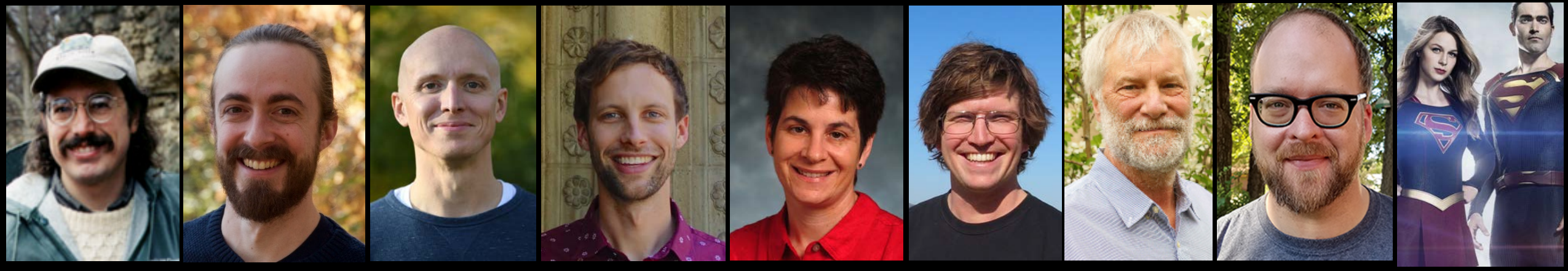
An overview of StraboSpot: From thin section to strat sections



Basil Tikoff
Nick Roberts
Randolph Williams
Alex Lusk

Julie Newman
Noah Phillips

Doug Walker
Jason Ash
Nathan Novak
Jessica Good Novak

What is Strabo?

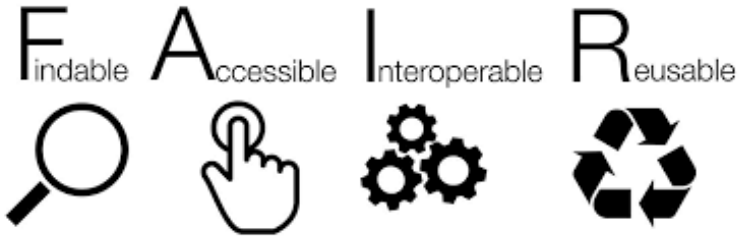
Wikipedia

- A series of applications and associated databases for collecting, storing, sharing, and querying geologic data

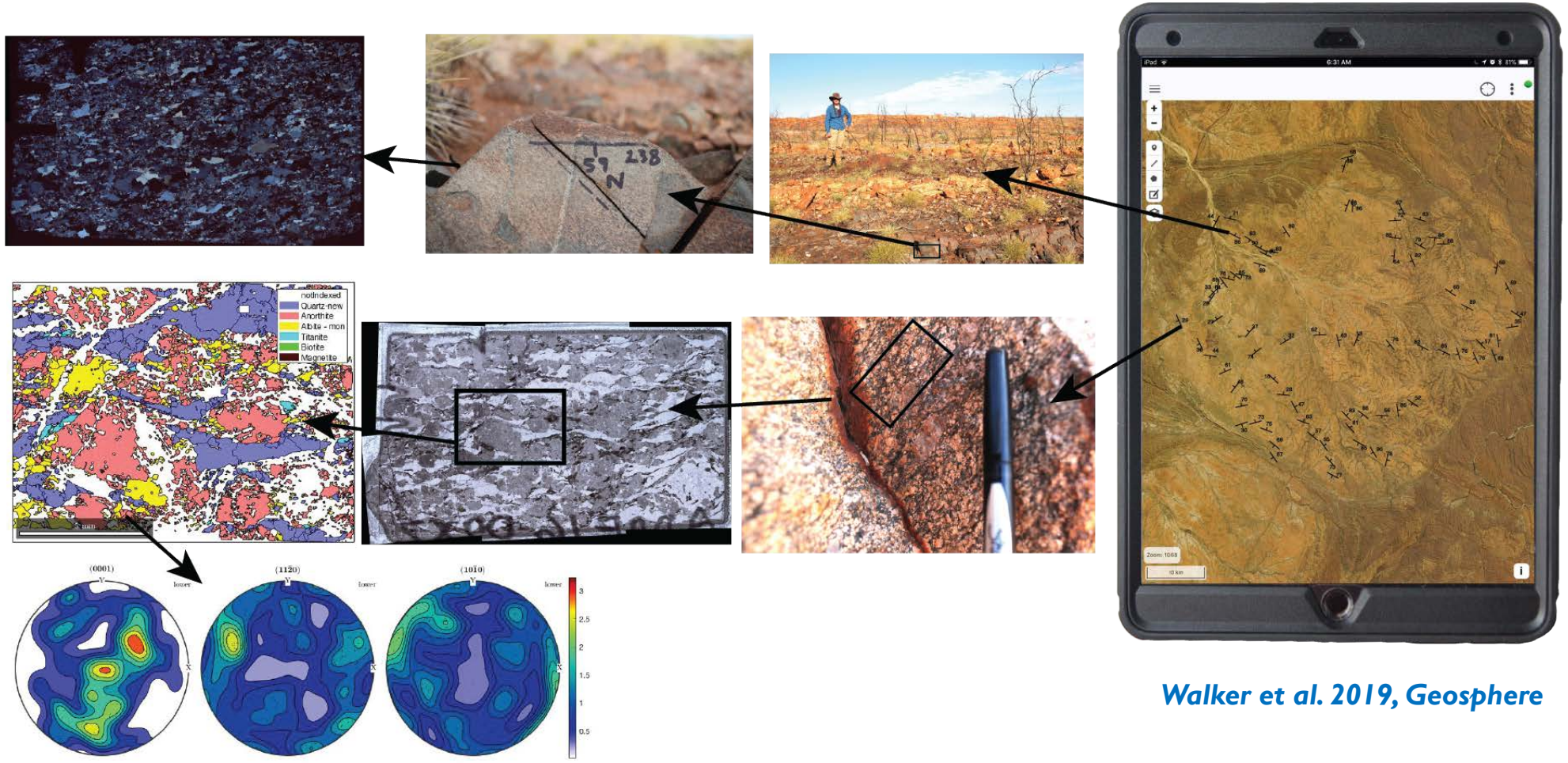
- Software are designed (*or being designed*) for field, microstructural, and experimental data sets

- Completely open source and open API

- ***Goal:*** Make field, microstructural, and experimental data increasingly FAIR



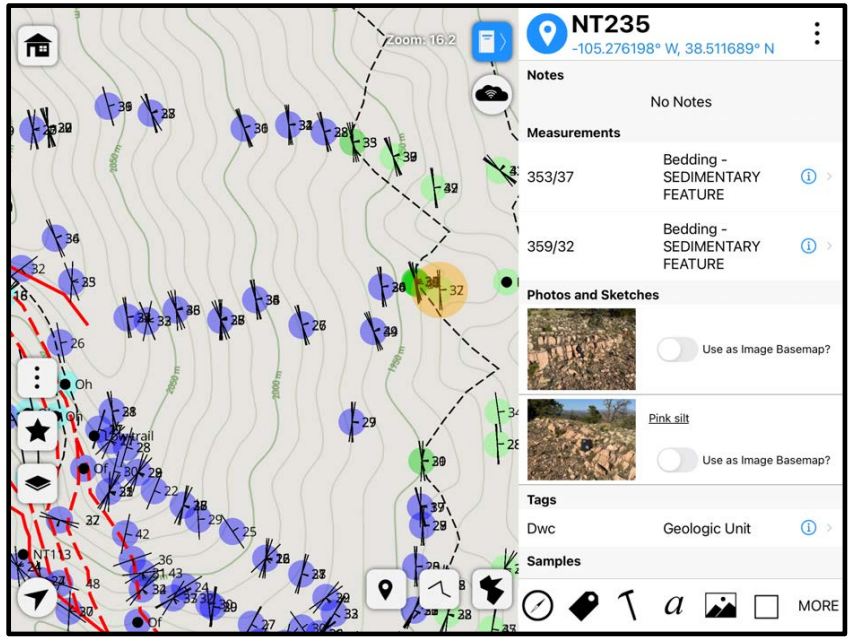
What is a Spot?



Walker et al. 2019, Geosphere

Spots are points, lines or polygons that contain information. Spot data is primarily organized hierarchically.

The Strabo Ecosystem

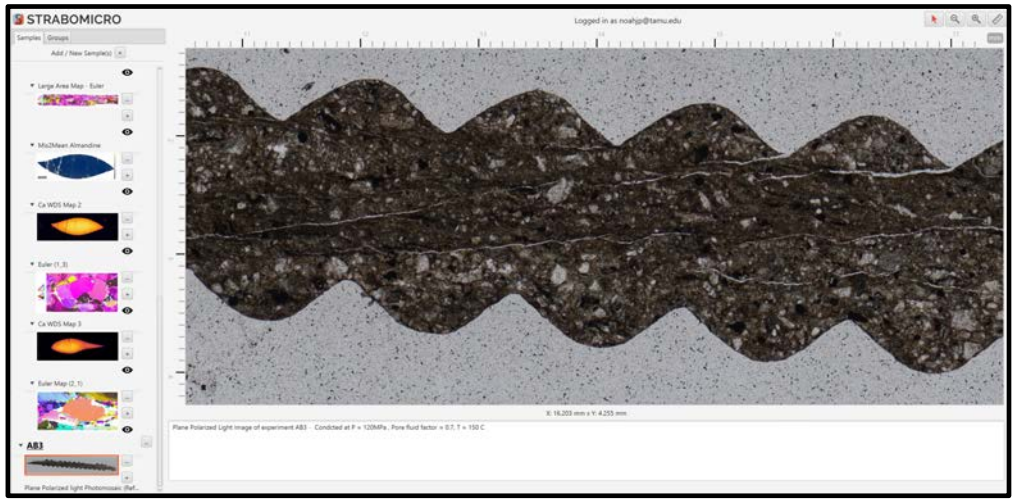


StraboSpot

(Full releases available from iStore -

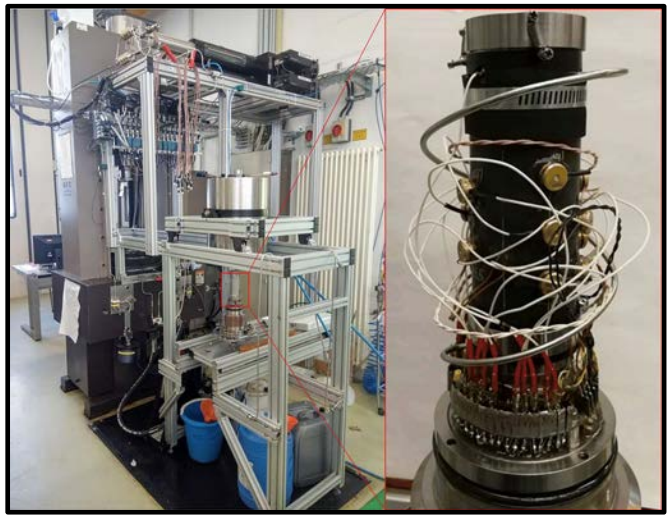
StraboSpot: Available for all mobile devices

