

Horizontal to Vertical Spectra Ratio Measurements Using Atom-3C and Mobile Devices



1/30/2023

Geometrics/OYO Corporation

Outline

- Data acquisition of H/V (P3)
- Download and install mobile Apps (P4)
- Data download (P5)
- H/V data processing (P9)
- Compare observed data with theoretical data (optional: P15)
(only available at Japan and California (Bay Area and Los Angeles))
- Upload processing result to SeisImager server (P16)
- Browse your measurement results through internet (P17)
- Show community velocity model at current position (P21)
(only available at Japan and California (Bay Area and Los Angeles))

Data acquisition

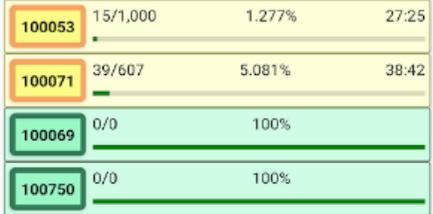


1. Set 3C geophone at quiet place.
2. Push power button 2 seconds to turn on Atom. Atom beeps short.
3. Confirm GPS LED blinks more than once a second.
4. Record ambient noise 20 to 30 minutes.
5. Push power button momentum to stop. Atom beeps long.

Download and Install Mobile Apps

Apps for downloading and processing are available at Google Play.

https://play.google.com/store/apps/details?id=com.Geometrics.AtomDownloader.Android&hl=en_US



100053	15/1,000	1.277%	27:25
100071	39/607	5.081%	38:42
100069	0/0	100%	
100750	0/0	100%	

Atom Downloader - Apps on Google Play

Geometrics' Atom Downloader App allows the user to wirelessly connect to, and download data files from, the Atom Wireless Seismograph. Because the Atom Downloader App is capable of offloading data from multiple Atom Wireless Seismographs at the same time, it is possible to download and begin processing your data more quickly and seamlessly than with traditional wired

play.google.com

https://play.google.com/store/apps/details?id=com.seisimager.waveviewer&hl=en_US



SeisImager - Apps on Google Play

SeisImager provides various tools to estimate S-wave velocity profiles in site investigations. It processes waveform data recorded by Geometrics Atom seismograph. Deep S-wave velocity profiles at current position can be found from several community velocity models and shown on your device.

play.google.com

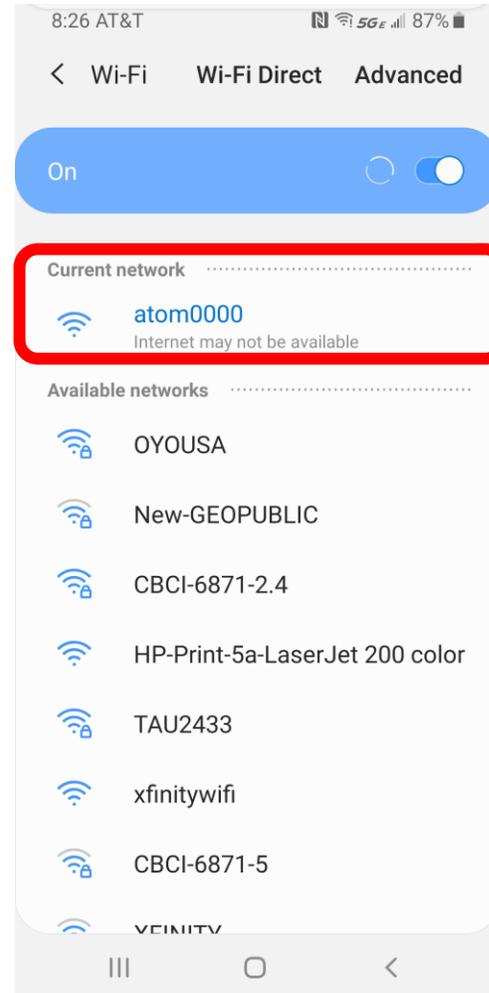
Apps for iPhone/iPad are also available. Contact to your sales agent if you want to use apps on iPhone/iPad.

Data download (1)

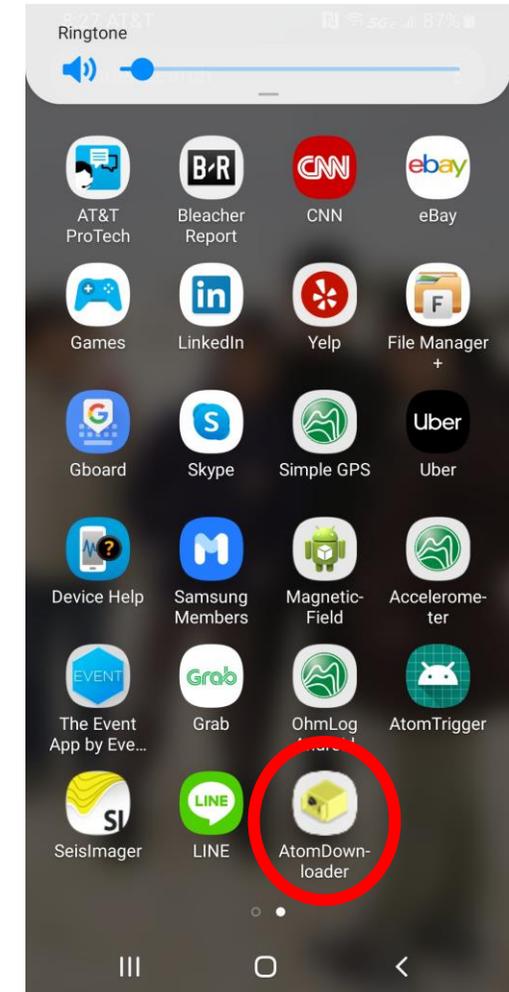
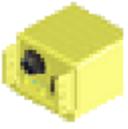
Press power button 3 seconds to turn on access point. Blue LED comes to stay on and ready to download.



Connect to "atom0000"



Launch AtomDownloader

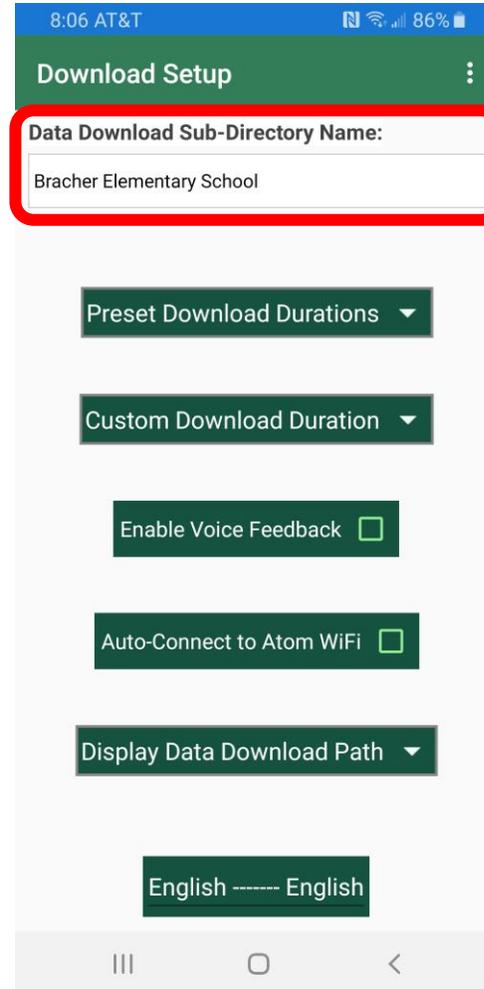


Data download (2)

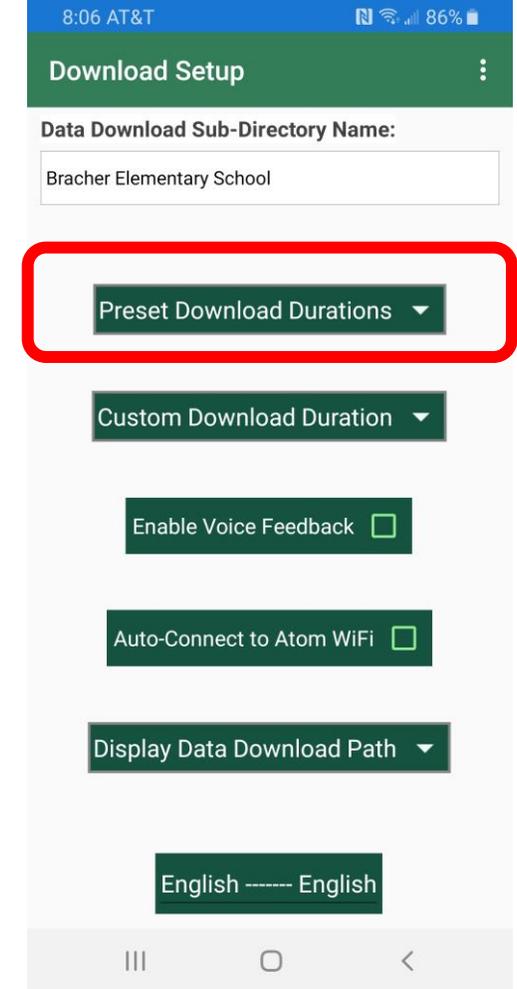
Initial screen



Set site name (folder name)

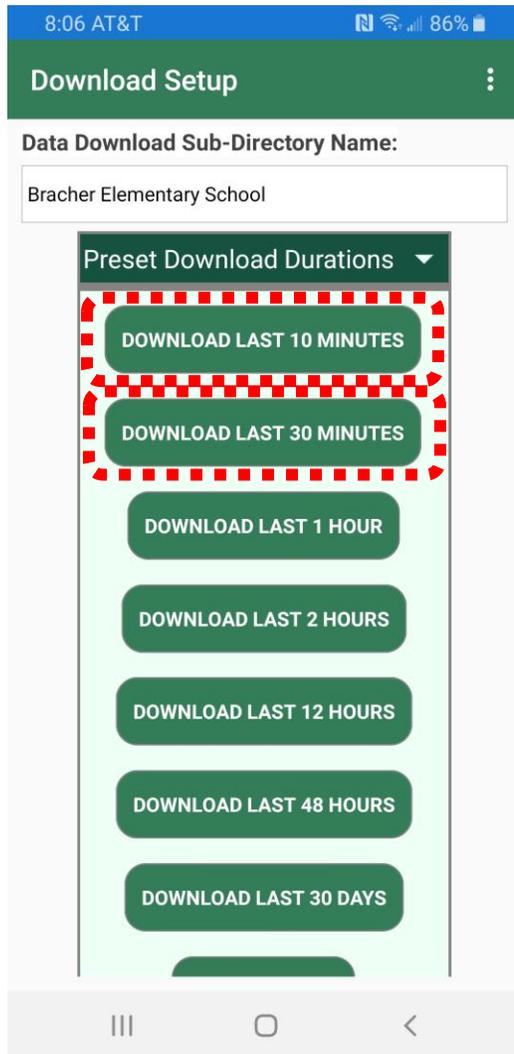


Tap "Preset Download Durations"

