

AE monitoring of CNL's (formerly AECL) TSX experiment: concrete bulkhead



Microseismic Geomechanics: Increased understanding; reduced risk

- InSite™ Lite is the free version of Itasca Consulting Ltd.'s InSite Seismic Processing software suite, provided with limited functionality and features.
- The examples shown here are taken from ICL and its partners projects.
- InSite's proprietary project (*.pcf) files contain all the configuration, event information and links to waveforms necessary to run a project in InSite. Double-clicking on the .pcf project file launches the InSite software application.
- The InSite project waveform data (*.esf) files include the results from the data processing. These files are imported for the project (.pcf file) through the data import management tool in InSite. Please note that not all of the available example projects are provided with example waveform data.
- For information on the operation of the InSite software, please refer to the product help files.
- For information on purchasing the full version of the InSite software, please contact us at support@itasca.co.uk

- This example uses AE location data without waveforms. It is designed to give the user an overview of the Location Visualiser and analysis functionality. As no waveform data is provided with this example, data processing is not possible.
- The data is from the concrete bulkhead of CNL's (formerly AECL) TSX experiment.
- The AE imaged the creation of a fracture. This imaging was influential in allowing successful remedial work to be undertaken.
- The following slides give you some options to try in the software.

It's a good idea to ...

... run through the “SKB Prototype” demo presentation first as this gives a more thorough overview of the Location Visualiser.

Navigation: Data Visualiser

InSite-Lite (x64) - tsxaeconc_20100309

File View Project Tools Events Export Help

Global Button Bar

2 Components Loaded

Name	Enab...	Date	Time	NE	NL
concre...	✓	16-09-1...	08:25:...	41...	418
fault	✓	23-09-1...	20:12:...	11...	116

1164 Events Loaded from Component fault

Type	Num...	Date	Time	LocalTime
Ev...	0001	23-09-1...	20:12:41.0000...	20:12:41.0000
Ev...	0002	23-09-1...	20:28:13.0000...	20:28:13.0000
Ev...	0003	23-09-1...	20:37:33.0000...	20:37:33.0000
Ev...	0004	23-09-1...	20:41:09.0000...	20:41:09.0000
Ev...	0005	23-09-1...	20:42:07.0000...	20:42:07.0000
Ev...	0006	23-09-1...	20:54:06.0000...	20:54:06.0000
		23-09-1...	20:56:57.0000...	20:56:57.0000
		23-09-1...	21:19:35.0000...	21:19:35.0000
		23-09-1...	21:20:49.0000...	21:20:49.0000
		23-09-1...	21:22:32.0000...	21:22:32.0000
		23-09-1...	21:35:43.0000...	21:35:43.0000
		23-09-1...	21:43:36.0000...	21:43:36.0000
		23-09-1...	21:57:12.0000...	21:57:12.0000
		23-09-1...	21:57:45.0000...	21:57:45.0000
		23-09-1...	22:09:02.0000...	22:09:02.0000
		23-09-1...	22:16:21.0000...	22:16:21.0000
		23-09-1...	22:17:00.0000...	22:17:00.0000
		23-09-1...	22:28:28.0000...	22:28:28.0000
		23-09-1...	22:28:48.0000...	22:28:48.0000
		23-09-1...	22:31:49.0000...	22:31:49.0000...
		23-09-1...	22:34:44.0000...	22:34:44.0000...
		23-09-1...	22:37:33.0000...	22:37:33.0000...
		23-09-1...	22:39:20.0000...	22:39:20.0000...
		23-09-1...	22:45:31.0000...	22:45:31.0000...
		23-09-1...	22:56:48.0000...	22:56:48.0000...
		23-09-1...	22:57:29.0000...	22:57:29.0000...