StraboSpot2: Much improved interface for iPads)



StraboMicro

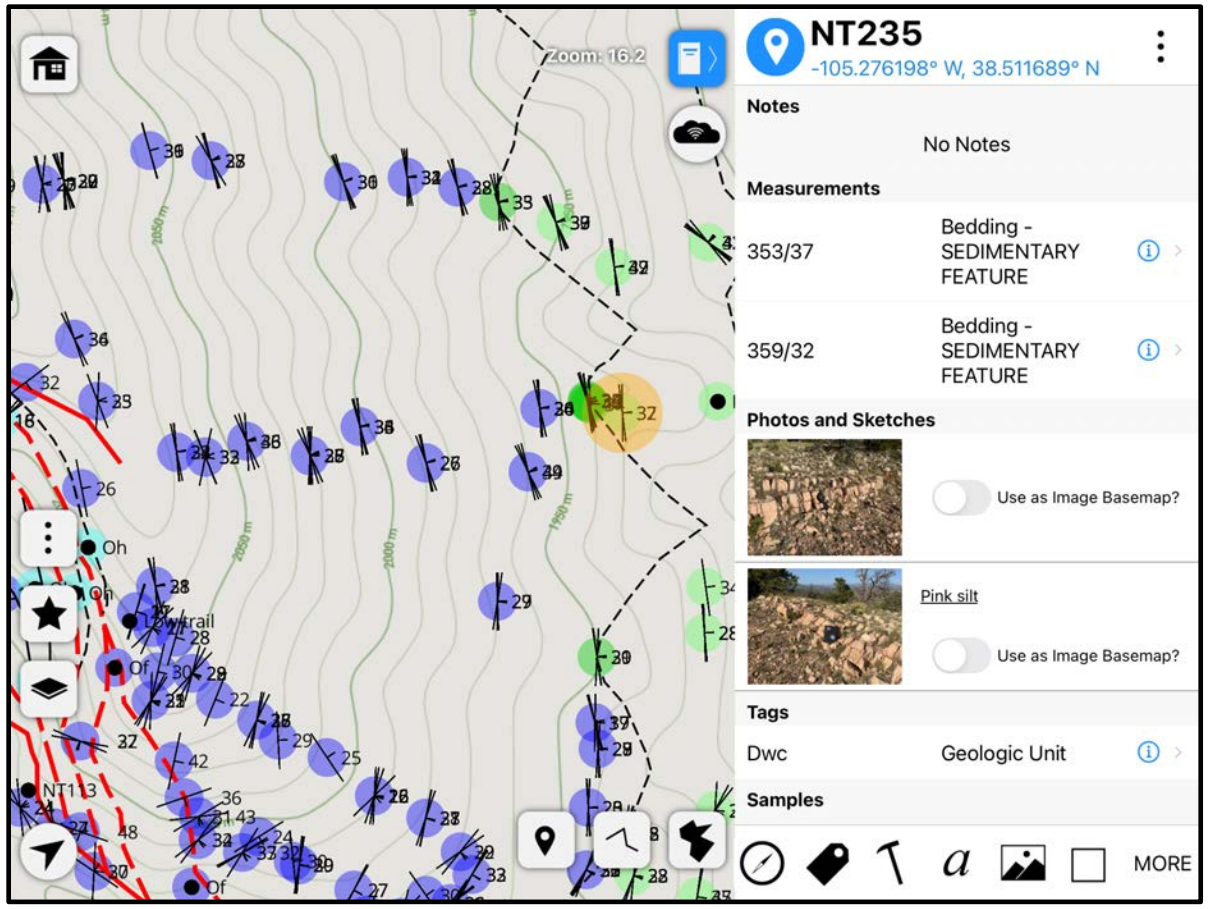
(Beta Version at StraboSpot.org)



StraboExperimental

(In Development)

StraboSpot: Mobile Field Application

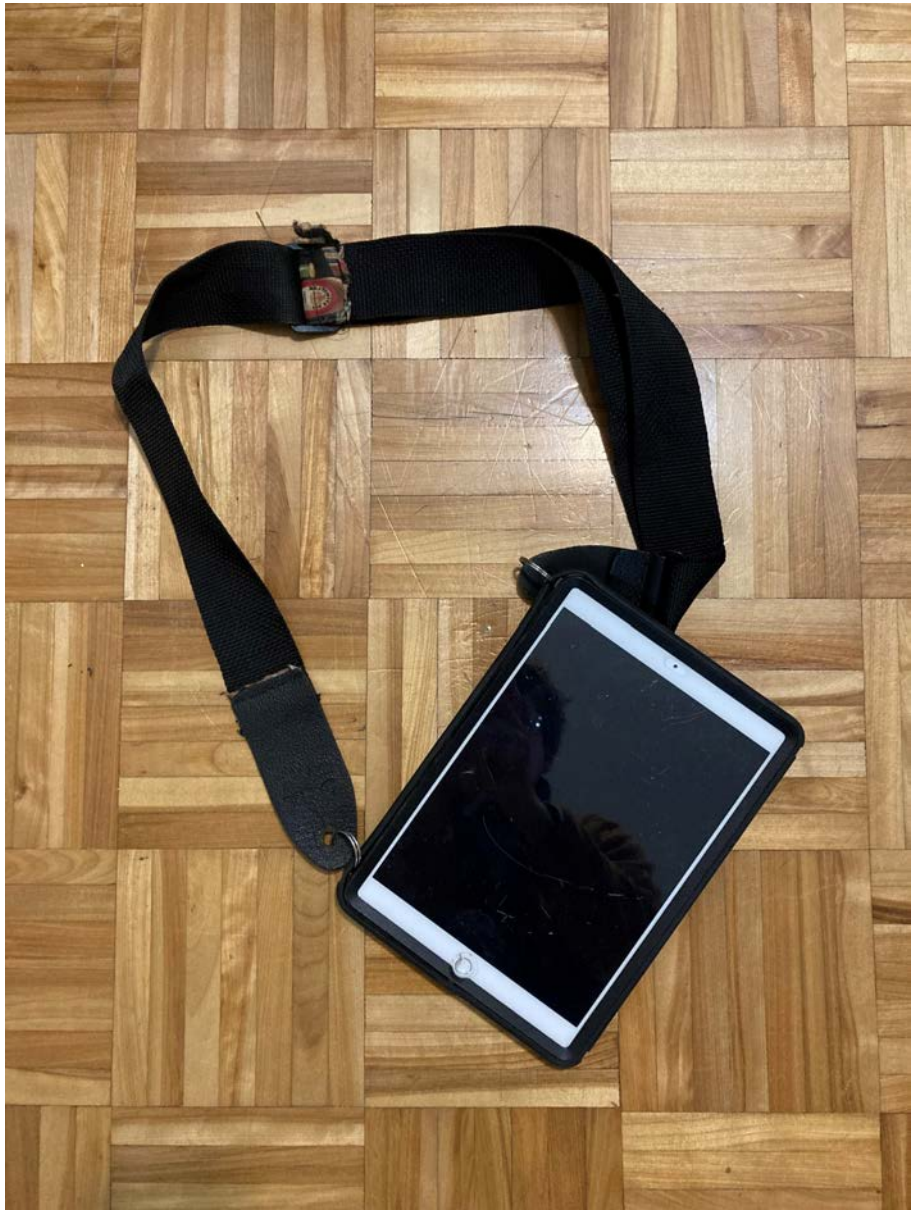


StraboSpot2 – Available at iStore

- iPad application for data collection
- Robust offline interface (with custom offline basemaps) for collecting data while in the field
- Can take measurements, record lithology, take georeferenced photos, produce sketches, make descriptions, and plot it all on your map within a few minutes (*generally saves about 5-10 minutes per station*)
- Can color spots based on lithology or any concept