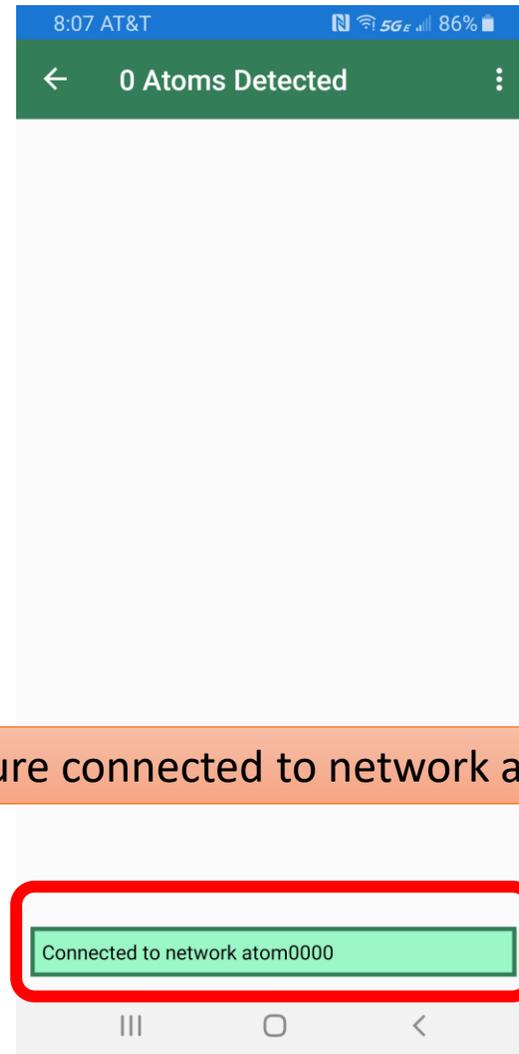


Data download (3)

Set data length to be downloaded



Ready to download data

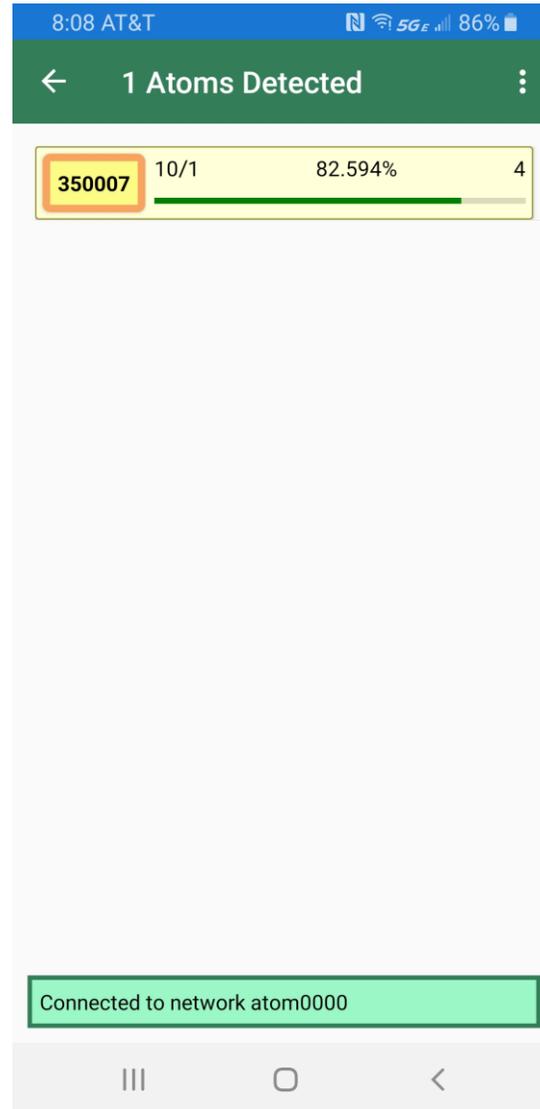
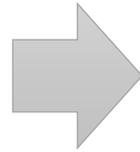
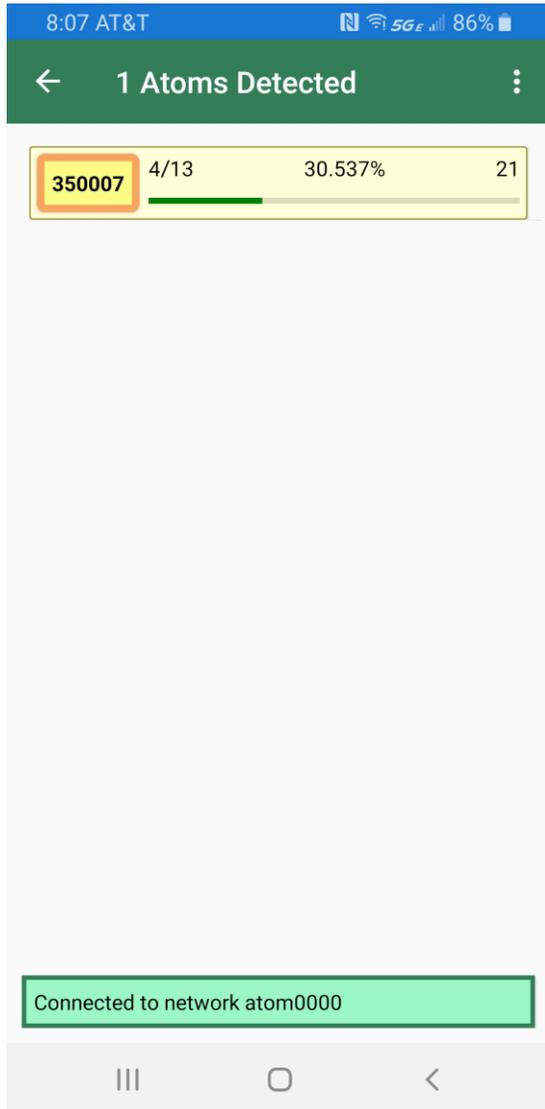


Push power button 5 seconds to turn on Atom with download mode.

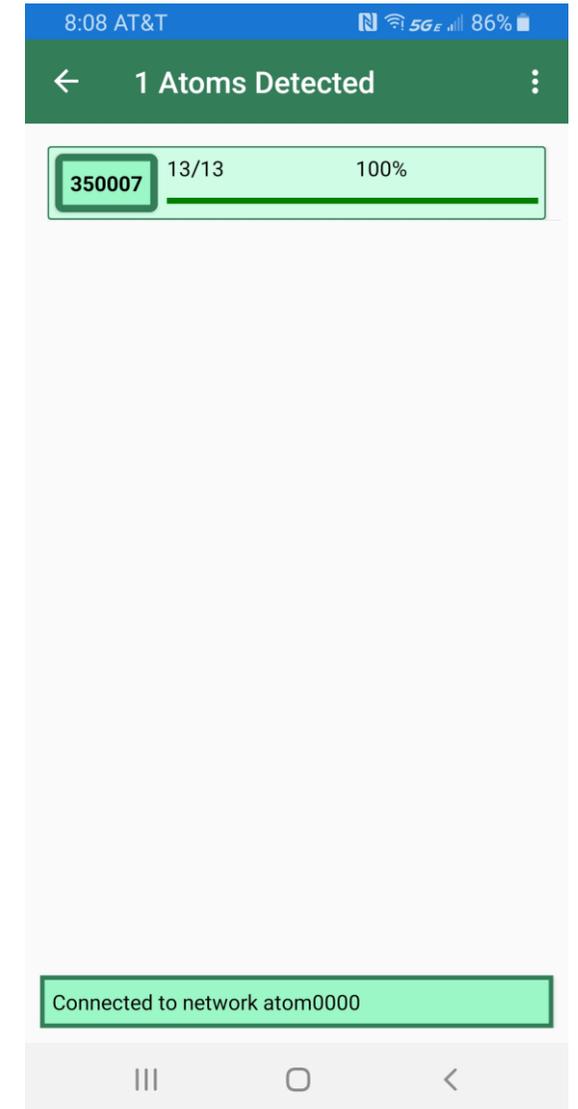


Data download (4)

Automatically detect Atom
and start download

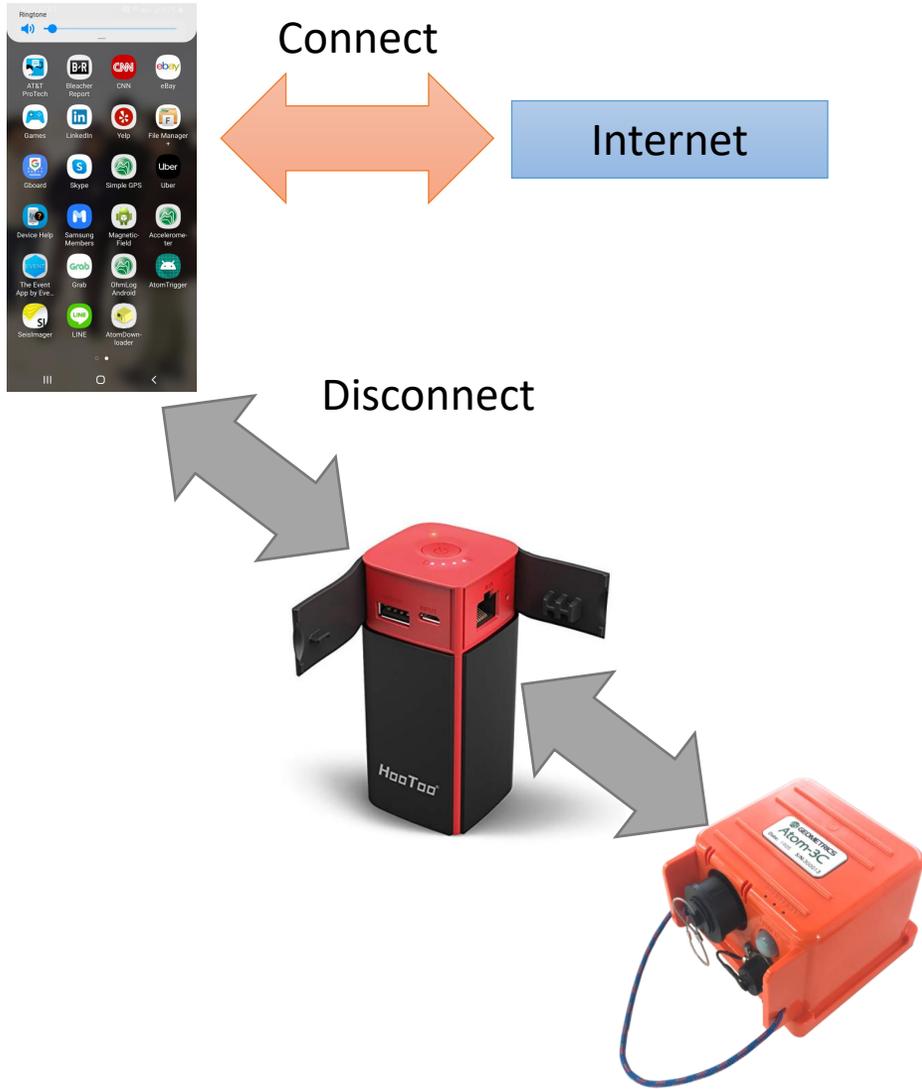


Download completed



H/V data processing (1)

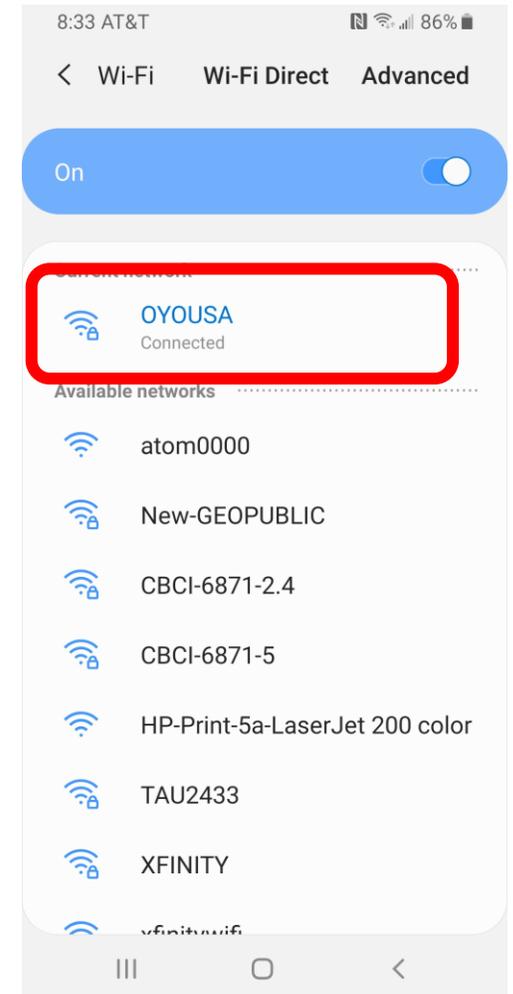
You need to connect internet if you want to upload processing result to database.
Disconnect “atom0000” and connect internet.



