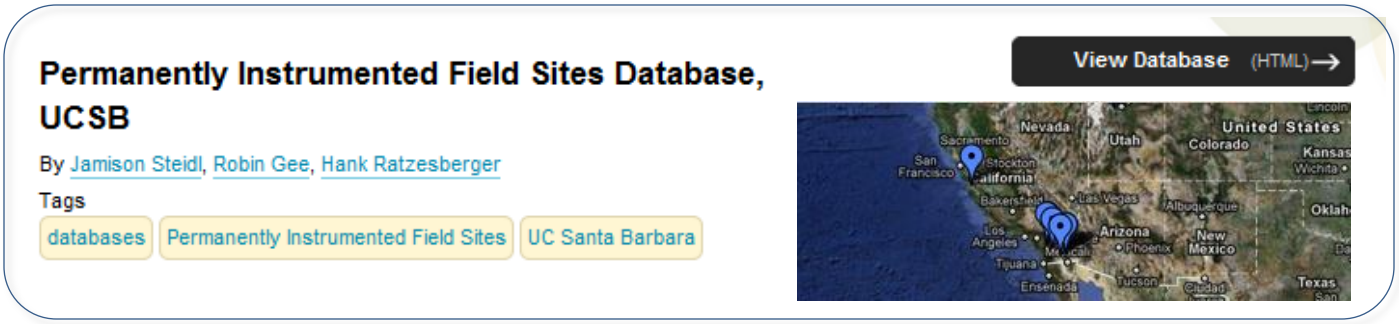


Search and Explore UCSB Field Sites Data in the Project Warehouse!

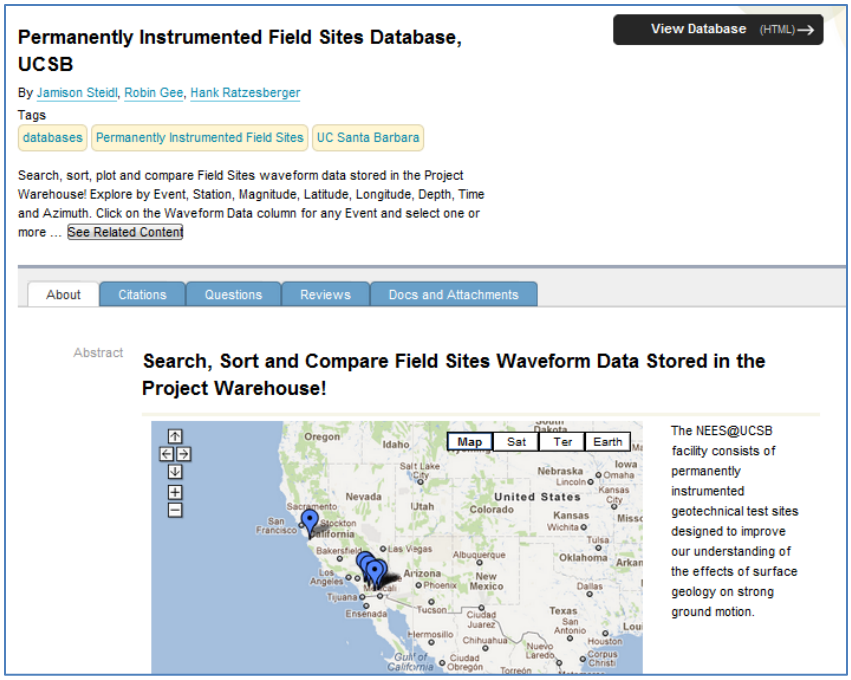
How can earthquake researchers find important answers from data in the Project Warehouse with just a few clicks? Let's see how by investigating the largest earthquake to hit Southern California in 18 years (El Mayor, magnitude 7.2).

Waveform data for this earthquake was captured by the University of California, Santa Barbara (UCSB) permanently instrumented geotechnical field sites, which include surface and borehole arrays of accelerometers and pore pressure transducers. UCSB has uploaded many hundreds of waveform data files to to the Project Warehouse at NEEShub, along with station, channel and events metadata.

- **How can we find the waveform data files for El Mayor?**

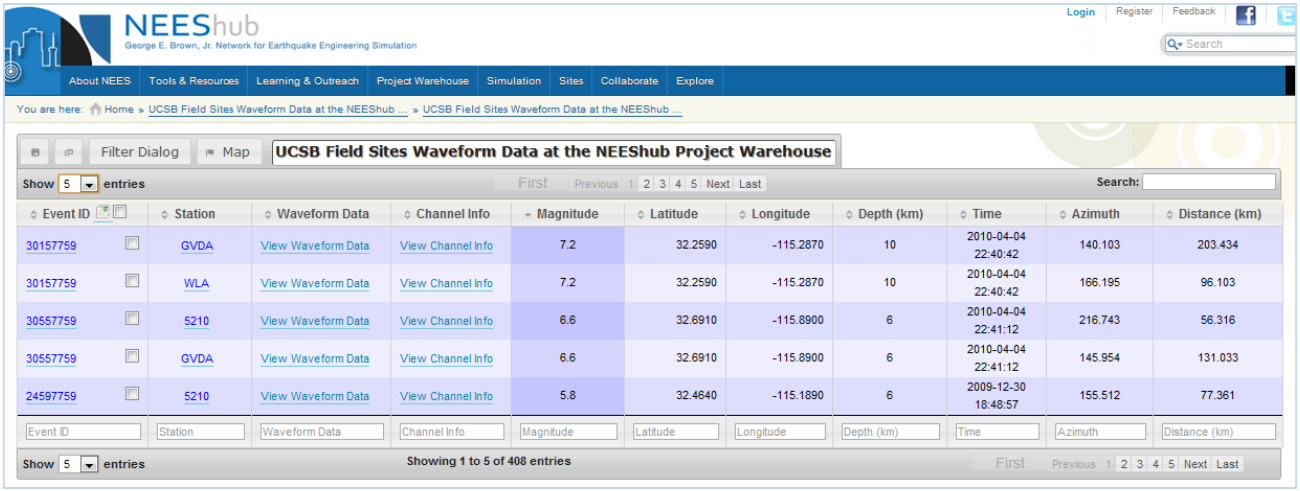
We also want to investigate:

- **Which UCSB stations recorded data for this earthquake?**
- **What are the instrument details** (sensor depth, serial number, channel calibrations)?
- **How can waveform data for this earthquake be downloaded, plotted, analyzed?**