Data Visualiser

Setup

Waveforms

Waveform-Moveout

3D Visualiser

Mechanisms

Stream

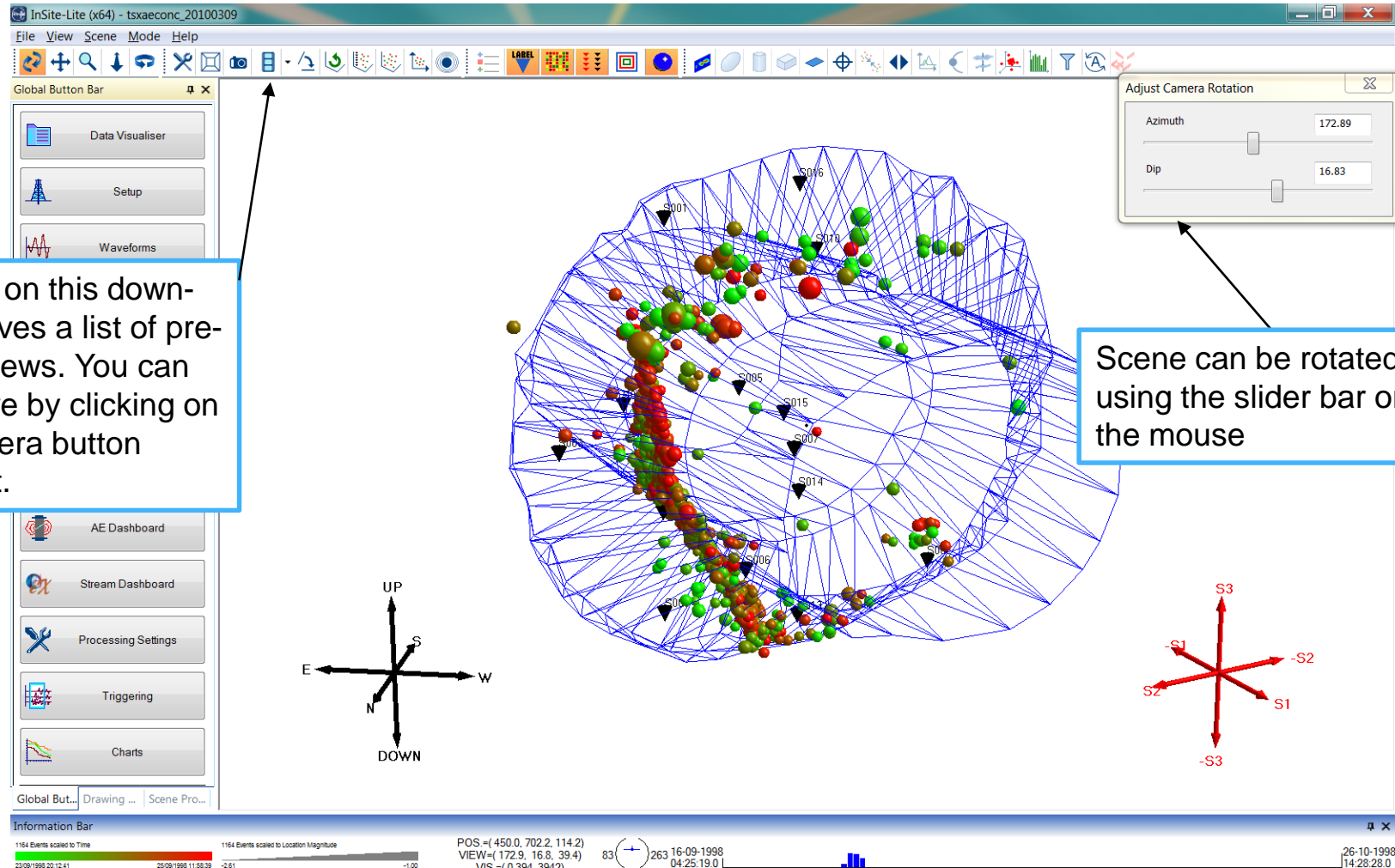
AE Dashboard

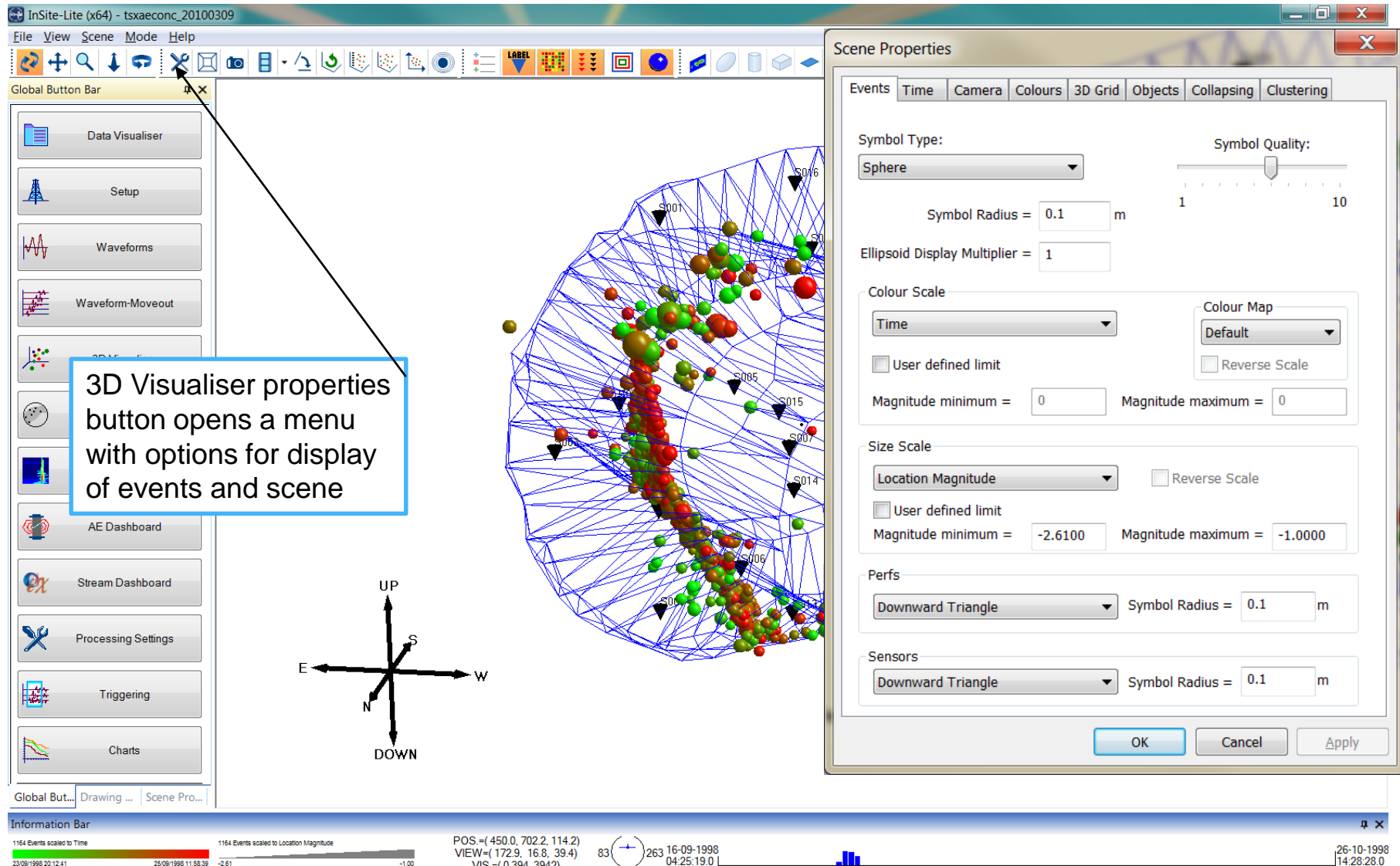
Stream Dashboard

The InSite Global Button Bar allows you to switch between the available visualisers. Try going to the 3D Visualiser. The other visualisers will be empty as no data exists for them in this project.

InSite's default view is the 'Data Visualiser', showing a catalogue of all Seismic/MS/AE events imported or processed within the project

The example has already imported the geometry of the bulkhead, created as a dxf file. InSite's 3D visualiser allows displaying the events with different colour and sizes scales in a 3D scene.





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File View Scene Mode Help

Global Button Bar

- Data Visualiser
- Setup
- Waveforms
- Waveform-Moveout
- 3D Visualiser
- AE Dashboard
- Stream Dashboard
- Processing Settings
- Triggering
- Charts

3D Visualiser properties button opens a menu with options for display of events and scene