Press power button 3 seconds to turn off access point.

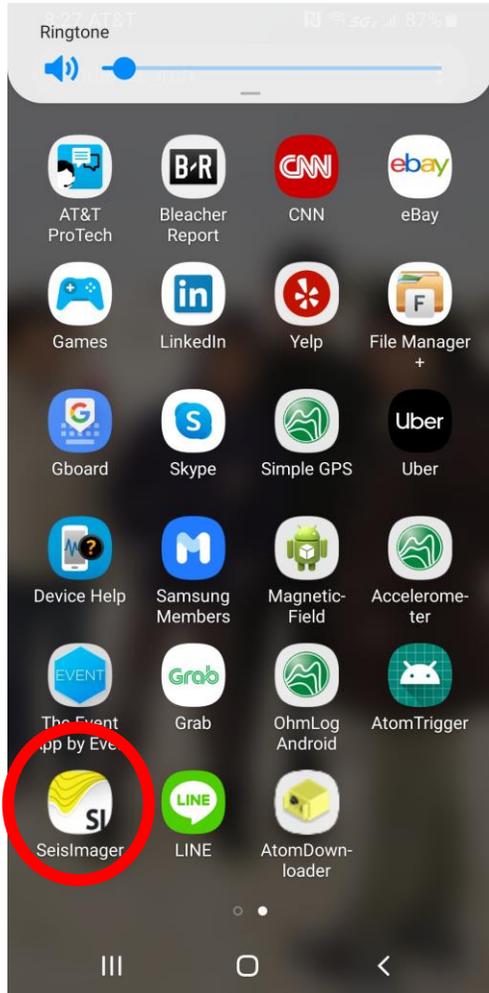


Disconnect “atom0000” and connect other available network

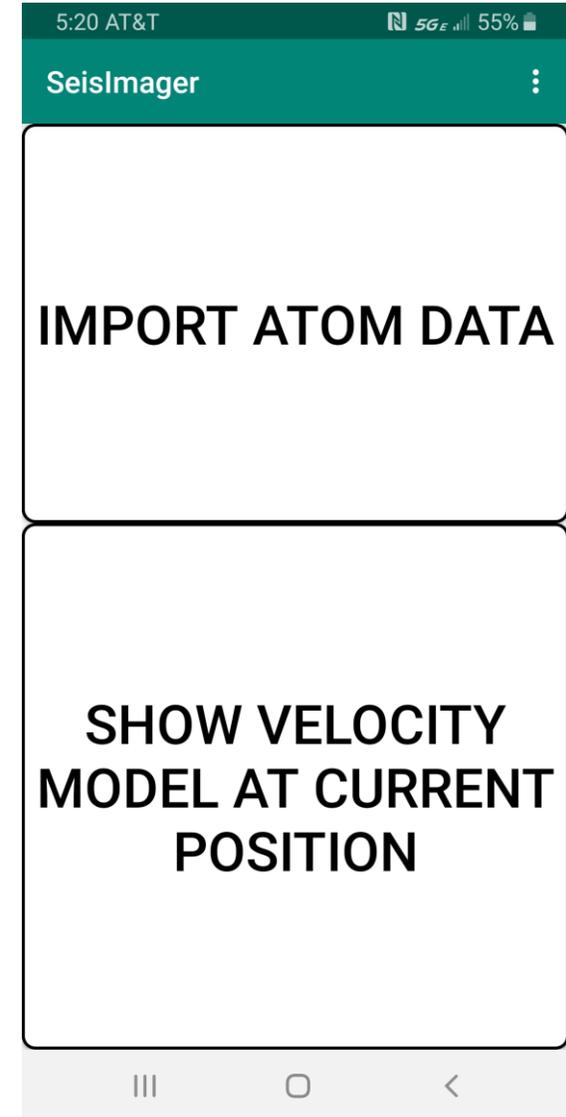
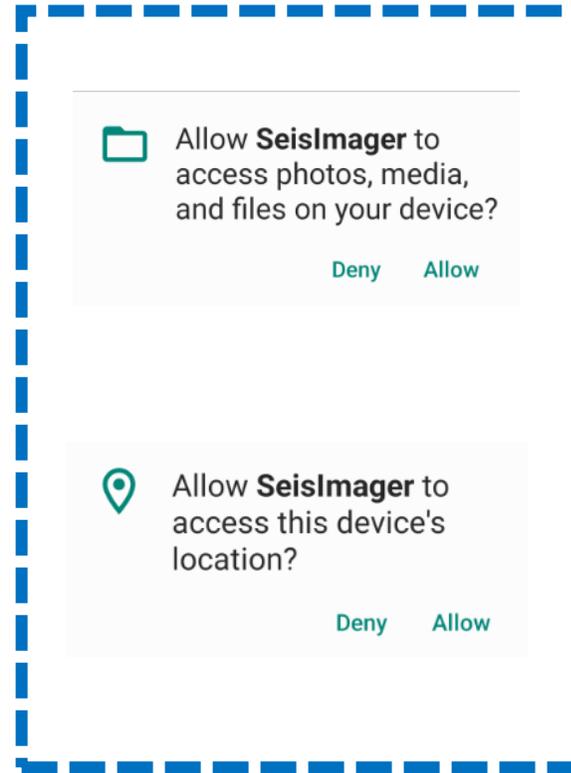


H/V data processing (2)

Launch SeisImager

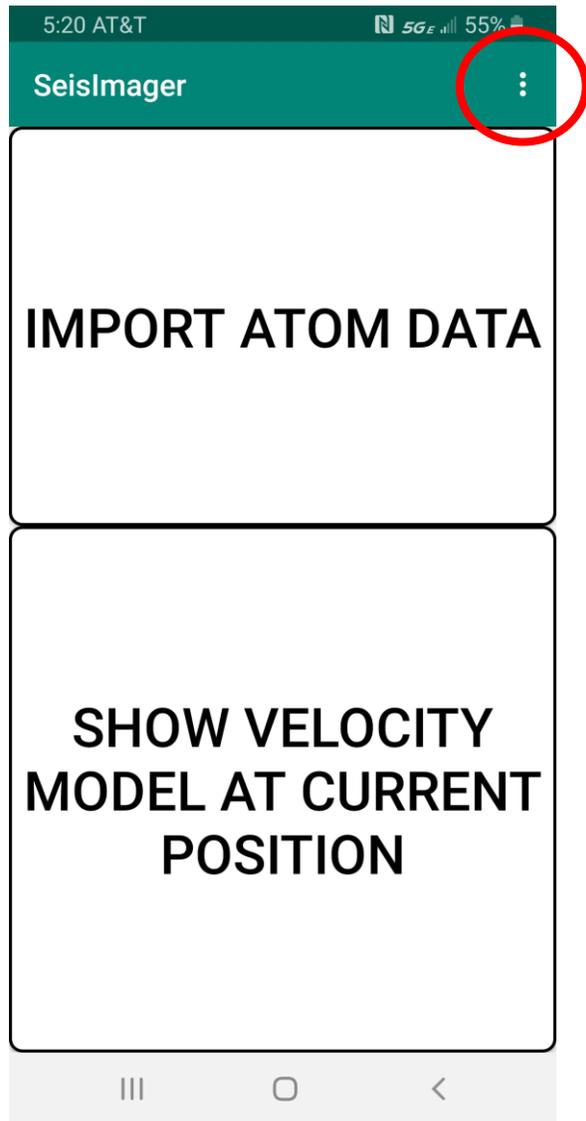


Accept permission request (only first time)

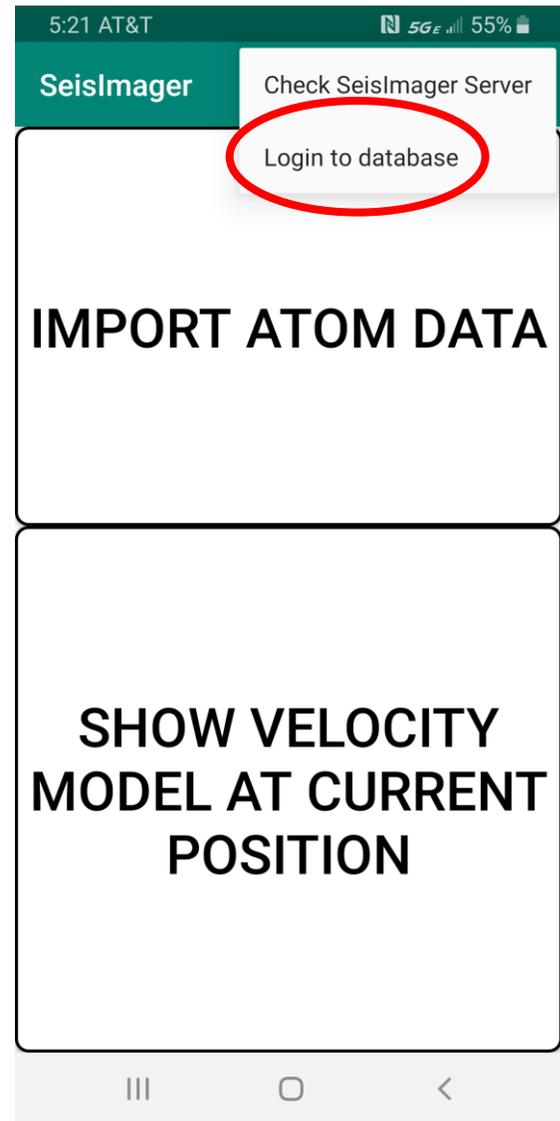


H/V data processing (3) : set up database (only first time)

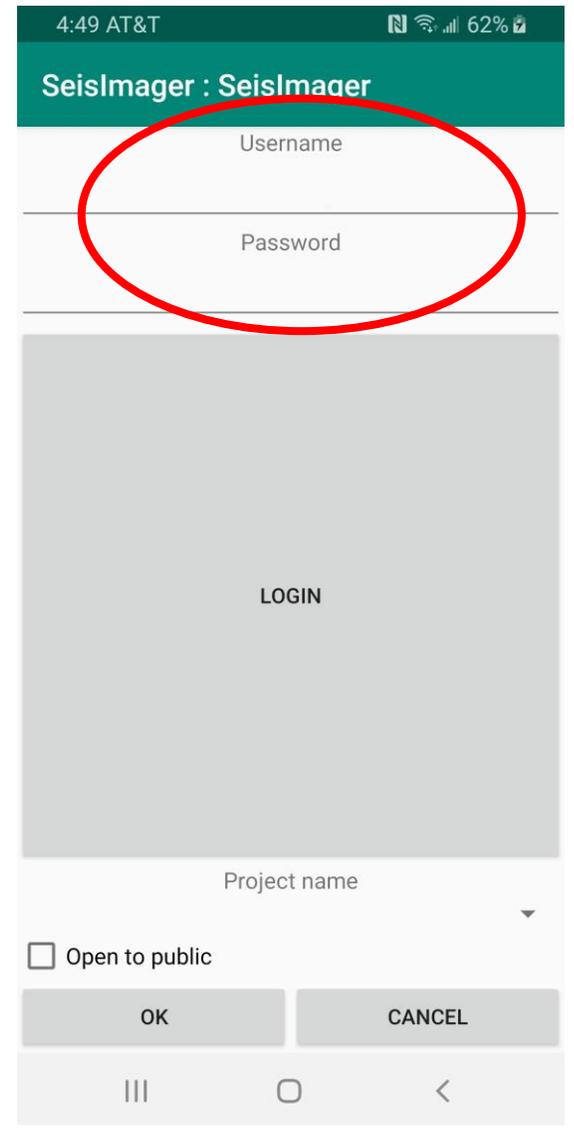
Tap option menu



Select "Login to database"