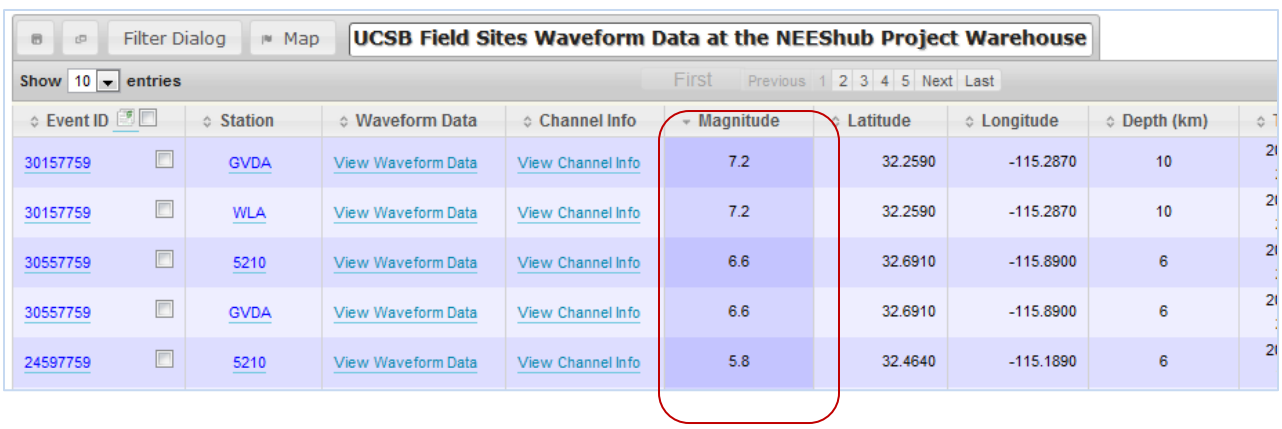
To investigate these questions (and more!) go to http://nees.org/resources/1696

Click on the View Database button.

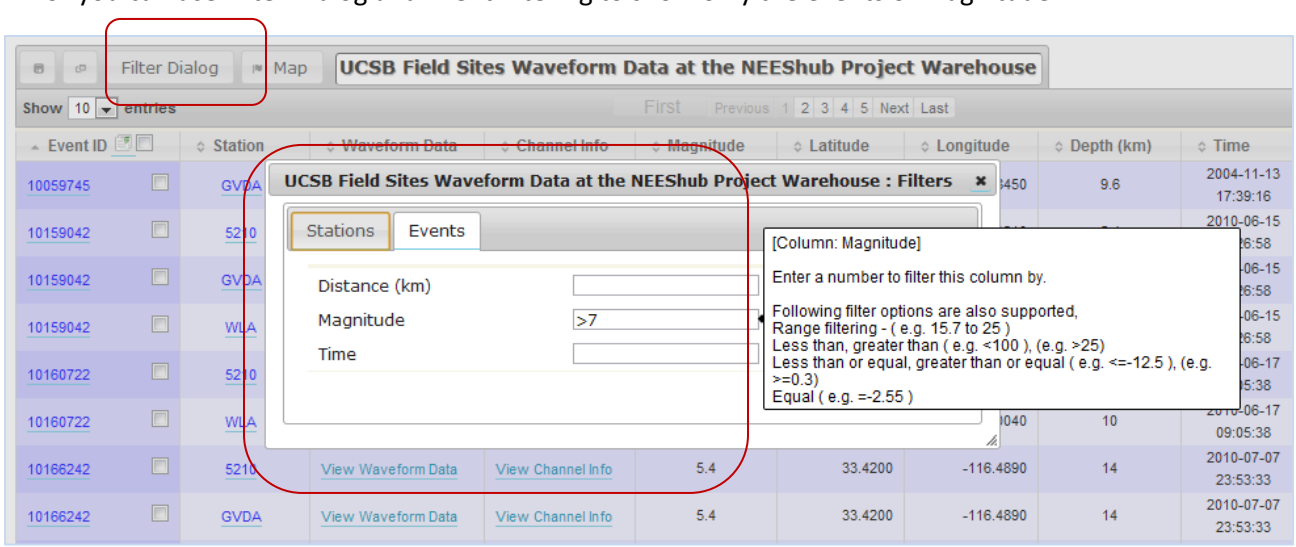


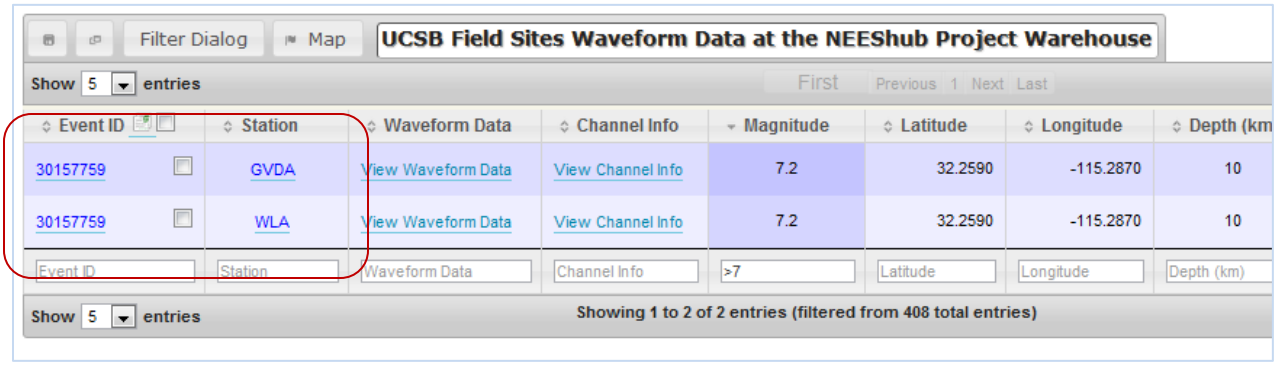
The data view shows you all Project Warehouse ground motion events uploaded from the UCSB field sites, with information about magnitude, location, time and azimuth for every captured event … along with drill down links to channel information and waveform data values.

You can find the largest magnitude earthquakes in *one click* by using the "sort arrow" at the top of the Magnitude column …



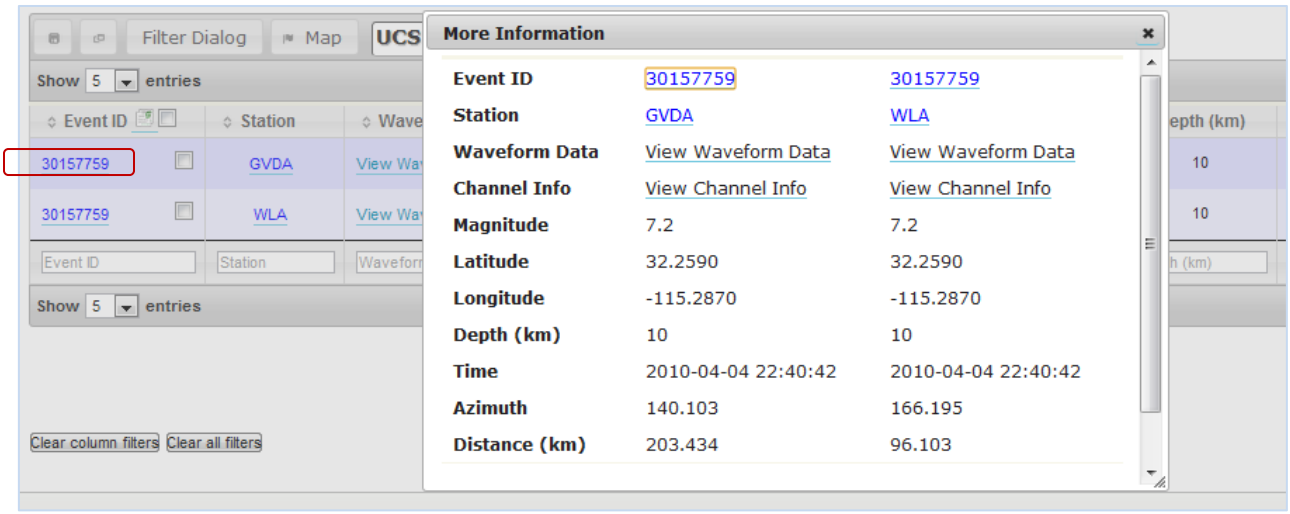
… or you can use Filter Dialog and Event filtering to show only the events of magnitude >7