StraboSpot: Mobile Field Application

StraboSpot: Mobile Field Application



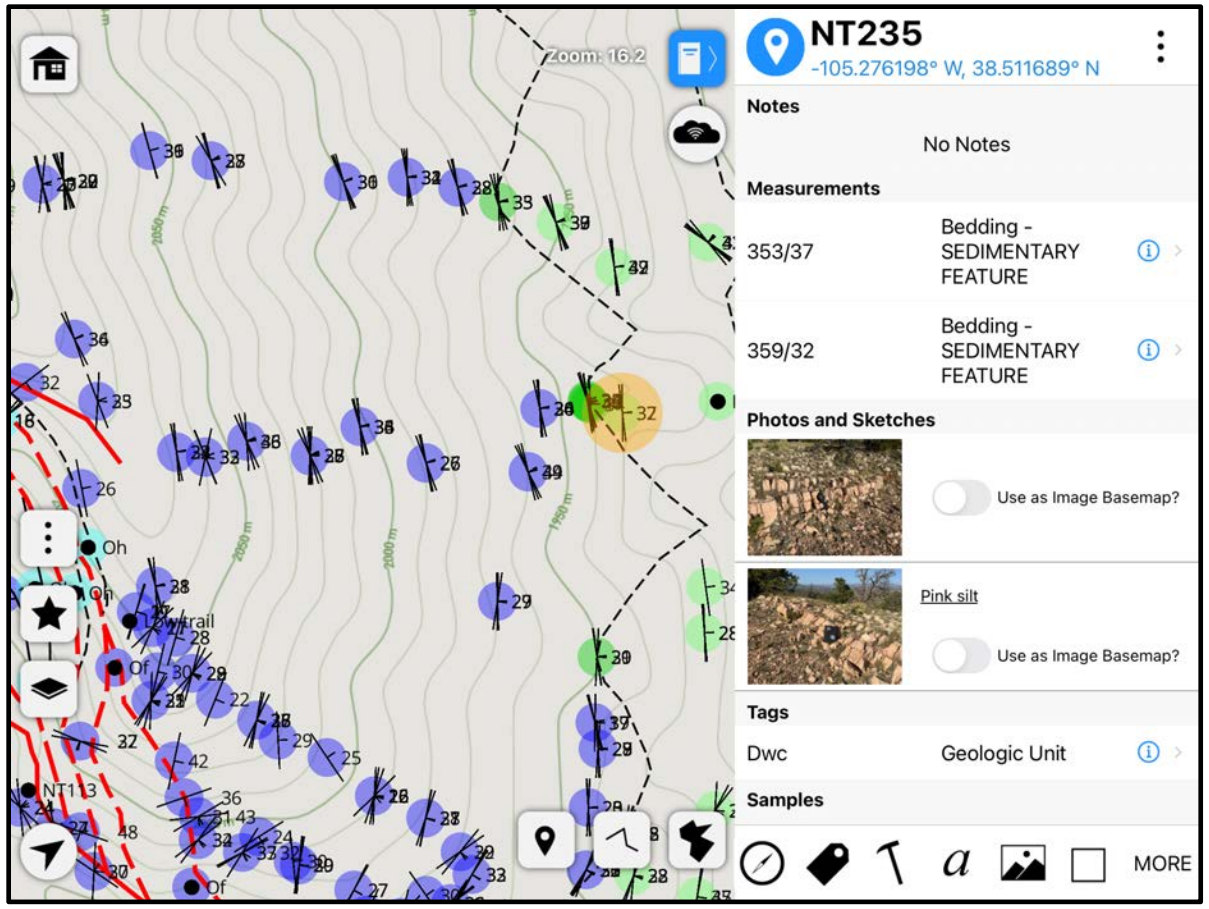
What do I need?

Required: iPad with cellular capabilities (but no need to sign up for a plan)

Highly Recommended: Otterbox Case

Optional: Strap, Field laptop, Portable travel router

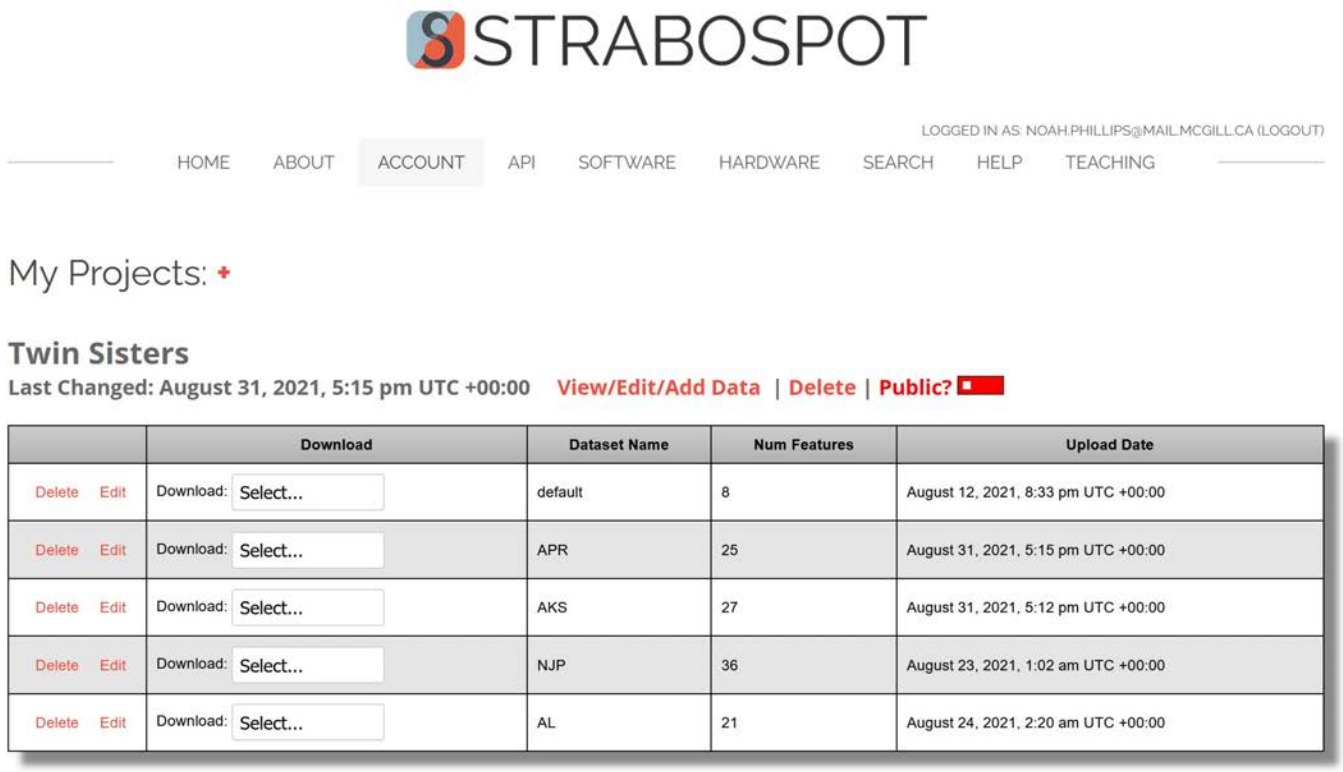
StraboSpot: Mobile Field Application



StraboSpot2 – Available at iStore

- Data can be backed up locally on your iPad while in the field
- Can be backed up to a local server (*i.e.*, a laptop) while in the field
- Pushed to server once connected to the internet

StraboSpot: Mobile Field Application

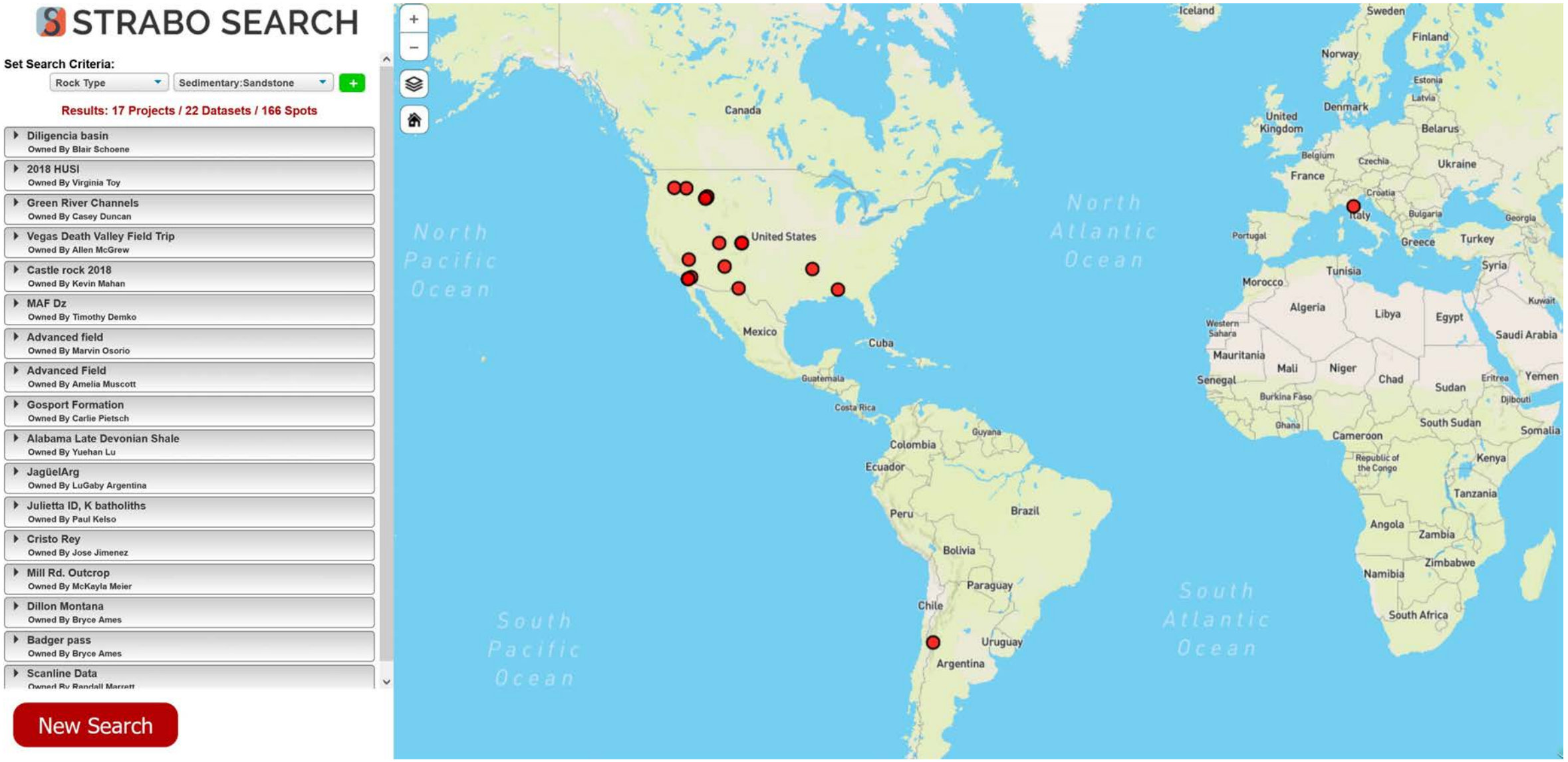


- Data is not immediately public
- Recommend making data public when submitting your paper
- Making your data public allows for it to be searched

Funded by the National Science Foundation | mapbox Maps provided by Mapbox | EarthCube Partner