Enter username and password

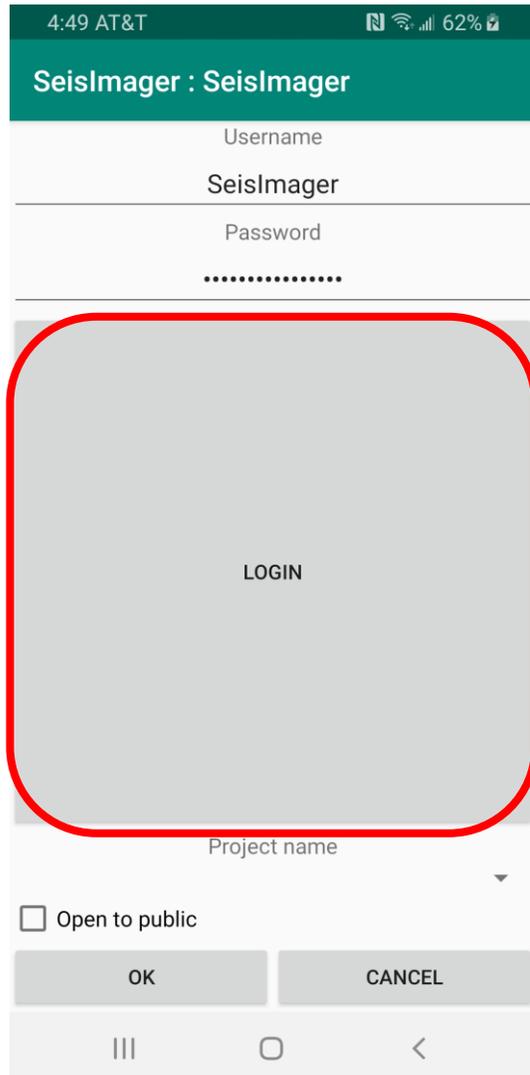


H/V data processing (4) : set up database (only first time)

Tap "LOGIN"

Select a project

TAP "OK"



4:49 AT&T 62%

SeisImager : SeisImager

Username
SeisImager

Password
.....

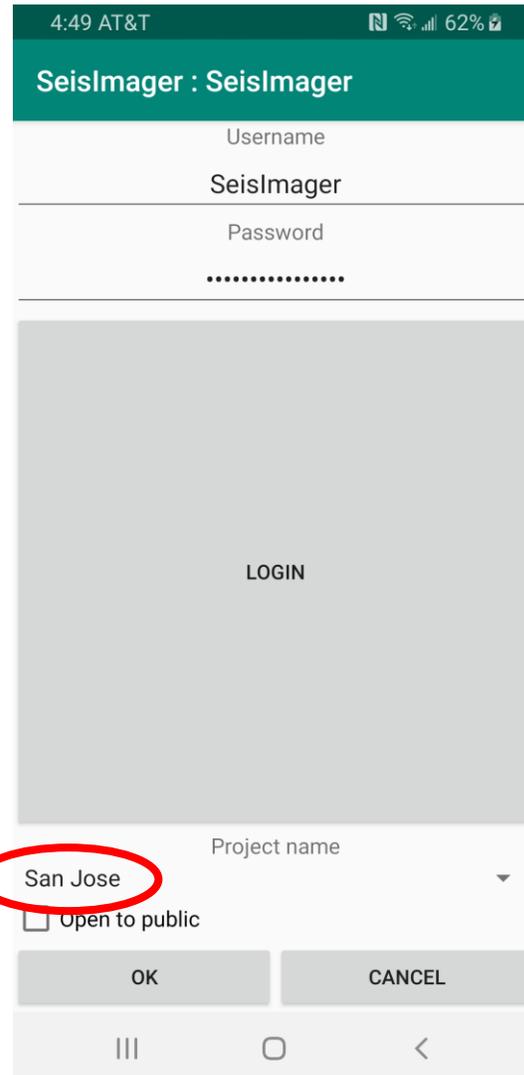
LOGIN

Project name

Open to public

OK CANCEL

This screenshot shows the initial login screen. The 'LOGIN' button is highlighted with a red rounded rectangle. Below the login fields, there is a 'Project name' dropdown menu and an 'Open to public' checkbox. At the bottom, there are 'OK' and 'CANCEL' buttons.



4:49 AT&T 62%

SeisImager : SeisImager

Username
SeisImager

Password
.....

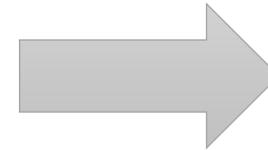
LOGIN

San Jose
Project name

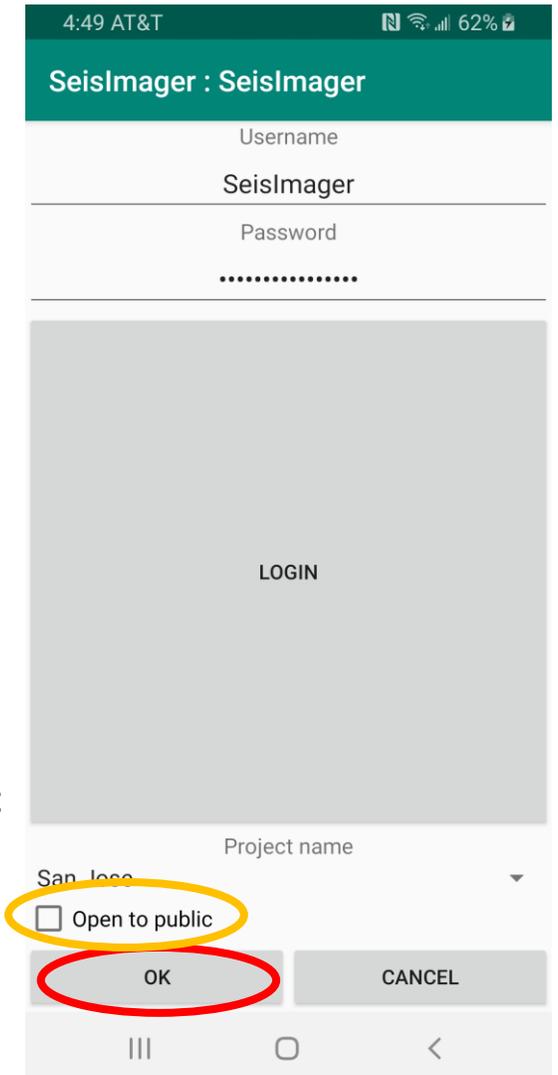
Open to public

OK CANCEL

This screenshot shows the 'Project name' dropdown menu open, with 'San Jose' selected and circled in red. The rest of the screen is identical to the first screenshot.



Check if you want to open data to public



4:49 AT&T 62%

SeisImager : SeisImager

Username
SeisImager

Password
.....

LOGIN

San Jose
Project name

Open to public

OK CANCEL

This screenshot shows the 'Open to public' checkbox checked and circled in yellow. The 'OK' button is circled in red. The rest of the screen is identical to the previous screenshots.

