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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

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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

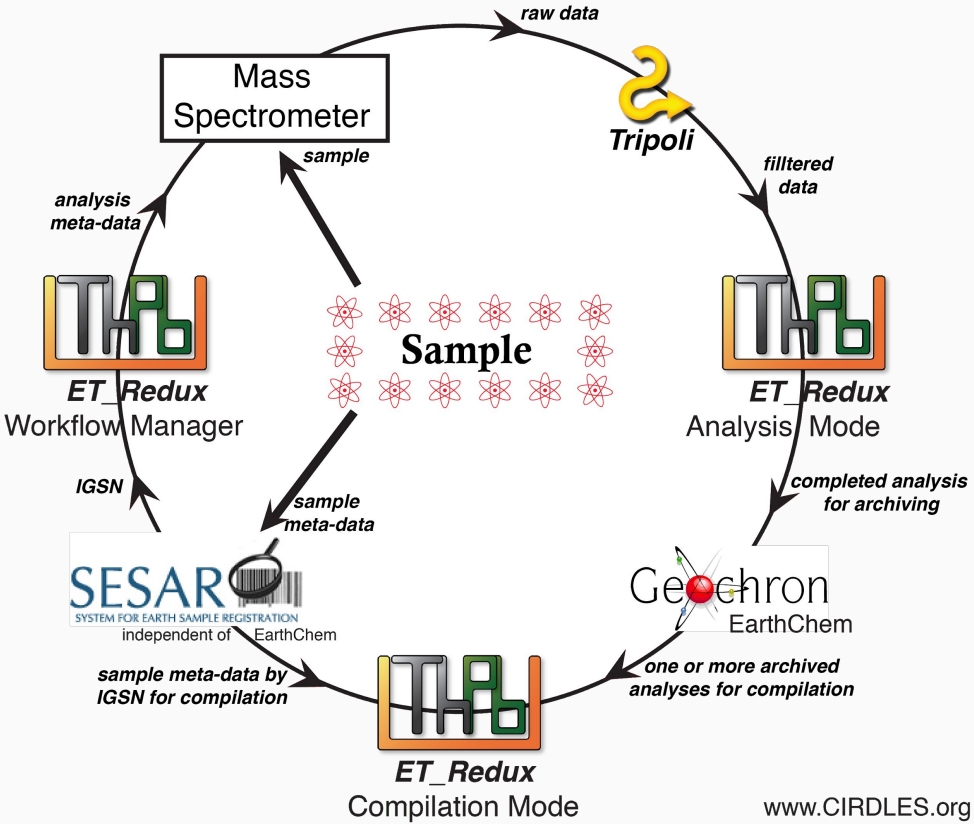
CHRONI: Cozart

Ambapo: Cole

Help, Web Presence: All

Web Services / Virtual Lab: TBD

ET_Redux


raw data
Mass Spectrometer
Tripoli
sample
filltered data
analysis meta-data
ET_Redux
Workflow Manager
Sample
ET_Redux
Analysis Mode
IGSN
sample meta-data
completed analysis for archiving
SESAR
SYSTEM FOR EARTH SAMPLE REGISTRATION
independent of
EarthChem
Geochron
EarthChem
sample meta-data by IGSN for compilation
one or more archived analyses for compilation
ET_Redux
Compilation Mode
www.CIRDLES.org

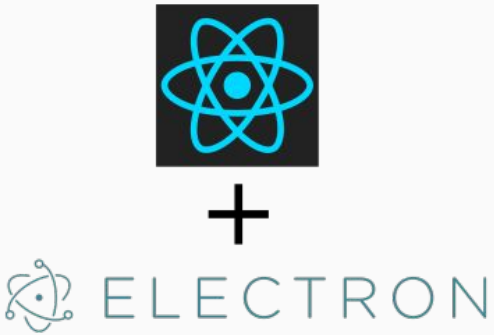
MARS (Middleware for Assisting the Registration of Samples)