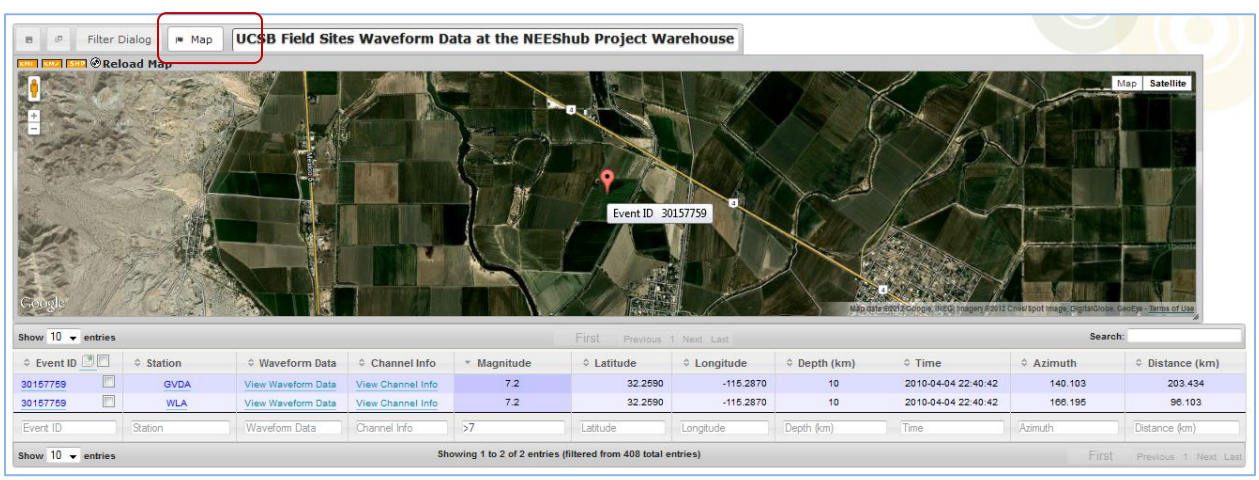


Note that two UCSB stations – GVDA and WLA – captured information about this event.

Click on the Event ID link for details about the event recorded at both stations:



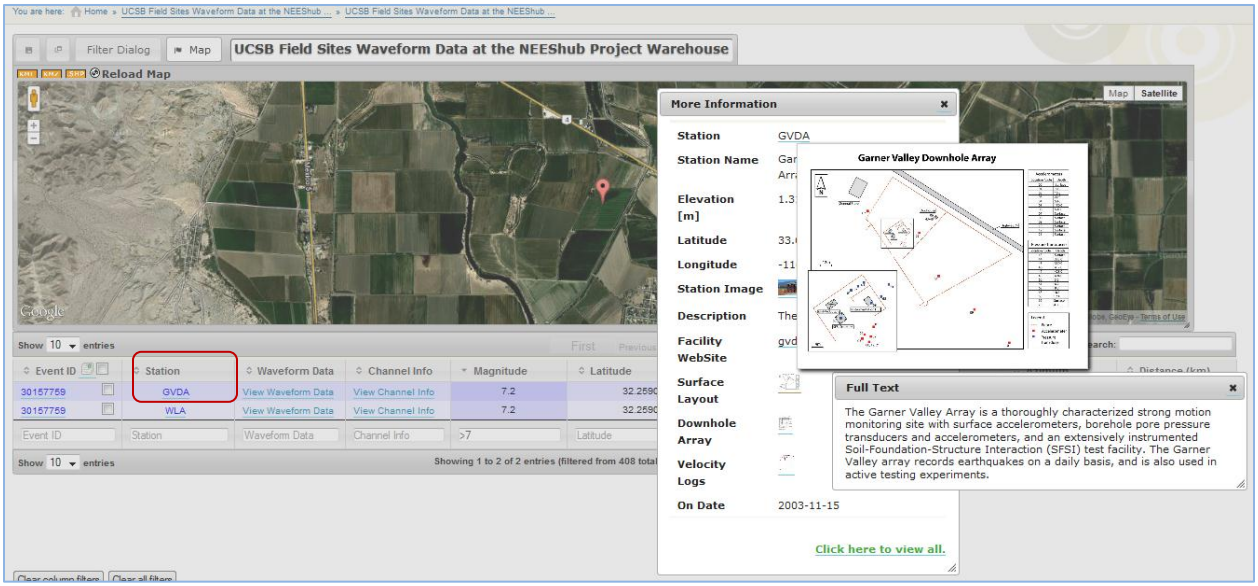
Click on the Map button:



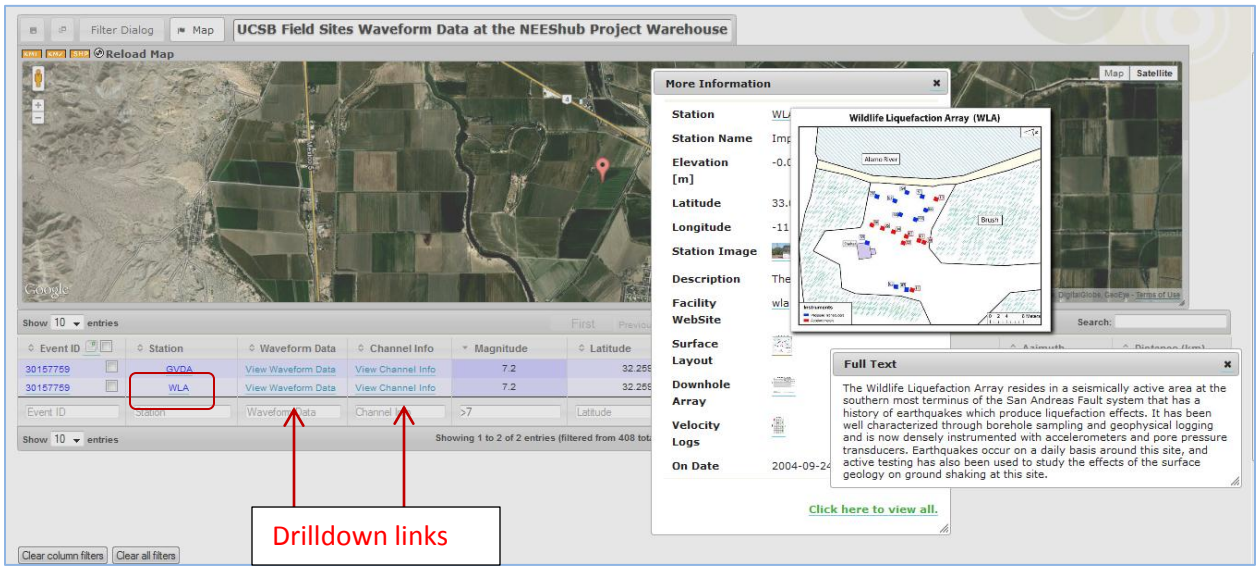
Note that geospatial data can be downloaded in KML, KMZ and SHP (ESRI compatible) formats.