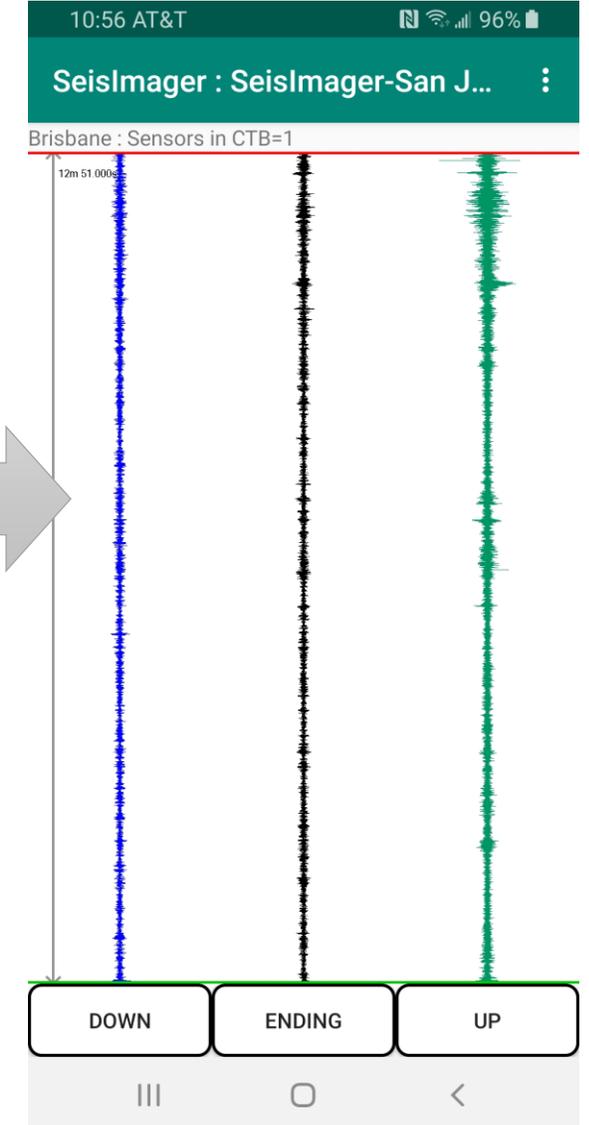
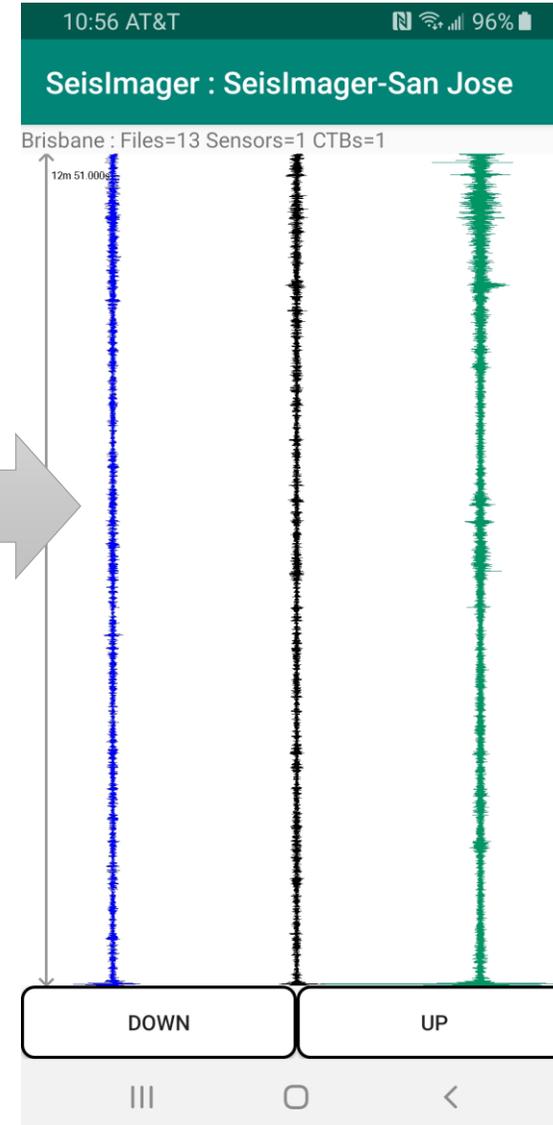
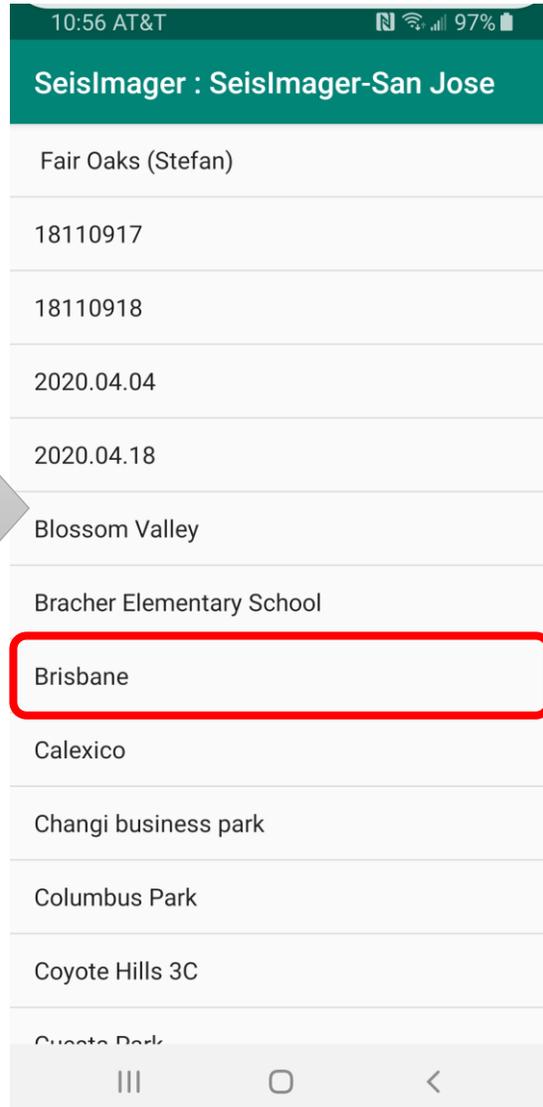
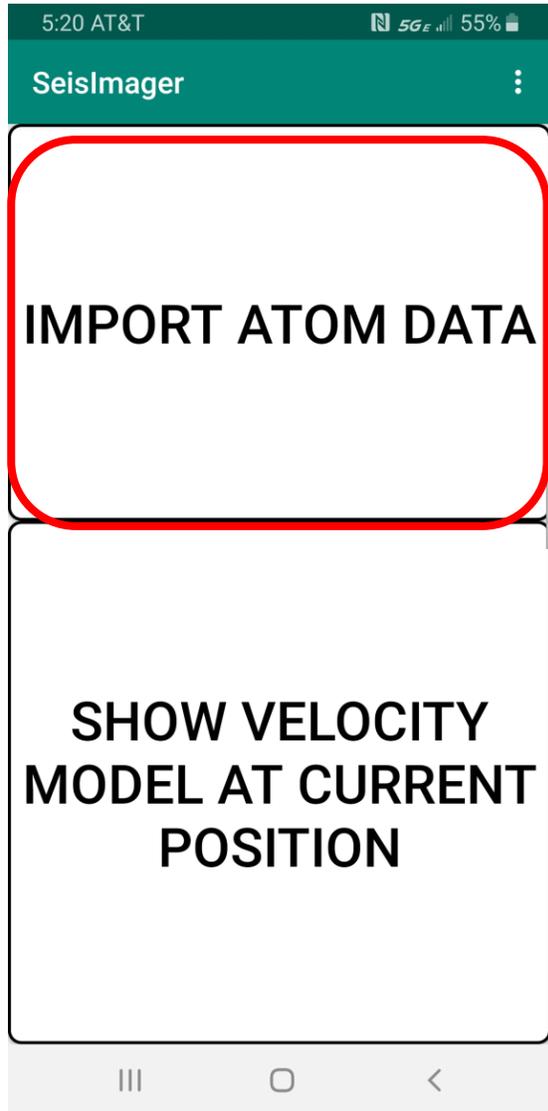
H/V data processing (5)

3C ambient noise data appears. Tap screen to select "CTB" to be processed.

A "CTB" appears. You can set a gate and truncate data at beginning or ending if necessary.

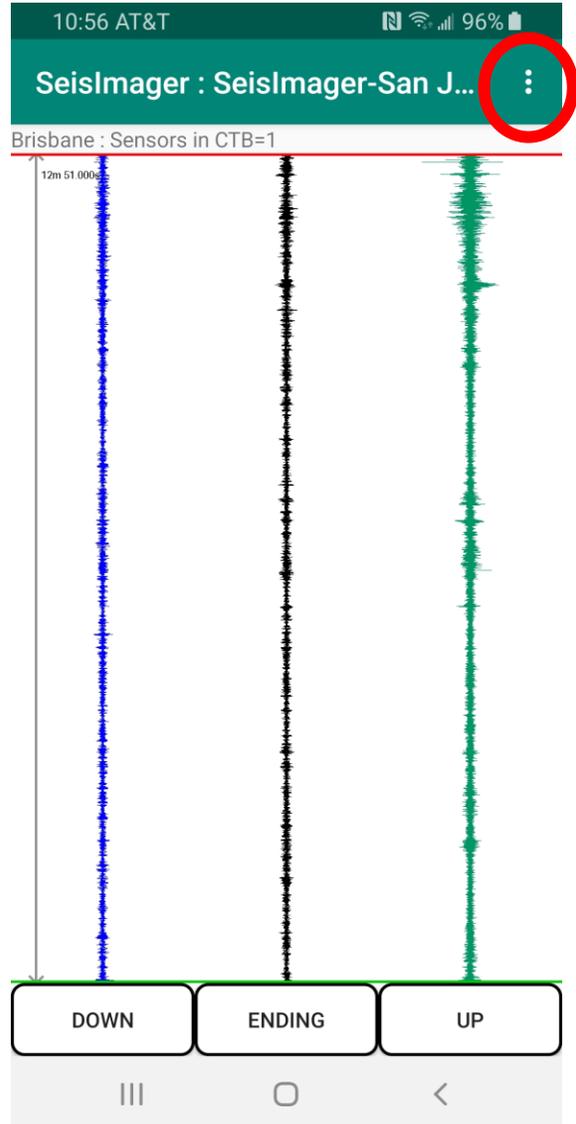
Tap "IMPORT ATOM DATA"

Select folder to be processed

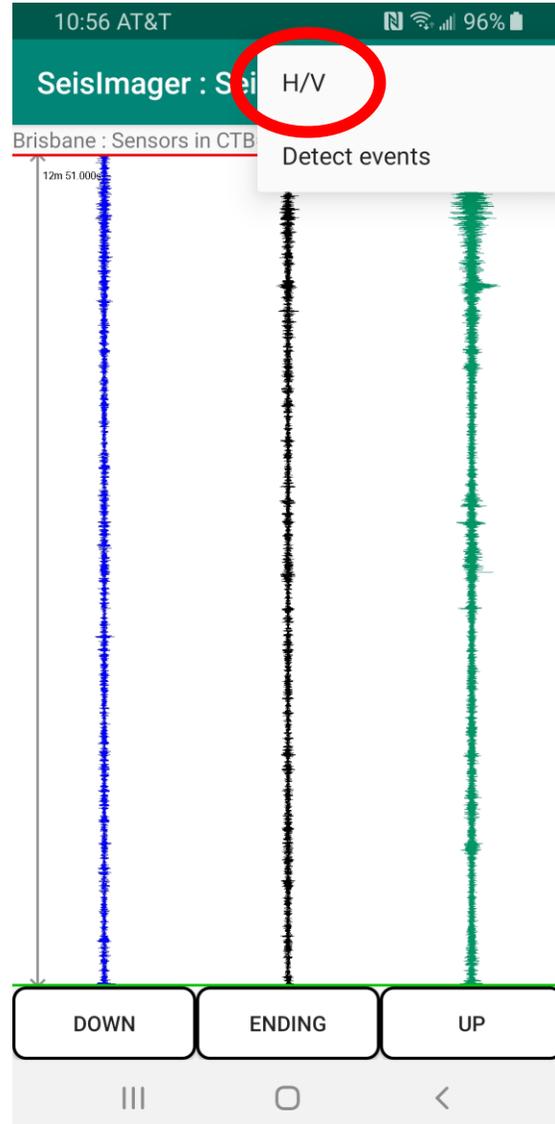


H/V data processing (6)

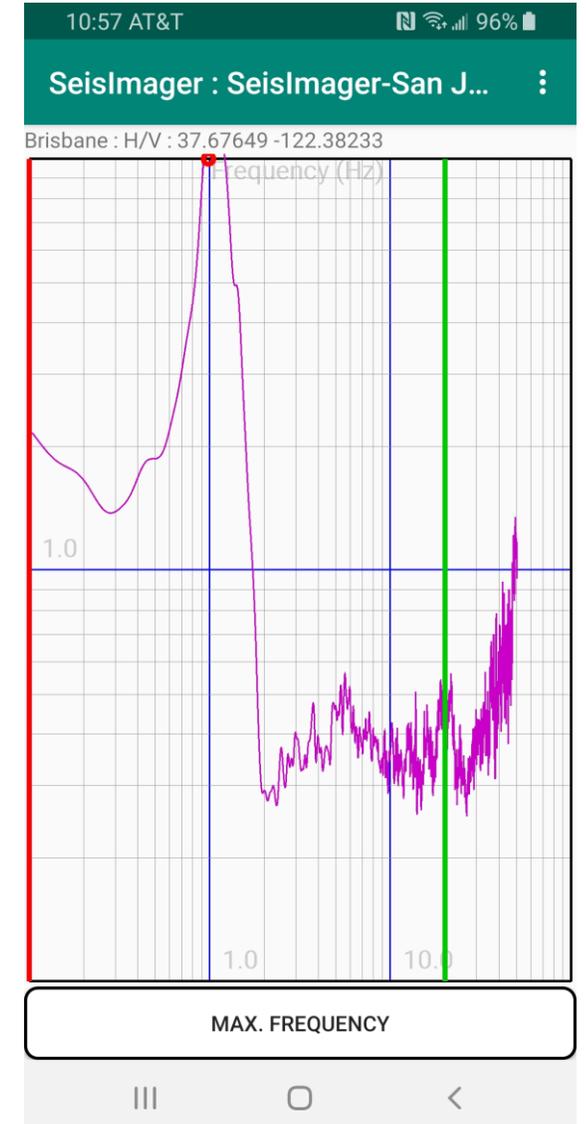
Tap option menu



Select "H/V"