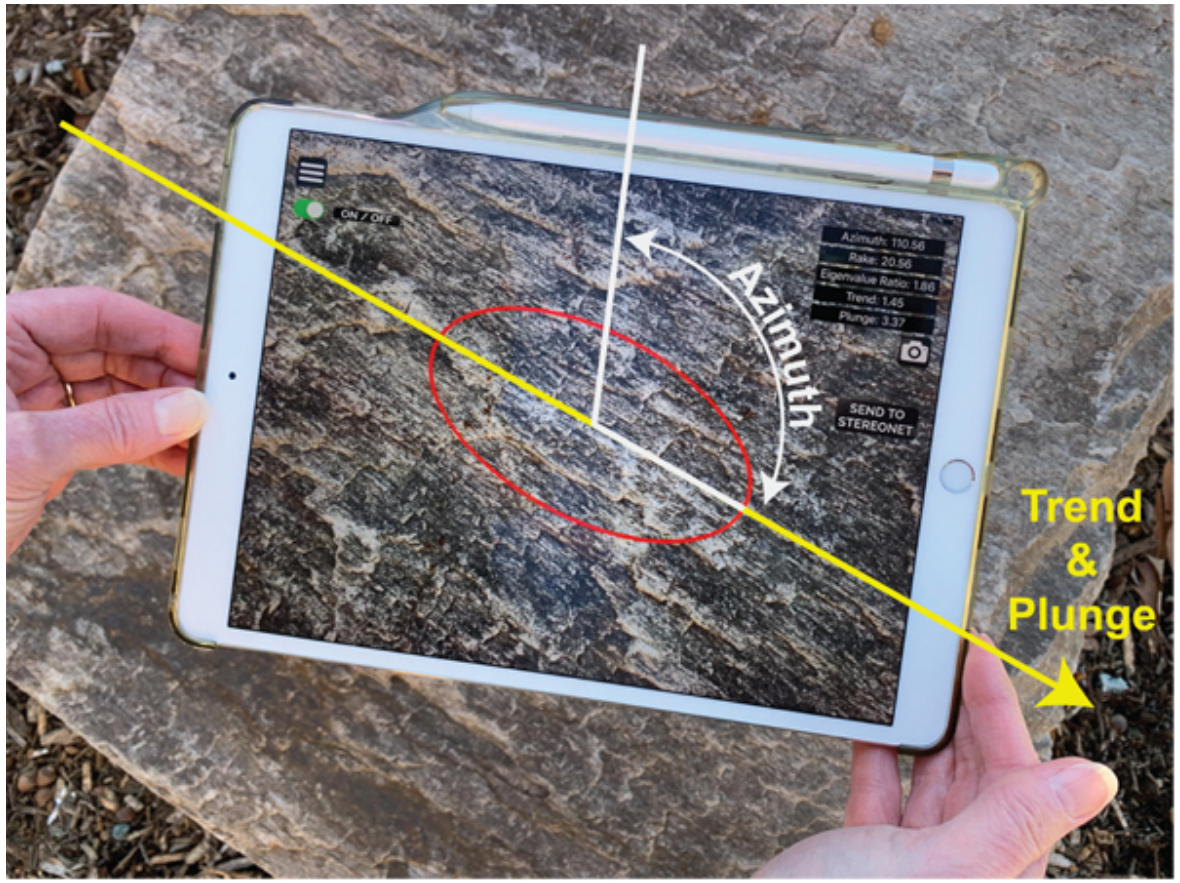
www.strabospot.org/my_data/

StraboSpot: Mobile Field Application



www.strabospot.org/search

StraboSpot: Mobile Field Application



Glazner & Walker, 2020, GSA Today

Open API Benefits:

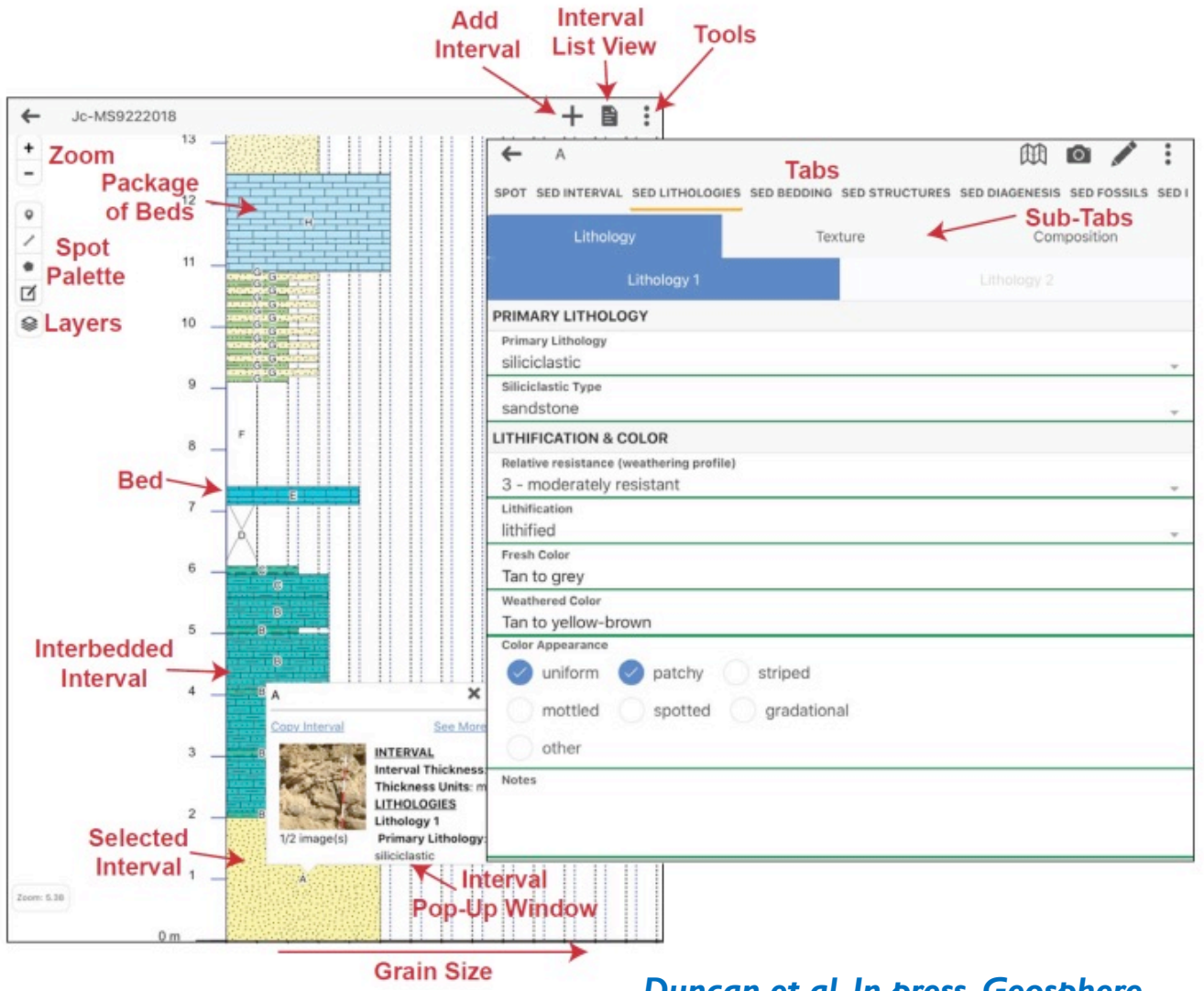
- *StraboTools:* Integrated set of tools for quantifying rock fabrics in the field
- Integrated with Allmendinger's mobile programs (*Stereonet*, *GMDE*, *FaultKin*)
- Want to mine all the Strabo data? Go ahead!

StraboSpot: Mobile Field Application

StratMode:

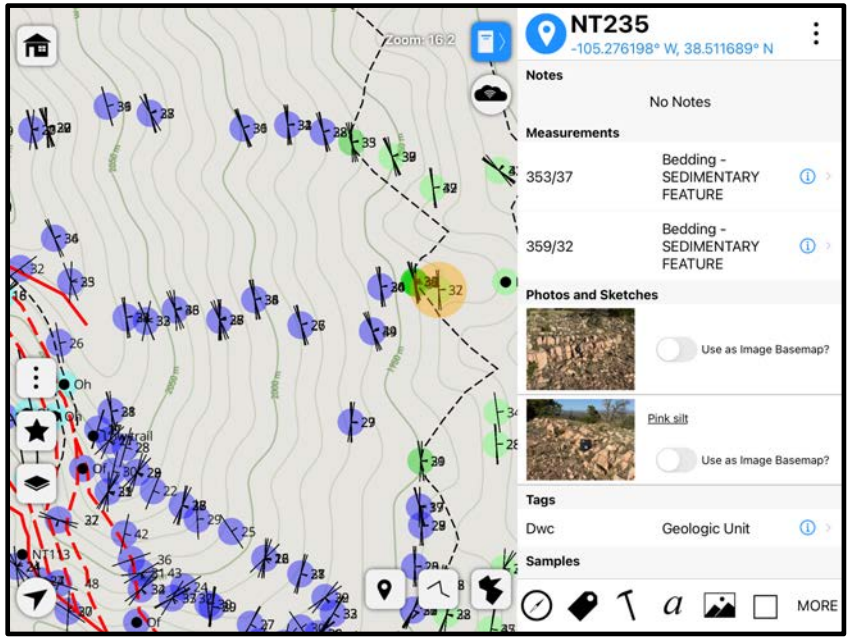
- Additional modality within StraboSpot (*will be incorporated in Strabo2*) that allows the user to produce cross sections

