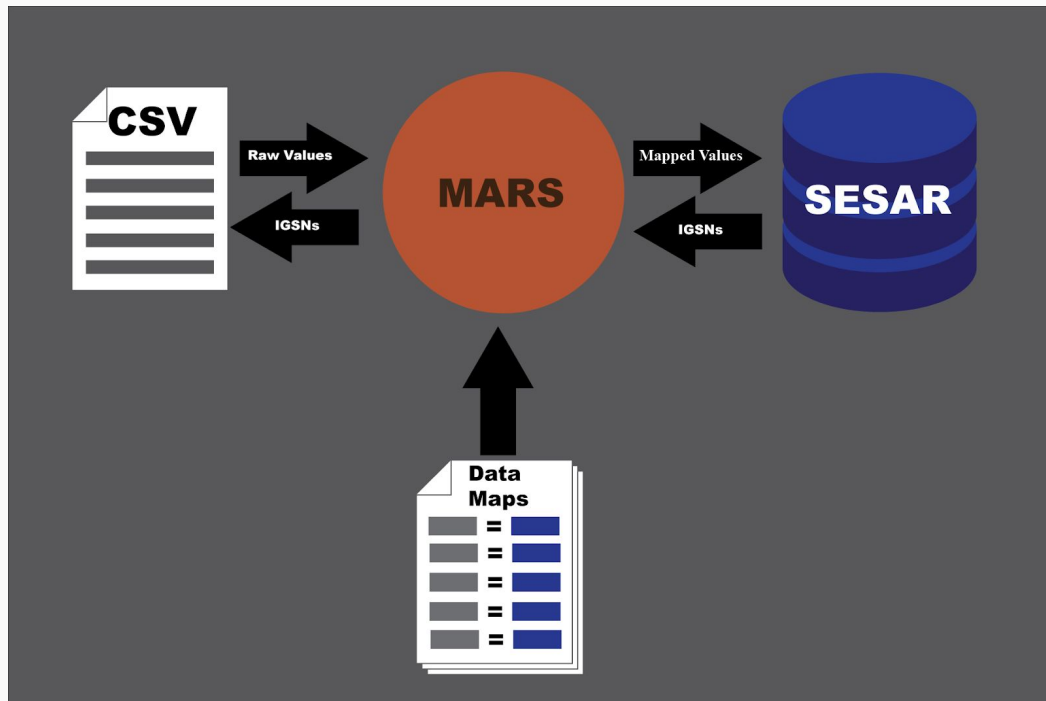
IGSN (International Geo Sample Number)
AKA Social Security Number for Samples

SESAR (System for Earth Sample Registration)
AKA The Social Security Organization for Samples



+

ELECTRON



Topsoil



Topsoil

Project Edit Data Table Help

UPb -

Isotope System: UPb Uncertainty Format: $\pm 2\sigma$ (%) Assign Variables/Columns Generate Plot

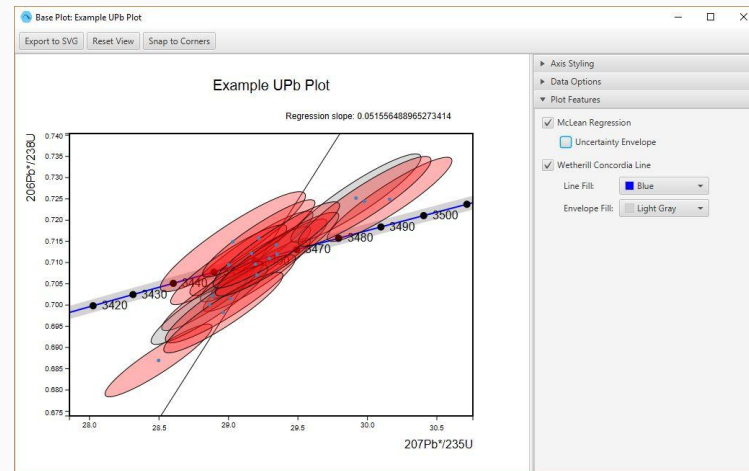
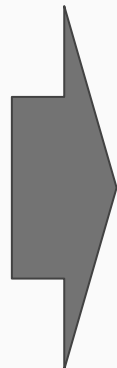
	A	B	C	D	E
<i>i</i>	207Pb*/235U	$\pm 2\sigma$ (%)	206Pb*/238U	$\pm 2\sigma$ (%)	corr coef
2	29.165688743	1.519417676	0.712165893	1.395116767	0.92
3	29.03153597	1.7999456	0.714916493	1.647075269	0.92
4	29.002008069	1.44194351	0.709482828	1.324922704	0.92
5	29.203969765	1.320690194	0.70707849	1.216231698	0.92
6	29.194452092	1.359029744	0.709615006	1.248057588	0.92
7	29.293320455	1.424328137	0.710934267	1.309135282	0.92
8	28.497489852	1.35324389	0.68695182	1.245648095	0.92
9	29.218573677	1.383868032	0.71570218	1.271276031	0.92
10	28.88487202	1.264304654	0.702153693	1.164978444	0.92
11	28.863259209				0.92
12	29.014325453				0.92
13	29.917885787				0.92
14	30.159907714				0.92

Variable Chooser

Choose which variables to associate with each column.