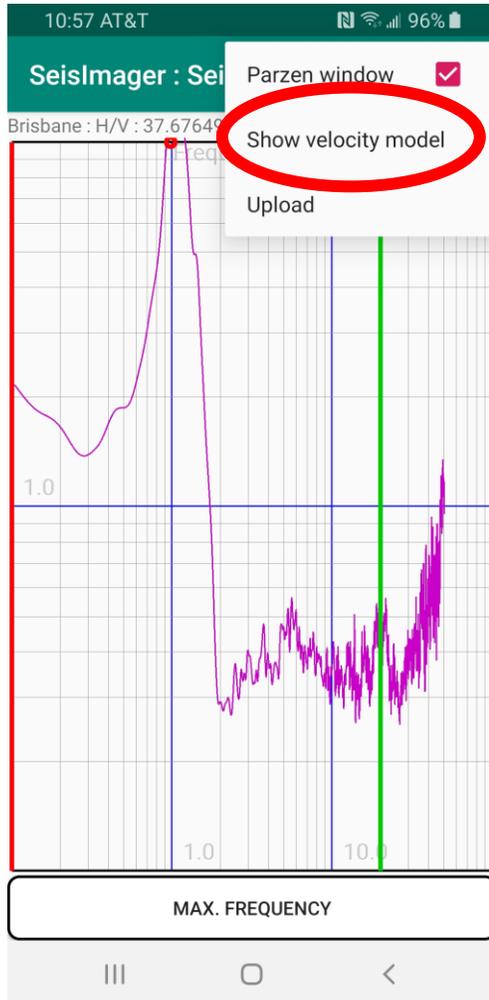


H/V spectrum appears

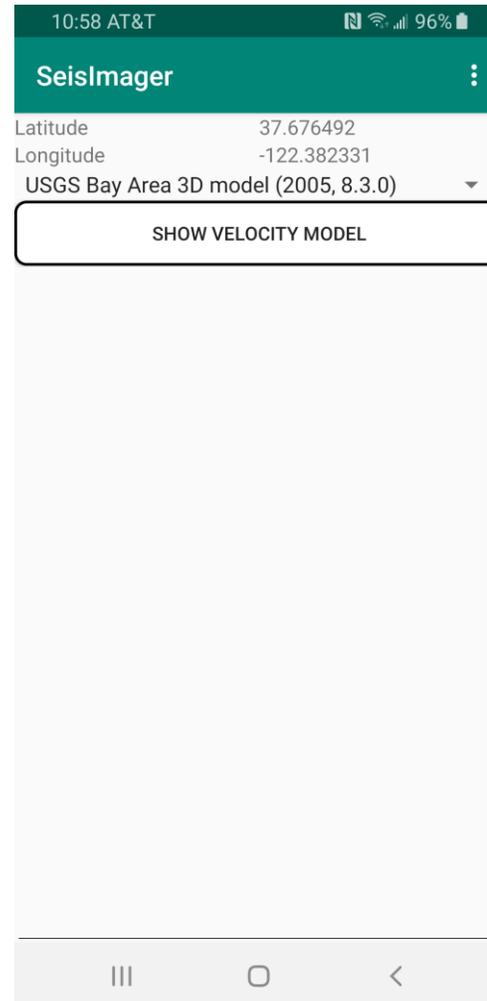


Compare observed data with theoretical data (optional)
(only available at Japan and California (Bay Area and Los Angeles))

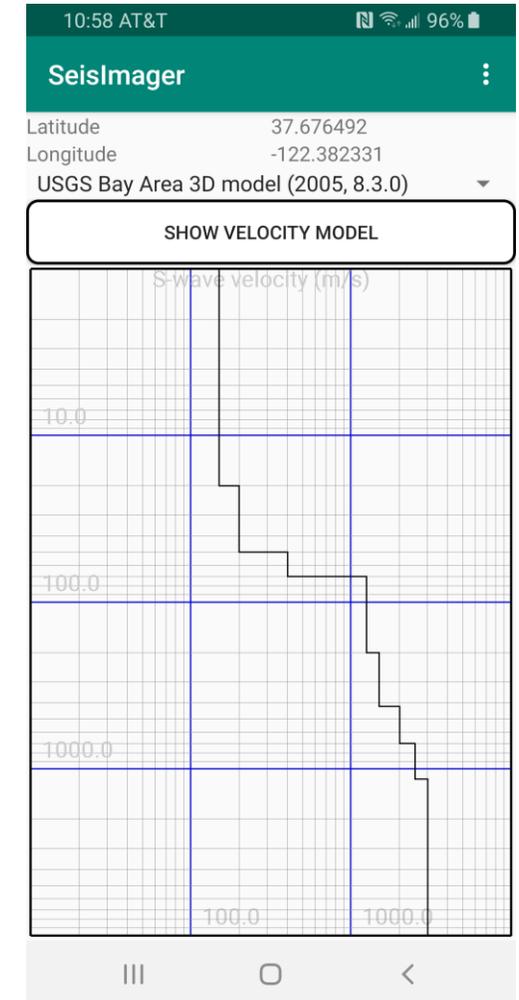
Show option menu and tap
"Show velocity model"



Select a model and tap
"SHOW VELOCITY MODEL"

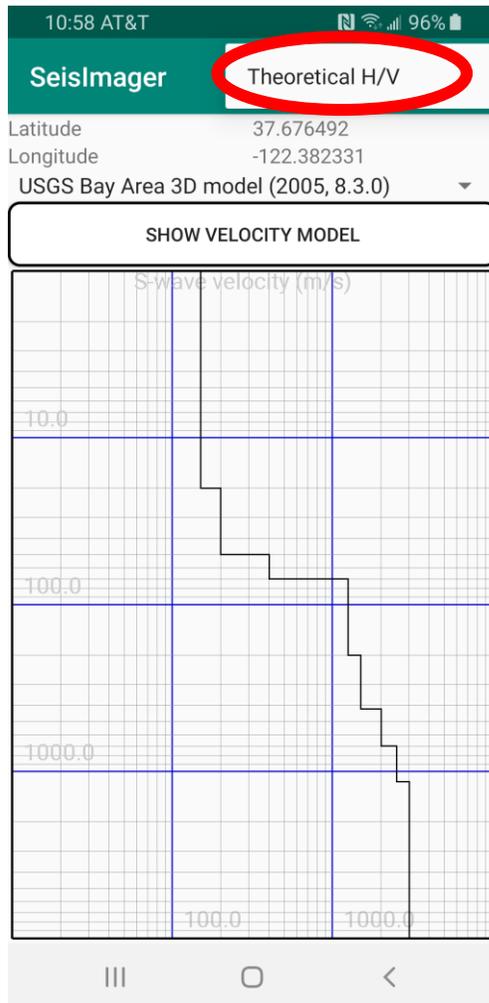


S-wave velocity model at the site appears

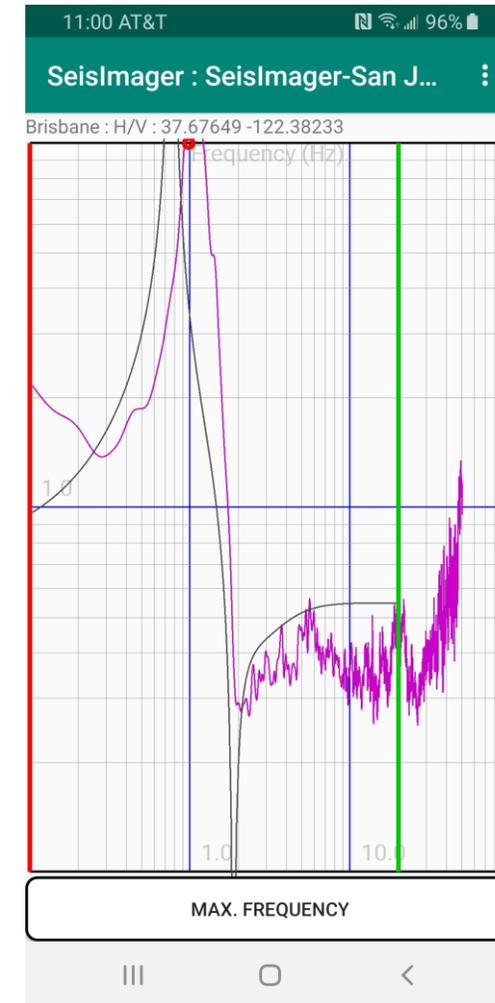


Compare observed data with theoretical data (optional)

Show option menu and tap “Theoretical H/V”



Theoretical H/V appears with observed data

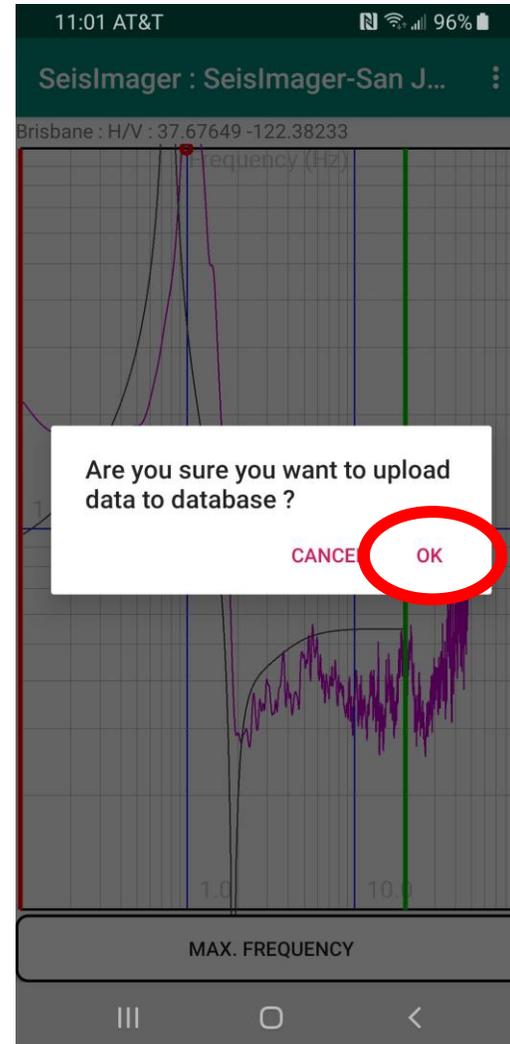


Upload processing result to SeisImager server

Select "Upload" in option menu



Tap "OK" to upload data to server

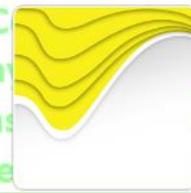


Processing result was uploaded to server



Browse your measurement results through internet (1)

Go to <https://SeisImager.com> and click "Geophysical Database"



SeisImager



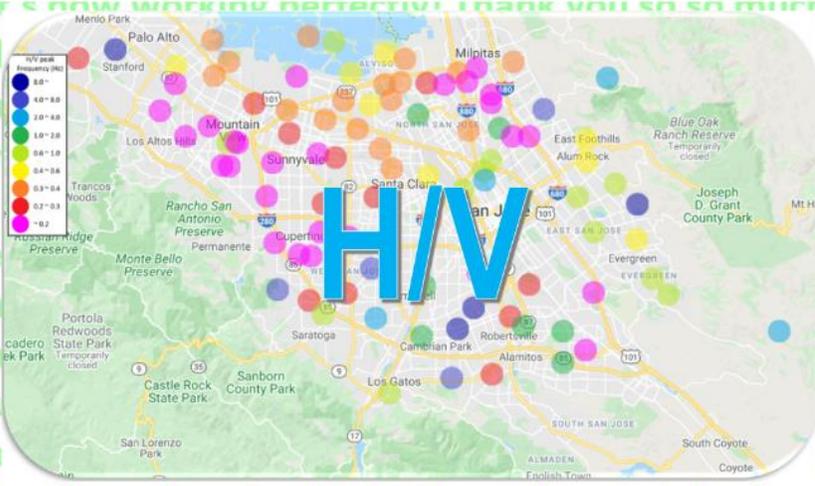
on on your excellent customer service!
I have been using your program for 15 years. It is always a pleasure to deal with you and make the process, it has been extremely useful for me. The modeling and ray-tracing modules are particularly useful.