- Incorporates sedimentary structures, fossils, interval/bedding vocabulary



Duncan et al. In press, Geosphere

The Strabo Ecosystem



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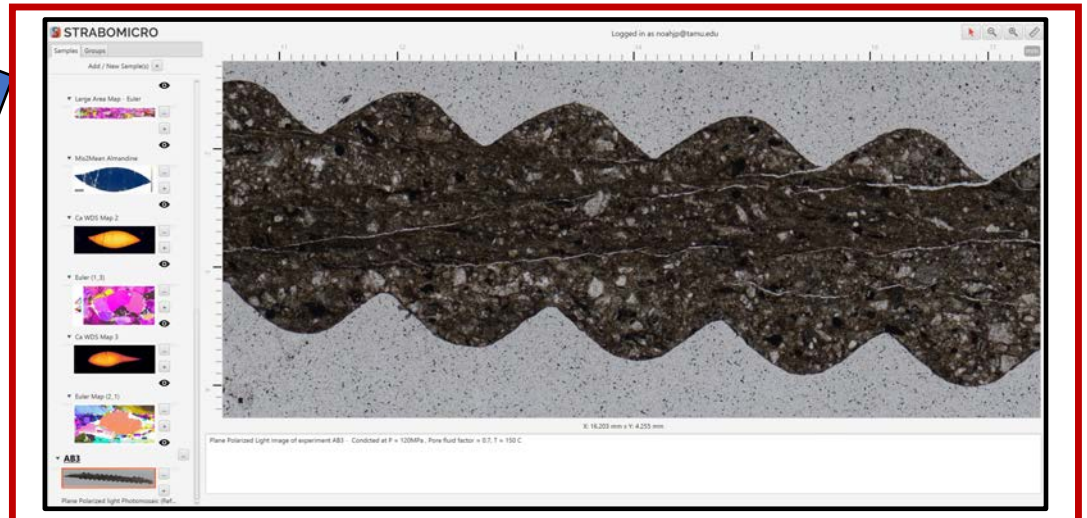
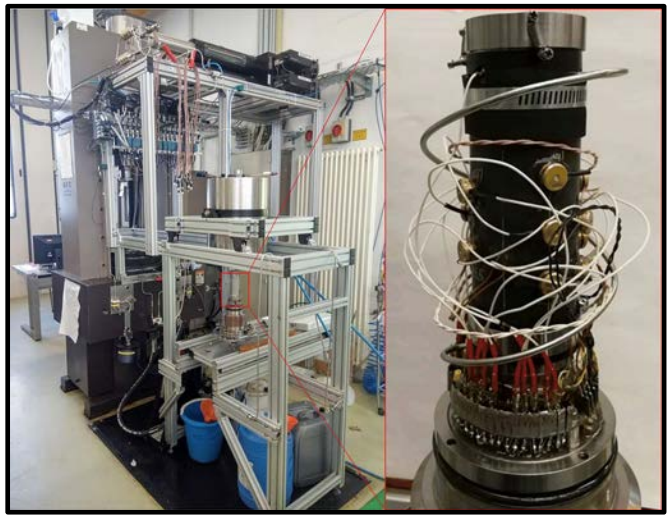


StraboMicro

(Beta Version at StraboSpot.org)



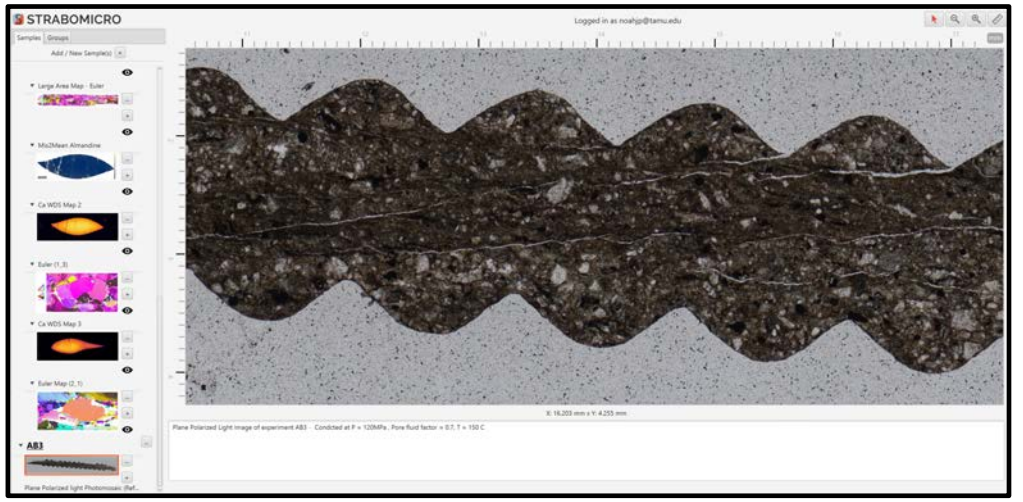
StraboExperimental

(In Development)

A trans-Atlantic partnership

EPOS

EUROPEANPLATEOBSERVINGSYSTEM



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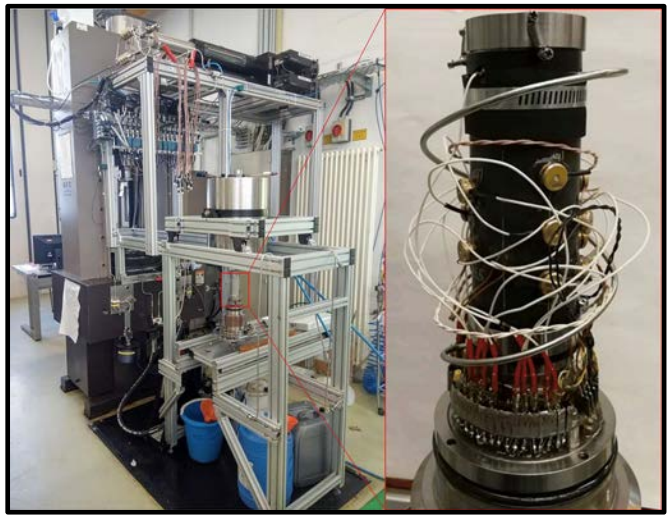


StraboExperimental

(In Development)

EPOS-StraboSpot synergies

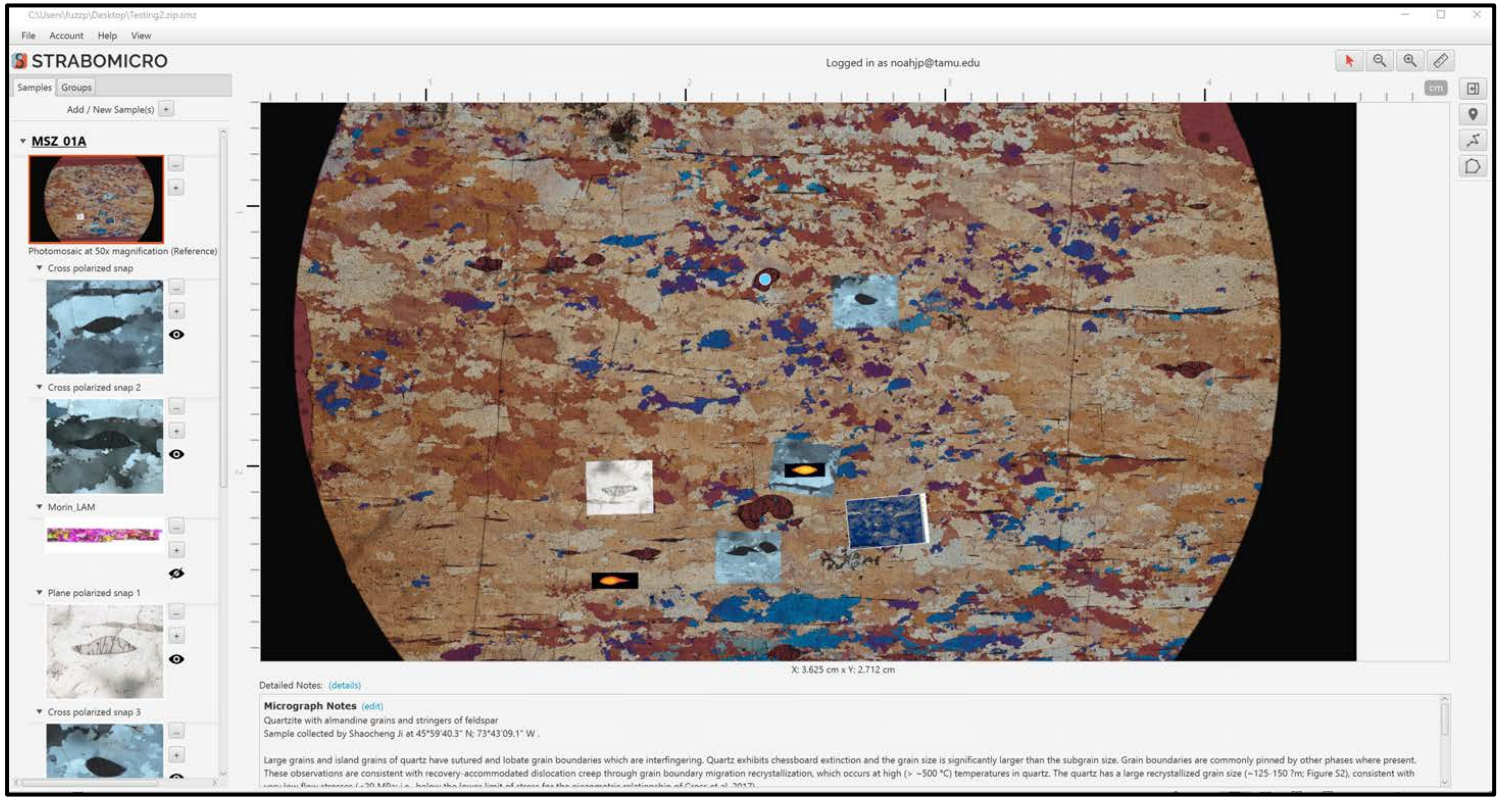
EPOS approach very different from EarthCube approach, but we have been working together to make a better product for all researchers.

EPOS (led by Dr. Audrey Ougier-Simonin) and StraboSpot have worked together to develop a vocabulary used for experimental rock deformation (started with EPOS vocabulary)
EPOS (led by Dr. Martyn Drury) and StraboSpot have worked together to develop a vocabulary for microstructures (started with StraboSpot vocabulary)

Martyn Drury
Geertje ter Maat
Richard Wessels

Audrey Ougier-Simonin

StraboMicro



A multi-platform system for storing, sharing, and contextualizing microstructural data.