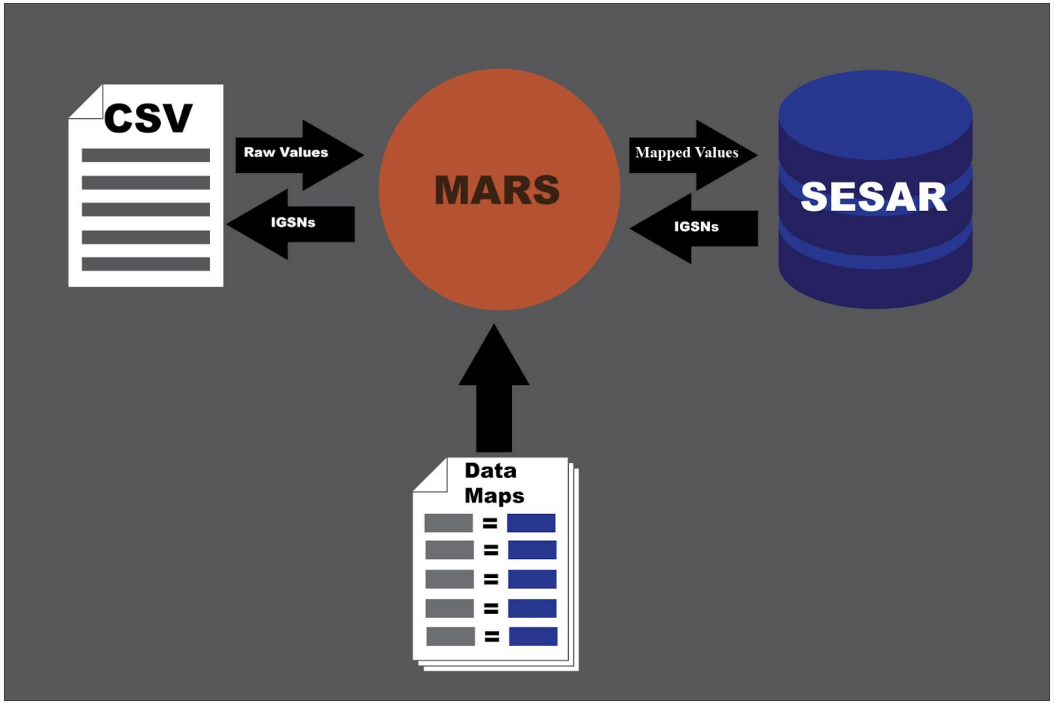
IGSN (International Geo Sample Number)

AKA Social Security Number for Samples

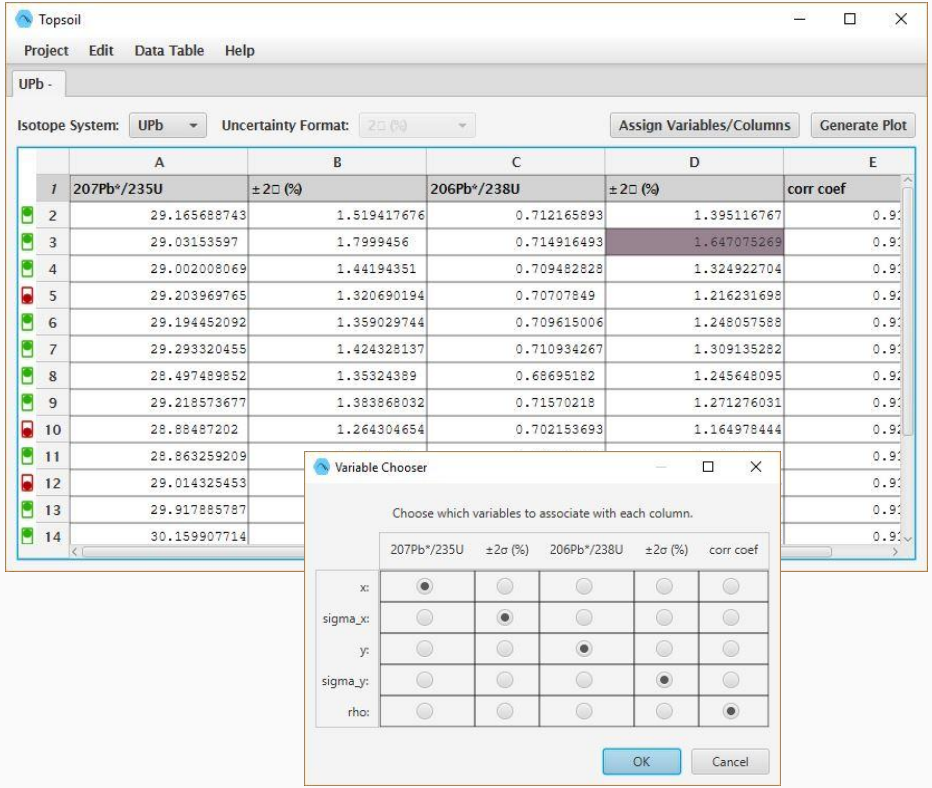
SESAR (System for Earth Sample Registration)