The Atom provides wireless data downloading and shutdown for all units, which is v

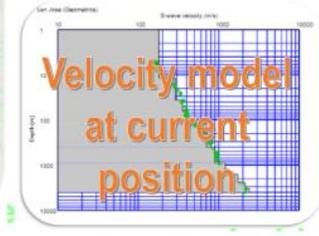
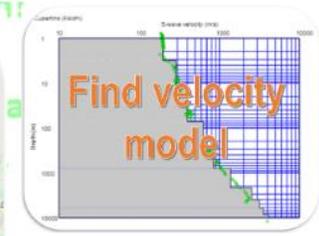
NEW OYO posted data at 37.377983,140.39827 in 郡山 project on 2020-10-13 01:39:06 UTC



AVS30m



HW



As always,

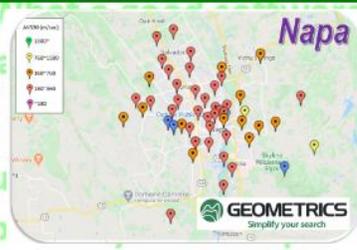
reciate it.

SeisImager 2D modules. PickWin and PlotRefa, allowed me to efficiently analyze and display my refraction data

Featured projects



松山



Napa



すみれ台



北九州市戸畑区



武庫川



夙川

Thank

or me.

SeisImager is really very good refraction soft d ray-tracing modules are particularly useful.



Browse your measurement results through internet (2)

Enter username and password then click "Submit"

Click "My account"

Enter username and password

Username:
Password:

Geophysical Database

[Microtremor Array Measurements Database](#)

[Horizontal to vertical spectra ratio \(H/V\) Database](#)

[Velocity Logging Database](#)



Enter username and password

Username:
Password:

[My account](#)

Geophysical Database

[Microtremor Array Measurements Database](#)

[Horizontal to vertical spectra ratio \(H/V\) Database](#)

[Velocity Logging Database](#)

Browse your measurement results through internet (3)

My Account

[My Map \(AVS30m\)](#)

[My Map \(H/V\)](#)

Latitude	<input type="text" value="35.933773"/>
Longitude	<input type="text" value="139.617549"/>
Zoom level	<input type="text" value="10"/>

My projects

Project name	Number of data
OYO Corporation General	73
中津川	21
松山	35
つくば	24
門前	25
みどりの	90
蓮田	29
郡山	321

Show all H/V sites in your account on Google Map.

Project page

門前

[My Project Map \(AVS30m\)](#)

[Shareable link \(AVS30m\)](#)

[My Project Map \(H/V\)](#)

[Shareable link \(H/V\)](#)

Shareable link will not show non-public data.

Latitude	<input type="text" value="37.289194"/>
Longitude	<input type="text" value="136.741701"/>
Zoom level	<input type="text" value="10"/>

Sites

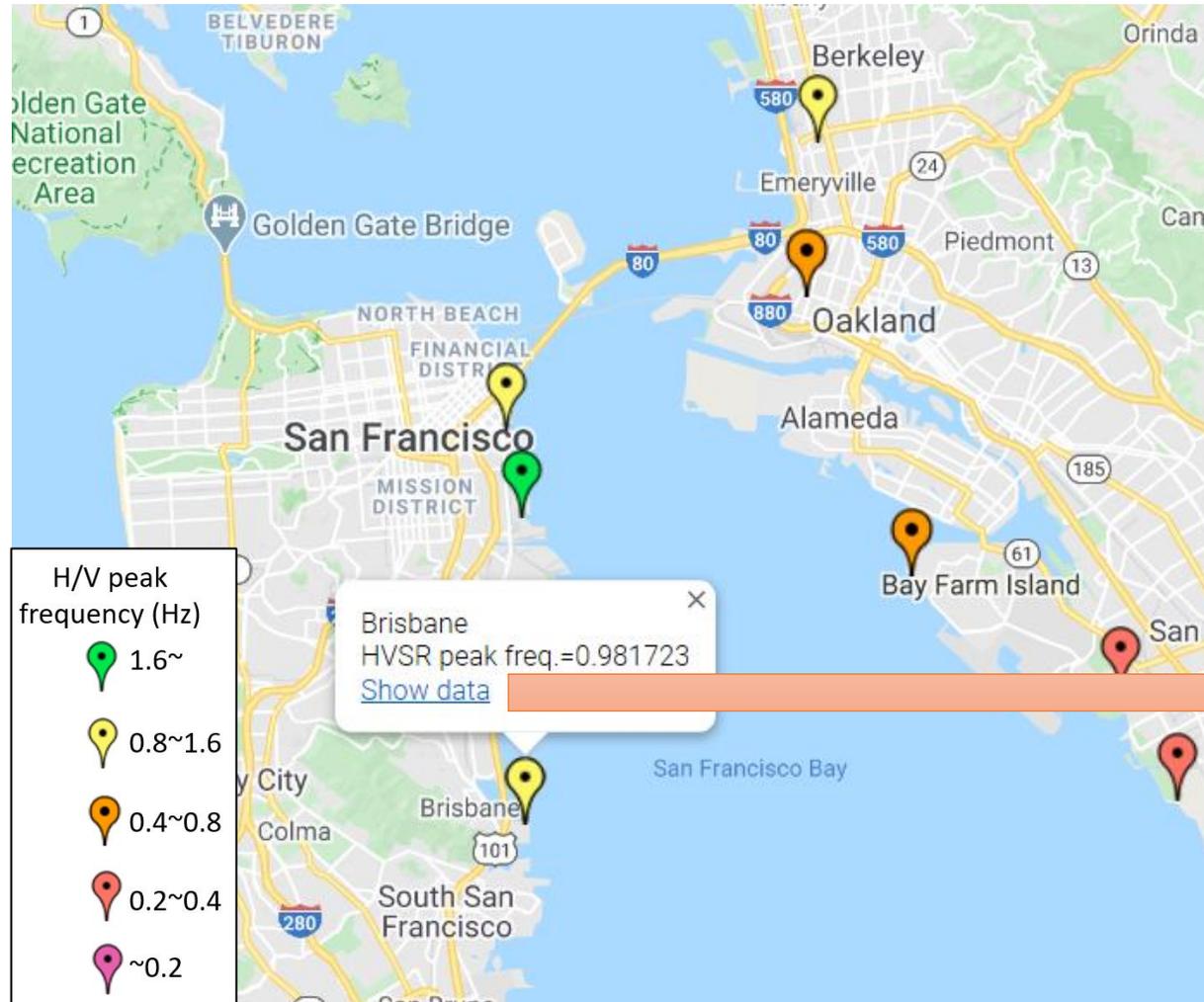
Site name	Latitude	Longitude	AVS30 (m/sec)	HVSR peak (Hz)	IBC Site Class	Open to public			
0-18	37.290741	136.748703	173.934		E	Yes	Show data	Edit data	Delete
0-19	37.29089	136.749237	173.934		E	Yes	Show data	Edit data	Delete
0-20	37.291042	136.749771	177.223		E	Yes	Show data	Edit data	Delete
0-17	37.290588	136.748169	173.934		E	Yes	Show data	Edit data	Delete
0-16	37.290436	136.74765	230.914		D	Yes	Show data	Edit data	Delete
0-15	37.290287	136.747116	249.047		D	Yes	Show data	Edit data	Delete

Show H/V sites in a project on Google Map.

Create a new project

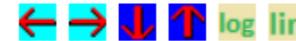
Browse your measurement results through internet (4)

Measurement results are shown on Google Map.
Color indicate peak frequency of H/V.



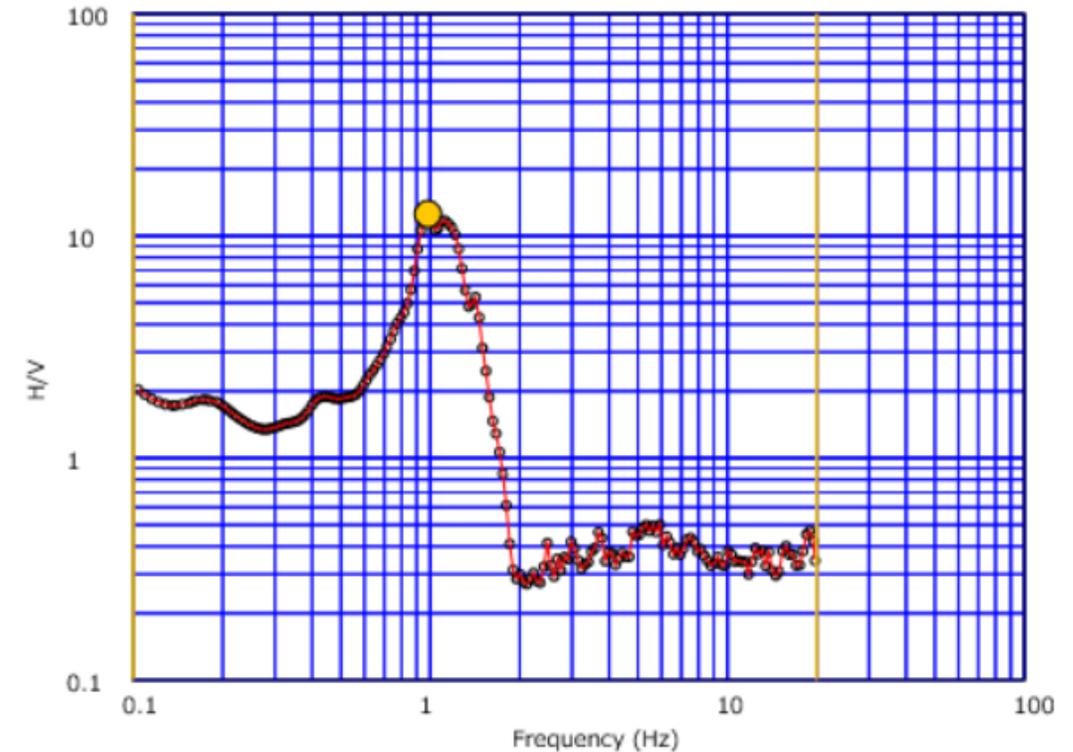
Click a pin to show a measurement result.
Data can be downloaded as an XML file and processed by SeisImager on Windows PC.

Received [Download XML file](#)



Click to download data to PC

Brisbane



Browse measurement results through internet (5)

Uploaded data are automatically registered in the database and users can browse, edit, download and delete the data.

San Jose

Site name	Latitude	Longitude	AVS30 (m/sec)	HVSR peak (Hz)	IBC Site Class	Open to public			
001 : San Jose (Geometrics)	37.400398	-121.889471	234.024	0.15143	D	Yes	Show data	Edit data	Delete
2:Cupertino (Koichi)	37.318584	-122.017955	323.772	0.164795	D	Yes	Show data	Edit data	Delete
3:San Jose (AlvisoPark)	37.425003	-121.968952	206.749	0.407642	D	Yes	Show data	Edit data	Delete
4:Palo Alto (Rob)	37.417859	-122.126204	256.731	0.408936	D	Yes	Show data	Edit data	Delete
5:Stanford	37.427551	-122.172165	256.731	17.2908	D	Yes	Show data	Edit data	Delete
6:San Jose (WilliamsPark)	37.335335	-121.868805	202.474	1.23901	D	Yes	Show data	Edit data	Delete
7:San Jose (NCSN CCOB)	37.258991	-121.673166	202.474	2.82246	D	Yes	Show data	Edit data	Delete
8:Saratoga (NCSN JSGB)	37.284103	-122.050034		0.037462		Yes	Show data	Edit data	Delete
9:Redwood City	37.505504	-122.212064	159.683	1.69352	E	Yes	Show data	Edit data	Delete
10:San Jose(Ko)	37.407501	-121.938004		0.287908		Yes	Show data	Edit data	Delete