- Fully integrated with other Strabo data systems
- Beta version is out. Full release early next year
- Currently stored locally, will be pushed to server early next year

StraboMicro

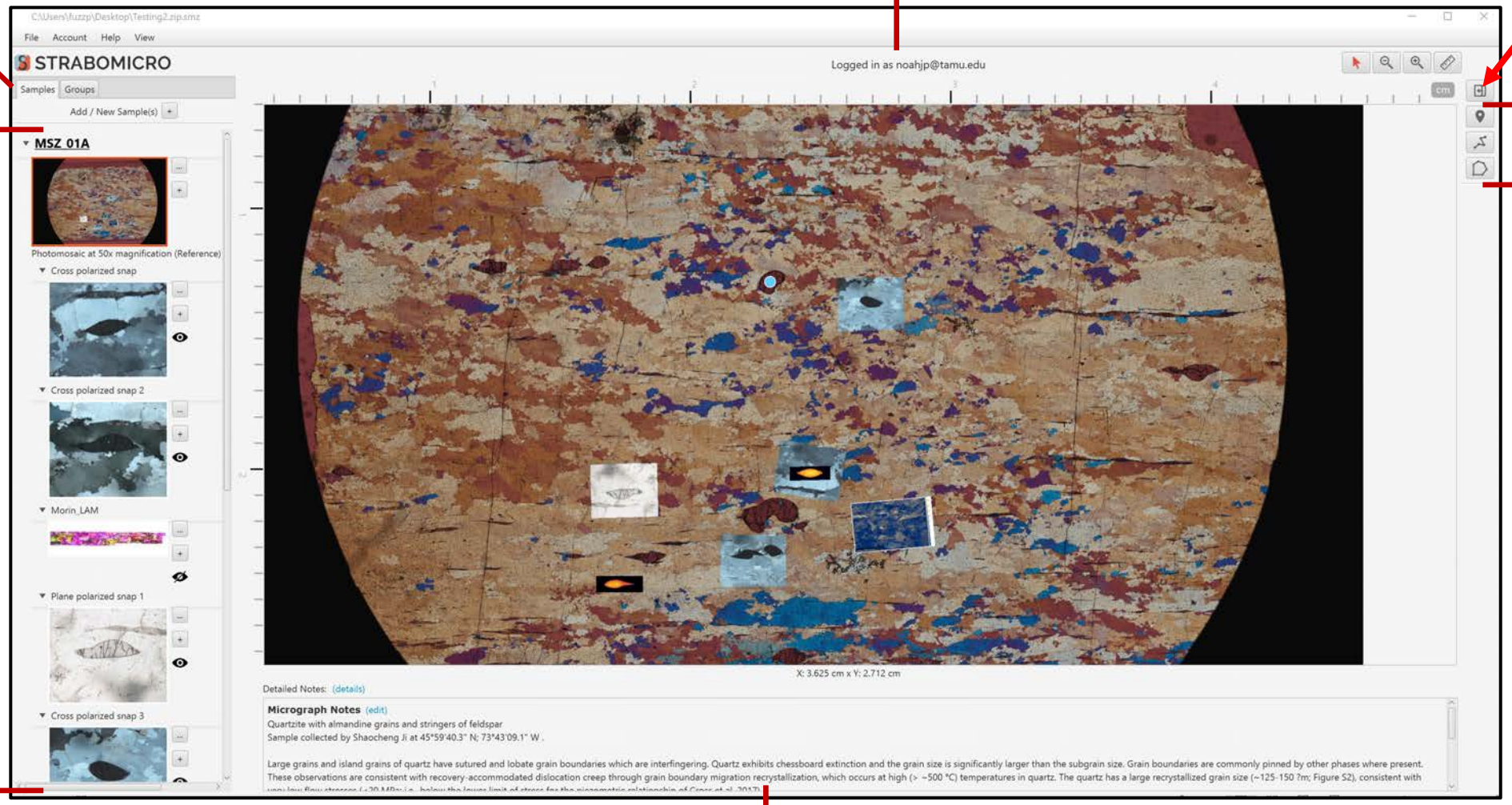
Directly linked to your Strabo account to link to field samples

Metadata

Hierarchical or conceptual organization

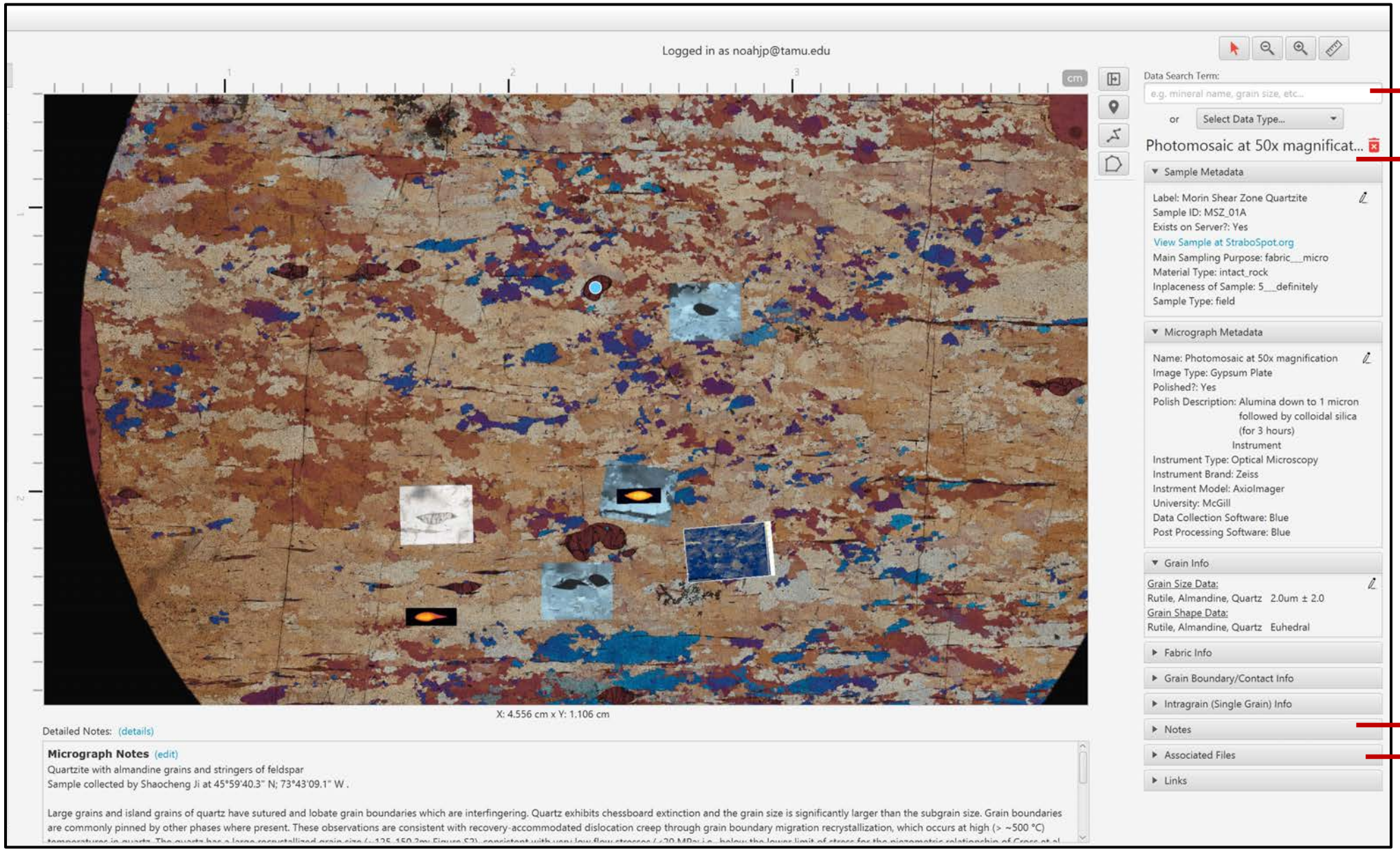
Point, Line, Polygon spot tools

Hierarchical arrangement of images



Notes panel for thin section description

StraboMicro



Search functionality for finding metadata modals (input boxes)

Metadata input into the system

Can attach raw data directly or links to data associated with images

StraboExperimental: A progress report

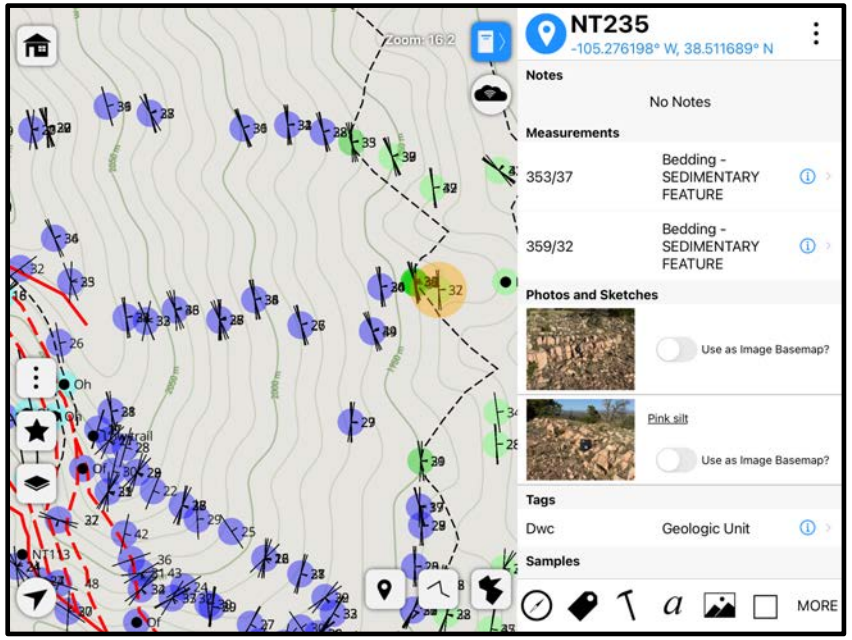
Basil Tikoff

Ulrich Mok
Matej Pec

Andreas Kronenberg
Julie Newman
Noah Phillips
Hannah Cunningham

Jason Ash

The Strabo Ecosystem



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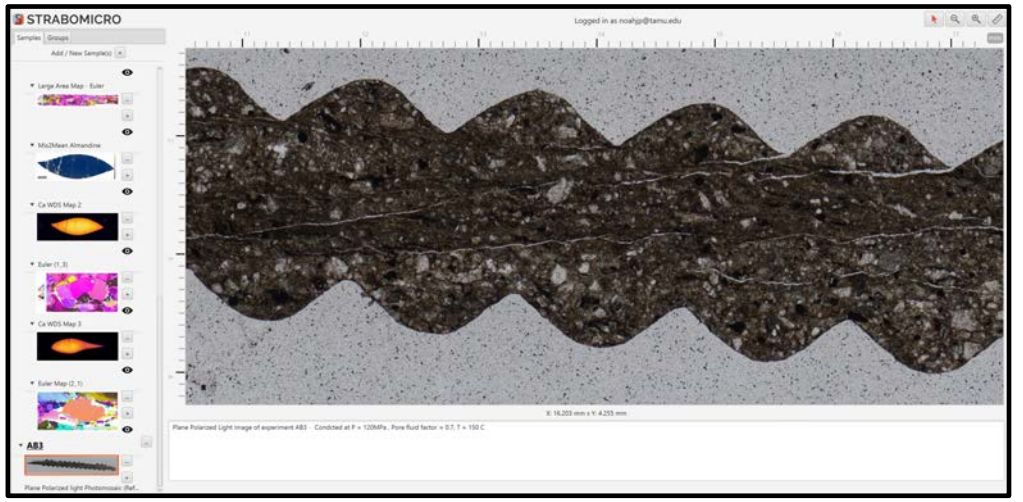