To find out all available information about the stations, click on the station links:

GVDA:



WLA:



All the links for each information category are “live” … you can click to see the Facility Website and you can hover over the images to see the Station Image, the Surface Layout, the Downhole Array and the Velocity Logs. You can also use the Waveform and Channel Information links on the data view to drill down to the event data details.

To view the channel information for the GVDA station, click on View Channel Info. More than 12,000 channel metadata records are filtered for this earthquake event and the GVDA station, showing that 53 channels captured data. The database view displays every channel calibration constant and sensor serial number. Earthquake depth and units values are also shown.

UCSB Field Sites Events Channel Metadata

Show 10 entries — First Previous 1 2 3 4 5 Next Last — Search:

Id	Event Id	Station	Datalogger Id	Channel	Calibration Constant	Sensor Serial Number	Datalogger Serial Number	Depth (m)	Units
7	30157759	GVDA	GVA01	HNE_02	4671.2149	38283	519	15.0	nm/s/s
13	30157759	GVDA	GVA01	HNE_04	4651.5297	35627	519	50.0	nm/s/s
8	30157759	GVDA	GVA01	HNN_02	4659.3474	38283	519	15.0	nm/s/s
14	30157759	GVDA	GVA01	HNN_04	4653.3454	35627	519	50.0	nm/s/s
9	30157759	GVDA	GVA01	HNZ_02	4661.1692	38283	519	15.0	nm/s/s
15	30157759	GVDA	GVA01	HNZ_04	4698.7408	35627	519	50.0	nm/s/s
41	30157759	GVDA	GVA02	HDD_44	0.00032876737	709085	548	333.0	kPa
43	30157759	GVDA	GVA02	HDD_46	0.00032876737	709083	548	417.0	kPa
45	30157759	GVDA	GVA02	HDD_48	0.0016438142	700989	548	494.0	kPa
4	30157759	GVDA	GVA02	HNE_01	4656.6173	45529	548	6.0	nm/s/s
Id	30157759	GVDA	Datalogger Id	Channel	Calibration Constant	Sensor Serial Number	Datalogger Serial Number	Depth (m)	Units

Show 10 entries — Showing 1 to 10 of 53 entries — First Previous 1 2 3 4 5 Next Last

Clear column filters | Clear all filters

Calibration information for the WLA station:

UCSB Field Sites Events Channel Metadata

Show 10 entries — First Previous 1 2 3 4 Next Last — Search:

Id	Event Id	Station	Datalogger Id	Channel	Calibration Constant	Sensor Serial Number	Datalogger Serial Number	Depth (m)	Units
4486	30157759	WLA	WLA	HDD_60	7.3971892e-05	89184	518	2.6	kPa
4487	30157759	WLA	WLA	HDD_61	7.3971892e-05	89186	509	2.9	kPa
4488	30157759	WLA	WLA	HDD_62	7.3971892e-05	93641	482	3.3	kPa
4489	30157759	WLA	WLA	HDD_63	7.3971892e-05	89187	518	3.5	kPa
4490	30157759	WLA	WLA	HDD_64	7.3971892e-05	93459	509	4.4	kPa
4491	30157759	WLA	WLA	HDD_65	7.3971892e-05	89182	482	4.7	kPa
4492	30157759	WLA	WLA	HDD_66	7.3971892e-05	93447	509	6.2	kPa
4493	30157759	WLA	WLA	HDD_67	7.3971892e-05	85854	518	6.2	kPa
4495	30157759	WLA	WLA	HDD_70	0.00014794838	307157	527	4.3	kPa
4494	30157759	WLA	WLA	HDO_69	6.575438e-05	307156	482	.0	kPa
Id	30157759	WLA	Datalogger Id	Channel	Calibration Constant	Sensor Serial Number	Datalogger Serial Number	Depth (m)	Units

Show 10 entries — Showing 1 to 10 of 37 entries — First Previous 1 2 3 4 Next Last

Clear column filters | Clear all filters

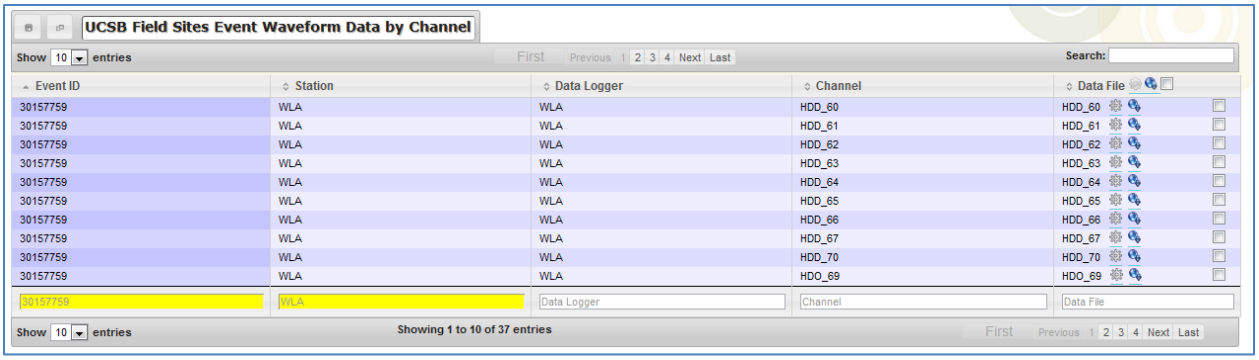
Use “Show All” to see information for all 37 channels for station WLA for this event.