UP
S
E
W
N
DOWN

Scene Properties

Events Time Camera Colours 3D Grid Objects Collapsing Clustering

Symbol Type: Sphere Symbol Quality: 1 to 10

Symbol Radius = 0.1 m

Ellipsoid Display Multiplier = 1

Colour Scale: Time Colour Map: Default

☐ User defined limit ☐ Reverse Scale

Magnitude minimum = 0 Magnitude maximum = 0

Size Scale: Location Magnitude ☐ Reverse Scale

☐ User defined limit

Magnitude minimum = -2.6100 Magnitude maximum = -1.0000

Perfs: Downward Triangle Symbol Radius = 0.1 m

Sensors: Downward Triangle Symbol Radius = 0.1 m

OK Cancel Apply

Information Bar

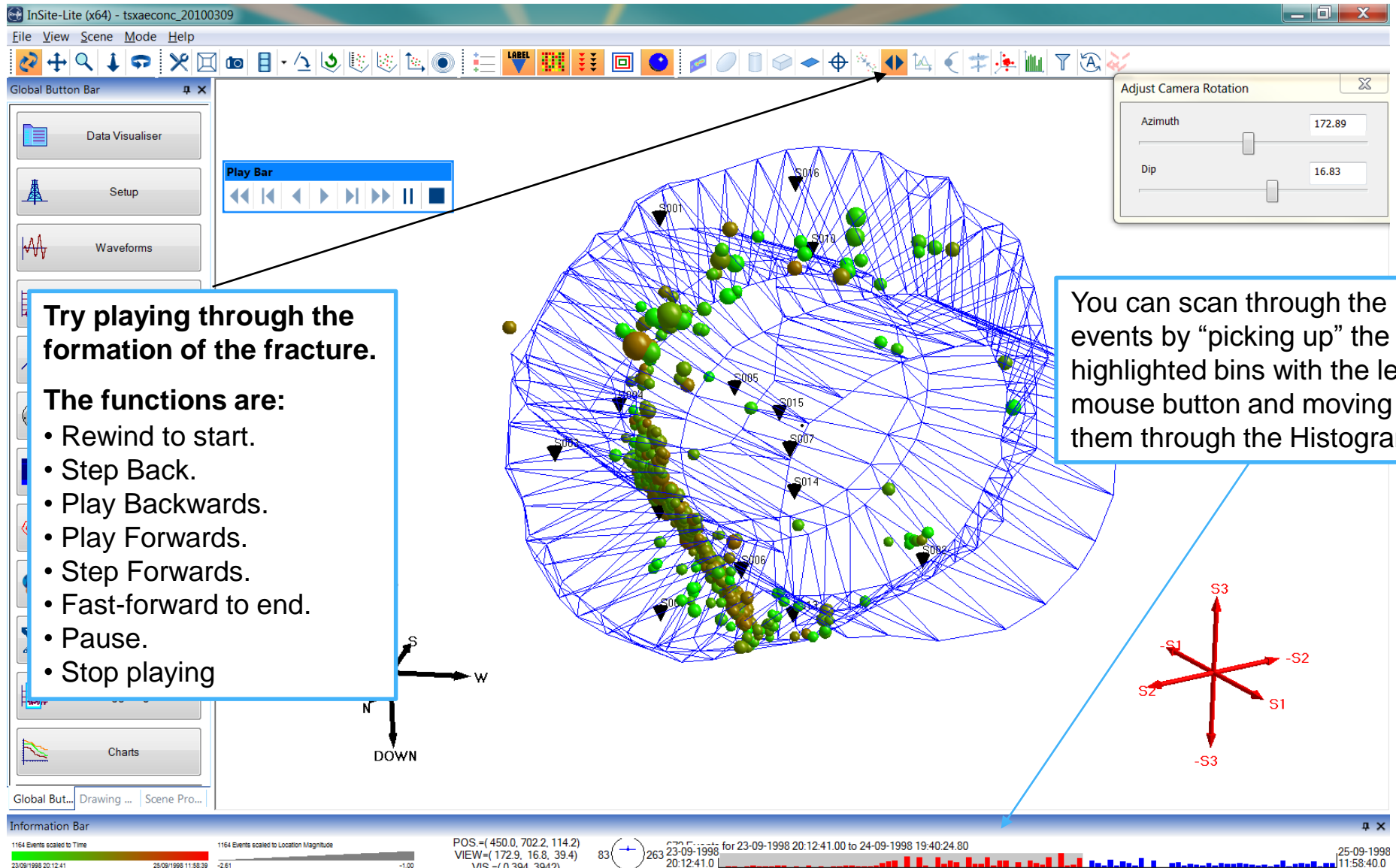
1164 Events scaled to Time 1164 Events scaled to Location Magnitude

23/09/1998 20:12:41 25/09/1998 11:58:39 -2.61 -1.00

POS.=(450.0, 702.2, 114.2)
VIEW=(172.9, 16.8, 39.4)
V/S =/ / 30.4 30.4 30.4

83 (+) 263 16-09-1998 04:25:19.0

26-10-1998 14:28:28.0



A customised plane can be inserted to better delineate observed features.

Full version allows inserting other objects such as boxes, cylinders and ellipsoids