	207Pb*/235U	$\pm 2\sigma$ (%)	206Pb*/238U	$\pm 2\sigma$ (%)	corr coef
x:	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sigma_x:	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
y:	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
sigma_y:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
rho:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

OK Cancel



CHRONI



CHRONI is a tool for geochronologists to access their data on a mobile device

Fraction	Dates (Ma)								Com
	206Pb/ 238U	$\pm 2\sigma$ abs	207Pb/ 206Pb	$\pm 2\sigma$ abs	207Pb/ 235U	$\pm 2\sigma$ abs	Corr. coef.	% disc	
05SJQ1									
05SJQ1-1	245	13	187	120	239	16	0.731	-31.05	-
05SJQ1-2	907	18	947	57	919	21	0.61	4.3	-
05SJQ1-4	246.4	6.1	242	160	246	16	0.337	-1.66	-
05SJQ1-5	2916	35	2961	42	2943	29	0.5	1.55	-
05SJQ1-6	1156	80	1192	120	1168	67	0.782	3.07	-
05SJQ1-7	138	10	-64	320	128	18	0.49	316.74	-
05SJQ1-8	1048	25	1017	41	1038	21	0.794	-3.02	-
05SJQ1-10	1508	120	1619	57	1555	74	0.944	6.9	-
05SJQ1-11	1328	32	1398	38	1355	25	0.795	4.97	-
05SJQ1-12	830	27	1296	470	968	150	0.144	35.95	-

Cross platform application made using the  Ionic Framework, which utilizes HTML, CSS, and JS to build and deploy the application to both Android and iOS.

Currently working to redesign the interface of the app.

墨斗鱼

Chinese

いか

Japanese

오징어

Korean

kałamarnica

Polish

lula

Portuguese

кальмар

Russian

calamar

Spanish



Task-driven automated workflow engine for processing data produced by SHRIMP and publishing results to the cloud

Funded: Geoscience Australia
Replaces Squid 2
Inventing the Virtual Lab



Squid 3 [Project File: /Users/bowring/Google Drive/_SQUID3/WorkingExamplesJune2018/Z6266/Squid3 Projects/Z6266Perm1.squid]

Project PrawnFile Task--> Isotopes & Ratios Expressions Report Tables Visualizations Archiving Squid LabData Help

Categories Filter

- Custom Expressions
- NU-switched Expressions with Uncts
- Built-In Expressions
 - 4-corr %com206
 - 4-corr %com208
 - 4-corr 206*/238
 - 4-corr 206*/238S
 - 4-corr 206Pb/238U Age
 - 4-corr 206Pb/238Ucalibr.const
 - 4-corr 206Pb/238Ucalibr.const W
 - 4-corr 207*/206*
 - 4-corr 207*/235
 - 4-corr 207*/235S
 - 4-corr 207Pb/206Pb
 - 4-corr 207Pb/206Pb age
- Ratios with Uncertainties
- Reference Material Values
- Parameter Values
- Unhealthy Expressions

Entities

- Constants and Numbers
- Operations
- Math Functions
- Squid Functions
- Logic Functions
- Presentation

Create blank Copy selected Edit Cancel Save HowTo Videos

Expression name: 4-corr 207Pb/206Pb age

Reference Material Unknown Samples Conc RefMat Summary Calculation NU Switch Built-in Expression

Hint: hold t + hover a node to show detail

Expression Show in list Show notes Font - Font + Hide white spaces tokens

AgePb76WithErr ((["4-corr 207Pb/206Pb"] , (["4-corr 207Pb/206Pb"] * ["4-corr 207Pb/206Pb"]) / 100))

Copy exp

Typeset image Show here Show in browser

$$\text{AgePb76WithErr} \left(4\text{-corr } 207\text{Pb}/206\text{Pb}[0], \frac{4\text{-corr } 207\text{Pb}/206\text{Pb}[0] \times (4\text{-corr } 207\text{Pb}/206\text{Pb}[1])\%}{100} \right)$$

Audit

Expression healthy: TRUE

Audit:

- Op AgePb76WithErr requires/provides: 2 / 2 arguments. returns [Age, 10 abs]
- Op divide requires/provides: 2 / 2 arguments. returns [Quotient]
- Op multiply requires/provides: 2 / 2 arguments. returns [Product]
- 100 is healthy ConstantNode

Peek

Reference Materials		Unknowns	
Spot name	Age	1σ abs	
6266-004.1	5.46797220924085E8	1.81084003373501E7	
6266-011.1	5.30340276145989E8	1.7944332073432E7	
6266-009.1	5.4953796454125E8	1.46653073220521E7	
6266-008.1	5.31716159136399E8	2.65706034064427E7	
6266-004.2	5.32726676507634E8	1.64987396349503E7	
6266-004.3	5.39940698554223E8	2.4796336263825E7	
6266-007.1	5.3972992893011E8	1.82255873246568E7	
6266-007.2	5.23316525068719E8	1.77183631565689E7	
6266-009.2	5.46987729272397E8	1.62663832982022E7	
6266-009.3	5.50932924019326E8	1.70456231164311E7	

Questions?



Visit us at www.CIRDLES.org

Fork our software from <https://github.com/CIRDLES>

Thanks to our funders :

NSF (Award OAC #1443037) , GeoScience Australia, @CSatCofC