UCSB Field Sites Events Channel Metadata

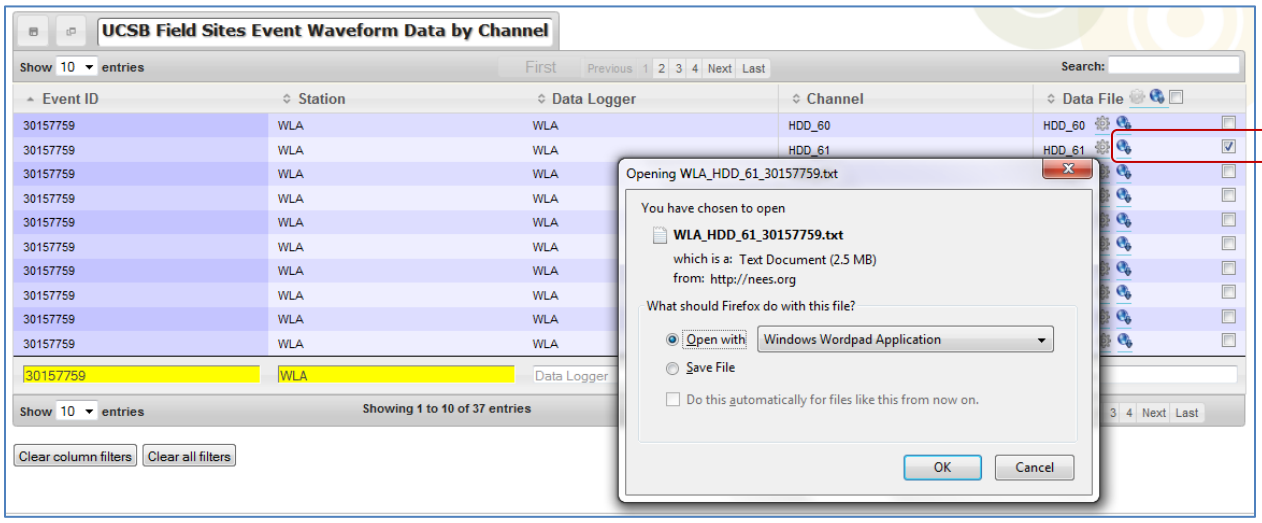
Show All entries — First Previous Next Last — Search:

Id	Event Id	Station	Datalogger Id	Channel	Calibration Constant	Sensor Serial Number	Datalogger Serial Number	Depth (m)	Units
4486	30157759	WLA	WLA	HDD_60	7.3971892e-05	89184	518	2.6	kPa
4487	30157759	WLA	WLA	HDD_61	7.3971892e-05	89186	509	2.9	kPa
4488	30157759	WLA	WLA	HDD_62	7.3971892e-05	93641	482	3.3	kPa
4489	30157759	WLA	WLA	HDD_63	7.3971892e-05	89187	518	3.5	kPa
4490	30157759	WLA	WLA	HDD_64	7.3971892e-05	93459	509	4.4	kPa
4491	30157759	WLA	WLA	HDD_65	7.3971892e-05	89182	482	4.7	kPa
4492	30157759	WLA	WLA	HDD_66	7.3971892e-05	93447	509	6.2	kPa
4493	30157759	WLA	WLA	HDD_67	7.3971892e-05	85854	518	6.2	kPa
4495	30157759	WLA	WLA	HDD_70	0.00014794838	307157	527	4.3	kPa
4494	30157759	WLA	WLA	HDO_69	6.575438e-05	307156	482	.0	kPa
4459	30157759	WLA	WLA	HNE_00	2338.0811	1457	501	.0	cm/s/s
4462	30157759	WLA	WLA	HNE_01	2352.1982	185	482	2.5	cm/s/s
4465	30157759	WLA	WLA	HNE_02	2348.1903	240	508	5.5	cm/s/s
4468	30157759	WLA	WLA	HNE_03	2349.8335	241	508	5.5	cm/s/s
4471	30157759	WLA	WLA	HNE_04	2343.7122	184	536	7.7	cm/s/s
4474	30157759	WLA	WLA	HNE_05	2339.251	186	536	30.0	cm/s/s
4477	30157759	WLA	WLA	HNE_06	2344.1961	182	501	100.0	cm/s/s
4480	30157759	WLA	WLA	HNE_10	2338.0811	1456	509	.0	cm/s/s
4483	30157759	WLA	WLA	HNE_11	2338.0811	1458	518	.0	cm/s/s
4460	30157759	WLA	WLA	HNN_00	2338.0811	1457	501	.0	cm/s/s
4463	30157759	WLA	WLA	HNN_01	2347.4736	185	482	2.5	cm/s/s
4466	30157759	WLA	WLA	HNN_02	2348.4216	240	508	5.5	cm/s/s
4469	30157759	WLA	WLA	HNN_03	2349.3704	241	508	5.5	cm/s/s
4472	30157759	WLA	WLA	HNN_04	2340.1925	184	536	7.7	cm/s/s
4475	30157759	WLA	WLA	HNN_05	2344.8877	186	536	30.0	cm/s/s
4478	30157759	WLA	WLA	HNN_06	2349.6019	182	501	100.0	cm/s/s
4481	30157759	WLA	WLA	HNN_10	2338.0811	1456	509	.0	cm/s/s

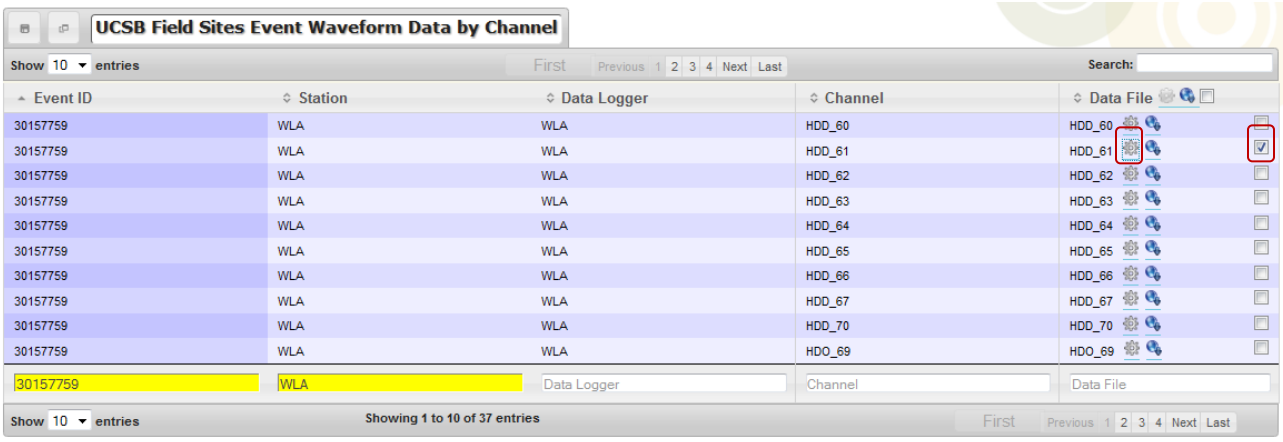
Click on “View Waveform Data” for access to the waveform data files for download, plotting and analysis. This data view is filtered on this earthquake for the WLA station, and shows the 37 waveform data files are available for plotting and download.