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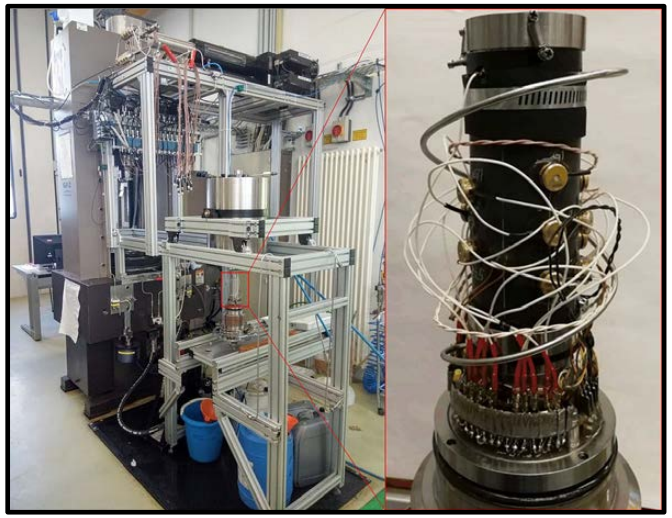


StraboExperimental

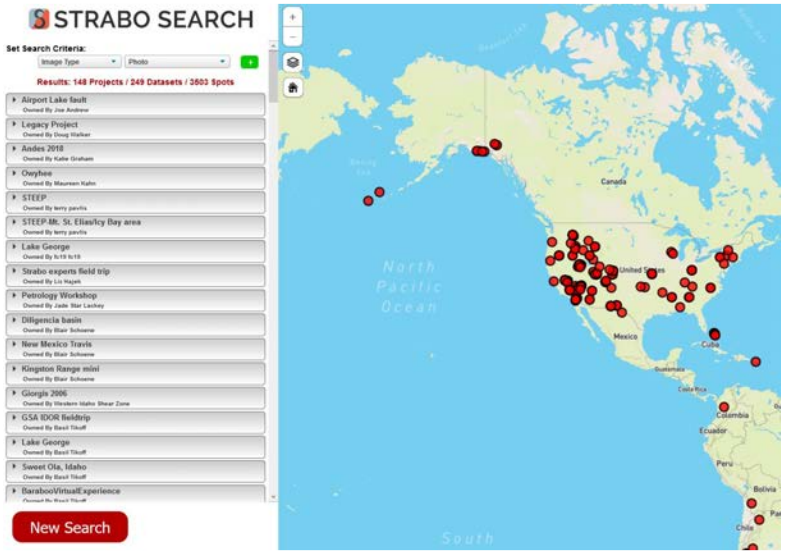
(In Development)

StraboExperimental

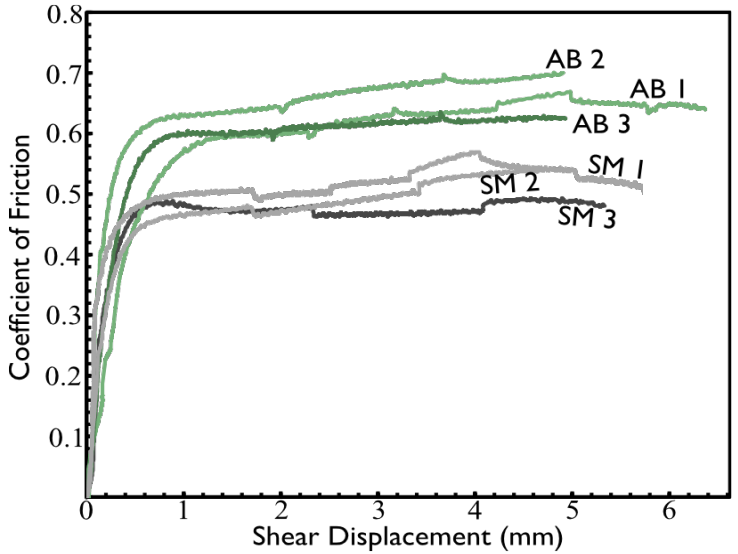
Online Interface Facilitating:

	A	B	C	D	E	F	G
63							
64	Time	Sd - Deviat	Confining I	Pore Press	ea - Axial S	er - Radial	ev - Volun
65	sec	MPa	MPa	MPa	%	%	%
66	0.0001	1.0235	120	43	-0.0005	-0.0028	-0.0062
67	0.1	1.0205	120	43	-0.0015	-0.0008	-0.0032
68	0.2	1.0212	120	43	-0.0028	0.0047	0.0067
69	0.3	1.0222	120	43	-0.0019	0.0004	-0.0012
70	0.4	1.0219	120	43	0.0015	-0.0067	-0.012
71	0.5	1.0248	120	43	0.0018	-0.006	-0.0101
72	0.6	1.0223	120	43	-0.0039	0.007	0.0101
73	0.7	1.0237	120	43	0.001	-0.0053	-0.0096
74	0.8	1.0247	120	43	-0.0038	0.0058	0.0077
75	0.9	1.0207	120	43	0	0.0001	0.0001
76	1	1.0215	120	43	0.0002	-0.0052	-0.0103
77	1.1	1.0245	120	43	-0.0041	0.0069	0.0096
78	1.2	1.0228	120	43	0.0012	-0.0056	-0.0099
79	1.3	1.0197	120	43	-0.0029	0.0036	0.0044
80	1.4	1.0235	120	43	0.0015	-0.006	-0.0104