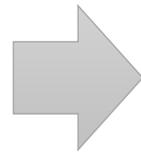
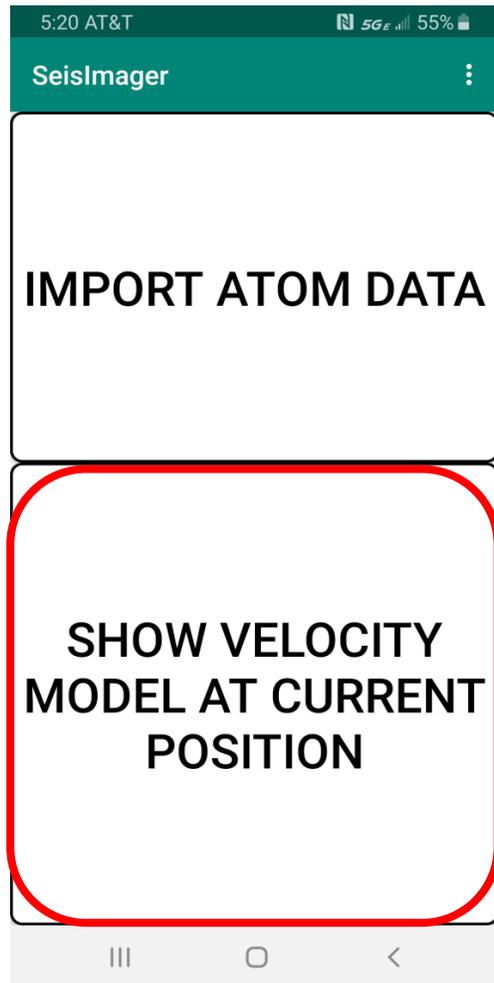
SERC Chennai	12.9867	80.245781	217.894		D	Yes	Show data	Edit data	Delete
San Jose (Luna Park)	37.361401	-121.889511		0.778124		Yes	Show data	Edit data	Delete
Sterling Barnhart Park	37.31553	-121.996649		0.10376		Yes	Show data	Edit data	Delete
Heritage Oaks Park	37.35762	-122.086238		0.195702		Yes	Show data	Edit data	Delete
Cuesta Park	37.372589	-122.082706		0.10376		Yes	Show data	Edit data	Delete
Blossom Valley	37.37193	-122.088022		0.10376		Yes	Show data	Edit data	Delete
De Anza Shopping Center	37.304794	-122.034005		0.10376		Yes	Show data	Edit data	Delete
Brisbane	37.676492	-122.382331		0.981723		Yes	Show data	Edit data	Delete

Uploaded data

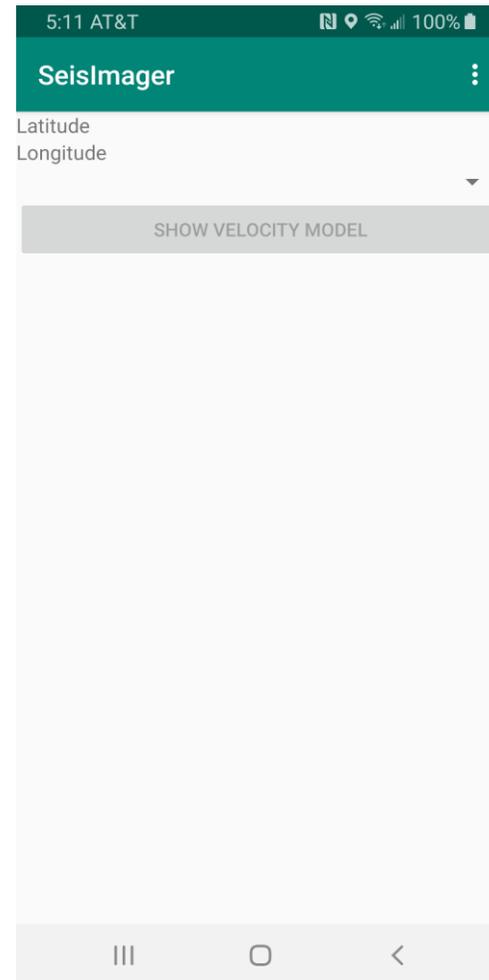
Show community velocity model at current position (1)

(only available at Japan and California (Bay Area and Los Angels))

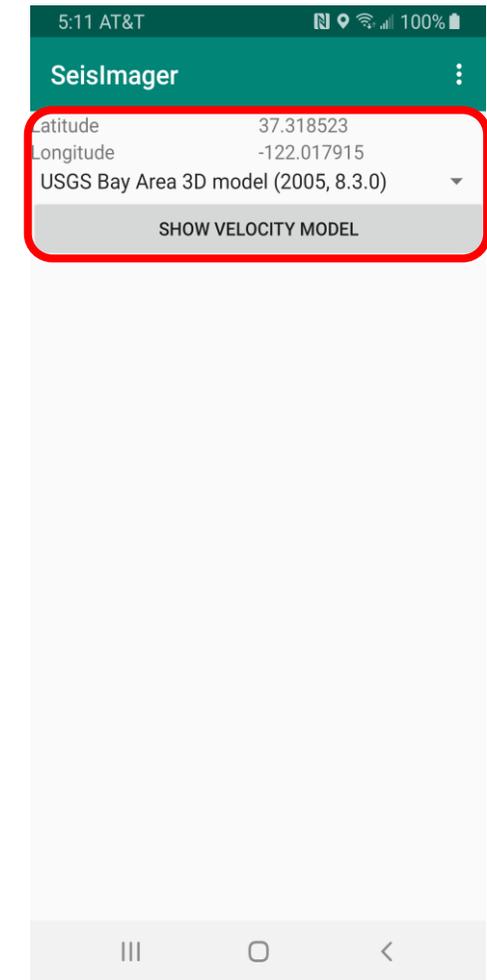
Tap "SHOW VELOCITY MODEL AT CURRENT POSITION"



Trying to lock GPS

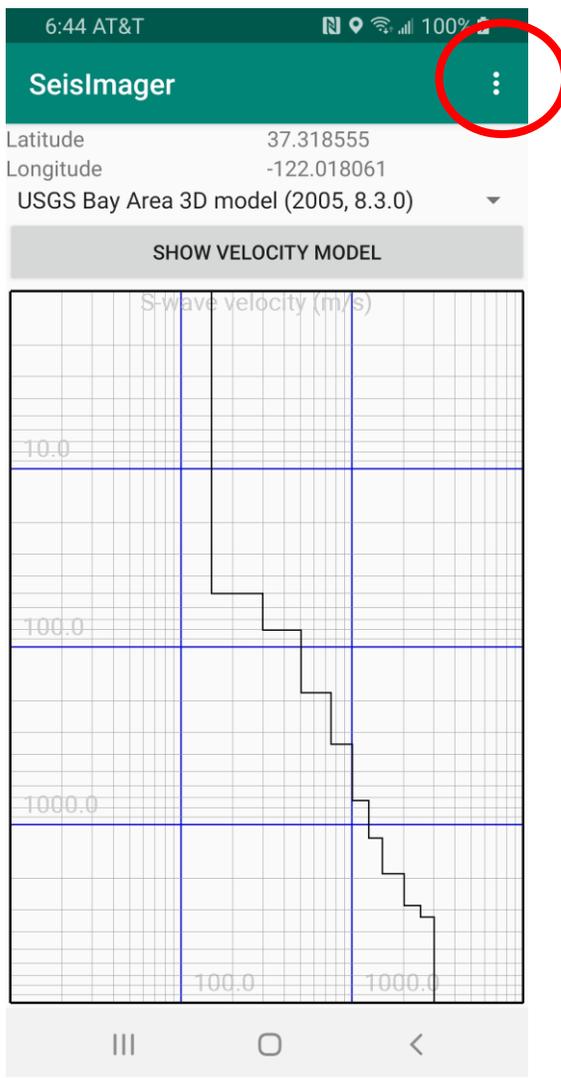


Locking GPS shows available community velocity models. Select model and tap "SHOW VELOCITY MODEL"

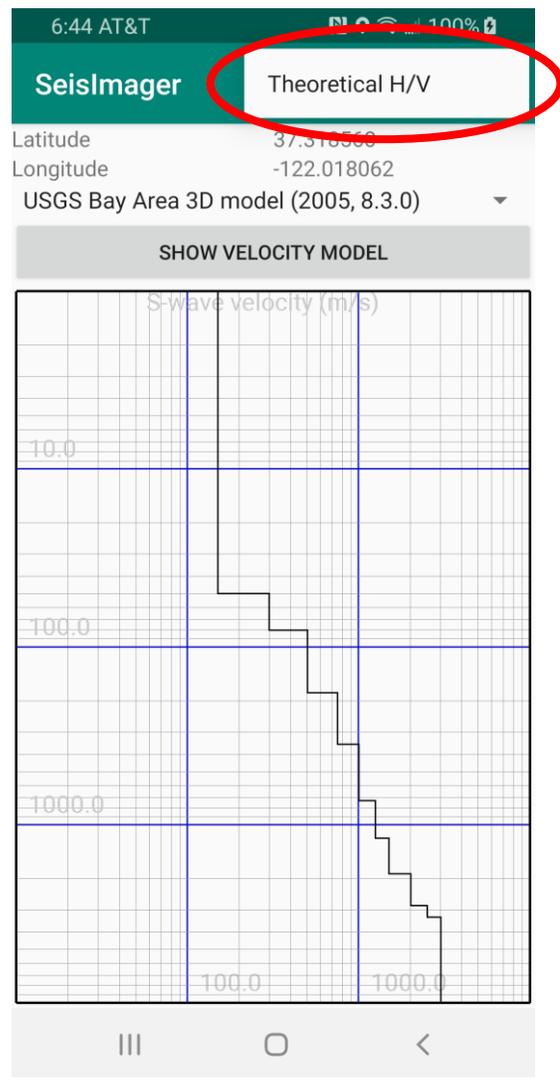


Show community velocity model at current position (2)

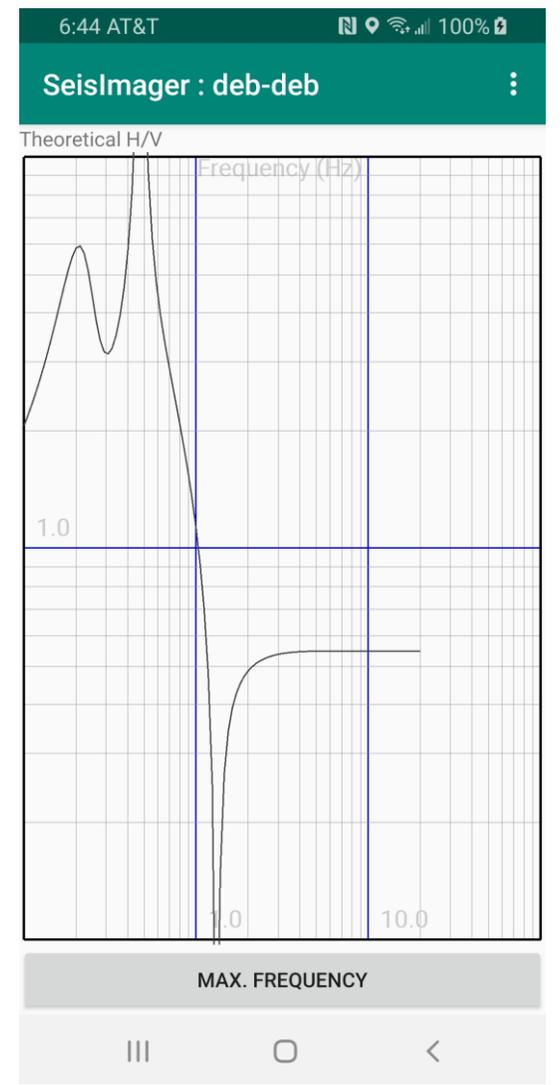
Velocity model appears



Select "Theoretical H/V" in option menu



Theoretical H/V appears



Show community velocity model at current position (if site is in Japan : 日本国内の場合)