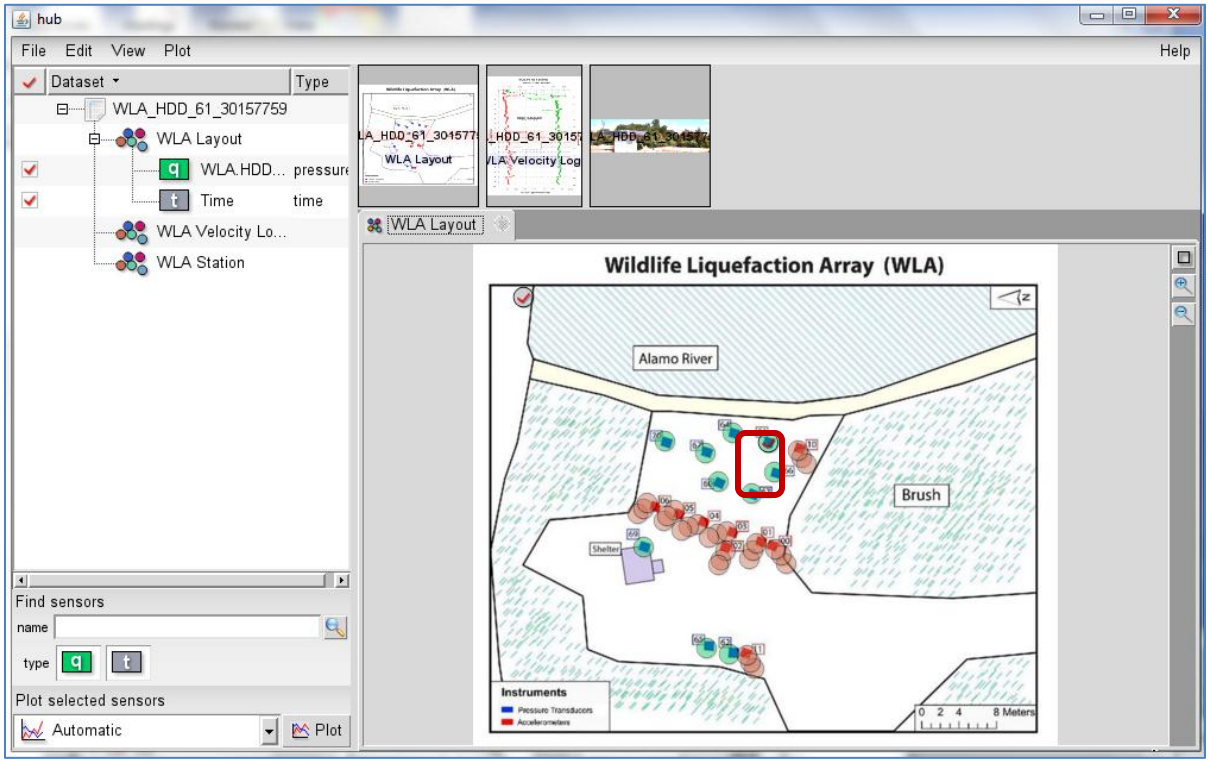


Download one or more waveform files by selecting one or more files to download and clicking on the download icon:

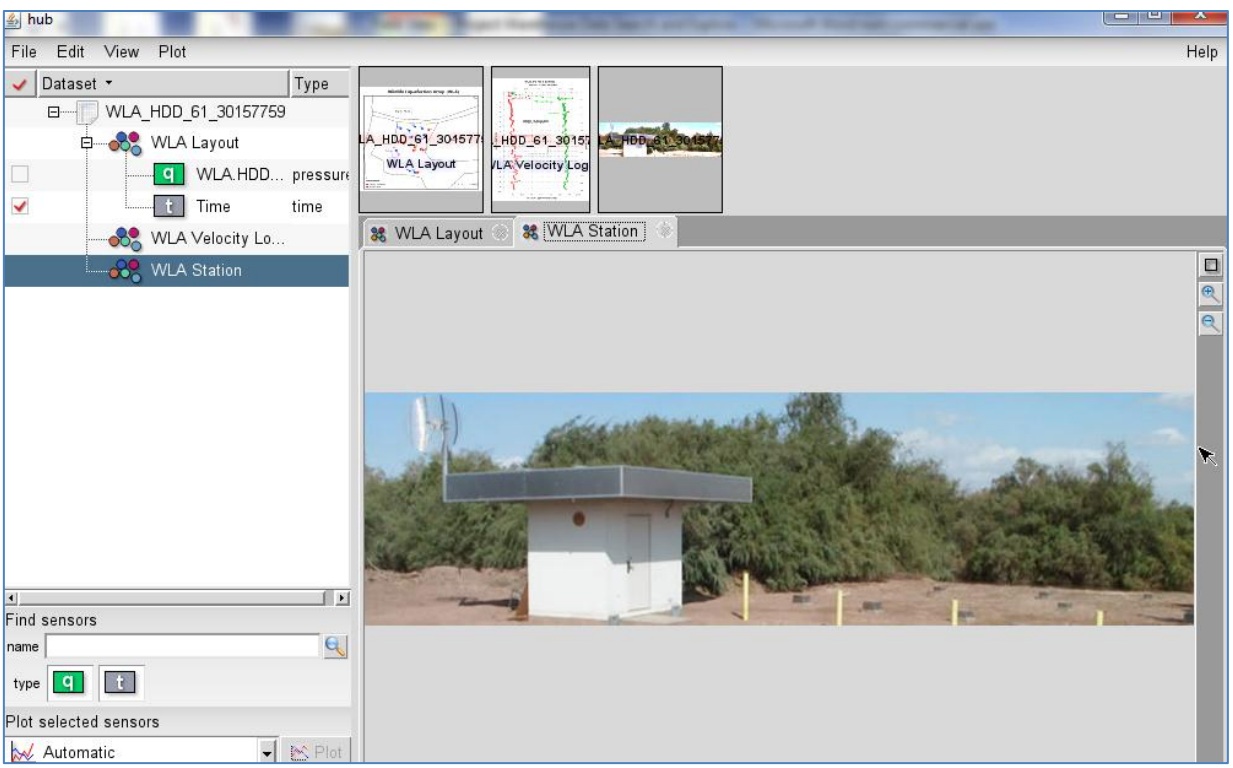


Launch inDEED to plot the waveform data by selecting one or more files to plot and clicking on the plot icon:

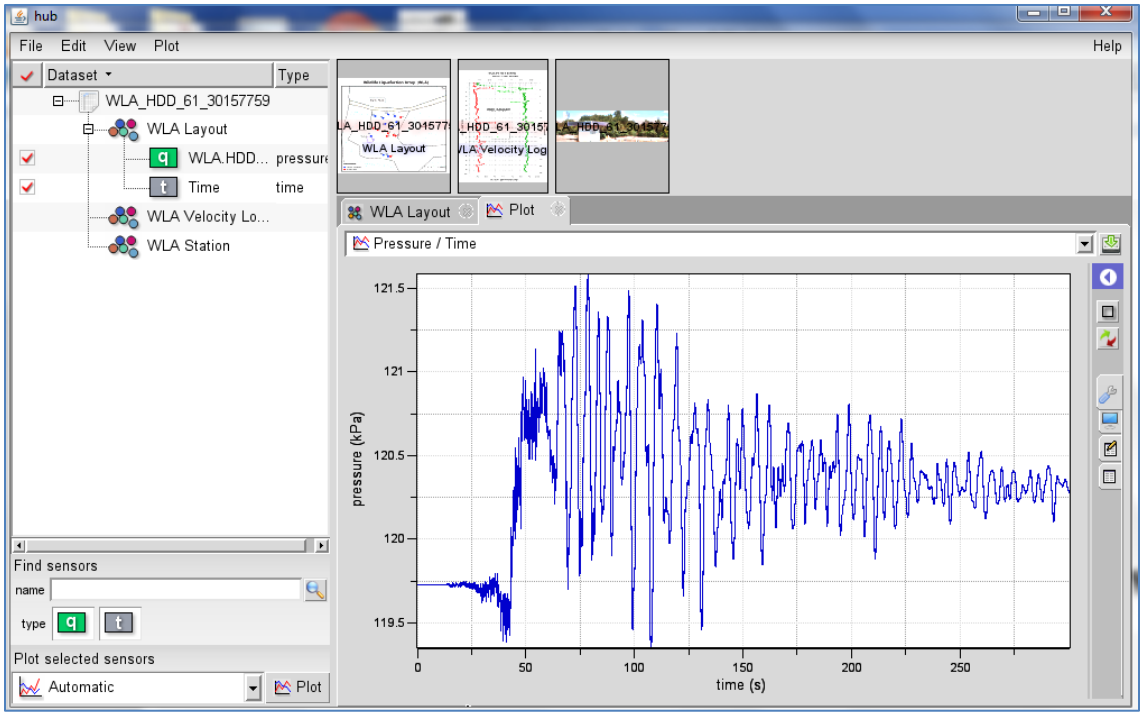




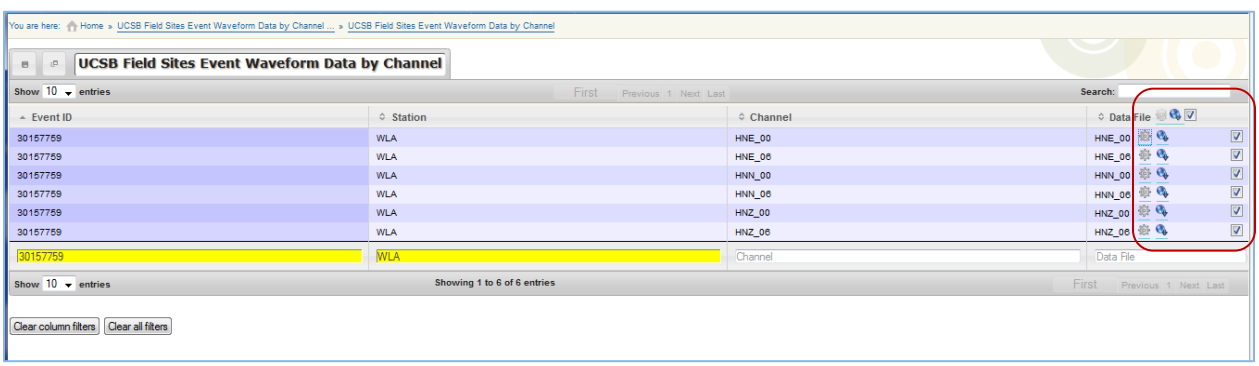
The sensor layout for all stations is available to inDEED for selection of sensors. Only the sensors selected in the data view are available for plotting – in this case, HDD_61 at WLA. You can also view the station image and velocity logs from inDEED.

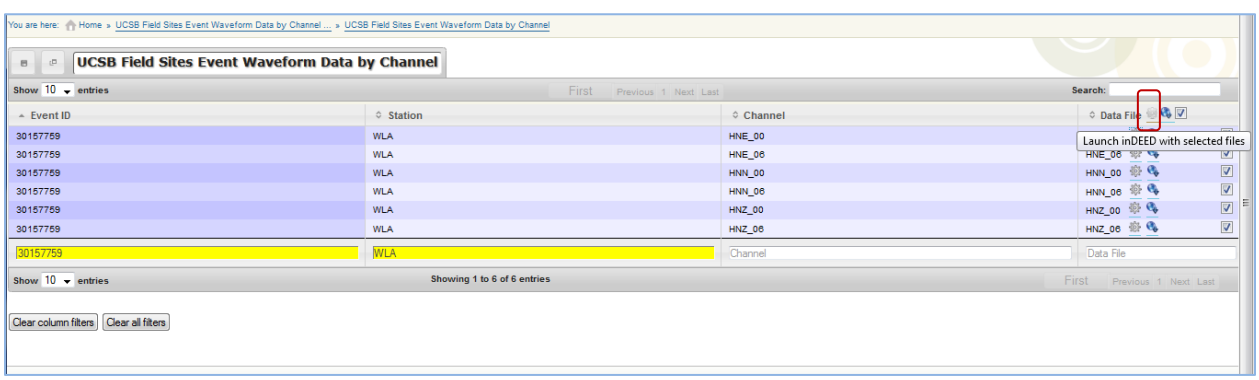


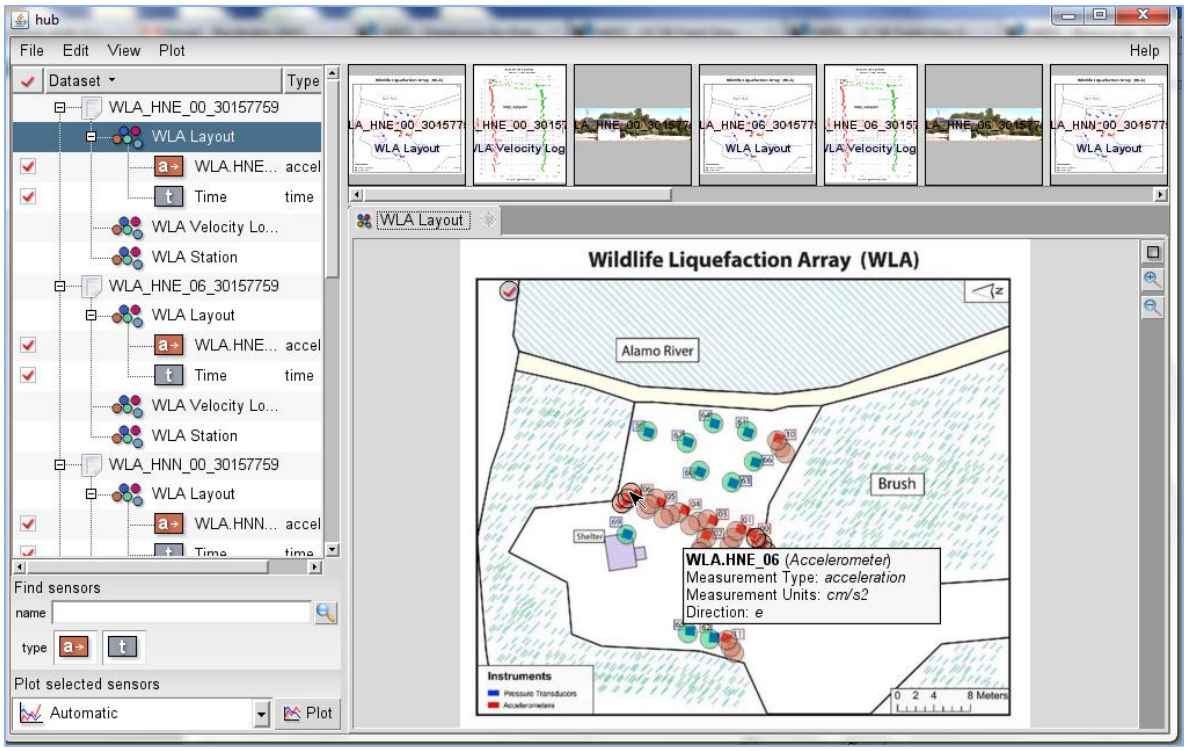
You can select the sensor from the diagram or from the legend – then plot.