Input of Experimental Data

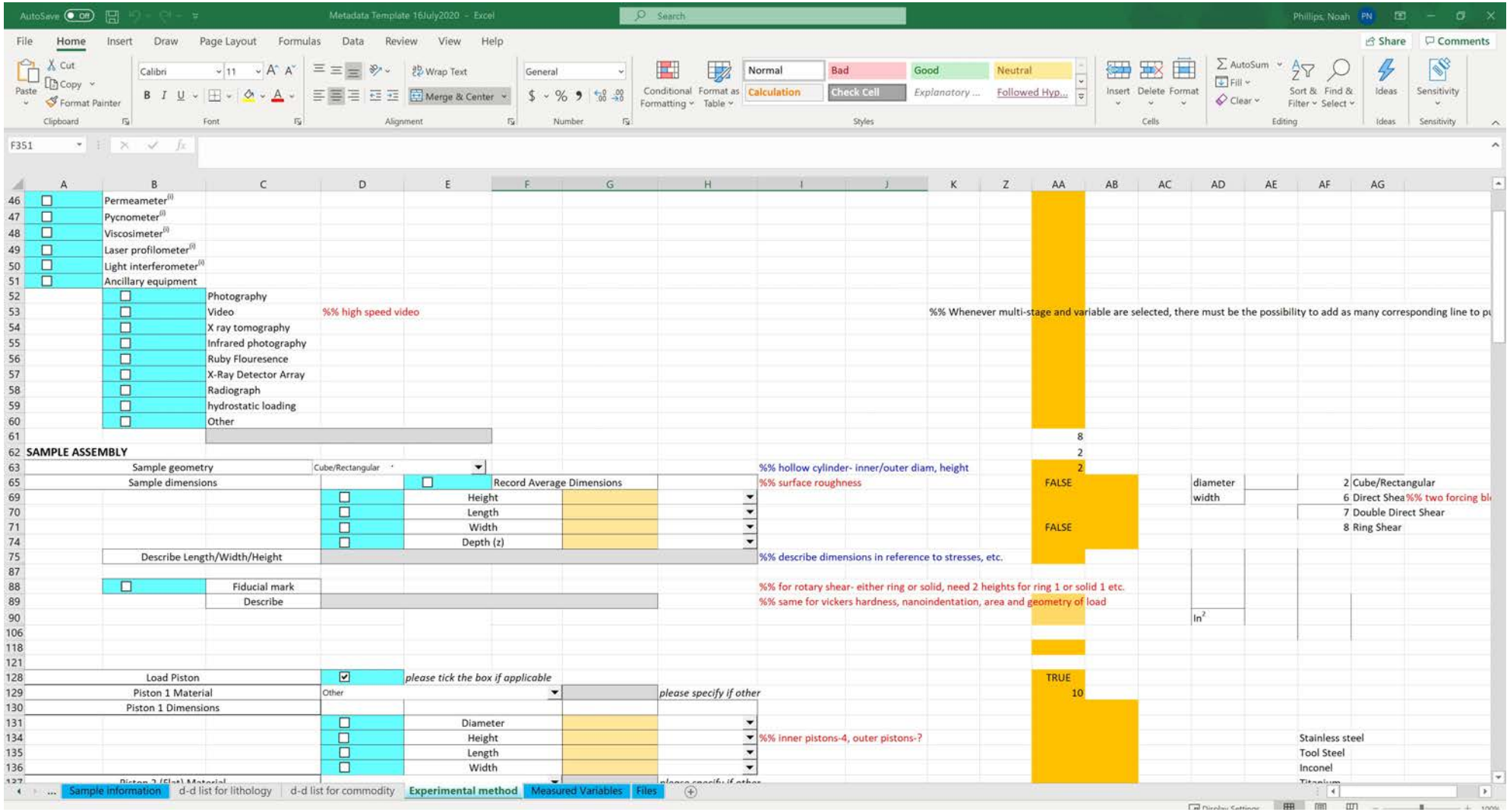


Searching and Downloading Experimental Data



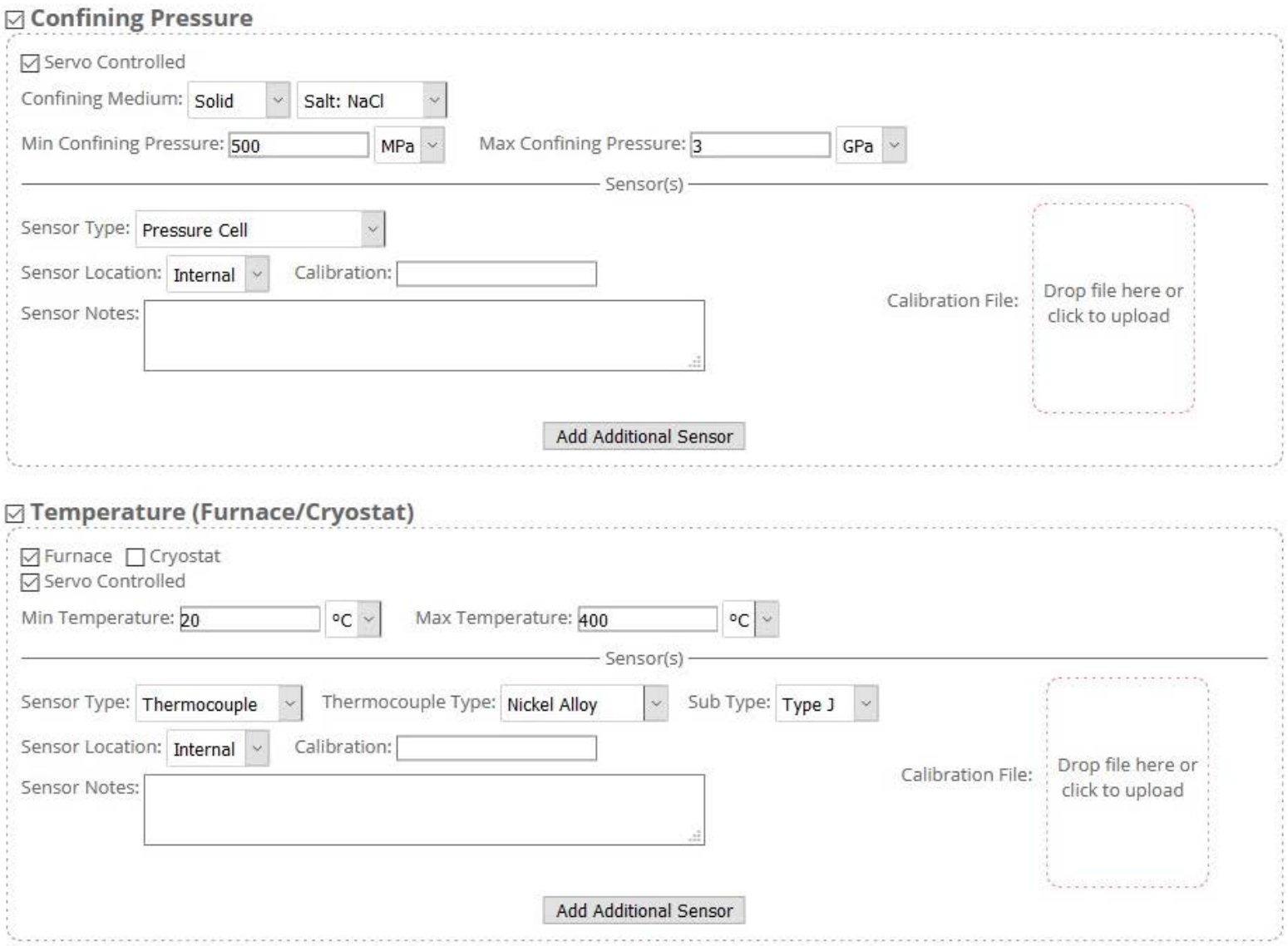
Plotting Experimental Data from Multiple Sources

StraboExperimental



Development of Vocabulary and Metadata Structure Using Excel Spreadsheet

StraboExperimental



Development of Online Interface for Inputting Data

StraboExperimental

Apparatus Data

Sample and Experimental Setup Data

	A	B	C	D	E	F	G
63							
64	Time	Sd - Deviat	Confining	Pore Press	ea - Axial S	er - Radial	ev - Volum
65	sec	MPa	MPa	MPa	%	%	%
66	0.0001	1.0235	120	43	-0.0005	-0.0028	-0.0062
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68	0.2	1.0212	120	43	-0.0028	0.0047	0.0067
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Experimental Data

StraboExperimental

Apparatus Repository

If you need an institute added to the list below, please contact strabospot@gmail.com

McGill University: +

No apparatuses yet exist for McGill University. Please clicke here to add an apparatus.

MIT: +

		Apparatus Name	Apparatus Type-Subtype	Last Modified	Schematic
view edit delete		Deben Micro Deformation Cell	Uniaxial Apparatus	Apr 14, 2021	N/A
view edit delete		NER Autolab 3000	Triaxial (Conventional) Apparatus	Apr 14, 2021	N/A
view edit delete		Paterson #5	Triaxial (Conventional) Apparatus	Apr 14, 2021	N/A
view edit delete		Permeameter	Hydrostatic Loading Apparatuses	Apr 15, 2021	N/A
view edit delete		Sanchez HT Rig	Triaxial (Conventional) Apparatus	Apr 15, 2021	N/A

StraboExperimental

STRABOSPOT

LOGGED IN AS: NOAHJP@TAMU.EDU (LOGOUT)

HOME ABOUT ACCOUNT API SOFTWARE HARDWARE SEARCH HELP TEACHING

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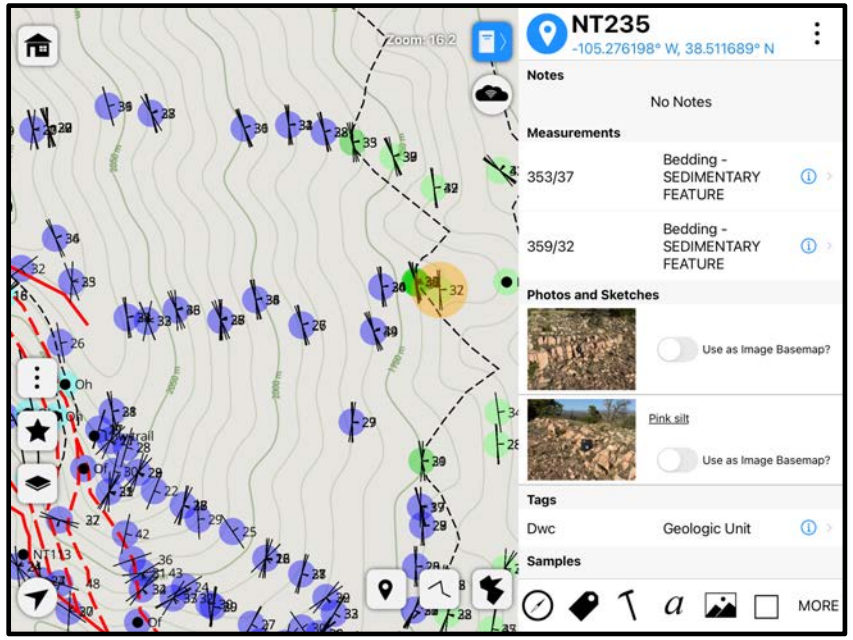
view edit delete		Permeameter	Hydrostatic Loading Apparatuses	Apr 15, 2021	N/A
view edit delete		Sanchez HT Rig	Triaxial (Conventional) Apparatus	Apr 15, 2021	N/A

8:21 AM
4/20/2021

The Strabo Ecosystem



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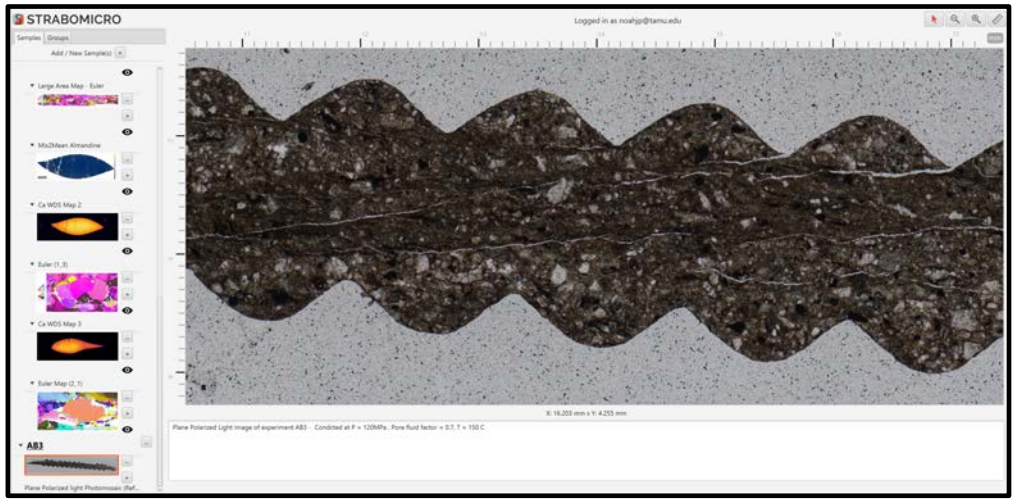

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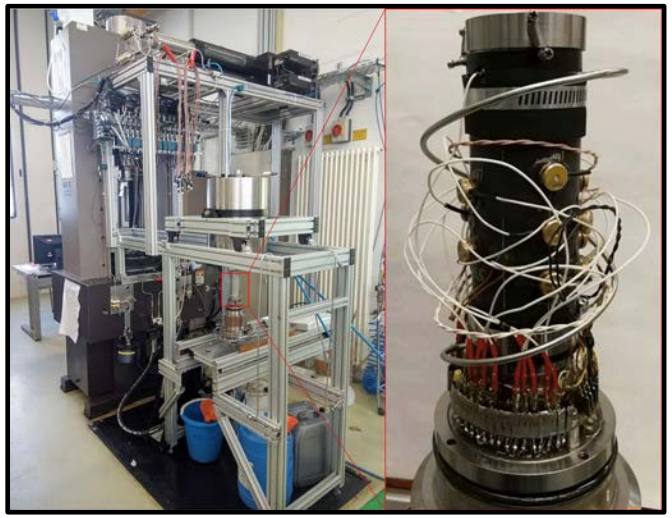

StraboExperimental

(In Development)

QUESTIONS???

We need beta testers!

Visit strabospot.org

Download StraboSpot2 from the app store

Visit the StraboSpot youtube channel

Contact Basil Tikoff: basil@geology.wisc.edu
Noah Phillips: noahjp@tamu.edu

- *to learn more about testing StraboMicro*
- *to get involved in StraboExperimental*