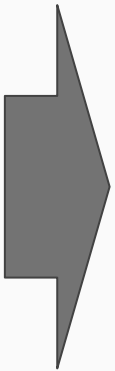
AKA The Social Security Organization for Samples

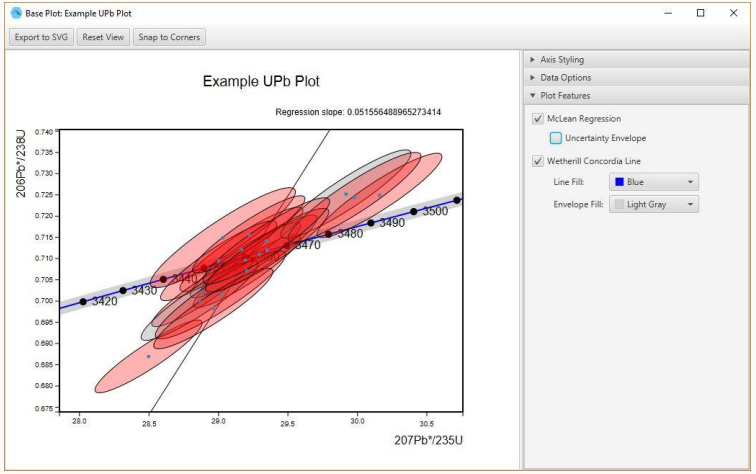




Topsoil

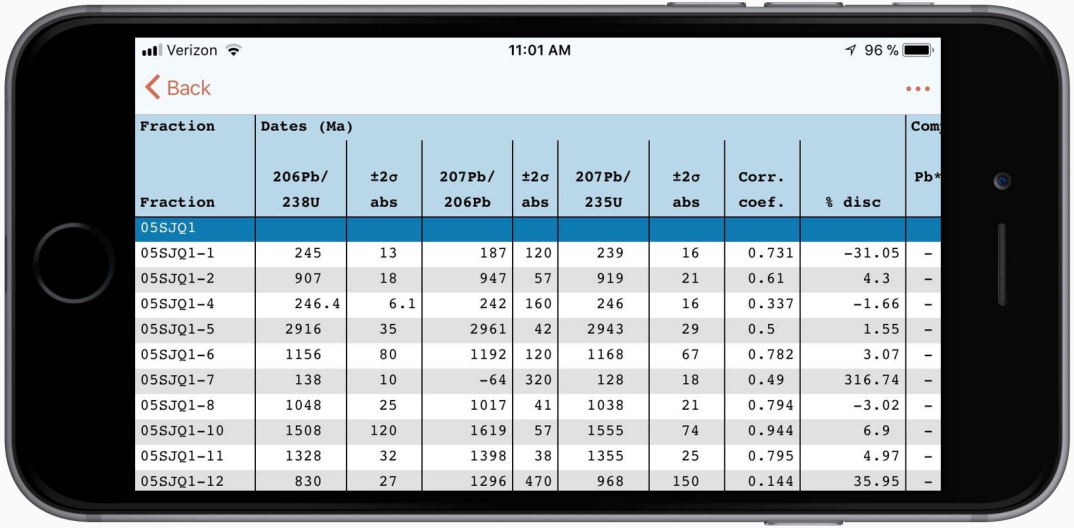

Topsoil
Project
Edit
Data Table
Help
UPb -
Isotope System:
UPb
Uncertainty Format:
Assign Variables/Columns
Generate Plot
Variable Chooser
Choose which variables to associate with each column.
207Pb*/235U
±2σ (%)
206Pb*/238U
±2σ (%)
corr coef
x:
sigma_x:
y:
sigma_y:
rho:
OK
Cancel