You can select any number of sensors for launching inDEED (including select all), and all the visualization and analysis features of inDEED are available for the selected sensors.



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Alamo River
Brush
Shelter
WLA.HNE_06 (Accelerometer)
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Measurement Units: cm/s2
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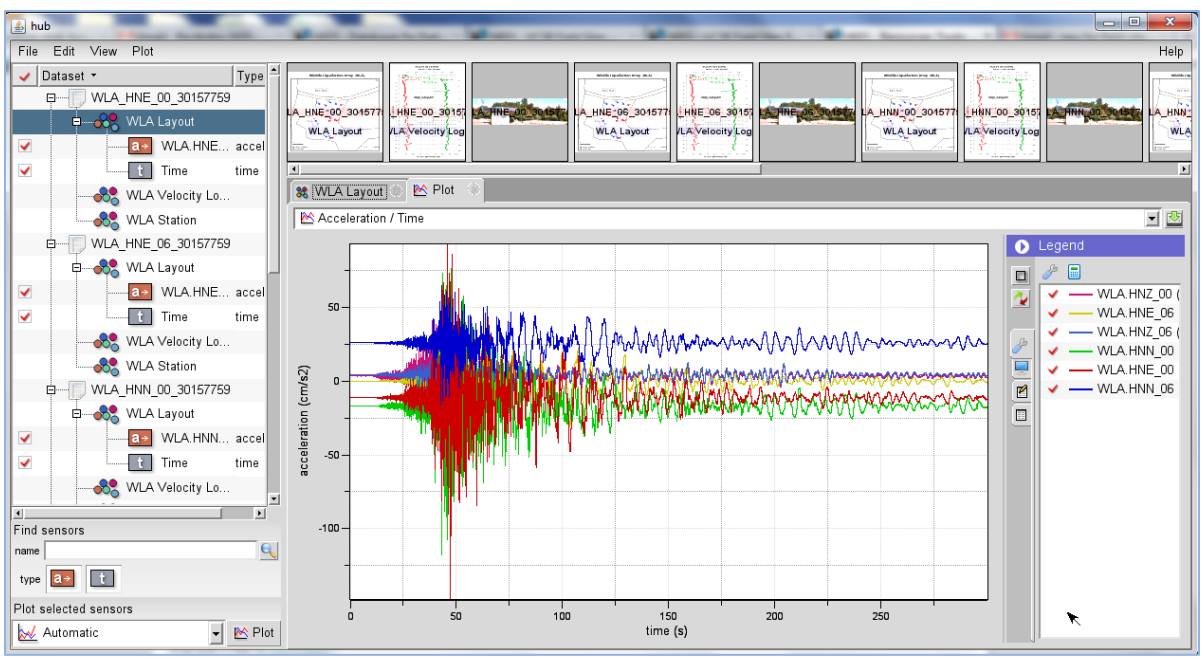
Pressure Transducers
Accelerometers
0 2 4 8 Meters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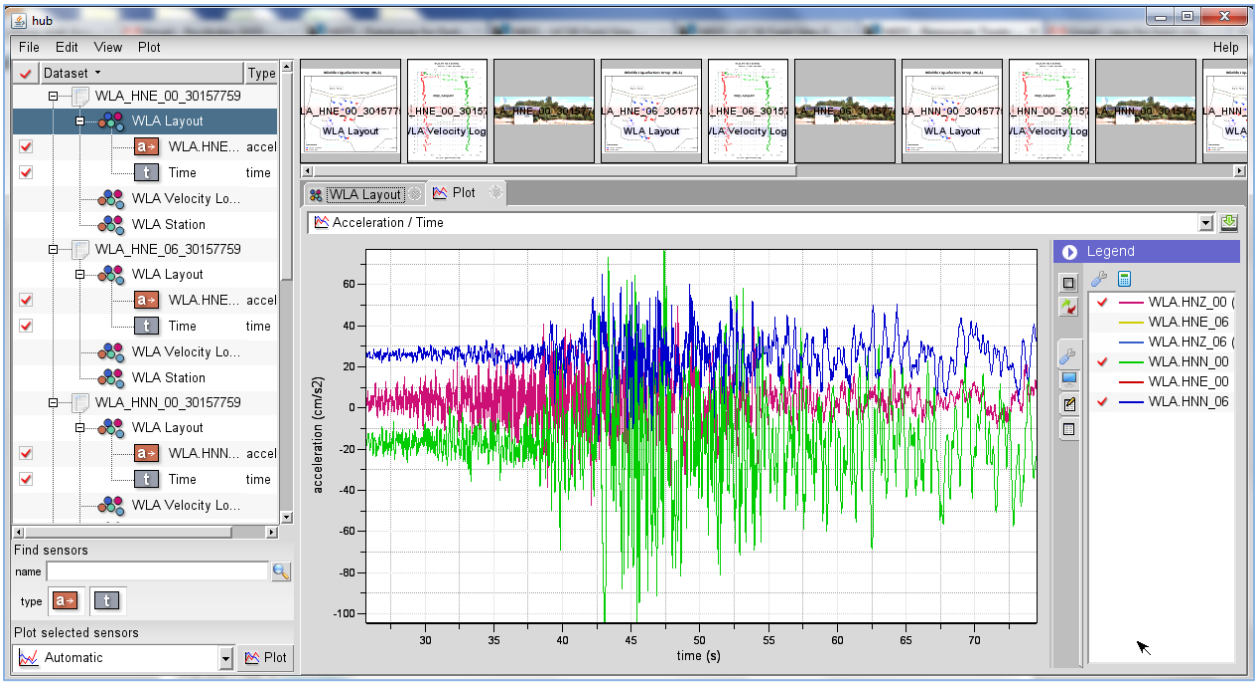
WLA.HNE_00
WLA.HNN_06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time (s)
Legend
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WLA.HNZ_06
WLA.HNN_00
WLA.HNE_00
WLA.HNN_06