Base Plot: Example UPb Plot
Export to SVG
Reset View
Snap to Corners
Example UPb Plot
Regression slope: 0.051556488965273414
206Pb*/238U
207Pb*/235U
3420
3430
3440
3470
3480
3490
3500
Axis Styling
Data Options
Plot Features
McLean Regression
Uncertainty Envelope
Wetherill Concordia Line
Line Fill:
Blue
Envelope Fill:
Light Gray

CHRONI

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



Fraction	Dates (Ma)								Com
Fraction	206Pb/ 238U	±2σ abs	207Pb/ 206Pb	±2σ abs	207Pb/ 235U	±2σ abs	Corr. coef.	% disc	Pb*
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

Squid

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

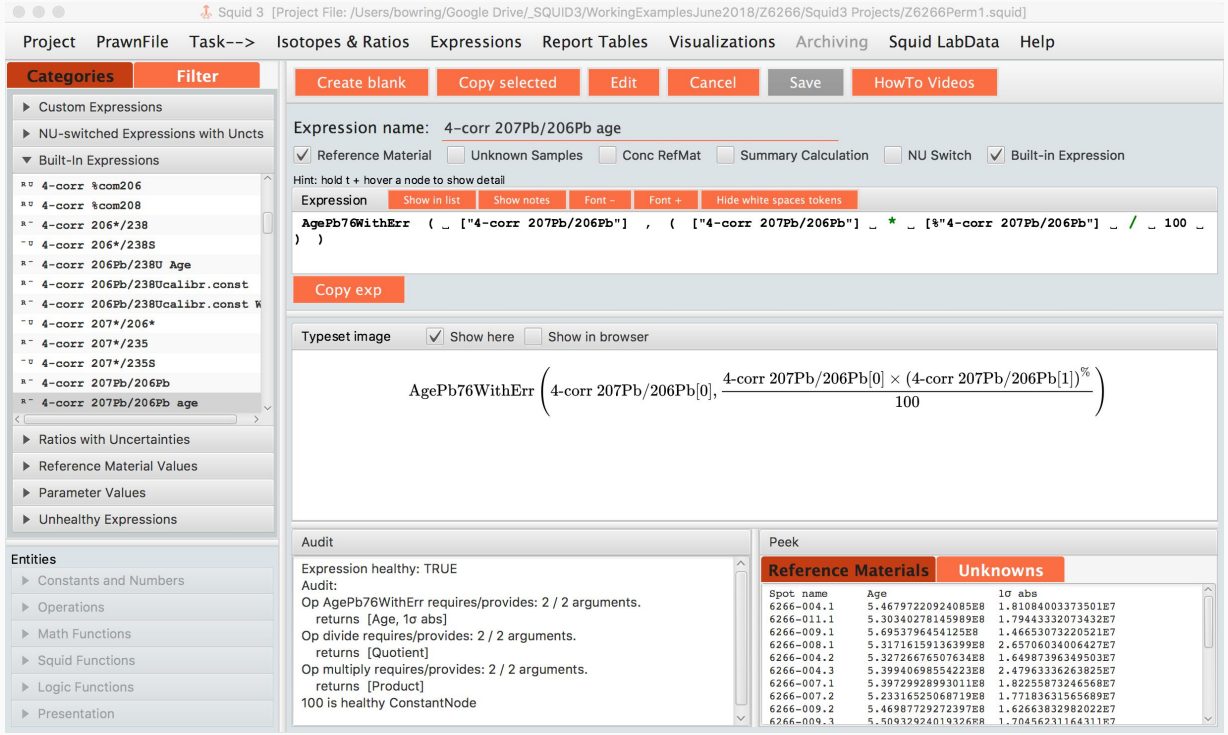
Funded: Geoscience Australia

Replaces Squid 2

Inventing the Virtual Lab

JavaFx

XML



Questions?

Visit us at www.CIRDLES.org

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

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